
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

**FORM F-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

BRAZIL POTASH CORP.

(Exact name of Registrant as specified in its charter)

Ontario, Canada
(State or other jurisdiction of
incorporation or organization)

1400
(Primary Standard Industrial Classification
Code Number)

Not Applicable
(I.R.S. Employer
Identification No.)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act of 1933, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act of 1933, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the Registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933.

Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards[†] provided pursuant to Section 7(a)(2)(B) of the Securities Act of 1933.

[†] The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the U.S. Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the U.S. Securities and Exchange Commission is declared effective. This preliminary prospectus is not an offer to sell these securities, nor a solicitation of an offer to buy these securities, in any jurisdiction where the offer, solicitation, or sale is not permitted.

SUBJECT TO COMPLETION, DATED AUGUST 20, 2024

PRELIMINARY PROSPECTUS



**BRAZIL
POTASH**

BRAZIL POTASH CORP.

Common Shares

This is the initial public offering of our common shares, no par value per share (which we refer to as our “Common Shares”). We are offering Common Shares. We currently expect the initial public offering price of our Common Shares to be between \$ and \$ per Common Share.

Prior to this offering, there has been no public market for our Common Shares. We intend to apply for the listing of our Common Shares on the New York Stock Exchange under the symbol “GRO”.

We are existing under the laws of the Province of Ontario, Canada. We are also an “emerging growth company” and a “foreign private issuer”, as defined under applicable U.S. federal securities laws, and are eligible for reduced public company reporting requirements. See “Prospectus Summary—Implications of Being an Emerging Growth Company and a Foreign Private Issuer.”

Investing in our Common Shares involves a high degree of risk. Before buying any Common Shares, you should carefully read the discussion of material risks of investing in our Common Shares under the section entitled “[Risk Factors](#)” beginning on page 26 of this prospectus.

Neither the U.S. Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	<u>Per Common Share</u>	<u>Total</u>
Initial public offering price	\$	\$
Underwriting discounts and commissions ⁽¹⁾	\$	\$
Proceeds to us (before expenses) ⁽²⁾	\$	\$.

⁽¹⁾ We have also agreed to issue to the underwriters warrants exercisable for the number of our Common Shares equal to 5% of the total number of Common Shares sold in this offering (which we refer to as the “Underwriters’ Warrants”). See “Underwriting” for additional information regarding underwriting discounts and commissions, expenses, and other compensation payable to the underwriters.

⁽²⁾ The proceeds to us (before expenses) presented in this table does not give effect to any exercise by the underwriters of (i) the option we have granted to the underwriters to purchase additional Common Shares from us as described below, or (ii) the Underwriters’ Warrants.

We have granted the underwriters an option to purchase up to additional Common Shares from us at the public offering price, less the underwriting discounts and commissions, for a period of 30 days from the date of this prospectus to cover over-allotments, if any.

The underwriters expect to deliver the Common Shares to purchasers on or about , 2024.

**Cantor
Freedom Capital Markets**

**Bradesco BBI
Roth Capital Partners**

Clarksons Securities

The date of this prospectus is , 2024.

TABLE OF CONTENTS

	<u>Page</u>
ABOUT THIS PROSPECTUS	ii
CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS	iv
PROSPECTUS SUMMARY	1
RISK FACTORS	26
USE OF PROCEEDS	54
DIVIDEND POLICY	57
CAPITALIZATION	58
DILUTION	59
SELECTED CONSOLIDATED FINANCIAL INFORMATION	62
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS	64
BUSINESS	83
DESCRIPTION OF THE AUTAZES PROJECT AND THE AUTAZES PROPERTY	111
MANAGEMENT	127
EXECUTIVE AND DIRECTOR COMPENSATION	139
PRINCIPAL SHAREHOLDERS	155
CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS	157
DESCRIPTION OF OUR SHARE CAPITAL	160
SHARES ELIGIBLE FOR FUTURE SALE	170
CERTAIN U.S. FEDERAL INCOME TAX CONSIDERATIONS	173
UNDERWRITING	180
EXPENSES RELATED TO THE OFFERING	193
LEGAL MATTERS	194
EXPERTS	195
ENFORCEABILITY OF CIVIL LIABILITIES	196
WHERE YOU CAN FIND ADDITIONAL INFORMATION	196
INDEX TO FINANCIAL STATEMENTS	F-1
ANNEX – GLOSSARY OF TECHNICAL TERMS	A-1

You should rely only on the information contained in this prospectus and any free writing prospectus prepared by us. Neither we nor the underwriters have authorized anyone to provide you with information that is different, and neither we nor the underwriters take any responsibility for, or provide any assurance as to the reliability of, any information, other than the information in this prospectus and any free writing prospectus prepared by us. We are offering to sell our Common Shares, and seeking offers to buy our Common Shares, only in jurisdictions where such offers and sales are permitted. This prospectus is not an offer to sell, or a solicitation of an offer to buy, our Common Shares in any jurisdictions where, or under any circumstances under which, the offer, sale, or solicitation is not permitted. The information in this prospectus and in any free writing prospectus prepared by us is accurate only as of the date on its respective cover, regardless of the time of delivery of this prospectus or any free writing prospectus or the time of any sale of our Common Shares. Our business, results of operations, financial condition, or prospects may have changed since those dates. Except as required by law, we do not undertake any obligation to update or revise, or to publicly announce any update or revision to, any of the forward-looking statements in this prospectus, whether as a result of new information, future events or otherwise, after the date of this prospectus.

Before you invest in our Common Shares, you should read the registration statement (including the exhibits thereto and the documents incorporated by reference therein) of which this prospectus forms a part.

ABOUT THIS PROSPECTUS

As used in this prospectus, unless the context otherwise requires or otherwise states, references to “Brazil Potash”, our “Company”, “we”, “us”, “our”, and similar references refer to Brazil Potash Corp., a corporation existing under the laws of the Province of Ontario, Canada, and its subsidiaries.

Financial Information

Our audited consolidated financial statements were prepared in accordance with International Financial Reporting Standards (which we refer to as “IFRS”), as issued by the International Accounting Standards Board (which we refer to as the “IASB”), and audited in accordance with auditing standards generally accepted in the United States of America established by the Public Company Accounting Oversight Board (which we refer to as the “PCAOB”).

Our fiscal year ends on December 31 of each year as does our reporting year. Therefore, any references to 2023, 2022 and 2021 are references to the fiscal and reporting years ended December 31, 2023, December 31, 2022 and December 31, 2021, respectively. See Note 2 to our audited consolidated financial statements as of and for the years ended December 31, 2023, 2022 and 2021, and Note 2 to our unaudited condensed interim consolidated financial statements as of March 31, 2024 and for the three months ended March 31, 2024 and 2023, included elsewhere in this prospectus, for a discussion of the basis of preparation of our financial statements.

Our Company’s functional currency and reporting currency is the U.S. dollar, the legal currency of the United States (“USD”, “US\$” or “\$”). Our local subsidiary in Brazil, Potássio do Brasil Ltda., determines its own functional currency based on its own circumstances. The functional currency of Potássio do Brasil Ltda. is the Brazilian real (“R\$”).

Rounding

Certain figures and some percentages included in this prospectus have been subject to rounding adjustments. Accordingly, the totals included in certain tables contained in this prospectus may not correspond to the arithmetic aggregation of the figures or percentages that precede them.

Mineral Disclosure

As used in this prospectus, references to the “Technical Report” are to the Technical Report, Update of the Autazes Potash Project—Pre-Feasibility Study (dated October 14, 2022) with respect to our potash mining project located in the Amazon potash basin near the city of Autazes (which we refer to as the “Autazes Project”), which was prepared by ERCOSPLAN Ingenieurgesellschaft Geotechnik und Bergbau mbH (which we refer to as “ERCOSPLAN”) in accordance with the requirements of subpart 1300 of Regulation S-K—Disclosure by Registrants Engaged in Mining Operations (which we refer to as the “SEC Mining Modernization Rules”) under the Securities Act of 1933, as amended (which we refer to as the “Securities Act”), which governs disclosure for registrants with material mining operations. Certain numeric values describing the Autazes Project disclosed herein have been converted from the metric system of measurement, which is used in the Technical Report, to the imperial system of measurement commonly used in the United States. A summary of the Technical Report is included as Exhibit 96.1 to our registration statement of which this prospectus forms a part.

Additionally, we have filed a prospectus with the securities regulatory authorities in each of the provinces and territories of Canada, other than Quebec, in connection with the initial public offering of our Common Shares in Canada. As part of this filing process, ERCOSPLAN has also prepared the Technical Report, Update of the Autazes Potash Project—Pre-Feasibility Study (dated October 14, 2022) with respect to the Autazes Project, which was prepared in accordance with Canadian National Instrument 43-101—*Standards of Disclosure for Mineral Projects* (which we refer to as “NI 43-101”), and will be filed with Canadian securities regulatory authorities in accordance with NI 43-101. NI 43-101 is an instrument, developed by the Canadian Securities Administrators and administered by the provincial and territorial securities commissions in Canada, that governs how issuers in Canada publicly disclose scientific and technical information about their mineral projects.

[Table of Contents](#)

For the meanings of certain technical terms used in this prospectus, see the Annex to this prospectus, “Glossary of Technical Terms”.

Market and Industry Data

This prospectus contains references to market data and industry forecasts and projections, which were obtained or derived from publicly available information, reports of governmental agencies, market research reports, and industry publications and surveys. These sources generally state that the information contained therein has been obtained from sources believed to be reliable, but that the accuracy and completeness of that information is not guaranteed. Although we believe such information to be accurate, we have not independently verified the data from these sources. Forecasts and other forward-looking information obtained from these sources are subject to the same qualifications and additional uncertainties and risks regarding the other forward-looking statements in this prospectus due to a variety of factors, including those described in the sections entitled “Cautionary Note Regarding Forward-Looking Statements” and “Risk Factors” and elsewhere in this prospectus. These and other factors could cause results to differ materially from those expressed in the forecasts and projections. For the avoidance of doubt, nothing stated in this paragraph operates to relieve our Company or the underwriters from liability under applicable securities laws for any misrepresentation contained in this prospectus.

For Investors Outside of the United States and Canada

Neither we nor the underwriters have done anything that would permit this offering, or the possession or distribution of this prospectus, in any jurisdiction where action for that purpose is required, other than in the United States and Canada. You are required to inform yourselves about, and observe any restrictions relating to, this offering and the distribution of this prospectus. Our Common Shares offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering materials in connection with the offer or sale of such securities be distributed or published, in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of such jurisdiction.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Various statements contained in this prospectus, including those that express a belief, expectation or intention, as well as those that are not statements of historical fact, are forward-looking statements. These forward-looking statements may include projections and estimates concerning our possible or assumed future results of operations, financial condition, business strategies and plans, market opportunity, competitive position, industry environment, and potential growth opportunities. In some cases, you can identify forward-looking statements by terms such as “may”, “will”, “should”, “believe”, “expect”, “could”, “intend”, “plan”, “anticipate”, “estimate”, “continue”, “predict”, “project”, “potential”, “target”, “goal” or other words that convey the uncertainty of future events or outcomes. You can also identify forward-looking statements by discussions of strategy, plans or intentions. Forward-looking statements in this prospectus include, but are not limited to, statements with respect to:

- our ability to achieve profitability in the future;
- our ability to obtain the necessary permits and licenses for the Autazes Project, and the timing and possible outcome of pending regulatory and permitting matters;
- proposed expenditures for exploration work, and general and administrative expenses;
- the development and construction of the Autazes Project;
- maintaining access to, including acquiring, leasing and/or purchasing, the land for the development and operation of the Autazes Project;
- our capital requirements and need for additional financing, and our ability to raise additional capital;
- the estimated results of planned development, mining and production activities;
- the estimated results of our GHG Emissions Analysis (as defined herein);
- the supply and demand of potash;
- general economic and financial conditions;
- governmental regulation of mining operations and related matters;
- our prospects, strategies, and business objectives and milestones;
- industry trends; and
- our use of net proceeds from this offering and other available funds.

We have based these forward-looking statements on our current expectations and assumptions about future events. While our management considers these expectations and assumptions to be reasonable, because forward-looking statements relate to matters that have not yet occurred, they are inherently subject to significant business, competitive, economic, regulatory and other risks, contingencies and uncertainties, most of which are difficult to predict and many of which are beyond our control. These and other important factors, including, among others, those discussed in this prospectus under the headings “Risk Factors”, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business”, may cause our actual results, performance or achievements to differ materially from any future results, performance or achievements expressed or implied by the forward-looking statements in this prospectus. Some of the factors that could cause actual results to differ materially from those expressed or implied by the forward-looking statements in this prospectus include:

- the need for significant capital resources for the development and construction of the Autazes Project;
- the cost, timing, and results of our future development, mining and production activities;
- our ability to obtain the necessary permits and licenses for the Autazes Project, including that, once obtained, such permits and licenses may be terminated or not renewed by governmental authorities;

Table of Contents

- our ability to maintain access to, including to acquire, lease and/or purchase, the land for the development and operation of the Autazes Project;
- issues with the urban areas, rural communities, and indigenous communities which surround our operations and the procedures required for their prior consultation;
- our ability to manage our development, growth and operating expenses;
- our lack of operating history on which to judge our business prospects and management;
- the possible material differences between our estimates of Mineral Reserves and the mineral quantities we will actually recover;
- lower than expected metallurgical assumptions;
- mining industry operational risk, such as operator errors, mechanical failures and other accidents, including risks relating to tailings impoundments;
- environmental, social and governance impacts and risks with respect to the development and operation of the Autazes Project;
- availability of capable labor near our mine;
- our ability to compete and succeed in competitive potash mining industry;
- our ability to raise capital and the availability of future financing;
- changes in Brazilian and international governmental and regulatory policies that apply to our operations;
- fluctuations in the currency exchange rate between the U.S. dollar or Canadian dollar and the Brazilian real;
- the risks and uncertainties relating to Brazilian and international economic and political conditions; and
- potential delays in the different developmental and operational phases of the Autazes Project.

Given the foregoing risks and uncertainties, you are cautioned not to place undue reliance on the forward-looking statements in this prospectus. The forward-looking statements contained in this prospectus are not guarantees of future performance and our actual results of operations and financial condition may differ materially from such forward-looking statements. In addition, even if our results of operations and financial condition are consistent with the forward-looking statements in this prospectus, they may not be predictive of results or developments in future periods.

Any forward-looking statement that we make in this prospectus speaks only as of the date of this prospectus. Except as required by law, we do not undertake any obligation to update or revise, or to publicly announce any update or revision to, any of the forward-looking statements in this prospectus, whether as a result of new information, future events or otherwise, after the date of this prospectus.

PROSPECTUS SUMMARY

This summary highlights selected information presented in greater detail elsewhere in this prospectus, but does not include all the information you should consider before investing in our Common Shares. You should read this summary together with the more detailed information appearing elsewhere in this prospectus, including our audited financial statements and the related notes thereto, our unaudited condensed interim consolidated financial statements and the related notes thereto, and the sections entitled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations”. Some of the statements in this summary and elsewhere in this prospectus constitute forward-looking statements. See “Cautionary Note Regarding Forward-looking Statements.”

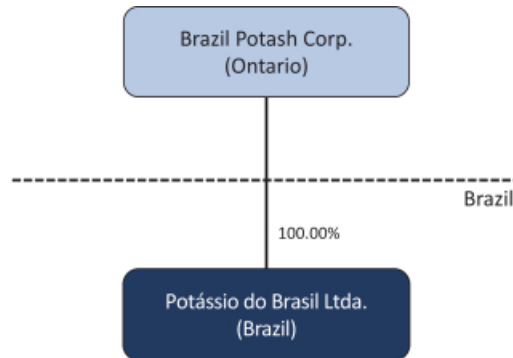
Business Overview

We are a mineral exploration and development company with a potash mining project (which we refer to as the “Autazes Project”) located in the state of Amazonas, Brazil. Our technical operations are based in Autazes, Amazonas, Brazil and Belo Horizonte, Minas Gerais, Brazil, and our corporate office is in Toronto, Ontario, Canada. We are in the pre-revenue development stage and have not yet commenced any mining operations. Our plan of operations for the next few years includes securing all required environmental licenses for the Autazes Project, and, subject to securing sufficient funds, commencing all phases of the construction of the Autazes Project.

Once our operations commence, our operating activities will be focused on the extraction and processing of potash ore from our underground mine and selling and distributing the processed potash in Brazil.

Organizational Structure

Our organizational structure is as follows:



Description of our Mineral Property

The Mineral Resources on the property on which the Autazes Project is situated (which we refer to as the “Autazes Property”) are in an area encompassing approximately 98 square miles located in the Amazon potash basin near the city of Autazes in the eastern portion of the state of Amazonas, Brazil, within the Central Amazon Basin, between the Amazon River and the Madeira River, approximately 75 miles southeast of the city of Manaus, northern Brazil. We hold all of the mineral rights for the Autazes Project through our wholly-owned local subsidiary in Brazil, Potássio do Brasil Ltda., and such mineral rights are registered with Brazil’s national mining regulatory authority, Agência Nacional de Mineração (which we refer to as the “Brazilian National

Mining Agency”), which is a specialized agency of the Brazilian Ministry of Mines and Energy. Under our current development plan for the Autazes Project, we intend to own, through Potássio do Brasil Ltda., 39 properties on which the facilities and infrastructure for the Autazes Project will be located. We currently have rights of access to 24 properties consisting of a total area of approximately 5.4 square miles, which include surface rights on the land on which our proposed mine shafts, processing plant, and port for the Autazes Project will be constructed. We believe that, through administrative land regularization proceedings with Brazilian governmental agencies (such as the Brazilian Institute of Settlement and Land Reform, the Brazilian Ministry of Industry and Trade, and other agencies), we will be able to, and intend to, convert such current rights of access into ownership of these 24 properties. Additionally, in March, April and May 2024, we entered into agreements to lease, for a term of six years, the remaining 15 properties consisting of a total area of approximately 4.2 square miles, which primarily will be used for the sites of our dry stacked tailings piles (see also “Business—Foreign Investment Restrictions and Control—Foreign Investment Restrictions”). Each of these lease agreements also provides us with a right of first refusal to purchase the applicable leased property in the event of a sale of such property, and in connection with any such sale, we will be able to apply the aggregate amount paid under such lease agreement as a reduction in the sale price. For additional information regarding our planned land ownership, see “Description of the Autazes Project and the Autazes Property—Ownership of Land”.

Substantial work has been completed to develop and de-risk the Autazes Project. We engaged ERCOSPLAN Ingenieurgesellschaft Geotechnik und Bergbau mbH, an engineering consulting firm with significant experience in the potash mining industry (which we refer to as “ERCOSPLAN”), to prepare the Technical Report, which includes Mineral Resource and Mineral Reserve estimates and capital construction, operation and economic estimates. To date, 43 exploration holes totaling approximately 121,000 feet have been drilled on the Autazes Property, and the results from these drill holes form the basis of the Technical Report, prepared in accordance with the SEC Mining Modernization Rules, which govern disclosure for registrants with material mining operations.

For additional information regarding the Autazes Project, the Autazes Property, and the Technical Report, see “Description of the Autazes Project and the Autazes Property”.

Regulatory Overview

Brazilian Mining Regulations

Under the Brazilian Constitution, all Mineral Resources are initially the property of the Federal Government of Brazil until applicable permits, licenses, concessions, and mineral rights are granted to qualified and approved mining applicants. The right to explore and exploit Mineral Resources in Brazil are regulated by the Brazilian National Mining Agency under Brazilian Decree-Law No. 227/1967 (which we refer to as the “Brazilian Mining Code”), regulated by Brazilian Decree No. 9.406/2018, and applicable policies of the Brazilian Ministry of Mines and Energy. Only Brazilian citizens, or legal entities incorporated in Brazil under Brazilian law, may be entitled to conduct mining activities, including commercially exploiting Mineral Resources, in Brazil.

In order to develop, construct, and commence the mining operations of the Autazes Project, we must undertake a licensing process pursuant to which the applicable federal, state, or municipal environmental authorities in Brazil will license, approve and authorize the location, exploration and development activities, construction, and operation of the Autazes Project. It is not always clear which level of government or regulatory agency in Brazil has authority over the environmental licensing of mining projects, and therefore, we believe that it would not be unusual if certain Brazilian regulatory agencies challenge the regulatory authority of certain other Brazilian environmental agencies over environmental licensing of mining projects, which may create uncertainties as to whether the Autazes Project should be licensed by Brazilian federal or state environmental agencies. Public prosecutors also have influence on such challenges or disputes, including through judicial actions.

Exploration Permits and Environmental Exploration License

In order for us to perform exploratory mining activities in Brazil, we first had to obtain specific permits called “Alvará de Pesquisa” (which we refer to as our “Exploration Permits”) from the Brazilian National Mining

Agency, and a specific license called “Licença de Operação–Exploração” (which we refer to as our “Environmental Exploration License”) from the Instituto de Proteção Ambiental do Amazonas (IPAAM) (which we refer to as the “Brazilian Amazonas Environmental Protection Institute”), which is the environmental protection agency for the state of Amazonas, Brazil. We received a total of five Exploration Permits from July 2009 to September 2011, and our Environmental Exploration License in June 2009, which allowed us to perform exploration activities, including drilling, in our mineral rights area on the Autazes Property. Following the completion of our exploration work for the Autazes Project, we submitted to the Brazilian National Mining Agency for approval a final exploration report detailing the exploration activities conducted and attesting to the existence of the potash ore reserve. The Brazilian National Mining Agency approved our final exploration report in April 2015, and this approval enables us to request a mining concession, which, if approved, will permit mining and mineral exploitation activities, as described under “— Mining Concession” below.

Environmental Licenses

There are three general types of environmental licenses that mining companies are required to obtain in order to be fully authorized to construct and operate a mine in Brazil, each of which is described below.

Preliminary Environmental License. The first type of environmental license is called Licença Prévia (which we refer to as our “Preliminary Environmental License”), which we initially obtained during the planning phase of the Autazes Project. In connection with our application to obtain our Preliminary Environmental License, we engaged Golder Associates Inc., a consulting firm with significant experience in helping companies develop and enact environmental and sustainability measures (which we refer to as “Golder”), to prepare an environmental and social impact assessment of the Autazes Project (which we refer to as the “Environmental and Social Impact Assessment”), and we and Golder participated in public hearings and conducted several rounds of consultations with local indigenous communities near the Autazes Project in accordance with the guidelines and requirements established by Fundação Nacional do Índio (which we refer to as “FUNAI”), which is Brazil’s governmental protection agency that establishes and carries out policies relating to indigenous peoples in Brazil. Following the completion of the Environmental and Social Impact Assessment in January 2015, we submitted it to the Brazilian Amazonas Environmental Protection Institute in connection with our application to obtain our Preliminary Environmental License. In July 2015, we received our Preliminary Environmental License for the Autazes Project from the Brazilian Amazonas Environmental Protection Institute, and, as part of the application and approval process, the Brazilian Amazonas Environmental Protection Institute evaluated the Environmental and Social Impact Assessment, as well as the location and concept of the Autazes Project, certified the environmental feasibility of the Autazes Project, and set forth the basic requirements that will need to be complied with in subsequent licensing and developmental phases.

Additionally, Brazil is a signatory to International Labour Organization Convention 169 (also known as the Indigenous and Tribal Peoples Convention (1989)), which is the major binding international convention concerning indigenous and tribal peoples, and sets standards for national governments regarding indigenous peoples’ economic, socio-cultural and political rights, which include the right to prior and informed consultation on any development activity that may impact indigenous peoples’ land and/or lives. In March 2017, we agreed to conduct additional consultations with the local Mura indigenous people (who make up the vast majority of the indigenous communities, villages and tribes near the Autazes Project) in accordance with International Labour Organization Convention 169. Such additional consultations were intended to provide the local Mura indigenous communities with an opportunity to learn about the Autazes Project, and to inform them about the potential impact of the development of the Autazes Project on their communities and way of life and our proposed plans to mitigate any negative impacts. In September 2023, we completed such additional consultations with the local Mura indigenous communities. Out of the 36 villages that comprise the local Mura indigenous communities, 34 agreed to support our environmental licensing process and the advancement of the Autazes Project. Furthermore, based on feedback from such consultations, we are currently working with the Mura indigenous people to develop a mutually agreed upon impact benefit agreement outlining commitments that we will undertake to benefit their local communities (which we refer to as the “Impact Benefit Agreement”).

Our Preliminary Environmental License has been superseded by the Construction Licenses that we have received for the construction of the Autazes Project (see “—Construction Licenses” below).

Construction Licenses. We refer to the second type of environmental license, collectively, as the “Construction Licenses”, which are comprised of (i) licenses called Licença de Instalação (which we refer to collectively as the “Installation Licenses”), (ii) licenses called Licença Ambiental Única (which we refer to collectively as the “Specific Environmental Licenses”), and (iii) environmental authorizations (which we refer to collectively as the “Fauna Authorizations”). We currently anticipate that we will need a total of 21 Construction Licenses in connection with the construction of the Autazes Project. There are a total of seven Installation Licenses, which correspond to the following various areas of the infrastructure of the Autazes Project: (i) mine, (ii) potash processing plant and dry stacked tailings piles, (iii) roads, (iv) river barge port and potash stockpile at the port, (v) water distribution and supply, (vi) sewage treatment, and (vii) sanitary landfill. There are a total of nine Specific Environmental Licenses, which relate to earthworks, vegetation suppression and water source drilling, and a total of five Fauna Authorizations, which relate to the capture and rescue of wild fauna, at these various infrastructure areas. In this phase of the environmental licensing process, the basic environmental plan outlining pollution control and compensatory measures are submitted to the Brazilian Amazonas Environmental Protection Institute for its review and approval. All of the plans and conditions that were required in order for us to obtain the Construction Licenses have been completed and satisfied by us and approved by the various applicable Brazilian federal, state and municipal agencies.

As of August 2024, we have received from the Brazilian Amazonas Environmental Protection Institute all of the 21 Construction Licenses required for the construction of the Autazes Project. See also “—Current Status of our Licensing Process” below.

Operational License. The third type of environmental license is called Licença de Operação (which we refer to as the “Operational License”), which is the last phase of the environmental licensing process necessary to operate a mine in Brazil. The Brazilian Amazonas Environmental Protection Institute will review and consider any application for an Operational License, and will decide whether to issue this license following construction of the mining project. The Operational License is required for us to be able to perform mining and mineral exploitation activities in our mineral rights area, as well as sell the produced potash.

Mining Concession

At such time when we complete the construction of the Autazes Project, and we have received the Operational License, we believe that we will receive the mining concession called Concessão de Lavra (which we refer to as the “Mining Concession”), which is granted by the Brazilian Ministry of Mines and Energy. In connection with the Mining Concession, we previously prepared and submitted a plan called Plano de Aproveitamento Econômico (PAE) (which we refer to as our “Plan for Economic Development of the Deposit”), which has been approved by the Brazilian National Mining Agency. The Mining Concession will be granted based upon and in accordance with the approved Plan for Economic Development of the Deposit. As the holder of the Mining Concession, we will have exclusive rights to undertake mining operations for the Mineral Resources specified in the Mining Concession within the authorized mineral rights area. The Mining Concession will be valid until the depletion of the mineral deposit. Although mineral deposits in Brazil are federal property, a mining concession holder is the assured owner of the extracted mineral.

As the holder of the Mining Concession, we will have a range of obligations, including to: (i) start the mining work, in accordance with the development and mining plan approved by the Brazilian National Mining Agency, within six months from the date of publication of the Mining Concession in the Official Gazette of the Brazilian federal executive; (ii) carry out the mining work in accordance with the approved development and mining plan; (iii) extract only the minerals indicated in the Mining Concession or any addendum thereto; (iv) communicate to the Brazilian National Mining Agency the discovery of any mineral substance not included in the Mining Concession; (v) carry out the mining work in accordance with applicable laws, rules and regulations; (vi) appoint a duly qualified person to supervise the mining work; (vii) refrain from intentionally obstructing or hampering the future development of the mineral deposit; (viii) be liable for any loss or damage caused to third parties resulting from the mining work; (ix) not

cause air or water pollution as a result of the mining work; (x) protect and preserve water sources, as well as to use them in accordance with applicable technical instructions and requirements; (xi) observe and comply with all instructions and recommendations of applicable regulatory authorities; (xii) refrain from suspending the mining work for more than six months without the prior consent of the Brazilian National Mining Agency; (xiii) keep the mine in good condition during any suspension period; (xiv) rehabilitate the areas degraded by mining; (xv) pay royalties; and (xvi) comply with the provisions of the Brazilian National Dams Safety Policy.

Once commercial production of potash commences, we will be required to pay financial compensation for such mineral exploitation (Compensação Financeira pela Exploração Mineral) in the form of a royalty (which we refer to as the “Mining Royalty”), currently at a rate of 2% of our gross revenue, which will be divided among various Brazilian federal, state and municipal governmental offices and agencies, including the Brazilian National Mining Agency and other environmental agencies, as determined by Brazilian law and regulations. Additionally, we will be required to pay a royalty equal to 50% of the Mining Royalty to the owners of surface rights of any land not owned by our Company or Potássio do Brasil Ltda.

Additionally, the Brazilian National Mining Agency is allowed to grant mining easements (servidões minerárias) in properties of third parties in relation to a given mining title, provided that such mining easement is necessary for the proper exploration and exploitation of the mineral deposit. After the granting of an easement by the Brazilian National Mining Agency, through the issuance of a “Public Utility Statement”, the holder of the mining title to which the Public Utility Statement refers must pay an indemnification amount to the owner of the servient property before entering such property. If such indemnification amount cannot be agreed upon between the holder of the mining title and the property owner, it will be determined by a court.

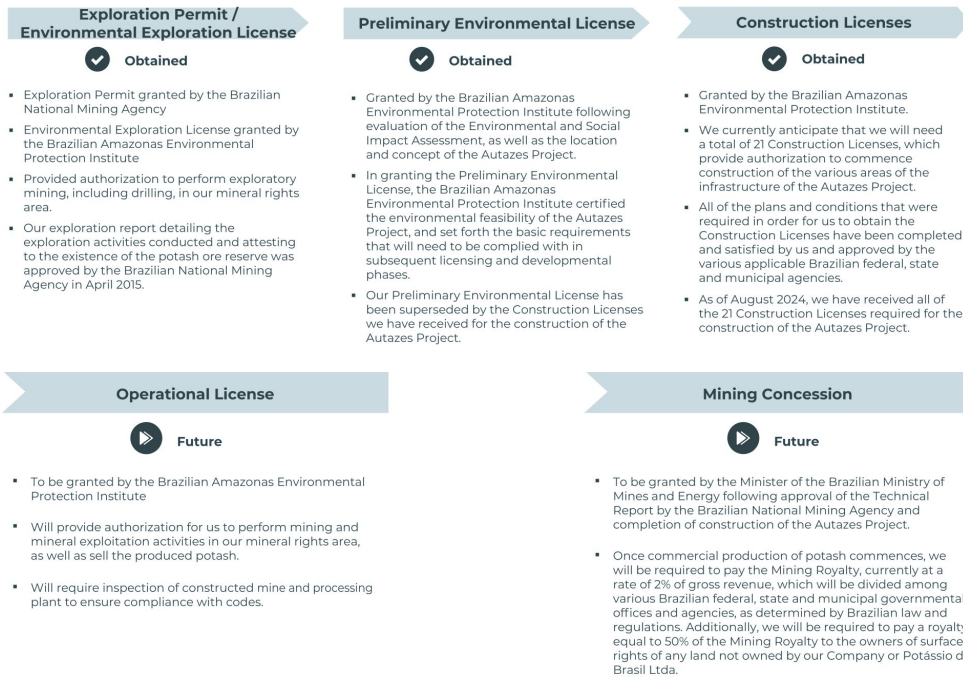
Once the exploitation of the mineral deposits has been concluded, the corresponding mining area must be rehabilitated in accordance with appropriate environmental and mine closure plans included as part of our Plan for Economic Development of the Deposit which was approved by the Brazilian National Mining Agency.

Current Status of our Licensing Process

Our current near-term goal is to start the primary construction of the infrastructure of the Autazes Project. We will not be able to obtain the Operational License or the Mining Concession until construction of the Autazes Project has been completed. Additionally, opposition by any governmental or non-governmental organizations to our proposed development or operations of the Autazes Project, such as the May 2024 Civil Lawsuit, may, among other things, result in delays or a shutdown of our development of the Autazes Project and require us to spend significant amounts of time and resources to resolve any such issues in order to secure or maintain necessary permits and licenses. See also “Risk Factors—Risks Related to our Company—We may face potential opposition to the Autazes Project, which could increase our operating costs or result in substantial delays or a shutdown of the Autazes Project” and “Business—Legal Proceedings”.

The following summarizes the various permits and licenses that are required in order to be fully authorized to operate a mine in Brazil:

Main Permits and Licenses to Commence Operations



Environmental Regulations

Our exploration and development activities are, and our future mining operations will be, subject to environmental laws and regulations in Brazil. We currently, and will continue to, maintain an operating policy that seeks to comply with all applicable environmental laws and regulations.

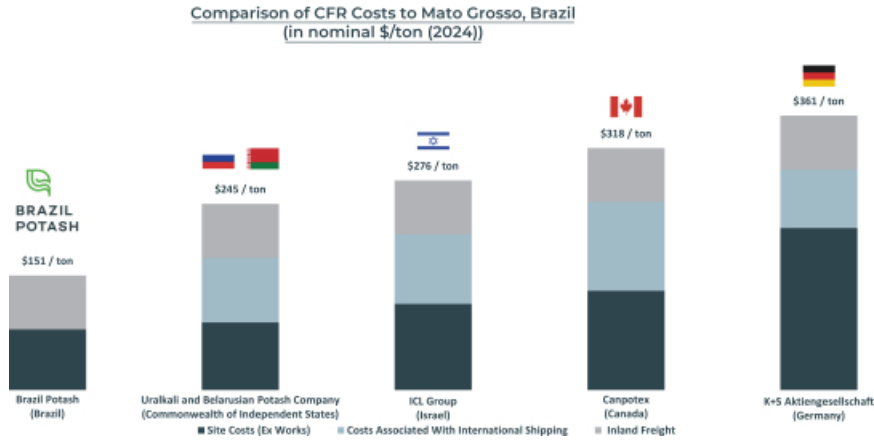
For additional information regarding the mining and environmental rules and regulations applicable to us and our proposed operations, including a more detailed description of the main permits and licenses that mining companies are required to obtain in order to be fully authorized to operate a mine in Brazil, see “Business—Regulatory Overview”. See also “Risk Factors—Risks Related to Mining.”

Our Competitive Strengths

We believe that the following competitive strengths, among others, will position us for future operational success:

- **Strategic in-country location of the Autazes Project.** The Autazes Project is located close to Brazil's existing agricultural and farming areas and near the Amazon River system, thus enabling a shorter and more efficient inland path to Brazilian farmers, with the initial leg by river barge and the final leg by truck. We believe that the average total transit time to transport our potash product from the Autazes Project to domestically located customers in Brazil will be approximately two and a half days, which is approximately 43 times shorter than the transit time of up to 107 days that it takes to transport potash from other major potash producing suppliers in Canada and Russia to customers in Brazil. The state of Mato Grosso, Brazil is the largest consumer of potash among all states in Brazil and is responsible for more than 20% of domestic potash consumption. The state of Mato Grosso also shares a border with, and is a short distance from, the state of Amazonas, Brazil, where the Autazes Project is located. With expected at-scale production of an average of approximately 2.4 million tons of muriate of potash (which we refer to as "MOP") per year, we believe that the Autazes Project should reduce Brazil's reliance on imported potash, which made up approximately 98% of all potash used in Brazil in 2021. We believe that the Autazes Project is the only development stage potash project of significant size in Brazil, and we believe that it could eventually supply approximately 20% of Brazil's current demand for potash.
- **Lowest anticipated delivered cost to farmers.** We estimate that the delivered cost of potash from the Autazes Project to Brazilian farmers will be approximately half of the average cost of potash imported into Brazil, and we believe that we will be profitable at prices where approximately 70% of existing potash producers outside of Brazil would not be profitable. Potash imported into Brazil has a substantially higher marginal delivered cost than potash produced in Brazil, providing a margin advantage for domestic potash producers, particularly in our case since the Autazes Project is only five miles from a major river system. This provides us with a structural margin advantage given Brazil's current reliance on imported potash, and market pricing that reflects elevated import costs.

The chart below reflects a comparison of our estimated cost and freight (CFR) costs of delivering our potash product to farmers in the state of Mato Grosso, Brazil, against the estimated CFR costs of certain current major international producers and exporters of potash delivering their potash to Mato Grosso, based on the following: (i) international shipping costs include road and/or rail freight costs from the respective production plants of such competitors to the respective ports in those countries, ocean freight costs, port charges (operation and demurrage), and ad hoc handling expenses, (ii) inland freight costs to Mato Grosso includes either freight costs from the Paranaguá port in Brazil to Mato Grosso (with respect to imported potash produced by our competitors), or inland road transportation costs from the Autazes Project to Mato Grosso (with respect to potash to be produced by us at the Autazes Project), and (iii) all road, rail, and ocean freight costs and port charges are estimated by CRU Group, a business intelligence company focused on the global mining, metals and fertilizers industries (which we refer to as “CRU”).



Source: the Technical Report.

- Competitively advantaged carbon emissions profile.** Based on an analysis we commissioned from a consulting firm to assess the greenhouse gas (which we refer to as “GHG”) emissions anticipated to be generated by the Autazes Project (which we refer to as our “GHG Emissions Analysis”), we believe that the Autazes Project will have a competitively advantaged GHG emissions profile from its anticipated operations in the following three material ways: (i) as compared to a potash producer located in Saskatchewan, Canada (which, according to our GHG Emissions Analysis, has a lower GHG emissions profile than the potash producers in other countries currently supplying potash to Brazil) using similar conventional underground mining methods (which are generally more energy efficient than alternative potash mining methods) and exporting an amount of potash to Brazil equal to the amount of potash that we anticipate producing, we believe that the aggregate Scope 2 GHG Emissions generated from the production of potash from the Autazes Project will be approximately 1.2 million tons (or approximately 80%) less per year, since we plan to have all of the electricity used at the Autazes Project be provided by Brazil’s national power grid, which generates approximately 80% of its power from renewable sources and has a lower carbon intensity of approximately 0.54 ton of carbon dioxide (CO₂) equivalent per megawatt hour (which we refer to as “tCO₂e/MWh”), as compared to the power supply relied upon by a Saskatchewan potash producer (assuming such potash producer draws all of its power consumption from the Saskatchewan provincial power grid, which currently generates approximately 81% of its power from fossil fuels); (ii) assuming the same amount of potash that is

currently being imported into Brazil and the current geographic supplier mix, we believe that the Scope 3 GHG Emissions associated with the distribution of our potash product and related logistics at the Autazes Project will be approximately 205,000 tons less per year than the average Scope 3 GHG Emissions produced by overseas potash producers currently importing potash into Brazil, primarily because the distances to transport our potash product to Brazilian farmers will be significantly shorter than those of the overseas suppliers; and (iii) based on the assumption that the local communities surrounding the Autazes Project use 3MWh of electricity per year, which is currently exclusively supplied by diesel generators, we believe that annual GHG emissions will be reduced since, following completion of the planned power transmission line that will connect the Autazes Property to Brazil's national power grid, the local communities will be able to connect to the new electricity infrastructure and draw power from Brazil's national power grid. As such, based on the three examples described above, we believe that the Autazes Project will result in an aggregate of approximately 1.4 million tons less GHG emissions being produced per year, which is the equivalent of planting approximately 56 million new trees (assuming an average annual CO₂ sequestration of 50 pounds per tree). We believe that having a significant role in helping produce the lowest possible carbon footprint in a rapidly decarbonizing world is a strong competitive advantage. For additional information regarding our GHG Emissions Analysis, see "Business—Environmental, Social and Governance—Climate-related Risks and Opportunities (including GHG Emissions and Energy Management)".

- **Advancement of the Autazes Project to a near construction ready state.** We have raised over \$240 million through equity and debt financings for the development of the Autazes Project and have progressed it to a near construction ready state. The Environmental and Social Impact Assessment and the Technical Report have already been completed, and we have received all of the 21 Construction Licenses required for the construction of the Autazes Project. We currently have rights of access to, and intend to own, a significant amount of the land planned for the Autazes Project, including all of the land on which the planned mine shafts, processing plant and port will be located, and we have entered into agreements to lease, for a term of six years, with a right of first refusal option to purchase, the remaining properties on which the other facilities for the Autazes Project (primarily consisting of the sites for our dry stacked tailings piles) will be located.
- **The development of the Autazes Project is a priority for Brazil.** The Autazes Project was designated as a project of "National Importance" by Brazil's Federal Government and National Observatory in September 2020. Additionally, in September 2021, the Federal Government of Brazil admitted the Autazes Project into the Brazilian Investment Partnership Program, which provides us with direct access to Brazil's Attorney General to provide support on legal matters, and indicates that the Autazes Project should be a top priority for government officials in terms of their review of our permit and license applications.
- **Experienced and highly knowledgeable leadership team.** We have an expert management team with significant development and operational experience at some of the world's largest natural resource companies, as well as marketing, sales and business development experience at major potash companies. We boast support from an experienced natural-resource focused investor base and have relationships with some of the largest domestic Brazilian agribusinesses. Our Executive Chairman, Stan Bharti, has a strong operational and capital raising background with over 15 years of experience acquiring, restructuring, and financing mining assets. In 2011, Forbes & Manhattan, Inc., the private merchant bank that Mr. Bharti established in 2002, sold its stake in Consolidated Thompson Iron Mines to Cliffs Natural Resources Inc. for \$4.9 billion in cash. Mr. Bharti has a significant amount of experience in Brazil including being part of the team that turned around the Jacobina gold mine in 2002 to then sell it for \$500 million in 2006 to Yamana Gold. Our Chief Executive Officer, Matthew Simpson, previously worked at the Iron Ore Company of Canada, a subsidiary of Rio Tinto and Mitsubishi Corp, where he held several progressive roles in business evaluation and operations

planning, including as Mine General Manager. Mr. Simpson also has extensive experience in mine design, construction and project management from his previous work at Hatch Ltd. as a process engineer. Adriano Espeschit, the President of Potássio do Brasil Ltda., previously worked for Vale S.A. – Iron Ore, Copper and Nickel and BHP Billiton in Australia, as well as Shell Canada where he was instrumental in discussions with the Fort McKay First Nation of Alberta regarding the development of the Lease 90 Project. Mr. Espeschit was part of the teams that developed the Sossego Copper Mine in Pará State with Vale S.A. and the Santa Rita Nickel Mine in Bahia State with Mirabela Nickel.

Our Business Objectives and Growth Strategies

Our primary business objectives are to win a significant share of the Brazilian potash market and be the sustainable potash supplier-of-choice for Brazilian farmers. We intend to be a significant domestic source of potash fertilizer in Brazil to alleviate Brazil's dependence on imported potash and farmer supply-chain risk, while supporting economic prosperity and agricultural sustainability in Brazil and food security globally. We plan to accomplish these business objectives by pursuing the following strategies:

- **Focus solely on providing our potash from the Autazes Project to Brazilian farmers.** Brazil is the world's second largest market, and one of the fastest growing markets, for potash consumption, but it imports approximately 98% of its potash needs, primarily from Canada, Russia and Belarus. Our potash production at the Autazes Project is expected to be entirely granular MOP for fertilizer applications that are currently being used in Brazil. Our planned mine and surface assets are expected to be optimally positioned in the Brazilian market to produce potash in close proximity to Brazilian farmers, enabling 'just-in-time' delivery, with a shorter supply chain, as compared to overseas potash producers whose products must travel significant distances to reach Brazil, resulting in a significantly higher carbon footprint. We anticipate selling all of our produced potash in Brazil, and plan to target all of the key farming regions in Brazil, particularly the highest potash consuming states such as Mato Grosso.
- **Establish and maintain a position as the lowest-cost provider of potash in Brazil.** Given the location of the Autazes Project, we believe that we will be able to provide our processed potash at the lowest all-in delivered cost to Brazilian farmers. Our priority is to build and operate our Autazes mine with a strong focus on operational and commercial efficiency to ensure that we can achieve the low operating cost and emissions profile that will differentiate the Autazes Project and our Company from our competitors. Because our potash ore body is located in Brazil only five miles from the Madeira River, our primary mode of product transportation will be through relatively low-cost river barges followed by trucks, whereas our competitors typically have to transport their potash products between 8,000 to 12,000 miles in total by trains and ocean vessels to reach Brazil, followed by in-land trucking. Because of our location advantage, we believe that our estimated cost to mine, process and deliver our potash product to Brazilian farmers will be lower than the transportation cost alone for imported potash, which should provide us with a substantial and sustainable competitive advantage. Additionally, the core competencies of our management team include the development and operation of natural resource assets, particularly bulk commodities, and as such, we intend to take an asset-light approach to transportation and distribution by using competent third-party vendors to ensure our focus is squarely on realizing value from the Autazes Project.
- **Establish strategic partnerships within the industry.** To enable our supply chain to Brazilian farmers, we plan to pursue exclusive third-party marketing, logistics and offtake agreements with large-scale, vertically integrated Brazilian agri-business companies that have the scale and mid/downstream infrastructure to efficiently transport large quantities of our potash product from our planned port on the Madeira River to Brazilian farmers. We view this approach, which should provide us with access to tangible physical infrastructure and valuable local and regional agricultural knowledge, as both capital efficient and critical to establishing credibility and long-term customer relationships.

- **Nurture opportunity for sustainability leadership and innovation.** An overarching component of our strategy is to establish our Company as an industry leader in sustainable potash production. We believe that our plan to connect the Autazes Project to Brazil’s national power grid, which has approximately 80% of its power generated by renewable sources, as well as the significantly shorter distances we expect to have to transport our potash product to Brazilian farmers, will enable us to establish a lower GHG emissions profile than can be found at other potash mines around the world. For example, based on our GHG Emissions Analysis, we believe that the Autazes Project will generate approximately 1.2 million tons (or approximately 80%) less Scope 2 GHG Emissions per year than the Scope 2 GHG Emissions generated by a potash producer located in Saskatchewan, Canada using similar conventional underground mining methods and exporting an amount of potash to Brazil equal to the amount of potash that we anticipate producing. For additional information regarding our GHG Emissions Analysis, see “Business—Environmental, Social and Governance—Climate-related Risks and Opportunities (including GHG Emissions and Energy Management)”.
- **Expand our production capabilities and growth opportunities.** The Autazes Project is estimated to have a mine life of 23 years at a production rate of an average of approximately 2.4 million tons per year. We have explored less than 5% of the Amazonas potash basin that we believe to be mineralized based on drilling that was done during the 1970s and 1980s by Petrobras, Brazil’s state-owned petroleum company (which we refer to as “Petrobras”). Future exploration offers the opportunity to extend the life of the Autazes Project as well as increase potash production.

Our Industry and Market Opportunity

Overview

Potash is the common name for the group of minerals containing potassium (K). Together with nitrogen and phosphorous, potash is one of the three primary nutrients essential for plant life, and we believe that it is an essential component to sustainably feed a growing world. The use of potash is necessary in order to grow more food per acre by enabling farmers to improve agricultural productivity and crop quality.

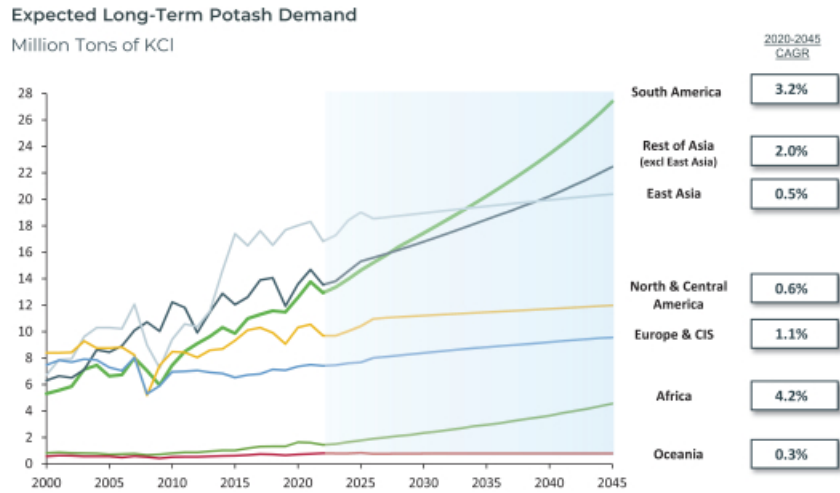
Agronomically, potash is responsible for promoting all critical metabolic functions in plants and improving plant resistance to biotic and abiotic stress. For example, potash supports photosynthesis, protein formation, and water regulation, increasing plant strength and improving resistance to factors that adversely affect crop yields such as disease, pests, heat, drought, and frost.

Plants pull nutrients from the soil as they grow. Fertilizer helps farmers to replenish the nutrients that are removed from the soil, and ensures the soil health necessary to generate strong crop yields in future seasons. This is particularly important in regions such as Brazil where farming intensity is high due to its favorable climate and the increasing number of large-scale and broadly mechanized farming operations.

The vast majority of potash is applied as MOP, which is the potash fertilizer product we plan to produce at the Autazes Project. MOP is the form of potash that is used on potassium-intensive row crops such as corn, soybean, rice, cotton and sugarcane, all of which are commonly grown in Brazil. According to potassium chloride market outlook information included in a database maintained by CRU (CRU Group, “*Potassium Chloride Market Outlook*”, November 2022) (which we refer to as the “CRU November 2022 Potassium Chloride Market Outlook”), global annual sales of potash were approximately 78 million tons per year in 2021, and the compound annual growth rate of the global potash market was approximately 2.38% from 2003 to 2021, outpacing the growth of the other primary fertilizer nutrients. Brazil is the second largest potash market and one of the fastest growing markets in the world for potash consumption (CRU Group, “*CRU’s Potassium Chloride Database*”, November 30, 2022). However, to properly contextualize the significance of Brazil, a general understanding of the global potash market supply and demand dynamics and the underlying drivers is beneficial.

Potash Demand

As the world’s population grows, so too does global economic output, prosperity, and the demand for calorie-rich diets. In turn, these drive higher protein consumption, which relies on potash to increase food production. For example, according to the U.S. Department of Agriculture (which we refer to as the “USDA”) Economic Research Service, in the United States, approximately 38% of corn consumption is for animal feed, and approximately 34% is for the production of ethanol for blending with gasoline (USDA Economic Research Service, “*Feed Grains: Yearbook*”, August 17, 2022). In addition, according to a USDA Foreign Agricultural Service report, the majority of ethanol in Brazil is produced from sugar cane, another potash intensive crop (USDA Foreign Agricultural Service, “*Corn Ethanol Production Booms in Brazil*”, October 8, 2020). We believe that increasing meat consumption and improving methods of fertilizer application (particularly in developing economies where potash has been historically underapplied) will be key drivers of increased potash use. Furthermore, as many countries adopt decarbonization policies and biofuels become an increasingly important part of the energy transition, potash may play not only a critical role in feeding the world, but also in fueling it.

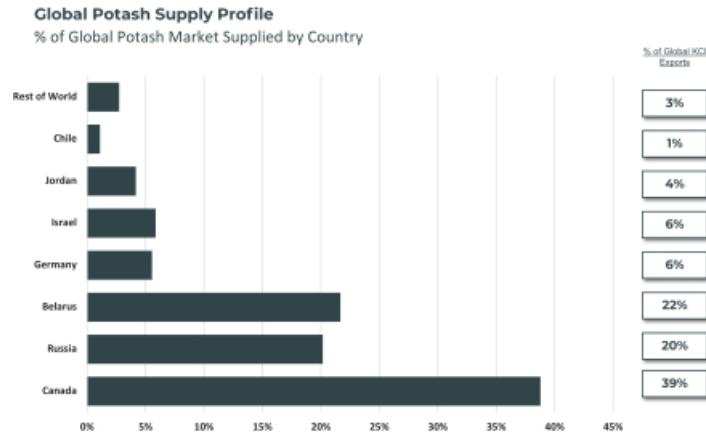


Source: CRU Group, “*Potassium Chloride Market Outlook*”, November 2022.

According to the CRU November 2022 Potassium Chloride Market Outlook, global annual sales of potash reached a record of approximately 78 million tons of MOP consumed in 2021, and the global potash market is expected to grow to approximately 85 million tons by 2026, driven largely by Brazil and Asia. China is presently the world’s largest consumer of potash, followed by Brazil, however, as referenced in the chart above, demand from South America is projected to eventually outpace demand from East Asia. Furthermore, Brazilian potash consumption is expected to grow at a compound annual growth rate of 6.8% from 2023 to 2027, which is approximately 33% higher than the forecasted compound annual growth rate of 5.1% for global potash consumption during the same period.

Potash Supply

The global potash market is highly concentrated, comprised of just a few meaningful suppliers. The world’s largest potash reserves are located in only a few regions in the world. According to the CRU November 2022 Potassium Chloride Market Outlook, global potash exports in 2021 were approximately 62.9 million tons, with seven countries supplying over 97% of the global potash market. The countries that export the most potash are Canada, Russia, and Belarus.



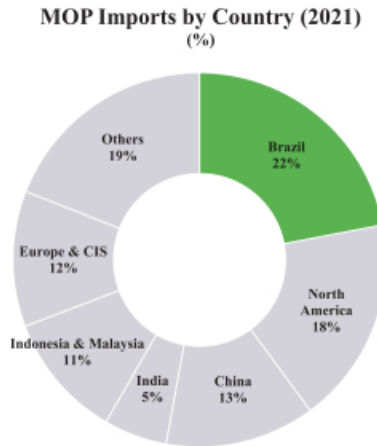
Source: CRU Group, “Potassium Chloride Market Outlook”, November 2022.

The consolidated structure of the global potash market makes it susceptible to supply shocks, such as the disruptions caused by the COVID-19 pandemic, Belarussian sanctions, and Russia’s war in Ukraine, which have driven potash prices to record highs. The fastest growing regions in the world have few domestic sources of potash production, making them heavily reliant on imported potash and leaving them exposed to trade flow imbalances and supply chain disruptions. We expect the outlook for the global supply and demand of potash to be tight in the near future.

Market Opportunity: Brazil – A Key Potash Market

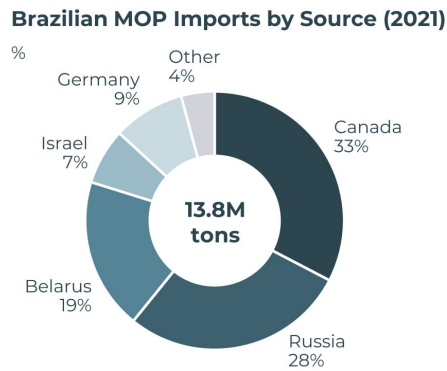
According to the Food and Agriculture Organization of the United Nations (which we refer to as “FAO”), Brazil was the largest net exporting country of agricultural goods in 2021 (FAO, “FAO Corporate Statistical Database – Import Value and Export Value data”, 2021). And according to the 2021 Brazilian Economic and Agricultural Overview report issued by the Brazilian Secretariat of Foreign Trade (SECEX), Brazil exported \$110 billion of agricultural products in 2023, and Brazil ranks first in production for many of the world’s highest-demand and potash-intensive crops, such as soybean and sugarcane. In addition, Brazil’s agricultural land use has grown 2.2% from 2010 to 2020 (Our World in Data, “Land Use – Agricultural Land Use Chart”, 2020). Consequently, Brazil is a key market for potash producers, since in order to increase the volume and value of crop yields, frequent and balanced replenishment of nutrients in the soil is needed. Potash is integral to Brazil’s economic success, since Brazil generates approximately 27% of its gross domestic product from the agricultural sector (USDA Foreign Agricultural Service, “Brazilian Economic and Agricultural Overview”, February 9, 2022). However, Brazil, like many other high growth regions such as China and Southeast Asia, is heavily reliant on imported potash and imports approximately 98% of its potash needs (CRU Group, “CRU’s Potassium Chloride Database”, November 30, 2022). According to the CRU November 2022 Potassium

Chloride Market Outlook, in 2021, Brazil imported approximately 13.8 million tons of potash, representing approximately 22% of imported potash globally. We believe that Brazil is currently the largest global importer of potash, as illustrated by the chart below.



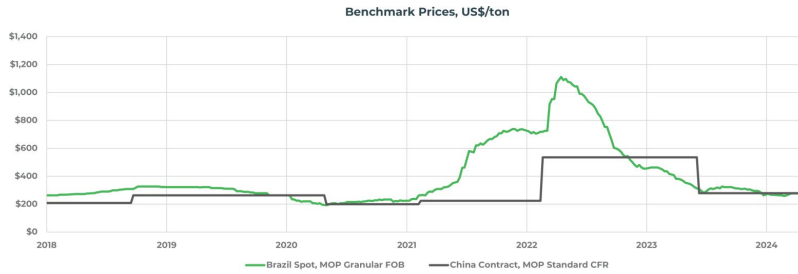
Source: CRU Group, “Potassium Chloride Market Outlook”, November 2022.

Additionally, as illustrated in the chart below, most of the potash that Brazil imports comes from Canada, Russia and Belarus, with approximately 47% of its imported potash in 2021 coming from currently sanctioned countries.



Source: CRU Group, “Potassium Chloride Market Outlook”, November 2022.

Due to relatively high logistics expenses and the highly fragmented number of buyers, customers in Brazil typically pay a higher price for MOP than most of the world. According to the CRU November 2022 Potassium Chloride Market Outlook, the preferred MOP product in the Brazilian market is granular potash with a target grade of 60.5% potassium oxide (K₂O) (95% MOP), and it typically sells for a premium over standard (fine) MOP. The historic Free On Board (FOB) spot price for granular potash delivered to Brazil as compared to the Cost and Freight (CFR) China contract price for standard potash is illustrated in the graph below:



Source: Green Markets (a Bloomberg company), “*Weekly Fertilizer Prices*” database.

We plan to produce only granular 60.5% K₂O MOP and sell all of our potash domestically in Brazil. We believe that we will have low transportation costs because the Autazes Project is located only five miles from the Madeira River where relatively lower cost barges can be used to transport our potash product a substantial portion of the way to Brazilian farmers. Because the Autazes Project will be located near a major river system, we believe that our cost to mine, process and deliver potash will be lower than the transportation cost alone for imported potash, which will provide a substantial and sustainable logistics cost advantage for our potash product. Based on our GHG Emissions Analysis, by connecting the Autazes Project to Brazil’s national electricity grid, which has approximately 80% of its power generated by renewable energy sources, and as a result of the substantially lower distances that we will have to transport our potash product to Brazilian farmers, we believe that our operations in Brazil will generate approximately 1.2 million tons less Scope 2 GHG Emissions per year than the Scope 2 GHG Emissions that would be generated by a potash producer located in Saskatchewan, Canada using similar conventional underground mining methods and exporting an amount of potash to Brazil equal to the amount of potash that we anticipate producing.

We believe that Brazil’s government recognizes that reliance on imported potash is not a tenable long-term solution. In 2022, Brazil launched a national fertilizer plan that aims to reduce its use of imported fertilizers from 85% of its current aggregate use to 45% by 2050, which implies obtaining approximately 6.6 million tons of potash from domestic sources. The Autazes Project’s expected at-scale production of an average of approximately 2.4 million tons of MOP per year is expected to help Brazil achieve this objective. Additionally, the Autazes Project was designated as a project of “National Importance” by Brazil’s Federal Government and National Observatory in September 2020. The Federal Government of Brazil also admitted the Autazes Project into the Brazilian Investment Partnership Program in September 2021, which provides us with direct access to Brazil’s Attorney General to provide support on legal matters, and indicates that the Autazes Project should be a top priority for government officials in terms of their review of our permit and license applications. Furthermore, we believe that by purchasing the potash produced at the Autazes Project, Brazil will lower its total agricultural carbon footprint with a dramatically lower GHG emissions profile, as compared to purchasing potash from overseas producers. The Autazes Project is an asset intended to be ‘by Brazil, for Brazil’, with 100% of our produced potash expected to go to Brazilian farmers.

Competition

The potash mining industry is subject to competitive factors, including, among others, the following:

- Global macro-economic conditions and shifting dynamics, including trade tariffs and restrictions and increased price competition, or a significant change in agriculture production or consumption trends, could lead to a sustained environment of reduced demand for potash, and/or low commodity prices, which could favor competitors;
- Our products will be subject to price competition from both domestic and foreign potash producers, including foreign state-owned and government-subsidized entities, who will be less impacted by fluctuations in global potash prices;
- Potash is a global commodity with little or no product differentiation, and customers make their purchasing decisions principally on the basis of delivered price and, to a lesser extent, on customer service;
- Most of the potash mining companies with which we will be competing have a developed potash mining and production capacity, existing customer relationships, and greater financial resources and technical capabilities than we have at this point in time;
- Competitors and potential new entrants in the markets for potash have in recent years expanded capacity, begun construction of new capacity, or announced plans to expand capacity or build new facilities; and
- Some potash customers require access to credit to purchase potash, and a lack of available credit to customers could adversely affect demand for our potash as there may be an inability for such customers to replenish their inventories due to a lack of credit. Additionally, we currently do not intend to provide credit to customers in connection with their purchases of potash from us, however, certain of our competitors may do so, and customers may choose to purchase potash from such competitors for this reason.

Furthermore, the mining business is competitive in all phases of exploration, development and production. We will compete with a number of other mining companies in the procurement of equipment and for the hiring of skilled labor. We also compete for financing with other mineral resource companies, many of which have greater financial resources and/or more advanced properties than us. Upon commencement of our operations, some of our largest competitors would include The Mosaic Company in Brazil, and Nutrien Ltd., Uralkali PJSC, and Belaruskali OAO outside of Brazil. As a result of this competition, we may in the future be unable to raise additional capital. There can be no assurance that additional capital or other types of financing will be available if needed or that, if available, the terms of such financing will be favorable to us.

Our ability to raise additional capital will depend on our success in developing the Autazes Project. Factors beyond our control may affect our ability to successfully develop the Autazes Project and commence mining operations and potash production. As a result of the competitive factors mentioned above or those that may not be known by us at this time, we may not be able to successfully develop and complete the Autazes Project. See also “Risk Factors—Risks Related to Mining.”

Summary Risk Factors

There are a number of risks that you should carefully consider before making an investment decision regarding this offering. These risks are discussed more fully in the section entitled "Risk Factors" beginning on page 26 of this prospectus. You should read and carefully consider these risks and all of the other information in this prospectus, including the financial statements and the related notes thereto included in this prospectus, before deciding whether to invest in our Common Shares. If any of these risks actually occur, our business, financial condition, operating results and cash flows could be materially adversely affected. In such case, the trading price of our Common Shares would likely decline, and you may lose all or part of your investment. These risk factors include, but are not limited to:

- We are a development stage company, and there is no guarantee that the Autazes Project will result in the commercial extraction of potash.
- The commencement of our mining operations for the Autazes Project is subject to various risks.
- Significant long-term changes in the agriculture space could adversely impact our business.
- Shifting global dynamics may result in a prolonged agriculture downturn.
- Our ability to raise additional financing may be affected by global market conditions that we do not control and cannot predict.
- We are subject to various levels of political, economic and other risks and uncertainties associated with operating in Brazil.
- We do not currently have an operating mine, and the development of the Autazes Project into an active mining operation is highly speculative in nature, may be unsuccessful, and may never result in the development of an operating mine.
- The failure to acquire or purchase all of the land intended for the operation of the Autazes Project could adversely impact our development of the Autazes Project.
- Governmental regulations, including mining and environmental laws, regulations and other legislation, may increase our costs of doing business, restrict our operations, or result in the imposition of fines, the revocation of permits, or the shutdown of our facilities.
- Our business is highly dependent on the market demand for and prices of the potash we plan to mine and produce, which are both cyclical and volatile.
- Our estimates of potash ore resources and reserves may be materially different from the quantities of potash we actually recover, and market price fluctuations and changes in operating and capital costs may render certain potash ore reserves uneconomical to mine.
- Mining operations involve inherent risks and uncertainties, some of which are not insurable.
- The potash mining industry is highly competitive.
- Our long-term success will depend ultimately on our ability to achieve and maintain profitability and to develop positive cash flow from our mining activities.
- We have no history of mining operations on which to judge our business prospects and management, and may never achieve active potash production.
- We have a history of negative operating cash flows and net losses, and we have never achieved and may never achieve or sustain profitability.
- Our financial situation creates substantial doubt whether we will continue as a going concern.

- We will need but may be unable to obtain additional funding on satisfactory terms, which could dilute our shareholders or impose burdensome financial restrictions on our business.
- We may face potential opposition to the Autazes Project, which could increase our operating costs or result in substantial delays or a shutdown of the Autazes Project.
- Our development depends on our management members and other key personnel and skilled labor, and our ability to attract, hire, train and retain them.
- Conflicts of interest may exist between us and certain of our directors and executives.
- Our executives, directors, major shareholders, and their respective affiliates will continue to exercise significant control over us after this offering, which will limit your ability to influence corporate matters and could delay or prevent a change in corporate control.
- As a “foreign private issuer”, we will have different disclosure and reporting requirements than U.S. domestic issuers, which could limit the information publicly available to our shareholders.
- Because we are a corporation incorporated in Ontario, Canada, and all of our directors and executives, as well as the experts named in this prospectus, reside outside of the United States, it may be difficult for investors in the United States to enforce civil liabilities against our Company, our directors, our executives, or such experts. Similarly, it may be difficult for Canadian investors to enforce civil liabilities against our directors, our executives, or such experts residing outside of Canada.
- We have broad discretion in how we use the net proceeds from this offering, and we may not use such net proceeds effectively, which could affect our results of operations and cause the market price of our Common Shares to decline.
- We believe that we will likely be classified as a passive foreign investment company for U.S. federal income tax purposes for the current taxable year, which could result in material adverse U.S. federal income tax consequences if you are a U.S. Holder.

Implications of Being an Emerging Growth Company and a Foreign Private Issuer

We are an “emerging growth company”, as defined in Section 2(a) of the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012 (which we refer to as the “JOBS Act”). As such, we are eligible to take advantage of specified reduced reporting and other requirements that are otherwise generally applicable to reporting companies that make filings with the U.S. Securities and Exchange Commission (which we refer to as the “SEC”). For so long as we remain an emerging growth company, we will not be required to, among other things:

- present more than two years of audited financial statements and two years of related management’s discussion and analysis of financial condition and results of operations disclosure in our registration statement of which this prospectus forms a part;
- have an auditor report on our internal control over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act of 2002 (which we refer to as the “Sarbanes-Oxley Act”);
- comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report to provide additional information about the audit and our financial statements (i.e., an auditor discussion and analysis);
- disclose certain executive compensation related items; and
- seek shareholder non-binding advisory votes on certain executive compensation matters and golden parachute arrangements, to the extent applicable to us as a foreign private issuer.

In addition, under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. Given that we currently report, and expect to continue to report, under IFRS as issued by the IASB, we will not be able to avail ourselves of this extended transition period, and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such accounting standards is required by the IASB.

We will remain an emerging growth company until the earlier of (i) the last day of the fiscal year following the fifth anniversary of the completion of this offering, (ii) the last day of the first fiscal year during which we have total annual gross revenue of at least \$1.235 billion, (iii) the date on which we are deemed to be a “large accelerated filer” under the Securities Exchange Act of 1934, as amended (which we refer to as the “Exchange Act”), which means the market value of our Common Shares that are held by non-affiliates exceeds \$700.0 million as of the last business day of our most recently completed second fiscal quarter, and (iv) the date on which we have issued more than \$1.0 billion in non-convertible debt securities during the prior three-year period.

Additionally, upon the consummation of this offering, we will be a “foreign private issuer” under the Exchange Act and will report in accordance with the rules and regulations applicable to a “foreign private issuer”. As a foreign private issuer, we will take advantage of certain provisions under the rules that allow us to follow the laws of the Province of Ontario for certain corporate governance matters. Even when we no longer qualify as an emerging growth company, as long as we continue to qualify as a foreign private issuer under the Exchange Act, we will be exempt from certain provisions of the Exchange Act that are applicable to U.S. domestic public companies, including:

- the sections of the Exchange Act regulating the solicitation of proxies, consents or authorizations with respect to a security registered under the Exchange Act;
- the rules under the Exchange Act requiring the filing with the SEC of quarterly reports on Form 10-Q containing unaudited financial and other specified information, and current reports on Form 8-K upon the occurrence of specified significant events;
- the rules under the Exchange Act requiring U.S. domestic public companies to issue financial statements prepared under U.S. GAAP; and
- Regulation Fair Disclosure (also known as “Regulation FD”), which regulates selective disclosures of material information by issuers.

As a foreign private issuer, we will have four months after the end of each fiscal year to file our annual report on Form 20-F with the SEC. In addition, our executive officers, directors, and principal shareholders will be exempt from the requirements to report transactions in our equity securities and from the short-swing profit liability provisions contained in Section 16 of the Exchange Act.

Foreign private issuers, like emerging growth companies, are exempt from certain more stringent executive compensation disclosure rules. As such, even when we no longer qualify as an emerging growth company, as long as we continue to qualify as a foreign private issuer under the Exchange Act, we will continue to be exempt from the more stringent compensation disclosures required of public companies that are not a foreign private issuer.

We may take advantage of these exemptions until such time as we are no longer a foreign private issuer. We are required to determine our status as a foreign private issuer on an annual basis at the end of our second fiscal quarter. We would cease to be a foreign private issuer at such time as more than 50% of our outstanding voting securities are held by U.S. residents and any of the following three circumstances applies:

- (i) the majority of our executive officers or directors are U.S. citizens or residents;
- (ii) more than 50% of our assets are located in the United States; or

(iii) our business is administered principally in the United States.

In this prospectus, we have taken advantage of certain of the reduced reporting requirements as a result of being an emerging growth company and a foreign private issuer. Accordingly, the information that we provide in this prospectus may be different than the information you may receive from other public companies in which you hold equity interests. If some investors find our securities less attractive as a result, there may be a less active trading market for our securities and the prices of our securities may be more volatile.

Corporate Information

Our legal and commercial name is Brazil Potash Corp. We were incorporated on October 10, 2006 under the laws of the Province of Ontario, Canada, and are headquartered in Toronto, Ontario, Canada. We were formed to engage in the exploration and mining of potash in Brazil.

Our agent for service of process in the United States is CT Corporation System, located at 28 Liberty Street, New York, New York 10005. Our principal executive offices are located at 198 Davenport Road, Toronto, Ontario, Canada, M5R 1J2, and our main telephone number is +1(416) 309-2963. Our internet website is www.brazilpotash.com. The information contained in, or that can be accessed through, our website is not incorporated by reference into, and is not a part of, this prospectus or our registration statement of which this prospectus forms a part. You should not consider any information on our website to be a part of this prospectus or our registration statement of which this prospectus forms a part, or use any such information in your decision on whether to purchase our Common Shares. We have included our website address in this prospectus solely as an inactive textual reference.

THE OFFERING	
Issuer	Brazil Potash Corp., a corporation existing under the laws of the Province of Ontario, Canada.
Common Shares Offered by Us	Common Shares.
Offering Price	We currently expect the initial public offering price to be between \$ and \$ per Common Share.
Over-Allotment Option	We have granted to the underwriters an option to purchase up to additional Common Shares from us at the initial public offering price, less the underwriting discounts and commissions, to cover over-allotments, if any, for a period of 30 days from the date of this prospectus.
Common Shares to be Outstanding Immediately After this Offering⁽¹⁾	Common Shares (or Common Shares if the underwriters exercise in full their option to purchase additional Common Shares).
Use of Proceeds	<p>We estimate that the net proceeds to us from this offering will be approximately \$ (or \$ if the underwriters exercise in full their option to purchase additional Common Shares), assuming an initial public offering price of \$ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus), after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.</p> <p>The principal purposes of this offering are to fund our pre-operation development expenses, increase our capitalization and financial flexibility, create a market for our Common Shares, and facilitate our future access to the public equity markets. We intend to use the net proceeds from this offering primarily to fund our pre-operation development expenses, and for working capital and general corporate purposes, which will include, among others, expenses relating to (i) obtaining and complying with our environmental licenses, (ii) engineering, procurement and construction for critical path items, and (iii) other pre-operation administrative matters, such as obtaining the Operational License, the Mining Concession, and other remaining required authorizations, permits and licenses for the Autazes Project, purchasing the remaining land for certain project sites, primarily consisting of the sites to be used for the dry stacked tailings piles, and maintaining our mineral rights. See "Use of Proceeds".</p>
Lock-Up	Each of our directors and executives, and each of our shareholders that holds at least 5% of our outstanding Common Shares immediately prior to this offering, has agreed with the underwriters, subject to certain specified exceptions, not to offer, sell, contract to

	<p>sell, grant any option for the sale of, pledge, transfer, or otherwise dispose of, any Common Shares for a period of 365 days following the date of this prospectus, without the prior written consent of Cantor Fitzgerald & Co., as a representative for the underwriters. However, 50% of the Common Shares that are subject to the lock-up described above will be released from such lock-up, if (i) at least 180 days from the date of this prospectus have elapsed, and (ii) at any point prior to such release, the 20-day volume-weighted average price of the Common Shares was at least 30% greater than the initial public offering price per share set forth on the cover of this prospectus. In addition, we have agreed, subject to certain exceptions, that, for a period of 180 days from the date of this prospectus, we will not offer, sell, contract to sell, grant any option for the sale of, issue, pledge, transfer, or otherwise dispose of any Common Shares, or publish our intention to do any of the foregoing. See “Underwriting—No Sales of Similar Securities” for more information.</p>
Underwriters’ Warrants	<p>We have agreed to issue to the underwriters, upon the closing of this offering, warrants exercisable for the number of our Common Shares equal to 5% of the total number of Common Shares sold in this offering (which we refer to as the “Underwriters’ Warrants”). The Underwriters’ Warrants will be exercisable at an exercise price equal to 130% of the initial public offering price of our Common Shares sold in this offering, will be exercisable, in whole or in part, from time to time after six months following the date of this prospectus, and will expire on the date that is two years following the date of this prospectus. See “Underwriting—Underwriters’ Warrants.”</p>
Listing	<p>We intend to apply for the listing of our Common Shares on the New York Stock Exchange (which we refer to as “NYSE”) under the symbol “GRO”.</p>
Dividend Policy	<p>We currently intend to retain any future earnings to finance the development of our operations, and, therefore, do not intend to pay any cash dividends in the foreseeable future. See “Dividend Policy”.</p>
Transfer Agent	<p>The transfer agent and registrar for our Common Shares is TSX Trust Company, located at 100 Adelaide Street West, Suite 301, Toronto, Ontario, Canada, M5H 4H1, and the U.S. co-transfer agent for our Common Shares is Continental Stock Transfer & Trust Company, located at 1 State Street, 30th Floor, New York, New York 10004.</p>
Risk Factors	<p>Investing in our Common Shares is highly speculative and involves a high degree of risk. You should carefully read and consider the information under the section entitled “Risk Factors” beginning on page 26 of this prospectus, and all other information contained in this prospectus, before deciding to invest in our Common Shares.</p>
<hr/>	
	<p>(1) The number of our Common Shares to be outstanding immediately after this offering does not include:</p> <ul style="list-style-type: none">(a) up to an aggregate of 1,147,500 Common Shares issuable upon the exercise of outstanding common share purchase warrants, which are exercisable at an exercise price of \$1.00 per Common Share;

[Table of Contents](#)

- (b) up to an aggregate of 4,605,833 Common Shares issuable upon the exercise of outstanding stock options, of which 935,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$1.00 per Common Share, 3,157,500 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$2.50 per Common Share, 213,333 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$3.75 per Common Share, and 300,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$4.00 per Common Share;
- (c) up to an aggregate of 16,433,333 Common Shares issuable with respect to outstanding deferred share units (which we refer to as “DSUs”); and
- (d) an aggregate of 21,692,812 Common Shares reserved and available, as of the date of this prospectus, for awards that may be granted in the future under our 2024 Incentive Compensation Plan (as defined under “Executive and Director Compensation—2024 Incentive Compensation Plan”).

Except as otherwise indicated, all information in this prospectus assumes no exercise by the underwriters of (i) their option to purchase additional Common Shares from us, or (ii) the Underwriters’ Warrants.

SUMMARY CONSOLIDATED FINANCIAL INFORMATION

The following tables set forth a summary of our consolidated financial information as of March 31, 2024 and for the three months ended March 31, 2024 and 2023, and as of and for the years ended December 31, 2023, 2022 and 2021. You should read the following summary consolidated financial information in conjunction with, and it is qualified in its entirety by reference to, our audited consolidated financial statements as of and for the years ended December 31, 2023, 2022 and 2021 and the related notes thereto, our unaudited condensed interim consolidated financial statements as of March 31, 2024 and for the three months ended March 31, 2024 and 2023 and the related notes thereto, and the sections entitled “Capitalization”, “Selected Consolidated Financial Information” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations”, each of which are included elsewhere in this prospectus.

Our summary consolidated statements of loss and other comprehensive loss information for the years ended December 31, 2023, 2022 and 2021, and our related summary consolidated statements of financial position information as of December 31, 2023, 2022 and 2021, have been derived from our audited consolidated financial statements as of and for the years ended December 31, 2023, 2022 and 2021, prepared in accordance with IFRS, which are included elsewhere in this prospectus. Our summary consolidated statements of loss and other comprehensive loss information for the three months ended March 31, 2024 and 2023, and our related summary consolidated statements of financial position information as of March 31, 2024, have been derived from our unaudited condensed interim consolidated financial statements as of March 31, 2024 and for the three months ended March 31, 2024 and 2023, prepared in accordance with IFRS, which are included elsewhere in this prospectus. Our management believes that the unaudited interim financial information below includes all adjustments, consisting of only normal nonrecurring adjustments, considered necessary for a fair presentation of such financial information. Our historical selected consolidated statements of loss and other comprehensive loss information for the interim period ended March 31, 2024 is not necessarily indicative of the results that may be expected for the full fiscal year. Our historical results for the periods presented below are not necessarily indicative of the results to be expected for any future periods.

	Three months ended March 31,		Year Ended December 31,		
	2024	2023	2023	2022	2021
Statements of Loss and Other Comprehensive Loss Information:					
Expenses:					
Consulting and management fees	\$ 577,465	\$ 3,796,388	\$ 5,441,156	\$ 2,713,548	\$ 2,023,284
Professional fees	54,380	407,909	1,453,310	2,185,220	644,117
Share-based compensation	629,033	(103,985)	4,703,254	24,474,191	357,189
Travel expenses	82,541	127,713	390,531	2,704,879	231,821
General office expenses	36,605	32,262	120,228	183,843	148,715
Foreign exchange loss	(3,054)	(3,680)	(10,552)	62,479	68,243
Communications and promotions	59,392	60,130	1,251,155	398,880	62,528
Operating loss	\$ 1,436,362	\$ 4,316,737	\$ 13,349,082	\$ 32,723,040	\$ 3,535,897
Finance costs	\$ —	\$ —	\$ —	\$ —	\$ 405,249
Finance income	(4,444)	(115,727)	(302,720)	(259,019)	(5,056)
Loss for the period before income taxes	\$ 1,431,918	\$ 4,201,010	\$ 13,046,362	\$ 32,464,021	\$ 3,936,090
Income taxes	\$ 20,687	\$ 33,466	\$ 160,838	\$ 155,360	\$ 93,276
Loss for the period after income taxes	\$ 1,452,605	\$ 4,234,476	\$ 13,207,200	\$ 32,619,381	\$ 4,029,366
Other income (expense):					
<i>Items that subsequently may be reclassified into net income:</i>					
Foreign currency translation	\$ 2,204,377	\$ (1,697,715)	\$ (4,912,866)	\$ (3,881,076)	\$ 4,131,016
Total comprehensive loss for the period	\$ 3,656,982	\$ 2,536,761	\$ 8,294,334	\$ 28,738,305	\$ 8,160,382
Basic and diluted loss per share	\$ 0.01	\$ 0.03	\$ 0.09	\$ 0.23	\$ 0.03
Weighted average number of common shares outstanding – basic and diluted	142,358,675	140,929,082	141,569,049	139,629,405	131,176,764

[Table of Contents](#)

	<u>March 31,</u> <u>2024</u>	<u>2023</u>	<u>December 31,</u> <u>2022</u>	<u>2021</u>
Statements of Financial Position Information				
(end of period):				
ASSETS:				
Current				
Cash and cash equivalents	\$ 1,143,184	\$ 2,450,239	\$ 11,804,907	\$ 15,144,419
Amounts receivable	92,108	149,757	167,854	2,616,544
Prepaid expenses	258,013	236,329	98,884	99,566
Total current assets	<u>\$ 1,493,305</u>	<u>\$ 2,836,325</u>	<u>\$ 12,071,645</u>	<u>\$ 17,860,529</u>
Non-current				
Property and equipment	\$ 980,892	\$ 1,012,032	\$ 936,707	\$ 866,961
Exploration and evaluation assets	126,628,457	129,298,494	120,216,752	112,188,359
Total assets	<u>\$ 129,102,654</u>	<u>\$ 133,146,851</u>	<u>\$ 133,225,104</u>	<u>\$ 130,915,849</u>
LIABILITIES:				
Current				
Trade payables and accrued liabilities	\$ 1,842,526	\$ 1,730,103	\$ 1,154,872	\$ 2,005,960
Total current liabilities	<u>\$ 1,842,526</u>	<u>\$ 1,730,103</u>	<u>\$ 1,154,872</u>	<u>\$ 2,005,960</u>
Non-current				
Deferred income tax liability	2,148,494	2,196,087	1,883,661	1,617,383
Total liabilities	<u>\$ 3,991,020</u>	<u>\$ 3,926,190</u>	<u>\$ 3,038,533</u>	<u>\$ 3,623,343</u>
EQUITY:				
Share capital	\$ 243,237,728	\$ 242,487,728	\$ 235,611,237	\$ 227,154,731
Share-based payments reserve	63,078,202	64,280,247	63,924,814	43,023,258
Warrants reserve	604,000	604,000	604,000	604,000
Accumulated other comprehensive loss	(67,623,860)	(65,419,483)	(70,332,349)	(74,213,425)
Deficit	(114,184,436)	(112,731,831)	(99,621,131)	(69,276,058)
Total equity	<u>\$ 125,111,634</u>	<u>\$ 129,220,661</u>	<u>\$ 130,186,571</u>	<u>\$ 127,292,506</u>
Total liabilities and equity	<u>\$ 129,102,654</u>	<u>\$ 133,146,851</u>	<u>\$ 133,225,104</u>	<u>\$ 130,915,849</u>

RISK FACTORS

An investment in our Common Shares is highly speculative and involves a high degree of risk. We operate in a dynamic and rapidly changing industry that involves numerous risks and uncertainties. You should carefully consider the factors described below, together with all of the other information contained in this prospectus, including our audited consolidated financial statements and the related notes included in this prospectus, before deciding whether to invest in our Common Shares. If any of the following risks actually occurs, our business, results of operations, liquidity, financial condition, and prospects could be materially and adversely affected. In that event, the market price of our Common Shares could decline, and you could lose part or all of your investment. Some statements in this prospectus, including statements in the following risk factors, constitute forward-looking statements. Please refer to the section entitled “Cautionary Note Regarding Forward-Looking Statements.”

Risks Related to our Business

We are a development stage company, and there is no guarantee that the Autazes Project will result in the commercial extraction of potash.

We are currently in the development stage of the Autazes Project, and have not yet commenced commercial extraction, processing, sale, or distribution of potash ore. Accordingly, we do not expect to realize profits in the short term, and we also cannot assure you that we will realize profits in the medium to long term or ever. Any profitability in the future from our business will be dependent upon further development of the Autazes Project, which is subject to various risks.

The exploration and development of potash ore involves a high degree of financial risk over a significant period of time. There is no guarantee that current development plans will result in profitable commercial mining operations. The profitability of our operations will be, in part, related to the cost and success of our development plans, which may be affected by several factors. Additional expenditures are required to construct, complete and install mining and processing facilities for the Autazes Project.

Additionally, development-stage projects like ours have no operating history upon which to base estimates of future operating costs and capital requirements. Operating results for future periods are subject to numerous uncertainties, and we cannot assure you that we will ever be able to develop and produce potash from a commercially viable mine on the Autazes Property, or achieve or sustain profitability. Items such as future estimates of reserves or operating costs will to a large extent be based upon the interpretation of geologic data, obtained from a limited number of drill holes and other sampling techniques, as well as the Technical Report. Our prospects must be considered in light of the risks encountered by mining companies in the early stage of project development. Actual operating costs and economic returns from our mining operations once they have commenced may materially differ from our estimated operating costs and economic returns, and accordingly, our results of operations, cash flows, and financial condition may be materially and adversely affected.

The commencement of our mining operations for the Autazes Project is subject to various risks.

Our level of profitability, if any, in future years will depend to a great degree on prices of potash set by global markets and whether the Autazes Project can be brought into production. Whether we can commence our mining operations depends on a number of factors, including, but not limited to:

- the willingness of lenders and investors to provide project financing;
- the particular attributes of the potash deposit on the Autazes Property, such as its grade;
- prices for potash;
- mining, processing and transportation costs;
- labor costs; and

[Table of Contents](#)

- governmental regulations, including, without limitation, regulations relating to prices, taxes, land use, protection of local indigenous communities, importing and exporting materials, foreign exchange, environmental protection, employment, worker safety, transportation, and reclamation and closure obligations.

The exact effect of these factors cannot be accurately predicted, but any of these factors on their own or a combination of these factors may materially and adversely affect our results of operations, financial condition, and prospects.

Significant long-term changes in the agriculture space could adversely impact our business.

The agricultural landscape is evolving at an increasingly fast pace as a result of various factors, including farm and industry consolidation, agricultural productivity and development, and climate change. Farm consolidation in developed markets has been ongoing for decades and is expected to continue as farmer demographics shift and advancements in innovative technology and equipment enable farmers to manage larger operations to create economies of scale in a lower-margin, more capital-intensive environment, which will also provide such consolidated agricultural entities with more bargaining power in connection with their purchases of potash. The advancement and adoption of technology and digital innovations in agriculture and across the value chain have increased and are expected to further accelerate as farmer demographics shift and pressures from consumer preference and governments evolve. The development of seeds that require less crop nutrients, development of full or partial substitutes for potash, or developments in the application of crop nutrients such as improved nutrient use or efficiency through use of precision agriculture could also emerge, all of which have the potential to adversely affect the demand for potash and our results of operations.

Additionally, increased consolidation in the crop nutrient industry has resulted in greater resources dedicated to expansion and research and development opportunities, leading to increased competition in advanced product offerings and innovative technologies. Some of our competitors have greater total resources or are state-supported, which make them less vulnerable to industry downturns and better positioned to pursue new expansion and development opportunities.

These factors as well as others (such as changes in dietary habits) could adversely affect long-term demand for our products and services, and materially and adversely affect our results of operations, financial condition, and prospects.

Shifting global dynamics may result in a prolonged agriculture downturn.

Global macro-economic conditions and shifting dynamics, including trade tariffs and restrictions and increased price competition, or a significant change in agriculture production or consumption trends, could lead to a sustained environment of reduced demand for potash, and/or low commodity prices. The potash market is subject to intense price competition from both domestic and foreign sources, including state-owned and government-subsidized entities which are better able to absorb these shifting dynamics. Potash is a global commodity with little or no product differentiation, and customers make their purchasing decisions principally on the basis of delivered price and, to a lesser extent, on customer service. Supply is affected by available capacity and operating rates, raw material costs and availability, government policies, and global trade. Periods of high-demand, high-capacity utilization, and increasing operating margins tend to result in investment in production capacity, which may cause supply to exceed demand and capacity utilization and realized selling prices for potash to decline, resulting in possible reduced profit margins. Competitors and potential new entrants in the market for potash have in recent years expanded capacity, begun construction of new capacity, or announced plans to expand capacity or build new facilities. The extent to which current global or local economic and financial conditions, changes in such conditions, or other factors may cause delays or cancellation of some of these ongoing or planned projects, or result in the acceleration of existing or new projects, is uncertain. Future growth in demand for our products may not be sufficient to absorb excess industry capacity.

[Table of Contents](#)

We are impacted by global market and economic conditions that could adversely affect demand for crop nutrients, or increase prices for, or decrease availability of, raw materials and energy necessary to produce potash. This includes the relative value of the U.S. dollar and its impact on the importation of fertilizers, foreign agricultural policies, the existence of, or changes in, import or foreign currency exchange barriers in certain foreign markets, and other regulatory policies of foreign governments, trade wars and measures taken by governments which may be deemed protectionist, as well as the laws and policies affecting foreign trade and investment. Furthermore, some customers require access to credit to purchase potash, and a lack of available credit to customers in one or more countries, due to this deterioration, could adversely affect demand for crop nutrients as there may be an inability to replenish inventories in such conditions. We currently do not intend to provide credit to customers in connection with their purchases of potash from us, however, certain of our competitors may do so, and customers may choose to purchase potash from such competitors for this reason.

Our ability to raise additional financing may be affected by global market conditions that we do not control and cannot predict.

In order for us to complete the development and construction of the Autazes Project and commence commercial extraction of potash, we will need to raise additional financing after the completion of this offering, which may include additional equity and/or debt financings. Recent global financial conditions, however, have been characterized by increased volatility, and access to public financing, particularly for development stage companies, has been negatively impacted. These conditions may affect our ability to obtain equity or debt financing in the future on terms favorable to us or at all. If such conditions continue, we may not be able to complete the development and construction of the Autazes Project, and our business and prospects could be materially and adversely impacted.

We are subject to various levels of political, economic and other risks and uncertainties associated with operating in Brazil.

The Autazes Project and the Autazes Property are located in Brazil, and, as a result, our operations are exposed to various levels of political, economic and other risks and uncertainties associated with operating in a foreign jurisdiction. These risks and uncertainties include, but are not limited to:

- fluctuations in currency exchange rates, restrictions on foreign exchange, currency controls, and currency remittance;
- price controls;
- import or export controls;
- high rates of inflation;
- labor unrest;
- community relations;
- renegotiation or nullification of existing concessions, licenses, permits, applications and contracts;
- expropriation and nationalization;
- illegal mining;
- tax disputes and changes in tax policies;
- governmental regulations that may require the awarding of contracts of local contractors or require foreign contractors to employ citizens of, or purchase supplies from, a particular jurisdiction;
- changing political conditions, including corruption;
- terrorism and hostage taking; and
- risks of war or civil unrest, including military repression.

[Table of Contents](#)

Changes, if any, in mining or investment policies or shifts in political attitudes in Brazil may adversely affect our operations. We may become subject to local political unrest or poor community relations that could have a debilitating impact on our operations and could result in damage to site infrastructure and injury to personnel. Additionally, our planned operations may be affected to varying degrees by government regulations with respect to, among other things, restrictions on production, price controls, export controls, currency remittance, income taxes, expropriation of property, foreign investment, maintenance of claims, environmental legislation, land use, land claims of local people, water use, and mine safety. Any failure by us to comply with applicable laws, regulations and local practices may result in loss, reduction or expropriation of entitlements, and enforcement actions, including corrective measures requiring capital expenditures, installing of additional equipment, increasing security at the site, or other remedial actions. Parties engaged in mining operations may be required to compensate those suffering loss or damage as a result of mining activities, and may have administrative, civil or criminal fines or penalties imposed for violations of applicable laws or regulations, which may materially and adversely affect our results of operations, financial condition, and prospects.

Furthermore, on October 31, 2022, Luiz Inácio “Lula” da Silva (“President Lula”) was elected as the next president of Brazil with a four-year term commencing in January 2023. As part of President Lula’s electoral campaign, he made public statements regarding being committed to stopping illegal mining, but was also supportive of legal, permitted mining in Brazil. Nonetheless, it is difficult to predict how President Lula’s new term will affect Brazil’s mining industry and regulatory regime at this time. In the event that President Lula determines to pass more stringent regulations on Brazil’s mining industry, our business and prospects could be materially and adversely impacted.

The occurrence of any of these various factors and uncertainties cannot be accurately predicted and could have an adverse effect on our operations and profitability.

Our business, financial condition and results of operations may be adversely affected by inflation.

Brazil has historically experienced high rates of inflation. Inflation, as well as government efforts to combat inflation, has had significant negative effects on the Brazilian economy. The Brazilian federal government’s measures to control inflation have often included maintaining a tight monetary policy with high interest rates, thereby restricting the availability of credit and reducing economic growth. Inflation, actions that may be implemented to combat inflation, and public speculation about any possible additional actions may also contribute to economic uncertainty in Brazil and weaken investor confidence in Brazil, which may adversely impact our ability to access the capital markets. Conversely, more lenient government and Brazilian Central Bank policies and interest rate decreases may trigger increases in inflation and, consequently, growth volatility and the need for sudden and significant interest rate increases, which could materially and adversely affect our business.

As a result, Brazil may continue to experience high levels of inflation in the future, which may negatively impact domestic demand for our products, result in higher labor, transportation, machinery and raw materials costs, and consequently cause our development, construction, and operating costs for the Autazes Project to be substantially higher than initially estimated. Inflationary pressures may also lead to further government intervention in the economy, including the introduction of government policies that may materially and adversely affect the overall performance of the Brazilian economy, which in turn may limit our ability to obtain additional financing at acceptable interest rates and terms, if at all, and materially and adversely affect our business. In addition, we may not be able to adjust the prices we charge to our customers to offset the effects of inflation on our cost structure.

Our results of operations and financial condition may be materially and adversely affected by currency exchange rate fluctuations.

We are subject to risks related to currency exchange rate fluctuations. Our reporting currency is the dollar of the United States of America, which is exposed to fluctuations against other currencies. Our primary operations

[Table of Contents](#)

are located in Brazil where expenditures and obligations are incurred in the Brazilian real. As such, our results of operations are subject to foreign currency fluctuation risks and such fluctuations may adversely affect our financial position and operating results. We have not undertaken any actions to mitigate transactional volatility in the United States dollar to the Brazilian real at this time. While we may enter into foreign currency forward contracts in the future in order to match or partially offset existing currency exposures, there is no guarantee that such contracts would fully mitigate our currency exposure.

The nature of our business includes risks related to litigation, regulatory and administrative proceedings, including the costs of such proceedings and the potential for damage awards that could materially and adversely affect our business and financial performance in the event of an unfavorable ruling.

The nature of our business exposes us to various risks related to litigation, including regulatory and administrative proceedings, governmental investigations, tax matters, environmental matters, health and safety matters, labor matters, civil liability claims, tort claims, and contract disputes, among others. Litigation and other proceedings can be inherently costly and unpredictable, making it difficult to accurately estimate the outcome of existing or future litigation. In addition, responding to such claims and defending such actions may be distracting to our management team. Although we establish provisions as we deem necessary in accordance with IFRS, the amount of provisions that we record could vary significantly from any amounts we actually pay, due to the inherent uncertainties and shortcomings in the estimation process. Future litigation costs, settlements or judgments could materially and adversely affect our results of operations and financial condition. Legal proceedings could have a material adverse effect on our ability to conduct our business and on our results of operations and financial condition, through increased litigation costs, settlements or judgements, diversion of resources, distraction of our management team, reputational damage, or otherwise.

Unpredictable events, such as the outbreak of the COVID-19 pandemic and associated business disruptions, could delay our operations, affect our ability to raise capital, increase our costs and expenses, and seriously harm our future results of operations and financial condition.

Our operations could be subject to unpredictable events, such as extreme weather conditions, acts of God and epidemics such as the COVID-19 outbreak, and other natural or manmade disasters, or business interruptions, for which we may not be adequately prepared or self-insured. For example, Brazil has been hard hit by the COVID-19 pandemic with over 38.2 million cases and over 708,000 deaths as of December 31, 2023. The Amazon city of Manaus, which is the largest city near the Autazes Project, has been particularly hard hit, which resulted in temporary lockdown measures put into place to contain the surge of COVID-19 cases. Our additional consultations with indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169, which initially started in November 2019, were suspended in March 2020 due to the COVID-19 pandemic, and we were allowed to resume such consultations in April 2022 following the lifting of COVID-19 related restrictions.

We do not carry insurance for all categories of risk that our business may encounter. The occurrence of any such business disruptions could increase our costs and expenses and seriously harm our operations and financial condition. The ultimate impact on us and the potash mining sector of any such business disruptions is unknown, but our operations and financial condition could suffer in the event of any of these types of unpredictable events. Furthermore, any significant uninsured liability may require us to pay substantial amounts, which would adversely affect our business, results of operations, cash flows, and financial condition.

Risks Related to Mining

We do not currently have an operating mine, and the development of the Autazes Project into an active mining operation is highly speculative in nature, may be unsuccessful, and may never result in the development of an operating mine.

The Autazes Project is at the development stage. Mine development is highly speculative in nature, involves many risks and uncertainties, and is frequently unsuccessful. First, mineral exploration must be performed to demonstrate the dimensions, position and mineral characteristics of mineral deposits, estimate Mineral Resources, assess amenability of the deposit to mining and processing scenarios, and estimate potential deposit size. Once mineralization is discovered, it may take a number of years from the initial exploration phases before mineral development and production is possible, during which time the potential feasibility of the project may change adversely. Even if mineralization is discovered, that mineralization may not be economic to mine. A significant number of years, studies, and substantial expenditures are required to establish economic mineralization in the form of Proven Mineral Reserves and Probable Mineral Reserves, to determine processes to extract the metals, to obtain the rights to the land and the resources (including capital) required to develop the mining operation, and to construct mining and processing facilities.

Additionally, whether developing an operating mine is economically feasible will depend upon numerous additional factors, most of which are beyond our control, including the availability and cost of required development capital, movement in the price of potash, as well as obtaining all necessary consents, permits and approvals for the development of the mine. The economic feasibility of development projects is based upon many factors, including the accuracy of Mineral Resource and Mineral Reserve estimates; metallurgical recoveries; capital and operating costs; government regulations relating to prices, taxes, royalties, land tenure, land use, importing and exporting, and environmental protection; and commodity prices, which are highly volatile. Development projects are also subject to the successful initial completion and any required subsequent updating of the Technical Report. Any of these factors and uncertainties may result in us being unable to successfully develop a commercially viable operating mine.

The failure to acquire or purchase all of the land intended for the operation of the Autazes Project could adversely impact our development of the Autazes Project.

Under our current development plan for the Autazes Project, we intend to own, through Potássio do Brasil Ltda., 39 properties on which the facilities and infrastructure for the Autazes Project will be located. We currently have rights of access to 24 properties consisting of a total area of approximately 5.4 square miles, which include surface rights on the land on which our proposed mine shafts, processing plant, and port for the Autazes Project will be constructed. We believe that, through administrative land regularization proceedings with Brazilian governmental agencies (such as the Brazilian Institute of Settlement and Land Reform, the Brazilian Ministry of Industry and Trade, and other agencies), we will be able to, and intend to, convert such current rights of access into ownership of these 24 properties. Additionally, in March, April and May 2024, we entered into agreements to lease, for a term of six years, the remaining 15 properties consisting of a total area of approximately 4.2 square miles, which primarily will be used for the sites of our dry stacked tailings piles (see also “Business—Foreign Investment Restrictions and Control—Foreign Investment Restrictions”). Each of these lease agreements also provides us with a right of first refusal to purchase the applicable leased property in the event of a sale of such property. However, there can be no assurance that we will exercise such right of first refusal options, or otherwise acquire the remaining land at a price or on terms favorable to us, or at all. To the extent we are unable to exercise the right of first refusal options for, or otherwise do not purchase, the 15 remaining properties, the Brazilian National Mining Agency is allowed to grant mining easements (servidões minerárias) in properties of third parties in relation to a given mining title, provided that such mining easement is necessary for the proper exploration and exploitation of the mineral deposit. After the granting of an easement by the Brazilian National Mining Agency, through the issuance of a “Public Utility Statement”, the holder of the mining title to which the Public Utility Statement refers must pay an indemnification amount to the owner of the servient property before entering such property. If such indemnification amount cannot be agreed upon between the holder of the mining title and the property owner, it will be determined

by a court. However, the process to obtain such mining easements can be costly and time consuming. There can be no guarantee that, despite having the right to obtain such mining easements in order to carry on our planned mining activities, we will be able to do so in a cost-and time-efficient manner. Even if any mining easements are granted to us by the Brazilian National Mining Agency, we still need to negotiate a satisfactory arrangement and indemnification amount with the owner of the servient property. Furthermore, in circumstances where no agreement can be reached, we may need to rely on a court to determine such indemnification amount, the outcome of which cannot be predicted with any certainty. Our inability to secure access to areas where we currently plan to construct certain of our facilities and infrastructure, such as our two planned tailings piles, could materially and adversely affect our timing, cost, or overall ability to develop and construct the Autazes Project.

If we fail to convert our rights of access to the 24 properties into ownership of such properties, or renew the lease agreements for, or acquire, the remaining 15 properties, we may be forced to find replacement sites for our facilities at the Autazes Project, which sites may be less convenient or difficult to access, which in turn would increase the time and/or costs to develop and construct the Autazes Project, decrease productivity at the Autazes Project once operational, and adversely affect our business, results of operations, and financial condition.

Our mining operations may be impaired due to restrictions on the acquisition or lease of rural properties by foreign investors or by Brazilian entities under foreign control or with the majority of its capital stock held by foreign persons.

Pursuant to applicable Brazilian laws and regulations, including Decree No. 74965/1974, Opinion CGU/AGU dated as of August 23, 2010, issued by the General Counsel of the Federal Government Office of Brazil (which we refer to as “Opinion CGU/AGU”), foreign individuals and foreign legal entities are subject to restrictions on the acquisition or lease of rural properties in Brazil. Such restrictions also apply to Brazilian legal entities controlled by foreign investors or with the majority of their capital stock held by foreign investors, such as in the case of Potássio do Brasil Ltda., our operating subsidiary. As such, our future ownership and/or possession of any rural properties in Brazil may be subject to legal challenges, and our operations at the Autazes Project may be impaired due to such restrictions on the acquisition or lease of rural properties.

The legality of Opinion CGU/AGU has been, and is currently being, challenged, however, prior challenges to Opinion CGU/AGU have been unsuccessful. Under current Brazilian laws and regulations, a foreign investor may only acquire or lease rural property in Brazil, without violating Opinion CGU/AGU, if certain conditions are met, including, among others, that (i) foreign investors obtain approvals from the Brazilian Institute of Settlement and Land Reform and from the applicable Ministries; (ii) the aggregate amount of rural property held by a foreign investor may not exceed 25% of the total surface area of the municipality in which such property is located; (iii) the acquisition of areas in excess of 100 indefinite exploitation modules will be subject to prior approval by the Brazilian Congress; (iv) the acquisition must be formalized by means of a public deed of sale and purchase; and (v) the acquisition of rural properties located at or near Brazil’s border areas is subject to the fulfilment of additional requirements, such as the prior authorization by the Brazilian National Defense Council. Pursuant to these laws and regulations, any agreements relating to the lease and/or direct or indirect ownership or possession of rural properties by foreign individuals or entities, as well as any agreements relating to corporate changes which might imply indirect acquisition or lease of rural properties by foreign individuals or entities, may be considered null and void. Thus, our future ownership and/or possession of any rural properties in Brazil could be subject to legal challenges and/or be considered null, any of which could result in a material adverse effect on our business, results of operations, financial condition, and cash flows.

Governmental regulations, including mining and environmental laws, regulations and other legislation, may increase our costs of doing business, restrict our operations, or result in the imposition of fines, the revocation of permits, or the shutdown of our facilities.

Our exploration and development activities are, and, once commenced, our mining operations will be, subject to governmental legislation, policies and controls relating to prospecting, development, production,

environmental protection (including plant and animal species), mining taxes, and labor standards. In order for us to carry out our activities and operations, our various permits and licenses, including the Mining Concession, must be obtained and kept current. There is no guarantee that our permits and licenses, including the Mining Concession, will be granted, or that once granted, will be maintained and extended. Additionally, the terms and conditions of such licenses or permits, including the Construction Licenses, could be changed, particularly as a result of the May 2024 Civil Lawsuit, and there can be no assurances that any application to renew any existing permits or licenses will be approved. There also can be no assurance that all permits and licenses that we require will be obtainable on reasonable terms, or at all, particularly considering that the May 2024 Civil Lawsuit is still currently pending. Delays or a failure to obtain any such permits or licenses, or a failure to comply with the terms and conditions of any such permits or licenses that we have obtained, including the Construction Licenses, could have a material adverse impact on us.

Additionally, based on our current development plan for the Autazes Project and discussions with relevant governmental authorities, we will be required to contribute approximately \$160 million to partially fund the cost of providing the required infrastructure to facilitate the development of the Autazes Project, primarily consisting of the cost of construction of a new power transmission line that will connect the Autazes Project to Brazil's national electricity grid. Moreover, we will have to obtain and comply with our permits and licenses, including the Construction Licenses and the Mining Concession, that may contain specific conditions concerning operating procedures, water use, waste disposal, spills, environmental studies, abandonment and restoration plans, and financial assurances. There can be no assurance that we will be able to fund any such contribution costs or comply with any such conditions, and any non-funding of any such contribution costs or non-compliance with any such conditions may result in the loss of certain of our permits and licenses for the Autazes Project, which may have a material adverse effect on us.

Furthermore, future taxation of mining operators cannot be predicted with certainty so planning must be undertaken using present conditions and best estimates of any potential future changes. There is no certainty that such planning will be effective to mitigate adverse consequences of future taxation on us.

We are subject to extensive environmental laws and regulations.

Our operations are subject to extensive Brazilian federal, state, and local laws and regulations governing environmental protection. Environmental legislation is evolving in a manner that is creating stricter standards, while enforcement, fines and penalties for non-compliance are more stringent. The cost of compliance with changes in governmental regulations has the potential to reduce the profitability of our operations. Furthermore, any failure to comply fully with all applicable laws and regulations could have significant adverse effects on us, including the suspension or cessation of our operations.

Our current and future operations, including development and mining activities, are subject to extensive Brazilian federal, state and local laws and regulations governing environmental protection, including regarding the protection of endangered and other special status species and the protection and remediation of mining sites. Activities at the Autazes Property may give rise to environmental damage and create liability for us for any such damage or any violation of applicable environmental laws. To the extent we are subject to environmental liabilities, the payment of such liabilities or the costs that we may incur to remedy environmental pollution would reduce otherwise available funds and could have a material adverse effect on us. If we are unable to fully remedy an environmental problem, we may be subject to administrative, civil or criminal fines or penalties, and/or be required to suspend operations or enter into compliance measures pending completion of the required remedy. The potential exposure may be significant and could have a material adverse effect on our mining project.

We are required to obtain or renew further government permits and licenses for our current development and contemplated future operations, including the respective issuances of the Operational License and the Mining Concession with respect to the Autazes Project. Additionally, we are required to maintain and comply with the terms and conditions of the Construction Licenses. See "Business—Regulatory Overview—Brazilian Mining

[Table of Contents](#)

Regulations.” Obtaining, reinstating, amending or renewing the necessary Brazilian governmental permits and licenses can be a time-consuming process, potentially involving a number of regulatory agencies, public hearings, indigenous consultations, and costly undertakings by us. The duration and success of our efforts to obtain, amend and renew such permits and licenses are contingent upon many variables not within our control, including the interpretation of applicable requirements implemented by the relevant permitting or licensing authorities and staffing shortages at such permitting and licensing authorities. We may not be able to obtain, reinstate, amend or renew permits or licenses that are necessary to advance the development of the Autazes Project or for our contemplated operations, or the cost to obtain, reinstate, amend or renew such permits or licenses may exceed what we believe we can ultimately recover from our mine once in operation. Any unexpected delays or costs associated with the permitting and licensing process could impede the construction and eventual operations of the Autazes Project. In the event that such permits or licenses are not obtained, reinstated, amended or renewed, as applicable, or are subsequently suspended or revoked, we may be curtailed or prohibited from proceeding with our planned development, operational, and commercialization activities. Such curtailment or prohibition may result in a material adverse effect on our business, results of operations, cash flows, financial condition, or prospects.

Additionally, it is possible that future changes in applicable laws, regulations and authorizations or changes in enforcement or regulatory interpretation could have a significant impact on our activities. Those risks include, but are not limited to, the risk that regulatory authorities may increase bonding requirements beyond our or our subsidiaries’ financial capabilities. Brazilian authorities may also challenge the jurisdiction for environmental licensing of the Autazes Project, which creates uncertainties on whether the Autazes Project should be licensed by Brazilian federal or state authorities. Brazilian public prosecutors also have influence on those challenges or disputes, including through judicial actions.

We are subject to strict tailings impoundment safety regulations.

Mining companies face inherent risks with respect to their operations of tailings impoundments, which are structures built for the containment of the mining waste, known as tailings, and, as such, we are exposed to such risks. Such risks, if they were to occur, could materially adversely affect our reputation and ability to conduct our operations and expose us to liability, and, as a result, have a material adverse effect on our business, results of operations, and financial condition.

Additionally, the changes in regulation that may occur as a result of recent impoundment failures, such as those that have occurred in Brazil, could increase the time and costs to obtain new licenses or renew existing licenses to build or expand tailings impoundments or to build, operate, inspect, maintain and decommission tailings impoundments, or could require the use of new technologies. New regulations enacted in Brazil during 2020 may also impose more restrictive requirements that may exceed our current standards, including mandated compliance with emergency plans and increased insurance requirements, or require Potássio do Brasil Ltda. to pay additional fees or royalties to operate our planned dry stacked tailings piles. See also “Business—Environmental, Social and Governance—Environmental—Tailings and Waste Management” for more details regarding our planned dry stacked tailings piles.

We are subject to extensive health and safety laws and regulations.

Our operations are subject to various health and safety laws and regulations that impose various duties on us in respect of our operations, relating to, among other things, worker safety and the surrounding communities. These laws and regulations also grant the relevant authorities broad powers to, among other things, close unsafe operations and order corrective action relating to health and safety matters. The costs associated with the compliance with such health and safety laws and regulations may be substantial and any amendments to such laws and regulations, or more stringent implementation thereof, could cause additional expenditure or impose restrictions on, or suspensions of, our operations. We expect to make significant expenditures to comply with the extensive laws and regulations governing mine development, worker safety, and waste disposal, and, to the

[Table of Contents](#)

extent reasonably practicable, to create social and economic benefit in the surrounding communities near the Autazes Project, but there can be no guarantee that these expenditures will ensure our compliance with applicable laws and regulations, and any non-compliance may have a material and adverse effect on us.

Our business is highly dependent on the market demand for and prices of the potash we plan to mine and produce, which are both cyclical and volatile.

Our ability to access the capital required to finance our development activities and our results of operations in the future may be adversely affected by decreased market demand for, and declines in the price of, potash. The market for potash and potash prices are affected by numerous factors beyond our control, such as the sale or purchase of potash by various dealers, increased production due to improved mining and production methods, global and regional supply and demand, production and consumption patterns, central banks and financial institutions, interest rates, currency exchange rate fluctuation, inflation or deflation, speculative activities, government regulations relating to prices, taxes, land use, environmental protection and importing and exporting of minerals, and international political and economic trends, conditions and events. If any of these or other factors continue to adversely affect the price of potash, our ability to access the capital required to finance our development activities and our results of operations in the future may be materially and adversely affected.

In addition, the potash and fertilizer industry in general is intensely competitive and there is no assurance that, even if we commence commercial mining and processing of potash, a market will exist for the profitable sale of our products. Commercial viability of potash deposits may be affected by other factors that are beyond our control, including the particular attributes of the deposit such as its quantity and quality, the cost of mining and processing, proximity to infrastructure, the availability of transportation and sources of energy, financing, and government legislation and regulations. It is impossible to assess with certainty the impact of various factors that may affect commercial viability such that any adverse combination of such factors may result in us not receiving an adequate return on invested capital or having the Autazes Project be rendered uneconomic.

Our estimates of potash ore resources and reserves may be materially different from the quantities of potash we actually recover, and market price fluctuations and changes in operating and capital costs may render certain potash ore reserves uneconomical to mine.

Potash Mineral Resource and Mineral Reserve estimates will be based upon estimates made by our personnel and independent geologists and Qualified Persons. These estimates are inherently subject to uncertainty, since they are based on geological interpretations and inferences drawn from drilling results and sampling analyses and may require revision based on further exploration or development work. The estimates of our potash resources and reserves may be materially affected by environmental, permitting, legal, title, taxation, socio-political, or other relevant issues. As a result of the foregoing, there may be material differences between the estimated and the actual potash resources and reserves, which may impact the viability of the Autazes Project and have a material impact on our business.

The grade of potash that may ultimately be mined and processed may differ from that indicated by drilling results, and such differences could be material. The quantity and resulting valuation of potash resources and reserves may also vary depending on, among other things, commodity prices (which may render potash resources and reserves uneconomic), cut-off grades applied, and estimates of future operating costs (which may be inaccurate). Production can be affected by such factors as permitting regulations and requirements, weather, environmental factors, unforeseen technical difficulties, unusual or unexpected geological formations, and work interruptions. Any material changes in quantity of potash resources and reserves, grade, or stripping ratio may also affect the economic viability of the Autazes Project. Additionally, there can be no assurance that potash recoveries on a small scale, and/or pilot laboratory tests will be duplicated in a larger scale test under on-site conditions or during production. To the extent that we are unable to mine and produce our potash as estimated and expected, our business, results of operations, financial condition, and prospects may be materially and adversely affected.

[Table of Contents](#)

There is no certainty that any of the potash resources or reserves identified on the Autazes Property will be realized, that any anticipated level of recovery of potash will in fact be realized, or that the identified potash resources or reserves will ever qualify as a commercially mineable (or viable) deposit that can be legally and economically exploited. Until a deposit is actually mined and processed, the quantity of potash resources and reserves and related grades must be considered as estimates only, and investors are cautioned that we may ultimately never realize profitable commercial mining production with respect to the Autazes Project.

Mining operations involve inherent risks and uncertainties, some of which are not insurable.

Our business and future operations will be subject to a number of risks and hazards generally, including unexpected equipment failures, accidents resulting from underground mining activities, such as drilling, blasting and removing and processing minerals, unusual or unexpected geological conditions, ground or slope failures, cave-ins, natural phenomena such as inclement weather conditions, floods and earthquakes, adverse environmental conditions, industrial accidents, labor disputes, and changes in the regulatory environment. Such occurrences could result in damage on the Autazes Property or our mining and production facilities, personal injury or death, delays in our ability to undertake future development activities, monetary losses, increased costs, possible legal liability, and the imposition of additional significant environmental and/or health and safety oversight. Additionally, mining regulatory authorities could impose more stringent conditions and requirements in connection with the licensing of our development activities and operations for the Autazes Project.

Although we may maintain insurance to protect against certain risks in such amounts as we consider to be reasonable, our insurance will not cover all the potential risks associated with our operations. We may also be unable to maintain insurance to cover these risks at economically feasible premiums. Insurance coverage may not continue to be available or may not be adequate to cover any resulting liability. Moreover, insurance against risks such as environmental pollution or other hazards as a result of exploration and production is not generally available to us or to other companies in the mining industry on acceptable terms. We might also become subject to liability for pollution or other hazards which we may not be insured against or which we may elect not to insure against because of premium costs or other reasons. Losses from these events may cause us to incur significant costs that could have a material adverse effect upon our results of operations and financial performance.

The potash mining industry is highly competitive.

The potash mining industry is highly competitive in all of its phases, both domestically and internationally. We may be at a disadvantage in competing with other potash mining companies, many of which have greater financial resources, operational experience, and technical capabilities than us. We may also encounter competition from other potash mining companies in its efforts to hire experienced mining professionals. Competition for services and equipment could result in delays if such services or equipment cannot be obtained in a timely manner due to inadequate availability, and could also cause scheduling difficulties and cost increases due to the need to coordinate the availability of services or equipment. Competition could adversely affect our ability to attract necessary funding. Any of the foregoing effects of competition could materially increase project development and construction costs and result in project delays, and even if we successfully develop the Autazes Project, the foregoing effects of competition could subsequently make it unprofitable for us to continue operating and materially and adversely affect us and our business and prospects.

Climate change and changes in climate change regulations could have a material adverse impact on our operations.

Climate change could have an adverse impact on our operations. The potential physical impacts of climate change on our operations are highly uncertain, and would be particular to the circumstances affecting the Autazes Project. These may include changing average temperatures, changes in rainfall and storm patterns and intensities, water shortages, and changing sea levels. These changes in climate could have a material adverse impact on the cost of development or production on the Autazes Project and adversely affect our operations and financial performance.

Regulations and pending legislation governing issues involving climate change could result in increased operating costs, which could have a material adverse effect on our business. A number of governments or governmental bodies have introduced or are contemplating regulatory changes in response to climate change and its potential impacts. Legislation and increased regulation regarding climate change could impose significant costs on us and our suppliers, including costs related to increased energy requirements, capital equipment, environmental monitoring and reporting, and other costs to comply with such regulations. Any adopted climate change regulations could also negatively impact our ability to compete with companies situated in areas not subject to such regulations. Given the emotion, political significance, and uncertainty around the impact of climate change and how it should be dealt with, we cannot predict how legislation and regulation will affect our operating performance, ability to compete, and financial condition. Furthermore, even without such regulation, increased awareness and any adverse publicity in the global marketplace about the potential impacts of climate change as it relates us or other companies in the natural resources industry could harm our reputation.

Adverse weather conditions, natural disasters, crop diseases, pests and other natural conditions could materially and adversely affect agricultural businesses, which in turn could significantly reduce the demand for potash and negatively impact our business.

Agricultural businesses are vulnerable to adverse weather conditions, natural disasters, crop diseases, pest infestations and other natural conditions, including floods, drought and temperature extremes, the effects of which may be influenced and intensified by ongoing global climate change. Unfavorable growing conditions can reduce both crop size and crop quality, and in extreme cases, entire harvests may be lost in some geographic areas. Such adverse conditions can result in increased costs, harvesting delays and/or loss of crops for farmers, which in turn could significantly reduce the demand for potash and materially and adversely impact our business and results of operations.

Our long-term success will depend ultimately on our ability to achieve and maintain profitability and to develop positive cash flow from our mining activities.

Our long-term success, including the recoverability of the carrying values of our assets and our ability to continue with development, commissioning, and mining activities for the Autazes Project, will depend ultimately on our ability to achieve and maintain profitability, to develop positive cash flow from our operations by establishing ore bodies that contain commercially recoverable potash, and to develop these into profitable mining activities. We cannot assure you that any ore body that we extract potash from will result in achieving and maintaining profitability and developing positive cash flow.

We depend on our ability to replenish our potash reserves for our long-term viability.

Potash reserves data is not indicative of future results of operations, and potash reserves will be depleted as we mine. We intend to use several strategies to replenish and increase our potash reserves, including additional exploration activities, the acquisition of mining concessions, and investing in technology that could extend the life of our mine by allowing us to cost-effectively process run-of-mine potash ore that was previously considered uneconomic. However, we cannot assure you that we will be able to successfully implement a strategy to replenish or extend the life of our potash reserves. If we are unable to replenish our potash reserves, our business, results of operations and prospects would be materially adversely affected.

Land reclamations and mine closures may be burdensome and costly.

Land reclamation and mine closure requirements are generally imposed on mining companies, such as ours, which could require us, among other things, to minimize the effects of land disturbance. Such requirements may include controlling the discharge of potentially dangerous effluents from a site and restoring a site's landscape to its pre-exploration form. The actual costs of land reclamations and mine closures are uncertain and planned expenditures may differ from the actual expenditures incurred. Therefore, the amount that we may be required to spend could be materially higher than any current or future estimates. Any additional amounts required to be

[Table of Contents](#)

spent on land reclamations and mine closures may cause us to alter our operations, and may have a material adverse effect on our results of operation and financial condition. Additionally, we may be required to maintain financial assurances, such as letters of credit, to secure reclamation obligations under certain laws and regulations. The failure to acquire, maintain or renew such financial assurances could subject us to fines and penalties or suspension of our operations. Letters of credit or other forms of financial assurance may represent only a portion of the total amount of money that will be spent on reclamation over the life of a mine's operations.

Risks of water inflows and costs associated with pumping water inflows during the mining process could adversely affect our operational results.

Our potash ore body is located approximately 820 feet to 1,300 feet below an aquifer, and although our proposed mining operations are designed to use a conventional underground room and pillar mining system that will utilize an approximately 260-foot thick salt back and consolidated materials to protect the potash ore body, a crack could occur in the ground between the potash ore body and the aquifer, which could lead to water ingress. As potash is a salt that will dissolve when exposed to water, it is critical to keep the potash ore body from being exposed to water inflows. Any exposure to water can result in significant damage to the Autazes Project, the mine shafts and our equipment, additional pumping costs, and operational disruptions, which would adversely affect our mining operations, operating results, and financial condition.

Although we believe that our mine and processing plant will be located at an elevation high enough to withstand significant floods, and we have commissioned studies on flood projections that we have used to determine the best areas for the installation of our proposed processing plant, dry tailings stockpile areas, and port, there can be no assurance that the preventative measures to be implemented at our mine and processing plant will be sufficient to address risks associated with water inflows. Flooding in the future resulting from a failure in connection with pumping water inflows or water related infrastructure could pose an unpredicted "force majeure" type event, which could result in financial liability for us, and have a material adverse effect on our business, results of operations, and financial condition.

Furthermore, to protect the mined potash from being exposed to water, we will transport our final product from our processing plant to our port using covered trucks. Our port, including the vessel loading areas, will be covered, and the barges used for river transportation will be also covered. However, there is no assurance that all or any portion of our final product will not be exposed to water during transportation, which would result in increased costs and lost revenues, and have an adverse impact on our results of operations.

Inadequate infrastructure may prevent the development, construction and operation of the Autazes Project.

The development, construction and operation of the Autazes Project depend on adequate infrastructure. In particular, reliable power sources, water supply, ventilation systems, surface facilities, and transportation are all necessary for the planned development, construction and operation of our contemplated mine at the Autazes Project. For example, we expect that the power for the Autazes Project will be provided by a planned 500 kV power transmission line which will be an interconnection between an existing power station at Silves and a new power station at Autazes. The power station at Silves is connected to Brazil's national power grid and located in the Silves region, which is approximately 75 miles from the proposed location for our processing plant. Our new station at Autazes will be connected to the station at Silves using an overhead transmission line crossing the Amazonas River. Prior to the completion of the power transmission line, the construction of the Autazes Project will be powered through the use of diesel generators, which will subsequently serve as emergency back-up power sources once the power transmission line is in place. Failure to meet these infrastructure requirements, in particular, power shortages caused by a failure or delay in the construction of power transmission lines or by the use of lower-output diesel generators, or a substantial increase in the cost of meeting such requirements, could affect our ability to develop, construct, and operate the Autazes Project, and could have a material adverse effect on our business, results of operations, cash flows, financial condition, or prospects.

[Table of Contents](#)

Unusual weather, such as excessive rains and flooding occurring in Brazil, other natural phenomena, sabotage, or governmental or other external interference in the maintenance or provision of such infrastructure could impact the development of a project, reduce mining volumes, increase mining or exploration costs, or delay the transportation of raw materials to the Autazes Project or products from the Autazes Project to customers. Furthermore, any failure or unavailability of our operational infrastructure (for example, through equipment failure or disruption of our transportation arrangements) could adversely affect our development of the Autazes Project or reduce or limit the potential production output from our contemplated mine.

We will primarily depend on river barges to deliver fuel, wood, steel and other supplies to our operations. We will deliver our potash product to our customers by a combination of river barges and trucks. These transport services in some cases may not be adequate to support our planned operations. Disruptions of these transportation services because of weather related problems, poor road conditions or infrastructure, key equipment failures, strikes, lock-outs or labor shortages (particularly with respect to river barge operators or trucker drivers), or other events could temporarily impair our ability to supply our potash products to our customers, which could materially and adversely affect our results of operations and financial condition.

Risks Related to Our Company

We have no history of mining operations on which to judge our business prospects and management, and may never achieve active potash production.

The Autazes Project is at the development stage, and we do not currently have an operating mine. We also have no operating history upon which to base estimates of future operating costs, capital spending requirements, site remediation costs, or asset retirement obligations. Operating results for future periods are subject to numerous uncertainties, and we cannot assure you that we will ever be able to develop and produce potash from a commercially viable mine on the Autazes Property, or achieve or sustain profitability. Our prospects must be considered in light of the risks encountered by mining companies in the early stage of project development. Future operating results will depend upon many factors, including our ability to obtain financing, such as this offering, our ability to successfully develop and commence our mining operations, our success in attracting and retaining motivated and qualified personnel, our ability to control costs, and general economic conditions. We cannot assure you that we will successfully address any of these risks.

We have a history of negative operating cash flows and net losses, and we have never achieved and may never achieve or sustain profitability.

We have a history of negative operating cash flows and net losses. We expect to continue to incur negative operating cash flows and net losses until such time as the Autazes Project generates sufficient revenues to fund our continuing operations. We had negative cash flows from operating activities of approximately \$(0.7) million, \$(8.2) million, \$(8.2) million and \$(9.6) million during the three months ended March 31, 2024, and the years ended December 31, 2023, December 31, 2022 and December 31, 2021, respectively. We also had net losses of approximately \$1.5 million, \$13.2 million, \$32.6 million and \$4.0 million for the three months ended March 31, 2024, and the years ended December 31, 2023, December 31, 2022 and December 31, 2021, respectively. Given our history of negative operating cash flows and net losses, and potential future negative operating cash flows and net losses, we expect to use the net proceeds from this offering to fund our continuing operations. See "Use of Proceeds".

Additionally, we have never achieved and may never achieve or sustain profitability. To become and remain profitable, we must succeed in generating significant revenues from the Autazes Project, which will require us to be successful in a range of challenging activities and is subject to numerous risks, including the risk factors set forth in this "Risk Factors" section. Furthermore, we may encounter unforeseen difficulties, complications, delays and other unknown factors which may adversely affect our revenues, expenses and profitability. Our

failure to achieve or sustain profitability would depress our market value, could impair our ability to execute our business plan, raise capital or continue our operations, and could cause our shareholders to lose all or part of their investment.

Our financial situation creates substantial doubt whether we will continue as a going concern.

Since inception, we have not generated revenues and have incurred losses, and, as of March 31, 2024, we had an accumulated deficit of approximately \$114.2 million. Additionally, we expect to incur a net loss in the foreseeable future, primarily as a result of the estimated operating expenses related to the planned development of the Autazes Project. There can be no assurances that we will be able to develop the Autazes Project or achieve a level of revenues adequate to generate sufficient cash flow from operations or obtain funding from this offering or additional financing through private placements, public offerings and/or bank financings necessary to support our working capital requirements. Furthermore, no assurance can be given that additional financing will be available, or if available, will be on acceptable terms. These conditions represent material uncertainties that could result in our inability to continue as a going concern. If adequate working capital is not available, we may be forced to discontinue operations, which would cause investors in our Common Shares to lose their entire investment.

We will need but may be unable to obtain additional funding on satisfactory terms, which could dilute our shareholders or impose burdensome financial restrictions on our business.

We have relied upon our borrowings under loan agreements, the proceeds from private placements of our Common Shares, including to our majority shareholders, and the proceeds from an offering under Tier 2 of Regulation A promulgated under the Securities Act (which we refer to as our “Regulation A Offering”), to finance our exploration and development activities to date. However, there can be no assurance that such financing sources will continue to be available to finance our operations or that we will be able to generate any significant cash from our operating activities in the future. Future financings may not be available on a timely basis, in sufficient amounts, or on terms acceptable to us, if at all.

Additionally, there are significant uncertainties in the capital markets impacting the availability of financing for the purposes of mineral exploration and development, including uncertainties relating to the global economy, increasing geopolitical risk, increasing volatility in the prices of potash and other minerals, as well as increasing volatility in the foreign currency exchange markets. Our intended operations are also exposed to various levels of regulatory, economic, political and other risks and uncertainties that may impact our ability to raise new capital.

Furthermore, any debt financings or other financings through the sale and issuance of securities senior to our Common Shares will likely include financial and other covenants that will restrict our flexibility. Any failure to comply with these covenants would have a material adverse effect on our business, financial condition, and prospects because we could lose our existing sources of financing and/or impair our ability to secure new sources of funding. If we do not obtain additional financing, our mining operations may never commence, in which case you may lose the entirety of your investment in us.

Our business and financial condition are subject to liquidity risk.

Liquidity risk arises when our financial obligations exceed our available cash and credit at any point in time. As we do not currently generate any revenue and do not expect to have revenue in the foreseeable future, we will be reliant upon debt and equity financings to mitigate our liquidity risk. As of March 31, 2024, our cash position and working capital were approximately \$1.1 million and \$(0.3) million, respectively. Without taking into account the anticipated net proceeds from this offering, we estimate our currently available non-contingent financial resources are sufficient to fund our ongoing operations (excluding exploration and development activities) and meet our administrative costs for the next six months.

[Table of Contents](#)

The total cost and timing of our planned development and construction activities are not currently determinable, and it is not currently known precisely when we will require additional financing after this offering. There is no guarantee that additional financing will be available on commercially reasonable terms, or at all, and our inability to finance future development and operational activities would have a material and adverse effect on us and our business and prospects.

We may face potential opposition to the Autazes Project, which could increase our operating costs or result in substantial delays or a shutdown of the Autazes Project.

Opposition by any indigenous communities or governmental or non-governmental organizations to our proposed operations may require modifications to the development and/or operational plans of the Autazes Project, or may require us to spend significant amounts of time and resources in litigation or enter into agreements with such indigenous communities or governmental or non-governmental organizations with respect to the Autazes Project in order to secure necessary permits and licenses, including the Operational License and the Mining Concession, and maintain current permits and licenses, including the Construction Licenses, which, in some cases, may increase costs and cause delays to the advancement of the Autazes Project.

For example, we received our Preliminary Environmental License for the Autazes Project from the Brazilian Amazonas Environmental Protection Institute in August 2015. Brazilian law provides that any indigenous people located within six miles of a future mine site have the right to be consulted. Accordingly, in connection with our application to obtain our Preliminary Environmental License, we and Golder participated in public hearings and conducted several rounds of consultations with local indigenous communities near the Autazes Project in accordance with the guidelines and requirements established by FUNAI, which is Brazil's governmental protection agency that establishes and carries out policies relating to indigenous peoples in Brazil. However, after receiving our Preliminary Environmental License, the Ministerio Publico Federal (which we refer to as the "Brazilian MPF"), which is Brazil's federal prosecution office, initiated a civil lawsuit in December 2016 (which we refer to as the "December 2016 Civil Lawsuit") that questioned the validity of our Preliminary Environmental License based on a motion from a non-governmental organization that our consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169. As a result of the December 2016 Civil Lawsuit, in March 2017, we agreed with the Lower Court overseeing the December 2016 Civil Lawsuit (which we refer to as the "Lower Court"), the Brazilian MPF, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mining Agency, FUNAI, and representatives of the Mura indigenous people to suspend our Preliminary Environmental License, and to conduct additional consultations with the local Mura indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169. In April 2023, the Brazilian federal appellate court (which we refer to as the "Appellate Court") overseeing the Lower Court directed the rescission of the suspension of our Preliminary Environmental License (which we refer to as the "April 2023 Appellate Court Decision") based on its opinion that, by agreeing to the suspension of our Preliminary Environmental License, the Lower Court unduly interfered with the Brazilian Amazonas Environmental Protection Institute's authority to grant and administer our Preliminary Environmental License, and accordingly, the suspension of our Preliminary Environmental License was rescinded, and our Preliminary Environmental License was reinstated. On August 25, 2023, we submitted to the Brazilian Amazonas Environmental Protection Institute our application for the Construction Licenses, prior to the expiration of our Preliminary Environmental License on August 31, 2023 in accordance with its terms. After the submission of our application, the Lower Court issued another decision (which we refer to as the "Second Lower Court Decision"), which temporarily suspended our environmental licensing process, including our application for the Construction Licenses, based on the Lower Court's interpretation of the technical procedure that was followed in connection with the issuance of our Preliminary Environmental License. We, along with representatives from the Mura indigenous peoples and the Brazilian Federal Environmental Protection Institute, filed respective appeals against the Second Lower Court Decision, and the Attorney General of the State of Amazonas also filed an action before the Appellate Court to annul the Second Lower Court Decision, which was similar to the action that resulted in the April 2023 Appellate Court Decision, and which claimed, among other things, that the Second Lower Court Decision violated the April 2023 Appellate Court Decision. In October 2023, the Appellate Court accepted the action from the Attorney General of the State of Amazonas and granted an injunction to suspend the Second Lower Court Decision, therefore reinstating our environmental licensing process and allowing it to proceed, as well as clarifying that the Brazilian Amazonas Environmental Protection Institute has jurisdiction over issuing our environmental licenses. In

November 2023, the Lower Court issued a new decision (which we refer to as the “Third Lower Court Decision”), which temporarily suspended for the third time our environmental licensing process and the results of our additional consultations with the local Mura indigenous communities. We then filed an Interlocutory Appeal and a Complaint Lawsuit against the Third Lower Court Decision, which sought to demonstrate that the Lower Court was repeatedly suspending our environmental licensing process despite the repeated decisions from the Appellate Court. In February 2024, the Appellate Court accepted our Complaint Lawsuit and granted another injunction to suspend the Third Lower Court Decision and reinstate our environmental licensing process. However, in May 2024, the Brazilian MPF initiated another lawsuit (which we refer to as the “May 2024 Civil Lawsuit”) contesting the environmental licensing of the Autazes Project, based on similar claims as those alleged in the December 2016 Civil Lawsuit. The May 2024 Civil Lawsuit seeks a preliminary injunction to suspend the environmental licensing process of the Autazes Project and all issued licenses, including the Construction Licenses. The claims asserted by the Brazilian MPF have not yet been reviewed by the Lower Court. See “Business—Legal Proceedings—May 2024 Civil Lawsuit”. Although we were ultimately successful in defending against the previous investigation and adverse decisions prior to the May 2024 Civil Lawsuit, any subsequent adverse action in the future by the Lower Court, particularly in connection with the May 2024 Civil Lawsuit, or any other governmental organizations having authority over our Company, our licensing and permitting process, and/or the Autazes Project, could cause us to spend significant amounts of time and resources to resolve such adverse actions, increase our costs, cause us to cease our development and construction activities, and cause delays to the advancement of the Autazes Project.

Our operations are subject to certain influence of third-party stakeholders.

Some of the equipment that we intend to utilize in carrying out our development activities and mining operations will be leased from, and therefore subject to interests or claims by, third-party companies. In the event that such third parties assert any claims against our leased equipment, our development activities and mining operations may be delayed even if such claims are not meritorious. Such delays may result in significant financial loss and loss of opportunity for us.

Our development depends on our management members and other key personnel and skilled labor, and our ability to attract, hire, train and retain them.

Our development depends on the efforts of our management members, such as our Executive Chairman, Stan Bharti, our Chief Executive Officer, Matthew Simpson, and the President of Potássio do Brasil Ltda., Adriano Espeschit, other key personnel, such as the Head of Environment and Licensing at Potássio do Brasil Ltda., Lúcio Rabello, and the Project Director (Engineering/Construction) at Potássio do Brasil Ltda., Raphael Bloise, and skilled labor. The mining industry is labor-intensive, and our success depends to a significant extent on our ability to attract, hire, train and retain qualified employees. Our development and construction activities for the Autazes Project, and the subsequent mining, processing, production and delivery of potash, will depend to a large degree on the availability of skilled labor in the regions where the Autazes Project is located, including the nearby city of Autazes. Additionally, it may become necessary to attract both international and local personnel to work on the project. We could experience significant delays in the development and construction of the Autazes Project, and, after commencement of our mining operations, increases in our recruiting and training costs, and decreases in our operating efficiency, productivity and profit margins, if we are unable to attract, hire and retain a sufficient number of skilled employees to support our operations.

The loss of any of these personnel, particularly to competitors, could have a material adverse effect on our business. The marketplace for skilled personnel is becoming more competitive, which means the cost of hiring, training and retaining such personnel may increase. Factors outside our control, including competition for human capital and the high level of technical expertise and experience required to develop and execute the Autazes Project, will affect our ability to employ the specific personnel required. Due to our relatively small size, the failure to retain or attract a sufficient number of skilled personnel could have a material adverse effect on our business, results of future operations and financial condition.

Moreover, we do not intend to take out ‘key person’ insurance with respect to any of our directors, executives or other employees, and even if such policies were to be obtained, such insurance policies may not adequately

compensate us for the loss of the services of one or more of our key management members or other key personnel. Such loss, or our inability to locate suitable or qualified replacements, could be detrimental to our development efforts and could materially and adversely affect our business, results of operations, and financial condition.

We may be adversely affected by labor disputes.

We may experience labor disputes in the future, including work slowdowns, work stoppages, strikes, and disputes related to unions or collective bargaining agreements that our workforce could be a part of in the future, which could disrupt our business operations. We do not currently intend, and are currently not required by Brazilian law, to enter into any collective bargaining agreements with our employees. However, it is possible that our employees may voluntarily join or form a union, or that Brazilian law will require us to use only a unionized workforce for our mining operations, in the future. Although we consider our current relations with our employees to be good, we may not be able to maintain a satisfactory working relationship with our employees in the future, and there can be no assurance that we will not experience work slowdowns, work stoppages, strikes or other labor disputes in the future, particularly in the context of negotiating or re-negotiating any collective bargaining agreements that we may enter into with our unionized employees, if any, which could have a material adverse effect on our business, results of operations, and financial condition.

Conflicts of interest may exist between us and certain of our directors and executives.

We may be subject to various potential conflicts of interest because of the fact that some of our directors and executives may be engaged in a range of business activities. All of our directors are also directors and/or officers of other companies, and certain of our directors and executives also serve as directors and/or officers of other companies involved in natural resource exploration and development, and consequently, there exists the possibility for such directors and executives to have conflicts of interest with us. Any decisions involving our Company or our business that are made by any such directors and executives must be made in accordance with their duties and obligations to our Company to deal fairly and in good faith with a view to our best interests and the best interests of our shareholders.

Additionally, our directors and executives may devote time to their outside business interests, so long as such activities do not materially or adversely interfere with their duties to us. These business interests could require significant time and attention of our directors and executives. In some cases, our directors and executives may have fiduciary obligations associated with these business interests that interfere with their ability to devote time to our business and affairs, which could adversely affect our operations.

Our executives, directors, major shareholders, and their respective affiliates will continue to exercise significant control over us after this offering, which will limit your ability to influence corporate matters and could delay or prevent a change in corporate control.

Immediately following the completion of this offering, and disregarding any Common Shares that they purchase in this offering, if any, the current holdings of our executives, directors, and major shareholders will represent beneficial ownership, in the aggregate, of approximately % of our outstanding Common Shares, assuming we issue the number of Common Shares set forth on the cover page of this prospectus. See also “Principal Shareholders.” As a result, these shareholders will be able to influence our management and affairs and control the outcome of matters submitted to our shareholders for approval, including matters such as the election of directors and any sale, merger, consolidation, or sale of all or substantially all of our assets. These shareholders acquired their Common Shares for substantially less than the per share price of our Common Shares being acquired in this offering, and these shareholders may have interests, with respect to their Common Shares, that are different from those of the investors in this offering. In addition, this concentration of voting power among one or more of these shareholders may adversely affect the market price of our Common Shares by:

- delaying, deferring or preventing a change of control in us;
- impeding a merger, consolidation, takeover or other business combination involving us; or

- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us.

Failure to develop our internal controls over financial reporting as we grow could have an adverse impact on us.

As a public company, we will be required to establish and maintain appropriate internal controls over financial reporting. As we mature, we will need to continue to develop and improve our current internal control systems over financial reporting and related procedures. Failure to establish appropriate internal controls, or any failure of those internal controls once established, could adversely impact our public disclosures regarding our business, results of operations, or financial condition. Additionally, our management's review and assessment of our internal controls over financial reporting may identify weaknesses and conditions in our internal controls or other matters that may raise concerns for investors that we will need to address. Any actual or perceived weaknesses and conditions that need to be addressed in our internal controls over financial reporting may have an adverse impact on the price of our Common Shares.

We will continue to incur significantly increased costs and devote substantial management time as a result of operating as a public company.

As a public company, we will continue to incur significant accounting, legal and other expenses that we did not incur as a private company. For example, we will be subject to the reporting requirements of the Exchange Act and Canadian securities laws and regulations, and will be required to comply with the applicable requirements, rules and regulations of the SEC, the Canadian Securities Administrators (which we refer to as "CSA"), and the NYSE, including the establishment and maintenance of effective disclosure and financial controls, the implementation of changes in our corporate governance practices, and required filings of annual and current reports with respect to our business and results of operations. We expect that compliance with these requirements will increase our financial and legal compliance costs and will make some activities more time-consuming and costly. Additionally, we expect that our management and other personnel will need to divert attention from operational and other business matters to devote substantial time to these public company requirements. In particular, we expect to incur significant expenses and devote substantial management efforts toward ensuring compliance with the requirements of Section 404 of the Sarbanes-Oxley Act, which will increase when we are no longer an emerging growth company. We will also need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge.

We are subject to business and reputational risks related to sustainability and corporate social responsibility.

Our business faces increasing scrutiny related to environmental, social and governance (which we refer to as "ESG") issues, including sustainable development, renewable resources, environmental stewardship, climate change, diversity and inclusion, workplace conduct, human rights, philanthropy, and support for local communities. Implementation of our ESG initiatives will require financial expenditures and personnel resources. If we fail to meet applicable standards or expectations with respect to these ESG issues, our reputation and corporate image could be damaged, and our business, results of operations, and financial condition could be adversely impacted. These failures could also result from the conduct of third parties, such as our customers or other partners.

Additionally, certain influential institutional investors are also increasing their focus on ESG practices and are placing importance on the implications and social cost of their investments. If our ESG initiatives and practices do not meet the standards set by these investors, they may choose not to invest in our Company, or if our peer companies outperform us with respect to their ESG practices, potential or current investors may instead elect to invest with our competitors. If we do not meet investor or shareholder expectations and standards with respect to our ESG initiatives and practices or are perceived to have not responded appropriately to address ESG issues within our Company, our business and reputation could be negatively impacted, and the market price for our Common Shares could be materially and adversely affected.

As a “foreign private issuer”, we will have different disclosure and reporting requirements than U.S. domestic issuers, which could limit the information publicly available to our shareholders.

We are a “foreign private issuer”, as such term is defined in Rule 405 under the Securities Act, and are not subject to the same SEC disclosure and reporting requirements that are imposed upon U.S. domestic issuers. As a foreign private issuer, we will be subject to different reporting and disclosure requirements that, in certain respects, are less detailed and less frequent than those applicable to U.S. domestic issuers. For example, as a foreign private issuer, we will not be subject to:

- the same disclosure and reporting requirements as a U.S. domestic issuer under the Exchange Act, including the requirements to prepare and issue quarterly reports on Form 10-Q or to file current reports on Form 8-K upon the occurrence of specified significant events;
- the proxy rules applicable to U.S. domestic issuers under Section 14 of the Exchange Act;
- the insider reporting and short-swing profit rules applicable to U.S. domestic issuers under Section 16 of the Exchange Act, which means that our shareholders may not know on as timely a basis when our directors, executives, and principal shareholders purchase or sell our Common Shares; or
- Regulation FD, which regulates selective disclosures of material information by issuers.

Additionally, foreign private issuers are required to file their annual report on Form 20-F within four months after the end of each fiscal year, while U.S. domestic issuers that are non-accelerated filers are required to file their annual report on Form 10-K within 90 days after the end of each fiscal year. As a foreign private issuer, even though we are required to furnish reports on Form 6-K to disclose material information that we are required to make public pursuant to Canadian law or are required to distribute to our shareholders generally, our shareholders may not receive information of the same type or scope, or as frequently, as is required to be disclosed by U.S. domestic issuers. Furthermore, as a foreign private issuer, we are also exempt from the requirements of Regulation FD which, generally, are meant to ensure that select groups of investors are not privy to specific information about an issuer before other investors.

As a result of such varied reporting obligations, our shareholders should not expect to receive the same information at the same time as information provided by U.S. domestic issuers.

As a foreign private issuer, we are permitted to, and we intend to, rely on exemptions from certain NYSE corporate governance standards, which may afford less protection to our shareholders.

As a foreign private issuer, we may take advantage of certain accommodations under the NYSE listing rules that allow foreign private issuers, such as our Company, to follow “home country” corporate governance practices rather than certain corporate governance standards of the NYSE that are otherwise applicable to U.S. domestic companies listed on the NYSE. We currently intend to follow the NYSE corporate governance requirements, except for the general requirement set forth in Section 310.00 of the NYSE listing rules that a listed company’s bylaws provide for a quorum for any meeting of the holders of the company’s voting shares that is sufficiently high to ensure a representative vote. Our bylaws provide that the holders of not less than 10% of the shares entitled to vote at a meeting of shareholders, present in person or represented by proxy, shall constitute a quorum. See also “Management—Corporate Governance Practices.”

Except as noted above, we currently intend to comply with all of the other corporate governance standards of the NYSE generally applicable to U.S. domestic companies, however, we may in the future decide to take advantage of other foreign private issuer exemptions with respect to some of the other corporate governance standards of the NYSE. Following our home country governance practices, as opposed to the corporate governance requirements that would otherwise apply to U.S. domestic companies listed on the NYSE, may provide our shareholders with less protection than is accorded to shareholders of companies that are subject to all of the corporate governance standards of the NYSE.

We may lose our “foreign private issuer” status in the future, which could result in additional costs and expenses to us.

We may in the future lose foreign private issuer status if a majority of our Common Shares are held in the United States and we fail to meet the additional requirements necessary to avoid loss of foreign private issuer status, namely if: (i) a majority of our directors or executives are U.S. citizens or residents; (ii) a majority of our assets are located in the United States; or (iii) our business is administered principally in the United States. The regulatory and compliance costs to us under U.S. securities laws as a U.S. domestic issuer will be significantly more than the costs incurred as a Canadian foreign private issuer. If we lose our status as a foreign private issuer, we would be required to file periodic and current reports and registration statements on forms applicable to U.S. domestic issuers with the SEC, which are generally more detailed and extensive than the forms available to a foreign private issuer. Additionally, we may lose the ability to rely upon the exemptions from the NYSE corporate governance requirements that are available to foreign private issuers as described above. Therefore, a loss of our foreign private issuer status could result in additional regulatory and compliance costs and expenses, which would adversely affect our results of operations and financial condition.

For as long as we are an emerging growth company, we will not be required to comply with certain reporting requirements that apply to other public companies, including those relating to auditing standards and disclosure about our executive compensation.

We are an “emerging growth company”, as defined in Section 2(a) of the Securities Act, as modified by the JOBS Act. As such, we are eligible to take advantage of specified reduced reporting and other requirements that are otherwise generally applicable to reporting companies that make filings with the SEC. For so long as we remain an emerging growth company, we will not be required to, among other things:

- present more than two years of audited financial statements and two years of related management’s discussion and analysis of financial condition and results of operations disclosure in our registration statement of which this prospectus forms a part;
- have an auditor report on our internal control over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act;
- comply with any requirement that may be adopted by the PCAOB regarding mandatory audit firm rotation or a supplement to the auditor’s report to provide additional information about the audit and our financial statements (i.e., an auditor discussion and analysis);
- disclose certain executive compensation related items; and
- seek shareholder non-binding advisory votes on certain executive compensation matters and golden parachute arrangements, to the extent applicable to us as a foreign private issuer.

We currently intend to take advantage of the exemptions described above, other than the exemption that permits us to present only two years of audited financial statements and two years of related management’s discussion and analysis of financial condition and results of operations disclosure in our registration statement of which this prospectus forms a part. We will remain an emerging growth company until the earlier of (i) the last day of the fiscal year following the fifth anniversary of the completion of this offering, (ii) the last day of the first fiscal year during which we have total annual gross revenue of at least \$1.235 billion, (iii) the date on which we are deemed to be a “large accelerated filer” under the Exchange Act, which means the market value of our Common Shares that are held by non-affiliates exceeds \$700.0 million as of the last business day of our most recently completed second fiscal quarter, and (iv) the date on which we have issued more than \$1.0 billion in non-convertible debt securities during the prior three-year period. See also “Prospectus Summary—Implications of Being an Emerging Growth Company and a Foreign Private Issuer.”

To the extent that we rely on any of the exemptions available to emerging growth companies, you will receive less information about our executive compensation and internal control over financial reporting than issuers that are not an emerging growth company. If some investors find our Common Shares to be less attractive

as a result, there may be a less active trading market for our Common Shares or the trading price of our Common Shares may become more volatile.

We may be subject to tax risks in connection with carrying on our business in multiple jurisdictions.

We will operate and, accordingly, will be subject to income taxes and other forms of taxation in multiple jurisdictions. We may be subject to income taxes and non-income taxes in a variety of jurisdictions, and our tax structure may be subject to review by both Canadian and Brazilian tax authorities. Those tax authorities may disagree with our interpretation and/or application of relevant tax rules. A challenge by a tax authority in these circumstances could require us to incur costs in connection with litigation against the relevant tax authority or reaching a settlement with such tax authority and, if such tax authority's challenge is successful, could result in additional taxes (perhaps together with interest and penalties) being imposed on us, and as such an increase in the amount of taxes payable by us. Additionally, we may be subject to different taxes imposed by the Brazilian government, and changes within such tax, legal and regulatory framework may have an adverse effect on our financial results.

Taxation laws and rates which determine taxation expenses may vary significantly in different jurisdictions, and legislation governing taxation laws and rates are also subject to change. Therefore, our earnings may be affected by changes in the proportion of earnings taxed in different jurisdictions, changes in taxation rates, changes in estimates of liabilities, and changes in the amount of other forms of taxation. The determination of our provision for income taxes and other tax liabilities will require significant judgment (including based on external advice) as to the interpretation and application of these rules. We may have exposure to greater than anticipated tax liabilities or expenses.

Furthermore, dividends and other intra-group payments made by us or Potássio do Brasil Ltda. may expose the recipients of such payments to taxes in the respective jurisdiction of organization and operation, and such dividends and other intra-group payments may also be subject to withholding taxes imposed by the jurisdiction in which the entity making the payment is organized or tax resident. Unless such withholding taxes are fully creditable or refundable, dividends and other intra-group payments may increase the amount of taxes paid by us.

Our information technology systems may be vulnerable to disruption, which could place our systems at risk from data loss, operational failure, or compromise of confidential information.

We rely on various information technology systems. These systems remain vulnerable to intrusion, disruption, damage or failure from a variety of sources, including, but not limited to, errors by employees or contractors, computer viruses, cyberattacks, including phishing, ransomware, and similar malware, misappropriation of data by outside parties, and various other threats. Techniques used to obtain unauthorized access to or sabotage our systems are under continuous and rapid evolution, and we may be unable to detect efforts to disrupt our data and systems in advance. Breaches and unauthorized access carry the potential to cause losses of assets or production, operational delays, equipment failure that could cause other risks to be realized, inaccurate recordkeeping, or disclosure of confidential information, any of which could result in financial losses and regulatory or legal exposure, and could have a material adverse effect on our business, results of operations, and financial condition. Although to date, we do not believe that we have experienced any cyberattacks or other information security breaches, there can be no assurance that we will not incur such attacks or breaches in the future. Our risk and exposure to these matters cannot be fully mitigated because of, among other things, the evolving nature of these threats. As such threats continue to evolve, we may be required to expend additional resources to modify or enhance our protective measures and to investigate and remediate any security vulnerabilities.

Because we are a corporation incorporated in Ontario, Canada, and all of our directors and executives, as well as the experts named in this prospectus, reside outside of the United States, it may be difficult for investors in the United States to enforce civil liabilities against our Company, our directors, our executives, or such experts. Similarly, it may be difficult for Canadian investors to enforce civil liabilities against our directors, our executives, or such experts residing outside of Canada.

We are a corporation existing under the laws of the Province of Ontario, Canada, and our corporate office is located in Toronto, Ontario, Canada. In addition, our technical operations are based in Autazes, Amazonas, Brazil

and Belo Horizonte, Minas Gerais, Brazil. All of our directors and executives, as well as the experts named in this prospectus, reside outside of the United States, and a substantial portion of their assets are located outside the United States. As a result, it may be difficult for investors to effect service of process within the United States upon our Company, our directors, our executives, or such experts, or to enforce judgments obtained against us or such persons, in in any actions in U.S. courts, including actions predicated upon the civil liability provisions of U.S. federal securities laws or any other laws of the United States. Additionally, rights predicated solely upon the civil liability provisions of U.S. federal securities laws or any other laws of the United States may not be enforceable in original actions, or actions to enforce judgments obtained in U.S. courts that are brought in Canadian courts.

Similarly, some of our directors and executives, as well as the experts named in this prospectus, are residents of countries other than Canada, and the assets of such persons may be located outside of Canada. As a result, it may be difficult for Canadian investors to initiate a lawsuit within Canada against these non-Canadian residents, and it may be difficult to realize upon or enforce in Canada any judgment of a Canadian court against these non-Canadian residents since a substantial portion of the assets of such persons may be located outside of Canada. In addition, it may not be possible for Canadian investors to collect from these non-Canadian residents on judgments obtained in Canadian courts predicated on the civil liability provisions of securities legislation of certain of the provinces and territories of Canada. Furthermore, it may also be difficult for Canadian investors to succeed in a lawsuit in the United States, based solely on violations of Canadian securities laws.

We are governed by the corporate laws of Ontario, Canada, which in some cases have a different effect on shareholders than the corporate laws of the United States.

We are incorporated under the *Business Corporations Act (Ontario)* (which we refer to as the “OBCA”) and other relevant laws, which may affect the rights of shareholders differently than those of a company governed by the laws of a U.S. state, and may, together with our charter documents, have the effect of delaying, deferring or discouraging another party from acquiring control of our Company by means of a tender offer, a proxy contest or otherwise, or may affect the price an acquiring party would be willing to offer in such an instance. The material differences between the OBCA and the General Corporation Law of the State of Delaware (which we refer to as the “DGCL”) that may have the greatest such effects include, but are not limited to, the following: (i) for certain corporate transactions (such as mergers and amalgamations or amendments to our articles of incorporation), the OBCA generally requires the voting threshold to be a special resolution approved by shareholders holding not less than 66 2/3% of the voting shares, or as set out in the articles of incorporation of a company, as applicable, whereas the DGCL generally only requires a majority vote; and (ii) under the OBCA, a registered shareholder of 5% or more of our Common Shares can requisition a special meeting of our shareholders, whereas such right does not exist under the DGCL. We cannot predict whether investors will find our Company and our Common Shares less attractive because we are governed by the OBCA and other applicable Canadian laws. For additional information, see also “Description of Our Share Capital—Differences in Corporate Law”.

Certain Canadian legislation contains provisions that may have the effect of delaying or preventing a change in control.

The *Investment Canada Act* (which we refer to as the “ICA”) requires any non-Canadian person (as defined in the ICA) who acquires “control” (as defined in the ICA) of an existing Canadian business, where certain prescribed financial thresholds are exceeded, to file a pre-closing application for review with Innovation, Science and Economic Development Canada. Where the acquisition of control of a Canadian business by a non-Canadian person does not meet the prescribed financial thresholds for review, such non-Canadian person is required to file a notification with Innovation, Science and Economic Development Canada no later than 30 days after the completion of the transaction. The ICA generally prohibits the implementation of a reviewable transaction unless, after review, the relevant minister is satisfied that the acquisition is likely to be of a net benefit to Canada. Under the national security regime in the ICA, the Canadian federal government may undertake a discretionary review of a broader range of investments by a non-Canadian to determine whether such investments by a non-Canadian could be “injurious to national security”. Review on national security grounds is at the discretion of the Canadian federal

government and may occur on a pre-or post-closing basis. Furthermore, limitations on the ability to acquire and hold our Common Shares may be imposed by the *Competition Act* (Canada) (which we refer to as the “Competition Act”), which permits the Commissioner of Competition (which we refer to as the “Commissioner”) to review any acquisition or establishment, directly or indirectly, including through the acquisition of shares, of control over or of a significant interest in our Company. In addition, the Competition Act grants the Commissioner jurisdiction, for up to one year, to challenge this type of acquisition before the Canadian Competition Tribunal on the basis that it would, or would be likely to, substantially prevent or lessen competition. The Competition Act also requires any person who intends to acquire our Common Shares to file a notification with the Canadian Competition Bureau if (i) such person (and such person’s affiliates) would hold, in the aggregate, more than 20% of all of our outstanding voting shares, (ii) certain financial thresholds are exceeded, and (iii) no exemption applies. Where a person (and such person’s affiliates) already holds, in the aggregate, more than 20% of all of our outstanding voting shares, a notification must be filed if (a) the acquisition of additional shares would bring such person’s (and its affiliates) holdings to over 50%, (b) certain financial thresholds are exceeded, and (c) no exemption applies. Where a notification is required, the Competition Act prohibits completion of the acquisition until the expiration of the applicable statutory waiting period, unless compliance with the waiting period has been waived or the Commissioner has issued an advance ruling certificate under Section 102 of the Competition Act. The Commissioner’s review of a notifiable transaction for substantive competition law considerations may take longer than the statutory waiting period.

Risks Related to this Offering and our Common Shares

We have broad discretion in how we use the net proceeds from this offering, and we may not use such net proceeds effectively, which could affect our results of operations and cause the market price of our Common Shares to decline.

We will have considerable discretion in the application of the net proceeds from this offering. We intend to use the net proceeds from this offering to fund our pre-operation administrative costs, including without limitation, new and ongoing development expenses, offering expenses, and working capital, and for other general corporate purposes. As a result, investors will be relying upon our management’s judgment with only limited information about our specific intentions for the use of the balance of the net proceeds from this offering. We may use the net proceeds for purposes that do not yield a significant return or any return at all for our shareholders. Additionally, pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

There is currently no public market for our Common Shares, a trading market for our Common Shares may never develop following this offering, and the prices for our Common Shares may be volatile and could decline substantially following this offering.

There is currently no public market for our Common Shares. Although we intend to apply to list our Common Shares on the NYSE, an active trading market for our Common Shares may never develop or if one develops, it may not be sustained following this offering. Accordingly, no assurance can be given as to the following:

- the likelihood that an active trading market for Common Shares will develop or be sustained;
- the liquidity of any such market;
- the ability of our shareholders to sell their Common Shares; or
- the price that our shareholders may obtain for their Common Shares.

If an active market for our Common Shares does not develop or is not maintained, you may not be able to sell your shares. This may also affect the price of our Common Shares in the secondary market, the liquidity of such shares, and the extent of regulation of our Company, as the issuer of such shares. Even if an active trading market develops for our Common Shares subsequent to this offering, the market price of our Common Shares

[Table of Contents](#)

may be highly volatile and subject to wide fluctuations. Our financial performance, government regulatory action, tax laws, interest rates and market conditions in general could have a significant impact on the future market price of our Common Shares.

Some of the factors that could negatively affect or result in fluctuations in the market price of our Common Shares include:

- changes in market valuations of similar companies;
- adverse market reaction to the level of our indebtedness;
- our operating performance, including actual or anticipated variations in our publicly disclosed operating results, and the performance of other similar companies;
- additions or departures of key personnel;
- actions by shareholders;
- speculation in the press or investment community;
- negative publicity regarding us or our industry generally; and
- general market, economic and political conditions, including an economic slowdown or downturn.

The offering price per share of our Common Shares offered in this offering may not accurately reflect the value of your investment.

Prior to this offering, there has been no public market for our Common Shares. The initial public offering price per share of our Common Shares offered in this offering was negotiated between us and the representatives of the underwriters. Factors considered in determining the price of our Common Shares include:

- the history and prospects of other mining companies, and prior offerings of those companies;
- our prospects for successfully developing and commencing our mining operations;
- an assessment of our management and its experience in the mining industry;
- our capital structure;
- general conditions of the securities markets at the time of this offering; and
- other factors we deemed relevant.

The offering price in this offering may not accurately reflect the value of our Common Shares, and may not be realized upon any subsequent disposition of the shares.

If the market price of our Common Shares fluctuates after this offering, you could lose a significant part of your investment.

The market price of our Common Shares could be subject to wide fluctuations in response to, among other things, the risk factors described in this section of this prospectus, and other factors beyond our control, such as fluctuations in the valuation of companies perceived by investors to be comparable to us. Additionally, the stock markets have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political, and market conditions, such as recessions, interest rate changes or international currency fluctuations, may negatively affect the market price of our Common Shares.

If securities or industry analysts do not publish research or reports about our Company, or if they downgrade our Common Shares, the market price and trading volume of our Common Shares could decline.

The trading market, if any, for our Common Shares could be influenced by any research and reports that securities or industry analysts publish about our Company. We do not currently have, and may never obtain, research coverage by securities and industry analysts. If no securities or industry analysts commence coverage of our Company, the trading price for our Common Shares would be negatively impacted. In the event securities or industry analysts cover our Company and one or more of these analysts downgrade our Common Shares or publish inaccurate or unfavorable research about our Company, the market price of our Common Shares would likely decline. If one or more of these analysts cease coverage of our Company or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn might cause demand for our Common Shares to decrease, and cause the market price and trading volume of our Common Shares to decline.

If you purchase our Common Shares in this offering, you will experience immediate dilution.

The initial public offering price of our Common Shares in this offering is substantially higher than the projected net tangible book value per share of our Common Shares outstanding upon the completion of this offering. Accordingly, if you purchase our Common Shares in this offering, you will experience immediate dilution of approximately \$ _____ in the as adjusted net tangible book value per Common Share, assuming an initial public offering price of \$ _____ per share, which is the midpoint of the price range set forth on the cover page of this prospectus. This means that investors that purchase our Common Shares in this offering will pay a price per Common Share that substantially exceeds the per share net tangible book value of our assets. See “Dilution” for more information.

Future offerings of debt securities, which would rank senior to our Common Shares upon our liquidation, and future offerings of equity securities that may be senior to our Common Shares for the purposes of dividend and liquidating distributions, may adversely affect the market price of our Common Shares.

In order for us to complete the development and construction of the Autazes Project and commence commercial extraction of potash, we will need to raise additional financing after the completion of this offering, which may include future offerings of debt securities that would rank senior to our Common Shares upon our liquidation, and future offerings of equity securities that may be senior to our Common Shares for the purposes of dividend and liquidating distributions. Upon our liquidation, holders of our debt securities and lenders with respect to other borrowings will receive a distribution of our available assets prior to the holders of our Common Shares. Additional equity offerings may dilute the holdings of our existing shareholders or reduce the market price of our Common Shares, or both. Our decision to issue securities in any future offering will depend on market conditions and other factors beyond our control. As a result, we cannot predict or estimate the amount, timing or nature of our future offerings, and investors purchasing our Common Shares in this offering bear the risk that any of our future offerings could adversely affect the market price of our Common Shares and dilute their ownership interest in our Company.

Future sales and issuances of our Common Shares, or other securities convertible into or exercisable for our Common Shares, could cause the value of our Common Shares to decline and could result in dilution of your shares.

In this offering, _____ Common Shares are being offered and sold (_____ Common Shares if the underwriters exercise in full their option to purchase additional Common Shares in this offering). In addition, up to _____ Common Shares may be issued upon the exercise in full by the underwriters of the Underwriters’ Warrants (see “Underwriting—Underwriters’ Warrants”). Furthermore, 10,118,706 Common Shares were sold and issued in our Regulation A Offering, which closed on August 2, 2022 (see “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Regulation A Offering”). These Common Shares will be freely transferable without restriction or further registration under the

[Table of Contents](#)

Securities Act, except that (i) Common Shares (or approximately % of our total Common Shares issued and outstanding after the completion of this offering) acquired or held by our “affiliates” (as that term is defined in Rule 144 under the Securities Act) will be subject to the volume limitations and other restrictions of Rule 144, and (ii) Common Shares (or approximately % of our total Common Shares issued and outstanding after the completion of this offering) will be subject to certain lock-up agreements. For further information regarding Rule 144 and the lock-up agreements, see “Shares Eligible for Future Sale—Rule 144” and “—Lock-Up Agreements”, respectively. Sales of substantial amounts of such freely-transferable Common Shares, including the Common Shares that will eventually be released from the lock-up agreements following the applicable lock-up period, or the perception that such sales could occur, may adversely affect the prevailing market prices of our Common Shares.

Furthermore, our board of directors is authorized, without the approval our shareholders, to cause us to raise capital through the sale and issuance of additional Common Shares, or through the creation, sale and issuance of debt securities, options, warrants or other rights convertible into or exercisable for our Common Shares, on terms and for consideration as our board of directors in its sole discretion may determine. Sales of substantial amounts of our Common Shares, or of securities convertible into or exercisable for our Common Shares, could cause the market price of our Common Shares to decrease significantly. We cannot predict the effect, if any, that any future sales of our Common Shares, or the availability of our Common Shares for future sales, will have on the market value of our Common Shares.

Additionally, sales of substantial amounts of our Common Shares by our directors or executives or by any large shareholder, or the perception that such sales could occur, may adversely affect the market price of our Common Shares.

We do not currently intend to pay dividends on our Common Shares and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our Common Shares.

We have never declared or paid any cash dividends on our Common Shares and do not currently intend to do so in the foreseeable future. We currently anticipate that we will retain future earnings for the development and operation of our business. Therefore, if you purchase our Common Shares in this offering, your ability to achieve a return on your investment will depend upon any future appreciation of the price of our Common Shares. There is no guarantee that our Common Shares will appreciate in value or even maintain the price at which you purchased them.

After the completion of this offering, we may be at an increased risk of securities class action litigation.

Historically, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because mining companies have experienced significant stock price volatility in recent years. We may be the target of this type of litigation in the future. If we were to be the subject of litigation, it could result in substantial costs and a diversion of our management’s attention from other business concerns, which could harm our business and results of operations.

We believe that we will likely be classified as a passive foreign investment company for U.S. federal income tax purposes for the current taxable year, which could result in material adverse U.S. federal income tax consequences if you are a U.S. Holder.

We believe that our Company and Potássio do Brasil Ltda. will each likely be classified as a passive foreign investment company (which we refer to as a “PFIC”) for the current taxable year and the foreseeable future. If our Company or Potássio do Brasil Ltda. is a PFIC for any taxable year during which a U.S. Holder owns our Common Shares, certain materially adverse U.S. federal income tax consequences could result for such U.S. Holder. The determination of whether a corporation is a PFIC for a taxable year depends, in part, on the

[Table of Contents](#)

application of complex U.S. federal income tax rules that are subject to differing interpretations. Additionally, the determination of whether a corporation is a PFIC for any taxable year generally can only be made after the close of such taxable year. Therefore, it is possible that we could be classified as a PFIC for our current taxable year or in future years due to changes in the nature of our business or the composition of our assets or income, as well as changes in our market capitalization. If we are classified as a PFIC in any year with respect to which a U.S. Holder owns our Common Shares, we will continue to be treated as a PFIC with respect to such U.S. Holder in all succeeding years during which such U.S. Holder owns our Common Shares regardless of whether we continue to be a PFIC, unless such U.S. Holder makes a specified election once we cease to be a PFIC. In the event that we determine that that our Company or Potássio do Brasil Ltda. is a PFIC for a taxable year, we currently intend to provide information necessary for a U.S. Holder to make a “qualified electing fund” election with respect to our Company and each lower-tier PFIC that we control, which, if available, would result in tax treatment different from (and generally less adverse than) the general tax treatment for PFICs. The PFIC rules are complex, and U.S. Holders should consult their tax advisors regarding the PFIC rules, the elections which may be available to them, and how the PFIC rules may affect the U.S. federal income tax consequences relating to the ownership and disposition of our Common Shares.

USE OF PROCEEDS

We estimate that we will receive approximately \$ _____ million of net proceeds from the sale of _____ Common Shares offered by us in this offering (or approximately \$ _____ million if the underwriters exercise in full their option to purchase additional Common Shares from us), based on an assumed public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus), after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The principal purposes of this offering are to fund our pre-operation development expenses, increase our capitalization and financial flexibility, create a market for our Common Shares, and facilitate our future access to the public equity markets. Given that we have generated negative cash flows from operating activities in each fiscal year for which financial statements have been included in this prospectus, and that we have no history of revenues from operations and expect to have negative operating cash flows and net losses in the future, we intend to use the net proceeds from this offering primarily to fund our pre-operation development expenses and continuing operations, and for working capital and general corporate purposes. See also “Risk Factors—Risks Related to Our Company—We have a history of negative operating cash flows and net losses, and we have never achieved and may never achieve or sustain profitability.” The following table presents a breakdown of our intended use of the net proceeds from this offering:

<u>Principal Uses of Proceeds</u>	<u>Amount</u> <u>(in millions)</u>
Obtaining and complying with our environmental licenses	\$ _____
Engineering, procurement and construction for critical path items ⁽¹⁾	\$ _____
Other pre-operation administrative expenses ⁽²⁾	\$ _____
Working capital and general corporate purposes ⁽³⁾	\$ _____
Total	\$ _____

- (1) Engineering for the Autazes Project is expected to include conducting additional engineering and essential testwork for critical path items prior to starting the construction phase, such as shaft sinking and the power transmission line, and conducting engineering for the other applications and permits.
- (2) Other pre-operation administrative expenses are expected to include expenses relating to obtaining the Operational License, the Mining Concession, and other remaining required authorizations, permits and licenses for the Autazes Project, purchasing the remaining land for certain project sites, primarily consisting of the sites to be used for the dry stacked tailings piles, and maintaining our mineral rights.
- (3) Working capital and general corporate purposes are expected to include regulatory fees, audit and tax fees, rent and office expenses, travel expenses, executive compensation, and payment of other current liabilities.

We currently intend to use the net proceeds from this offering in the manner described above, however, the amounts and timing of our actual expenditures will depend upon numerous factors, including the progress of our development efforts, our general operating costs and expenditures, and the changing needs of our business. Additionally, we have no agreements or commitments for particular uses of the net proceeds from this offering, and our board of directors and management will retain broad discretion in the application, and timing of the application, of the net proceeds from this offering. As such, investors will be relying on the judgment of our board of directors and management for the application of the net proceeds from this offering. Depending on the outcome of our development activities and other unforeseen events, our plans and priorities may change and we may apply the net proceeds of this offering for different uses and/or in different proportions than we currently anticipate. There can be no assurance regarding the results and the effectiveness of our use of the net proceeds from this offering. See “Risk Factors—Risks Related to this Offering and our Common Shares—We have broad discretion in how we use the net proceeds from this offering, and we may not use such net proceeds effectively, which could affect our results of operations and cause the market price of our Common Shares to decline.”

Pending the use of the net proceeds from this offering, we intend to deposit the proceeds in our bank accounts, and/or invest the proceeds in a variety of capital preservation instruments (including short-term,

[Table of Contents](#)

interest-bearing, investment-grade securities or short-term deposits), in accordance with our general practices for treasury management. We cannot predict whether the proceeds invested will yield a favorable return.

Each \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus) would increase (decrease) the net proceeds to us from this offering by approximately \$ _____ million, assuming the number of Common Shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of Common Shares we are selling in this offering. An increase (decrease) of 1,000,000 in the number of Common Shares offered by us in this offering, as set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by approximately \$ _____ million, assuming the assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus) remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

Funding of Ongoing Operations

Without taking into account the anticipated net proceeds from this offering, we estimate our currently available non-contingent financial resources are sufficient to fund our ongoing operations (excluding exploration and development activities) and meet our administrative costs for the next six months. As of March 31, 2024, our cash position and working capital were approximately \$1.1 million and \$(0.3) million, respectively. Subject to the successful completion of this offering, we anticipate spending approximately \$9.0 million in the next 12 months, which includes, \$5.3 million on general and administrative expenses, \$1.2 million on personnel and staffing costs in Brazil, \$0.7 million on administrative costs in Brazil, \$0.4 million on the maintenance of our minerals rights, \$0.3 million on additional engineering and other technical studies for the Autazes Project, and \$1.1 million on environmental and social expenses associated with the Autazes Project.

Subject to successfully completing this offering, we anticipate using the net proceeds to purchase long-lead items and further advance the Autazes Project as detailed below. We believe that our existing funds, together with the net proceeds from this offering, will be sufficient to finance the development of the Autazes Project and our operations through the _____ quarter of 2025; however, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, in which case we will be required to raise additional proceeds from future equity and debt financings to fund our ongoing operations. Furthermore, in addition to this offering, we expect that we will be required to raise additional funds to finance our ongoing operations until such time as we can conduct profitable income producing activities. No assurances can be made that we will be successful in obtaining additional equity or debt financing, or that ultimately, we will commence profitable operations and achieve positive cash flow. See also “Risk Factors—Risks Related to Our Company—We have a history of negative operating cash flows and net losses, and we have never achieved and may never achieve or sustain profitability.”

Primary Goal, Business Objectives and Milestones

Our primary goal is to win a significant share of the Brazilian potash market and be the sustainable potash supplier-of-choice for Brazilian farmers. We intend to be a significant domestic source of potash fertilizer in Brazil in order to alleviate Brazil’s dependence on imported potash and farmer supply-chain risk, while supporting economic prosperity and agricultural sustainability in Brazil and food security globally. We plan to accomplish this goal by pursuing the following strategies:

- focus solely on providing our potash produced from the Autazes Project to Brazilian farmers;
- establish and maintain a position as the lowest-cost provider of potash in Brazil;
- establish strategic partnerships within the potash industry;

[Table of Contents](#)

- nurture opportunity for sustainability leadership and innovation; and
- expand our potash production capabilities and growth opportunities.

For more information on our growth strategies, see “Business—Our Business Objectives and Growth Strategies”.

Our primary near- and medium-term business objectives, for which we will use the net proceeds from this offering, will be to: (i) continue the ongoing development of the Autazes Project, including to fund our pre-operation development expenses, and (ii) begin construction of the Autazes Project.

To accomplish our primary business objectives (each of which also constitute a significant event that must occur for the business objectives to be accomplished), the key milestones to be achieved, the anticipated timing, and the expected aggregate costs thereof include: (i) development of and entry into the Impact Benefit Agreement with the Mura indigenous communities near the Autazes Project, which are anticipated to occur in the second half of 2024 at an estimated cost of \$2.5 million; (ii) completion of the purchases of the additional land that primarily will be used for the sites of our dry stacked tailings, which is anticipated to occur in the first half of 2025 at an estimated cost of \$2.8 million; (iii) completion of additional engineering and a feasibility study for the Autazes Project that will incorporate recent optimization work on the shaft sinking technology to be used, which is anticipated to occur in the first half of 2025 at an estimated cost of \$3.2 million; (iv) completion of basic engineering design work, which is anticipated to occur in the second half of 2025 at an estimated cost of \$8.6 million; (v) commencement of construction on the Autazes Project, with an emphasis on critical path items including shaft sinking and the ordering of long lead items, which is anticipated to occur in the second half of 2024 at an estimated initial cost to commence construction of \$ million (with the currently estimated total cost of construction for the Autazes Project being \$2.5 billion (not including financing fees, working capital and potential cost overruns), and we estimate that 60%–65% of the total cost of construction will be financed by debt with the balance being financed by additional equity issuances), and (vi) obtaining debt financing to fund a substantial portion of the construction costs of the Autazes Project, which we will seek to obtain in the second half of 2025.

The above guidance as to the funding requirements and timeline for developing the Autazes Project is based on our best estimates as of the date of this prospectus. Achievement or timing of the above milestones could be affected by a number of factors, including, but not limited to, economic and financial conditions that may affect our ability to raise additional funds. See “Cautionary Note Regarding Forward-Looking Statements” and “Risk Factors”.

DIVIDEND POLICY

We currently intend to retain any future earnings to finance the development of our operations, and, therefore, do not intend to pay any cash dividends in the foreseeable future. Since our inception, we have not declared or paid any cash dividends on our Common Shares. Any decision to pay dividends in the future will be subject to a number of factors, including our financial condition, results of operations, the level of our retained earnings, capital demands, general business conditions, and other factors our board of directors may deem relevant. Accordingly, we cannot give any assurance that any dividends may be declared and paid in the future. Accordingly, you may need to sell your Common Shares to realize a return on your investment, and you may not be able to sell your shares at or above the price you paid for them. See “Risk Factors—Risks Related to this Offering and our Common Shares—We do not currently intend to pay dividends on our Common Shares and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our Common Shares.”

CAPITALIZATION

The following table sets forth our cash and cash equivalents, debt, and capitalization as of June 30, 2024:

- on an actual basis; and
- on an as adjusted basis to give effect to the issuance of the Common Shares in this offering at an assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus), after deducting underwriting discounts and commissions and estimated offering expenses payable by us, as set forth in this prospectus.

You should read the following table in conjunction with the sections entitled “Use of Proceeds”, “Selected Consolidated Financial Information” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations”, and our consolidated financial statements and the related notes thereto included elsewhere in this prospectus.

<i>(in thousands, except share amounts)</i>	As of June 30, 2024	
	Actual	As Adjusted ⁽¹⁾
Cash and cash equivalents	\$ 1,621	\$ _____
Debt	\$ —	\$ _____
Shareholders’ equity:		
Common Shares, no par value per share – unlimited shares authorized; 144,618,749 Common Shares issued and outstanding, actual; and _____ Common Shares issued and outstanding, as adjusted	—	—
Additional paid-in capital	248,125	_____
Shares to be issued	1,602	_____
Share-based payments reserve	68,940	_____
Warrants reserve	604	_____
Accumulated other comprehensive loss	(74,702)	_____
Deficit	(125,393)	_____
Total shareholders’ equity	119,176	_____
Total capitalization	\$ 119,176	\$ _____

- (1) The number of our Common Shares to be outstanding immediately after this offering is based on the issuance of Common Shares in this offering and does not include:
- up to _____ Common Shares issuable upon the exercise in full by the underwriters of their option to purchase additional Common Shares from us;
 - up to _____ Common Shares issuable upon the exercise in full by the underwriters of the Underwriters’ Warrants;
 - up to an aggregate of 1,147,500 Common Shares issuable upon the exercise of outstanding common share purchase warrants, which are exercisable at an exercise price of \$1.00 per Common Share;
 - up to an aggregate of 4,605,833 Common Shares issuable upon the exercise of outstanding stock options, of which 935,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$1.00 per Common Share, 3,157,500 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$2.50 per Common Share, 213,333 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$3.75 per Common Share, and 300,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$4.00 per Common Share;
 - up to an aggregate of 16,433,333 Common Shares issuable with respect to outstanding DSUs; and
 - an aggregate of 21,692,812 Common Shares reserved and available, as of the date of this prospectus, for awards that may be granted in the future under our 2024 Incentive Compensation Plan.

DILUTION

Purchasers of our Common Shares in this offering will experience immediate and substantial dilution to the extent of the difference between the initial public offering price per Common Share paid by the purchasers of our Common Shares in this offering and the as adjusted net tangible book value per Common Share immediately after, and giving effect to, this offering. Dilution results from the fact that the initial public offering price per Common Share in this offering is substantially in excess of the net tangible book value per Common Share attributable to our existing shareholders for our presently outstanding Common Shares.

Our historical net tangible book value per Common Share is determined by dividing our net tangible book value, which is the book value of our total tangible assets less the book value of our total liabilities, by the number of outstanding Common Shares. As of March 31, 2024, the historical net tangible book value of our Common Shares was \$125,111,634, or approximately \$0.88 per Common Share.

After giving effect to the (i) sale by us of _____ Common Shares in this offering at an assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus), and (ii) receipt by us of the net proceeds of this offering, after deduction of the underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2024 would have been \$ _____, or \$ _____ per Common Share. The as adjusted net tangible book value per Common Share immediately after the offering is calculated by dividing the as adjusted net tangible book value of \$ _____ by _____ Common Shares (which is the number of Common Shares outstanding immediately after the completion of this offering). The difference between the initial public offering price per Common Share and the as adjusted net tangible book value per Common Share represents an immediate increase in net tangible book value of \$ _____ per Common Share to our existing shareholders, and an immediate dilution in net tangible book value of \$ _____ per Common Share to purchasers of Common Shares in this offering.

The following table illustrates this dilution to purchasers in this offering on a per Common Share basis:

Assumed initial public offering price per Common Share	\$
Net tangible book value per Common Share before this offering (as of March 31, 2024)	\$0.88
Increase in net tangible book value per Common Share attributable to purchasers in this offering	\$
As adjusted net tangible book value per Common Share immediately after this offering	\$
Dilution in net tangible book value per Common Share to purchasers in this offering	\$

The as adjusted net tangible book value per Common Share immediately after this offering is based on the following:

Numerator:	
Net tangible book value as of March 31, 2024	\$ 125,111,634
Net proceeds to us from this offering ⁽¹⁾	\$
Total as adjusted net tangible book value immediately after this offering	\$
Denominator:	
Number of our Common Shares outstanding immediately prior to this offering	144,618,749
Number of our Common Shares being sold by us in this offering ⁽¹⁾	
Total Number of Common Shares	

⁽¹⁾ Assumes no exercise by the underwriters of (i) their option to purchase additional Common Shares to cover any over-allotments, or (ii) the Underwriters' Warrants.

[Table of Contents](#)

Each \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus) would increase (decrease) the as adjusted net tangible book value per Common Share immediately after this offering by \$ _____, and increase (decrease) the dilution in as adjusted net tangible book value per Common Share to purchasers in this offering by \$ _____, assuming the number of Common Shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

We may also increase or decrease the number of Common Shares we are selling in this offering. An increase (decrease) of 1,000,000 in the number of Common Shares offered by us in this offering, as set forth on the cover page of this prospectus, would increase (decrease) the as adjusted net tangible book value per Common Share immediately after this offering by \$ _____, and increase (decrease) the dilution in as adjusted net tangible book value per Common Share to purchasers in this offering by \$ _____, assuming the assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus) remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The tables and information above assume no exercise by the underwriters of (i) their option to purchase additional Common Shares in this offering, or (ii) the Underwriters' Warrants. If the underwriters exercise in full their option to purchase up to _____ additional Common Shares from us, the as adjusted net tangible book value per Common Share immediately after this offering would be \$ _____ per Common Share, and the dilution in as adjusted net tangible book value per Common Share to purchasers in this offering would be \$ _____ per Common Share, in each case assuming an assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus), and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The following table summarizes, as of the date of this prospectus, on the as adjusted basis described above, the differences between the number of Common Shares purchased or to be purchased from us, the total consideration paid to us in cash, and the weighted average price per Common Share that our existing shareholders and the new purchasers in this offering paid. The calculation below is based on an assumed initial public offering price of \$ _____ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus), before deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. As the following table shows, new investors purchasing Common Shares in this offering will pay a price per Common Share substantially higher than the weighted average price per Common Share paid by our existing shareholders.

	Common Shares		Total Consideration		Weighted Average Price per Common Share
	Number	Percent	Amount	Percent	
Existing shareholders	144,618,749	%	\$	%	\$
Purchasers in this offering					
Total ⁽¹⁾		100.00%	\$	100.00%	\$

(1) Excludes (a) up to _____ Common Shares issuable upon the exercise in full by the underwriters of their option to purchase additional Common Shares from us; (b) up to _____ Common Shares issuable upon the exercise in full by the underwriters of the Underwriters' Warrants; (c) up to an aggregate of 1,147,500 Common Shares issuable upon the exercise of outstanding common share purchase warrants, which are exercisable at an exercise price of \$1.00 per Common Share; (d) up to an aggregate of 4,605,833 Common Shares issuable upon the exercise of outstanding stock options, of which 935,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$1.00 per Common Share.

[Table of Contents](#)

3,157,500 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$2.50 per Common Share, 213,333 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$3.75 per Common Share, and 300,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$4.00 per Common Share; (e) up to an aggregate of 16,433,333 Common Shares issuable with respect to outstanding DSUs; and (f) an aggregate of 21,692,812 Common Shares reserved and available, as of the date of this prospectus, for awards that may be granted in the future under our 2024 Incentive Compensation Plan.

Each \$1.00 increase (decrease) in the assumed initial public offering price of \$ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus) would increase (decrease) the total consideration paid by purchasers in this offering and the weighted average price per Common Share paid by all shareholders by \$ and \$ per Common Share, respectively, and in the case of an increase, would increase the percentage of total consideration paid by purchasers in this offering by %, and in the case of a decrease, would decrease the percentage of total consideration paid by purchasers in this offering by %, assuming the number of Common Shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

Similarly, an increase (decrease) of 1,000,000 in the number of Common Shares offered by us in this offering, as set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by purchasers in this offering and the weighted average price per Common Share paid by all shareholders by \$ and \$ per Common Share, respectively, and in the case of an increase, would increase the percentage of total consideration paid by purchasers in this offering by %, and in the case of a decrease, would decrease the percentage of total consideration paid by purchasers in this offering by %, assuming the assumed initial public offering price of \$ per Common Share (which is the midpoint of the price range set forth on the cover page of this prospectus) remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The table and information above assume no exercise by the underwriters of (i) their option to purchase additional Common Shares in this offering, or (ii) the Underwriters' Warrants. If the underwriters exercise in full their option to purchase up to additional Common Shares from us, the number of Common Shares held by purchasers in this offering would be increased to Common Shares, or % of the total number of our Common Shares outstanding immediately after this offering, and the percentage of our Common Shares held by our existing shareholders would be reduced to % of the total number of our Common Shares outstanding immediately after this offering.

SELECTED CONSOLIDATED FINANCIAL INFORMATION

The following tables set forth our selected consolidated financial information as of March 31, 2024 and for the three months ended March 31, 2024 and 2023, and as of and for the years ended December 31, 2023, 2022 and 2021. You should read the following selected consolidated financial information in conjunction with, and it is qualified in its entirety by reference to, our audited consolidated financial statements as of and for the years ended December 31, 2023, 2022 and 2021 and the related notes thereto, our unaudited condensed interim consolidated financial statements as of March 31, 2024 and for the three months ended March 31, 2024 and 2023 and the related notes thereto, and the sections entitled “Capitalization” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations”, each of which are included elsewhere in this prospectus.

Our selected consolidated statements of loss and other comprehensive loss information for the years ended December 31, 2023, 2022 and 2021, and our related selected consolidated statements of financial position information as of December 31, 2023, 2022 and 2021, have been derived from our audited consolidated financial statements as of and for the years ended December 31, 2023, 2022 and 2021, prepared in accordance with IFRS, which are included elsewhere in this prospectus. Our summary consolidated statements of loss and other comprehensive loss information for the three months ended March 31, 2024 and 2023, and our related summary consolidated statements of financial position information as of March 31, 2024, have been derived from our unaudited condensed interim consolidated financial statements as of March 31, 2024 and for the three months ended March 31, 2024 and 2023, prepared in accordance with IFRS, which are included elsewhere in this prospectus. Our management believes that the unaudited interim financial information below includes all adjustments, consisting of only normal nonrecurring adjustments, considered necessary for a fair presentation of such financial information. Our historical selected consolidated statements of loss and other comprehensive loss information for the interim period ended March 31, 2024 is not necessarily indicative of the results that may be expected for the full fiscal year. Our historical results for the periods presented below are not necessarily indicative of the results to be expected for any future periods.

	Three months ended March 31,		Year Ended December 31,		
	2024	2023	2023	2022	2021
Statements of Loss and Other Comprehensive Loss Information:					
Expenses:					
Consulting and management fees	\$ 577,465	\$ 3,796,388	\$ 5,441,156	\$ 2,713,548	\$ 2,023,284
Professional fees	54,380	407,909	1,453,310	2,185,220	644,117
Share-based compensation	629,033	(103,985)	4,703,254	24,474,191	357,189
Travel expenses	82,541	127,713	390,531	2,704,879	231,821
General office expenses	36,605	32,262	120,228	183,843	148,715
Foreign exchange loss	(3,054)	(3,680)	(10,552)	62,479	68,243
Communications and promotions	59,392	60,130	1,251,155	398,880	62,528
Operating loss	\$ 1,436,362	\$ 4,316,737	\$ 13,349,082	\$ 32,723,040	\$ 3,535,897
Finance costs	\$ —	\$ —	\$ —	\$ —	\$ 405,249
Finance income	(4,444)	(115,727)	(302,720)	(259,019)	(5,056)
Loss for the period before income taxes	\$ 1,431,918	\$ 4,201,010	\$ 13,046,362	\$ 32,464,021	\$ 3,936,090
Income taxes	\$ 20,687	\$ 33,466	\$ 160,838	\$ 155,360	\$ 93,276
Loss for the period after income taxes	\$ 1,452,605	\$ 4,234,476	\$ 13,207,200	\$ 32,619,381	\$ 4,029,366
Other income (expense):					
<i>Items that subsequently may be reclassified into net income:</i>					
Foreign currency translation	\$ 2,204,377	\$ (1,697,715)	\$ (4,912,866)	\$ (3,881,076)	\$ 4,131,016
Total comprehensive loss for the period	\$ 3,656,982	\$ 2,536,761	\$ 8,294,334	\$ 28,738,305	\$ 8,160,382
Basic and diluted loss per share	\$ 0.01	\$ 0.03	\$ 0.09	\$ 0.23	\$ 0.03
Weighted average number of common shares outstanding – basic and diluted	142,358,675	140,929,082	141,569,049	139,629,405	131,176,764

[Table of Contents](#)

	<u>March 31,</u> <u>2024</u>	<u>2023</u>	<u>December 31,</u> <u>2022</u>	<u>2021</u>
Statements of Financial Position Information				
(end of period):				
ASSETS:				
Current				
Cash and cash equivalents	\$ 1,143,184	\$ 2,450,239	\$ 11,804,907	\$ 15,144,419
Amounts receivable	92,108	149,757	167,854	2,616,544
Prepaid expenses	258,013	236,329	98,884	99,566
Total current assets	<u>\$ 1,493,305</u>	<u>\$ 2,836,325</u>	<u>\$ 12,071,645</u>	<u>\$ 17,860,529</u>
Non-current				
Property and equipment	\$ 980,892	\$ 1,012,032	\$ 936,707	\$ 866,961
Exploration and evaluation assets	126,628,457	129,298,494	120,216,752	112,188,359
Total assets	<u>\$ 129,102,654</u>	<u>\$ 133,146,851</u>	<u>\$ 133,225,104</u>	<u>\$ 130,915,849</u>
LIABILITIES:				
Current				
Trade payables and accrued liabilities	\$ 1,842,526	\$ 1,730,103	\$ 1,154,872	\$ 2,005,960
Total current liabilities	<u>\$ 1,842,526</u>	<u>\$ 1,730,103</u>	<u>\$ 1,154,872</u>	<u>\$ 2,005,960</u>
Non-current				
Deferred income tax liability	2,148,494	2,196,087	1,883,661	1,617,383
Total liabilities	<u>\$ 3,991,020</u>	<u>\$ 3,926,190</u>	<u>\$ 3,038,533</u>	<u>\$ 3,623,343</u>
EQUITY:				
Share capital	\$ 243,237,728	\$ 242,487,728	\$ 235,611,237	\$ 227,154,731
Share-based payments reserve	63,078,202	64,280,247	63,924,814	43,023,258
Warrants reserve	604,000	604,000	604,000	604,000
Accumulated other comprehensive loss	(67,623,860)	(65,419,483)	(70,332,349)	(74,213,425)
Deficit	(114,184,436)	(112,731,831)	(99,621,131)	(69,276,058)
Total equity	<u>\$ 125,111,634</u>	<u>\$129,220,661</u>	<u>\$130,186,571</u>	<u>\$ 127,292,506</u>
Total liabilities and equity	<u>\$ 129,102,654</u>	<u>\$ 133,146,851</u>	<u>\$ 133,225,104</u>	<u>\$ 130,915,849</u>

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the sections of this prospectus entitled "Selected Consolidated Financial Information" and "Business", our audited consolidated financial statements as of and for the years ended December 31, 2023, 2022 and 2021 and the related notes thereto, and our unaudited condensed interim consolidated financial statements as of March 31, 2024 and for the three months ended March 31, 2024 and 2023 and the related notes thereto, included elsewhere in this prospectus. In addition to historical financial information, the following discussion contains forward-looking statements that reflect our current plans, expectations, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this prospectus, particularly in the sections entitled "Cautionary Note Regarding Forward-Looking Statements" and "Risk Factors".

Our audited and unaudited consolidated financial statements are prepared in accordance with International Financial Reporting Standards (which we refer to as "IFRS") as issued by the International Accounting Standards Board. Our audited and unaudited consolidated financial statements are compliant and up to date with all new financial accounting standards, as noted per IFRS.

Overview

We are a mineral exploration and development company, and our primary mining project is the Autazes Project located in the Amazon potash basin near the city of Autazes in the state of Amazonas, Brazil. Our technical operations are based in Autazes, Amazonas, Brazil and Belo Horizonte, Minas Gerais, Brazil, and our registered corporate office is located at 198 Davenport Road, Toronto, Ontario, Canada. We were incorporated pursuant to the provisions of the OBCA on October 10, 2006. We have one wholly-owned subsidiary, Potássio do Brasil Ltda., a company organized under the laws of Brazil. We are in the pre-revenue development stage and have not yet commenced any mining operations. Our plan of operations for the next few years includes, subject to securing sufficient funds, commencing primary construction of the infrastructure of the Autazes Project.

Once our operations commence, our operating activities will be focused on the extraction and processing of potash ore from our underground mine and selling and distributing the processed potash in Brazil. We hold all of the mineral rights for the Autazes Project through our wholly-owned local subsidiary in Brazil, Potássio do Brasil Ltda., and such mineral rights are registered with the Brazilian National Mining Agency. We currently have rights of access to a significant amount of the land planned for the Autazes Project, including all of the land on which our proposed mine shafts, processing plant and port will be constructed. For additional information, see "Description of the Autazes Project and the Autazes Property".

The Autazes Project is located within the Amazon Potash Basin, between the Amazon River and the Madeira River, approximately 75 miles southeast of the city of Manaus, in the municipality of Autazes. Autazes is located in the eastern part of the Amazonas State, Brazil. The Autazes Project is comprised of mineral claims with a cumulative area of approximately 680 square miles in the Amazon Potash Basin. The mineralization composition of the Amazon Basin is described as sylvinitic with layers of halite, anhydrite and others (e.g., kieserite, polyhalite, and others). The Autazes Property contains a sylvinitic deposit that is subdivided into three mineralized zones. The top of the sylvinitic deposit, being the potash-bearing horizon, was determined to be at a depth between approximately 0.4 – 0.5 miles. The total thickness of the potash-bearing horizon in the explored area of the Autazes Property is between 2.3 – 13.1 feet.

Our primary goal is to win a significant share of the Brazilian potash market and be the sustainable potash supplier-of-choice for Brazilian farmers. We intend to be a significant domestic source of potash fertilizer in Brazil in order to alleviate Brazil's dependence on imported potash and farmer supply-chain risk, while

[Table of Contents](#)

supporting economic prosperity and agricultural sustainability in Brazil and food security globally. We plan to accomplish this goal by pursuing the following strategies:

- focus solely on providing our potash produced from the Autazes Project to Brazilian farmers;
- establish and maintain a position as the lowest-cost provider of potash in Brazil;
- establish strategic partnerships within the potash industry;
- nurture opportunity for sustainability leadership and innovation; and
- expand our potash production capabilities and growth opportunities.”

For more information on our growth strategies, see “Business—Our Business Objectives and Growth Strategies”.

To date, we have spent approximately \$242 million in connection with the development and advancement of the Autazes Project. Our primary near- and medium-term business objectives, for which we will use the net proceeds from this offering, will be to: (i) continue the ongoing development of the Autazes Project, including to fund our pre-operation development expenses, and (ii) begin construction of the Autazes Project.

To accomplish our primary business objectives (each of which also constitute a significant event that must occur for the business objectives to be accomplished), the key milestones to be achieved, the anticipated timing, and the expected aggregate costs thereof include: (i) development of and entry into the Impact Benefit Agreement with the Mura indigenous communities near the Autazes Project, which are anticipated to occur in the second half of 2024 at an estimated cost of \$2.5 million; (ii) completion of the purchases of the additional land that primarily will be used for the sites of our dry stacked tailings, which is anticipated to occur in the first half of 2025 at an estimated cost of \$2.8 million; (iii) completion of additional engineering and a feasibility study for the Autazes Project that will incorporate recent optimization work on the shaft sinking technology to be used, which is anticipated to occur in the first half of 2025 at an estimated cost of \$3.2 million; (iv) completion of basic engineering design work, which is anticipated to occur in the second half of 2025 at an estimated cost of \$8.6 million; (v) commencement of construction on the Autazes Project, with an emphasis on critical path items including shaft sinking and the ordering of long lead items, which is anticipated to occur in the second half of 2024 at an estimated initial cost to commence construction of \$ million (with the currently estimated total cost of construction for the Autazes Project being \$2.5 billion (not including financing fees, working capital and potential cost overruns), and we estimate that 60%–65% of the total cost of construction will be financed by debt with the balance being financed by additional equity issuances), and (vi) obtaining debt financing to fund a substantial portion of the construction costs of the Autazes Project, which we will seek to obtain in the second half of 2025.

The above guidance as to the funding requirements and timeline for developing the Autazes Project is based on our best estimates as of the date of this prospectus. Achievement or timing of the above milestones could be affected by a number of factors, including, but not limited to, economic and financial conditions that may affect our ability to raise additional funds. See “Cautionary Note Regarding Forward-Looking Statements” and “Risk Factors”.

Key Factors Impacting our Operating Results When our Mining Operations Commence

Price of Potash

Once we commence our mining operations, our financial performance will be significantly affected by the market price of potash. Potash prices have historically been subject to wide fluctuations and are affected by numerous factors beyond our control, including international economic and political conditions, levels of supply and demand, the availability and cost of substitutes, inventory levels maintained by producers and others, and, to a lesser degree, inventory carrying costs and currency exchange rates.

The market price for potash in Brazil is typically quoted as the daily Cost and Freight (CFR) price for granular potash delivered to Brazil, which is established by sales transactions between buyers and sellers. For further information on the drivers and trends affecting the market price of potash, see “Business—Our Industry and Market Opportunity”.

Production Volume, Ore Grade and Mineral Reserves

Our production volume, the ore grade of the potash from our mine, and our Mineral Reserves will affect our business performance. The Autazes Project has Measured Mineral Resources (excluding Mineral Reserves) of approximately 18 million tons at an average grade of 22.5% muriate of potash (which we refer to as “MOP”), Indicated Mineral Resources (excluding Mineral Reserves) of approximately 48 million tons at an average grade of 25.9% MOP, and Inferred Mineral Resources (excluding Mineral Reserves) of approximately 107 million tons at an average grade of 30.3% MOP. Total Proven Economically Recoverable Reserves are approximately 69 million tons at an average grade of 28.9% MOP. Probable Economically Recoverable Reserves are approximately 122 million tons at an average grade of 27.5% MOP. The estimated life of the mine on the Autazes Property is 23 years, which estimate is based on the portion of the ore body that is currently being permitted for future construction and mining. For more details, see “Description of the Autazes Project and the Autazes Property—Mineral Resource and Mineral Reserve Estimates”.

Commercial Terms

We intend to sell our mined and processed potash mostly through take or pay offtake contracts with terms between five and ten years, and with only a small portion being sold on the spot market. The agreements with our customers are expected to include customary commercial terms, such as cost, insurance and freight, free on board, free carrier, and cost and freight.

Sales prices for our potash will be based on the daily spot Cost and Freight (CFR) price for granular potash delivered to Brazil on barge loading for customer delivery, adjusted for the net freight differential of our anticipated lower domestic inland Brazil transportation cost as compared to importers of potash, less a slight discount. We intend to sell all of our potash to end users in Brazil.

Operating Costs and Expenses

Our ability to manage our operating costs and expenses will be a significant driver of our business performance. We intend to focus on ensuring stable, high levels of potash production to keep unit costs down while controlling and limiting our costs and expenses so that we can have more flexibility to overcome less favorable pricing conditions if and when they arise. However, we may not be able to adjust production volume in a timely or cost-efficient manner in response to changes in pricing. For example, lower utilization of production capacity during periods of weak potash prices may expose us to higher unit production costs since a significant portion of our cost structure will be fixed in the short-term due to the high capital nature of mining operations. In addition, efforts to reduce costs during periods of weak prices could be limited by labor regulations or previous labor or governmental agreements.

Energy Costs

Our total energy costs are expected to be mainly composed of long-term electricity supply contracts with fixed transmission fees and variable energy consumption fees. We expect that the electricity for our mining operations will be provided by a planned 500 kV power transmission line that will be connected to Brazil’s national power grid near the Amazon city of Manaus. We expect to commence construction of the power transmission line after we obtain the applicable construction permit.

Effects of Exchange Rate Fluctuations

Prices for our products will be denominated in U.S. dollars. A significant portion of our production costs, however, will be denominated in Brazilian real, so there will be a mismatch of currencies between our revenue and costs. As a result, our results of operations and financial condition are, and, after our mining operations begin, will be, affected by changes in exchange rates between the Brazilian real and the U.S. dollar. As of March 29, 2024, the exchange rate was R\$5.0153 per US\$1.00.

Environmental Expenses

Our mine will operate under licenses issued by Brazilian governmental authorities that control, among other things, air emissions and water discharges, and our mine will be subject to stringent laws and regulations relating to waste materials and various other environmental matters. Additionally, the Autazes Property will need to be rehabilitated when we ultimately finish and cease our mining operations there.

We intend to make investments to enhance our ability to comply with all applicable environmental standards and to reduce our environmental impact in the areas in which we operate. We intend to have environmental improvement initiatives relating to reducing emissions and waste and improving the efficiency of use of natural resources and energy. Where appropriate, we will establish environmental provisions for restoration or remediation of contamination and disturbance on the Autazes Property.

Trend Information

Because we are still in the mining development stage and have not yet commenced any mining operations, we are unable to identify any recent trends in our revenue or expenses, including any known trends relating to uncertainties, demands, commitments or events involving our business that are reasonably likely to have a material effect on our revenues, income from operations, profitability, liquidity or capital resources, or that would cause the financial information in this prospectus to be indicative of future operating results or financial condition.

Impact of any Business Disruptions on our Business Operations

Our operations could be significantly adversely affected by the effects of unpredictable and unforeseen events, such as extreme weather conditions, acts of God, epidemics such as the COVID-19 outbreak, and other natural or manmade disasters and business interruptions, and the related economic consequences. For example, our additional consultations with indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169, which initially started in November 2019, were suspended in March 2020 due to the COVID-19 pandemic, and we were allowed to resume such consultations in April 2022 following the lifting of COVID-19 related restrictions.

We cannot accurately predict the impact any such business disruptions will have on our operations and the ability of others to meet their obligations with us, including uncertainties relating to the ultimate duration and impact of any such business disruptions. For example, a significant outbreak of a contagious disease in the human population, such as the COVID-19 pandemic, could result in a widespread health crisis that could adversely affect the economies and financial markets of many countries, resulting in an economic downturn that could further affect our operations and our ability to finance our operations.

Going Concern

Our financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Our ability to continue as a going concern is contingent upon our ability to raise additional capital as required.

We incurred a net loss of approximately \$1.5 million and \$13.2 million for the three months ended March 31, 2024 and the year ended December 31, 2023, respectively, and, as of March 31, 2024, we had an accumulated deficit of approximately \$114.2 million and working capital of approximately \$(0.3) million (including cash of approximately \$1.1 million).

We require additional financing for working capital and the continuing development of the Autazes Project, as well as to repay our trade payables. As a result of our continuing operating losses, our continuance as a going concern is dependent upon our ability to obtain adequate financing to pay our current obligations, finance our development activities, and reach profitable levels of operation. It is not possible to predict whether any financing efforts will be successful or if we will obtain the necessary financing. We have previously been

[Table of Contents](#)

successful in raising the necessary financing to continue our operations in the normal course, and we have been able to consummate multiple equity financings through private placements of our Common Shares. Additionally, we have entered into various loan agreements to borrow funds to fund our operating expenses. Furthermore, we raised an aggregate of approximately \$40.5 million in gross proceeds pursuant to our Regulation A Offering, which closed on August 2, 2022 (see “—Liquidity and Capital Resources—Regulation A Offering” below).

To date, we have generated no cash from operations and negative cash flows from operating activities. All costs and expenses in connection with our formation, development, legal fees and administrative support have been funded by our borrowings under loan agreements, the proceeds from private placements of our Common Shares, including to our majority shareholders, and the proceeds from our Regulation A Offering. Currently, we intend to finance our operations through additional equity and debt financings. For more information regarding our ability to fund our ongoing operations, see “Use of Proceeds—Funding of Ongoing Operations”.

We continually evaluate our plan of operations to determine the manner in which we can most effectively utilize our limited cash resources. The timing of completion of any aspect of our plan of operations is highly dependent upon the availability of cash to implement that aspect of the plan and other factors beyond our control. However, there is no assurance that we will be successful in raising sufficient financing or achieving profitable operations to fund our operating expenses or future development of the Autazes Project. These circumstances raise a material uncertainty related to events or conditions that cast substantial doubt on our ability to continue as a going concern, and therefore, we may be unable to realize our assets and discharge our liabilities in the normal course of business. Our consolidated financial statements do not include any adjustments to the carrying amount or classification of assets and liabilities if we were unable to continue as a going concern. These adjustments may be material.

Critical Accounting Policies; Estimates

Our consolidated financial statements are prepared in accordance with IFRS, which requires us to make a number of estimates and assumptions that affect the reported amounts and disclosures in our consolidated financial statements. These estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of our consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. We base our accounting estimates and assumptions on historical experience and other factors that we believe to be reasonable under the circumstances. Additionally, we strive to make these estimates and assumptions in an appropriate manner and in a way that accurately reflects our financial condition. We will continually test and evaluate these estimates and assumptions using our historical knowledge of the business, as well as other factors, to ensure that they are reasonable for reporting purposes. However, actual results may differ from these estimates and assumptions.

Critical accounting policies are those policies that reflect significant estimates or judgments about matters that are both inherently uncertain and material to our financial condition or results of operations. Below is a description of our critical accounting policies that require significant estimates and judgments.

Basis of Consolidation

Our consolidated financial statements comprise the financial statements of our Company and our wholly-owned subsidiary in Brazil, Potássio do Brasil Ltda. Potássio do Brasil Ltda. has been fully consolidated from the date of its formation, being the date on which our Company obtained control, and will continue to be consolidated until the date that such control ceases. All intra-company balances, income and expenses, and unrealized gains and losses resulting from intra-company transactions are eliminated in full upon consolidation.

Foreign Currency Transactions

Transactions in foreign currencies are initially recorded in our functional currency, the U.S. dollar, at the rate as of the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at the rate of exchange as of the statements of financial position date. All differences are taken to profit or loss.

[Table of Contents](#)

For presentation of our consolidated financial statements, if the functional currency of our subsidiary is different than U.S. dollars as of the reporting date, the assets and liabilities are translated into U.S. dollars at the rate of exchange as of the statements of financial position date and the income and expenses are translated using the average exchange rate for the period. The foreign exchange differences arising are recorded in the cumulative translation account in other comprehensive income. On disposal of a foreign entity, the deferred cumulative amount recognized in equity relating to the particular operation is recognized in our consolidated statements of loss and comprehensive loss.

Cash and Cash Equivalents

Cash and cash equivalents on our consolidated statements of financial position comprise cash at banks and on hand, and short-term deposits with an original maturity of three months or less, which are readily convertible into a known amount of cash.

Property and Equipment

Recognition and Measurement

Items of equipment are measured at cost, less accumulated depreciation and accumulated impairment losses.

Depreciation

Depreciation is calculated over the depreciable amount, which is the cost of an asset, or other amount substituted for cost, less its residual value.

The estimated lives for the following types of property or equipment as of and for the year ended December 31, 2023 are as follows:

<u>Type of Property or Equipment</u>	<u>Estimated Life</u>
Vehicles	5 years
Office equipment	5 years
Furniture and fixtures	10 years

Our land is carried at cost.

When events or changes in the economic environment indicate a risk of impairment to property and equipment, an impairment test is performed to determine whether the carrying amount of the asset or group of assets under consideration exceeds its or their recoverable amount. Recoverable amount is defined as the greater of an asset's fair value (less costs of disposal) and its value in use. Value in use is equal to the present value of future cash flows expected to be derived from the use and sale of the asset.

Exploration and Evaluation Assets

Costs incurred prior to obtaining the appropriate license are expensed in the period in which they are incurred.

Exploration and evaluation expenditures comprise costs of initial search for mineral deposits and performing a detailed assessment of deposits that have been identified as having economic potential. Exploration and evaluation costs also include an allocation of administration costs and staff costs (which are generally the salaries, benefits and equity compensation to our employees performing exploration and evaluation activities) as determined by our management.

The cost of exploration properties and leases, which include the cost of acquiring prospective properties and exploration rights, including interest, and costs incurred in exploration and evaluation activities, are capitalized as assets as part of exploration and evaluation assets. Exploration and evaluation costs are capitalized as an asset until technical feasibility and commercial viability of extraction of reserves are demonstrable, then the

Table of Contents

capitalized exploration costs are reclassified to property, plant and equipment. Prior to reclassification to property, plant and equipment, exploration and evaluation assets are assessed for impairment, and any impairment loss is immediately recognized in profit or loss. Depreciation on equipment used in exploration and evaluation is charged to exploration and evaluation assets.

A breakdown of the material components of our exploration and evaluation expenditures for the years ended December 31, 2023, 2022 and 2021 is set forth below:

Exploration and Evaluation Expenditures	Year Ended December 31,		
	2023	2022	2021
Balance, beginning of period	\$ 120,216,752	\$ 112,188,360	\$ 114,893,005
Additions:			
Mineral rights and land use fees	41,073	19,230	17,362
Geology and geophysics	3,000	3,300	6,000
Consulting and technical	448,392	794,048	179,059
Administration expenses	1,567,497	859,352	442,786
Staff costs	709,725	315,167	325,684
Field costs	660,751	154,512	89,972
Environmental costs	626,682	453,567	105,087
Technical Report / feasibility study	5,867	1,121,171	—
Share-based compensation	127,670	368,341	293,856
Effect of foreign exchange	5,018,756	3,939,703	(4,164,452)
Balance, end of period	\$ 129,298,494	\$ 120,216,752	\$ 112,188,360

Impairment of Exploration and Evaluation Assets

Exploration and evaluation assets are assessed for impairment when facts and circumstances suggest that the carrying amount may exceed its recoverable amount. We review and test for impairment on an ongoing basis and specifically if any of the following occurs:

- the period for which we have a right to explore in the specific area has expired or is expected to expire;
- the exploration and evaluation have not led to the discovery of economic reserves;
- the development of the reserves is not economically or commercially viable; or
- the exploration is located in an area that has become politically unstable.

If it is determined that capitalized exploration and evaluation costs are not recoverable, or the property is abandoned, or management has determined an impairment in value, the property is written down to its recoverable amount. The recoverability of amounts shown for exploration and evaluation assets is dependent on the following factors: (i) the existence of economically recoverable reserves, (ii) our ability to obtain financing to complete the development of such reserves and meet our obligations under various agreements, and (iii) the success of future operations or dispositions. If a project does not prove viable, all unrecoverable costs associated with the project, net of any related existing impairment provisions, will be written off.

No amortization is charged during the exploration and evaluation phase.

Financial Instruments

We recognize financial assets and financial liabilities on the date we become a party to the contractual provisions of the instruments. A financial asset is derecognized either when we have transferred substantially all

[Table of Contents](#)

the risks and rewards of ownership of such financial asset or when cash flows expire. A financial liability is derecognized when the obligation specified in the contract is discharged, canceled or expired. Our financial assets include cash and cash equivalents and amounts receivable (excluding Canadian federal and provincial Harmonized Sales Tax (HST) receivable). Our financial liabilities include trade payables, accrued liabilities, loans payable, and the land fee installment payable.

Non-derivative financial instruments are recognized initially at fair value plus attributable transaction costs, where applicable for financial instruments not classified as fair value through profit or loss. Subsequent to initial recognition, non-derivative financial instruments are classified and measured as described below:

- *Financial assets at fair value through profit or loss* – Cash and cash equivalents are classified as financial assets at fair value through profit or loss and are measured at fair value. Cash and cash equivalents comprise cash at banks and on hand with original maturity of three months or less and are readily convertible to specified amounts of cash.
- *Amortized cost* – Amounts receivable (excluding Canadian federal and provincial Harmonized Sales Tax (HST) receivable) are classified as and measured at amortized cost using the effective interest rate method, less impairment losses, if any.
- *Financial assets at fair value through other comprehensive income* – Financial assets designated as financial assets at fair value through other comprehensive income on initial recognition are recorded at fair value on the trade date with directly attributable transaction costs included in the recorded amount. Subsequent changes in fair value are recognized in other comprehensive income. We do not have any financial assets measured at fair value through other comprehensive income.
- *Non-derivative financial liabilities* – Trade payables, accrued liabilities, loans payable, and the land fee installment payable are accounted for at amortized cost, using the effective interest rate method.

Provisions

Provisions are recognized when: (i) we have a present obligation (legal or constructive) as a result of a past event, and (ii) it is probable that an outflow of resources embodying economic benefits will be required to settle such obligation, and a reliable estimate can be made of the amount of such obligation. If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, where appropriate, the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage of time is recognized as a finance cost.

Contingencies

Contingencies will only be recognized when one or more future events occur or fail to occur. The assessment of contingencies involves the exercise of significant judgement and estimates of the outcome of future events.

Income Taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss, except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive loss.

Current tax is the expected tax payable or receivable on the taxable income or loss for the year, using tax rates enacted as of the reporting date, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognized with respect to temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognized for the following temporary differences: the initial recognition of assets or liabilities in a transaction

that is not a business combination and that affects neither accounting nor taxable profit or loss, and differences relating to investments in subsidiary and jointly controlled entities to the extent that it is probable that they will not reverse in the foreseeable future. In addition, deferred tax is not recognized for taxable temporary differences arising on the initial recognition of goodwill. Deferred tax is measured at the tax rates that are expected to be applied to temporary differences when they reverse, based on the laws that have been enacted or substantively enacted by the reporting date. Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets and they relate to income taxes levied by the same tax authority on the same taxable entity or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realized simultaneously.

A deferred tax asset is recognized for unused tax losses, tax credits, and deductible temporary differences, to the extent that it is probable that future taxable profits will be available against which they can be utilized. Deferred tax assets are reviewed as of each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realized.

Share-based Payments and Warrants

We record compensation cost associated with equity-settled share-based awards based on the fair value of the equity instrument as of the date of grant. The fair value of stock options and warrants is determined using the Black-Scholes option pricing model which requires our management to make estimates and assumptions regarding, among other things, the expected life and market price of the equity instruments, volatility, and interest rates. The fair value of DSUs is measured at the fair market value of the underlying Common Shares, as estimated by our management, on the date of grant. The compensation expense is recognized on a straight-line basis over the vesting period, if any, based on the estimate of equity instruments expected to vest. The estimate of stock options and DSUs expected to vest is revised at the end of each reporting period. When stock options or warrants are exercised, the proceeds received by us, together with any related amount in contributed surplus, is credited to share capital.

Recently Issued Accounting Pronouncements Not Yet Adopted

The following are certain accounting pronouncements issued by the IASB or the International Financial Reporting Interpretations Committee (which we refer to as the “IFRIC”) that are mandatory for accounting periods commencing on or after January 1, 2022, and that we believe are applicable to, and will have a significant impact on, our Company.

IAS 1—Presentation of Financial Statements (which we refer to as “IAS 1”) was amended in January 2020 to provide a more general approach to the classification of liabilities under IAS 1 based on the contractual arrangements in place at the reporting date. The amendments clarify that the classification of liabilities as current or noncurrent is based solely on a company’s right to defer settlement at the reporting date. The right needs to be unconditional and must have substance. The amendments also clarify that the transfer of a company’s own equity instruments is regarded as settlement of a liability, unless it results from the exercise of a conversion option meeting the definition of an equity instrument. These amendments to IAS 1 are effective for annual periods beginning on or after January 1, 2023.

IAS 1 and IFRS Practice Statement 2 was also amended in February 2021 through the issuance by the IASB of ‘*Disclosure of Accounting Policies*’, which is intended to help preparers in deciding which accounting policies to disclose in their financial statements. These amendments are effective for annual periods beginning on or after January 1, 2023.

IAS 8—*Accounting Policies, Changes in Accounting Estimates and Errors* (which we refer to as “IAS 8”) was amended in February 2021 through the issuance by the IASB of ‘*Definition of Accounting Estimates*’, which is intended to help entities distinguish between accounting policies and accounting estimates. These amendments to IAS 8 are effective for annual periods beginning on or after January 1, 2023.

[Table of Contents](#)

IAS 16—*Property, Plant and Equipment* (which we refer to as “IAS 16”) was amended in May 2020 to introduce new guidance that provides that the proceeds from selling items before the related property, plant and equipment is available for its intended use can no longer be deducted from the cost. Instead, such proceeds are to be recognized in profit or loss, together with the costs of producing those items. These amendments to IAS 16 are effective for annual periods beginning on or after January 1, 2022.

IAS 37—*Provisions, Contingent Liabilities and Contingent Assets* (which we refer to as “IAS 37”) was amended in May 2020 to clarify that when assessing if a contract is onerous, the cost of fulfilling the contract includes all costs that relate directly to the contract (i.e., a full-cost approach). Such costs include both the incremental costs of the contract (i.e., costs a company would avoid if it did not have the contract) and an allocation of other direct costs incurred on activities required to fulfill the contract (e.g., contract management and supervision, or depreciation of equipment used in fulfilling the contract). These amendments to IAS 37 are effective for annual periods beginning on or after January 1, 2022.

Results of Pre-Operation Development Activities

The following table sets forth the results of our pre-operation development activities for the periods indicated:

	Three months ended March 31,		Year Ended December 31,		
	2024	2023	2023	2022	2021
Statements of Loss and Other Comprehensive Loss Information:					
General and administrative expenses:					
Consulting and management fees	\$ 577,465	\$ 3,796,388	\$ 5,441,156	\$ 2,713,548	\$ 2,023,284
Professional fees	54,380	407,909	1,453,310	2,185,220	644,117
Share-based compensation	629,033	(103,985)	4,703,254	24,474,191	357,189
Travel expenses	82,541	127,713	390,531	2,704,879	231,821
General office expenses	36,605	32,262	120,228	183,843	148,715
Foreign exchange loss	(3,054)	(3,680)	(10,552)	62,479	68,243
Communications and promotions	59,392	60,130	1,251,155	398,880	62,528
Operating loss	\$ 1,436,362	\$ 4,316,737	\$ 13,349,082	\$ 32,723,040	\$ 3,535,897
Finance costs	\$ —	\$ —	\$ —	\$ —	\$ 405,249
Finance income	(4,444)	(115,727)	(302,720)	(259,019)	(5,056)
Loss for the period before income taxes	\$ 1,431,918	\$ 4,201,010	\$ 13,046,362	\$ 32,464,021	\$ 3,936,090
Income taxes	\$ 20,687	\$ 33,466	\$ 160,838	\$ 155,360	\$ 93,276
Net loss for the period (after income taxes)	\$ 1,452,605	\$ 4,234,476	\$ 13,207,200	\$ 32,619,381	\$ 4,029,366
Other income (expense):					
<i>Items that subsequently may be reclassified into net income:</i>					
Foreign currency translation	\$ 2,204,377	\$ (1,697,715)	\$ (4,912,866)	\$ (3,881,076)	\$ 4,131,016
Total comprehensive loss for the period	\$ 3,656,982	\$ 2,536,761	\$ 8,294,334	\$ 28,738,305	\$ 8,160,382

Three Months Ended March 31, 2024 Compared to three Months Ended March 31, 2023

Revenues

We did not generate any revenues for the three months ended March 31, 2024 and 2023, as we are in the development stage and have not yet commenced any mining operations and potash production.

Operating Loss

Our operating loss decreased to approximately \$1.4 million for the three months ended March 31, 2024, as compared to approximately \$4.3 million for the three months ended March 31, 2023, primarily due to a decrease in our general and administrative expenses. Such decrease was primarily due to (i) lower consulting and management fees during the three months ended March 31, 2024, as compared to the same period in 2023, as no cash bonuses were granted during the three months ended March 31, 2024, (ii) lower travel expenses during the three months ended March 31, 2024, as compared to the same period in 2023, as our management made fewer trips to Brazil, and (iii) lower professional fees incurred during the three months ended March 31, 2024, as compared to the same period in 2023, offset by higher share-based compensation. General and administrative expenses consist primarily of consulting and management fees, share-based compensation, professional fees, travel expenses, and general office expenses.

Net Loss

Our net loss was approximately \$1.5 million for the three months ended March 31, 2024, as compared to approximately \$4.2 million for the three months ended March 31, 2023, primarily as a result of the lower general and administrative expenses that we incurred during the three months ended March 31, 2024, as compared to the same period in 2023.

Year Ended December 31, 2023 Compared to Year Ended December 31, 2022

Revenues

We did not generate any revenues for the years ended December 31, 2023 and 2022, as we are in the development stage and have not yet commenced any mining operations and potash production.

Operating Loss

Our operating loss decreased to approximately \$13.3 million for the year ended December 31, 2023, as compared to approximately \$32.7 million for the year ended December 31, 2022, primarily due to a decrease in our general and administrative expenses. Such decrease was primarily due to (i) lower share-based compensation in 2023, as compared to 2022, as we granted fewer stock options and DSUs to our executives and employees, (ii) lower travel expenses in 2023, as compared to 2022, as our management made fewer trips to Brazil, and (iii) lower professional fees incurred in 2023, as compared to 2022, offset by higher consulting and management fees. General and administrative expenses consist primarily of consulting and management fees, share-based compensation, professional fees, travel expenses, and general office expenses. We incurred higher consulting and management fees in 2023, as we awarded to certain of our key management personnel discretionary cash bonuses in the aggregate amount of approximately \$3.0 million (see Note 18 to our audited condensed consolidated financial statements as of and for the years ended December 31, 2023 and 2022, included elsewhere in this prospectus), as compared to 2022, during which we did not award any cash bonuses.

Net Loss

Our net loss was approximately \$13.2 million for the year ended December 31, 2023, as compared to a net loss of approximately \$32.6 million for the year ended December 31, 2022, primarily as a result of the lower general and administrative expenses that we incurred in 2023, as compared to 2022.

Year Ended December 31, 2022 Compared to Year Ended December 31, 2021

Revenues

We did not generate any revenues for the years ended December 31, 2022 and 2021, as we are in the development stage and have not yet commenced any mining operations and potash production.

Operating Loss

Our operating loss increased to approximately \$32.7 million for the year ended December 31, 2022, as compared to approximately \$3.5 million for the year ended December 31, 2021, primarily due to the incurrence of (i) higher payments for share-based compensation in 2022, as compared to 2021, as we granted (a) stock options with respect to an aggregate of 1.25 million Common Shares and (b) 6.425 million DSUs in 2022, (ii) higher travel expenses in 2022, as compared to 2021, due to increased business trips to Brazil to advance the development of the Autazes Project, and (iii) higher professional fees in 2022, primarily in connection with this offering, as compared to 2021. Our general and administrative expenses, consisting primarily of consulting and management fees, professional fees, share-based compensation, travel expenses, and general office expenses, were the primary contributors to our operating loss. Our travel expenses increased to approximately \$2.7 million for the year ended December 31, 2022, as compared to approximately \$0.3 million for the year ended December 31, 2021, as a result of the lifting of COVID-19 travel restrictions and our Company successfully raising capital from our Regulation A Offering in 2021, which permitted our management team to make more frequent business trips to Brazil to: (i) negotiate our offtake and potash distribution and marketing agreements with Amaggi Exportação e Importação Ltda.; (ii) resume additional consultations with the Mura indigenous people; (iii) attend additional meetings with Brazilian federal, state and municipal agencies to work towards obtaining the Construction Licenses; and (iv) attend various mining conferences in person, which were not offered in 2021.

Net Loss

Our net loss increased to approximately \$32.6 million for the year ended December 31, 2022, as compared to a net loss of approximately \$4.0 million for the year ended December 31, 2021, primarily due to the higher general and administrative expenses that we incurred in 2022, as compared to 2021.

Liquidity and Capital Resources

To date, we have generated no cash from operations and negative cash flows from operating activities. All costs and expenses in connection with our formation, development, legal fees and administrative support have been funded by our borrowings under loan agreements, the proceeds from private placements of our Common Shares, including to our majority shareholders, and the proceeds from our Regulation A Offering (see “—Regulation A Offering” below).

Our future expenditures and capital requirements will depend on numerous factors, including the success of this offering and the progress of our development efforts.

Our business does not currently generate any cash. We believe that with the expected proceeds from this offering, we will have sufficient capital to finance our development and operations through the _____ quarter of 2025. However, if our development and operating costs and expenses are higher than expected, we may need to obtain additional financing prior to the _____ quarter of 2025. Furthermore, in addition to this offering, we expect that we will be required to raise additional funds to finance our operations until such time that we can conduct profitable revenue-generating activities. No assurances can be made that we will be successful in obtaining additional equity or debt financing, or that ultimately, we will commence profitable operations and achieve positive cash flow.

Our approach to managing liquidity risk is to ensure that we will have sufficient liquidity to meet liabilities when due. As of March 31, 2024, we had a cash and cash equivalents balance of approximately \$1.1 million to settle current liabilities of approximately \$1.8 million. If, however, we do not have sufficient liquidity to meet current obligations, it will be necessary for us to secure additional equity or debt financing.

Summary of Cash Flows

The following table summarizes our cash flow data and cash and cash equivalents for the periods indicated:

	Three months ended March 31,		Year Ended December 31,		
	2024	2023	2023	2022	2021
Net cash used in operating activities	\$ (656,357)	\$ (5,010,565)	\$ (8,196,753)	\$ (8,217,642)	\$ (9,608,999)
Net cash used in investing activities	\$ (627,254)	\$ (550,682)	\$ (3,635,008)	\$ (3,470,882)	\$ (1,164,192)
Net cash provided by financing activities	\$ —	\$ —	\$ 2,497,500	\$ 8,348,378	\$ 25,877,650
Cash and cash equivalents (at beginning of period)	\$ 2,450,239	\$ 11,804,907	\$ 11,804,907	\$ 15,144,419	\$ 72,438
Cash and cash equivalents (at end of period)	\$ 1,143,184	\$ 6,247,818	\$ 2,450,239	\$ 11,804,907	\$ 15,144,419

Operating Activities

Net cash used in operating activities decreased to approximately \$(0.7) million for the three months ended March 31, 2024, as compared to approximately \$(5.0) million for the three months ended March 31, 2023, primarily due to changes in working capital, which was approximately \$0.2 million for the three months ended March 31, 2024, as compared to approximately \$(0.6) million for the three months ended March 31, 2023, and lower net loss, which was approximately \$1.5 million for the three months ended March 31, 2024, as compared to approximately \$4.2 million for the three months ended March 31, 2023.

Net cash used in operating activities remained relatively stable at approximately \$(8.2) million for the years ended December 31, 2023 and December 31, 2022.

Net cash used in operating activities decreased to approximately \$(8.2) million for the year ended December 31, 2022, as compared to approximately \$(9.6) million for the year ended December 31, 2021, primarily due to changes in working capital, which was approximately \$31,200 for the year ended December 31, 2022, as compared to approximately \$(6.4) million in 2021, partially offset by increases in general and administrative expenses during the year ended December 31, 2022.

Investing Activities

Net cash used in investing activities increased slightly to approximately \$(627,000) for the three months ended March 31, 2024, as compared to approximately \$(551,000) for the three months ended March 31, 2023, primarily due to a slight increase in exploration and evaluation expenses during the three months ended March 31, 2024, as compared to the same period in 2023.

Net cash used in investing activities increased slightly to approximately \$(3.6) million for the year ended December 31, 2023, as compared to approximately \$(3.5) million for the year ended December 31, 2022, primarily due to a slight increase in exploration and evaluation expenses in 2023, as compared to 2022.

Net cash used in investing activities increased to approximately \$(3.5) million for the year ended December 31, 2022, as compared to approximately \$(1.2) million for the year ended December 31, 2021, primarily due to an increase in spending on exploration and evaluation expenses to approximately \$3.7 million in 2022, as compared to approximately \$1.2 million in 2021.

Financing Activities

We did not conduct any subsequent financing activities during the three months ended March 31, 2024 and 2023 following the completion of our Regulation A Offering in August 2022, and as such, we did not generate cash flows from financing activities for the three months ended March 31, 2024 and 2023.

Table of Contents

Net cash provided by financing activities decreased to approximately \$2.5 million for the year ended December 31, 2023, as compared to approximately \$8.3 million for the year ended December 31, 2022, primarily because we did not conduct any subsequent financing activities following the completion of our Regulation A Offering in August 2022.

Net cash provided by financing activities decreased to approximately \$8.3 million for the year ended December 31, 2022, as compared to approximately \$25.9 million for the year ended December 31, 2021, primarily due to a decrease in the proceeds from our Regulation A Offering.

Cash and cash equivalents

Our cash and cash equivalents balance was approximately \$1.1 million as of March 31, 2024, as compared to \$6.2 million as of March 31, 2023, primarily because we did not conduct any subsequent financing activities following the completion of our Regulation A Offering in August 2022, and there was no receipt of cash proceeds from exercise of stock options during the three months ended March 31, 2024 as no stock options were exercised.

Our cash and cash equivalents balance was approximately \$2.5 million as of December 31, 2023, as compared to \$11.8 million as of December 31, 2022, primarily because we did not conduct any subsequent financing activities following the completion of our Regulation A Offering in August 2022, and our primary receipt of cash proceeds in 2023 was from an exercise of stock options.

Our cash and cash equivalents balance was approximately \$11.8 million as of December 31, 2022, as compared to \$15.1 million as of December 31, 2021, as we were able to maintain our cash balance even with increased general and administrative expenses during the year ended December 31, 2022, primarily due to the proceeds raised from our Regulation A Offering in 2022.

Debt Financings

Loan Agreement with Sentient

On October 29, 2019, we entered into a loan agreement with Sentient Global Resource Fund IV LP, of which Andrew Pullar (a then member of our board of directors at such time) is the managing partner and a director. Pursuant to the terms of the loan agreement with Sentient Global Resource Fund IV LP, we borrowed from Sentient Global Resource Fund IV LP \$1,000,000, on an unsecured basis, at an interest rate of 30% per annum, and with an initial repayment date of April 29, 2020 (which we refer to as the "Sentient Loan"). We also incurred a setup fee of \$200,000 in connection with the Sentient Loan. On April 29, 2020, the parties extended the repayment date of the Sentient Loan to July 31, 2020, and we incurred an extension fee of \$50,000 in connection therewith. The Sentient Loan began accruing interest on August 1, 2020. On September 30, 2021, we entered into an amended and restated loan agreement with Sentient Global Resource Fund IV LP, pursuant to which the principal and accrued interest due and payable under the Sentient Loan, along with the cumulative setup and extension fees of \$250,000, totaling \$1,599,794, was capitalized to the Sentient Loan balance as of September 30, 2021, and the repayment date was extended to June 30, 2022. The amended Sentient Loan accrued interest at a rate of 12%. The terms of the amended and restated loan agreement with Sentient Global Resource Fund IV LP included restrictive covenants which restricted us from incurring any other indebtedness with a maturity date earlier than June 30, 2022 and from making any payments of principal or interest under any loan agreements entered into on or after September 30, 2021 until the Sentient Loan was paid in full. On November 30, 2021, we repaid in full the Sentient Loan, including all principal, accrued interest, and fees due and payable, using a portion of our proceeds from our Regulation A Offering.

Loan Agreement with 2227929 Ontario Inc.

On June 15, 2020, we entered into a loan agreement (which we refer to as the "2227929 Ontario Loan Agreement") with 2227929 Ontario Inc. Pursuant to the terms of the 2227929 Ontario Loan Agreement, we borrowed from 2227929 Ontario Inc. \$40,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial

Table of Contents

maturity date of September 15, 2020. On September 15, 2020, the parties extended the maturity date under 2227929 Ontario Loan Agreement to December 15, 2020. On December 17, 2020 and during the three months ended March 31, 2021, we borrowed from 2227929 Ontario Inc. an additional \$70,000 and \$160,000, respectively, under the 2227929 Ontario Loan Agreement on the same terms as the initial loan. On December 15, 2020, the parties extended the maturity date under the 2227929 Ontario Loan Agreement to July 31, 2021, and on September 30, 2021, the parties further extended the maturity date under the 2227929 Ontario Loan Agreement to June 30, 2022. On November 29, 2021, we repaid in full all of the loans under the 2227929 Ontario Loan Agreement, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

Loan Agreements with Aberdeen

On July 2, 2020, we entered into a loan agreement (which we refer to as the “Initial Aberdeen Loan Agreement”) with Aberdeen International Inc. (which we refer to as “Aberdeen”). Stan Bharti (our Executive Chairman) is the executive chairman, and Ryan Ptolemy (our Chief Financial Officer) is the chief financial officer, of Aberdeen. Pursuant to the terms of the Initial Aberdeen Loan Agreement, we borrowed from Aberdeen \$100,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of January 2, 2021. During 2020, we borrowed from Aberdeen an additional \$348,000 under the Initial Aberdeen Loan Agreement on the same terms as the initial loan. On February 9, 2021, the parties extended the maturity date under the Initial Aberdeen Loan Agreement to July 31, 2021, and on September 30, 2021, the parties further extended the maturity date under the Initial Aberdeen Loan Agreement to June 30, 2022. On November 29, 2021, we repaid in full all of the loans under Initial Aberdeen Loan Agreement, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

On April 1, 2021, we entered into a second loan agreement with Aberdeen (which we refer to as the “Second Aberdeen Loan Agreement”), pursuant to which we borrowed from Aberdeen \$200,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of December 31, 2021. On September 30, 2021, the parties extended the maturity date under the Second Aberdeen Loan Agreement to June 30, 2022. On November 29, 2021, we repaid in full the loan under Second Aberdeen Loan Agreement, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

On August 4, 2021, we entered into a third loan agreement with Aberdeen (which we refer to as the “Third Aberdeen Loan Agreement”), pursuant to which we borrowed from Aberdeen \$149,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of December 31, 2021. On September 30, 2021, the parties extended the maturity date under the Third Aberdeen Loan Agreement to June 30, 2022. On November 29, 2021, we repaid in full the loan under Third Aberdeen Loan Agreement, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

Loan Agreement with Sulliden

On October 22, 2020, we entered into a loan agreement with Sulliden Mining Capital Inc. (which we refer to as “Sulliden”), and at such time, Stan Bharti (our Executive Chairman) served as the then-executive chairman and interim chief executive officer, and Ryan Ptolemy (our Chief Financial Officer) served as the then-chief financial officer, of Sulliden. Pursuant to the terms of the loan agreement with Sulliden, we borrowed from Sulliden \$70,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of December 21, 2020 (which we refer to as the “Sulliden Loan”). On February 10, 2021, the parties extended the maturity date of the Sulliden Loan to July 31, 2021, and on September 30, 2021, the parties further extended the maturity date of the Sulliden Loan to June 30, 2022. On November 29, 2021, we repaid in full the Sulliden Loan, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering. Stan Bharti resigned from his position with Sulliden in March 2023, and Ryan Ptolemy resigned from his position with Sulliden in January 2024.

[Table of Contents](#)

Loan Agreement with Greenway

On February 26, 2021, we entered into a loan agreement with Greenway Investments International Ltd. (which we refer to as “Greenway”). Pursuant to the terms of the loan agreement with Greenway, we borrowed from Greenway \$138,603, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of September 1, 2021 (which we refer to as the “Greenway Loan”). On September 30, 2021, the parties extended the maturity date of the Greenway Loan to June 30, 2022. On November 29, 2021, we repaid in full the Greenway Loan, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

Loan Agreement with Newdene

On May 5, 2021, we entered into a loan agreement with Newdene Gold Inc. (which we refer to as “Newdene”). Pursuant to the terms of the loan agreement with Newdene, we borrowed from Newdene \$135,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of December 31, 2021 (which we refer to as the “Newdene Loan”). On September 30, 2021, the parties extended the maturity date of the Newdene Loan to June 30, 2022. On November 29, 2021, we repaid in full the Newdene Loan, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

Regulation A Offering

Pursuant to an offering under Tier 2 of Regulation A promulgated under the Securities Act (which we refer to as our “Regulation A Offering”), we completed an offering of 10,118,706 Common Shares. Our Regulation A Offering was made pursuant to our Form 1-A Offering Statement, which was initially filed by us with the SEC on May 5, 2020 and qualified by the SEC on June 26, 2020, and our Post-Qualification Offering Circular Amendment No. 1 and Post-Qualification Offering Circular Amendment No. 2, which were filed by us with the SEC on June 25, 2021 and July 23, 2021, respectively, and qualified by the SEC on August 2, 2021. The Common Shares were offered in our Regulation A Offering at a purchase price of \$4.00 per Common Share.

Our Regulation A Offering closed on August 2, 2022, with an aggregate of 10,118,706 Common Shares sold and approximately \$40.5 million in gross proceeds raised, of which approximately \$33.0 million was raised in 2021, and approximately \$7.5 million was raised in 2022.

Plan of Operations

As noted above, the continuation of our current plan of operations, which is in the development stage, requires us to raise significant amounts of additional capital.

We are a pre-revenue development stage mineral mining company, which began operations in October 2006. Our plan of operations for the next few years includes, subject to securing sufficient funds, commencing primary construction of the infrastructure of the Autazes Project. We continually evaluate our plan of operations to determine the manner in which we can most effectively utilize our limited cash resources. The timing of completion of any aspect of our plan of operations is highly dependent upon the availability of cash to implement that aspect of our plan and other factors beyond our control. There is no assurance that we will successfully obtain the required capital or revenues, or, if obtained, that the amounts will be sufficient to fund our ongoing plan of operations.

These circumstances represent material uncertainties that may cast substantial doubt on our ability to continue as a going concern. Our financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or amounts and classification of liabilities that might result from this uncertainty.

Capital Expenditures

We do not have any contractual obligations for ongoing capital expenditures at this time.

Contractual Obligations and Commitments

We are a party to certain consulting agreements, which provide, as of March 31, 2024, for aggregate change in control payments by us of approximately \$9.2 million to certain of our directors, executives and consultants upon the occurrence of a change in control (as such term is defined in each respective consulting agreement) of our Company, and aggregate termination payments by us of approximately \$1.3 million upon the respective termination of such directors, executives and consultants. As a triggering event under such consulting agreements has not taken place, these amounts have not been recorded on our consolidated financial statements.

Contingencies

Certain conditions may exist as of the date our consolidated financial statements are issued, which may result in a loss to us, but which will only be resolved when one or more future events occur or fail to occur. Our management assesses such contingent liabilities, and such assessment inherently involves an exercise of judgment. In assessing loss contingencies related to legal proceedings that are pending against us or unasserted claims that may result in such proceedings, we, in consultation with our legal counsel as appropriate, evaluate the perceived merits of any legal proceedings or unasserted claims, as well as the perceived merits of the amount of relief sought or expected to be sought in connection therewith. If the assessment of a contingency indicates it is probable that a material loss has been incurred and the amount of the liability can be estimated, then the estimated liability would be accrued on our financial statements. If the assessment indicates a potentially material loss contingency is not probable, but is reasonably possible, or is probable, but cannot be estimated, then the nature of the contingent liability, together with an estimate of the range of the possible loss, if determinable and material, would be disclosed. Loss contingencies considered remote are generally not disclosed on our financial statements unless they involve guarantees, in which case the guarantees would be disclosed. We are not aware of any matters which result in a loss contingency.

Off-Balance Sheet Arrangements

We did not have during the three months ended March 31, 2024 and the years ended December 31, 2023, 2022 and 2021, and we do not currently have, any off-balance sheet arrangements.

Quantitative and Qualitative Disclosure About Market Risk

We consider market risk to be the potential loss arising from adverse changes in market rates and prices.

In the ordinary course of our business as currently conducted, which primarily consists of our mining development activities as we have not yet commenced any mining operations and potash production, we are not exposed to market risk of the sort that may arise from changes in commodity prices, interest rates or foreign currency exchange rates.

When we commence our mining operations and potash production, which will consist primarily of extracting and processing potash ore from our underground mine and selling and distributing the processed potash in Brazil, we anticipate that we will be exposed to a number of market risks that will arise from our normal business activities. We believe that these market risks, which will be beyond our control, will principally involve the possibility that changes in commodity prices, interest rates or exchange rates will adversely affect the value of our inventory, financial assets and liabilities, or future cash flows and earnings.

Financial Risk Management Objectives and Policies

We believe that the financial risks that will arise from our operations will be credit risk, liquidity risk, foreign currency risk, and commodity price risk. These financial risks will arise in the normal course of our operations, and all transactions undertaken by us will be to support our ability to continue as a going concern. Our management will manage and monitor our exposure to these financial risks to ensure that appropriate measures will be implemented in a timely and effective manner.

[Table of Contents](#)

Credit Risk

Credit risk is the risk of an unexpected loss if a customer or third party to a financial arrangement fails to meet its contractual obligations. Our credit risk is primarily associated with our bank balances. We mitigate credit risk associated with our bank balances by holding cash with large, reputable financial institutions.

Liquidity Risk

Liquidity risk is the risk that we will not be able to settle or manage our obligations associated with financial liabilities. To manage liquidity risk, we closely monitor our liquidity position to ensure that we have adequate sources of financing to fund our operations and projects. As of March 31, 2024, we had a cash and cash equivalents balance of approximately \$1.1 million to settle current liabilities of approximately \$1.8 million. We plan to use a portion of the net proceeds from this offering to settle our current liabilities. If, however, we do not have sufficient liquidity to meet our current obligations following this offering, it will be necessary for us to secure additional equity or debt financing.

Foreign Currency Risk

Foreign currency risk is created by fluctuations in the fair value or cash flows of financial instruments due to changes in foreign exchange rates and exposure as a result of our investments in our foreign subsidiary, Potássio do Brasil Ltda. Our foreign currency risk arises primarily with respect to the Brazilian real, as fluctuations in the exchange rates between these currencies and the U.S. dollar could have a material impact on our business, results of operations, and financial condition.

For example, a \$0.01 strengthening or weakening of the U.S. dollar against the Brazilian real as of March 31, 2024 would result in a respective increase or decrease in operating loss of approximately \$nil, and a respective increase or decrease in other comprehensive loss of approximately \$3.6 million. We do not currently engage in any hedging activities to mitigate this risk.

Commodity Price Risk

Our future profitability will be dependent on the income to be received from our mining operations and potash production, which will be based on the amount of potash ore we will be able to extract and process, and the prices at which we are able to sell and distribute the processed potash. Potash prices are affected by numerous factors such as global and regional supply and demand, inflation or deflation, interest rates, and exchange rates.

The JOBS Act and Implications of Being an Emerging Growth Company

We are an “emerging growth company”, as defined in Section 2(a) of the Securities Act, as modified by the JOBS Act. As such, we are eligible to take advantage of specified reduced reporting and other requirements that are otherwise generally applicable to SEC reporting companies that are not emerging growth companies. Additionally, under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. Given that we currently report, and expect to continue to report, under IFRS as issued by the IASB, we will not be able to avail ourselves of this extended transition period, and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such accounting standards is required by the IASB.

As an emerging growth company, we intend to rely on other exemptions and reduced reporting requirements under the JOBS Act, including without limitation, subject to certain conditions, not having to (a) provide an auditor’s attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act, and (b) comply with any requirement that may be adopted by the PCAOB regarding mandatory audit firm rotation or a supplement to the auditor’s report to provide additional information about the audit and our financial statements, known as the auditor discussion and analysis. We will remain an emerging growth company until the earlier of (i) the last day of the fiscal year following the fifth anniversary of the

[Table of Contents](#)

completion of this offering, (ii) the last day of the first fiscal year during which we have total annual gross revenue of at least \$1.235 billion, (iii) the date on which we are deemed to be a “large accelerated filer” under the Exchange Act, which means the market value of our Common Shares that are held by non-affiliates exceeds \$700.0 million as of the last business day of our most recently completed second fiscal quarter, and (iv) the date on which we have issued more than \$1.0 billion in non-convertible debt securities during the prior three-year period. We have taken advantage of reduced reporting requirements in this prospectus, and as such, the information contained in this prospectus may be different than the information you receive from other public companies in which you hold equity securities.

BUSINESS

Company Overview

We are a mineral exploration and development company with a potash mining project, the Autazes Project, located in the state of Amazonas, Brazil. Our technical operations are based in Autazes, Amazonas, Brazil and Belo Horizonte, Minas Gerais, Brazil, and our corporate office is in Toronto, Ontario, Canada. We are in the pre-revenue development stage and have not yet commenced any mining operations. Our plan of operations for the next few years includes, subject to securing sufficient funds, commencing all phases of the construction of the Autazes Project.

Once our operations commence, our operating activities will be focused on the extraction and processing of potash ore from our underground mine and selling and distributing the processed potash in Brazil.

The Mineral Resources on the Autazes Property are in an area encompassing approximately 98 square miles located in the Amazon potash basin near the city of Autazes in the eastern portion of the state of Amazonas, Brazil, within the Central Amazon Basin, between the Amazon River and the Madeira River, approximately 75 miles southeast of the city of Manaus, northern Brazil. We hold all of the mineral rights for the Autazes Project through our wholly-owned local subsidiary in Brazil, Potássio do Brasil Ltda., and such mineral rights are registered with the Brazilian National Mining Agency, which is a specialized agency of the Brazilian Ministry of Mines and Energy. Under our current development plan for the Autazes Project, we intend to own, through Potássio do Brasil Ltda., 39 properties on which the facilities and infrastructure for the Autazes Project will be located. We currently have rights of access to 24 properties consisting of a total area of approximately 5.4 square miles, which include surface rights on the land on which our proposed mine shafts, processing plant, and port for the Autazes Project will be constructed. We believe that, through administrative land regularization proceedings, with Brazilian governmental agencies (such as the Brazilian Institute of Settlement and Land Reform, the Brazilian Ministry of Industry and Trade, and other agencies), we will be able to, and intend to, convert such current rights of access into ownership of these 24 properties. Additionally, in March, April and May 2024, we entered into agreements to lease, for a term of six years, the remaining 15 properties consisting of a total area of approximately 4.2 square miles, which primarily will be used for the sites of our dry stacked tailings piles (see also “—Foreign Investment Restrictions and Control—Foreign Investment Restrictions”). Each of these lease agreements also provides us with a right of first refusal to purchase the applicable leased property in the event of a sale of such property, and in connection with any such sale, we will be able to apply the aggregate amount paid under such lease agreement as a reduction in the sale price. For additional information regarding our planned land ownership, see “Description of the Autazes Project and the Autazes Property—Ownership of Land”.

Corporate History and Organizational Structure

Significant Developments

Our historical milestones are as follows:

- **2006** – We were incorporated on October 10, 2006 under the laws of the Province of Ontario, Canada, for the purpose of engaging in the exploration and mining of potash in Brazil.
- **2008** – Our local subsidiary in Brazil, Potássio do Brasil Ltda., submitted applications to the Brazilian National Mining Agency and the Brazilian Amazonas Environmental Protection Institute for mineral exploration in the Autazes potash basin in which the Autazes Property is located.
- **2009** – We raised an aggregate of approximately \$25.4 million through private placements of our Common Shares. The mineral exploration applications submitted by Potássio do Brasil Ltda. were approved, the Brazilian National Mining Agency issued our first two Exploration Permits, the Brazilian Amazonas Environmental Protection Institute issued our Environmental Exploration License, and as a result, we acquired the mineral rights for the Autazes Project.
- **2010** – We received our third Exploration Permit from the Brazilian National Mining Agency. We commenced mineral exploration drilling on the Autazes Property.
- **2011** – We raised an aggregate of approximately \$8.6 million through private placements of our Common Shares. We received our fourth and fifth Exploration Permits from the Brazilian National Mining Agency. We continued mineral exploration drilling on the Autazes Property.

Table of Contents

- **2012** – We raised an aggregate of approximately \$43.8 million through private placements of our Common Shares. We continued further mineral exploration drilling on the Autazes Property.
- **2013** – We raised an aggregate of approximately \$9.1 million through private placements of our Common Shares and an additional approximately \$29.2 million from exercises of warrants.
- **2014** – We raised an aggregate of approximately \$55.5 million through private placements of our Common Shares from October 2014 to January 2015. We commenced negotiations to gain access to the land that comprises the Autazes Property. ERCOSPLAN completed a preliminary economic assessment of the Autazes Project (which we refer to as our “Initial Assessment”) in accordance with the requirements of NI 43-101, which assessment included a pit resource estimate and capital construction, operation and economic estimates.
- **2015** – Golder completed the Environmental and Social Impact Assessment of the Autazes Project. In connection with our application to obtain our Preliminary Environmental License, Golder also assisted us with public hearings and consultations with local indigenous communities near the Autazes Project conducted in accordance with the guidelines and requirements established by FUNAI, which is Brazil’s governmental protection agency that establishes and carries out policies relating to indigenous peoples in Brazil. We received our Preliminary Environmental License for the Autazes Project from the Brazilian Amazonas Environmental Protection Institute.
- **2016** – We raised an aggregate of approximately \$3.4 million through private placements of our Common Shares. ERCOSPLAN and another construction engineering consulting firm with significant experience in developing mining projects completed our initial technical report and Feasibility Study (which we refer to as the “Initial Technical Report”) in accordance with the requirements of NI 43-101, which included Mineral Resource and Mineral Reserve estimates and capital construction, operation and economic estimates.
- **2017** – We raised an aggregate of approximately \$12.4 million through private placements of our Common Shares and an additional approximately \$5.3 million from exercises of stock options. Following the completion of the Initial Technical Report, we commenced work to satisfy the necessary requirements to obtain the Construction Licenses, such as preparation of environmental and social studies and assessments. In March 2017, we agreed to suspend our Preliminary Environmental License, and to conduct additional consultations with local indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169.
- **2018** – We continued work on the environmental and social studies and assessments that are necessary for the Construction Licenses. We worked with the Mura indigenous people to develop a consultation protocol for the Autazes Project in accordance with International Labour Organization Convention 169.
- **2019** – We raised an aggregate of approximately \$2.25 million through private placements of our Common Shares and an additional approximately \$1.5 million from exercises of stock options. We also borrowed \$1.0 million pursuant to a short-term loan from a principal shareholder. We conducted additional outreach to and consultations with indigenous communities near the Autazes Project, and continued work towards completing the necessary plans and conditions to apply for the Construction Licenses for the Autazes Project.
- **2020** – We borrowed an aggregate of \$0.6 million pursuant to short-term loans from certain of our principal shareholders. Our Initial Assessment and our Plan for Economic Development of the Deposit were approved by the Brazilian National Mining Agency. As of the end of 2020, we had completed 74 of the 76 plans and conditions necessary for our application to obtain the Construction Licenses and obtained several ancillary permits required for the commencement of construction of the Autazes Project. Our additional consultations with indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169 were suspended in March 2020 due to the COVID-19 pandemic.
- **2021** – In 2021, we raised an aggregate of approximately \$33.0 million through our Regulation A Offering, which substantially broadened our shareholder base. We also borrowed an aggregate of \$0.8 million pursuant to short-term loans from certain of our principal shareholders. We subsequently repaid all of our outstanding loans.

[Table of Contents](#)

- **2022** – We raised an additional approximately \$7.5 million through our Regulation A Offering, which closed on August 2, 2022. Our additional consultations with indigenous communities near the Autazes Project, conducted in accordance with International Labour Organization Convention 169, resumed in April 2022 following the lifting of COVID-19 related restrictions. We submitted our Indigenous Component Study to FUNAI for their review. We completed the Technical Report, which was prepared in accordance with the SEC Mining Modernization Rules. We also entered into offtake and potash distribution and marketing agreements with Amaggi Exportação E Importação Ltda., and a potash product transportation agreement with Hermasa Navegação Da Amazônia Ltda. (see “—Strategic Relationships”).
- **2023** – We had meetings with various Brazilian governmental agencies and officials to discuss the development and advancement of the Autazes Project, including meetings with (i) the Minister of the Brazilian Ministry of Mines and Energy and his team on March 2, 2023, (ii) the Minister of the Brazilian Ministry of Agriculture and his team on March 2, 2023, and (iii) Mr. Geraldo Alckmin, the Vice President of Brazil, on March 3, 2023. On August 25, 2023, we submitted to the Brazilian Amazonas Environmental Protection Institute our application for the Construction Licenses to ensure that we moved to the next stage of our permitting process, prior to the expiration of our Preliminary Environmental License on August 31, 2023 in accordance with its terms. In September 2023, we completed our additional consultations with the 36 villages that comprise the local Mura indigenous communities, 34 of which agreed to support our environmental licensing process and the advancement of the Autazes Project. As of the end of 2023, all of the 76 plans and conditions that were required to be completed and satisfied in order for us to complete our application to obtain the Construction Licenses have been completed by us and approved by the various applicable Brazilian federal, state and municipal agencies.

As of March 31, 2024, we have raised approximately \$242 million in equity and debt financings to bring the Autazes Project closer to a construction ready state.

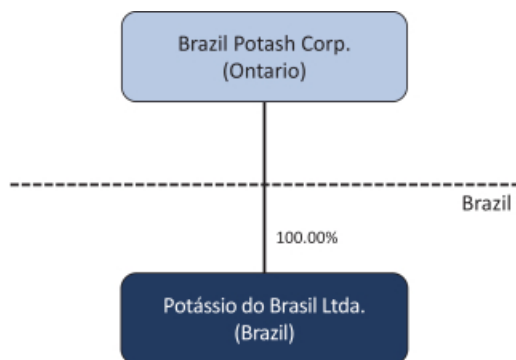
We currently have rights of access to, and intend to own, all of the land required to construct the mine shafts, processing plant, and port for the Autazes Project, and we have entered into agreements to lease, for a term of six years, with a right of first refusal option to purchase, the remaining properties on which the other facilities for the Autazes Project (primarily consisting of the sites for our dry stacked tailings piles) will be located. See also “Risk Factors—Risks Related to Mining—The failure to acquire or purchase all of the land intended for the operation of the Autazes Project could adversely impact our development of the Autazes Project.”

As of August 2024, we have received from the Brazilian Amazonas Environmental Protection Institute all of the 21 Construction Licenses required for the construction of the Autazes Project, and we have begun water source drilling for two potable water wells at the Autazes Project.

Our current near-term goal is to start the primary construction of the infrastructure of the Autazes Project. See “—Regulatory Overview” below for additional information regarding the permits and licenses required for the Autazes Project.

Organizational Structure

Our organizational structure is as follows:



Our operating activities are primarily conducted through Potássio do Brasil Ltda., our Brazilian subsidiary. The primary language used by Potássio do Brasil Ltda. to conduct its business is Portuguese. We maintain direct legal and accounting relationships in Brazil supported by our Canadian and U.S. based legal and accounting teams. As the sole shareholder of Potássio do Brasil Ltda., we hold ultimate decision-making authority over the entity by virtue of our ability to cause the appointment or removal of the officers of Potássio do Brasil Ltda.

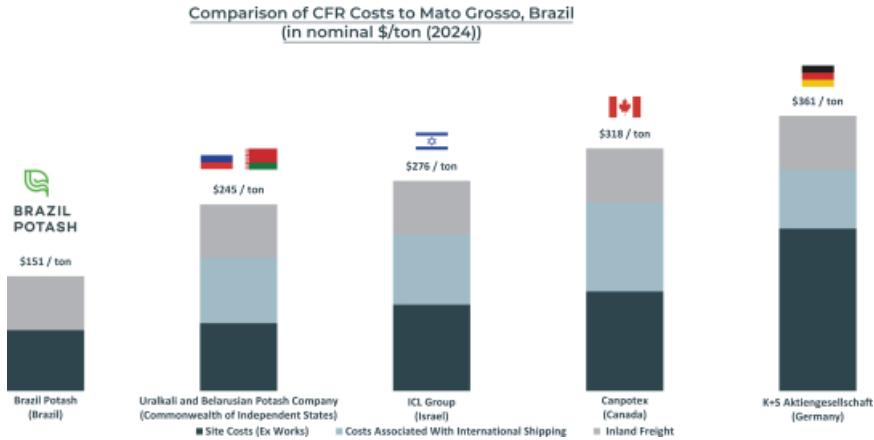
Our Competitive Strengths

We believe that the following competitive strengths, among others, will position us for future operational success:

- **Strategic in-country location of the Autazes Project.** The Autazes Project is located close to Brazil’s existing agricultural and farming areas and near the Amazon River system, thus enabling a shorter and more efficient inland path to Brazilian farmers, with the initial leg by river barge and the final leg by truck. We believe that the average total transit time to transport our potash product from the Autazes Project to domestically located customers in Brazil will be approximately two and a half days, which is approximately 43 times shorter than the transit time of up to 107 days that it takes to transport potash from other major potash producing suppliers in Canada and Russia to customers in Brazil. The state of Mato Grosso, Brazil is the largest consumer of potash among all states in Brazil and is responsible for more than 20% of domestic potash consumption. The state of Mato Grosso also shares a border with, and is a short distance from, the state of Amazonas, Brazil, where the Autazes Project is located. With expected at-scale production of an average of approximately 2.4 million tons of muriate of potash (which we refer to as “MOP”) per year, we believe that the Autazes Project should reduce Brazil’s reliance on imported potash, which made up approximately 98% of all potash used in Brazil in 2021. We believe that the Autazes Project is the only development stage potash project of significant size in Brazil, and we believe that it could eventually supply approximately 20% of Brazil’s current demand for potash.
- **Lowest anticipated delivered cost to farmers.** We estimate that the delivered cost of potash from the Autazes Project to Brazilian farmers will be approximately half of the average cost of potash imported into Brazil, and we believe that we will be profitable at prices where approximately 70% of existing potash producers outside of Brazil would not be profitable. Potash imported into Brazil has a substantially higher marginal delivered cost than potash produced in Brazil, providing a margin advantage for domestic potash producers, particularly in our case since the Autazes Project is only five

miles from a major river system. This provides us with a structural margin advantage given Brazil’s current reliance on imported potash, and market pricing that reflects elevated import costs.

The chart below reflects a comparison of our estimated cost and freight (CFR) costs of delivering our potash product to farmers in the state of Mato Grosso, Brazil, against the estimated CFR costs of certain current major international producers and exporters of potash delivering their potash to Mato Grosso, based on the following: (i) international shipping costs include road and/or rail freight costs from the respective production plants of such competitors to the respective ports in those countries, ocean freight costs, port charges (operation and demurrage), and ad hoc handling expenses, (ii) inland freight costs to Mato Grosso includes either freight costs from the Paranaguá port in Brazil to Mato Grosso (with respect to imported potash produced by our competitors), or inland road transportation costs from the Autazes Project to Mato Grosso (with respect to potash to be produced by us at the Autazes Project), and (iii) all road, rail, and ocean freight costs and port charges are estimated by CRU.



Source: the Technical Report.

- Competitively advantaged carbon emissions profile.** Based on our GHG Emissions Analysis, we believe that the Autazes Project will have a competitively advantaged GHG emissions profile from its anticipated operations in the following three material ways: (i) as compared to a potash producer located in Saskatchewan, Canada (which, according to our GHG Emissions Analysis, has a lower GHG emissions profile than the potash producers in other countries currently supplying potash to Brazil) using similar conventional underground mining methods (which are generally more energy efficient than alternative potash mining methods) and exporting an amount of potash to Brazil equal to the amount of potash that we anticipate producing, we believe that the aggregate Scope 2 GHG Emissions generated from the production of potash from the Autazes Project will be approximately 1.2 million tons (or approximately 80%) less per year, since we plan to have all of the electricity used at the Autazes Project be provided by Brazil’s national power grid, which generates approximately 80% of its power from renewable sources and has a lower carbon intensity of approximately 0.54 tCO₂e/MWh, as compared to the power supply relied upon by a Saskatchewan potash producer (assuming such potash producer draws all of its power consumption from the Saskatchewan provincial power grid, which currently generates approximately 81% of its power from fossil fuels); (ii) assuming the same amount of potash that is currently being imported into Brazil and the current geographic supplier mix, we believe that the Scope 3 GHG Emissions associated with the distribution of our potash product and related logistics at the Autazes Project will be approximately 205,000 tons less per year than the average Scope 3 GHG Emissions produced by overseas potash producers currently importing potash

into Brazil, primarily because the distances to transport our potash product to Brazilian farmers will be significantly shorter than those of the overseas suppliers; and (iii) based on the assumption that the local communities surrounding the Autazes Project use 3MWh of electricity per year, which is currently exclusively supplied by diesel generators, we believe that annual GHG emissions will be reduced since, following completion of the planned power transmission line that will connect the Autazes Property to Brazil's national power grid, the local communities will be able to connect to the new electricity infrastructure and draw power from Brazil's national power grid. As such, based on the three examples described above, we believe that the Autazes Project will result in an aggregate of approximately 1.4 million tons less GHG emissions being produced per year, which is the equivalent of planting approximately 56 million new trees (assuming an average annual CO₂ sequestration of 50 pounds per tree). We believe that having a significant role in helping produce the lowest possible carbon footprint in a rapidly decarbonizing world is a strong competitive advantage. For additional information regarding our GHG Emissions Analysis, see “—Environmental, Social and Governance—Climate-related Risks and Opportunities (including GHG Emissions and Energy Management)”.

- **Advancement of the Autazes Project to a near construction ready state.** We have raised over \$240 million through equity and debt financings for the development of the Autazes Project and have progressed it to a near construction ready state. The Environmental and Social Impact Assessment and the Technical Report have already been completed, and we have received all of the 21 Construction Licenses required for the construction of the Autazes Project. We currently have rights of access to, and intend to own, a significant amount of the land planned for the Autazes Project, including all of the land on which the planned mine shafts, processing plant and port will be located, and we have entered into agreements to lease, for a term of six years, with a right of first refusal option to purchase, the remaining properties on which the other facilities for the Autazes Project (primarily consisting of the sites for our dry stacked tailings piles) will be located.
- **The development of the Autazes Project is a priority for Brazil.** The Autazes Project was designated as a project of “National Importance” by Brazil's Federal Government and National Observatory in September 2020. Additionally, in September 2021, the Federal Government of Brazil admitted the Autazes Project into the Brazilian Investment Partnership Program, which provides us with direct access to Brazil's Attorney General to provide support on legal matters, and indicates that the Autazes Project should be a top priority for government officials in terms of their review of our permit and license applications.
- **Experienced and highly knowledgeable leadership team.** We have an expert management team with significant development and operational experience at some of the world's largest natural resource companies, as well as marketing, sales and business development experience at major potash companies. We boast support from an experienced natural-resource focused investor base and have relationships with some of the largest domestic Brazilian agribusinesses. Our Executive Chairman, Stan Bharti, has a strong operational and capital raising background with over 15 years of experience acquiring, restructuring, and financing mining assets. In 2011, Forbes & Manhattan, Inc., the private merchant bank that Mr. Bharti established in 2002, sold its stake in Consolidated Thompson Iron Mines to Cliffs Natural Resources Inc. for \$4.9 billion in cash. Mr. Bharti has a significant amount of experience in Brazil including being part of the team that turned around the Jacobina gold mine in 2002 to then sell it for \$500 million in 2006 to Yamana Gold. Our Chief Executive Officer, Matthew Simpson, previously worked at the Iron Ore Company of Canada, a subsidiary of Rio Tinto and Mitsubishi Corp, where he held several progressive roles in business evaluation and operations planning, including as Mine General Manager. Mr. Simpson also has extensive experience in mine design, construction and project management from his previous work at Hatch Ltd. as a process engineer. Adriano Espeschit, the President of Potássio do Brasil Ltda., previously worked for Vale S.A. – Iron Ore, Copper and Nickel and BHP Billiton in Australia, as well as Shell Canada where he was instrumental in discussions with the Fort McKay First Nation of Alberta regarding the development of the Lease 90 Project. Mr. Espeschit was part of the teams that developed the Sossego Copper Mine in Pará State with Vale S.A. and the Santa Rita Nickel Mine in Bahia State with Mirabela Nickel.

Our Business Objectives and Growth Strategies

Our primary business objectives are to win a significant share of the Brazilian potash market and be the sustainable potash supplier-of-choice for Brazilian farmers. We intend to be a significant domestic source of potash fertilizer in Brazil to alleviate Brazil's dependence on imported potash and farmer supply-chain risk, while supporting economic prosperity and agricultural sustainability in Brazil and food security globally. We plan to accomplish these business objectives by pursuing the following strategies:

- **Focus solely on providing our potash from the Autazes Project to Brazilian farmers.** Brazil is the world's second largest market, and one of the fastest growing markets, for potash consumption, but it imports approximately 98% of its potash needs, primarily from Canada, Russia and Belarus. Our potash production at the Autazes Project is expected to be entirely granular MOP for fertilizer applications that are currently being used in Brazil. Our planned mine and surface assets are expected to be optimally positioned in the Brazilian market to produce potash in close proximity to Brazilian farmers, enabling 'just-in-time' delivery, with a shorter supply chain, as compared to overseas potash producers whose products must travel significant distances to reach Brazil, resulting in a significantly higher carbon footprint. We anticipate selling all of our produced potash in Brazil, and plan to target all of the key farming regions in Brazil, particularly the highest potash consuming states such as Mato Grosso.
- **Establish and maintain a position as the lowest-cost provider of potash in Brazil.** Given the location of the Autazes Project, we believe that we will be able to provide our processed potash at the lowest all-in delivered cost to Brazilian farmers. Our priority is to build and operate our Autazes mine with a strong focus on operational and commercial efficiency to ensure that we can achieve the low operating cost and emissions profile that will differentiate the Autazes Project and our Company from our competitors. Because our potash ore body is located in Brazil only five miles from the Madeira River, our primary mode of product transportation will be through relatively low-cost river barges followed by trucks, whereas our competitors typically have to transport their potash products between 8,000 to 12,000 miles in total by trains and ocean vessels to reach Brazil, followed by in-land trucking. Because of our location advantage, we believe that our estimated cost to mine, process and deliver our potash product to Brazilian farmers will be lower than the transportation cost alone for imported potash, which should provide us with a substantial and sustainable competitive advantage. Additionally, the core competencies of our management team include the development and operation of natural resource assets, particularly bulk commodities, and as such, we intend to take an asset-light approach to transportation and distribution by using competent third-party vendors to ensure our focus is squarely on realizing value from the Autazes Project.
- **Establish strategic partnerships within the industry.** To enable our supply chain to Brazilian farmers, we plan to pursue exclusive third-party marketing, logistics and offtake agreements with large-scale, vertically integrated Brazilian agri-business companies that have the scale and mid/downstream infrastructure to efficiently transport large quantities of our potash product from our planned port on the Madeira River to Brazilian farmers. We view this approach, which should provide us with access to tangible physical infrastructure and valuable local and regional agricultural knowledge, as both capital efficient and critical to establishing credibility and long-term customer relationships.
- **Nurture opportunity for sustainability leadership and innovation.** An overarching component of our strategy is to establish our Company as an industry leader in sustainable potash production. We believe that our plan to connect the Autazes Project to Brazil's national power grid, which has approximately 80% of its power generated by renewable sources, as well as the significantly shorter distances we expect to have to transport our potash product to Brazilian farmers, will enable us to establish a lower GHG emissions profile than can be found at other potash mines around the world. For example, based on our GHG Emissions Analysis, we believe that the Autazes Project will generate approximately 1.2 million tons (or approximately 80%) less Scope 2 GHG Emissions per year than the

Scope 2 GHG Emissions generated by a potash producer located in Saskatchewan, Canada using similar conventional underground mining methods and exporting an amount of potash to Brazil equal to the amount of potash that we anticipate producing. For additional information regarding our GHG Emissions Analysis, see “—Environmental, Social and Governance—Climate-related Risks and Opportunities (including GHG Emissions and Energy Management)”.

- **Expand our production capabilities and growth opportunities.** The Autazes Project is estimated to have a mine life of 23 years at a production rate of an average of approximately 2.4 million tons per year. We have explored less than 5% of the Amazonas potash basin that we believe to be mineralized based on drilling that was done during the 1970s and 1980s by Petrobras, Brazil’s state-owned petroleum company. Future exploration offers the opportunity to extend the life of the Autazes Project as well as increase potash production.

Our Industry and Market Opportunity

Overview

Potash is the common name for the group of minerals containing potassium (K). Together with nitrogen and phosphorous, potash is one of the three primary nutrients essential for plant life, and we believe that it is an essential component to sustainably feed a growing world. The use of potash is necessary in order to grow more food per acre by enabling farmers to improve agricultural productivity and crop quality.

Agronomically, potash is responsible for promoting all critical metabolic functions in plants and improving plant resistance to biotic and abiotic stress. For example, potash supports photosynthesis, protein formation, and water regulation, increasing plant strength and improving resistance to factors that adversely affect crop yields such as disease, pests, heat, drought, and frost.

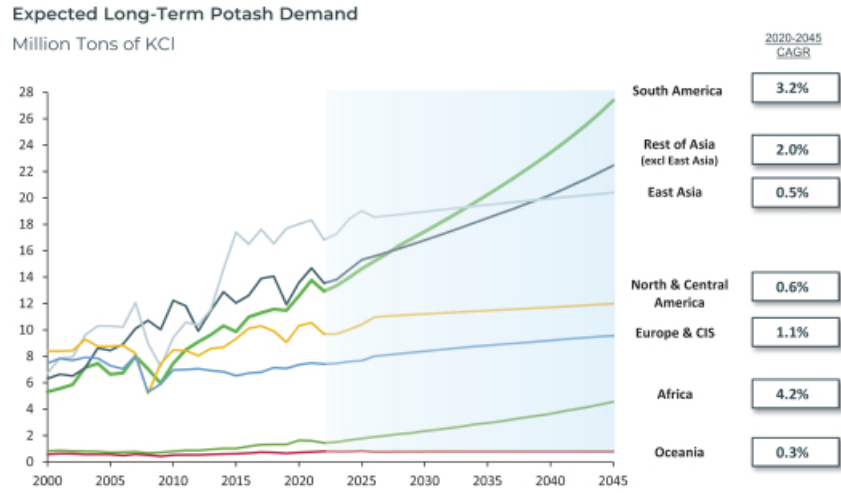
Plants pull nutrients from the soil as they grow. Fertilizer helps farmers to replenish the nutrients that are removed from the soil, and ensures the soil health necessary to generate strong crop yields in future seasons. This is particularly important in regions such as Brazil where farming intensity is high due to its favorable climate and the increasing number of large-scale and broadly mechanized farming operations.

The vast majority of potash is applied as MOP, which is the potash fertilizer product we plan to produce at the Autazes Project. MOP is the form of potash that is used on potassium-intensive row crops such as corn, soybean, rice, cotton and sugarcane, all of which are commonly grown in Brazil. According to the CRU November 2022 Potassium Chloride Market Outlook, global annual sales of potash were approximately 78 million tons per year in 2021, and the compound annual growth rate of the global potash market was approximately 2.38% from 2003 to 2021, outpacing the growth of the other primary fertilizer nutrients. Brazil is the second largest potash market and one of the fastest growing markets in the world for potash consumption (CRU Group, “*CRU’s Potassium Chloride Database*”, November 30, 2022). However, to properly contextualize the significance of Brazil, a general understanding of the global potash market supply and demand dynamics and the underlying drivers is beneficial.

Potash Demand

As the world’s population grows, so too does global economic output, prosperity, and the demand for calorie-rich diets. In turn, these drive higher protein consumption, which relies on potash to increase food production. For example, according to the USDA Economic Research Service, in the United States, approximately 38% of corn consumption is for animal feed, and approximately 34% is for the production of ethanol for blending with gasoline (USDA Economic Research Service, “*Feed Grains: Yearbook*”, August 17, 2022). In addition, according to a USDA Foreign Agricultural Service report, the majority of ethanol in Brazil is produced from sugar cane, another potash intensive crop (USDA Foreign Agricultural Service, “*Corn Ethanol Production Booms in Brazil*”, October 8, 2020). We believe that increasing meat consumption and improving

methods of fertilizer application (particularly in developing economies where potash has been historically underapplied) will be key drivers of increased potash use. Furthermore, as many countries adopt decarbonization policies and biofuels become an increasingly important part of the energy transition, potash may play not only a critical role in feeding the world, but also in fueling it.

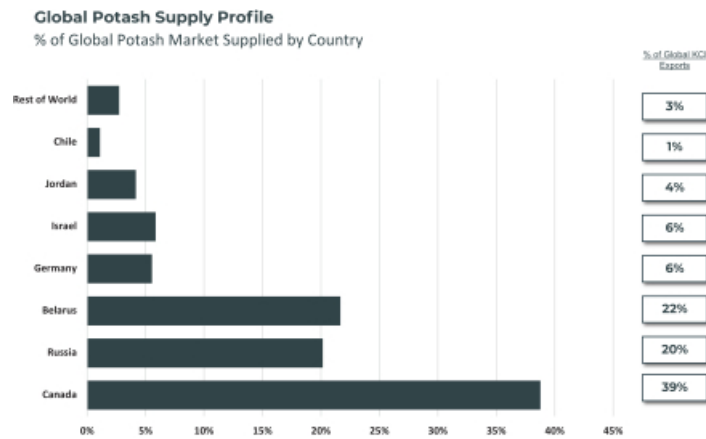


Source: CRU Group, “Potassium Chloride Market Outlook”, November 2022.

According to the CRU November 2022 Potassium Chloride Market Outlook, global annual sales of potash reached a record of approximately 78 million tons of MOP consumed in 2021, and the global potash market is expected to grow to approximately 85 million tons by 2026, driven largely by Brazil and Asia. China is presently the world’s largest consumer of potash, followed by Brazil, however, as referenced in the chart above, demand from South America is projected to eventually outpace demand from East Asia. Furthermore, Brazilian potash consumption is expected to grow at a compound annual growth rate of 6.8% from 2023 to 2027, which is approximately 33% higher than the forecasted compound annual growth rate of 5.1% for global potash consumption during the same period.

Potash Supply

The global potash market is highly concentrated, comprised of just a few meaningful suppliers. The world's largest potash reserves are located in only a few regions in the world. According to the CRU November 2022 Potassium Chloride Market Outlook, global potash exports in 2021 were approximately 62.9 million tons, with seven countries supplying over 97% of the global potash market. The countries that export the most potash are Canada, Russia, and Belarus.

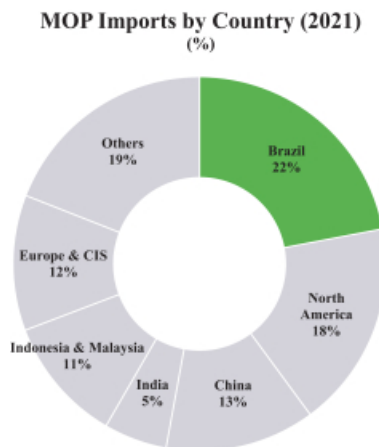


Source: CRU Group, "Potassium Chloride Market Outlook", November 2022.

The consolidated structure of the global potash market makes it susceptible to supply shocks, such as the disruptions caused by the COVID-19 pandemic, Belarussian sanctions, and Russia's war in Ukraine, which have driven potash prices to record highs. The fastest growing regions in the world have few domestic sources of potash production, making them heavily reliant on imported potash and leaving them exposed to trade flow imbalances and supply chain disruptions. We expect the outlook for the global supply and demand of potash to be tight in the near future.

Market Opportunity: Brazil – A Key Potash Market

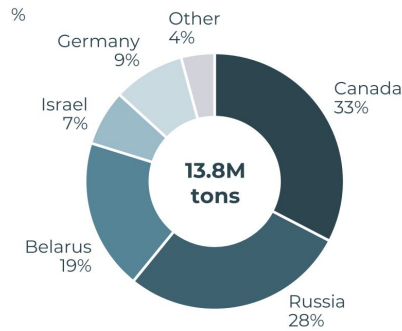
According to FAO, Brazil was the largest net exporting country of agricultural goods in 2021 (FAO, “*FAO Corporate Statistical Database – Import Value and Export Value data*”, 2021). And according to the 2021 Brazilian Economic and Agricultural Overview report issued by the Brazilian Secretariat of Foreign Trade (SECEX), Brazil exported \$110 billion of agricultural products in 2023, and Brazil ranks first in production for many of the world’s highest-demand and potash-intensive crops, such as soybean and sugarcane. In addition, Brazil’s agricultural land use has grown 2.2% from 2010 to 2020 (Our World in Data, “*Land Use – Agricultural Land Use Chart*”, 2020). Consequently, Brazil is a key market for potash producers, since in order to increase the volume and value of crop yields, frequent and balanced replenishment of nutrients in the soil is needed. Potash is integral to Brazil’s economic success, since Brazil generates approximately 27% of its gross domestic product from the agricultural sector (USDA Foreign Agricultural Service, “*Brazilian Economic and Agricultural Overview*”, February 9, 2022). However, Brazil, like many other high growth regions such as China and Southeast Asia, is heavily reliant on imported potash and imports approximately 98% of its potash needs (CRU Group, “*CRU’s Potassium Chloride Database*”, November 30, 2022). According to the CRU November 2022 Potassium Chloride Market Outlook, in 2021, Brazil imported approximately 13.8 million tons of potash, representing approximately 22% of imported potash globally. We believe that Brazil is currently the largest global importer of potash, as illustrated by the chart below.



Source: CRU Group, “*Potassium Chloride Market Outlook*”, November 2022.

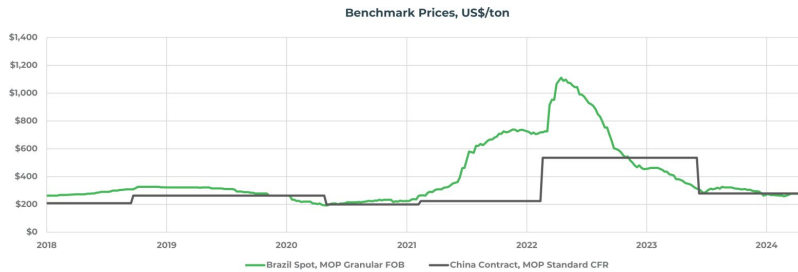
Additionally, as illustrated in the chart below, most of the potash that Brazil imports comes from Canada, Russia and Belarus, with approximately 47% of its imported potash in 2021 coming from currently sanctioned countries.

Brazilian MOP Imports by Source (2021)



Source: CRU Group, “Potassium Chloride Market Outlook”, November 2022.

Due to relatively high logistics expenses and the highly fragmented number of buyers, customers in Brazil typically pay a higher price for MOP than most of the world. According to the CRU November 2022 Potassium Chloride Market Outlook, the preferred MOP product in the Brazilian market is granular potash with a target grade of 60.5% potassium oxide (K₂O) (95% MOP), and it typically sells for a premium over standard (fine) MOP. The historic Free On Board (FOB) spot price for granular potash delivered to Brazil as compared to the Cost and Freight (CFR) China contract price for standard potash is illustrated in the graph below:



Source: Green Markets (a Bloomberg company), “Weekly Fertilizer Prices” database.

We plan to produce only granular 60.5% K₂O MOP and sell all of our potash domestically in Brazil. We believe that we will have low transportation costs because the Autazes Project is located only five miles from the Madeira River where relatively lower cost barges can be used to transport our potash product a substantial portion of the way to Brazilian farmers. Because the Autazes Project will be located near a major river system, we believe that our cost to mine, process and deliver potash will be lower than the transportation cost alone for imported potash, which will provide a substantial and sustainable logistics cost advantage for our potash product. Based on our GHG Emissions Analysis, by connecting the Autazes Project to Brazil’s national electricity grid, which has approximately 80% of its power generated by renewable energy sources, and as a result of the substantially lower distances that we will have to transport our potash product to Brazilian farmers, we believe that our operations in Brazil will generate approximately 1.2 million tons less Scope 2 GHG Emissions per year than the Scope 2 GHG Emissions that would be generated by a potash producer located in Saskatchewan, Canada using similar conventional underground mining methods and exporting an amount of potash to Brazil equal to the amount of potash that we anticipate producing.

We believe that Brazil's government recognizes that reliance on imported potash is not a tenable long-term solution. In 2022, Brazil launched a national fertilizer plan that aims to reduce its use of imported fertilizers from 85% of its current aggregate use to 45% by 2050, which implies obtaining approximately 6.6 million tons of potash from domestic sources. The Autazes Project's expected at-scale production of an average of approximately 2.4 million tons of MOP per year is expected to help Brazil achieve this objective. Additionally, the Autazes Project was designated as a project of "National Importance" by Brazil's Federal Government and National Observatory in September 2020. The Federal Government of Brazil also admitted the Autazes Project into the Brazilian Investment Partnership Program in September 2021, which provides us with direct access to Brazil's Attorney General to provide support on legal matters, and indicates that the Autazes Project should be a top priority for government officials in terms of their review of our permit and license applications. Furthermore, we believe that by purchasing the potash produced at the Autazes Project, Brazil will lower its total agricultural carbon footprint with a dramatically lower GHG emissions profile, as compared to purchasing potash from overseas producers. The Autazes Project is an asset intended to be 'by Brazil, for Brazil', with 100% of our produced potash expected to go to Brazilian farmers.

Strategic Relationships

Amaggi Offtake Agreement

In September 2022, we entered into a non-exclusive offtake agreement (which we refer to as the "Amaggi Offtake Agreement") with Amaggi Exportação E Importação Ltda. (which we refer to as "Amaggi"), pursuant to which we will supply to Amaggi, and Amaggi will purchase from us, a certain minimum quantity of our potash product each year, which minimum quantity will generally be approximately 551,000 tons of potash per year following a three-year ramp-up period. If we fail to supply, or Amaggi fails to purchase, between 20% and 50% of such minimum quantity in any given year, a penalty would be imposed on us or Amaggi, respectively, that is equal to the product of (i) the quantity of potash that we fail to supply or Amaggi fails to purchase, as applicable, and (ii) 30% of the purchase price charged by us for our potash product during that year, and if we fail to supply, or Amaggi fails to purchase, above 50% of such minimum quantity in any given year, a penalty would be imposed on us or Amaggi, respectively, that is equal to the product of (a) the quantity of potash that we fail to supply or Amaggi fails to purchase, as applicable, and (b) 50% of the purchase price charged by us for our potash product during that year. Amaggi may also request to increase the minimum quantity in any given year during the term of the Amaggi Offtake Agreement, subject to our confirmation that we will have sufficient production and availability of our potash product at the Autazes Project.

Under the Amaggi Offtake Agreement, the purchase price for our potash will be payable in Brazilian real, will be based upon, among other factors, the prevailing market prices for potash at the time purchase orders are placed by Amaggi, and will be subject to a discount that will be applied to purchases made by Amaggi. Additionally, Amaggi has an option to lock in the purchase price for our potash for an entire year under the Amaggi Offtake Agreement.

The term of the Amaggi Offtake Agreement is 17 years commencing upon the conclusion of a test period of up to six months in order to confirm specifications for our potash product and satisfy certain other customary conditions precedent. Either party may terminate the Amaggi Offtake Agreement if, among other things, the other party is not in compliance with any condition precedent and such non-compliance is not waived. In such a case, the non-compliant party will be subject to a penalty equal to the product of (i) the total amount of potash that is expected to be supplied and purchased during the three-year period following the date of termination, and (ii) the average price charged by us for our potash product during the period of up to three years prior to the date of termination. The Amaggi Offtake Agreement may also be terminated without penalty (i) by either party in the event of, among other things, bankruptcy, judicial or extrajudicial recovery, or insolvency of the other party, or (ii) by us if we abandon the Autazes Project prior to the commencement of any commercial potash production. For more information regarding the terms of the Amaggi Offtake Agreement, see the full text of the Amaggi Offtake Agreement, which is included as an exhibit to the registration statement of which this prospectus forms a part.

Amaggi Distribution and Marketing Agreement

In September 2022, we entered into a distribution and marketing agreement (which we refer to as the “Amaggi Distribution and Marketing Agreement”) with Amaggi, pursuant to which Amaggi has the exclusive right to distribute and market, and provide certain advisory services to us with respect to, our potash product that we will produce at the Autazes Project, subject to certain exceptions. Under the Amaggi Distribution and Marketing Agreement, Amaggi will be entitled to a commission that will be calculated based on the gross sales value of the potash marketed and distributed by Amaggi, provided that, to the extent we make any sales of our potash to any third parties without the assistance of Amaggi, we will pay to Amaggi an agreed-upon percentage of the gross value of such other sales of our potash.

The term of the Amaggi Distribution and Marketing Agreement is 15 years commencing upon the start of commercial potash production at the Autazes Project. The Amaggi Distribution and Marketing Agreement may be terminated by either party in the event of, among other things, a (i) material breach by the other party of its obligations under the Amaggi Distribution and Marketing Agreement, which breach is not cured within 15 days of notice of such breach, or (ii) bankruptcy, judicial or extrajudicial court reorganization or insolvency of the other party. In addition, Amaggi may unilaterally terminate the Amaggi Distribution and Marketing Agreement if we undergo a corporate reorganization without Amaggi’s prior approval, or we are in breach of certain representations related to human and labor rights and environmental laws. Furthermore, we may unilaterally terminate the Amaggi Distribution and Marketing Agreement in the event of a serious environmental default caused by Amaggi. For more information regarding the terms of the Amaggi Distribution and Marketing Agreement, see the full text of the Amaggi Distribution and Marketing Agreement, which is included as an exhibit to the registration statement of which this prospectus forms a part.

Hermasa Shipping Agreement

In September 2022, we entered into a shipping agreement (which we refer to as the “Hermasa Shipping Agreement”) with Hermasa Navegação da Amazônia Ltda. (which we refer to as “Hermasa”), pursuant to which, Hermasa will transport, ship and deliver our potash product that we will produce at the Autazes Project to ports located in various locations throughout Brazil. Under the Hermasa Shipping Agreement, Hermasa has the exclusive right to transport our potash to ports located in Miritituba and Porto Velho, and has a first right of refusal to transport our potash to all other ports in Brazil.

Under the Hermasa Shipping Agreement, we are obligated to provide for delivery, and Hermasa is obligated to transport, ship and deliver, a certain minimum quantity of potash each year during the term of the Hermasa Shipping Agreement, which minimum quantity will range between approximately 2.2 to 3.0 million tons of potash following a four-year ramp-up period. Our failure to provide, or Hermasa’s failure to transport, the minimum quantity of potash will result in a penalty to us or Hermasa, as applicable. We will pay Hermasa a delivery fee of a fixed rate per metric ton of potash delivered, subject to a monthly adjustment for fuel prices and an annual adjustment for inflation.

The term of the Hermasa Shipping Agreement is 15 years commencing immediately after a six-month trial period. The Hermasa Shipping Agreement may be terminated by either party in the event of, among other things, a (i) material breach by the other party of its obligations under of the Hermasa Shipping Agreement, which breach is not cured within 15 days of notice of such breach, or (ii) bankruptcy, judicial or extrajudicial court reorganization or insolvency of the other party. In addition, Hermasa may unilaterally terminate the Hermasa Shipping Agreement if we undergo a corporate reorganization without Hermasa’s prior approval, or we are in breach of certain of our representations related to licenses and permits or commercial production at the Autazes Project. Furthermore, we may unilaterally terminate the Hermasa Shipping Agreement if Hermasa is in breach of certain of its representations related to licenses and permits or of its indemnification obligations to us. For more information regarding the terms of the Hermasa Shipping Agreement, see the full text of the Hermasa Shipping Agreement, which is included as an exhibit to the registration statement of which this prospectus forms a part.

Competition

The potash mining industry is subject to competitive factors, including, among others, the following:

- Global macro-economic conditions and shifting dynamics, including trade tariffs and restrictions and increased price competition, or a significant change in agriculture production or consumption trends, could lead to a sustained environment of reduced demand for potash, and/or low commodity prices, which could favor competitors;
- Our products will be subject to price competition from both domestic and foreign potash producers, including foreign state-owned and government-subsidized entities, who will be less impacted by fluctuations in global potash prices;
- Potash is a global commodity with little or no product differentiation, and customers make their purchasing decisions principally on the basis of delivered price and, to a lesser extent, on customer service;
- Most of the potash mining companies with which we will be competing have a developed potash mining and production capacity, existing customer relationships, and greater financial resources and technical capabilities than we have at this point in time;
- Competitors and potential new entrants in the markets for potash have in recent years expanded capacity, begun construction of new capacity, or announced plans to expand capacity or build new facilities; and
- Some potash customers require access to credit to purchase potash, and a lack of available credit to customers could adversely affect demand for our potash as there may be an inability for such customers to replenish their inventories due to a lack of credit. Additionally, we currently do not intend to provide credit to customers in connection with their purchases of potash from us, however, certain of our competitors may do so, and customers may choose to purchase potash from such competitors for this reason.

Furthermore, the mining business is competitive in all phases of exploration, development and production. We will compete with a number of other mining companies in the procurement of equipment and for the hiring of skilled labor. We also compete for financing with other mineral resource companies, many of which have greater financial resources and/or more advanced properties than us. Upon commencement of our operations, some of our largest competitors would include The Mosaic Company in Brazil, and Nutrien Ltd., Uralkali PJSC, and Belaruskali OAO outside of Brazil. As a result of this competition, we may in the future be unable to raise additional capital. There can be no assurance that additional capital or other types of financing will be available if needed or that, if available, the terms of such financing will be favorable to us.

Our ability to raise additional capital will depend on our success in developing the Autazes Project. Factors beyond our control may affect our ability to successfully develop the Autazes Project and commence mining operations and potash production. As a result of the competitive factors mentioned above or those that may not be known by us at this time, we may not be able to successfully develop and complete the Autazes Project. See also “Risk Factors—Risks Related to Mining.”

Regulatory Overview

Brazilian Mining Regulations

Under the Brazilian Constitution, all Mineral Resources are initially the property of the Federal Government of Brazil until applicable permits, licenses, concessions, and mineral rights are granted to qualified and approved mining applicants. The right to explore and exploit Mineral Resources in Brazil are regulated by the Brazilian National Mining Agency under the Brazilian Mining Code (regulated by Brazilian Decree No. 9.406/2018) and applicable policies of the Brazilian Ministry of Mines and Energy. Only Brazilian citizens, or legal entities incorporated in Brazil under Brazilian law, may be entitled to conduct mining activities, including commercially exploiting Mineral Resources, in Brazil.

Table of Contents

In order to develop, construct, and commence the mining operations of the Autazes Project, we must undertake a licensing process pursuant to which the applicable federal, state, or municipal environmental authorities in Brazil will license, approve and authorize the location, exploration and development activities, construction, and operation of the Autazes Project. It is not always clear which level of government or regulatory agency in Brazil has authority over the environmental licensing of mining projects, and therefore, we believe that it would not be unusual if certain Brazilian regulatory agencies challenge the regulatory authority of certain other Brazilian environmental agencies over environmental licensing of mining projects, which may create uncertainties as to whether the Autazes Project should be licensed by Brazilian federal or state environmental agencies. Public prosecutors also have influence on such challenges or disputes, including through judicial actions.

Exploration Permits and Environmental Exploration License

In order for us to perform exploratory mining activities in Brazil, we first had to obtain specific permits called “Alvará de Pesquisa” (which we refer to as our “Exploration Permits”) from the Brazilian National Mining Agency, and a specific license called “Licença de Operação–Exploração” (which we refer to as our “Environmental Exploration License”) from the Instituto de Proteção Ambiental do Amazonas (IPAAM) (which we refer to as the “Brazilian Amazonas Environmental Protection Institute”), which is the environmental protection agency for the state of Amazonas, Brazil. We received a total of five Exploration Permits from July 2009 to September 2011, and our Environmental Exploration License in June 2009, which allowed us to perform exploration activities, including drilling, in our mineral rights area on the Autazes Property. Under our Exploration Permits, we had to strictly follow the exploration work plans submitted as part of our applications to the Brazilian National Mining Agency. Following the completion of our exploration work for the Autazes Project, we submitted to the Brazilian National Mining Agency for approval a final exploration report detailing the exploration activities conducted and attesting to the existence of the potash ore reserve. The Brazilian National Mining Agency approved our final exploration report in April 2015, and this approval enables us to request a mining concession, which, if approved, will permit mining and mineral exploitation activities, as described under “—Mining Concession” below.

Environmental Licenses

There are three general types of environmental licenses that mining companies are required to obtain in order to be fully authorized to construct and operate a mine in Brazil, each of which is described below.

Preliminary Environmental License. The first type of environmental license is called Licença Prévia (which we refer to as our “Preliminary Environmental License”), which we initially obtained during the planning phase of the Autazes Project. In connection with our application to obtain our Preliminary Environmental License, we engaged Golder to prepare the Environmental and Social Impact Assessment, and we and Golder participated in public hearings, which were attended by over 4,000 people including a large contingent of indigenous persons, and conducted several rounds of consultations with local indigenous communities near the Autazes Project in accordance with the guidelines and requirements established by FUNAI, as Brazilian law provides that any indigenous people located within six miles of a future mine site have the right to be consulted. Following the completion of the Environmental and Social Impact Assessment in January 2015, we submitted it to the Brazilian Amazonas Environmental Protection Institute in connection with our application to obtain our Preliminary Environmental License. In July 2015, we received our Preliminary Environmental License for the Autazes Project from the Brazilian Amazonas Environmental Protection Institute, and, as part of the application and approval process, the Brazilian Amazonas Environmental Protection Institute evaluated the Environmental and Social Impact Assessment, as well as the location and concept of the Autazes Project, certified the environmental feasibility of the Autazes Project, and set forth the basic requirements that will need to be complied with in subsequent licensing and developmental phases.

Additionally, Brazil is a signatory to International Labour Organization Convention 169 (also known as the Indigenous and Tribal Peoples Convention (1989)), which is the major binding international convention concerning indigenous and tribal peoples, and sets standards for national governments regarding indigenous peoples’ economic,

[Table of Contents](#)

socio-cultural and political rights, which include the right to prior and informed consultation on any development activity that may impact indigenous peoples' land and/or lives. In March 2017, we agreed to conduct additional consultations with the local Mura indigenous people (who make up the vast majority of the indigenous communities, villages and tribes near the Autazes Project) in accordance with International Labour Organization Convention 169. Such additional consultations were intended to provide the local Mura indigenous communities with an opportunity to learn about the Autazes Project, and to inform them about the potential impact of the development of the Autazes Project on their communities and way of life and our proposed plans to mitigate any negative impacts. In September 2023, we completed such additional consultations with the local Mura indigenous communities. Out of the 36 villages that comprise the local Mura indigenous communities, 34 agreed to support our environmental licensing process and the advancement of the Autazes Project. Furthermore, based on feedback from such consultations, we are currently working with the Mura indigenous people to develop a mutually agreed upon impact benefit agreement outlining commitments that we will undertake to benefit their local communities (which we refer to as the "Impact Benefit Agreement").

Our Preliminary Environmental License has been superseded by the Construction Licenses that we have received for the construction of the Autazes Project (see "—Construction Licenses" below).

Construction Licenses. We refer to the second type of environmental license, collectively, as the "Construction Licenses", which are comprised of (i) licenses called Licença de Instalação (which we refer to collectively as the "Installation Licenses"), (ii) licenses called Licença Ambiental Única (which we refer to collectively as the "Specific Environmental Licenses"), and (iii) environmental authorizations (which we refer to collectively as the "Fauna Authorizations"). We currently anticipate that we will need a total of 21 Construction Licenses in connection with the construction of the Autazes Project. There are a total of seven Installation Licenses, which correspond to the following various areas of the infrastructure of the Autazes Project: (i) mine, (ii) potash processing plant and dry stacked tailings piles, (iii) roads, (iv) river barge port and potash stockpile at the port, (v) water distribution and supply, (vi) sewage treatment, and (vii) sanitary landfill. There are a total of nine Specific Environmental Licenses, which relate to earthworks, vegetation suppression and water source drilling, and a total of five Fauna Authorizations, which relate to the capture and rescue of wild fauna, at these various infrastructure areas. In this phase of the environmental licensing process, the basic environmental plan outlining pollution control and compensatory measures are submitted to the Brazilian Amazonas Environmental Protection Institute for its review and approval. All of the plans and conditions that were required in order for us to obtain the Construction Licenses have been completed and satisfied by us and approved by the various applicable Brazilian federal, state and municipal agencies.

As of August 2024, we have received from the Brazilian Amazonas Environmental Protection Institute all of the 21 Construction Licenses required for the construction of the Autazes Project. See also "—Current Status of our Licensing Process" below.

Operational License. The third type of environmental license is called Licença de Operação (which we refer to as the "Operational License"), which is the last phase of the environmental licensing process necessary to operate a mine in Brazil. The Brazilian Amazonas Environmental Protection Institute will review and consider any application for an Operational License, and will decide whether to issue this license following construction of the mining project. The Operational License is required for us to be able to perform mining and mineral exploitation activities in our mineral rights area, as well as sell the produced potash.

Mining Concession

At such time when we complete the construction of the Autazes Project, and we have received the Operational License, we believe that we will receive the mining concession called Concessão de Lavra (which we refer to as the "Mining Concession"), which is granted by the Brazilian Ministry of Mines and Energy. In connection with the Mining Concession, we previously prepared and submitted a plan called Plano de Aproveitamento Econômico (PAE) (which we refer to as our "Plan for Economic Development of the Deposit"), which has been approved by the Brazilian National Mining Agency. The Mining Concession will be granted based upon and in accordance with the approved Plan for Economic Development of the Deposit. As the holder of the Mining Concession, we will have exclusive rights

Table of Contents

to undertake mining operations for the Mineral Resources specified in the Mining Concession within the authorized mineral rights area. The Mining Concession will be valid until the depletion of the mineral deposit. Although mineral deposits in Brazil are federal property, a mining concession holder is the assured owner of the extracted mineral.

As the holder of the Mining Concession, we will have a range of obligations, including to: (i) start the mining work, in accordance with the development and mining plan approved by the Brazilian National Mining Agency, within six months from the date of publication of the Mining Concession in the Official Gazette of the Brazilian federal executive; (ii) carry out the mining work in accordance with the approved development and mining plan; (iii) extract only the minerals indicated in the Mining Concession or any addendum thereto; (iv) communicate to the Brazilian National Mining Agency the discovery of any mineral substance not included in the Mining Concession; (v) carry out the mining work in accordance with applicable laws, rules and regulations; (vi) appoint a duly qualified person to supervise the mining work; (vii) refrain from intentionally obstructing or hampering the future development of the mineral deposit; (viii) be liable for any loss or damage caused to third parties resulting from the mining work; (ix) not cause air or water pollution as a result of the mining work; (x) protect and preserve water sources, as well as to use them in accordance with applicable technical instructions and requirements; (xi) observe and comply with all instructions and recommendations of applicable regulatory authorities; (xii) refrain from suspending the mining work for more than six months without the prior consent of the Brazilian National Mining Agency; (xiii) keep the mine in good condition during any suspension period; (xiv) rehabilitate the areas degraded by mining; (xv) pay royalties; and (xvi) comply with the provisions of the Brazilian National Dams Safety Policy.

Once commercial production of potash commences, we will be required to pay financial compensation for such mineral exploitation (Compensação Financeira pela Exploração Mineral) in the form of a royalty (which we refer to as the “Mining Royalty”), currently at a rate of 2% of our gross revenue, which will be divided among various Brazilian federal, state and municipal governmental offices and agencies, including the Brazilian National Mining Agency and other environmental agencies, as determined by Brazilian law and regulations. Additionally, we will be required to pay a royalty equal to 50% of the Mining Royalty to the owners of surface rights of any land not owned by our Company or Potássio do Brasil Ltda.

Additionally, the Brazilian National Mining Agency is allowed to grant mining easements (servidões minerárias) in properties of third parties in relation to a given mining title, provided that such mining easement is necessary for the proper exploration and exploitation of the mineral deposit. After the granting of an easement by the Brazilian National Mining Agency, through the issuance of a “Public Utility Statement”, the holder of the mining title to which the Public Utility Statement refers must pay an indemnification amount to the owner of the servient property before entering such property. If such indemnification amount cannot be agreed upon between the holder of the mining title and the property owner, it will be determined by a court.

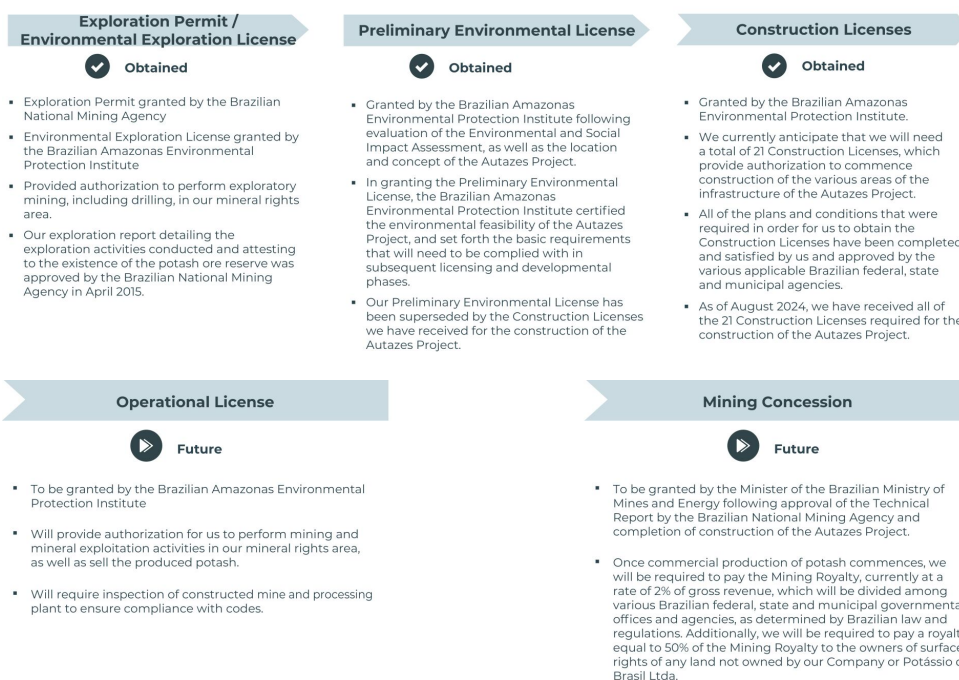
Once the exploitation of the mineral deposits has been concluded, the corresponding mining area must be rehabilitated in accordance with appropriate environmental and mine closure plans included as part of our Plan for Economic Development of the Deposit which was approved by the Brazilian National Mining Agency.

Current Status of our Licensing Process

Our current near-term goal is to start the primary construction of the infrastructure of the Autazes Project. We will not be able to obtain the Operational License or the Mining Concession until construction of the Autazes Project has been completed. Additionally, opposition by any governmental or non-governmental organizations to our proposed development or operations of the Autazes Project, such as the May 2024 Civil Lawsuit, may, among other things, result in delays or a shutdown of our development of the Autazes Project and require us to spend significant amounts of time and resources to resolve any such issues in order to secure or maintain necessary permits and licenses. See also “Risk Factors—Risks Related to our Company—We may face potential opposition to the Autazes Project, which could increase our operating costs or result in substantial delays or a shutdown of the Autazes Project” and “—Legal Proceedings” below.

The following summarizes the various permits and licenses that are required in order to be fully authorized to operate a mine in Brazil:

Main Permits and Licenses to Commence Operations



Environmental Regulations

Our exploration and development activities are, and our future mining operations will be, subject to environmental laws and regulations in Brazil. We currently, and will continue to, maintain operating policies that seek to comply with all applicable environmental laws and regulations.

To enforce environmental legislation in Brazil, the Federal Government of Brazil has established various administrative, criminal and civil penalties that will be imposed upon violators of environmental laws, rules and regulations, including fines, denial of credit lines from governmental entities, revocation of environmental licenses, and, in extreme cases, suspension of the company's activities. The fines are imposed in accordance with the nature and severity of the infraction committed, which primarily depends on the extent of the damage caused or expected to be caused to the environment.

Environmental, Social and Governance

We are guided by the values of ethics, integrity, transparency and compliance with the law, our code of business conduct and ethics (which we refer to as our "Code of Business Conduct and Ethics"), which has been adopted by our board of directors and will be effective upon the closing of this offering, as well as by stakeholder expectations. We

[Table of Contents](#)

aim to embed environmental, social, and governance (which we refer to as “ESG”) considerations into our operations and business decisions to create long-term value for our stakeholders and society.

The Autazes Project has been developed with sustainability at the core of all of its developmental and operational components. Our commitment to ESG causes can be seen through our policies and actions. We continue to review and refine our ESG policies and frameworks to ensure that we can uphold our commitment to the communities we operate in and, more broadly, the global community.

As an organization, we are steered by our Code of Business Conduct and Ethics, as well as our ESG policies. Our ESG policies address our position and approach across ESG categories that impact our business, and cover material topics that are of the highest priority and importance to our internal and external stakeholders.

Environmental

Tailings and Waste Management

We carefully consider the management of, as well as efforts to minimize, waste (hazardous and nonhazardous) in our planned operations that poses a potential threat to public health or the environment. This includes the development of systems for the management of tailings, including monitoring and maintaining the stability of tailings storage facilities.

We plan to have our sodium chloride (i.e., more commonly known as table or road salt) tailings stored in one of two lined dry-stacked stockpiles at the surface of our mining operations, which is best practice in the mining sector. A majority of the tailings will be pumped back underground to fill mined-out caverns, with the balance being dissolved by rainwater. As such, there should be no remaining tailings on the surface to mitigate upon eventual closure of our mining operations.

Our environmental licenses include environmental conditions that we must continue to satisfy, and, in order to maintain our compliance with these conditions, we have established several monitoring points. For example, we collect monthly information about water quality at the Autazes Project as part of our environmental management program.

Deforestation and Biodiversity

In developing the Autazes Project, we aim to minimize ecological impacts associated with deforestation within and beyond the Amazon rainforest. We will implement environmental management plans at our mine site to address biodiversity impacts (e.g., flora and fauna), land use, and inactive site reclamation efforts, which includes the protection of permanent preservation areas.

Concerningly, the Amazon rainforest experienced record deforestation rates in 2021. Although this was caused by a number of factors, we believe that farmers burning trees to increase the amount of land that they are able to farm, rather than attempting to maximize crop yields per acre through proper application of fertilizer, contributed in part to this problem. We are considering the development of a plan to subsidize the purchase price for our potash and provide independent third-party expert application rate guidance for Brazilian farmers located in close proximity to the Amazon rainforest in exchange for a commitment to not deforest.

Additionally, we have created a seed nursery, which is managed by an indigenous agricultural technician, to start the growth of trees that will be used as part of our reforestation initiatives. In the first half of 2022, we donated more than 20,000 trees to the city of Autazes to be used for reforestation.

Climate-related Risks and Opportunities (including GHG Emissions and Energy Management)

We carefully consider the management of climate related risks and opportunities associated with large scale climate trends and patterns that could potentially benefit or harm the Autazes Project or our Company. Risks and opportunities may be associated with physical changes and/or changes related to a transition to a low carbon

[Table of Contents](#)

economy. This includes our direct Scope 1 GHG Emissions, our indirect Scope 2 GHG Emissions, as well as our Scope 3 GHG Emissions along the value chain, and our management of energy (e.g., renewable) or electricity consumed during our operations and business activities.

We commissioned a consulting firm to prepare our GHG Emissions Analysis to assess the GHG emissions that are anticipated to be generated by the Autazes Project. Our GHG Emissions Analysis was conducted by estimating Scope 1, 2 and 3 GHG Emissions along our value chain to provide an initial but comprehensive mapping of GHG emissions sources. Such estimates of our total GHG emissions are based on information contained in the Technical Report using the GHG Protocol Corporate Accounting and Reporting Standard (which we refer to as the “GHG Accounting and Reporting Standard”). Developed by the World Resources Institute and the World Business Council for Sustainable Development, the GHG Accounting and Reporting Standard outlines a standard set of accounting and reporting rules and guidance for companies to inventory and document their GHG emissions, including guidelines to identify and categorize the GHG emissions generated by all of the operations of a particular company. Additionally, we have also used the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, which is a supplement to the GHG Accounting and Reporting Standard that provides a standardized approach to help companies assess their entire value chain emissions impact and identify where to focus their GHG reduction activities.

Our GHG Emissions Analysis assumes that (i) the Autazes Project will produce 2.4 million tons of potash per year, (ii) the Autazes Project will consume electricity 24 hours a day, 365 days per year, and will rely entirely on electricity supplied by Brazil’s national power grid, which generates approximately 80% of its power from renewable sources, (iii) all underground mining facilities and equipment used at the Autazes Project will be powered by electricity provided by Brazil’s national power grid, with the associated GHG emissions being categorized as Scope 2 GHG Emissions, (iv) transportation related emissions from the Autazes Project will be categorized as Scope 3 GHG Emissions, and (v) transportation by train of our potash product from our processing plant to our port, transportation by river barge of our potash product from our port to distribution centers, storage of our potash product in distribution centers, and distribution of our potash product from distribution centers to end-users will all be performed by third parties.

However, although we plan to construct and operate the Autazes Project using industry best practices and methodologies to achieve a low GHG emissions profile, and the estimates used in our GHG Emissions Analysis are modeled using information that we believe to be reasonable and reliable, our GHG Emissions Analysis is subject to the limitation that, since we have not yet commenced operations at the Autazes Project, the estimates of our GHG emissions are not based on actual amounts of GHG emissions generated in the course of our production and distribution of potash. Therefore, we were not able to account for certain data in the calculation of the estimates used in our GHG Emissions Analysis, such as data regarding the quantity of recyclable material produced per year and the quantity of refrigerant required in a year of operations.

Based on our GHG Emissions Analysis, we believe that the Autazes Project will have a competitively advantaged GHG emissions profile from its anticipated operations in the following three material ways: (i) as compared to a potash producer located in Saskatchewan, Canada (which, according to our GHG Emissions Analysis, has a lower GHG emissions profile than the potash producers in other countries currently supplying potash to Brazil) using similar conventional underground mining methods (which are generally more energy efficient than alternative potash mining methods) and exporting an amount of potash to Brazil equal to the amount of potash that we anticipate producing, we believe that the aggregate Scope 2 GHG Emissions generated from the production of potash from the Autazes Project will be approximately 1.2 million tons (or approximately 80%) less per year, since we plan to have all of the electricity used at the Autazes Project be provided by Brazil’s national power grid, which generates approximately 80% of its power from renewable sources and has a lower carbon intensity of approximately 0.54 tCO₂e/MWh, as compared to the power supply relied upon by a Saskatchewan potash producer (assuming such potash producer draws all of its power consumption from the Saskatchewan provincial power grid, which currently generates approximately 81% of its power from fossil fuels); (ii) assuming the same amount of potash that is currently being imported into Brazil and the current

Table of Contents

geographic supplier mix, we believe that the Scope 3 GHG Emissions associated with the distribution of our potash product and related logistics at the Autazes Project will be approximately 205,000 tons less per year than the average Scope 3 GHG Emissions produced by overseas potash producers currently importing potash into Brazil, primarily because of the significantly shorter distances we will have to transport our potash product to Brazilian farmers, as compared to other potash producers having to transport their potash products to Brazil from production facilities located 8,000 to 12,000 miles away (primarily in Canada, Russia and Belarus); and (iii) based on the assumption that the local communities surrounding the Autazes Project use 3MWh of electricity per year, which is currently exclusively supplied by diesel generators, we believe that annual GHG emissions will be reduced since, following completion of the planned power transmission line that will connect the Autazes Property to Brazil's national power grid, the local communities will be able to connect to the new electricity infrastructure and draw power from Brazil's national power grid. As such, based on the three examples described above, we believe that the Autazes Project will result in an aggregate of approximately 1.4 million tons less GHG emissions being produced per year, which is the equivalent of planting approximately 56 million new trees (assuming an average annual CO₂ sequestration of 50 pounds per tree).

Our analysis of the Scope 3 GHG Emissions that will be avoided due to the significantly shorter distances that we will transport our potash produced at the Autazes Project to Brazilian farmers, as compared to overseas potash producers currently importing potash into Brazil, generally takes into account and assumes the current amount and mix of potash being supplied to Brazil, and the largest production facilities and the corresponding methods of transport of the countries that currently supply potash to Brazil. The estimates of Scope 3 GHG Emissions related to the transportation of potash were calculated using the GHG Protocol Distanced-based method, which factors in the distance traveled, the size, mass or volume of the goods transported, and relevant emission factors, including average fuel consumption, average utilization, and the vehicles used for transportation and their associated GHG emissions. The key assumptions of this analysis include all potash being delivered to the port of Paranagua, Brazil, all potash being produced at the largest production facility in each supplying country, all transportation of potash from a production facility to a marine port in the supplying country being conducted by train, and all transportation of potash from a marine port in the supplying country to Paranagua, Brazil being conducted by bulk carrier.

In connection with our analysis of the GHG emissions that will be avoided based on the new electricity infrastructure that will be put into place for the Autazes Project and local communities being able to connect to it to draw power from Brazil's national power grid (which generates approximately 80% of its power from renewable sources), we identified the electricity demand from the local communities near the Autazes Project, identified that such communities typically used diesel generators to generate electricity, determined the GHG emissions factors for diesel generators and Brazil's national power grid, and calculated the differences in GHG emissions based on the different sources of electricity.

Our construction and operational plans aim to minimize GHG emissions with several stringent programs to control all aspects related to suspended particles in the air.

Water Stewardship

We aim to manage water resources in a way that is socially equitable, environmentally sustainable, and economically beneficial. We plan to recirculate nearly 100% of the water used in the processing of our potash with only a small bleed-off to manage the build-up of impurities over time. We also will have uncovered tailings stockpiles that will be dissolved naturally by rain, and the resulting salty water will then be pumped underground into an existing aquifer.

Social

Engagement with Indigenous Communities

We are actively consulting and engaging with indigenous communities near the Autazes Project with respect to long term relationships, the delivery of sustainable benefits, business development, and economic reconciliation that we are aiming to provide during the exploration, project design, operation, and closure phases of the Autazes Project.

Table of Contents

We believe that we are one of the first companies in Brazil to conduct indigenous consultations in accordance with International Labour Organization Convention 169, which is the major binding international convention that sets standards for national governments with respect to indigenous and tribal peoples' economic, socio-cultural and political rights, which include the right to prior and informed consultation on any development activity that may impact indigenous peoples' land and/or lives. One of the main differences in complying with International Labour Organization Convention 169, as compared to the guidelines and requirements established by FUNAI, is that the indigenous communities determine how and who within their communities will be consulted. We are committed to ensuring that we directly employ local indigenous people, as we will utilize indigenous-owned companies to provide goods and services required for our operations.

As part of our consultations and discussions with indigenous communities, the Mura indigenous people, who make up the vast majority of the indigenous communities, villages and tribes near the Autazes Project, will be proposing several programs that they would like to be implemented as part of the compensation and improvement that we intend to provide to the region.

Community Impact, Local Employment and Procurement

We will continue to consider various approaches to allocating capital to local communities and measuring direct and indirect impacts. We intend to undertake strategic efforts to meet the needs and address the concerns of community groups, including, for example, with respect to the advancement of common goals and the promotion of health and wellness, socio-economic empowerment, job creation, research, and other community benefits related to our activities. We also intend to employ workers from local or nearby communities and buy locally produced goods and services. We have started discussions with training schools in the region near the Autazes Project to help prepare our future workforce, and plan to train people for operating roles during the construction phase of the Autazes Project.

We are already, and plan to remain, very active in our local communities to ensure that the Autazes Project is developed and operated in a manner that gives back in a meaningful way to our local communities, including but not limited to, the nearby city of Autazes and village of Urucurituba.

Health and Safety

We intend to place great importance on the management of workplace health and safety for our employees and contractors, including protecting employees and contractors against possible injuries, work related illnesses, and/or occupational diseases that may occur while conducting any of our operations or activities.

We are working together with local and state governments to bring improvements to the city of Autazes and the surrounding region. We anticipate that the population of Autazes will grow during the development and construction of the Autazes Project, and, as such, we intend to prepare health and safety programs in order to attract and retain people in the region.

Governance

Corporate Governance and Ethics

We have developed a range of corporate governance policies (which are publicly accessible on our website) relating to, among other matters, (i) compliance with laws, (ii) conflicts of interest, (iii) confidentiality, (iv) corporate opportunities, (v) insider trading, (vi) ethical conduct and fair dealing, (vii) prohibitions against bribes and other improper payments, (viii) international trade controls, (ix) equal opportunities, and (x) safety and health in our Code of Business Conduct and Ethics. Additionally, as part of our focus on corporate governance and business ethics, we carefully consider the management of ethical and legal considerations such as related party transactions, whistleblower programs, prohibitions on trading of securities while in possession of

Table of Contents

undisclosed information, and anti-competitive practices. For example, we have instituted a whistleblower program with an independent reporting phone line to ensure that any concerns can be reported without fear of repercussion, and our directors, executives, officers and employees are subject to our insider trading policy, which prohibits trading in our Common Shares and other securities on the basis of material non-public information until after such information has been disclosed to the public.

We place a strong emphasis on board independence, shareholder democracy, and equitable executive compensation. The majority of our board of directors is comprised of independent directors, and each of the standing committees of our board of directors is comprised solely of independent directors.

Regulatory Compliance

We aim to comply with all applicable laws, rules and regulations in the jurisdictions in which we operate, and plan to maintain internal systems for assuring compliance. Our activities are regulated by our environmental and social permits and licenses, the applicable laws of Brazil, Canada and the United States, and our own internal system of checks and controls.

As we approach the construction and production phases of the Autazes Project, we will begin to define and develop the key performance indicators for the material social and environmental management goals we will aim to achieve, along with aligning them with our business strategy.

Prohibitions against Bribery and Corruption

We will strictly enforce our Code of Business Conduct and Ethics with all of our directors, executives, officers, employees, and designated agents. Our Code of Business Conduct and Ethics includes prohibitions against the offering, giving, receiving, or soliciting of any item of value to influence the actions of an official or other person in charge of a public or legal duty, including any form of bribery, as well as other actions that we consider corrupt, dishonest and/or fraudulent.

ESG Achievements

We believe that we have already enhanced thousands of lives in the communities near the Autazes Project. Some examples include:

Environment

- In 2021, we conducted environmental monitoring on over 8,600 acres of land on or near the Autazes Property with the intention of preserving remaining forests, monitoring underground and surface water resources, and preserving historical heritage.
- We have donated and planted over 20,000 trees and established an environment for the production of seedlings in the village of Urucurituba, which is the location of our planned port, in order to reforest the area.

Social

- During the COVID-19 pandemic, we supported the city of Autazes in vaccinating over 9,000 people living in remote regions by providing logistical support, such as transportation, as well as funding an educational campaign.
- In 2021, we distributed over 2,300 food and hygienic baskets to socially vulnerable families in the cities of Autazes and Careiro da Varzea, with approximately 9,000 beneficiaries.
- In the communities near the Autazes Project, we donated food and support for school activities to 170 underprivileged children and their families.

Table of Contents

- We will partner with 14 different institutions and a group of universities to strengthen our ESG impact, in addition to implementing our internal ESG programs.

Governance

- We created and filled an ESG Director position at Potássio do Brasil Ltda. to address all of our ESG related issues.
- We intend to incorporate health, safety, and ESG goals into our compensation program to better align objectives across our Company and drive accountability by directly linking the achievement of such goals to financial rewards.

In May 2023, we received an “A” rating under an ESG analysis conducted by MSCI Inc.

Board Oversight of ESG Strategies

Our board of directors oversees our ESG strategies to ensure consistency across our decisions, actions, and overall operations and activities, and is constantly evaluating our ESG governance framework to implement goals, policies, procedures, and actions to further bolster our ESG management and strategic decisions.

Employees

As of the date of this prospectus, our Company has 14 employees in Canada, and Potássio do Brasil Ltda. has 10 full-time and five part-time employees in Brazil. Members of our management team are based in Canada and Brazil. We intend to continue to hire employees during our development phase and when we begin our mining operations. None of our employees is a party to a collective bargaining agreement, and we believe our relations with our employees are good.

Legal Proceedings

December 2016 Civil Lawsuit; Additional Consultations with Indigenous Communities

We received our Preliminary Environmental License for the Autazes Project from the Brazilian Amazonas Environmental Protection Institute in July 2015. In connection with our application for our Preliminary Environmental License, we and Golder conducted several rounds of consultations with local indigenous communities near the Autazes Project in accordance with the guidelines and requirements established by FUNAI. However, after receiving our Preliminary Environmental License, the Ministerio Publico Federal (which we refer to as the “Brazilian MPF”), which is Brazil’s federal prosecution office, initiated a civil lawsuit in December 2016 (which we refer to as the “December 2016 Civil Lawsuit”) that questioned the validity of our Preliminary Environmental License based on a motion from a non-governmental organization that our consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169 (also known as the Indigenous and Tribal Peoples Convention (1989)). As a result of the December 2016 Civil Lawsuit, in March 2017, we agreed with the Lower Court overseeing the December 2016 Civil Lawsuit (which we refer to as the “Lower Court”), the Brazilian MPF, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mining Agency, FUNAI, and representatives of the Mura indigenous people (who make up the vast majority of the indigenous communities, villages and tribes near the Autazes Project) to suspend our Preliminary Environmental License, and to conduct additional consultations with the Mura indigenous people in accordance with International Labour Organization Convention 169.

On April 25, 2023, the Brazilian federal appellate court (which we refer to as the “Appellate Court”) overseeing the Lower Court directed the rescission of the suspension of our Preliminary Environmental License (which we refer to as the “April 2023 Appellate Court Decision”) based on its opinion that, by agreeing to the suspension of our Preliminary Environmental License, the Lower Court unduly interfered with the Brazilian

[Table of Contents](#)

Amazonas Environmental Protection Institute's authority to grant and administer our Preliminary Environmental License. On April 26, 2023, the Lower Court acknowledged the April 2023 Appellate Court Decision, and accordingly, the suspension of our Preliminary Environmental License was rescinded, and our Preliminary Environmental License was reinstated. Although the main condition to initiate the additional consultations with the Mura indigenous people in accordance with International Labour Organization Convention 169 was satisfied, and the suspension of our Preliminary Environmental License was lifted pursuant to the April 2023 Appellate Court Decision, we believe in the importance of consulting key stakeholders, including the Mura indigenous people, and therefore continued such consultations with the Mura indigenous communities. In September 2023, we completed such additional consultations with the local Mura indigenous communities. Out of the 36 villages that comprise the local Mura indigenous communities, 34 agreed to support our environmental licensing process and the advancement of the Autazes Project.

Subsequent Lower Court Decisions and Resultant Appellate Court Decisions

On August 25, 2023, we submitted to the Brazilian Amazonas Environmental Protection Institute our application for the Construction Licenses to ensure that we moved to this next stage of our permitting process, prior to the expiration of our Preliminary Environmental License on August 31, 2023 in accordance with its terms. However, after our submission of our application, the Lower Court issued a new decision (which we refer to as the "Second Lower Court Decision"), which temporarily suspended our environmental licensing process, including our application for the Construction Licenses, based on the Lower Court's interpretation that (i) our Preliminary Environmental License should have been issued by the Brazilian Federal Environmental Protection Institute, which is the environmental protection agency of the Federal Government of Brazil, rather than issued by the Brazilian Amazonas Environmental Protection Institute, and (ii) the issuance of our Preliminary Environmental License should have been preceded by an authorization from the National Congress of Brazil. The Brazilian Federal Environmental Protection Institute itself, however, disputed the Lower Court's interpretation, as a Congressional authorization would only be necessary if the mining project was located inside delineated indigenous land, which is not the case with respect to the Autazes Project. Additionally, we, along with representatives from the Mura indigenous peoples and the Brazilian Federal Environmental Protection Institute, filed respective appeals against the Second Lower Court Decision, and the Attorney General of the State of Amazonas also filed an action before the Appellate Court to annul the Second Lower Court Decision, which was similar to the action that resulted in the April 2023 Appellate Court Decision, and which claimed, among other things, that the Second Lower Court Decision violated the April 2023 Appellate Court Decision. In October 2023, the Appellate Court accepted the action from the Attorney General of the State of Amazonas and granted an injunction to suspend the Second Lower Court Decision, therefore reinstating our environmental licensing process and allowing it to proceed, as well as clarifying that the Brazilian Amazonas Environmental Protection Institute has jurisdiction over issuing our environmental licenses.

In November 2023, the Lower Court issued a new decision (which we refer to as the "Third Lower Court Decision"), which temporarily suspended for the third time our environmental licensing process and the results of our additional consultations with the local Mura indigenous communities. We then filed an Interlocutory Appeal and a Complaint Lawsuit against the Third Lower Court Decision, which sought to demonstrate that the Lower Court was repeatedly suspending our environmental licensing process despite the repeated decisions from the Appellate Court. In February 2024, the Appellate Court accepted our Complaint Lawsuit and granted another injunction to suspend the Third Lower Court Decision and reinstate our environmental licensing process.

May 2024 Civil Lawsuit

In May 2024, the Brazilian MPF initiated another lawsuit (which we refer to as the "May 2024 Civil Lawsuit") contesting the environmental licensing of the Autazes Project, based on similar claims as those alleged in the December 2016 Civil Lawsuit. The May 2024 Civil Lawsuit seeks a preliminary injunction to suspend the environmental licensing process of the Autazes Project and all issued licenses. The claims asserted by the Brazilian MPF have not yet been reviewed by the Lower Court. Should the Lower Court render an unfavorable decision against the Autazes Project in the May 2024 Civil Lawsuit, such decision will be subject to appeal to the

Appellate Court, where, historically, we have been successful in upholding the environmental licensing process of the Autazes Project.

Foreign Investment Restrictions and Control

Foreign Investment Restrictions

Mining exploration and exploitation activities may only be undertaken by private entities incorporated under Brazilian law and having their head offices and management located in Brazil. Except in the case of the border zones, which are the areas approximately 93 miles from the Brazilian borders, there are no restrictions on the participation of foreigners in Brazilian mining companies, which can be wholly-owned by foreign individuals or legal entities. Mining activities in the border zones may only be carried out with the prior consent of the Brazilian National Defense Council.

According to current interpretation of Brazilian legislation, based on the Binding Opinion AGU/LA 01/2010 issued by the Brazilian Federal Attorney General's Office in August 2010, there are certain restrictions for the acquisition or lease of rural lands by Brazilian companies organized under the laws of Brazil and domiciled within Brazilian territory, but that are, in fact, an investment vehicle company of a foreign individual or entity, in which the majority of the corporate capital or power to control such company is held, directly or indirectly, by a foreign individual or entity domiciled abroad. In general, a direct or indirect transfer of such rural property to a Brazilian company that is controlled by a foreign individual or entity is subject to certain restrictions and limitations, and must be previously authorized by the Brazilian National Institute of Rural Settlement and Agrarian Reform (which we refer to as the "INCRA"), pursuant to INCRA Normative Instruction number 88, of December 13, 2017. Any acquisition or lease of rural property that violates such restrictions and limitations will be considered null and void, and the INCRA may order the reversal of such acquisition or lease, returning the ownership or possession of such rural property to its previous owner.

Foreign Investment Control

In accordance with Normative Rulings 2,119/2022 and 2,172/2024 issued by the Brazilian Federal Revenue (Receita Federal do Brasil), foreign individuals and legal entities owning equity in Brazilian companies, real estate properties, airplanes, ships, and other assets located in Brazil, which are subject to public registration with the relevant Brazilian authorities, must enroll themselves with the Individual Taxpayers' Registry of the Ministry of Economy if an individual, or with the Corporate Taxpayers' Registry of the Ministry of Economy if a legal entity. The same applies to beneficiaries of certain security interests, such as mortgages.

It is also mandatory to enroll such foreign investors with the Declaratory Registration of Non-Residents of the Central Bank of Brazil (Cadastro Declaratório de Não Residente). Such foreign investors must also register their relevant capital contributions in the Brazilian subsidiary in the electronic system of the Central Bank of Brazil (Sistema do Banco Central do Brasil), which will allow such Brazilian subsidiary to remit dividends to its foreign shareholders and repatriate the registered capital.

We believe that we and our affiliates are currently in compliance with such Brazilian rules and regulations with respect to our respective investments and/or businesses in Brazil.

Additional Exploration Areas

Within our cumulative mineral rights area of approximately 680 square miles located in the Amazon potash basin, we have made four discoveries of potash ore near the following communities: Autazes, Itacoatiara, Itapiranga, and Novo Remanso. This includes the potash ore resources for the Autazes Project. The vast majority of our diamond core drilling, permitting, engineering, and environmental and social studies has been conducted in connection with the Autazes Project, and our primary focus is on the development and eventual construction and operation of the Autazes Project. However, we hold mineral rights to the other three areas where potash ore has been discovered by us, and we may conduct additional exploratory activities in those areas in the future.

Civil Investigation relating to Mining Rights Surrounding Other Indigenous Communities

In June 2005, the Brazilian MPF opened a civil investigation against the Brazilian National Mining Agency seeking to reject mining applications and cancel mining titles with respect to the areas occupied by the Cinta Larga indigenous communities (which are comprised of the Roosevelt, Aripuanã, Parque Aripuanã, and Serra Morena indigenous lands), as well as those surrounding areas within 10 kilometers of such lands. The areas that are the subject of this civil investigation are located in a different state than the state of Amazonas where the Autazes Project is located, this civil investigation involves different indigenous communities than the Mura indigenous people with whom we are conducting consultations in accordance with International Labour Organization Convention 169, and none of our Company, the Autazes Property, or the Autazes Project is subject to this civil investigation.

In May 2022 and June 2022, the lower court and the appellate court, respectively, ruled against the Brazilian National Mining Agency, which appealed the decisions to Brazil's Superior Court of Justice and Supreme Federal Court. Additionally, in May 2022, the Supreme Federal Court issued a pending ruling that would prevent the Brazilian National Mining Agency from granting new mining rights in the areas surrounding the subject indigenous communities. If the decisions rendered by the lower and appellate courts are upheld and the Supreme Federal Court's decision becomes final, the Autazes Project would be affected only in the event that the Brazilian National Mining Agency interprets such court decisions as applying to other currently existing mining rights in areas within 10 kilometers (or approximately 6.2 miles) of other indigenous lands in Brazil. The Brazilian MPF could also use the legal precedent to file new lawsuits in order to expand and apply the Supreme Federal Court's decision to other mining rights in areas surrounding indigenous lands. If this were to occur, and if the Brazilian National Mining Agency and/or the Brazilian MPF take action to explicitly prohibit mining activities in the areas within 10 kilometers of the Jauary indigenous land (which is indigenous land demarcated by FUNAI and located within the Autazes Property on which certain Mura indigenous communities live), the Autazes Project would then not be viable as currently planned since, even though no part of the Autazes Project will be located on Jauary indigenous land, the vast majority of our Mineral Reserves, as well as approximately 75% of the land that we currently have rights of access to and ultimately intend to own (which include surface rights on the land on which our proposed mine shafts, processing plant, and port for the Autazes Project will be constructed), and approximately 80% of the land that we currently lease and ultimately intend to purchase for the Autazes Project (which include the project sites for our dry stacked tailings piles), are located in areas within 10 kilometers of the Jauary indigenous land. Furthermore, in the event that the Brazilian National Mining Agency would adopt such an interpretation, or that the Brazilian MPF would take such actions, such interpretations and actions would adversely impact several existing operational mining projects, many of which employ indigenous people, which would, in turn, result in substantial economic loss and layoffs, including adverse economic as well as social effects on a number of indigenous communities.

DESCRIPTION OF THE AUTAZES PROJECT AND THE AUTAZES PROPERTY

We engaged ERCOSPLAN, an engineering consulting firm with significant experience in the potash mining industry, to prepare the Technical Report, which includes Mineral Resource and Mineral Reserve estimates and capital construction, operation and economic estimates, on the Autazes Project. To date, 43 exploration holes totaling approximately 121,000 feet have been drilled on the Autazes Property, and the results from these drill holes form the basis of the Technical Report, prepared in accordance with the SEC Mining Modernization Rules, which govern disclosure for registrants with material mining operations.

Unless stated otherwise, the information in this section is summarized, compiled or extracted from the Technical Report. Certain numeric values describing the Autazes Project and the Autazes Property disclosed herein have been converted from the metric system of measurement, which is used in the Technical Report, to the imperial system of measurement commonly used in the United States. Portions of the Technical Report have been extracted, summarized and disclosed in this prospectus with the consent of ERCOSPLAN, whose representatives are Qualified Persons (i.e., independent geologists, engineers and mineral industry professionals with at least five years of relevant experience) within the meaning of the provisions of the SEC Mining Modernization Rules.

Regional Geology, Deposits and Potash Mineralization

The potash deposits that we intend to mine are situated in the northwestern part of Brazil, in the Amazon Basin, which is a large Paleozoic basin that covers approximately 200,000 square miles.



The sedimentary rocks of the Amazon Basin overlap the Pre-Cambrian rocks of the Guiana Shield to the north and the Central Brazil Shield to the south. The thickness of the strata above the Pre-Cambrian rocks is up to approximately 3.8 miles. Mineralization composition of the Amazon Basin is described as sylvinite with layers of halite, anhydrite and/or others (e.g., kieserite, polyhalite, and others). The Amazon Basin contains rocks ranging in age from the Proterozoic to Permian periods, which are overlain by rocks from the Cretaceous, Palaeogene, and Quaternary periods.

[Table of Contents](#)

The rocks in the Amazon Basin are divided into the following six formations (from top to bottom):

- Solimoes Formation, consisting of unconsolidated clays with abundant organic contributions;
- Alter do Chao Formation, consisting of sandstones interbedded with shales and minor conglomeratic layers;
- Andira Formation, consisting of thick layers of siltstone intercalated with thin anhydrite horizons;
- Nova Olinda Formation, consisting of shale and/or siltstone, marl and/or fine grained (dolomitic) limestone, anhydrite, rock salt with intercalated layers of anhydrite, shale and some sylvinite;
- Itaituba Formation, consisting of limestone with anhydrite rocks and intercalations of shales and siltstones; and
- Monte Alegre Formation, consisting of sandstones.

The potash-bearing horizon is subdivided into the following three zones (from top to bottom):

- Upper Sylvinite zone with an interlayering of red sylvite and halite, and with minor amounts of sulphate minerals. Sometimes minor amounts of carnallite were also detected;
- Middle Sulphate zone consisting of various sulphates (anhydrite, kieserite, polyhalite and others) interlayered with sylvite and halite and carnallite distinguished; and
- Lower Sylvinite zone with an interlayering of white sylvite and halite, and with minor layers of sulphates (mainly anhydrite).

The top of the potash-bearing horizon was determined to be at a depth between approximately 0.4 mile to 0.5 mile. In general, the potash deposit dips from the northwest to the southeast of the Autazes Property. The total thickness of the potash-bearing horizon in the explored area of the Autazes Property ranges between 2.3 feet and 13.1 feet, with an average potassium chloride (which we refer to as "KCl") grade of 25.0%. The maximum thickness of the potash-bearing horizon is 13.1 feet and is found in the explored northwestern center of the Autazes Property, while the thickness decreases towards the north, southwest and southeast parts of the Autazes Property. The average thickness of the whole area of the potash-bearing horizon is 6.2 feet. The KCl grade ranges from approximately 10.1% to 43.4%. The highest KCl grades (which are higher than 40% KCl) are found in the eastern part of the Autazes Property, while KCl grades of 30% or more are found in the whole central part of the explored Autazes Property, interrupted by a suspected northwest to southeast directed low grade zone.

[Table of Contents](#)

Location

The Autazes Property is located in the Amazon potash basin near the city of Autazes in the eastern portion of the state of Amazonas, Brazil, within the Central Amazon Basin, between the Amazon River and the Madeira River, approximately 75 miles southeast of the city of Manaus, northern Brazil.



The mine, processing plant and tailings piles for the Autazes Project will be located approximately 12 miles northeast of the Autazes city center in a rural area, near the village of Lago Soares. The site for the port is located approximately 7.5 miles southeast of the processing plant site by road, in the village of Urucurituba on the banks of the Madeira River. The coordinates for each location are as follows:

<u>Location</u>	<u>Longitude</u>	<u>Latitude</u>
Production shaft	58° 58' 25.983" W	3° 29' 38.230" S
Processing plant (product loading point)	58° 58' 22.475" W	3° 29' 59.686" S
Port (product loading point)	58° 55' 16.845" W	3° 32' 43.915" S

Access, Climate and Physiography

Access

The Autazes Property can be accessed from the city of Manaus by crossing the Amazon River (Negro and Solimões) by boat or ferry in the stretch between the port of Ceasa in Manaus and the port of Careiro da Várzea on the right bank of the river, and then travelling via highways BR-319 (16 miles) and AM-254 (58 miles) to the Madeira River, which is also crossed by boat or ferry in order to reach the city of Autazes. From the city of Autazes, highway AM-254 extends approximately eight miles south to the western bank of the Madeira River. From there, access can be achieved by boat via an approximately 16 miles downstream journey on the Madeira River (northeast direction) to the boat mooring location at the Urucurituba village, at which the proposed port facilities for the Autazes Project will be located. A 7.5-mile unpaved road will be constructed between the Urucurituba village and the entrance to the mine.

[Table of Contents](#)

Alternatively, the Autazes Property can be accessed by travelling downstream on the Amazon River to the confluence with the Madeira River and then from there travelling upstream on the Madeira River to the boat mooring location at the Urucurituba village. The entire length of this river route on the Amazon River and the Madeira River is approximately 106 miles.

Climate

The climate of the city of Autazes is tropical monsoon with a short dry season. Climate data is based on two periods: from 1961 to 1990 and from 1992 to 2021. The wettest months were January through April with up to 16 inches of precipitation per month. Average annual precipitation was approximately 100 inches. The warmest months were September and October with an average monthly temperature of approximately 81°F, while the coolest months were January and February with an average monthly temperature of approximately 79°F. Hence, the annual temperature is relatively constant. Relative humidity was high throughout the years with monthly highs of approximately 88% to 90% in March and April, and monthly lows of approximately 80% from September to November. Average annual evaporation was approximately 37-40 inches, and the months with the highest evaporation, which ranged from 4.0-4.3 inches, were September and October.

Physiography

The terrain at the intended sites of the mine and processing plant is relatively flat with elevations ranging from 26 to 164 feet above sea level. Certain parts of the Autazes Property are prone to seasonal flooding caused by high water levels in the nearby rivers, including the Amazon River and the Madeira River. We believe that the proposed surface infrastructure for the Autazes Project, including the mine shafts, processing plant and tailings sites, will be located at an elevation high enough to not be affected by seasonal flooding, as well as to withstand significant floods caused by water levels higher than seasonal averages. However, flooding can affect our potash transportation logistics.

The southern portion of the Autazes Property has the highest topographic elevations. Towards the northeast part of the Autazes Property, at the junction of the Amazon River and Madeira River, the elevation decreases and the relief becomes relatively uniform.

Two main types of ground features are found at the Autazes Property: the Amazon Plain and the Lower Amazon Plateau. The Amazon Plain corresponds to the areas that are most subject to flooding and is usually associated with the gleysols and fluvisols soil types. The Lower Amazon Plateau is characterized by soft hills, in which the acrisols and latosols soil types are present.

Prior History and Exploration

Prior to our development and planned operations, there is no recorded history of mining operations or development of mining infrastructure on the Autazes Property.

Potash exploration in the Amazon potash basin during the first exploration phase was commenced by Petrobras in 1973 and lasted until 1988. One of the holes drilled by Petrobras encountered a 9.8 feet thick potash-bearing horizon, which is the mineralized section. Between 1979 and 1983, Petrobras drilled 29 holes within the Fazendinha potash deposit, of which 12 intersected the mineralized section. During the same period, Petrobras drilled an additional 25 holes within the Arari potash deposit, of which 16 holes intersected the mineralized section. Both the Fazendinha and Arari potash deposits are located close to the Autazes Property.

Between 1989 and 2008, no exploration drilling for potash was performed in the Amazon potash basin. During that time, Falcon Metais Ltda. acquired mineral rights for portions of the Fazendinha and Arari potash deposits.

In 2000, during an exploration campaign for oil and gas, Petrobras conducted a 2D seismic survey in the vicinity of the Autazes Property consisting of three profiles, each in the northwest to southeast and southwest to northeast directions. The total length of these profiles was 22 miles. The distance between the parallel profiles

[Table of Contents](#)

was between 1.2 and 2.1 miles. The area covered by the overlapped profiles was only 3.1×3.1 miles (approximately 2.7 square miles). The seismic interpretation for the evaporite basin was prepared by our geologists.

For each profile, the base of the Andira Formation, Marker 10 (top of the rock salt), and Marker 11A (base of the rock salt) have been interpreted. An analysis identified rock salt in all profiles and determined that an extensive distribution of the rock salt was present at the Autazes Property. However, within a profile, the thickness of the rock salt can vary by up to 50%. Furthermore, fault structures within the Nova Olinda Formation were identified. However, a correlation of these recorded fault indications between the profiles is not possible in every case. Based on the specific rock mechanical properties of the rock salt and the sylvinite, it was assumed that such fault zones in the highly saline section of the sequence are not present as fractures, contrary to the representations in the profiles, but rather as folding and/or thickening or thinning of the rock salt sequence. Due to the inconclusive interpretation of the fault zones, such fault zones were initially excluded from the geological model. As such, we believed that it was necessary to conduct an additional 2D seismic survey as described below.

Site investigation of the Autazes Property, based on available data, was conducted by Potássio do Brasil Ltda. between 2007 and 2008. The first exploration hole at the Autazes Property was drilled by Potássio do Brasil Ltda. in 2009, and exploratory drilling activities continued intermittently at the Autazes Property until early 2016, during which 43 exploration holes were drilled. No further exploratory drilling activities have been conducted at the Autazes Property since 2016.

In 2015, we conducted a 2D seismic survey at the Autazes Property in order to obtain a better definition of the potash resources. Such 2D seismic survey consisted of a total of 15 seismic lines with a total length of approximately 77 miles, covering an area of approximately 46 square miles, and included a topographic survey to stack out and measure using spacing of 49 feet. The interpreted vertical seismic sections were provided by Geohub as distance-velocity profiles. Based on such interpretation and verification completed by Geohub, along with the independent verification of the uninterpreted profiles by ERCOSPLAN, we concluded that:

- The 2D seismic survey conducted by us in 2015 confirms in part the results of the 2D seismic survey conducted by Petrobras in 2000, showing that fault structures are present in the cross-cut of the evaporate sequence and partly continue into the evaporates and their footwall;
- The separate delineation of the sylvinite horizon and occurrence/non-occurrence within the rock salt sequence is suspected to be overinterpreted, as the low density contrast between the rock salt and the sylvinite is usually too small to provide sufficient contrast for delineation;
- The re-interpretation of the profiles by ERCOSPLAN slightly reduced the interpreted faults by Geohub to structures that can be clearly identified throughout several layers and are relevant for the potash-bearing horizon. However, the dip direction of the faults cannot be delineated with certainty, which affects the interpretation of relative movements in case of occurring vertical displacement; and
- Due to the resolution of our 2D seismic survey and the lack of seismic sections converted to vertical distance, the vertical offset along fault lines could not be quantified.

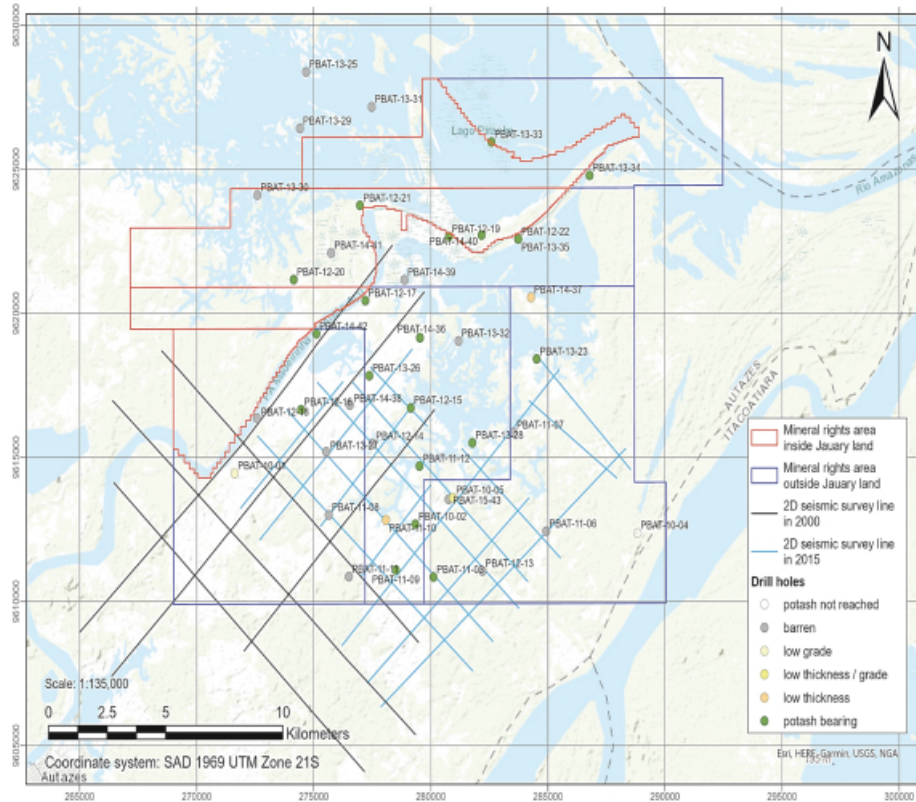
These conclusions are relevant for the current geological model of the potash deposit at the Autazes Property and our current Mineral Resource estimates.

Information obtained from our drilling activities and our 2D seismic survey was reviewed and interpreted by ERCOSPLAN. The quantity and quality of this information is classified by ERCOSPLAN as being sufficient to justify our Mineral Resource and Mineral Reserve estimates for the Autazes Property, in conjunction with the updated mine plan and modifying factors for the Autazes Property.

Drilling

In December 2009, we engaged the Boart Longyear company, an international diamond drilling contractor, to carry out exploratory drilling on the Autazes Property. The exploration campaign started with the drilling of hole PBAT-10-01 as a pilot hole close to historical hydrocarbon exploration hole 1-BRSA-112-AM, which was drilled by Petrobras in 2001. Exploration holes were also drilled by Geologia e Sondagens S.A. Drilling supervision, logging of drilled material, geophysical logging supervision, and monitoring of well casing installation were undertaken by Golder Associates. Hydrogeological test work was conducted by SRK Consulting (Canada).

To date, a total of 43 exploration holes have been drilled within and in the vicinity of the Autazes Property, which include good core recovery, geophysical well-logging in 29 exploration holes, and sampling and chemical/mineralogical assaying of obtained drill cores. The map below shows the seismic survey lines of the 2D seismic surveys conducted in 2000 and 2015, the locations of the exploration holes drilled by us, and the areas for which we have mineral rights.



[Table of Contents](#)

Based on information provided by us, a geophysical logging campaign was carried out for hole PBAT-15-43 in August, September and December 2015. A wireline log was executed over the complete section, recording natural gamma, caliper, borehole deviation, temperature, salinity, spontaneous potential, resistivity, and velocity. The table below shows the amalgamated lithological log of hole PBAT-15-43:

<u>Lithostratigraphical Horizon</u>	<u>Drill Hole Depth (from)</u>	<u>Drill Hole Depth (to)</u>
Solimões Formation	0.0 ft.	43.7 ft.
Alter Do Chão Formation	43.7 ft.	1,309.1 ft.
Andirá Formation	1,309.1 ft.	2,072.5 ft.
Nova Olinda Formation	2,072.5 ft.	2,300.2 ft.
	2,300.2 ft.	2,328.7 ft.
Volcanic intrusive (diabase sill)	2,328.7 ft.	3,117.8 ft.

The drill core descriptions for the exploration holes drilled by us have been provided to ERCOSPLAN. Drill cores of these exploration holes have been checked during repeated site visits undertaken by ERCOSPLAN, with the most recent visit in August 2022. Cored materials obtained from these exploration holes were used to determine the chemical and mineralogical composition of the deposit at the location of the corresponding individual exploration hole. The drill core descriptions, sampling procedures, and exploration hole documentation have been determined by ERCOSPLAN to be of high quality according to applicable international standards, and ERCOSPLAN is of the opinion that samples obtained from the cored materials are considered to be representative of the deposit and, as such, allow ERCOSPLAN to determine the representative chemical and mineralogical composition of the deposit at the location of each of the sampled exploration holes.

Present Condition

The areas of the Autazes Property where the planned mine entrance, processing plant, and port will be located were largely deforested several decades ago by its prior owners and are now primarily used for low density cattle farming. No work has been completed on the Autazes Property other than the exploration drill holes in connection with producing the Technical Report. There are no infrastructure, facilities, or equipment located on the Autazes Property.

Mining Rights

Our mineral rights for the Autazes Project are located in an area encompassing approximately 98 square miles located in the Amazon potash basin near the city of Autazes in the eastern portion of the state of Amazonas, Brazil, within the Central Amazon Basin, between the Amazon River and the Madeira River, approximately 75 miles southeast of the city of Manaus, northern Brazil. All mineral rights for the Autazes Project are held by our wholly-owned local subsidiary in Brazil, Potássio do Brasil Ltda., and are registered with the Brazilian National Mining Agency.

Following the completion of our exploration work for the Autazes Project, we submitted to the Brazilian National Mining Agency for approval, a final exploration report detailing the exploration activities conducted and attesting to the existence of the potash ore reserve. The Brazilian National Mining Agency approved our final exploration report in April 2015 based on objective criteria under the Brazilian Mining Code, and this approval enables us to request a Mining Concession. In addition, in December 2019, Potássio do Brasil Ltda. submitted to the Brazilian National Mining Agency our Initial Assessment and our Plan for Economic Development of the Deposit, which were approved by the Brazilian National Mining Agency in December 2020.

Ownership of Land

Under our current development plan for the Autazes Project, we intend to own, through Potássio do Brasil Ltda., 39 properties on which the facilities and infrastructure for the Autazes Project will be located. We

[Table of Contents](#)

currently have rights of access to 24 properties consisting of a total area of approximately 5.4 square miles, which include surface rights on the land on which our proposed mine shafts, processing plant, and port for the Autazes Project will be constructed. We believe that through administrative land regularization proceedings with Brazilian governmental agencies (such as the Brazilian Institute of Settlement and Land Reform, the Brazilian Ministry of Industry and Trade, and other agencies), we will be able to, and intend to, convert such current rights of access into ownership, through Potássio do Brasil Ltda., of these 24 properties. Additionally, in March, April and May 2024, we entered into agreements to lease, for a term of six years, the remaining 15 properties consisting of a total area of approximately 4.2 square miles, which are primarily the project sites for our dry stacked tailings piles (see also “Business—Foreign Investment Restrictions and Control—Foreign Investment Restrictions”). Each of these lease agreements also provides us with a right of first refusal to purchase the applicable leased property in the event of a sale of such property, and in connection with any such sale, we will be able to apply the aggregate amount paid under such lease agreement as a reduction in the sale price. To the extent we are unable to exercise the right of first refusal options for, or otherwise do not purchase, the 15 remaining properties, the Brazilian National Mining Agency is allowed to grant mining easements (servidões minerárias) in properties of third parties in relation to a given mining title, provided that such mining easement is necessary for the proper exploration and exploitation of the mineral deposit. After the granting of an easement by the Brazilian National Mining Agency, through the issuance of a “Public Utility Statement”, the holder of the mining title to which the Public Utility Statement refers must pay an indemnification amount to the owner of the servient property before entering such property. If such indemnification amount cannot be agreed upon between the holder of the mining title and the property owner, it will be determined by a court.

Once commercial production of potash commences, we will be required to pay financial compensation for such mineral exploitation (Compensação Financeira pela Exploração Mineral) in the form of a royalty (which we refer to as the “Mining Royalty”), currently at a rate of 2% of our gross revenue, which will be divided among various Brazilian federal, state and municipal governmental offices and agencies, including the Brazilian National Mining Agency and other environmental agencies, as determined by Brazilian law and regulations. Additionally, we will be required to pay a royalty equal to 50% of the Mining Royalty to the owners of surface rights of any land not owned by our Company or Potássio do Brasil Ltda.

Planned Operations

When the construction of the Autazes Project is completed, the Autazes Property will include a mine site, a processing plant site, a port site and other general facilities. Substantial work has been completed to develop and de-risk the Autazes Project, including public hearings, completion of our Initial Assessment, the Environmental and Social Impact Assessment, and the Technical Report, and the drilling of 43 exploration holes totaling approximately 121,000 feet, upon which the Mineral Resource and Mineral Reserve estimates in the Technical Report are based.

As of August 2024, we have received from the Brazilian Amazonas Environmental Protection Institute all of the 21 Construction Licenses required for the construction of the Autazes Project, and we have begun water source drilling for two potable water wells at the Autazes Project. Our current near-term goal is to start the primary construction of the other infrastructure areas of the Autazes Project, which we intend to start once sufficient funding is secured. We estimate that construction will take at least approximately four years to complete.

We believe that our mining operations will be at full capacity after a 36-month ramp-up period following the completion of construction of our mining facilities. Once our operations are at full capacity, we plan to mine up to approximately 9.4 million tons of run-of-mine (which we refer to as “ROM”) potash ore per year using a conventional underground room and pillar mining methods. The potash ore will be hoisted to the surface, at which point it will be crushed, ground and then hot leached to produce an average of approximately 2.4 million tons of granular MOP per year for an operational period of at least 23 years, including ramp-up and ramp-down periods.

Processing Plant

We have designed a processing plant, with an expected at-scale production capacity of up to approximately 2.7 million tons of MOP per year, based on processing up to approximately 9.4 million tons of ROM potash ore per year. We believe that our metallurgy and processing methods will allow us to achieve a metallurgical recovery rate of 90.8% and a MOP product grade of 95% purity.

This processing plant will contain two identical stand-alone trains. Each train will be fed ROM potash ore at a rate of 602 tons per hour through one double stage four roll crusher for primary crushing, and then through two-cage mill secondary crushers, which crush the ROM potash ore to less than four millimeters. Crushed potash ore will then be conveyed to the hot leach circuit, which utilizes a two stage arrangement of cascaded agitated leaching tanks, and then mainly KCl dissolves from the ROM potash ore into approximately 90°C leaching brine. Discharge from each leach stage will be classified in a bank of cyclones. Primary cyclone overflow will be clarified and then pumped to the crystallizer circuit. Discharge from the secondary cyclones will be filtered and forwarded to the tailings management area. A portion of the tailings will be sent underground as backfill with the objective to reduce the tailings stockpile size and as a side benefit, minimize underground subsidence. The remaining tailings will be deposited in open piles and converted to brine by natural dissolution caused by high precipitation. The brine will be collected in the storage ponds and later injected into an aquifer using brine injection wells, to depths between 1,000 to 1,300 feet to maintain water balance.

The clarified hot brine from the hot leach circuit will be cooled down in a seven-stage crystallizer circuit to approximately 45°C, causing the MOP to crystallize as a solid salt. The MOP is recovered from the cooled brine using cyclones and centrifuges. The brine (mother liquor) will be heated up to approximately 115°C and then sent back to the hot leach circuit as leaching brine. Centrifuge cake will be fed to a rotary dryer, dried and then conveyed to a compaction circuit consisting of four compactors, flake breakers, primary sizing screens, primary crushers, secondary screens, and secondary crushers. Screened product will be annealed or “glazed” in a fluid bed dryer/cooler. Annealed product will be screened and then stored before being dispatched to port via transport truck. Pertinent ancillary facilities will be included to provide reagent makeup, plant and instrument air, steam production, and cooling water. The processing plant will be equipped with a central control room containing operator and engineering workstations to optimize operation of the plant.

Infrastructure

The results of a geotechnical drilling program to evaluate surface and subsurface soil conditions at the planned mine, processing plant, and tailings management sites were used to establish the soil parameters for the design of the processing plant foundations and the tailings management facilities. A bathymetric study was conducted to define the contours of the riverbed close to the proposed location of the floating marine facility. Several earthworks will need to be carried out to prepare for the construction of the Autazes Project as designed. For example, the areas that make up the planned sites for the construction camp, mine, processing plant, tailings, port, service facilities, and road access will need to be cleared of trees, shrubs, and large boulders, and thereafter, rough graded and ditched prior to construction. A network of existing and new roads on the Autazes Property has been designed to provide access to all project sites. To handle uncontaminated and contaminated water from the Autazes Project, a site drainage system was designed according to established, preferred engineering practices, with an emphasis on environmental protection, which also took into account technical and safety criteria provided by Brazil’s National Water and Sanitation Agency (Agência Nacional de Águas e Saneamento Básico). The Autazes Project, when complete, will consist of 80 processing and auxiliary buildings and outdoor areas of varying sizes to provide other required services. The port facilities will include a private terminal on land owned by us, which is located outside of the public port area, on the left bank of the Madeira River, to handle the transportation of our potash product and other general cargo by waterway.

[Table of Contents](#)

The planned transportation infrastructure for the Autazes Project has been designed to transport by truck up to 2.7 million tons of granular MOP per year from the processing plant to the port, which will be sufficient to handle our expected production of an average of approximately 2.4 million tons of granular MOP per year. River access to the Autazes Project will be provided by the Madeira River, which will be used for further transportation of our potash product on barges through waterways.

The planned water supply system at the Autazes Project will be divided into two sub-systems. At the planned site of the processing plant, the industrial and process water supply system is designed for ten deep wells, while the potable and make-up steam plant water supply system is designed to be supplied from two deep wells. The Madeira River can also be used as an alternative source of water for the sites of the processing plant and mine, as the water intake system could be located at the port location, and water from the Madeira River could be drawn to the sites of the processing plant and mine via a 7.5-mile water pipeline.

The planned waste management infrastructure for the Autazes Project will consist of waste collection stations, a disposable material center, an industrial waste disposal center, a sewage treatment plant, and a sanitary landfill, and will handle the management and disposal of sanitary solid waste (including recyclable materials), domestic waste, waste produced at the processing plant, and hazardous waste.

The planned tailings management site at the Autazes Project will consist of two tailings piles, each with a usable volume of approximately 636.7 billion gallons. Each tailings pile will have two brine ponds to collect surface water. The entire tailings management site will be lined to manage surface water collection and prevent contamination of the surrounding soil and ground water.

The planned infrastructure of the Autazes Project also includes telecommunication facilities to support the construction and subsequent operations of the Autazes Project. A combination of telecommunication technologies (such as fiber optic backbone cabling, structure cabling infrastructure, an integrated voice and data network system, a radio system, a public address and general alarm system, a corporate security system, and a process monitoring closed-circuit television system) will be utilized to support all aspects of the engineering and operational requirements of the Autazes Project.

Power Supply

We expect that the power for the Autazes Project will be provided by a planned 500 kV power transmission line which will be an interconnection between an existing power station at Silves and a new power station at Autazes. We retained the services of FIGENER, an engineering and consultancy company that specializes in utilities and electric power systems, to perform an update on the plan for the power transmission line. The power station at Silves is connected to Brazil's national power grid and located in the Silves region, which is approximately 75 miles from the proposed location for our processing plant. Our connection point to Brazil's national power grid will need to be approved by the Brazilian authorities. The new station at Autazes will be connected to the station at Silves using an overhead transmission line crossing the Amazonas River. We believe that construction of the power transmission line will commence after we secure sufficient funding, and will take approximately three years to complete. Prior to the completion of the power transmission line, the construction of the Autazes Project will be powered through the use of diesel generators, which will subsequently serve as emergency back-up power sources once the power transmission line is in place.

[Table of Contents](#)

Estimated Costs and Economic Analysis

Estimated Capital Costs

The initial estimated capital costs for the Autazes Project (which do not include any sustaining capital expenditures), as included in the Technical Report, are broken out in the table below:

Area	Sub-Area	Total Costs (in millions (US\$))
Mining	Underground Mine	\$ 268.0
	Shafts	\$ 433.4
Processing Plant and Equipment	Site – General	\$ 68.3
	Processing Plant	\$ 608.7
	Tailing Management	\$ 72.1
	Utilities	\$ 69.9
	Ancillary Services	\$ 28.3
	Off-Site Facilities	\$ 221.7
Direct Costs		\$ 1,770.4
Indirect Costs		\$ 135.2
Owners Costs		\$ 165.8
Contingency		\$ 200.2
TOTAL PROJECT COSTS (<i>pre-tax</i>)		\$ 2,271.6
Taxes, Duties, Fees		\$ 219.3
TOTAL PROJECT COSTS (<i>after-tax</i>)		\$ 2,490.9

Estimated Operating Costs

The total operating costs for the Autazes Project are estimated to be between approximately \$70.80 to \$95.30 per ton of MOP over the life of the Autazes Project, after ramp-up is completed and during the years when production is at least 75% of the designed capacity of 2.7 million tons of MOP per year. The annual average of all operating costs, during the full run rate production period, is estimated to be approximately \$192.5 million on a pre-tax basis.

The following table shows a breakdown of the total operating costs based on a weighted average life of mine of 23 years, which is estimated to be \$78.70 per ton of MOP, excluding taxes:

Description	Operating Costs of MOP Production (\$ per ton of MOP)
Mine	17.40
Shaft	7.10
Processing	45.20
Tailings management and brine disposal	1.20
Logistics	4.30
Employee transportation and housing	0.90
General and administration	2.50
TOTAL	78.70

Economic Analysis

The economic analysis for the Autazes Project was completed by L&M Assessoria Empresarial (which we refer to as “L&M”), based on information provided by ERCOSPLAN (who was responsible for preparing the

[Table of Contents](#)

production schedule, and the estimated capital and operating costs for the mine, processing plant, infrastructure and port). The economic analysis is based on an average commodity price of \$459 per ton of MOP (based on the projected average Cost and Freight (CFR) price for granular potash delivered to Brazil from 2029 to 2051 and an assumed annual inflation rate of 5.8%), and a discounted cash-flow model developed by L&M to assess the key economic metrics and to identify and assess the key value drivers of the Autazes Project. From a technical operational point of view, it is a high-level model focused on detailed tax implications, with the resulting economics being appropriate for the current development phase of the Autazes Project.

Based on L&M's analysis, the following table presents, on a pre-tax and post-tax basis, the estimated (i) unlevered net present value of the Autazes Project using a discount rate of 8.1%; (ii) unlevered internal rate of return; (iii) average annual earnings before interest, taxes, depreciation and amortization (assuming full production); (iv) total undiscounted free cash flow generated over the life of the Autazes Project; and (v) start of the payback period (following the ramp-up period).

Financial Analysis	Pre-Tax⁽¹⁾	Post-Tax
NPV@8.1%	\$ 3.082 billion	\$ 2.498 billion
IRR	17.0%	15.8%
Profitability Ratio	156.8%	127.1%
EBITDA ⁽²⁾	\$ 0.973 billion	\$ 0.973 billion
Total Cash Flow	\$16.322 billion	\$13.879 billion
Payback ⁽³⁾	5.4 years	5.6 years

(1) Excludes recoverable and non-recoverable taxes.

(2) For years 4-20 of the Autazes Project, assuming full production.

(3) Undiscounted, after ramp-up period.

Mining Method

The mining method proposed for the Autazes Project is conventional room and pillar (long pillars at 5,000 feet) mining with two vertical shafts. One shaft will be used to hoist the potash ore and for manpower access, and the other shaft will be used primarily for ventilation. The main development room is intended to provide access to production panels, room for infrastructure and conveyors, and will consist of several intake and return airways. Production panels will be designed to maximize the extraction of ore and productivity, while maintaining a safe working environment. The design is primarily influenced by geotechnical modelling results and analysis. Extraction of the potash ore will be done using continuous miners feeding a conveyor system to the skips at the hoist shaft. This method of potash extraction is believed to be an established and well-developed technology for ore extraction, hauling and hoisting to the surface.

The schedule for the construction and operation of the mine consists of 1.5 years of pre-production, followed by a three-year ramp-up period to a target mining capacity of 9.4 million tons of ROM potash ore per year for 17 years, ramping down over a three-year period due to reserve/workplace limitations. Over the 17 year period of full run rate mining, we believe that the mine will supply the processing plant with an average of 9.2 million tons of ROM potash ore per year at an average KCl grade of 27.3%. Refrigeration and an elevated ventilation system are required to provide a compliant atmosphere for operations. Main fans will be located on the surface of the mine and will exhaust via the ventilation shaft (upcast shaft). There will be three fan-motor sets installed with all three operating, non-standby units.

The design for the backfill plant and the technical design of the backfill system for the Autazes Project were developed by ERCOSPLAN. The backfill plan developed for the Technical Report will be further detailed at the engineering, procurement, and construction management phase to reflect the then updated mine plan.

Mineral Processing and Metallurgical Testing

Comprehensive processing test work has been carried out to select the optimal processing method. Sylvite flotation, which is the most widely applied process method for sylvinitic type ores, was initially considered.

Table of Contents

However, in two different flotation tests, a suitable purity of the concentrated product could not be reached at an acceptable and proven recovery rate. In addition to NaCl and KCl (the typical main components of sylvinite), the potash ore at the Autazes Property contains relatively higher amounts of anhydrite and insoluble material which impedes concentration of KCl via flotation with sufficient performance. Therefore, another proven processing method using hot leaching followed by cooling crystallization was tested. The potash material can be leached out by hot leaching brine (heated mother liquor) with an appropriate composition. Thereupon, an almost KCl-and NaCl-saturated hot brine with some leaching residues, which mainly consist of NaCl, anhydrite and insolubles, is obtained. The hot brine is still accompanied by fine solid material (fine leaching residues), which has almost the same chemical constitution as coarse tailings. Such fine material can be separated off by a clarifying process using flocculation reagents.

Upon cooling the hot brine, wet solid material with approximately 93.4% KCl content is then dried to meet the required specification of at least 95% KCl content. The KCl grade of the potash product can be further improved to over 99% by washing it with brine of an appropriate composition. The table below shows the composition of the wet MOP material:

<u>Component</u>	<u>Without Washing</u>	<u>With Washing</u>
KCl	93.43%	99.44%
NaCl	3.84%	0.51%
MgCl ₂	0.17%	0.00%
MgSO ₄	0.00%	0.06%
CaSO ₄	1.50%	0.07%
H ₂ O insoluble	0.04%	0.04%
H ₂ O	1.62%	0.35%

The test work has proven that the hot leaching/crystallization method has the ability to achieve the required product purity and an acceptable recovery rate. Therefore, the hot leaching/crystallization method was chosen for the design of the production process.

ERCOSPLAN confirms that the hot leaching test work has been carried out with samples that are representative of the various types and styles of mineralization and the mineral deposit as a whole. ERCOSPLAN is of the opinion that the data collected in the test work are adequate for the Technical Report. After completion of its review of the mineral processing and metallurgical testing, ERCOSPLAN is of the opinion that the testing procedures and the interpretations and reporting of the results met standard industry practices.

Mineral Resource and Mineral Reserve Estimates

The effective date of the Mineral Resource and Mineral Reserve estimates is October 14, 2022, and such estimates are based on drilling 43 diamond core holes totaling approximately 121,000 feet on the Autazes Property. The Mineral Resource and Mineral Reserve estimates were calculated and reported in accordance with the SEC Mining Modernization Rules, which govern disclosure for registrants with material mining operations.

Since certain of the original mineral rights on the Autazes Property intersect with the Jauary indigenous land, such mineral rights were segregated, resulting in mineral rights located outside the Jauary indigenous land and mineral rights located inside of it. The Mineral Resource estimate was conducted with respect to all of the mineral rights on the Autazes Property, but for those mineral rights located inside the Jauary indigenous land only Inferred Mineral Resources are reported. Therefore, the Mineral Reserve estimates are only reported for the mineral rights located outside the Jauary indigenous land, as such mineral rights are the only mineral rights currently being permitted for Autazes Project.

Mineral Resource Estimates

The Technical Report classifies the potash mineralization in terms of “Measured Mineral Resources”, “Indicated Mineral Resources”, and “Inferred Mineral Resources”, each as defined under the SEC Mining

[Table of Contents](#)

Modernization Rules. Such classifications generally reflect the level of confidence in the extent and grade of the identified potash mineralization.

Based on the data density and accuracy of the geological model, it is in the opinion of ERCOSPLAN that:

- “Measured Mineral Resources” occur within a radius of 0.47 mile around an investigated drill hole;
- “Indicated Mineral Resources” occur within a radius of 0.93 mile around an investigated drill hole; and
- “Inferred Mineral Resources” occur within a radius of 1.24 miles around an investigated drill hole in the southern part of the Autazes Property, and within a radius of 1.55 miles around an investigated drill hole in the northern part of the Autazes Property, as the drill holes show a more continuous and homogenous distribution of ore deposits in the northern part of the Autazes Property (except for one drill hole due to its proximity to the barren zones in the southeastern part of the Autazes Property).

The following table shows the Mineral Resource estimates (excluding Mineral Reserves) at the Autazes Project:

<u>Resource Category</u>	<u>Tons⁽¹⁾ (millions)</u>	<u>KCl (%)</u>
Measured Mineral Resources (excluding Mineral Reserves)	18	22.5
Indicated Mineral Resources (excluding Mineral Reserves)	48	25.9
Inferred Mineral Resources (excluding Mineral Reserves)	107	30.3

(1) Reflects values in U.S. tons, which have been converted from metric ton measurements used in the Technical Report.

For the Mineral Resource estimates, all drill holes that occur within, and in the vicinity of, the Autazes Project, and that contain complete assaying data from the potash horizon, have been used. The Mineral Resource estimates are reported as in-situ mineralization without application of an extraction ratio, and are based on a (i) cut-off grade of 10% KCl, (ii) minimum thickness of 3.28 feet, (iii) process (metallurgical) recovery averaging 90.8%, and (iv) product price of \$381 per ton of MOP (which is the approximate average price of the long term forecasted Free On Board (FOB) real dollar price for granular potash from the Autazes Project for the 10 year period between 2028 to and including 2037 (as presented in CRU Consulting, “*Market Feasibility Study*”, September 2022)). For additional information regarding the Mineral Resource estimates, see also Chapter 11: Mineral Resource Estimates of the Technical Report (a summary of which is included as Exhibit 96.1 to our registration statement of which this prospectus forms a part).

Mineral Reserve Estimates

The following table shows the Mineral Reserve estimates at the Autazes Project:

<u>Reserve Category</u>	<u>Tons⁽¹⁾ (millions)</u>	<u>KCl (%)</u>
Proven Economically Recoverable Reserves	69	28.9
Probable Economically Recoverable Reserves	122	27.5
Proven and Probable Economically Recoverable Reserves	191	28.0

(1) Reflects values in U.S. tons, which have been converted from metric ton measurements used in the Technical Report.

The Mineral Reserve estimates are reported on a total production basis, and were derived by using the resource block model, which we provided to ERCOSPLAN, and the mine plan updated by ERCOSPLAN.

[Table of Contents](#)

During the pre-production phase (prior to ramp-up and full production), approximately 2.3 million tons of extracted ore are going straight to the tailings piles. The Mineral Reserve estimates are also based on data regarding our modelled parameters and values of resource blocks, rooms and pillars, polygons of mineral rights for the Autazes Project, and polygons of permitted land on the Autazes Property. Such data was intersected in ArcGIS Pro using the appropriate workflow for further analysis. In calculating the Mineral Reserve estimates, the following assumptions were used: (i) a cut-off grade of 10% KCl, (ii) minimum mining heights of five feet for the production panel rooms and 11.5 feet for the main drifts and panel development drifts, (iii) extraction ratios of 50 to 59% for the main drifts and panels, based on geotechnical factors, (iv) a process (metallurgical) recovery averaging 90.8%, (v) a product price of \$381 per ton of MOP (which is the approximate average price of the long term forecasted Free On Board (FOB) real dollar price for granular potash from the Autazes Project for the 10 year period between 2028 to and including 2037 (as presented in CRU Consulting, “*Market Feasibility Study*”, September 2022), (vi) the Mining Royalty, currently at rate of 2% of our gross revenue, which will be divided among various Brazilian federal, state and municipal governmental offices and agencies, as determined by Brazilian law and regulations, (vii) a royalty equal to 50% of the Mining Royalty to owners of surface rights of any land not owned by our Company or Potássio do Brasil Ltda., and (viii) operating costs associated with the mine plan. For additional information regarding the Mineral Reserve estimates, see also Chapter 12: Mineral Reserve Estimates of the Technical Report (a summary of which is included as Exhibit 96.1 to our registration statement of which this prospectus forms a part).

Internal Controls – Sample Preparation, Analysis and Data Verification

The chemical and mineralogical composition of the core materials obtained from our drill holes on the Autazes Property were determined by the Saskatchewan Research Council Laboratory in Canada (as the primary laboratory) and the K-UTEC Salt Technology Laboratory in Germany (as the secondary laboratory). Both laboratories are certified according to their respective national standards.

Core materials taken from our drill holes were inspected by ERCOSPLAN and determined to be of such quality that allows for samples for chemical and mineralogical assaying. The core material samples were packed with foil and sealed in plastic poly tubing, and these double-bagged samples were stored at the base camp until they were carefully packed into boxes and shipped via parcel service to the laboratories. After sampling, the remaining core material samples were secured and stored in an air-conditioned facility in the city of Autazes. In the opinion of ERCOSPLAN, these are the state of the art methods for transporting samples to a laboratory for test work and for storing remaining core material obtained from a potash deposit.

Samples were prepared by crushing and milling to the required grain sizes, and then diluted for analyses. The Saskatchewan Research Council Laboratory used inductively coupled plasma optical emission spectrometry and inductively coupled plasma mass spectrometry, and the K-UTEC Salt Technology Laboratory used flame emission spectrometry, atomic emission spectrometry and ion chromatography, as analytical techniques. For x-ray diffractometry, powdered samples were used.

Prepared samples were also analyzed for cations (K^+ , Na^+ , Mg^{2+} , Ca^{2+}) and anions (Cl^- , SO_4^{2-} and Br^-), as well as insoluble material.

With respect to data verification, the following three types of control samples were introduced in the quality control program: (i) blank samples (110 samples in total), (ii) standard samples (115 samples in total), and (iii) cross-check samples (129 samples in total). In the opinion of ERCOSPLAN, the results based on control samples do not indicate any peculiarities for blank and standard samples, and with respect to the cross-check samples, the results suggest that there is sufficient correlation between the analyses carried out by both laboratories with regard to the K^+ , Na^+ and Cl^- content of the samples. Distinctive discrepancies occurred with respect to the Ca^{2+} , SO_4^{2-} and insoluble content, which may have resulted from different sample preparation procedures.

In conclusion, ERCOSPLAN is of the opinion that the results of the quality control program show that:

- for the main components such as K^+ and Cl^- , no grade corrections in the data from the chemical assaying were required;

[Table of Contents](#)

- the discrepancies with respect to the Ca^{2+} , SO_4^{2-} and insoluble content do not affect the Mineral Resource and Mineral Reserve estimates; and
- the above-mentioned discrepancies do not affect the proposed processing options, as it does not matter whether the residue consists of calcium sulphates or insolubles.

The quality control measures of the exploration results were carried out according to international standards, and we believe reflect the reliability of the submitted exploration results. ERCOSPLAN is of the opinion that the results of the chemical assaying of the samples are adequate for purposes of the Technical Report.

Once commercial production of potash commences, we will be required to pay financial compensation for such mineral exploitation (Compensação Financeira pela Exploração Mineral) in the form of the Mining Royalty, currently at a rate of 2% of our gross revenue. Additionally, we will be required to pay a royalty equal to 50% of the Mining Royalty to the owners of surface rights of any land not owned by our Company or Potássio do Brasil Ltda.

For additional information regarding the Autazes Project and the Autazes Property, see Exhibit 96.1 (Technical Report Summary of the Autazes Potash Project—Pre-Feasibility Study) to our registration statement of which this prospectus forms a part.

MANAGEMENT

Our Board of Directors

Our board of directors is responsible for the general guidance of our business and ensuring that we meet our objectives, as well as for monitoring our performance and ensuring business continuity. Our board of directors is vested with broad powers to act on behalf of our Company and to perform or authorize all acts of administrative or ancillary nature necessary or useful to accomplish our corporate purpose. All powers not expressly reserved by law to our shareholders fall within the scope of our board of directors.

Our articles of incorporation provide that our board of directors will consist of a minimum of one director and a maximum of ten directors. Our board of directors has been empowered by our shareholders to determine by resolution from time to time the number of directors on our board of directors within the minimum and maximum numbers provided for in our articles of incorporation, provided, however, that our board of directors may not, between meetings of shareholders, increase the number of directors on our board of directors to a total number greater than one and one-third times the number of directors required to have been elected at the last annual meeting of shareholders. Our directors hold office until the next annual meeting of our shareholders and until their successors have been duly elected and qualified.

Our board of directors currently consists of six directors, of which four are considered “independent”, as determined in accordance with the listing standards established by the NYSE and the director independence standards set forth under Canadian National Instrument 58-101—*Disclosure of Corporate Governance Practices* and Section 1.4 of Canadian National Instrument 52-110—*Audit Committees* (which we refer to as the “Canadian Independence Standards”).

Our Executives and Directors

Executives

The following table sets forth the name, age, principal residence, position, and date of appointment of each of our executives as of the date of this prospectus.

Name	Age	Principal Residence	Position	Date of Appointment
Stan Bharti	71	Toronto, Ontario Canada	Executive Chairman	March 2009
Matthew Simpson	49	Pickering, Ontario, Canada	Chief Executive Officer	October 2014
Ryan Ptolemy	48	Toronto, Ontario Canada	Chief Financial Officer	July 2011
Neil Said	45	Toronto, Ontario Canada	Corporate Secretary	June 2018
Adriano Espeschit	58	Nova Lima, Minas Gerais, Brazil	President of Potássio do Brasil Ltda.	September 2021

[Table of Contents](#)

Directors

The following table sets forth the name, age, principal residence, position, term served, and year in which term expires of each of the directors on our board of directors as of the date of this prospectus.

<u>Name</u>	<u>Age</u>	<u>Principal Residence</u>	<u>Position</u>	<u>Current Term⁽¹⁾</u>	<u>Year in which Term Expires⁽¹⁾</u>
Stan Bharti	71	Toronto, Ontario Canada	Management Director	2024 - Present	2025
Matthew Simpson	49	Pickering, Ontario, Canada	Management Director	2024 - Present	2025
Deborah Battiston	66	Fort Erie, Ontario, Canada	Independent Director ⁽²⁾	2024 - Present	2025
Brett Lynch	61	Melbourne, Victoria, Australia	Independent Director ⁽²⁾	2024 - Present	2025
Pierre Pettigrew	73	Toronto, Ontario, Canada	Independent Director ⁽²⁾	2024 - Present	2025
Peter Tagliamonte	61	North Bay, Ontario, Canada	Independent Director ⁽²⁾	2024 - Present	2025

(1) Each of our directors will hold office until the 2025 annual meeting of our shareholders and until his or her successor has been duly elected and qualified.

(2) Determined to be independent pursuant to Rule 10A-3 under the Exchange Act, applicable NYSE listing standards, and the Canadian Independence Standards.

The business address of each of the individuals identified in the above table is 198 Davenport Road, Toronto, Ontario, Canada, M5R 1J2.

Biographical Information

The following is a summary of certain biographical information concerning our executives and directors.

Stan Bharti. Mr. Bharti has served as our Executive Chairman and a director on our board of directors since March 2009. Mr. Bharti has also been the Executive Chairman and President of Forbes & Manhattan, Inc., a global private merchant bank, since July 2001. He also served as the Executive Chairman of Sulliden Mining Capital Inc., a mining development company, from January 2016 to March 2023. Mr. Bharti also serves as a director on the boards of directors of several public and private companies. Mr. Bharti has over 30 years of experience in operations, public markets and finance. Over the last 15 years, he has been involved in acquiring, restructuring and financing resource companies. Mr. Bharti is a licensed Professional Mining Engineer, and holds a Master of Science degree in Engineering from Lumba University in Russia, and a Master of Science degree in Engineering from the University of London in England.

Matthew Simpson. Mr. Simpson has served as our Chief Executive Officer and a director on our board of directors since October 2014. Mr. Simpson has also been the Chief Executive Officer and a member of the board of directors of Black Iron, Inc., a Toronto Stock Exchange listed iron ore exploration and development company, since October 2010. Prior to joining our Company, Mr. Simpson worked for the Iron Ore Company of Canada (which we refer to as "IOC"), a subsidiary of Rio Tinto plc and Mitsubishi Corp, from 2002 to 2010. At IOC, he held several progressive roles in Business Evaluation, Operations Planning, Continuous Improvement, and, in his last three years, as Mine General Manager. His work with IOC primarily took place at their Carol Lake iron ore deposit in Labrador. Prior to joining IOC, Mr. Simpson worked as a process engineer for Hatch Ltd., designing and debottlenecking metallurgical refineries around the world. Mr. Simpson has extensive experience in mine design, operations and project management. Mr. Simpson holds a Bachelor of Science degree in Chemical Engineering, as well as a Master of Business Administration degree, from Queen's University in Canada.

Ryan Ptolemy. Mr. Ptolemy has served as our Chief Financial Officer since July 2011. Mr. Ptolemy is a Chartered Professional Accountant, Certified General Accountant, and CFA charter holder. Mr. Ptolemy is also the Chief Financial Officer of various Toronto Stock Exchange and Cboe Canada listed public companies in the investment, fintech, and mining industries, as part of the Forbes & Manhattan, Inc. group of companies, such as Aberdeen International Inc. (since October 2010), Belo Sun Mining Corp. (since March 2010), and DeFi

[Table of Contents](#)

Technologies Inc. (formerly known as Valour Inc.) (since October 2009). Mr. Ptolemy also served as the Chief Financial Officer of EV Technology Group Ltd. from November 2020 to March 2024, and Sulliden Mining Capital Inc. from June 2020 to January 2024. Mr. Ptolemy holds a Bachelor of Arts degree in Administrative and Commercial Studies from Western University in Canada.

Neil Said. Mr. Said has served as our Corporate Secretary since June 2018. Mr. Said has also been the corporate secretary of Belo Sun Mining Corp., a Toronto Stock Exchange listed mining company, since July 2020, and the chairman of BlueLake Minerals AB, a company that explores and develops mineral properties, since January 2019. Prior to that, Mr. Said served as the corporate secretary of several companies, including at Arena Minerals Inc. from July 2015 to November 2017, and Fura Gems Inc. from February 2013 to November 2017. Mr. Said is also a business executive and corporate securities lawyer who provides consulting services to various private companies and Toronto Stock Exchange, TSX Venture Exchange, Cboe Canada and Canadian Securities Exchange listed public companies in the mining, oil & gas, cannabis, gaming, and technology industries, as part of the Forbes & Manhattan, Inc. group of companies. Mr. Said previously worked as a securities lawyer at a large Toronto corporate law firm, where he worked on a variety of corporate and commercial transactions. Mr. Said holds a Bachelor of Business Administration (Honors) degree with a minor in Economics from Wilfrid Laurier University in Canada, and a Juris Doctor degree from the Faculty of Law at the University of Toronto in Canada.

Adriano Espescht. Mr. Espescht has served as the President of Potássio do Brasil Ltda., our wholly-owned local subsidiary in Brazil, since September 2021. Prior to joining Potássio do Brasil Ltda., Mr. Espescht was an Executive Director at J. Mendo Consultoria Ltda. from February 2010 to September 2021, an Operations Director at Mirabela Nickel from September 2008 to January 2010, a General Manager at the Mouth Keith Nickel Operations of BHP Billiton Australia from January 2007 to September 2008, a Project Leader at Shell Canada from November 2005 to December 2006 where he worked with the Fort McKay First Nation, and a General Manager at the Sossego Project at Vale S.A. from July 2000 to March 2005. Mr. Espescht has over 35 years of experience building and operating mines globally for international companies, including having been involved in several mutually successful consultations with indigenous communities and working as contract leader at the Petromisa Potash mine in Brazil. Mr. Espescht is a member of the Society for Mining Metallurgy and Exploration, the Canadian Institute of Mining, Metallurgy and Petroleum, and the Australian Institute of Mining and Metallurgy. Mr. Espescht holds a Bachelor of Science degree in Mining Engineering from the Federal University of Minas Gerais in Brazil, and a Master of Business Administration degree in Strategic Business Management from São Paulo University in Brazil.

Deborah Battiston. Ms. Battiston has served as a director on our board of directors since June 2024. Ms. Battiston has served as a director, a member of each of the compensation committee and governance committee, and the chairperson of the audit committee of McFarlane Lake Mining Limited since January 2023, and a director and a member of the audit committee of Savanna Capital Corp since February 2019. Ms. Battiston also has broad experience in the mineral resource mining and production sector, having served as the chief financial officer of a number of Canadian public mineral resource companies that are part of the Forbes & Manhattan, Inc. group of companies, including O2 Gold Inc. from January 2020 to January 2022, Jourdan Resources Inc. from June 2019 to January 2022, Q-Gold Resources Ltd. from June 2019 to January 2022, QMX Gold Corporation from September 2003 to September 2020, Sulliden Mining Capital Inc. from November 2014 to June 2020, and Allana Potash Corp. from December 2007 to January 2017. In particular, as the chief financial officer of Allana Potash Corp., she was involved in multiple equity raises for Allana, acquisitions by Allana of significant mining assets, including Nova-Ethio Potash Corporation, and the subsequent sale of Allana to Israeli Chemical Ltd., which is one of the largest potash producers in the world. Additionally, Ms. Battiston has over 35 years of experience in financial management, 24 years of which are in the public company sector, during which she served as the chief financial officer of a number of other Canadian public companies, including ARHT Media Inc. and Medivolve Inc. Ms. Battiston is a Chartered Professional Accountant (CPA) of Canada and holds an “Institute of Corporate Director-Director” (ICD.D) designation from the Rotman School of Management of University of Toronto. Ms. Battiston holds a Bachelor of Arts degree in Economics from the University of Guelph in Canada.

Brett Lynch. Mr. Lynch has served as a director on our board of directors since June 2024. Mr. Lynch currently is the Executive Chairman of Ionic Rare Earths Limited (ASX: IXR). Prior to Ionic Rare Earths, Mr. Lynch held various executive positions and director roles at several leading resources companies, including as the Chief Executive Officer and a managing director of Sayona Mining Limited from July 2019 to August 2023, the Chief Executive Officer and an executive director of Valley Longwall International Pty Ltd from November 2008 to July 2018, and a managing director of Australia of Schenck Process Pty Ltd. from July 2005 to June 2008. Mr. Lynch has over 30 years of experience in the global mining industry. Mr. Lynch received a Bachelor of Engineering degree in Mining (Honours) from the University of Melbourne and a Graduate Diploma of Business (Accounting) from Monash University. Mr. Lynch also received a Company Director Diploma from the Australian Institute of Company Directors.

Hon. Pierre Pettigrew. Mr. Pettigrew has served as a director on our board of directors since December 2010. Mr. Pettigrew has also been an Executive Advisor, International at Deloitte & Touche, LLP since October 2006, and has served as the chair of the board of the Asia Pacific Foundation of Canada since July 2019. Mr. Pettigrew also serves as a director on the boards of directors of several public companies. Prior to Deloitte & Touche, from January 1996 to February 2006, Mr. Pettigrew led a number of senior departments in the Government of Canada, and, among other positions, he has served as the Minister of Foreign Affairs, Minister for International Trade, Minister of Human Resources Development, and Minister of International Cooperation. Mr. Pettigrew was also part of the Government of Canada's Special Envoy for the Canada European Union Trade Agreement. Mr. Pettigrew holds a Bachelor of Arts degree in Philosophy from the University of Quebec in Trois-Rivieres in Canada and a Master of Philosophy degree in International Relations from the University of Oxford in the United Kingdom, and is a graduate of the Directors Education Program at the Rotman School of Management of the University of Toronto in Canada.

Peter Tagliamonte. Mr. Tagliamonte has served as a director on our board of directors since June 2024. Mr. Tagliamonte has also been a director at Belo Sun Mining Corp. (TSX: BSX.TO) since February 2010, where he also served as its Chief Executive Officer and President from August 2014 to May 2024. Prior to Belo Sun Mining, Mr. Tagliamonte was the Chief Executive Officer of Sulliden Gold Corp. from April 2009 to August 2014. Prior to Sulliden Gold Corp., Mr. Tagliamonte held various executive roles at several leading mining companies, including as the Chief Executive Officer and President of Central Sun Mining Inc. from May 2006 to March 2009, and as the Chief Operating Officer of Desert Sun Mining Corp. from November 2003 to April 2006, where he was instrumental in transforming the Jacobina Mine in Brazil into a substantial 4,600-ton output per day operation. Mr. Tagliamonte has over 35 years of experience in the global mining industry, with more than 20 years focused in Brazil as he is fluent in Portuguese, and his mining expertise encompasses specialized knowledge of underground mine development and shaft sinking. Mr. Tagliamonte received a Bachelor of Engineering degree in Mining Engineering from Laurentian University and a Master of Business Administration degree from Ivey Business School of Western University.

Cease Trade Orders, Bankruptcies, Penalties and Sanctions

None of our executives or directors is as of the date of this prospectus, or has been within the ten years before the date of this prospectus, a director, chief executive officer or chief financial officer of any company (including our Company) that was subject to one of the following orders, that was in effect for a period of more than 30 consecutive days:

- (i) a cease trade order, an order similar to a cease trade order, or an order that denied such company access to any exemption under securities legislation that was issued while such director, chief executive officer or chief financial officer was acting in the capacity as director, chief executive officer or chief financial officer; or
- (ii) a cease trade order, an order similar to a cease trade order, or an order that denied such company access to any exemption under securities legislation that was issued after such director or executive officer ceased to be a director, chief executive officer or chief financial officer and which resulted from an event that occurred while such person was acting in the capacity as director, chief executive officer or chief financial officer.

None of our executives, directors, or shareholders holding a sufficient number of securities to materially affect control of our Company:

- (a) is, as of the date of this prospectus, or has been within the ten years before the date of this prospectus, a director or executive officer of any company (including our Company) that, while such person was acting in that capacity, or within a year of such person ceasing to act in that capacity, became bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, was subject to or instituted any proceedings, arrangement or compromise with creditors, or had a receiver, receiver manager or trustee appointed to hold its assets;
- (b) has, within the ten years before the date of this prospectus, become bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, become subject to or instituted any proceedings, arrangement or compromise with creditors, or had a receiver, receiver manager or trustee appointed to hold the assets of such person; or
- (c) has been subject to any penalties or sanctions imposed by a court relating to securities legislation or by a securities regulatory authority, has entered into a settlement agreement with a securities regulatory authority, or has been subject to any other penalties or sanctions imposed by a court or a regulatory body that would likely be considered important to a reasonable investor in making an investment decision.

Director Independence

Under the NYSE listing rules, an independent director is defined as a person who, in the opinion of our board of directors, has no material relationship with our Company. Under the Canadian Independence Standards, a director is considered to be independent if he or she is free from any direct or indirect material relationship with our Company which could, in the view of our board of directors, be reasonably expected to interfere with the exercise of such director's independent judgement.

Our board of directors consists of six directors. Based on the independence standards of the NYSE listing rules and the Canadian Independence Standards, information provided by each director concerning his or her background, employment and affiliations, current and prior relationships that each director has or had with our Company, and all other facts and circumstances that our board of directors deem relevant, our board of directors has determined that of the six directors on our board of directors, Deborah Battiston, Brett Lynch, Pierre Pettigrew, and Peter Tagliamonte are considered independent, and Stan Bharti and Matthew Simpson are not considered independent, given Messrs. Bharti's and Simpson's respective positions as executives of our Company. For additional information regarding certain relationships and related party transactions involving our directors, see also "—Certain Relationships" below and "Certain Relationships and Related Party Transactions".

Certain members of our board of directors are also members of the board of directors of other public companies. See "—Participation of Directors in Other Reporting Issuers" below. Our board of directors has not adopted a director interlock policy but is keeping informed of other public directorships held by our directors.

Lead Independent Director

As Stan Bharti, our Executive Chairman, is not considered to be independent based upon the independence standards of the NYSE listing rules and the Canadian Independence Standards, our board of directors has appointed Deborah Battiston as the lead independent director of our board of directors (which we refer to as the "Lead Independent Director"), who is responsible for ensuring that the independent directors have opportunities to meet without management or non-independent directors present, as necessary, and that our board of directors functions independent of our Company's management. The Lead Independent Director may be appointed and replaced from time to time by our board of directors. We have adopted a written mandate of the Lead Independent Director, which sets forth his or her key responsibilities.

[Table of Contents](#)

Participation of Directors in Other Reporting Issuers

The following directors of our Company hold directorships in other reporting issuers (or the equivalent) in a jurisdiction of Canada or another foreign jurisdiction:

Director	Name of Other Reporting Issuer(s)	Stock Exchange(s)
Stan Bharti	Aberdeen International Inc.	TSX
Matthew Simpson	Black Iron, Inc.	TSX
Deborah Battiston	Savanna Capital Corp.	TSX-V
	McFarlane Lake Mining Limited	Cboe Canada
	Euro Sun Mining Inc.	TSX
Brett Lynch	Ionic Rare Earths Limited	ASX
Pierre Pettigrew	Belgravia Hartford Capital Inc.	CSE
	Black Iron, Inc.	TSX
	Troilus Gold Corp	TSX
Peter Tagliamonte	Belo Sun Mining Corp.	TSX

Family Relationships

There are no familial relationships among any of our directors or executives.

Conflicts of Interest

To the best of our knowledge, except as disclosed elsewhere in this prospectus, we are not aware of any existing or potential material conflicts of interest between our Company and any of our directors or executives as of the date of this prospectus. Some of our directors and executives are or may be engaged in business activities on their own behalf and on behalf of other companies, and situations may arise where some of our directors or executives may be in a potential conflict of interest with our Company. Conflicts, if any, will be subject to the procedures and remedies under the OBCA.

Our directors are required by law to act honestly and in good faith with a view to the best interests of our Company, and to disclose any interests which they may have in any project or opportunity of our Company. If a conflict of interest arises in respect of any matter, any such director in such conflict of interest will be required to disclose his or her interest and abstain from voting on such matter.

Indebtedness of Directors, Executives and Employees

Other than as disclosed in this prospectus, none of our directors, executives, or employees or any of their respective affiliates is indebted to our Company or has been subject to a guarantee, support agreement, letter of credit or similar arrangement or understanding provided by our Company or Potássio do Brasil Ltda. Additionally, no individual who is, or at any time during our last fiscal year was, a director, or executive of our Company, or affiliate of any such director or executive, is as of the date hereof, or at any time since the beginning of our last fiscal year has been, indebted to our Company or Potássio do Brasil Ltda., or to another entity where the indebtedness to such other entity is the subject of a guarantee, support agreement, letter of credit or other similar arrangement or understanding provided by our Company or Potássio do Brasil Ltda., including indebtedness for purchases of securities or any other programs. For additional information, see “—Certain Relationships” below and “Certain Relationships and Related Party Transactions”.

Certain Relationships

We previously entered into loan agreements with Aberdeen International Inc., an entity affiliated with Stan Bharti (our Executive Chairman) and Ryan Ptolemy (our Chief Financial Officer), and Sulliden Mining Capital Inc., an entity previously affiliated with Stan Bharti (our Executive Chairman) and Ryan Ptolemy (our Chief Financial Officer), pursuant to which we borrowed an aggregate amount of \$867,000. In November 2021, we repaid in full all principal and accrued interest due and payable under such loan agreements. See “Certain Relationships and Related Party Transactions—Loans from Related Parties.”

[Table of Contents](#)

We have entered into consulting agreements with each of our executives (or a respective entity affiliated with such executive). See “Executive and Director Compensation—Executive Compensation—Consulting Agreements.”

We have entered into stock option agreements with our directors and executives in connection with grants by us to our directors and executives of stock option awards under our Stock Option Plan. See “Executive and Director Compensation—Stock Option Plan.”

In connection with certain business travel by our management team, we use charter flight services provided by Tali Flying LP, an entity for which Stan Bharti (our Executive Chairman) serves as a director. During the years ended December 31, 2023, 2022 and 2021, we incurred travel expenses payable to Tali Flying LP in the aggregate amount of approximately \$47,000, \$1.8 million and \$0.2 million, respectively. See “Certain Relationships and Related Party Transactions—Certain Travel Expenses.”

Other than our entry into the foregoing referenced agreements and transactions with our directors and executives, none of our directors or executives have been involved in any transactions with our Company, any of our other directors or executives, or any of our affiliates or associates which are required to be disclosed pursuant to the rules and regulations of the SEC.

Corporate Governance Practices

The NYSE listing rules include certain accommodations in its corporate governance requirements that allow foreign private issuers, such as our Company, to follow “home country” corporate governance practices in lieu of the otherwise applicable corporate governance standards of the NYSE.

We currently intend to follow the NYSE corporate governance requirements, except for the general requirement set forth in Section 310.00 of the NYSE listing rules that a listed company’s bylaws provide for a quorum for any meeting of the holders of the company’s voting shares that is sufficiently high to ensure a representative vote. Our bylaws provide that the holders of not less than 10% of the shares entitled to vote at a meeting of shareholders, present in person or represented by proxy, shall constitute a quorum.

Except as noted above, we currently intend to comply with all of the other corporate governance standards of the NYSE generally applicable to U.S. domestic companies listed on the NYSE. We may in the future decide to take advantage of other foreign private issuer exemptions with respect to some of the other corporate governance standards of the NYSE. Following our home country governance practices, as opposed to the corporate governance requirements that would otherwise apply to U.S. domestic companies listed on the NYSE, may provide our shareholders with less protection than is accorded to shareholders of companies that are subject to all of the corporate governance standards of the NYSE.

Code of Business Conduct and Ethics

Our board of directors has adopted a Code of Business Conduct and Ethics that outlines the basic principles and policies with which all of our directors, executives, officers (including our principal executive officer, principal financial and accounting officer, and other persons performing similar functions), employees, and designated agents are expected to comply, and to aid such persons in making ethical and legal decisions when conducting our business and performing their day-to-day duties. Our Code of Business Conduct and Ethics has been established pursuant to applicable U.S. and Canadian securities laws and applicable listing rules of the NYSE. See also “Business—Environmental, Social and Governance—Governance.”

Board Mandate

We have not adopted a formal written mandate with respect to our board of directors. Our board of directors is responsible for supervising the management of our business and affairs, including providing guidance and strategic oversight to management. Our board of directors discharges some its responsibilities through each of its standing committees.

Role of our Board of Directors in Risk Oversight

Our board of directors oversees our business and considers the risks associated with our business strategy and decisions. One of the key functions of our board of directors is informed oversight of our risk management process. Our board of directors currently implements its risk oversight function as a whole. Each of the three standing committees (the audit committee, the compensation committee, and the nominating and corporate governance committee) of our board of directors also provides risk oversight in respect of its respective areas of concentration and reports material risks to our board of directors for further consideration. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure, including risks associated with operational, governmental, environmental, legal, corporate governance, financial, credit and liquidity matters, evaluating our risk management processes, allocating responsibilities for risk oversight among the full board of directors and the three standing committees, and fostering an appropriate culture of integrity and compliance with legal obligations. In addition, our board of directors receives periodic detailed operating performance reviews from our management.

Our audit committee has the responsibility to consider and discuss our major financial risk exposures and the steps our management takes to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. Our audit committee also monitors legal, regulatory and compliance matters that could have a significant impact on our financial statements, in addition to oversight of the performance of our internal audit function. Our compensation committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking. Our nominating and corporate governance committee provides oversight with respect to corporate governance and ethical conduct and monitors the effectiveness of our corporate governance guidelines, including whether such guidelines are successful in preventing illegal or improper liability-creating conduct. While each standing committee of our board of directors is responsible for evaluating certain risks and overseeing the management of such risks, our entire board of directors is regularly informed through committee reports about such risks.

Orientation and Continuing Education

We have not adopted a formal orientation and continuing education program for new directors. Although we do not have formal orientation and training programs, new members of our board of directors are provided with: (i) information regarding the functioning of our board of directors and its committees, as well as copies of all of our corporate governance policies; (ii) access to our recent, publicly filed documents and our internal financial information; (iii) access to our management, technical experts and consultants; and (iv) a summary of significant corporate and securities responsibilities.

Position Descriptions

We do not intend to adopt written position descriptions for the chairperson of our board of directors or the chairperson of each committee of our board of directors, nor do we intend to adopt a written position description for our Chief Executive Officer, although written position descriptions may be developed in the future.

With respect to the chairperson of our board of directors and the chairperson of each committee of our board of directors, we expect such chairpersons to assume a leadership role on our board of directors and on each committee, respectively. With respect to our Chief Executive Officer, the scope and duties of our Chief Executive Officer include, among other things, strategic planning, corporate and business development, capital financing, and value creation. Our Chief Executive Officer is subject to the oversight of our board of directors. We believe that the roles and responsibilities of each of the respective chairpersons and of our Chief Executive Officer are well understood by them and by our board of directors as a whole.

Director Term Limits and Other Mechanisms of Board Renewal

We have not adopted term limits for the directors on our board of directors or other mechanisms of board renewal, as our board of directors is of the view that directors who have served on our board of directors for an

[Table of Contents](#)

extended period of time are able to provide continuity and valuable insight into our Company and our operations and prospects based on their experience with, and understanding of, our history, policies, and objectives.

Diversity

We believe that having a diverse board of directors can offer a breadth and depth of perspectives that enhance the performance of our board of directors. Our nominating and corporate governance committee values diversity of abilities, experience, perspective, education, gender, background, race and national origin. Recommendations concerning director nominees are based on merit and past performance, as well as expected contributions to the performance of our board of directors, and, accordingly, diversity is taken into consideration.

We similarly believe that having a diverse and inclusive organization overall is beneficial to our success, and we are committed to diversity and inclusion at all levels of our organization to ensure that we attract, retain and promote the brightest and most talented individuals. We have recruited and selected senior management candidates that represent a diversity of business understanding, personal attributes, abilities, and experience.

We have not adopted a formal policy with respect to the identification and nomination or appointment of women and of other diverse candidates to our board of directors or our senior management team. Our nominating and corporate governance committee and our senior executives take gender and other diversity representation into consideration as part of their overall recruitment and selection process. We have not adopted targets for gender or other diversity representation in part due to the need to consider a balance of criteria for each individual appointment. We do not believe that quotas or strict rules set out in a formal policy would result in improved identification or selection of the best candidates. Quotas based on specific criteria would limit our ability to ensure that the overall composition of our board of directors and senior management team meets the needs of our organization and our shareholders.

We currently have three women on our board of directors (representing 43% of our directors), and our board of directors is committed to maintaining or increasing the number of women on our board of directors as board turnover occurs from time to time, taking into account the skills, background, experience and knowledge desired at a particular time by our board of directors and its committees. We do not currently have any women on our senior executive team.

Meetings of Our Board of Directors

Prior to the consummation of this offering, our board of directors held meetings on an as needed basis from time to time. During the 2023 fiscal year, our board of directors held six meetings and our independent directors held one meeting, and during the period from January 1, 2024 to the date of this prospectus, our board of directors has held _____ meetings. Following the consummation of this offering, our board of directors intends to hold regularly scheduled meetings at least once every quarter, as well as additional meetings on an as needed basis from time to time.

The following table summarizes the attendance record of each then member of our board of directors at the meetings of our board of directors held during the year ended December 31, 2023:

<u>Director</u>	<u>Meetings Attended</u>
Stan Bharti	Six out of six meetings
Matthew Simpson	Six out of six meetings
Carmel Daniele ⁽¹⁾	Six out of six meetings
Andrew Pullar ⁽¹⁾	Six out of six meetings
Pierre Pettigrew	Six out of six meetings
David Gower ⁽¹⁾⁽²⁾	Five out of six meetings

(1) Such individual was not nominated for reelection as a director at our 2024 annual meeting of our shareholders.

(2) In June 2024, David Gower resigned from his position as the President of our Company.

[Table of Contents](#)

With respect to the one meeting of our independent directors held during the year ended December 31, 2023, Carmel Daniele and Pierre Pettigrew attended, and Andrew Pullar did not attend.

Executive Sessions of our Independent Directors

To enhance the ability of our board of directors to exercise independent judgment, the independent directors on our board of directors meet in regular executive sessions, without the non-independent directors and members of our management, before or after each regularly scheduled meeting of our board of directors. We believe that open and candid discussion among our independent directors is facilitated by the relatively small size of our board of directors, and our board of directors, as a whole, attributes significant value to the views and opinions of our independent directors. Deborah Battiston, as the Lead Independent Director, leads the meetings of our independent directors to discuss any matters as our independent directors consider appropriate.

Committees of our Board of Directors

Audit Committee

Our audit committee is comprised of three independent directors, Deborah Battiston, Brett Lynch and Peter Tagliamonte, with Ms. Battiston serving as chairperson of our audit committee. Our board of directors has determined that each member of our audit committee meets the independence requirements of Rule 10A-3 under the Exchange Act, the applicable NYSE listing rules and the Canadian Independence Standards, and has sufficient knowledge in financial and auditing matters to serve on our audit committee. In addition, our board of directors has determined that each member of our audit committee is “financially literate” within the meaning under the applicable NYSE listing rules and the Canadian Independence Standards. For additional details regarding the relevant education and financial and accounting related experience of each member of our Audit Committee, see also “—Biographical Information” above.

Our board of directors has also determined that Deborah Battiston is an “audit committee financial expert” within the meaning under the applicable SEC regulations and NYSE listing rules. Ms. Battiston has over 35 years of experience in financial management, 24 years of which are in the public company sector, during which she served as the chief financial officer of a number of Canadian public companies, including ARHT Media Inc., O2 Gold Inc., Jourdan Resources Inc., Q-Gold Resources Ltd., QMX Gold Corporation, Sulliden Mining Capital Inc., and Allana Potash Corp.

Our audit committee’s responsibilities are to oversee, review, act on and report on various auditing and accounting matters to our board of directors, including:

- our financial reporting, auditing and internal control activities;
- the integrity and audits of our financial statements;
- the scope of our annual audits;
- the appointment, qualifications, and independence of, and compensation to, our independent auditors; and
- the performance of our accounting practices and internal audit function and our independent auditors.

In addition, our audit committee is responsible for the pre-approval of all non-audit services to be provided to us by our independent auditors. Furthermore, our audit committee oversees our compliance programs relating to legal and regulatory requirements. We have adopted an audit committee charter defining our audit committee’s primary duties in a manner consistent with the rules of the SEC and applicable NYSE listing standards.

[Table of Contents](#)

External Auditor Service Fees

MNP LLP

MNP LLP has served as the registered public accounting firm for our Company since February 15, 2022. During the 2023 and 2022 fiscal years, MNP LLP billed us the following fees:

	Fiscal Year	
	2023 ⁽¹⁾	2022 ⁽²⁾
Fees for audit services	\$ 100,743	\$ 107,122
Fees for assurance and related services related to the audit	—	—
Fees for tax compliance, tax advice, and tax planning	5,312	1,785
Fees for any other services not included above ⁽³⁾	68,414	49,671
Total fees for the year	\$ 174,469	\$ 158,578

(1) Represents the fees that were paid in Canadian dollars, as converted into U.S. dollars based on the currency exchange rate between the Canadian dollar and the U.S. dollar on December 29, 2023.

(2) Represents the fees that were paid in Canadian dollars, as converted into U.S. dollars based on the currency exchange rate between the Canadian dollar and the U.S. dollar on December 30, 2022.

(3) Fees for services related to this offering.

Compensation Committee

Our compensation committee is comprised of three independent directors, Deborah Battiston, Pierre Pettigrew and Peter Tagliamonte, with Mr. Pettigrew serving as chairman of our compensation committee. Each member of our compensation committee is a non-employee director, as defined under Rule 16b-3 under the Exchange Act, and an outside director, as defined under Section 162(m) of the Internal Revenue Code of 1986, as amended. Our board of directors has determined that each member of our compensation committee is “independent” within the meaning of applicable NYSE listing rules and the Canadian Independence Standards. The composition of our compensation committee meets the requirements for independence under the NYSE listing rules, including the applicable transition rules.

Our compensation committee’s responsibilities are to:

- review and approve on an annual basis the corporate goals and objectives relevant to executive compensation, and evaluate the performance of our executives in light of such goals and objectives;
- review and approve, or recommend that our board of directors approve, the compensation and terms of other compensatory arrangements with our chief executive officer and other executives;
- review and recommend to our board of directors the compensation of our non-employee directors;
- administer our incentive compensation and benefit plans;
- select and retain independent compensation consultants; and
- assess whether any of our compensation policies and programs has the potential to encourage excessive risk-taking.

We have adopted a compensation committee charter defining our compensation committee’s primary duties in a manner consistent with the rules of the SEC and applicable NYSE listing standards.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee is comprised of three independent directors, Deborah Battiston, Brett Lynch and Pierre Pettigrew, with Mr. Lynch serving as chairperson of our nominating and corporate governance committee. Our board of directors has determined that each member of our nominating and corporate governance committee is “independent” within the meaning of applicable NYSE listing rules and the Canadian Independence Standards.

[Table of Contents](#)

Our nominating and corporate governance committee's responsibilities are to:

- consider and make recommendations to our board of directors regarding the organization, function and composition of our board of directors and its committees;
- identify, evaluate and recommend qualified director nominees to serve on our board of directors;
- oversee an annual evaluation of the performance of our board of directors;
- oversee our internal corporate governance processes;
- review and, if appropriate, recommend to our board of directors changes to, our corporate governance policies and procedures; and
- review and approve or disapprove of related party transactions.

Our nominating and corporate governance committee assists our board of directors in selecting individuals qualified to become our directors and in determining the composition of our board of directors and its committees. In identifying new candidates for our board of directors, our nominating and corporate governance committee considers which competencies and skills our board of directors, as a whole, should possess, and assesses which competencies and skills each existing director possesses, considering our board of directors as a whole, as well as the personality and other qualities of each existing director, as these may ultimately shape and lead to a productive boardroom dynamic. When determining the composition of our board of directors and the appropriate candidates to be nominated for election as directors at the annual meetings of our shareholders, our nominating and corporate governance committee will also take into account our desired goal of having our board of directors reflect a balance of skills, experiences, backgrounds, and diversity.

Additionally, our nominating and corporate governance committee develops and recommends processes for assessing the performance and effectiveness of our board of directors and the committees of our board of directors, and reports the results of such assessments to our board of directors on an annual basis for further discussion as appropriate. Such assessments will consider, among other things, the independence of individual directors, the skills of individual directors and of our board of directors overall, and the financial literacy of individual directors. Our board of directors receives and considers the recommendations from our nominating and corporate governance committee regarding the results of the assessments of the performance and effectiveness of our board of directors, the committees of our board of directors, individual directors, the Lead Independent Director, our Executive Chairman, and the chairpersons of the committees of our board of directors.

We have adopted a nominating and corporate governance committee charter defining our nominating and corporate governance committee's primary duties in a manner consistent with the rules of the SEC and applicable NYSE listing standards.

EXECUTIVE AND DIRECTOR COMPENSATION

2023 Summary Compensation Table

The following table sets forth information regarding the compensation we paid to our executives and directors for the year ended December 31, 2023:

Name and Principal Position(s)	Year	Salary (\$)	Bonus (\$)	Share Awards (\$)	DSU Awards (\$)	Option Awards (\$)	All Other Compensation (\$)	Total (\$)
Executives:								
Stan Bharti Executive Chairman and Director	2023	579,996 ⁽¹⁾	2,000,000 ⁽²⁾	—	—	—	—	2,579,996
Matthew Simpson Chief Executive Officer and Director	2023	650,000 ⁽³⁾	500,000 ⁽⁴⁾	—	—	—	—	1,150,000
David Gower ⁽⁵⁾⁽⁶⁾ Former President and former Director	2023	—	—	—	—	—	—	—
Ryan Ptolemy Chief Financial Officer	2023	120,000 ⁽⁷⁾	130,000 ⁽⁴⁾	—	—	—	—	250,000
Neil Said Corporate Secretary	2023	120,000 ⁽⁸⁾	150,000 ⁽⁴⁾	—	—	—	—	270,000
Adriano Espeschit President of Potássio do Brasil Ltda.	2023	148,392 ⁽⁹⁾	150,000 ⁽⁴⁾	—	800,000 ⁽¹⁰⁾	—	—	1,098,392
Directors:								
Carmel Daniele ⁽⁶⁾ Independent Director	2023	—	—	—	—	—	—	—
Pierre Pettigrew Independent Director	2023	100,000	—	—	—	—	—	100,000
Andrew Pullar ⁽⁶⁾ Independent Director	2023	—	—	—	—	—	—	—

(1) Represents the aggregate amount of the base fee earned in 2023 by, and paid by us to, Forbes & Manhattan, Inc. (a company for which Stan Bharti serves as its executive chairman) under the F&M Consulting Agreement (as defined and described under “—Executive Compensation—Consulting Agreements—Forbes & Manhattan, Inc.; Stan Bharti” below).

(2) Paid to Forbes & Manhattan, Inc. (a company for which Stan Bharti serves as its executive chairman). See Note 18 to our audited condensed consolidated financial statements as of and for the years ended December 31, 2023 and 2022, included elsewhere in this prospectus.

(3) Represents the aggregate amount of the base fee earned in 2023 by, and paid by us to, Iron Strike Inc. (a company controlled by Matthew Simpson) under the Iron Strike Consulting Agreement (as defined and described under “—Executive Compensation—Consulting Agreements—Iron Strike Inc.; Matthew Simpson” below).

(4) Represents a discretionary cash bonus that we paid to such executive.

(5) In June 2024, David Gower resigned from his position as the President of our Company.

(6) Such individual was not nominated for reelection as a director at our 2024 annual meeting of our shareholders.

(7) Represents the aggregate amount of the base fee earned in 2023 by, and paid by us to, Ryan Ptolemy under the Ptolemy Consulting Agreement (as defined and described under “—Executive Compensation—Consulting Agreements—Ryan Ptolemy” below).

[Table of Contents](#)

- (8) Represents the aggregate amount of the base fee earned in 2023 by, and paid by us to, Neil Said under the Said Consulting Agreement (as defined and described under “—Executive Compensation—Consulting Agreements—Neil Said” below).
- (9) Represents the aggregate amount of the base fee (converted into U.S. dollars based on the currency exchange rate between the Brazilian real and the U.S. dollar on December 29, 2023) earned in 2023 by, and paid by us to, J. Mendo Consultoria Empresarial Ltda. under the Espeschit Consulting Agreement (as defined and described under “—Executive Compensation—Consulting Agreements—J. Mendo Consultoria Empresarial Ltda.; Adriano Espeschit” below).
- (10) Represents the fair value of the Common Shares underlying the DSUs as of the date of grant. Such fair value of the DSUs was determined based on the estimated fair market value per underlying Common Share of \$4.00 as of the date of grant. For additional information, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies; Estimates—Share-based Payments and Warrants”, and Note 13 to our audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022, included elsewhere in this prospectus.

Executive Compensation

We operate in a constantly evolving landscape, and we believe that attracting a highly talented team of executives is critical to our success. Our executive compensation program is designed to achieve the following objectives:

- provide market-competitive compensation in order to attract, retain and reward qualified, experienced, high-performing and goal-driven executives, whose knowledge, skills and performance are critical to our success; and
- motivate our executives to achieve and exceed our business and financial expectations and objectives within a calculated risk framework.

Upon the completion of this offering, we intend to expand our executive compensation program to include more consistent equity incentive compensation awards as part of the overall compensation of our executives to achieve the following additional objectives:

- align the interests of our executives with those of our shareholders by tying a meaningful portion of compensation directly to the long-term value and growth of our business; and
- provide incentives that encourage appropriate levels of risk-taking by our executives and provide a strong pay-for-performance relationship.

Our executive compensation program includes cash compensation in the form of base fees under consulting agreements, and, upon the completion of this offering, we expect that it will more consistently include long-term incentives in the form of grants of incentive awards under our 2024 Incentive Compensation Plan. We provide base fees under consulting agreements, which are designed to be aligned with the competitive market based on internal industry analysis, to compensate our executives for their day-to-day responsibilities.

In our transition from a privately-held company to a publicly-traded company, our compensation committee will continue to evaluate our executive compensation philosophy and executive compensation program as circumstances require, and plan to continue to review executive compensation on an annual basis. As part of this review process, we expect our compensation committee to be guided by the philosophy and objectives outlined above, as well as other factors which may become relevant, such as the cost to us if we were required to find a replacement for a key executive. We expect that the executive compensation program will be designed to motivate our executives to achieve our business and financial objectives, as well as to align their interests with the long-term interests of our shareholders.

Consulting Agreements

We have not entered into any employment agreements with any of our executives, however, we have entered into consulting agreements with the following executives and related entities as set forth below. The following describes the respective consulting agreements that are currently in place as of the date of this prospectus.

Gower Exploration Consulting Inc.; David Gower

On July 1, 2009, we entered into an independent contractor agreement (which we refer to as the “Gower Consulting Agreement”) with Gower Exploration Consulting Inc., a company controlled by David Gower (which we refer to together as “Gower”), our former President and a former member of our board of directors, pursuant to which Mr. Gower was appointed and served as the President of our Company and provided management services to us, in exchange for the payment by us to Gower of a base fee of \$25,000 per month plus a signing bonus of \$75,000. Under the Gower Consulting Agreement, we had the right to terminate the Gower Consulting Agreement without cause by making a payment to Gower equal to six months of the base fee, and Gower had the right to terminate the Gower Consulting Agreement by providing us with three-months’ notice.

On February 1, 2015, the parties amended the Gower Consulting Agreement to increase the base fee to \$33,333 per month.

On January 1, 2019, the parties further amended the Gower Consulting Agreement to decrease the base fee to \$0 per month, and to provide that in the event there was a change in control of our Company and we terminated the Gower Consulting Agreement within 12 months following the change in control, we would have been required, within 30 days of such termination, to make a lump sum termination payment equal to 36 months multiplied by \$33,333, plus an amount equal to all cash bonuses paid to Gower during the 36 months prior to the change in control. Additionally, upon a change in control of our Company, all stock options granted under our Stock Option Plan to Gower, that had not yet vested, would have vested immediately.

On June 12, 2024, Mr. Gower resigned from his position as the President of our Company, the parties terminated the Gower Consulting Agreement, and we have agreed to pay Gower a termination fee of \$100,000.

Forbes & Manhattan, Inc.; Stan Bharti

On October 1, 2009, we entered into an independent contractor agreement (which we refer to as the “F&M Consulting Agreement”) with Forbes & Manhattan, Inc., a company for which Stan Bharti, our Executive Chairman and a member of our board of directors, also serves as its executive chairman (which we refer to as “F&M”), pursuant to which F&M provides management services to us on a month-to-month basis, in exchange for the payment by us to F&M of a base fee of \$15,000 per month. Either we or F&M may terminate the F&M Consulting Agreement upon 90 days’ written notice to the other party or upon a different period of time as may be mutually agreed upon by the parties.

On September 1, 2011, the parties amended the F&M Consulting Agreement to increase the base fee to \$40,000 per month, and on February 1, 2015, the parties further amended the F&M Consulting Agreement to increase the base fee to \$48,333 per month.

Neil Said

On January 1, 2014, we entered into an independent contractor agreement (which we refer to as the “Said Consulting Agreement”) with Neil Said, our Corporate Secretary, pursuant to which Mr. Said provides management services to us, in exchange for the payment by us to Mr. Said of a base fee of CAD\$2,500 per month. We may terminate the Said Consulting Agreement without cause by making a lump sum payment to Mr. Said equal to 12 months of the base fee, and Mr. Said may terminate the Said Consulting Agreement by providing us with written notice. In the event there is a change in control of our Company, either we or Mr. Said may terminate the

Table of Contents

appointment and the Said Consulting Agreement within one year following the change in control, and in such event, we are required to make a lump sum termination payment equal to 36 months of the base fee plus an amount equal to all cash bonuses paid to Mr. Said during the 36 months prior to the change in control. Additionally, upon a change in control of our Company, all stock options and DSUs granted under our Stock Option Plan and our Deferred Share Unit Plan, respectively, to Mr. Said, that have not yet vested, will vest immediately.

On November 1, 2021, the parties amended the Said Consulting Agreement to increase the base fee to \$10,000 per month, which was retroactively effective as of January 1, 2021.

Ryan Ptolemy

On August 1, 2014, we entered into an independent contractor agreement (which we refer to as the “Ptolemy Consulting Agreement”) with Ryan Ptolemy, our Chief Financial Officer, pursuant to which Mr. Ptolemy has been appointed and serves as the Chief Financial Officer of our Company and provides management services to us on a month-to-month basis, in exchange for the payment by us to Mr. Ptolemy of a base fee of \$5,000 per month. We may terminate the Ptolemy Consulting Agreement without cause by making a payment to Mr. Ptolemy equal to 12 months of the base fee and a pro rata share of any accrued and determined, but unpaid, bonuses, and Mr. Ptolemy may terminate the Ptolemy Consulting Agreement by providing us with three-months’ notice. In the event there is a change in control of our Company, either we or Mr. Ptolemy may terminate the appointment and the Ptolemy Consulting Agreement within one year following the change in control, and in such event, we are required to make a lump sum termination payment equal to 36 months of the base fee plus an amount equal to all cash bonuses paid to Mr. Ptolemy during the 36 months prior to the change in control. Additionally, upon a change in control of our Company, all stock options and DSUs granted under our Stock Option Plan and our Deferred Share Unit Plan, respectively, to Mr. Ptolemy, that have not yet vested, will vest immediately.

On November 1, 2021, the parties amended the Ptolemy Consulting Agreement to increase the base fee to \$10,000 per month, which was retroactively effective as of January 1, 2021.

Iron Strike Inc.; Matthew Simpson

On February 1, 2015, we entered into an independent contractor agreement (which we refer to as the “Iron Strike Consulting Agreement”) with Iron Strike Inc., a company controlled by Matthew Simpson (which we refer to together as “Simpson”), our Chief Executive Officer and a member of our board of directors, pursuant to which Mr. Simpson has been appointed and serves as the Chief Executive Officer of our Company and provides management services to us on a month to month basis, in exchange for the payment by us to Simpson of a base fee of \$54,166.67 per month. We may terminate the Iron Strike Consulting Agreement without cause by making a payment to Simpson equal to six months of the base fee. Simpson may terminate the Iron Strike Consulting Agreement by providing us with three-months’ notice, and upon our receipt of such notice from Simpson, we may elect to immediately terminate the Iron Strike Consulting Agreement, in which case we are required to make a payment to Simpson equal to three months of the base fee. In the event there is a change in control of our Company and we terminate the Iron Strike Consulting Agreement within 12 months following the change in control, we are required to make a lump sum termination payment equal to 36 months of the base fee plus an amount equal to all cash bonuses paid to Simpson during the 36 months prior to the change in control. Additionally, upon a change in control of our Company, all stock options granted under our Stock Option Plan to Simpson, that have not yet vested, will vest immediately.

J. Mendo Consultoria Empresarial Ltda.; Adriano Espescht

On September 16, 2021, Potássio do Brasil Ltda., our wholly-owned local subsidiary in Brazil, entered into a service agreement (which we refer to as the “Espescht Consulting Agreement”) with J. Mendo Consultoria Empresarial Ltda., a company controlled by Adriano Espescht (which we refer to together as “Espescht”), the President of Potássio do Brasil Ltda., pursuant to which Espescht provides management and consulting services to Potássio do Brasil Ltda. indefinitely, in exchange for the payment by Potássio do Brasil Ltda. to Espescht of a base

[Table of Contents](#)

fee of R\$60,000 per month (which is approximately US\$12,366 per month, based on the currency exchange rate between the Brazilian real and the U.S. dollar on December 29, 2023). Under the Espeschit Consulting Agreement, Espeschit is also eligible to receive a performance bonus in the amount of R\$1,200,000 (which is approximately US\$247,316, based on the currency exchange rate between the Brazilian real and the U.S. dollar on December 29, 2023) upon the final and irrevocable issuances of all the Construction Licenses for the Autazes Project. Additionally, under the Espeschit Consulting Agreement, Espeschit was entitled to stock options to purchase an aggregate of 500,000 Common Shares, which stock options were granted in January 2022 with an exercise price of \$4.00 per share, but were cancelled in May 2023 in exchange for the grant of 200,000 DSUs with an estimated fair market value of \$800,000 (see “—2023 Summary Compensation Table” above). Potássio do Brasil Ltda. may terminate the Espeschit Consulting Agreement without cause by providing Espeschit with 30 days’ notice. In the event that either party terminates the Espeschit Consulting Agreement due to the default of the other party, the non-defaulting party is entitled to (a) a compensatory payment equal to 10% of the estimated value of the Espeschit Consulting Agreement, (b) the corresponding losses and damages, and (c) procedural expenses and attorneys’ fees.

Discretionary Cash Bonuses

In February 2023, we paid discretionary cash bonuses in the following amounts to the following executives: (i) \$2,000,000 to Forbes & Manhattan, Inc. (a company for which Stan Bharti serves as its executive chairman); (ii) \$500,000 to Matthew Simpson; (iii) \$130,000 to Ryan Ptolemy; (iv) \$150,000 to Neil Said; and (v) \$150,000 to Adriano Espeschit. See “—2023 Summary Compensation Table” above.

Director Compensation

Independent Directors

We have six directors on our board of directors, of which four directors, Deborah Battiston, Brett Lynch, Pierre Pettigrew, and Peter Tagliamonte, are considered “independent”, as determined in accordance with the listing standards established by the NYSE and the Canadian Independence Standards.

Year Ended December 31, 2023

During the year ended December 31, 2023, we paid Pierre Pettigrew, an independent director, cash compensation of \$100,000 for his service on our board of directors. Other than the foregoing cash compensation paid to Mr. Pettigrew, we did not pay any cash compensation or grant any stock option or DSU awards to any of our other independent directors during the year ended December 31, 2023.

Independent Director Compensation Program following this Offering

In connection with this offering, our board of directors has established a compensation program for our independent directors, pursuant to which we will pay the following fees to each of our independent directors following their respective elections or re-elections at each annual meeting of our shareholders:

- an annual cash retainer of \$60,000 to each independent director;
- an additional annual cash retainer of \$15,000 to the Lead Independent Director;
- an additional annual cash retainer of \$10,000 to each chairperson of the three standing committees of our board of directors (our audit committee, our compensation committee, and our nominating and corporate governance committee), to the extent such chairperson is not also the Lead Independent Director; and
- an annual grant of \$175,000 of DSUs, which will vest ratably in eight equal installments every three months from the date of grant, subject to continued service on our board of directors.

We will also reimburse our independent directors for reasonable out-of-pocket expenses incurred in connection with the performance of their duties as directors, including, without limitation, travel expenses in connection with their attendance in person at meetings of our board of directors and its committees.

Management Directors

We do not pay any compensation to our directors who also serve as executives of our Company (which we refer to as “management directors”) for their services as directors on our board of directors. Our management directors currently consist of Stan Bharti and Matthew Simpson. See “—2023 Summary Compensation Table” and “—Executive Compensation” above for a description of the compensation we paid in 2023 to Messrs. Bharti and Simpson in their capacities as executives of our Company.

2024 Incentive Compensation Plan

In May 2024, our board of directors approved and adopted, and in June 2024, our shareholders approved, the Brazil Potash Corp. 2024 Incentive Compensation Plan (which we refer to as our “2024 Incentive Compensation Plan”), in order to attract, motivate, retain and reward our directors, executives, officers, employees, consultants, and other service providers. Our 2024 Incentive Compensation Plan provides for the granting of equity-based awards, including stock options to purchase our Common Shares, deferred share units (which we refer to as “DSUs”), restricted stock, restricted stock units, stock appreciation rights, dividend equivalents, performance awards, our Common Shares granted as a bonus or in lieu of another award, and other stock-based awards.

Administration

Our board of directors has designated our compensation committee to administer our 2024 Incentive Compensation Plan. Subject to the terms of our 2024 Incentive Compensation Plan, our compensation committee has the authority, among other powers, to (i) select eligible persons to receive awards (which includes our directors, executives, officers, employees, consultants, and other persons who provide services to our Company or any of our subsidiaries); (ii) grant awards; (iii) determine the type, number and other terms and conditions of, and all other matters relating to, awards; (iv) prescribe award agreements (which need not be identical for each participant) and the rules and regulations for the administration of our 2024 Incentive Compensation Plan; (v) construe and interpret our 2024 Incentive Compensation Plan and award agreements; (vi) correct defects, supply omissions or reconcile inconsistencies in our 2024 Incentive Compensation Plan; and (vii) make all other decisions and determinations as our compensation committee may deem necessary or advisable for the administration of our 2024 Incentive Compensation Plan. Decisions of our compensation committee will be final, conclusive and binding on all persons or entities, including our Company, any subsidiary, any participant or beneficiary, any transferee under our 2024 Incentive Compensation Plan, or any other person claiming rights from or through any of the foregoing persons or entities.

Share Authorization

The total number of our Common Shares subject to awards that is reserved and available for issuance under our 2024 Incentive Compensation Plan is equal to 15.0% of the total number of our Common Shares issued and outstanding as of the date of grant of an award, less the aggregate number of our Common Shares subject to outstanding awards (excluding any substitute awards) granted under our 2024 Incentive Compensation Plan as of such date. Additionally, the maximum aggregate number of our Common Shares that may be delivered under our 2024 Incentive Compensation Plan as a result of the exercise of incentive stock options (which we refer to as “ISOs”) is 20,000,000. To the extent that Common Shares subject to an outstanding award granted under our 2024 Incentive Compensation Plan are not issued or delivered by reason of the forfeiture, expiration, or other termination of such award, the settlement of such award in cash, or otherwise that does not result in the issuance of all or a portion of the Common Shares subject to such award, then such Common Shares (or such portion thereof) generally will again become available under our 2024 Incentive Compensation Plan. Additionally, in the event that any award granted under our 2024 Incentive Compensation Plan is exercised through the tendering of our Common Shares (either actually or by attestation) or by our withholding of our Common Shares, or withholding tax liabilities arising from such award are satisfied by the tendering of our Common Shares (either

[Table of Contents](#)

actually or by attestation) or by our withholding of our Common Shares, then only the number of Common Shares issued net of the Common Shares tendered or withheld will be counted for purposes of determining the total number of our Common Shares subject to outstanding awards as of the applicable date.

Subject to any adjustments provided for in our 2024 Incentive Compensation Plan, in any fiscal year during which our 2024 Incentive Compensation Plan is in effect, no participant who is a member of our board of directors but also not an employee or consultant of our Company may be granted any awards that have a “fair value” (as determined in accordance with FASB ASC Topic 718 (or any other applicable accounting guidance) that exceeds \$1,000,000 in the aggregate as of the date of grant.

In the event of any extraordinary dividend or other distribution (whether in the form of cash, our Common Shares, or other property), recapitalization, forward or reverse split, reorganization, merger, consolidation, spin-off, combination, repurchase, share exchange, liquidation, dissolution or other similar corporate transaction or event affects our Common Shares and/or such other securities of the Company or any other issuer, then our compensation committee will adjust, among other adjustments, the number and class of securities available under our 2024 Incentive Compensation Plan and the terms of each outstanding award under our 2024 Incentive Compensation Plan, as our compensation committee may determine to be appropriate and equitable. The decision of our compensation committee regarding any such adjustment will be final, binding and conclusive.

Stock Options

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant stock options, including ISOs that are intended to comply with the requirements of Section 422 of the Internal Revenue Code of 1986, as amended (which we refer to as the “Code”), and non-qualified stock options. The exercise price per Common Share subject to a stock option is to be determined by our compensation committee, provided that the exercise price per share of a stock option may not be less than 100% of the fair market value of a Common Share on the date of grant. A stock option granted to a person who owns or is deemed to own shares of our capital stock representing 10% or more of the voting power of all classes of our capital stock (sometimes referred to as a “10% owner”) will not qualify as an ISO unless the per share exercise price for the stock option is not less than 110% of the fair market value of a Common Share on the date the ISO is granted. For purposes of our 2024 Incentive Compensation Plan, the term “fair market value” means the fair market value of our Common Shares or other property, as determined by our compensation committee or under procedures established by our compensation committee.

The maximum term of each stock option, the times at which each stock option will be exercisable, and provisions requiring forfeiture of unexercised stock options at or following termination of employment or service generally will be fixed by our compensation committee, except that no stock option may have a term exceeding 10 years, and no ISO granted to a 10% owner may have a term exceeding five years (to the extent required by the Code at the time of grant). Methods of exercise and settlement and other terms of stock options will be determined by our compensation committee. Accordingly, our compensation committee may permit the exercise price of stock options granted under our 2024 Incentive Compensation Plan to be paid in cash, our Common Shares, restricted stock or other similar securities, other awards under our 2024 Incentive Compensation Plan, or other property (including, subject to applicable law, with cash obtained via loans to participants). Our 2024 Incentive Compensation Plan prohibits the repricing of stock options issued thereunder without the approval of our shareholders and, if required, the NYSE.

Deferred Share Units

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant DSUs to participants on terms and conditions established by our compensation committee. Satisfaction of vested DSUs will occur upon the termination of a participant’s continuous service for any reason (including death), provided that such termination constitutes a separation from service within the meaning of Section 409A of the Code or a loss of office or employment pursuant to regulation 6801(d) of the *Income Tax Act* (Canada). Vested DSUs may

[Table of Contents](#)

be satisfied by delivery of an equivalent number of Common Shares, cash equal to the fair market value of the number of our Common Shares covered by the vested DSUs, or a combination of both, as determined by our compensation committee at the date of grant or thereafter.

A DSU will be subject to any restrictions (which may include a risk of forfeiture) as our compensation committee may impose, which restrictions may lapse at the expiration of the deferral period or at earlier specified times (including based on achievement of performance goals and/or future service requirements), separately or in combination, in installments or otherwise, as our compensation committee may determine.

Prior to satisfaction of a DSU, (i) a DSU carries no voting or dividend or other rights associated with the ownership of our Common Shares; and (ii) except as otherwise provided in the applicable award agreement and as permitted under Section 409A of the Code, if applicable, a DSU may not be sold, transferred, pledged, hypothecated, margined or otherwise encumbered by the participant or any beneficiary.

Restricted Stock and Restricted Stock Units

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant shares of restricted stock and restricted stock units. Grants of shares of restricted stock or restricted stock units are subject to such risks of forfeiture and other restrictions as our compensation committee may impose, including time- or performance-based restrictions, or both, which restrictions may lapse separately or in combination at such times, under such circumstances (including based on achievement of performance goals and/or future service requirements), in such installments or otherwise, as our compensation committee may determine.

A participant granted shares of restricted stock generally has all of the rights of a shareholder of our Company (including voting and dividend rights), unless otherwise determined by our compensation committee. Our compensation committee may require or permit a participant to elect that any cash dividends paid on a share of restricted stock be automatically reinvested in additional shares of restricted stock or applied to the purchase of additional awards under our 2024 Incentive Compensation Plan, or may require that payment be delayed (with or without interest at such rate, if any, as determined by our compensation committee) and remain subject to restrictions and a risk of forfeiture to the same extent as the restricted stock with respect to which such cash dividend is payable. Unless otherwise determined by our compensation committee, shares distributed in connection with a stock split or stock dividend, and other property distributed as a dividend, will be subject to restrictions and a risk of forfeiture to the same extent as the restricted stock with respect to which such shares or other property have been distributed.

An award of restricted stock units confers upon a participant the right to receive our Common Shares or cash equal to the fair market value of the specified number of our Common Shares covered by the restricted stock units at the end of a specified deferral period. An award of restricted stock units carries no voting or other rights associated with share ownership prior to settlement.

Stock Appreciation Rights

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant stock appreciation rights, entitling the participant to receive the amount by which the fair market value of a Common Share on the date of exercise exceeds the grant price of the stock appreciation right. The grant price of a stock appreciation right is to be determined by our compensation committee, provided that the grant price of a stock appreciation right may not be less than 100% of the fair market value of a Common Share on the date of grant.

The maximum term of each stock appreciation right, the times at which each stock appreciation right will be exercisable, and provisions requiring forfeiture of unexercised stock appreciation rights at or following termination of employment or service generally will be fixed by our compensation committee, except that no stock appreciation right may have a term exceeding 10 years. Methods of exercise and settlement and other terms of stock appreciation rights will be determined by our compensation committee. Our compensation committee may grant stock

appreciation rights in tandem with stock options (which we refer to as “tandem stock appreciation rights”) under our 2024 Incentive Compensation Plan. A tandem stock appreciation right may be granted at the same time as the related stock option is granted or, for stock options that are not ISOs, at any time thereafter but before exercise or expiration of such stock option, and the grant price of a tandem stock appreciation right may not be less than the associated stock option exercise price. A tandem stock appreciation right may only be exercised when the related stock option would be exercisable and the fair market value of a Common Share subject to the related stock option exceeds the stock option’s exercise price. Any stock option related to a tandem stock appreciation right will no longer be exercisable to the extent the tandem stock appreciation right has been exercised, and any tandem stock appreciation right will no longer be exercisable to the extent the related stock option has been exercised. Our 2024 Incentive Compensation Plan prohibits the repricing of stock appreciation rights issued thereunder without the approval of our shareholders and, if required, the NYSE.

Dividend Equivalents

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant dividend equivalent rights to participants on terms and conditions established by our compensation committee. Dividend equivalent rights are rights to receive amounts equal in value to the dividend distributions paid on our Common Shares, and can be paid in cash, our Common Shares, other awards that may be granted under our 2024 Incentive Compensation Plan, or other property equal in value to the dividends paid on our Common Shares. Dividend equivalent rights may be awarded on a free-standing basis or in connection with another award granted under our 2024 Incentive Compensation Plan.

Our compensation committee may provide that dividend equivalents rights will be paid or distributed when accrued or at some later date, or whether such dividend equivalent rights will be deemed to have been reinvested in additional Common Shares, awards, or other investment vehicles, and subject to such restrictions on transferability and risks of forfeiture, as our compensation committee may specify at the date of grant; provided, that dividend equivalent rights credited in connection with an award that vests based on the achievement of performance goals will be subject to restrictions and risk of forfeiture to the same extent as the associated award.

Performance Awards

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant performance awards to participants on terms and conditions established by our compensation committee. The performance criteria to be achieved during any performance period and the length of the performance period will be determined by our compensation committee in connection with the grant of the performance award. Performance awards may be settled by delivery of cash, our Common Shares, or other awards, as determined by our compensation committee. After the end of each performance period, our compensation committee will determine and certify whether the performance goals have been achieved.

Bonus Stock and Awards in Lieu of Obligations

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant our Common Shares to any eligible persons as a bonus, or to grant our Common Shares or other awards in lieu of obligations to pay cash or deliver other property under our 2024 Incentive Compensation Plan or under other plans or compensatory arrangements; provided, that, in the case of eligible persons subject to Section 16 of the Exchange Act, the amount of such grants remains within the discretion of our compensation committee to the extent necessary to ensure that acquisitions of our Common Shares or other awards are exempt from liability under Section 16(b) of the Exchange Act, if applicable. Common Shares granted under our 2024 Incentive Compensation Plan will be subject to such other terms as determined by our compensation committee.

Other Stock-Based Awards

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to grant other stock-based awards valued in whole or in part by reference to, or otherwise based on, our Common Shares. Other

stock-based awards may be granted either alone or in addition to other awards granted under our 2024 Incentive Compensation Plan, and may also be available as a form of payment in the settlement of other awards granted under our 2024 Incentive Compensation Plan. Our compensation committee will determine the terms and conditions of such other stock-based awards, including the number of our Common Shares to be granted pursuant to such other stock-based awards, the manner in which such other stock-based awards will be settled (e.g., in our Common Shares, cash or other property), and the conditions to the vesting and payment of such other stock-based awards (including the achievement of performance objectives).

Clawback; Automatic Forfeiture

Our 2024 Incentive Compensation Plan provides that we may (i) cause the cancellation of any award, (ii) require reimbursement of any award by a participant or beneficiary, and/or (iii) effect any other right of recoupment of equity or other compensation provided under our 2024 Incentive Compensation Plan if and to the extent we determine that doing so would be necessary or appropriate to comply with any applicable laws or stock exchange requirements.

Additionally, if a participant, without our consent, while employed by, or providing services to, us or any of our related entities, or after termination of such employment or service, violates a non-competition, non-solicitation or non-disclosure covenant or agreement, or otherwise engages in activity that is in conflict with or adverse to our interests or any of our related entities, as determined by our compensation committee in its sole discretion, then (i) any outstanding, vested or unvested, earned or unearned portion of any award held by such participant may, in our compensation committee's discretion, be canceled; and (ii) our compensation committee may, in its discretion, require such participant or other person to whom any payment has been made or Common Shares or other property have been transferred in connection with such award to forfeit and pay over to us, on demand, all or any portion of the gain (whether or not taxable) realized upon the exercise of any stock option or stock appreciation right and the value realized (whether or not taxable) on the vesting or payment of any other award during the time period specified in the award agreement or otherwise specified by our compensation committee.

Unless otherwise set forth in an award agreement or determined by our compensation committee, where a participant is terminated for Cause (as defined under our 2024 Incentive Compensation Plan), or, in the case of a member of our board of directors, is otherwise removed as a result of losing his/her eligibility to serve on our board of directors due to an order by a regulatory body or stock exchange or for culpable conduct as determined by our compensation committee, all awards (both vested and unvested) held by such participant as of the date of such termination or cessation of service will be immediately cancelled without liability or compensation therefor and will be of no further force and effect.

Other Terms of Awards

Awards granted under our 2024 Incentive Compensation Plan may be settled in the form of cash, our Common Shares, other awards or other property, in the discretion of our compensation committee. Our compensation committee may require or permit participants to defer the settlement of all or part of an award in accordance with such terms and conditions as our compensation committee may establish. Our compensation committee is authorized to place cash, our Common Shares, or other property in trusts or make other arrangements to provide for payment of our obligations under our 2024 Incentive Compensation Plan. Our compensation committee may condition any payment relating to an award on the withholding of taxes and may provide that any portion of our Common Share or other property to be distributed will be withheld (or that previously acquired Common Shares or other property be surrendered by the participant) to satisfy withholding and other tax obligations. Awards granted under our 2024 Incentive Compensation Plan generally may not be pledged or otherwise encumbered and are not transferable except by will or by the laws of descent and distribution, or to a designated beneficiary upon the participant's death, except that our compensation committee may, in its discretion, permit transfers only if and to the extent that such transfers are (i) permitted pursuant to the express terms of the applicable award agreement (subject to any terms and conditions which our compensation committee may impose), (ii) by gift or pursuant to a domestic relations order, or (iii) to a "Permitted Assignee"

[Table of Contents](#)

(as defined under our 2024 Incentive Compensation Plan), in each case, subject to any terms and conditions our compensation committee may impose pursuant to the express terms of an award agreement. A beneficiary, transferee, or other person claiming any rights under our 2024 Incentive Compensation Plan from or through any participant will be subject to all terms and conditions of our 2024 Incentive Compensation Plan and any award agreement applicable to such participant, except as otherwise determined by our compensation committee, and to any additional terms and conditions deemed necessary or appropriate by our compensation committee.

Awards under our 2024 Incentive Compensation Plan generally will be granted without a requirement that the participant pay consideration in the form of cash or property for the grant (as distinguished from the exercise), except to the extent required by law. Our compensation committee may, however, grant awards in exchange for other awards under our 2024 Incentive Compensation Plan, awards under other incentive plans of our Company, or other rights to payment from our Company, and may grant awards in addition to and in tandem with such other awards, rights or other awards.

Acceleration of Vesting; Change in Control

Subject to certain limitations, our compensation committee may, in its discretion, accelerate the exercisability, the lapsing of restrictions, or the expiration of deferral or vesting periods of any award granted under our 2024 Incentive Compensation Plan. In the event of a “change in control” of our Company (as defined under our 2024 Incentive Compensation Plan), our compensation committee may, in its sole discretion, provide that (i) any stock option or stock appreciation right that was not previously vested and exercisable at the time of the “change in control” will become immediately vested and exercisable, (ii) any restrictions, deferral of settlement and forfeiture conditions applicable to a restricted stock award, restricted stock unit award or other stock-based award subject only to future service requirements will lapse and such awards will be deemed fully vested, and (iii) with respect to any outstanding award subject to achievement of performance goals and/or other conditions, such awards will have been earned and payable based on achievement of performance goals or based upon target performance (either in full or pro-rata based on the portion of the performance period completed as of the “change in control”).

Subject to any limitations contained in our 2024 Incentive Compensation Plan relating to the vesting of awards in the event of any merger, amalgamation, arrangement consolidation or other reorganization in which our Company does not survive, or in the event of any “change in control” (under either event, transactions exclusively for the purpose of changing the domicile of our Company are excluded), the agreement relating to such transaction and/or our compensation committee may provide for: (i) the continuation of the outstanding awards by our Company, if our Company is a surviving entity, (ii) the assumption or substitution for outstanding awards by the surviving entity or its parent or subsidiary pursuant to the provisions contained in our 2024 Incentive Compensation Plan, (iii) full exercisability or vesting and accelerated expiration of the outstanding awards, or (iv) settlement of the value of the outstanding awards in cash or cash equivalents or other property followed by cancellation of such awards. The foregoing actions may be taken without the consent or agreement of a participant in our 2024 Incentive Compensation Plan and without any requirement that all such participants be treated consistently.

Other Adjustments

Under our 2024 Incentive Compensation Plan, our compensation committee is authorized to make adjustments to the terms and conditions of, and the criteria included in, awards (i) in recognition of unusual or nonrecurring events (including, without limitation, acquisitions and dispositions of businesses and assets) affecting our Company, any subsidiary, or any business unit, (ii) in response to changes in applicable laws, regulations, accounting principles, tax rates and regulations, or business conditions, or (iii) in view of our compensation committee’s assessment of the business strategy of our Company, any subsidiary or business unit, performance of comparable organizations, economic and business conditions, personal performance of a participant, or any other circumstances deemed relevant, subject to the listing rules of the NYSE.

Amendment; Termination

Our board of directors may amend, alter, suspend, discontinue or terminate our 2024 Incentive Compensation Plan or the authority of our compensation committee to grant awards under our 2024 Incentive Compensation Plan without the consent of shareholders or participants or beneficiaries, except that shareholder approval must be obtained for any amendment or alteration if such approval is required by law or regulation or under the rules of any stock exchange or quotation system on which our Common Shares may then be listed or quoted; provided that, except as otherwise permitted by our 2024 Incentive Compensation Plan or an applicable award agreement, without the consent of an affected participant, no such action by our board of directors may materially and adversely affect the rights of such participant under the terms of any previously granted and outstanding award. Our compensation committee may waive any conditions or rights under, or amend, alter, suspend, discontinue or terminate, any award previously granted under our 2024 Incentive Compensation Plan, and any award agreement relating thereto, except as otherwise provided in our 2024 Incentive Compensation Plan; provided that, except as otherwise permitted by our 2024 Incentive Compensation Plan or award agreement, without the consent of an affected participant, no such action by our compensation committee or our board of directors may materially and adversely affect the rights of such participant under terms of such award.

Our 2024 Incentive Compensation Plan will terminate at the earliest of (i) such time as no Common Shares remain available for issuance under our 2024 Incentive Compensation Plan, (ii) termination of our 2024 Incentive Compensation Plan by our board of directors, or (iii) the tenth anniversary of the date on which our shareholders approved our 2024 Incentive Compensation Plan. Awards outstanding upon termination or expiration of our 2024 Incentive Compensation Plan will remain in effect until they have been exercised or terminated, or have expired.

Stock Option Plan

In 2006, we adopted our Stock Option Plan (which we refer to as our “Stock Option Plan”), pursuant to which we granted to the directors, executives, officers and employees of, and consultants to, our Company or an affiliate of our Company stock options to purchase our Common Shares. Following the adoption of our 2024 Incentive Compensation Plan, no new stock option awards will be granted under our Stock Option Plan, however, outstanding stock options previously granted thereunder will continue in full effect in accordance with their existing terms.

Administration

Our board of directors has designated our compensation committee to administer our Stock Option Plan. Our compensation committee has the authority, among other powers, to determine the terms of the stock option awards, including to interpret the terms of our Stock Option Plan and the related stock option agreements.

Stock Options

Our Stock Option Plan provided for the grant of stock options. The exercise price of all stock options granted under our Stock Option Plan was required to be at least equal to the fair market value of our Common Shares on the date of grant. The term of a stock option may not exceed 10 years.

Following the termination of the continuous service of a recipient of a stock option award, the recipient’s stock options may be exercised, to the extent vested, for the period of time specified in the applicable stock option agreement. However, a stock option may not be exercised after the expiration of its term.

Transferability of Stock Options

Our Stock Option Plan allows for the transfer of stock option awards only by will and/or the laws of descent and distribution. Only a qualified successor to a deceased recipient of a stock option may exercise such award within the earlier of (i) one year following the date of the death of the recipient, and (ii) the expiration date of such stock option award.

Certain Adjustments

In the event of certain changes in our capitalization, in order to prevent enlargement of the benefits or potential benefits available under our Stock Option Plan, our board of directors will make adjustments to the number of Common Shares subject to outstanding stock option awards, the exercise price of outstanding stock option awards, and any other terms that require adjustment, as determined by board of directors.

Change in Control

Our Stock Option Plan provides that in the event of a “Change in Control” of our Company, each outstanding stock option award will automatically vest and become exercisable. Under our Stock Option Plan, a “Change in Control” means: (i) a takeover bid (as defined in the Securities Act (Ontario)), which is successful in acquiring our Common Shares; (ii) the change of control of our board of directors resulting from the election by our shareholders of less than a majority of the persons nominated for election by our board of directors; (iii) the sale of all or substantially all of our assets; (iv) the sale, exchange or other disposition of a majority of our outstanding Common Shares in a single transaction or series of related transactions; (v) the dissolution of our business or the liquidation of our assets; (vi) a merger, amalgamation or arrangement of our Company in a transaction or series of transactions in which our shareholders receive less than 51% of the outstanding shares of the new or continuing corporation; or (vii) the acquisition, directly or indirectly, through one transaction or a series of transactions, by any person or entity, of an aggregate of more than 50% of our outstanding Common Shares.

Plan Amendments and Termination

Following the adoption of our 2024 Incentive Compensation Plan, we no longer grant any new stock options awards under our Stock Option Plan. However, our Stock Option Plan will remain in place and continue to be effective to govern the terms of all outstanding stock options previously granted thereunder until all such outstanding stock options have been exercised, have expired, or have otherwise been terminated. Additionally, our board of directors has the authority to amend, suspend or terminate earlier our Stock Option Plan, provided, however, that shareholder approval is required within 12 months either before or after the adoption by our board of directors of a resolution authorizing any action that materially increases the benefits accruing to participants under our Stock Option Plan. However, our board of directors may amend the terms of our Stock Option Plan to comply with the requirements of any applicable regulatory authority, or as a result of changes in the policies of the NYSE relating to stock options, without obtaining the approval of our shareholders. Furthermore, under our Stock Option Plan, no amendment, suspension or termination of our Stock Option Plan may alter or impair any rights or obligations under any stock option awards previously granted, without the consent of such recipient of such stock option award.

Stock Options Granted to our Executives and Directors

Year Ended December 31, 2023

We did not grant to any of our executives or directors any stock option awards under our Stock Option Plan during the year ended December 31, 2023.

[Table of Contents](#)

Outstanding Stock Options

The following table summarizes the outstanding stock options held by our executives and directors as of December 31, 2023:

Name	Grant Date	Expiration Date	Exercise Price ⁽¹⁾ (per Common Share)	Number of Common Shares Underlying Unexercised Stock Options (Vested and Exercisable)	Number of Common Shares Underlying Unexercised Stock Options (Unvested and Not Yet Exercisable)
Executives:					
Stan Bharti	09/23/09	07/22/25 ⁽²⁾	\$ 1.00	540,000 ⁽³⁾	0
	12/16/13	07/22/25 ⁽²⁾	\$ 2.50	500,000 ⁽³⁾	0
Matthew Simpson	—	—	—	—	—
David Gower ⁽⁴⁾⁽⁵⁾	09/23/09	07/22/25 ⁽²⁾	\$ 1.00	540,000 ⁽³⁾	0
	12/16/13	07/22/25 ⁽²⁾	\$ 2.50	500,000 ⁽³⁾	0
Ryan Ptolemy	12/16/13	07/22/25 ⁽²⁾	\$ 2.50	100,000 ⁽³⁾	0
	07/22/15	07/22/25 ⁽²⁾	\$ 2.50	125,000 ⁽³⁾	0
Neil Said	12/16/13	07/22/25 ⁽²⁾	\$ 2.50	50,000 ⁽³⁾	0
	07/22/15	07/22/25 ⁽²⁾	\$ 2.50	125,000 ⁽³⁾	0
Directors:					
Carmel Daniele ⁽⁵⁾⁽⁶⁾	12/16/13	07/22/25 ⁽²⁾	\$ 2.50	100,000 ⁽³⁾	0
Pierre Pettigrew	09/23/09	07/22/25 ⁽²⁾	\$ 1.00	100,000 ⁽³⁾	0
	12/16/13	07/22/25 ⁽²⁾	\$ 2.50	100,000 ⁽³⁾	0
Andrew Pullar ⁽⁵⁾⁽⁷⁾	09/23/09	07/22/25 ⁽²⁾	\$ 1.00	100,000 ⁽³⁾	0
	12/16/13	07/22/25 ⁽²⁾	\$ 2.50	100,000 ⁽³⁾	0

(1) The exercise price is equal to the fair market value of our Common Shares on the date of grant.

(2) On August 22, 2022, the expiration date of the stock option reflected here was extended to July 22, 2025.

(3) The stock option reflected here vested immediately upon grant.

(4) In June 2024, David Gower resigned from his position as the President of our Company.

(5) Such individual was not nominated for reelection as a director at our 2024 annual meeting of our shareholders.

(6) The stock options reflected here are held directly by CD Capital Natural Resources BPC LP, of which Carmel Daniele is the founder and Chief Investment Officer.

(7) The stock options reflected here are held directly by Sentient Executive GP III, Ltd., of which Andrew Pullar is a director.

Deferred Share Unit Plan

In June 2015, we adopted our Deferred Share Unit Plan, and, in May 2024, we amended and restated such Deferred Share Unit Plan (which, as amended and restated, we refer to as our “Deferred Share Unit Plan”), pursuant to which we granted to the directors, executives, officers and employees of, and consultants and other service providers to, our Company or an affiliate of our Company deferred share units (which we refer to as “DSUs”). Following the adoption of our 2024 Incentive Compensation Plan, no new DSU awards will be granted under our Deferred Share Unit Plan, however, outstanding DSUs previously granted thereunder will continue in full effect in accordance with their existing terms.

Administration

Our board of directors has designated our compensation committee to administer our Deferred Share Unit Plan. Our compensation committee has the authority, among other powers, to determine the terms of the DSU awards, including to interpret the terms of our Deferred Share Unit Plan and the related DSU agreements.

DSUs

In general, we will redeem vested DSUs held by a holder upon such holder ceasing to be a director, executive, officer, or employee of, or consultant or other service provider to, our Company or an affiliate of our Company, or upon the death of such holder, in exchange for the issuance of our Common Shares to such holder on the basis of one Common Share for each vested DSU.

Outstanding DSUs vest in accordance with terms and conditions established by our compensation committee as the administrator of our Deferred Share Unit Plan.

Transferability of DSUs

Our Deferred Share Unit Plan allows for the transfer of DSUs only by will and/or the laws of descent and distribution.

Certain Adjustments

In the event that a dividend (other than a stock dividend) is declared and paid on our Common Shares, holders of DSUs will be credited with additional DSUs equal to the quotient of (i) the total amount of the dividends that would have been paid to such holder if the DSUs held by such holder on the dividend record date had been outstanding Common Shares, divided by (ii) by the market value of a Common Share on the dividend payment date.

In the event of certain other changes in our capitalization, in order to prevent dilution or enlargement of the benefits or potential benefits available under our Deferred Share Unit Plan, our compensation committee will make adjustments to the number of Common Shares subject to outstanding DSUs and any other terms, as may be determined by our compensation committee.

Change of Control

Our Deferred Share Unit Plan provides that in the event of a “Change of Control” of our Company, each outstanding DSU will automatically vest and be redeemable upon the holder’s separation. Under our Deferred Share Unit Plan, a “Change of Control” means any of the following: (i) a takeover bid (as defined in the Securities Act (Ontario)), which is successful in acquiring our Common Shares; (ii) the sale of all or substantially all our assets; (iii) the sale, exchange or other disposition of a majority of our outstanding Common Shares in a single transaction or series of related transactions; (iv) the dissolution of our business or the liquidation of our assets; (v) a merger, amalgamation or arrangement of our Company in a transaction or series of transactions in which our shareholders receive less than 51% of the outstanding shares of the new or continuing corporation; (vi) the acquisition, directly or indirectly, through one transaction or a series of transactions, by any person or entity, of an aggregate of more than 50% of our outstanding Common Shares; or (vii) as a result of or in connection with: (A) a contested election of directors; or (B) a consolidation, merger, amalgamation, arrangement or other reorganization or acquisitions involving our Company or any of our affiliates and another corporation or other entity, the nominees named in the most recent management information circular of our Company for election to our board of directors do not constitute a majority of our board of directors.

Plan Amendments and Termination

Following the adoption of our 2024 Incentive Compensation Plan, we no longer grant any DSU awards under our Deferred Share Unit Plan. However, our Deferred Share Unit Plan will remain in place and continue to be effective to govern the terms of all outstanding DSUs previously granted thereunder until all such outstanding DSUs have been settled or otherwise terminated. Additionally, our compensation committee has the authority to amend, modify and change the provisions of our Deferred Share Unit Plan, provided, however, that any action

[Table of Contents](#)

that will (i) materially increase the benefits under our Deferred Share Unit Plan, or (ii) terminate our Deferred Share Unit Plan, will require the approval of our board of directors and, if required, any stock exchange on which our Common Share are listed and any other regulatory authorities having jurisdiction over us, and, provided, further, however, that any such amendment will only be effective if the Deferred Share Unit Plan will continue to meet the requirements of paragraph 6801(d) of the regulations to the Income Tax Act (Canada) or any successor provision.

DSUs Granted to our Executives and Directors

Year Ended December 31, 2023

In May 2023, we granted 200,000 DSUs to Adriano Espeschit, President of Potássio do Brasil Ltda., all of which vested immediately. Other than the foregoing grant to Mr. Espeschit, we did not grant to any of our other executives or directors any DSU awards under our Deferred Share Unit Plan during the year ended December 31, 2023.

Outstanding DSUs

The following table summarizes the outstanding DSUs held by our executives and certain of our directors as of December 31, 2023:

Name	Grant Date	Number of Vested DSUs	Fair Market Value of Vested DSUs⁽¹⁾	Number of Unvested DSUs	Fair Market Value of Unvested DSUs⁽¹⁾
Executives:					
Stan Bharti	09/16/22	2,000,000 ⁽²⁾	\$ 8,000,000	—	\$ —
Matthew Simpson	08/18/15	2,000,000 ⁽³⁾	\$ 8,000,000	1,000,000 ⁽³⁾	\$ 4,000,000
David Gower ⁽⁴⁾⁽⁵⁾	08/18/15	666,667 ⁽³⁾	\$ 2,666,668	333,333 ⁽³⁾	\$ 1,333,332
Ryan Ptolemy	02/15/22	100,000 ⁽⁶⁾	\$ 400,000	50,000 ⁽⁶⁾	\$ 200,000
Neil Said	09/16/22	500,000 ⁽²⁾	\$ 2,000,000	—	\$ —
	02/15/22	100,000 ⁽⁶⁾	\$ 400,000	50,000 ⁽⁶⁾	\$ 200,000
Adriano Espeschit	09/16/22	500,000 ⁽²⁾	\$ 2,000,000	—	\$ —
	05/11/23	200,000 ⁽²⁾	\$ 800,000	—	\$ —
Directors:					
Carmel Daniele ⁽⁵⁾	09/16/22	1,000,000 ⁽²⁾	\$ 4,000,000	—	\$ —
Pierre Pettigrew	02/15/22	133,333 ⁽⁶⁾	\$ 533,332	66,667 ⁽⁶⁾	\$ 266,668

(1) Represents the fair market value of the DSUs as of December 31, 2023, based on the fair market value of our Common Shares as of such date.

(2) The DSUs reflected here vested immediately upon grant.

(3) The DSUs reflected here vest as follows: (i) one-third of the DSUs vested immediately, (ii) the second one-third of the DSUs vested upon receipt of our Preliminary Environmental License for the Autazes Project, and (iii) the final one-third of the DSUs vest upon completion of arrangements for project construction financing for the Autazes Project.

(4) In June 2024, David Gower resigned from his position as the President of our Company.

(5) Such individual was not nominated for reelection as a director at our 2024 annual meeting of our shareholders.

(6) The DSUs reflected here vest ratably in six equal tranches every six months from the date of grant.

PRINCIPAL SHAREHOLDERS

The following table and accompanying footnotes set forth certain information with respect to the beneficial ownership of our Common Shares, immediately prior to and immediately after the completion of this offering, by:

- each of our executives and directors;
- all of our executives and directors as a group; and
- each person or entity (or group of affiliated persons or entities) known by us to be the beneficial owner of 5% or more of our Common Shares.

To our knowledge, each shareholder named in the table has sole voting and investment power with respect to all of our Common Shares shown as “beneficially owned” (as determined by the rules of the SEC) by such shareholder, except as otherwise set forth in the footnotes to the table. The SEC has defined “beneficial” ownership of a security to mean the possession, directly or indirectly, of voting power and/or investment power.

The percentages reflect beneficial ownership (as determined in accordance with Rule 13d-3 under the Exchange Act) immediately prior to, and immediately after, the completion of this offering, and are based on 144,618,749 Common Shares outstanding as of the date immediately prior to the completion of this offering, and Common Shares outstanding as of the date immediately following the completion of this offering of Common Shares. The percentages assume no exercise by the underwriters of (i) their option to purchase additional Common Shares from us in this offering, or (ii) the Underwriters’ Warrants.

Except as noted in the footnotes to the table below, the address for all of the shareholders in the table below is c/o Brazil Potash Corp. at 198 Davenport Road, Toronto, Ontario Canada, M5R 1J2.

Name of Beneficial Owner	Common Shares Beneficially Owned Immediately Prior to this Offering ⁽¹⁾		Common Shares Beneficially Owned Immediately After this Offering ⁽¹⁾	
	Shares	Percentage	Shares	Percentage
Executives and Directors:				
Stan Bharti ⁽²⁾	16,964,238	11.7%	16,964,238	%
Matthew Simpson	—	*	—	*
Ryan Ptolemy ⁽³⁾	225,000	*	225,000	*
Neil Said ⁽⁴⁾	175,000	*	175,000	*
Adriano Espeschit	53,860	*	53,860	*
Deborah Battiston	12,453	*	12,453	*
Brett Lynch	—	*	—	*
Pierre Pettigrew ⁽⁵⁾	244,831	*	244,831	*
Peter Tagliamonte	3,113	*	3,113	*
All of our executives and directors as a group (nine persons)	17,678,495	12.2%	17,678,495	%
5% or more Shareholders:				
CD Capital ⁽⁶⁾	44,361,833	30.7%	44,361,833	%
Sentient ⁽⁷⁾	29,710,912	20.5%	29,710,912	%
Forbes & Manhattan ⁽²⁾	16,964,238	11.7%	16,964,238	%

* Represents less than 1% of the number of our Common Shares outstanding.

(1) Beneficial ownership is determined in accordance with Rule 13d-3 under the Exchange Act. A person is deemed to be the beneficial owner of any Common Shares if that person has or shares voting power or investment power with respect to those shares or has the right to acquire beneficial ownership at any time within 60 days.

[Table of Contents](#)

- (2) The 16,964,238 Common Shares represent 15,911,738 Common Shares held directly by Forbes & Manhattan (Barbados) Inc., 12,500 Common Shares held directly by Mr. Stan Bharti, and 1,040,000 Common Shares issuable upon the exercise of stock options held by Mr. Bharti. Mr. Bharti is the executive chairman of Forbes & Manhattan (Barbados) Inc., and, as such, Mr. Bharti has voting and investment power over the Common Shares held by Forbes & Manhattan (Barbados) Inc. Mr. Bharti disclaims beneficial ownership of the Common Shares held by Forbes & Manhattan (Barbados) Inc., except for any pecuniary interests therein. The address of Forbes & Manhattan (Barbados) Inc. is Lower Collymore Rock Road, Bridgetown, Barbados, and the address of Mr. Bharti is 65 Binscarth Road, Toronto, Ontario Canada, M4W 1Y8.
- (3) The 225,000 Common Shares represent 225,000 Common Shares issuable upon the exercise of stock options held by Mr. Ryan Ptolemy.
- (4) The 175,000 Common Shares represent 175,000 Common Shares issuable upon the exercise of stock options held by Mr. Neil Said.
- (5) The 244,831 Common Shares represent 144,831 Common Shares held by Mr. Pierre Pettigrew, and 100,000 Common Shares issuable upon the exercise of stock options held by Mr. Pettigrew.
- (6) The 44,361,833 Common Shares represent 42,801,333 Common Shares held directly by CD Capital Natural Resources BPC LP (which we refer to as “CD Capital”), 1,460,500 Common Shares held directly by Ms. Carmel Daniele, and 100,000 Common Shares issuable upon the exercise of stock options held directly by CD Capital. Ms. Daniele is the founder and Chief Investment Officer of CD Capital, and, as such, Ms. Daniele has voting and investment power over the Common Shares beneficially held by CD Capital. Ms. Daniele disclaims beneficial ownership of the Common Shares held by CD Capital, except for any pecuniary interests therein. The address of each of CD Capital and Ms. Daniele is 105 Piccadilly, Penthouse Suite, London, W1J 7NJ, United Kingdom.
- (7) The 29,710,912 Common Shares represent 15,455,495 Common Shares held directly by Sentient Executive GP III, Ltd., 14,055,417 Common Shares held directly by Sentient Executive GP IV, Ltd. (which we refer to together with Sentient Executive GP III, Ltd. as the “Sentient Executive Funds”), and 200,000 Common Shares issuable upon the exercise of stock options held directly by Sentient Executive GP III, Ltd. Sentient Equity Partners is the head advisor to each of the Sentient Executive Funds. Mr. Andrew Pullar is the managing partner of Sentient Equity Partners and a director of each of the Sentient Executive Funds, and, as such, Mr. Pullar has voting and investment power over the Common Shares beneficially held by the Sentient Executive Funds. Mr. Pullar disclaims beneficial ownership of the Common Shares held by the Sentient Executive Funds, except for any pecuniary interests therein. The address of each of the Sentient Executive Funds, Sentient Equity Partners, and Mr. Pullar is Governors Square, Building 4, 2nd Floor, 23 Lime Tree Bay Avenue SMB, P.O. Box 32315, Grand Cayman KY1-1209, Cayman Islands.

As of the date of this prospectus, we have 6,919 record shareholders, 5,883 of which are record holders in the United States.

We are not aware of any arrangement that may, at a subsequent date, result in change of control in our Company.

For additional information regarding our principal shareholders, see “Certain Relationships and Related Party Transactions”.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following are summaries of transactions or agreements that we have entered into or participated in with related parties, since January 1, 2021, which we are required to disclose pursuant to applicable disclosure requirements of the SEC and applicable Canadian securities regulatory authorities.

Loans from Related Parties

Loan Agreement with Sentient

On October 29, 2019, we entered into a loan agreement with Sentient Global Resource Fund IV LP, of which Andrew Pullar (a then member of our board of directors at such time) is the managing partner and a director. Pursuant to the terms of the loan agreement with Sentient Global Resource Fund IV LP, we borrowed from Sentient Global Resource Fund IV LP \$1,000,000, on an unsecured basis, at an interest rate of 30% per annum, and with an initial repayment date of April 29, 2020 (which we refer to as the Sentient LoanTM). We also incurred a setup fee of \$200,000 in connection with the Sentient Loan. On April 29, 2020, the parties extended the repayment date of the Sentient Loan to July 31, 2020, and we incurred an extension fee of \$50,000 in connection therewith. On September 30, 2021, we entered into an amended and restated loan agreement with Sentient Global Resource Fund IV LP, pursuant to which the principal and accrued interest due and payable under the Sentient Loan, along with the cumulative setup and extension fees of \$250,000, totaling \$1,599,794, was capitalized to the Sentient Loan balance as of September 30, 2021, and the repayment date was extended to June 30, 2022. The amended Sentient Loan accrued interest at a rate of 12%. On November 30, 2021, we repaid in full the Sentient Loan, including all principal, accrued interest, and fees due and payable, using a portion of our proceeds from our Regulation A Offering. For additional information regarding the Sentient Loan, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Debt Financings—Loan Agreement with SentientTM”.

Loan Agreements with Aberdeen

On July 2, 2020, we entered into a loan agreement (which we refer to as the “Initial Aberdeen Loan Agreement”) with Aberdeen International Inc. (which we refer to as “Aberdeen”). Stan Bharti (our Executive Chairman) is the executive chairman, and Ryan Ptolemy (our Chief Financial Officer) is the chief financial officer, of Aberdeen. Pursuant to the terms of the Initial Aberdeen Loan Agreement, we borrowed from Aberdeen \$100,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of January 2, 2021. During 2020, we borrowed from Aberdeen an additional \$348,000 under the Initial Aberdeen Loan Agreement on the same terms as the initial loan. On February 9, 2021, the parties extended the maturity date under the Initial Aberdeen Loan Agreement to July 31, 2021, and on September 30, 2021, the parties further extended the maturity date under the Initial Aberdeen Loan Agreement to June 30, 2022. On November 29, 2021, we repaid in full all of the loans under Initial Aberdeen Loan Agreement, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

On April 1, 2021, we entered into a second loan agreement with Aberdeen (which we refer to as the “Second Aberdeen Loan Agreement”), pursuant to which we borrowed from Aberdeen \$200,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of December 31, 2021. On September 30, 2021, the parties extended the maturity date under the Second Aberdeen Loan Agreement to June 30, 2022. On November 29, 2021, we repaid in full the loan under Second Aberdeen Loan Agreement, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

On August 4, 2021, we entered into a third loan agreement with Aberdeen (which we refer to as the “Third Aberdeen Loan Agreement”), pursuant to which we borrowed from Aberdeen \$149,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of December 31, 2021. On September 30,

[Table of Contents](#)

2021, the parties extended the maturity date under the Third Aberdeen Loan Agreement to June 30, 2022. On November 29, 2021, we repaid in full the loan under Third Aberdeen Loan Agreement, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering.

For additional information regarding the Initial Aberdeen Loan Agreement and the Second Aberdeen Loan Agreement, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Debt Financings—Loan Agreements with Aberdeen”.

Loan Agreement with Sulliden

On October 22, 2020, we entered into a loan agreement with Sulliden Mining Capital Inc. (which we refer to as “Sulliden”), and at such time, Stan Bharti (our Executive Chairman) served as the then-executive chairman and interim chief executive officer, and Ryan Ptolemy (our Chief Financial Officer) served as the then-chief financial officer, of Sulliden. Pursuant to the terms of the loan agreement with Sulliden, we borrowed from Sulliden \$70,000, on an unsecured basis, at an interest rate of 12% per annum, and with an initial maturity date of December 21, 2020 (which we refer to as the “Sulliden Loan”). On February 10, 2021, the parties extended the maturity date of the Sulliden Loan to July 31, 2021, and on September 30, 2021, the parties further extended the maturity date of the Sulliden Loan to June 30, 2022. On November 29, 2021, we repaid in full the Sulliden Loan, including all principal and accrued interest due and payable, using a portion of our proceeds from our Regulation A Offering. Stan Bharti resigned from his position with Sulliden in March 2023, and Ryan Ptolemy resigned from his position with Sulliden in January 2024. For additional information regarding the Sulliden Loan, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Debt Financings—Loan Agreement with Sulliden”.

Consulting Agreements with our Executives

We have entered into consulting agreements with each of our executives (or a respective entity affiliated with such executive). For a description of the consulting agreements, see “Executive and Director Compensation—Executive Compensation—Consulting Agreements”.

Equity Compensation Arrangements

We have granted stock options to certain of our executives and directors under our Stock Option Plan and stock option agreements entered or to be entered into between us and such optionees. For a description of the stock options, our Stock Option Plan and the stock option agreements, see “Executive and Director Compensation—Stock Option Plan”.

We have granted DSUs to certain of our executives and directors under our Deferred Share Unit Plan. For a description of the DSUs and our Deferred Share Unit Plan, see “Executive and Director Compensation—Deferred Share Unit Plan”.

We will grant equity incentive awards to our executives and directors under our 2024 Incentive Compensation Plan and award agreements to be entered into between us and such recipients. For a description of such awards and our 2024 Incentive Compensation Plan, see “Executive and Director Compensation—2024 Incentive Compensation Plan”.

Indemnity Agreements with our Directors and Executives

We have entered into an indemnity agreement with each of our directors and executives, whereby we have agreed to indemnify such directors and executives against all expenses and liabilities incurred in such capacity to the fullest extent permitted by law, subject to limited exceptions. For information regarding limitations of liability and indemnification applicable to our directors and executives, see “Description of Our Share Capital—Limitations on Liability and Indemnification of Directors and Officers”.

Certain Travel Expenses

We use charter flight services provided by Tali Flying LP for certain business travel by our management team. Stan Bharti (our Executive Chairman) is a director of Tali Flying LP. During the years ended December 31, 2023, 2022 and 2021, we incurred travel expenses payable to Tali Flying LP in the aggregate amount of approximately \$47,000, \$1.8 million and \$0.2 million, respectively, at the prevailing market rate for charter flight services which Tali Flying LP charges. We did not enter into any agreement with Tali Flying LP for such charter flight services, and we may terminate our use of such charter flight services at any time without notice. For more information, see Note 18 to our audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022, and Note 19 to our audited consolidated financial statements as of and for the years ended December 31, 2022 and 2021, included elsewhere in this prospectus.

Interests of Experts and Counsel

None of the experts or counsel engaged by us, including MNP LLP, ERCOSPLAN, L&M, Greenberg Traurig, P.A. and Wildeboer Dellelce LLP, have any interests in our Company.

Policies and Procedures for Related Party Transactions

Our board of directors has adopted a related party transactions policy (which we refer to as our “Related Party Transactions Policy”), which sets forth the policies and procedures for the review and approval or ratification of related person transactions. Our Related Party Transactions Policy covers any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, that are required to be disclosed by us pursuant to the applicable disclosure requirements of the NYSE, SEC, applicable Canadian securities regulatory authorities, and the *Business Corporations Act* (Ontario), in which we or our subsidiary are or will be a participant, and in which a related person (which includes our principal shareholders, directors, executives and officers) has or will have a direct or indirect material interest, including without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness, and employment by us of a related person. Our audit committee will oversee our Related Party Transactions Policy. Our audit committee will review and recommend for approval, and our board of directors will review and ultimately approve, any applicable related party transaction. In reviewing any such related party transactions, our audit committee and our board of directors will be tasked with considering all relevant facts and circumstances, including, but not limited to, whether the related person transaction is on terms comparable to those that could be obtained in an arm’s-length transaction, and the extent of the related person’s interest in the transaction. Our Related Party Transactions Policy is intended to supplement, and impose a more rigorous internal review and approval procedure than those required by, applicable laws, rules and regulations, including, but not limited to, the *Business Corporations Act* (Ontario) and Canadian Multilateral Instrument 61-101–*Protection of Minority Security Holders in Special Transactions*.

DESCRIPTION OF OUR SHARE CAPITAL

The following is a summary of the material terms of our share capital, our articles of incorporation, and our bylaws. Accordingly, this discussion should be read together with our articles of incorporation and our bylaws, copies of which are filed as exhibits to our registration statement of which this prospectus forms a part.

General

We are authorized to issue one class of stock, consisting of an unlimited number of our Common Shares (with no par value per share). Our Common Shares do not have any special rights or restrictions. As of the date of this prospectus, 144,618,749 Common Shares are issued and outstanding.

Additionally, (i) up to an aggregate of 1,147,500 Common Shares are issuable upon the exercise of outstanding common share purchase warrants, which are exercisable at an exercise price of \$1.00 per Common Share, (ii) up to an aggregate of _____ Common Shares are issuable upon the exercise by the underwriters of the Underwriters' Warrants, which are exercisable at an exercise price equal to 130% of the initial public offering price of the Common Shares sold in this offering, (iii) up to an aggregate of 4,605,833 Common Shares are issuable upon the exercise of outstanding stock options, of which 935,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$1.00 per Common Share, 3,157,500 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$2.50 per Common Share, 213,333 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$3.75 per Common Share, and 300,000 Common Shares are issuable upon the exercise of outstanding stock options at an exercise price of \$4.00 per Common Share, (iv) up to an aggregate of 16,433,333 Common Shares issuable with respect to outstanding DSUs, and (v) an aggregate of 21,692,812 Common Shares reserved and available, as of the date of this prospectus, for awards that may be granted in the future under our 2024 Incentive Compensation Plan.

Fully Paid and Non-assessable

All of our outstanding Common Shares are, and the Common Shares to be sold and issued in this offering will be, duly authorized, validly issued, fully paid and non-assessable.

General Meeting of Shareholders

We are incorporated under the laws of the Province of Ontario, Canada, and are governed by the *Business Corporations Act* (Ontario) (which we refer to as the "OBCA"). Under the OBCA, (i) a general meeting of shareholders shall be held at such place in or outside Ontario as determined by our board of directors, or, in the absence of such a determination, at our registered office; (ii) our board of directors must call an annual meeting of shareholders no later than 15 months after the last preceding annual meeting; (iii) for the purpose of determining shareholders entitled to receive notice of or vote at meetings of shareholders, our board of directors may fix in advance a date as the record date for that determination, provided that if we are an "offering corporation" under the rules of the OBCA, such date shall not precede by more than 50 days or by less than 21 days the date on which the meeting is to be held; (iv) notice of the time and place of a meeting of shareholders shall be sent to each shareholder entitled to vote at the meeting, our directors and our auditor; (v) the holders of not less than five percent (5%) of our issued and outstanding Common Shares entitled to vote at a meeting may requisition our board of directors to call a meeting of shareholders for the purposes stated in the requisition; and (vi) upon the application of a director or shareholder entitled to vote at the meeting, the Ontario Superior Court of Justice may order a meeting to be called, held and conducted in a manner that the Court directs.

Our bylaws provide that a quorum for purposes of a shareholder meeting is met when the holders of not less than 10% of the shares entitled to vote at a meeting of shareholders are present in person or represented by proxy.

Voting Rights

The holders of our Common Shares are entitled to attend and vote at all meetings of our shareholders (except any meetings at which only holders of a specified class of shares are entitled to vote), and at each meeting are entitled to one vote for each share held on all matters to be voted on by our shareholders. There is no cumulative voting.

Dividends

The holders of our Common Shares are entitled to dividends when and as declared by our board of directors from funds legally available therefor if, as and when determined by our board of directors in its sole discretion, subject to provisions of law, and any provisions of our articles of incorporation (including the rights, privileges, restrictions and conditions attached to any other class of shares of our Company), as may be amended from time to time. There are no pre-emptive, conversion or redemption privileges, nor sinking fund provisions with respect to our Common Shares.

Liquidation

Subject to the rights, privileges, restrictions and conditions attached to any other class of shares of our Company, in the event of any voluntary or involuntary liquidation, dissolution or winding up of our affairs, the holders of our Common Shares will be entitled to share pro rata in the net assets legally available for distribution to shareholders after the payment of or provision for all of our debts and other liabilities.

Procedures to Change the Rights of Shareholders

The rights, privileges, restrictions and conditions with respect to our Common Shares are contained in our articles of incorporation, and such rights, privileges, restrictions and conditions may be changed by amending our articles of incorporation. In order to amend our articles of incorporation, the OBCA requires approval by not less than two-thirds of the votes cast by our shareholders entitled to vote thereon. Additionally, if we make particular types of amendments to our articles of incorporation, a holder of our Common Shares may dissent to such amendments and, if such shareholder so elects and complies with all applicable requirements set out in the OBCA, we will have to pay such shareholder the fair value of the Common Shares held by such shareholder. The types of amendments to our articles of incorporation that would be subject to dissent rights include (but are not limited to): (i) adding, removing or changing restrictions on the issue, transfer or ownership of our Common Shares, and (ii) adding, removing or changing any restrictions upon the business that we may carry on or upon the powers that we may exercise.

Limitations on Liability and Indemnification of Directors and Officers

In accordance with the OBCA and pursuant to our bylaws, subject to certain conditions, we will, to the maximum extent permitted by law, indemnify our directors, officers, former directors and former officers, and any another individuals who act or acted at our request as a director or officer, or an individual acting in a similar capacity, of another entity, against all costs, charges and expenses, including any amount paid to settle an action or satisfy a judgment, reasonably incurred by such individual in respect of any civil, criminal, administrative, investigative or other proceeding in which such individual is involved because of that association with our Company or other entity. Additionally, we may advance monies to a director, officer or other individual for costs, charges and expenses reasonably incurred in connection with such a proceeding, provided that such individual shall repay such monies if such individual does not fulfill the conditions described below. Indemnification is prohibited unless such individual:

- acted honestly and in good faith with a view to our best interests;
- in the case of a criminal or administrative action or proceeding enforced by a monetary penalty, had reasonable grounds to believe the conduct was lawful; and

[Table of Contents](#)

- was not judged by a court or other competent authority to have committed any fault or omitted to do anything that the individual ought to have done, and fulfils the conditions listed above.

Insofar as indemnification by us for liabilities arising under the Securities Act may be permitted to our directors, officers, or persons controlling us pursuant to the foregoing or otherwise, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Shares is TSX Trust Company, located at 100 Adelaide Street West, Suite 301, Toronto, Ontario, Canada, M5H 4H1, and the U.S. co-transfer agent for our Common Shares is Continental Stock Transfer & Trust Company, located at 1 State Street, 30th Floor, New York, New York 10004.

Listing

We intend to apply for the listing of our Common Shares on the NYSE under the symbol “GRO”.

Differences in Corporate Law

We are incorporated under the laws of the Province of Ontario, Canada, and are governed by the OBCA, which is generally similar to laws applicable to United States corporations. The following discussion summarizes certain material differences between the rights of a shareholder of a typical corporation incorporated under the laws of the State of Delaware, as compared to the rights of a shareholder of our Company.

This discussion does not purport to be a complete statement of the rights of holders of our Common Shares under the OBCA or the rights of holders of common stock of a typical corporation under the General Corporation Law of the State of Delaware (which we refer to as the “DGCL”).

	<u>Delaware</u>	<u>Ontario</u>
Number and Election of Directors	<p>Under the DGCL, the board of directors must consist of at least one director. The number of directors shall be fixed by, or in the manner provided in, the bylaws of the corporation, unless the certificate of incorporation fixes the number of directors, in which case a change in the number of directors shall only be made by an amendment of the certificate of incorporation.</p> <p>Under the DGCL, directors are elected at annual stockholder meetings by plurality vote of the stockholders, unless provided otherwise in the certificate of incorporation or bylaws.</p>	<p>Under our articles of incorporation, our board of directors must have at least one member and no more than 10 members.</p> <p>Under the OBCA, our board of directors must consist of at least three members so long as we are an “offering corporation” for purposes of the OBCA, which includes a corporation that has filed a prospectus under the Securities Act (Ontario) in respect of its securities and such securities are still outstanding.</p> <p>Under the OBCA and our bylaws, shareholders elect directors by ordinary resolution at each annual meeting of shareholders at which such an election is required.</p>

	<u>Delaware</u>	<u>Ontario</u>
Removal of Directors	<p>Under the DGCL, unless otherwise provided in the corporation's certificate of incorporation, directors may be removed from office, with or without cause, by a majority stockholder vote, except: (i) in the case of a corporation whose board of directors is classified, stockholders may effect such removal only for cause, or (ii) in the case of a corporation having cumulative voting, if less than the entire board of directors is to be removed, no director can be removed without cause if the votes cast against such director's removal would be sufficient to elect such director if then cumulatively voted at an election of the entire board of directors, or, if there are classes of directors, at an election of the class of directors of which such director is a part.</p>	<p>Under the OBCA and our bylaws, shareholders may, by resolution passed by a majority of the vote cast thereon at a meeting of shareholders, remove a director and may elect any qualified person to fill the resulting vacancy.</p> <p>If holders of a class or series of shares have the exclusive right to elect one or more directors, a director elected by them may only be removed by an ordinary resolution at a meeting of the shareholders of that class or series.</p>
Vacancies on our Board of Directors	<p>Under the DGCL, unless otherwise provided in the corporation's certificate of incorporation or bylaws, vacancies and newly created directorships resulting from an increase in the authorized number of directors, may be filled by a majority of the directors then in office, although less than a quorum, or by a sole remaining director.</p>	<p>Under the OBCA and our bylaws, vacancies that exist on our board of directors may generally be filled by our board of directors if the remaining directors constitute a quorum. In the absence of a quorum, the remaining directors shall call a meeting of shareholders to fill the vacancy.</p> <p>Under the OBCA and our bylaws, in between meetings, our board of directors has the right to increase the total number of directors on our board of directors within the minimum and maximum number set in our articles of incorporation; provided, that our board of directors may not appoint an additional director if, after such appointment, the total number of directors would be greater than one and one-third times the number of directors required to have been elected at our last annual meeting of shareholders.</p>
Board of Director Quorum and Vote Requirements	<p>Under the DGCL, a majority of the total number of directors shall constitute a quorum for the transaction of business unless the certificate of incorporation or bylaws require a greater number. The bylaws may lower the number required for a quorum to no less than one-third the number of directors.</p> <p>Under the DGCL, the board of directors may take action by the majority vote of the directors present at a meeting at which a quorum is present unless the certificate of incorporation or bylaws require a greater vote.</p>	<p>Under our bylaws, a majority of the directors on our board of directors constitutes a quorum at any meeting of directors, provided that, where the board consists of fewer than three directors, all directors shall constitute a quorum at any meeting of our board of directors.</p> <p>Under the OBCA, where there is a vacancy or vacancies on our board of directors, the remaining directors may exercise all the powers of our board of directors so long as a quorum of our board of directors remains in office.</p>

	<u>Delaware</u>	<u>Ontario</u>
Transactions with our Directors and Executives	<p>The DGCL generally provides that no contract or transaction between a corporation and one or more of its directors or officers, or between a corporation and any other corporation or other organization in which one or more of its directors or officers, are directors or officers, or have a financial interest, shall be void or voidable solely for this reason, or solely because the director or officer is present at or participates in the meeting of the board or committee which authorizes the contract or transaction, or solely because any such director's or officer's votes are counted for such purpose, if (i) the material facts as to the director's or officer's relationship or interest and as to the contract or transaction are known to the board of directors or the committee, and the board or committee in good faith authorizes the transaction by the affirmative votes of a majority of the disinterested directors, even though the disinterested directors be less than a quorum, (ii) the material facts as to the director's or officer's relationship or interest and as to the contract or transaction are disclosed or are known to the stockholders entitled to vote thereon, and the contract or transaction is specifically approved in good faith by vote of the stockholders, or (iii) the contract or transaction is fair as to the corporation as of the time it is authorized, approved or ratified, by the board of directors, a committee or the stockholders.</p>	<p>Under the OBCA and our bylaws, a director or officer of our Company who: (i) is a party to a material contract or transaction or proposed material contract or transaction with us, or (ii) is a director or an officer of, or has a material interest in, any person who is a party to a material contract or transaction or proposed material contract or transaction with us, is required to disclose in writing to us the nature and extent of his or her interest. An interested director is prohibited from attending the part of the meeting of our board of directors during which the contract or transaction is discussed and is prohibited from voting on a resolution to approve the contract or transaction, except in specific circumstances, such as a contract or transaction relating primarily to his or her remuneration as a director of our Company or an affiliate of our Company, a contract or transaction for indemnification or liability insurance of such director, or a contract or transaction with an affiliate of our Company. If a director or officer has disclosed his or her interest in accordance with the OBCA and the contract or transaction was reasonable and fair to us at the time it was approved, the director or officer is not accountable to us or our shareholders for any profit or gain realized from the contract or transaction, and the contract or transaction is neither void nor voidable by reason only of the interest of such director or officer or that such director is present at or is counted to determine the presence of a quorum at the meeting of our board of directors that authorized the contract or transaction.</p> <p>The OBCA further provides that if such director or officer acted honestly and in good faith and the contract or transaction was reasonable and fair to us at the time it was approved, such director or officer is not accountable to us or our shareholders for any profit or gain realized from the contract or transaction by reason only of his or her holding the office of a director or officer, and the contract or transaction is not by reason only of the director's or officer's interest therein void or voidable, if the contract or transaction has been confirmed or approved by our shareholders by special resolution, on</p>

	<u>Delaware</u>	<u>Ontario</u>
Limitation of Liability of our Directors	<p>The DGCL permits a corporation to include a provision in its certificate of incorporation eliminating or limiting the personal liability of a director to the corporation or its stockholders for monetary damages for a breach of the director's fiduciary duty as a director, except for liability:</p> <ul style="list-style-type: none">• for any breach of the director's duty of loyalty to the corporation or its stockholders;• for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of the law;• under Section 174 of the DGCL, which concerns unlawful payment of dividends, stock repurchases or redemptions; or• for any transaction from which the director derived an improper personal benefit.	<p>the basis of disclosure in reasonable detail of the nature and extent of such director's or officer's interest in the notice of meeting or management information circular.</p> <p>The OBCA does not permit the limitation of liability of a director or officer to act in accordance with the OBCA.</p> <p>Under our bylaws, our directors and officers will not be liable for their acts in the execution of their duties or in relation thereof or for the acts of any other director, officer or employee, unless such director or officer is willfully negligent or at fault. However, our bylaws do not permit the relief of any of our directors' or officers' duty to act in accordance with the OBCA or from liability for any breach of the OBCA.</p>
Indemnification of our Directors and Executives	<p>The DGCL permits a corporation to indemnify officers and directors against expenses, judgments, fines and amounts paid in settlement for actions taken in good faith and in a manner they reasonably believed to be in, or not opposed to, the best interests of the corporation, and with respect to any criminal action or proceeding that they had no reasonable cause to believe was unlawful.</p>	<p>Our bylaws provide that, subject to the limitations contained in the OBCA, we will indemnify our directors and officers against all costs, charges and expenses, including an amount paid to settle an action or satisfy a judgment, reasonably incurred by the individual in respect of any civil, criminal, administrative, investigative or other proceeding in which the individual is involved because of the association with our Company, provided that:</p> <ul style="list-style-type: none">• the individual acted honestly and in good faith with a view to the best interests of our Company; and• in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, the individual had reasonable grounds for believing that the individual's conduct was lawful. <p>We will also indemnify such individual in such other circumstances as the OBCA permits or requires.</p>

	<u>Delaware</u>	<u>Ontario</u>
Call and Notice of Shareholder Meetings	<p>Under the DGCL, unless otherwise provided in the certificate of incorporation or bylaws, notice of any meeting of the stockholders must be given to each stockholder entitled to vote at the meeting not less than ten nor more than 60 days before the date of the meeting and shall specify the place, date, hour, and, in the case of a special meeting, purpose or purposes of the meeting.</p> <p>Under the DGCL, an annual or special stockholder meeting is held on such date, at such time and at such place as may be designated by the board of directors or any other person authorized to call such meeting under the corporation's certificate of incorporation or bylaws. If an annual meeting for election of directors is not held on the date designated or an action by written consent to elect directors in lieu of an annual meeting has not been taken within 30 days after the date designated for the annual meeting, or if no date has been designated, for a period of 13 months after the later of the last annual meeting or the last action by written consent to elect directors in lieu of an annual meeting, the Delaware Court of Chancery may summarily order a meeting to be held upon the application of any stockholder or director.</p>	<p>Under the OBCA, our board of directors is required to call an annual meeting of shareholders no later than fifteen months after holding the last preceding annual meeting.</p> <p>Under the OBCA and our bylaws, our board of directors may call a special meeting at any time. In addition, under the OBCA, holders of not less than five percent of our issued and outstanding Common Shares may requisition our board of directors to call a meeting of shareholders.</p>
Shareholder Action by Written Consent	<p>Under the DGCL, a majority of the stockholders of a corporation may act by written consent without a meeting unless such action is prohibited by the corporation's certificate of incorporation.</p>	<p>Under the OBCA and our bylaws, a written resolution signed by all of our shareholders who would have been entitled to vote on the resolution at a meeting is effective to approve the resolution.</p>
Shareholder Nominations and Proposals	<p>Not applicable.</p>	<p>Under the OBCA, a shareholder entitled to vote at a shareholders' meeting may submit a shareholder proposal relating to matters which such shareholder wishes to propose and discuss at a shareholders' meeting, and, subject to such shareholder's compliance with the prescribed time periods and other requirements of the OBCA pertaining to shareholder proposals, we are required to include such proposal in the information circular pertaining to any meeting at which we solicit proxies, subject to certain exceptions. Notice of such a proposal must be provided to us at least 60 days before the</p>

	<u>Delaware</u>	<u>Ontario</u>
Shareholder Quorum and Vote Requirements	<p>Under the DGCL, quorum for a corporation is a majority of the shares entitled to vote at the meeting unless the certificate of incorporation or bylaws specify a different quorum, but in no event may a quorum be less than one-third of the shares entitled to vote.</p> <p>Under the DGCL, unless the certificate of incorporation or bylaws provide for a greater vote, the required vote is a majority of the shares present in person or represented by proxy, except for the election of directors which requires a plurality of the votes cast.</p>	<p>anniversary date of the last annual shareholders' meeting, or at least 60 days before any other meeting at which the matter is proposed to be raised.</p> <p>In addition, the OBCA requires that any shareholder proposal that includes nominations for the election of directors must be signed by one or more holders of shares representing in the aggregate not less than 5% of our outstanding Common Shares entitled to vote at the meeting to which the proposal is to be presented.</p> <p>Under the OBCA, unless our articles of incorporation or our bylaws provide otherwise, the holders of a majority of our outstanding Common Shares, whether present in person or represented by proxy, constitute a quorum.</p> <p>Under our bylaws, holders of not less than 10% of our outstanding Common Shares, whether present in person or represented by proxy, constitute a quorum.</p>
Amendments of Governing Instruments	<p><i>Amendment of Certificate of Incorporation.</i> Generally, under the DGCL, the affirmative vote of the holders of a majority of the outstanding stock entitled to vote is required to approve a proposed amendment to the certificate of incorporation, following the adoption of the amendment by the board of directors, provided that the certificate of incorporation may provide for a greater vote. Under the DGCL, holders of outstanding shares of a class or series are entitled to vote separately on an amendment to the certificate of incorporation if the amendment would have certain consequences, including changes that adversely affect the rights and preferences of such class or series.</p> <p><i>Amendment of Bylaws.</i> Under the DGCL, the power to adopt, amend or repeal bylaws is vested in the stockholders entitled to vote, provided, however, that any corporation</p>	<p><i>Amendment of Articles of Incorporation.</i> Under the OBCA, amendments to our articles of incorporation generally require the approval of not less than two-thirds of the votes cast by shareholders entitled to vote on the resolution.</p> <p><i>Amendment of Bylaws.</i> Under the OBCA and our bylaws, our board of directors may, by resolution, make, amend or repeal any bylaws that regulate the business or affairs</p>

	<u>Delaware</u>	<u>Ontario</u>
Votes on Mergers, Consolidations, and Sales of Assets	<p>may, in its certificate of incorporation, confer the power to adopt, amend or repeal bylaws upon the board of directors. The fact that such power has been conferred upon the board of directors shall not divest the stockholders of the power nor limit their power to adopt, amend or repeal the bylaws.</p> <p>The DGCL provides that, unless otherwise provided in the certificate of incorporation or bylaws, the adoption of a merger agreement requires the approval of a majority of the outstanding stock of the corporation entitled to vote thereon.</p>	<p>of our Company, which will be effective from the date of such resolution; provided, that our board of directors submit the bylaw, amendment or repeal to our shareholders at the next meeting of shareholders, where the shareholders may confirm, reject or amend the bylaw, amendment or repeal.</p> <p>Under the OBCA, the approval of at least two-thirds of votes cast by shareholders entitled to vote on the resolution is required for extraordinary corporate actions. Holders of a class or series of shares are entitled to vote separately as a class or series if the extraordinary corporate action affects such particular class or series of shares in a manner different from holders of our Common Shares entitled to vote on such extraordinary corporate action, whether or not such particular class or series of shares are otherwise entitled to vote. Extraordinary corporate actions include amalgamations, continuances, sales, leases or exchanges of all or substantially all of the property of a corporation, liquidations and dissolutions.</p>
Dissenter's Rights of Appraisal	<p>Under the DGCL, any shareholder of a corporation who (i) holds share of stock on the date of making a demand for appraisal of such shareholder's shares, (ii) continuously holds such shares through the effective date of a merger or consolidation, and (iii) neither voted in favor of the merger or consolidation nor consented thereto, shall be entitled to an appraisal by the Delaware Court of Chancery of the fair value of such shareholder's shares of stock, provided, however, that no appraisal rights are available for shares of any class or series that is listed on a national securities exchange or held of record by more than 2,000 shareholders, unless the agreement of merger or consolidation requires the holders to accept for their shares anything other than:</p> <ul style="list-style-type: none">• shares of stock of the surviving corporation;• shares of stock of another corporation that are either listed on a national	<p>Under the OBCA, each of the following matters listed will entitle shareholders to exercise rights of dissent and to be paid the fair value of their shares: (i) any amalgamation with another corporation (other than with certain affiliated corporations), (ii) an amendment to our articles of incorporation to add, change or remove any provisions restricting the issue, transfer or ownership of our Common Shares, (iii) an amendment to our articles of incorporation to add, change or remove any restriction upon the business or businesses that we may carry on, (iv) a continuance under the laws of another jurisdiction, (v) a sale, lease or exchange of all or substantially all of our property, other than in the ordinary course of business, and (vi) where a court order permits a shareholder to dissent in connection with an application to the court for an order approving an arrangement.</p> <p>However, a shareholder is not entitled to dissent if an amendment to our articles of</p>

**Anti-Takeover and
Ownership Provisions**

Delaware

securities exchange or held of record by more than 2,000 shareholders;

- cash in lieu of fractional shares of the stock described in the two preceding bullet points; or
- any combination of the above.

In addition, appraisal rights are not available to holders of shares of the surviving corporation in specified mergers that do not require the vote of the shareholders of the surviving corporation.

Unless an issuer opts out of the provisions of Section 203 of the DGCL, Section 203 generally prohibits a Delaware corporation from engaging in a “business combination” (as defined in Section 203) with a holder of 15% or more of the corporation’s voting stock for a period of three years after the date of the transaction in which the interested stockholder became an interested stockholder, except as otherwise provided in Section 203.

Ontario

incorporation is effected by a court order approving a reorganization or by a court order made in connection with an action for an oppression remedy, unless otherwise authorized by the court.

Under the OBCA, a shareholder may, in addition to exercising dissent rights, seek an oppression remedy for any act or omission of our Company which is oppressive or unfairly prejudicial to or that unfairly disregards a shareholder’s interests.

While the OBCA does not contain specific anti- takeover provisions with respect to “business combinations”, roles and policies of certain Canadian securities regulatory authorities, including Multilateral Instrument 61-101, contain requirements in connection with, among other things, “related party transactions” and “business combinations”, including, among other things, any transaction by which an issuer directly or indirectly engages in the following with a related party: acquires, sells, leases or transfers an asset, acquires the related party, acquires or issues treasury securities, amends the terms of a security if the security is owned by the related party or assumes or becomes subject to a liability or takes certain other actions with respect to debt.

The term “related party” includes directors, senior officers and holders of more than 10% of the voting rights attached to all outstanding voting securities of the issuer or holders of a sufficient number of any securities of the issuer to materially affect control of the issuer.

Multilateral Instrument 61-101 requires, subject to certain exceptions, the preparation of a formal valuation relating to certain aspects of the transaction and more detailed disclosure in the proxy material sent to shareholders in connection with a related party transaction including related to the valuation. Multilateral Instrument 61-101 also requires, subject to certain exceptions, that an issuer not engage in a related party transaction unless the shareholders, other than the related parties, approve the transaction by a simple majority of the votes cast.

SHARES ELIGIBLE FOR FUTURE SALE

Upon the completion of this offering, as a result of the issuance of Common Shares in this offering, there will be Common Shares issued and outstanding (Common Shares if the underwriters exercise in full their option to purchase additional Common Shares in this offering).

Of the total number of our Common Shares to be issued and outstanding upon completion of this offering:

- Common Shares are being offered and sold in this offering (Common Shares if the underwriters exercise in full their option to purchase additional Common Shares in this offering). These Common Shares will be freely transferable without restriction or further registration under the Securities Act, except that any Common Shares acquired or held by our “affiliates” (as that term is defined in Rule 144 under the Securities Act) will be subject to the volume limitations and other restrictions of Rule 144 described below;
- 10,118,706 Common Shares were sold and issued in our Regulation A Offering, which closed on August 2, 2022. These Common Shares are freely transferable without restriction or further registration under the Securities Act, except that any Common Shares acquired or held by our affiliates will be subject to the volume limitations and other restrictions of Rule 144 described below; and
- the remaining Common Shares were sold and issued by us in private transactions in reliance upon exemptions from registration under the Securities Act, and have not been registered for resale. These Common Shares are “restricted securities” (as defined in Rule 144(a)(3) under the Securities Act), and cannot be sold by the holders thereof unless such sales are registered under the Securities Act pursuant to an effective registration statement filed by us, or made in reliance upon an applicable exemption from registration under the Securities Act, including the exemption contained in Rule 144 described below.

Additionally, certain of the outstanding Common Shares described above are subject to lock-up agreements, as described below under “—Lock-Up Agreements”.

Prior to this offering, no public market existed for our Common Shares. Although we intend to apply to list our Common Shares on the NYSE, an active trading market for our Common Shares may not develop or, if one develops, it may not be sustained following this offering. No assurance can be given as to the likelihood that an active trading market for our Common Shares will develop, the liquidity of any such market, the ability of our shareholders to sell their Common Shares, or the prices that our shareholders may obtain for any of their Common Shares. No prediction can be made as to the effect, if any, that future sales of our Common Shares, or the availability of our Common Shares for future sale, will have on prevailing market prices from time to time. Sales of substantial amounts of our Common Shares following this offering, or the perception that such sales could occur, may adversely affect prevailing market prices of our Common Shares. See “Risk Factors—Risks Related to this Offering and our Common Shares.”

Lock-Up Agreements

Pursuant to certain “lock-up” agreements, each of our directors and executives, and each of our shareholders that holds at least 5% of our outstanding Common Shares immediately prior to this offering, has agreed, subject to certain specified exceptions, not to, for a period of 365 days following the date of this prospectus, directly or indirectly:

- offer, sell, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open “put equivalent position” within the meaning of Rule 16a-1(h) under the Exchange Act, or otherwise dispose of, any Common Shares, options or warrants to acquire Common Shares, or securities exchangeable or exercisable for or convertible into Common Shares currently or hereafter owned either of record or beneficially;

Table of Contents

- enter into any swap, hedge or other agreement or transaction that transfers, in whole or in part, the economic consequence of ownership of Common Shares, or securities exchangeable or exercisable for or convertible into Common Shares; or
- publicly announce an intention to do any of the foregoing;

without the prior written consent of Cantor Fitzgerald & Co., as a representative of the underwriters in this offering. However, 50% of the Common Shares that are subject to the lock-up described above will be released from such lock-up, if (i) at least 180 days from the date of this prospectus have elapsed, and (ii) at any point prior to such release, the 20-day volume-weighted average price of the Common Shares was at least 30% greater than the initial public offering price per share set forth on the cover of this prospectus.

In addition, we have agreed, subject to certain exceptions, that, for a period of 180 days from the date of this prospectus, we will not offer, sell, contract to sell, grant any option for the sale of, issue, pledge, transfer, or otherwise dispose of any Common Shares, or publish our intention to do any of the foregoing.

See also “Underwriting—No Sales of Similar Securities.”

Rule 144

In general, under Rule 144 under the Securities Act (which we refer to as “Rule 144”) as currently in effect, beginning 90 days after the date of this prospectus, a shareholder who beneficially own shares considered to be restricted securities under Rule 144, who is not deemed to have been an affiliate of ours at any time during the three months preceding a sale, and who has beneficially owned such restricted securities for at least six months (including the holding period of any prior shareholder other than an affiliate of ours), would be entitled to sell those shares; provided that current public information about us is available. Additionally, under Rule 144, if such shareholder has beneficially owned those shares for at least one year (including the holding period of any prior shareholder other than an affiliate of ours), such shareholder would be entitled to sell those shares without regard to the requirements and conditions of Rule 144, including whether current public information about us is available.

Beginning 90 days after the date of this prospectus, an affiliate of ours who has beneficially owned our Common Shares for at least six months is entitled to sell, within any three-month period, a number of shares that does not exceed the greater of (i) 1% of the aggregate number of Common Shares then outstanding, which will equal approximately _____ Common Shares immediately after this offering (_____ shares if the underwriters exercise in full their option to purchase _____ additional Common Shares in this offering), and (ii) the average weekly trading volume of our Common Shares on the NYSE during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale; provided that current public information about us is available and such affiliate complies with the other requirements and conditions of Rule 144 relating to manner of sale and notice. To the extent that an affiliate of ours sells our Common Shares, other than pursuant to Rule 144 or an effective registration statement under the Securities Act, the purchaser’s holding period for the purpose of effecting a sale under Rule 144 commences on the date of transfer of such shares from such affiliate.

Upon expiration of the lock-up agreements described above under “—Lock-Up Agreements”, substantially all of our outstanding Common Shares will either be unrestricted or will be eligible for sale under Rule 144, subject to the volume limitations and additional requirements and conditions under Rule 144 applicable to our affiliates as described above. We cannot estimate the number of Common Shares that our existing shareholders will elect to sell following this offering.

Rule 701

In general, under Rule 701 of the Securities Act (which we refer to as “Rule 701”) as currently in effect, an employee, consultant or advisor who is not an affiliate of ours, and who purchased or purchases, pursuant to an offer made or option granted prior to the date of this prospectus, Common Shares from us pursuant to a written compensatory plan or other written agreement in accordance with Rule 701, is eligible, beginning 90 days after

the date of this prospectus, to resell such Rule 701 Common Shares in reliance on Rule 144, but without compliance with the holding period, public information, volume limitation, and notice requirements of Rule 144. Additionally, under Rule 701, an employee, consultant or advisor who is an affiliate of ours, and who purchased or purchases Rule 701 Common Shares, is eligible, beginning 90 days after the date of this prospectus, to resell such Rule 701 Common Shares in reliance on Rule 144, but without compliance with the holding period requirements of Rule 144.

2024 Incentive Compensation Plan

Under our 2024 Incentive Compensation Plan, the total number of our Common Shares that is reserved and available for awards is equal to 15% of the total number of our Common Shares issued and outstanding as of the date of grant of an award, less the aggregate number of our Common Shares which have become subject to outstanding awards granted under our 2024 Incentive Compensation Plan as of such date. Immediately following this offering, we expect to have an aggregate of _____ Common Shares reserved and available for awards under our 2024 Incentive Compensation Plan. For a description of our Incentive Compensation Plan, see “Executive and Director Compensation—2024 Incentive Compensation Plan”.

Following the completion of this offering, we intend to file a registration statement on Form S-8, which will become effective automatically upon filing, to register the total number of our Common Shares that may be issued under our 2024 Incentive Compensation Plan. These shares will be freely tradable and immediately available for sale in the open market following their issuance, subject to the volume limitations and additional requirements and conditions under Rule 144 applicable to our affiliates, and applicable restrictions imposed by our insider trading policy, and unless they are subject to the lock-up agreements described under “—Lock-Up Agreements” above, in which case, after the expiration of such lock-up agreements.

Registration Statements on Form S-8

Following the completion of this offering, we intend to file registration statements on Form S-8, which will become effective automatically upon filing, (i) to register the total number of our Common Shares underlying stock options previously granted to our directors and executives under our Stock Option Plan, and (ii) to register the total number of our Common Shares underlying DSUs previously granted to certain of our directors and executives under our Deferred Share Unit Plan. These shares will be freely tradable and immediately available for sale in the open market following their issuance, subject to the volume limitations and additional requirements and conditions under Rule 144 applicable to our affiliates, and applicable restrictions imposed by our insider trading policy, and unless they are subject to the lock-up agreements described under “—Lock-Up Agreements” above, in which case, after the expiration of such lock-up agreements.

Underwriters’ Warrants

We have agreed to issue to the underwriters, upon the closing of this offering, the Underwriters’ Warrants, which are exercisable for the number of our Common Shares equal to 5% of the total number of Common Shares sold in this offering. The Underwriters’ Warrants will be exercisable, in whole or in part, from time to time after six months following the date of this prospectus, and will expire on the date that is two years following the date of this prospectus. The Underwriters’ Warrants and the Common Shares issuable upon exercise of the Underwriters’ Warrants are also being registered under the registration statement of which this prospectus forms a part. See “Underwriting—Underwriters’ Warrants.”

THE DISCUSSION ABOVE IS A GENERAL SUMMARY. IT DOES NOT COVER ALL MATTERS RELATING TO SHARE TRANSFER RESTRICTIONS THAT MAY BE OF IMPORTANCE TO A PROSPECTIVE INVESTOR. EACH PROSPECTIVE INVESTOR SHOULD CONSULT HIS, HER OR ITS OWN LEGAL ADVISOR REGARDING THE PARTICULAR SECURITIES LAWS AND TRANSFER RESTRICTION CONSEQUENCES OF PURCHASING, HOLDING, AND DISPOSING OF OUR COMMON SHARES, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

CERTAIN U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following description is not intended to constitute a complete analysis of all tax consequences relating to the ownership or disposition of our Common Shares. You should consult your tax advisor concerning the tax consequences of your particular situation, as well as any tax consequences that may arise under the laws of any local, state, foreign (including Canada and Brazil), or other taxing jurisdiction.

The following discussion is a summary of certain U.S. federal income tax considerations generally applicable to the ownership and disposition of our Common Shares by a U.S. Holder (as defined below) that acquires our Common Shares in this offering. This summary is for general information purposes only and does not purport to be a complete discussion of all potential tax considerations that may be relevant to a particular person's decision to acquire our Common Shares.

This summary is based on the U.S. Internal Revenue Code of 1986, as amended (which we refer to as the "Code"), the regulations promulgated under the Code (which we refer to as the "U.S. Treasury Regulations"), the income tax treaty between Canada and the United States (which we refer to as the "Treaty"), published rulings of the U.S. Internal Revenue Service (which we refer to as the "IRS"), published administrative positions of the IRS, and U.S. court decisions that are applicable, in each case, as in effect and available as of the date hereof. Any of the authorities on which this summary is based could be changed in a material and adverse manner at any time, and any such change could be applied on a retroactive or prospective basis which could affect the U.S. federal income tax considerations described in this summary. We have not requested a ruling from the IRS with respect to any of the U.S. federal income tax considerations described below and, as a result, the IRS could disagree with portions of this discussion.

For purposes of this discussion, a "U.S. Holder" is a beneficial owner of our Common Shares that is, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) that is created or organized in or under the laws of the United States, any state thereof, or the District of Columbia;
- an estate the income of which is includable in gross income for U.S. federal income tax purposes regardless of its source; or
- a trust (i) the administration of which is subject to the primary supervision of a court within the United States and which has one or more U.S. persons, as described in Section 7701(a)(30) of the Code, who have the authority to control all substantial decisions of the trust, or (ii) that has validly elected to be treated as a U.S. person by electing to apply Section 7701(a)(30) of the Code to the trust.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our Common Shares, the U.S. federal income tax consequences to such partnership and its partners of the ownership and disposition of our Common Shares generally will depend in part on the activities of the partnership and the status of such partners. This summary does not address the tax consequences to any such partner or partnership. Partners of entities or arrangements that are classified as partnerships for U.S. federal income tax purposes should consult their tax advisors regarding the U.S. federal income tax consequences of the ownership and disposition of our Common Shares.

This discussion applies only to a U.S. Holder that holds our Common Shares as "capital assets" within the meaning of Section 1221 of the Code (generally, property held for investment). Unless otherwise provided, this summary does not discuss reporting requirements. In addition, this discussion does not address any tax consequences other than the certain U.S. federal income tax consequences explicitly discussed below, such as U.S. state and local tax consequences, U.S. estate and gift tax consequences, and non-U.S. tax consequences, and

does not describe all of the U.S. federal income tax consequences that may be relevant in light of a U.S. Holder's particular circumstances, including alternative minimum tax consequences, the Medicare tax on certain net investment income, and tax consequences to holders that are subject to special provisions under the Code, including, but not limited to, holders that:

- are tax exempt organizations, qualified retirement plans, individual retirement accounts, or other tax deferred accounts;
- are financial institutions, underwriters, insurance companies, real estate investment trusts, or regulated investment companies;
- are brokers or dealers in securities or currencies or holders that are traders in securities that elect to apply a mark-to-market accounting method;
- have a "functional currency" for U.S. federal income tax purposes that is not the U.S. dollar;
- own our Common Shares as part of a straddle, hedging transaction, conversion transaction, constructive sale, or other arrangement involving more than one position;
- acquire our Common Shares in connection with the exercise of employee stock options or otherwise as compensation for services;
- are partnerships or other pass-through entities for U.S. federal income tax purposes (or investors in such partnerships and entities);
- are required to accelerate the recognition of any item of gross income with respect to our Common Shares as a result of such income being recognized on an applicable financial statement;
- own or will own (directly, indirectly, or constructively) 10% or more of our total combined voting power or value;
- are controlled foreign corporations;
- are passive foreign investment companies;
- hold our Common Shares in connection with trade or business conducted outside of the United States or in connection with a permanent establishment or other fixed place of business outside of the United States; or
- are former U.S. citizens or former long-term residents of the United States.

Except as otherwise noted, this summary assumes that our Company and Potássio do Brasil Ltda. will each likely be classified as a passive foreign investment company (which we refer to as a "PFIC") for U.S. federal income tax purposes for the current taxable year and the foreseeable future. A non-U.S. entity's possible status as a PFIC must be determined annually and therefore may be subject to change. If our Company or Potássio do Brasil Ltda. is a PFIC for any taxable year during which a U.S. Holder owns our Common Shares, certain materially adverse U.S. federal income tax consequences could result for such U.S. Holder.

Each U.S. Holder is urged to consult its tax advisor regarding the application of U.S. federal taxation to its particular circumstances, and the state, local, non-U.S. and other tax considerations of the ownership and disposition of our Common Shares.

U.S. Holders should consult their tax advisors regarding any reporting obligations that may arise with respect to the acquisition, ownership or disposition of our Common Shares. Failure to comply with applicable reporting requirements could result in substantial penalties.

The foregoing discussion of certain U.S. federal income tax considerations is for general information only and is not intended to constitute a complete analysis of all tax consequences relating to the acquisition, ownership and disposition of our Common Shares. U.S. Holders should consult their tax advisors concerning the tax consequences applicable to their particular situations.

Certain U.S. Federal Income Tax Considerations for U.S. Holders

Taxation of Distributions to U.S. Holders

Subject to the PFIC rules discussed below, a U.S. Holder generally will be required to include in gross income, in accordance with such U.S. Holder's method of accounting for U.S. federal income tax purposes, as dividends, the amount of any distribution (including a deemed distribution) of cash or other property (other than certain distributions of our shares or rights to acquire our shares) paid on our Common Shares to the extent the distribution is paid out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles). Distributions (including deemed distributions) in excess of such earnings and profits generally will be applied against and reduce a U.S. Holder's basis in the Common Shares held by such U.S. Holder (but not below zero) and, to the extent in excess of such basis, will be treated as capital gain from the sale or exchange of such Common Shares (the treatment of which is described under "—Gain or Loss on Sale, Taxable Exchange or Other Taxable Disposition of our Common Shares to U.S. Holders" below). Because we do not intend to determine our earnings and profits on the basis of U.S. federal income tax principles, we expect that distributions, if issued, will generally be reported to U.S. Holders as dividends.

Dividends paid by us will be taxable to a corporate U.S. Holder at regular rates and will not be eligible for the dividends-received deduction generally allowed to domestic corporations in respect of dividends received from other domestic corporations. With respect to individuals and other non-corporate U.S. Holders, dividends generally will be taxed at the lower applicable long-term capital gains rate (see "—Gain or Loss on Sale, Taxable Exchange or Other Taxable Disposition of our Common Shares to U.S. Holders" below) applicable to "qualified dividend income", provided that certain conditions are satisfied, including that (i) our Common Shares on which the dividends are paid are readily tradable on an established securities market in the United States or we are eligible for the benefits of the U.S.-Canada income tax treaty (which we refer to as the "Treaty"), and (ii) we are not a PFIC (nor treated as such with respect to a U.S. Holder) at the time the dividend was paid or in the previous year. If such requirements are not satisfied, a dividend paid by a non-U.S. corporation to a U.S. Holder will be taxed at ordinary income tax rates. U.S. Holders should consult their tax advisors regarding the availability of such lower rate for any dividends paid with respect to our Common Shares.

For U.S. foreign tax credit purposes, dividends paid on our Common Shares generally will be treated as foreign source income and generally will constitute passive category income. The amount of a dividend will include any amounts withheld by us in respect of Canadian income taxes. Subject to applicable limitations, some of which vary depending upon the U.S. Holder's particular circumstances, Canadian income taxes withheld from dividends on our Common Shares, at a rate not exceeding any reduced rate pursuant to the Treaty, may be creditable against such U.S. Holder's U.S. federal income tax liability. In lieu of claiming a foreign tax credit, U.S. Holders may, at their election, deduct foreign taxes, including any Canadian income taxes, in computing their taxable income, subject to generally applicable limitations under U.S. law. An election to deduct foreign taxes instead of claiming foreign tax credits applies to all foreign taxes paid or accrued in the taxable year. The rules governing foreign tax credits are very complex. For example, certain Treasury Regulations provide that, in the absence of an election to apply the benefits of an applicable income tax treaty, foreign income taxes generally will need to satisfy certain additional requirements in order to be considered a creditable tax for a U.S. Holder. We have not determined whether these requirements have been met with respect to any tax, and, accordingly, no assurance can be given that any Canadian income taxes withheld from dividends paid on our Common Shares will be a creditable tax. Recent notices from the IRS provide temporary relief from such Treasury Regulations for taxable years ending before the date that a notice or other guidance withdrawing or modifying the temporary relief is issued (or any later date specified in such notice or other guidance), provided certain requirements are satisfied, and U.S. Holders should consult their tax advisers regarding the creditability or deductibility of foreign taxes in their particular circumstances, including, without limitation, the effects of any applicable income tax treaties, any proposed or final Treasury Regulations, and IRS guidance.

The amount of any dividend paid in Canadian dollars will equal the U.S. dollar value of the Canadian dollars received by such U.S. Holder, calculated by reference to the exchange rate in effect on the date the

dividend is received, in the case of our Common Shares, regardless of whether the Canadian dollars are converted into U.S. dollars. If the Canadian dollars received as a dividend are converted into U.S. dollars on the date of receipt, a U.S. Holder generally will not be required to recognize foreign currency gain or loss in respect of the dividend income. If the Canadian dollars received as a dividend are not converted into U.S. dollars on the date of receipt, a U.S. Holder will have a basis in the Canadian dollars equal to their U.S. dollar value on the date of receipt. Any gain or loss realized on a subsequent conversion or other disposition of the Canadian dollar will be treated as U.S. source ordinary income or loss.

Gain or Loss on Sale, Taxable Exchange or Other Taxable Disposition of our Common Shares to U.S. Holders

Subject to the PFIC rules discussed below, a U.S. Holder generally will recognize a capital gain or loss on the sale or other taxable disposition of our Common Shares. The amount of gain or loss recognized by a U.S. Holder on a sale or other taxable disposition generally will be equal to the difference between (i) the sum of the amount of cash and the fair market value of any property received in such disposition, and (ii) such U.S. Holder's adjusted tax basis in the Common Shares so disposed of. A U.S. Holder's adjusted tax basis in the Common Shares held by such U.S. Holder generally will equal the U.S. Holder's acquisition cost reduced by any prior distributions treated as a return of capital.

Any capital gain or loss recognized generally will be long-term capital gain or loss if the U.S. Holder's holding period for such Common Shares exceeds one year. Long-term capital gain realized by a non-corporate U.S. Holder may be taxed at rates of taxation lower than the rates applicable to ordinary income and short-term capital gains, while short-term capital gains are subject to U.S. federal income tax at the rates applicable to ordinary income. The deductibility of capital losses is subject to various limitations.

Any gain or loss recognized by a U.S. Holder will generally be U.S. source gain or loss for foreign tax credit purposes. Consequently, a U.S. Holder may not be able to use the foreign tax credit arising from any non-U.S. tax imposed on the disposition of Common Shares unless such credit can be applied (subject to applicable limitations) against tax due on other income treated as derived from non-U.S. sources. U.S. Holders are advised to consult their tax advisors regarding the tax consequences if a foreign tax is imposed on a disposition of Common Shares, including the availability of the foreign tax credit under its particular circumstances and the effects of any applicable income tax treaties, any proposed or final Treasury Regulations, and IRS guidance.

Passive Foreign Investment Company ("PFIC") Rules

A non-U.S. corporation will be classified as a PFIC for U.S. federal income tax purposes if either (i) at least 75% of its gross income in a taxable year, including its pro rata share of the gross income of any corporation in which it is considered to own at least 25% of the shares by value, is passive income, or (ii) at least 50% of its assets in a taxable year (ordinarily determined based on fair market value and averaged quarterly over the year), including its pro rata share of the assets of any corporation in which it is considered to own at least 25% of the shares by value, are held for the production of, or produce, passive income. Passive income generally includes, among other things, dividends, interest, rents and royalties (other than rents or royalties derived from the active conduct of a trade or business), and gains from the disposition of assets giving rise to passive income. Cash is generally a passive asset for these purposes.

Although PFIC status is determined annually, an initial determination that a non-U.S. corporation is a PFIC generally will apply for subsequent years to a U.S. Holder who held its stock while it was a PFIC, whether or not it meets the test for PFIC status in those subsequent years. U.S. Holders of our Common Shares should be aware that, based on our current business plans and financial expectations, we expect that we and Potássio do Brasil Ltda. each will be classified as a PFIC for the current taxable year, may have been a PFIC in prior taxable years, and may be a PFIC in future taxable years. If we are determined to be a PFIC for any taxable year (or portion thereof) that is included in the holding period of a U.S. Holder of our Common Shares and such U.S. Holder did

[Table of Contents](#)

not make either a timely mark-to-market election or a qualified electing fund (which we refer to as “QEF”) election for our first taxable year as a PFIC in which the U.S. Holder held (or was deemed to hold) our Common Shares, as described below, such U.S. Holder generally will be subject to special rules with respect to (i) any gain recognized by such U.S. Holder on the sale or other disposition of our Common Shares (which may include gain realized by reason of transfers of our Common Shares that would otherwise qualify as nonrecognition transactions for U.S. federal income tax purposes), and (ii) any “excess distribution” made to such U.S. Holder (generally, any distributions to such U.S. Holder during a taxable year of such U.S. Holder that are greater than 125% of the average annual distributions received by such U.S. Holder in respect of our Common Shares during the three preceding taxable years of such U.S. Holder or, if shorter, such U.S. Holder’s holding period for the Common Shares held by such U.S. Holder). Under these special tax rules:

- such U.S. Holder’s gain or excess distribution will be allocated ratably over such U.S. Holder’s holding period for the Common Shares held by such U.S. Holder;
- the amount allocated to such U.S. Holder’s taxable year in which such U.S. Holder recognized the gain or received the excess distribution, or to the period in such U.S. Holder’s holding period before the first day of our first taxable year in which we are a PFIC, will be taxed as ordinary income;
- the amount allocated to other taxable years (or portions thereof) of such U.S. Holder and included in its holding period will be taxed at the highest tax rate in effect for that year and applicable to such U.S. Holder without regard to such U.S. Holder’s other items of income and loss for such year; and
- an additional amount equal to the interest charge generally applicable to underpayments of tax will be imposed on such U.S. Holder with respect to the tax attributable to each such other taxable year of such U.S. Holder.

In general, if we are determined to be a PFIC, a U.S. Holder may be able to avoid application of the PFIC tax consequences described above with respect to our Common Shares by making a timely and valid QEF election (if eligible to do so) to include in income its pro rata share of our net capital gains (as long-term capital gain) and other earnings and profits (as ordinary income), on a current basis, in each case whether or not distributed, in the taxable year of the U.S. Holder in which or with which our taxable year ends. A U.S. Holder generally may make a separate election to defer the payment of taxes on undistributed income inclusions under the QEF rules, but if deferred, any such taxes will be subject to an interest charge. If we determine that we are classified as a PFIC for a taxable year, we currently intend to provide the information necessary for a U.S. Holder to make a QEF election with respect to our Company and each lower-tier PFIC that we control, which, if available, would result in tax treatment different from (and generally less adverse than) the general tax treatment for PFICs.

Alternatively, if a U.S. Holder, at the close of such U.S. Holder’s taxable year, owns shares in a PFIC that are treated as marketable stock, such U.S. Holder may make a mark-to-market election with respect to such shares for such taxable year. If such U.S. Holder makes a valid mark-to-market election for the first taxable year of such U.S. Holder in which such U.S. Holder holds (or is deemed to hold) our Common Shares and for which we are determined to be a PFIC, such U.S. Holder generally will not be subject to the PFIC rules described above with respect to the Common Shares held by such U.S. Holder. Instead, in general, such U.S. Holder will include as ordinary income in each taxable year the excess, if any, of the fair market value of the Common Shares held by such U.S. Holder at the end of such U.S. Holder’s taxable year over such U.S. Holder’s adjusted basis in such Common Shares. These amounts of ordinary income would not be eligible for the favorable tax rates applicable to qualified dividend income or long-term capital gains. Such U.S. Holder also generally will recognize an ordinary loss in respect of the excess, if any, of its adjusted basis in such Common Shares over the fair market value of such Common Shares at the end of such U.S. Holder’s taxable year (but only to the extent of the net amount of previously included income as a result of the mark-to-market election). Such U.S. Holder’s basis in such Common Shares will be adjusted to reflect any such income or loss amounts, and any further gain recognized on a sale or other taxable disposition of such Common Shares will be treated as ordinary income.

The mark-to-market election is available only for stock that is regularly traded on a national securities exchange that is registered with the SEC or on a foreign exchange or market that the IRS determines has rules

[Table of Contents](#)

sufficient to ensure that the market price represents a legitimate and sound fair market value. If made, a mark-to-market election would be effective for the taxable year for which the election was made and for all subsequent taxable years, unless our Common Shares ceased to qualify as “marketable stock” for purposes of the PFIC rules or the IRS consented to the revocation of the election. U.S. Holders are urged to consult their tax advisors regarding the availability and tax consequences of a mark-to-market election with respect to our Common Shares under their particular circumstances.

If we are or become a PFIC and, at any time, have a non-U.S. subsidiary that is classified as a PFIC, U.S. Holders generally would be deemed to own a portion of the shares of such lower-tier PFIC, and generally could incur liability for the deferred tax and interest charge described above if we receive a distribution from, or dispose of all or part of our interest in, the lower-tier PFIC, or U.S. Holders otherwise were deemed to have disposed of an interest in the lower-tier PFIC. There can be no assurance that we will have timely knowledge of the status of any such lower-tier PFIC. Additionally, we may not hold a controlling interest in any such lower-tier PFIC, and, therefore, there can be no assurance that we will be able to cause such lower-tier PFIC to provide such required information. A mark-to-market election generally would not be available with respect to such lower-tier PFIC. U.S. Holders are urged to consult their tax advisors regarding the tax issues raised by lower-tier PFICs.

A U.S. Holder that owns (or is deemed to own) shares in a PFIC during any taxable year of the U.S. Holder, may have to file an IRS Form 8621 (or any successor form), whether or not a QEF or mark-to-market election is made, and such other information as may be required by the U.S. Treasury Department. Failure to do so, if required, will extend the statute of limitations until such required information is furnished to the IRS (potentially including with respect to items that do not relate to a U.S. Holder’s investment in our Common Shares).

The rules dealing with PFICs and with the QEF and mark-to-market elections are very complex and are affected by various factors in addition to those described above. Accordingly, U.S. Holders of our Common Shares should consult their tax advisors concerning the application of the PFIC rules to our Common Shares under their particular circumstances.

Information Reporting and Backup Withholding

Payments of dividends or sales proceeds that are made within the United States or through certain U.S.-related financial intermediaries may be subject to information reporting and backup withholding, unless (i) the U.S. Holder is a corporation or other exempt recipient, or (ii) in the case of backup withholding, the U.S. Holder provides a correct U.S. taxpayer identification number and certifies that it is not subject to backup withholding.

Backup withholding is not an additional tax. Any amounts withheld under the U.S. backup withholding rules will be allowed as a credit against the U.S. Holder’s U.S. federal income tax liability, if any, or will be refunded, if such U.S. Holder furnishes required information to the IRS in a timely manner. U.S. Holders of our Common Shares should consult their tax advisors regarding the information reporting and backup withholding rules in their particular circumstances and the availability of and procedures for obtaining an exemption from backup withholding.

Reporting Obligations for Certain Owners of Foreign Financial Assets

Certain U.S. Holders may be required to file an IRS Form 926 (Return by a U.S. Transferor of Property to a Foreign Corporation) to report a transfer of property (including cash) to us. Substantial penalties may be imposed on a U.S. Holder that fails to comply with this reporting requirement, and the period of limitations on assessment and collection of U.S. federal income taxes will be extended in the event of a failure to comply.

Furthermore, certain U.S. Holders who are individuals and certain entities will be required to report information with respect to such U.S. Holder’s investment in “specified foreign financial assets” on IRS Form 8938

[Table of Contents](#)

(Statement of Specified Foreign Financial Assets), subject to certain exceptions. Specified foreign financial assets generally include any financial account maintained with a non-U.S. financial institution and should also include our Common Shares if they are not held in an account maintained with a U.S. financial institution. Persons who are required to report specified foreign financial assets and fail to do so may be subject to substantial penalties, and the period of limitations on assessment and collection of U.S. federal income taxes may be extended in the event of a failure to comply. Potential investors are urged to consult their tax advisors regarding the foreign financial asset and other reporting obligations and their application to an investment in our Common Shares.

The discussion of reporting obligations set forth above is not intended to constitute an exhaustive description of all reporting obligations that may apply to a U.S. Holder. A failure to satisfy certain reporting obligations may result in an extension of the period during which the IRS can assess a tax, and under certain circumstances, such an extension may apply to assessments of amounts unrelated to any unsatisfied reporting obligation. Penalties for failure to comply with these reporting obligations are substantial. U.S. Holders should consult with their tax advisors regarding their reporting obligations under these rules, including the requirement to file an IRS Form 8938.

UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated _____, 2024, between us and Cantor Fitzgerald & Co., 499 Park Avenue, New York, New York 10022, and Banco Bradesco BBI S.A., Avenida Juscelino Kubitschek, 1309, 10th Floor, 04543-011 São Paulo, São Paulo, Brazil, as the representatives (which we refer to as the “Representatives”) of the underwriters named below, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of Common Shares shown opposite its name below:

<u>Underwriter</u>	<u>Number of Common Shares</u>
Cantor Fitzgerald & Co.	
Banco Bradesco BBI S.A.	
Freedom Capital Markets	
Roth Capital Partners, LLC	
Clarksons Securities, Inc.	
Total	

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers’ certificates and legal opinions and the approval of certain legal matters by their counsel. The underwriting agreement provides for a firm commitment underwriting, and the underwriters will purchase all of the Common Shares shown in the table above if any of them are purchased. The Representatives have advised us that the underwriters propose to offer the Common Shares to the public at the initial public offering price set forth on the cover page of this prospectus.

The underwriters are offering the Common Shares subject to their acceptance of the Common Shares from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public, and to reject orders in whole or in part. In addition, the underwriters have advised us that they do not intend to confirm sales to any account over which they exercise discretionary authority.

We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

Bradesco Securities, Inc. will act as agent of Banco Bradesco BBI S.A. for sales of our Common Shares in the United States of America. Banco Bradesco BBI S.A. is not a broker-dealer registered with the SEC, and therefore may not make any sales of our Common Shares in the United States to U.S. persons. Banco Bradesco BBI S.A. and Bradesco Securities, Inc. are affiliates of Banco Bradesco S.A.

This offering is being made concurrently in the United States and in each of the provinces and territories in Canada, other than Quebec. Our Common Shares will be offered in the United States through those underwriters who are registered to offer the Common Shares for the sale in the United States and such other registered dealers as may be designated by the underwriters. Subject to applicable law, the underwriters, or such other registered dealers or other entities outside the United States and Canada that are affiliates of the underwriters as may be designated by the underwriters, may offer our Common Shares outside of the United States and Canada. In Canada, the Common Shares are to be taken up by the underwriters, if at all, on or before a date not later than 42 days after the date of this prospectus.

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for a period of 30 days from the date of this prospectus, to purchase, from time to time, in whole or in part, up to an aggregate of _____ additional

[Table of Contents](#)

Common Shares from us at the initial public offering price set forth on the cover page of this prospectus, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to certain conditions, to purchase a number of additional Common Shares approximately proportionate to that underwriter's initial purchase commitment as indicated in the table above.

Discounts and Commissions and Expenses

The Representatives have advised us that they propose to offer our Common Shares to the public at the initial public offering price set forth on the cover page of this prospectus, and to certain dealers, which may include the underwriters, at that price less a concession not in excess of \$ _____ per Common Share. The Representatives may allow, and certain dealers may reallocate, a discount from the concession not in excess of \$ _____ per Common Share to certain brokers and dealers.

The following table shows the public offering price, the underwriting discounts and commissions that we will pay to the underwriters, and the proceeds to us, before expenses, in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional Common Shares.

	Per Common Share		Total	
	No Exercise of Option to Purchase Additional Common Shares	Full Exercise of Option to Purchase Additional Common Shares	No Exercise of Option to Purchase Additional Common Shares	Full Exercise of Option to Purchase Additional Common Shares
Public offering price	\$	\$	\$	\$
Underwriting discounts and commissions ⁽¹⁾	\$	\$	\$	\$
Proceeds to us, before expenses	\$	\$	\$	\$

⁽¹⁾ The underwriting discounts and commissions reflected in this table do not include (i) the issuance by us of the Underwriters' Warrants to the underwriters (see "—Underwriters' Warrants" below), or (ii) the reimbursement by us of certain expenses as described below.

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately \$ _____. We have also agreed to reimburse the underwriters up to \$ _____ for certain of their out-of-pocket expenses reasonably incurred in connection with this offering, including the reasonable and documented fees of certain of their counsels, which reimbursed fees, other than any fees in connection with FINRA filings or compliance with Blue Sky laws, are deemed by FINRA to be underwriting compensation for this offering.

Determination of Offering Price

Prior to this offering, there has been no public market for our Common Shares. The initial public offering price per share of our Common Shares offered in this offering was negotiated between us and the Representatives. Factors considered in determining the initial public offering price of our Common Shares include:

- the history and prospects of other mining companies, and prior offerings of equity securities of those companies;
- our prospects for the successful development and construction of the Autazes Project, including successfully developing and commencing our mining operations;
- an assessment of our management and its experience in the mining industry;
- our capital structure;
- general conditions of the securities markets at the time of this offering; and
- other factors we and the Representatives deemed relevant.

[Table of Contents](#)

Neither we nor the underwriters can assure investors that an active trading market will develop for our Common Shares or that our Common Shares will trade in the public market at or above the initial public offering price. The initial public offering price of our Common Shares in this offering may not accurately reflect the value of our Common Shares, and may not be realized upon any subsequent disposition of the shares.

Cantor Fitzgerald & Co.'s Right of First Refusal

Until nine months from the closing date of this offering, Cantor Fitzgerald & Co. will have a right of first refusal (which we refer to as the "Right of First Refusal") to act as a managing underwriter, initial purchaser, or placement agent for any offering of our equity securities, with an equity offering size of at least \$25 million (which we refer to as a "Subsequent Equity Financing"), in each case with Cantor Fitzgerald & Co. acting as an active book running manager and receiving 20% of the aggregate gross spread or fees from any such Subsequent Equity Financing. Pursuant to FINRA Rule 5110, the Right of First Refusal is deemed by FINRA to be underwriting compensation for this offering, the value of which will be 1% of the proceeds from this offering.

Underwriters' Warrants

We have agreed to issue to the underwriters, upon the closing of this offering, warrants exercisable for the number of our Common Shares equal to 5% of the total number of Common Shares sold in this offering (which we refer to as the "Underwriters' Warrants"). The Underwriters' Warrants will be exercisable at an exercise price equal to 130% of the initial public offering price of the Common Shares sold in this offering. Subject to FINRA Rule 5110(e)(1), the Underwriters' Warrants will be exercisable, in whole or in part, from time to time after six months following the date of this prospectus, until the expiration of the Underwriters' Warrants on the date that is two years following the date of this prospectus. The Underwriters' Warrants and the Common Shares issuable upon exercise of the Underwriters' Warrants are also being registered under the registration statement of which this prospectus forms a part, and this prospectus also relates to the Common Shares issuable upon exercise of the Underwriters' Warrants.

In addition, pursuant to FINRA Rule 5110, the Underwriters' Warrants and the Common Shares underlying the Underwriters' Warrants are deemed by FINRA to be underwriting compensation for this offering, and, as such, they will be subject to lock-up restrictions, as required by FINRA Rule 5110(e)(1), and may not be sold during this offering, or sold, transferred, assigned, pledged or hypothecated, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of such securities by any person, for a period of 180 days immediately following the date of effectiveness of the registration statement of which this prospectus forms a part or the commencement of sales under this offering, except as provided in FINRA Rule 5110(e)(2).

The exercise price and the number of Common Shares issuable upon exercise of the Underwriters' Warrants may be adjusted in certain circumstances, including in the event of a stock dividend, extraordinary cash dividend, or recapitalization, reorganization, merger or consolidation. You should review a copy of the form of the Underwriters' Warrants, which is included as Exhibit 4.2 to the registration statement of which this prospectus forms a part, for a complete description of the terms and conditions applicable to the Underwriters' Warrants.

Listing

We intend to apply for the listing of our Common Shares on the NYSE under the symbol "GRO".

No Sales of Similar Securities

We, each of our directors and executives, and each of our shareholders that holds at least 5% of our outstanding Common Shares immediately prior to this offering, have agreed, subject to certain specified exceptions, not to, (i) for a period of 365 days following the date of this prospectus in the case of our directors and executives, and our shareholders that hold at least 5% of our outstanding Common Shares immediately prior to this offering, and (ii) for a period of 180 days following the date of this prospectus in the case of our Company, directly or indirectly:

- offer, sell, contract or grant any option to sell (including any short sale), issue (in the case of our Company), pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-1(h) under the Exchange Act, or otherwise dispose of, any Common Shares, options or warrants to

[Table of Contents](#)

acquire Common Shares, or securities exchangeable or exercisable for or convertible into Common Shares currently or hereafter owned either of record or beneficially;

- enter into any swap, hedge or other agreement or transaction that transfers, in whole or in part, the economic consequence of ownership of Common Shares, or securities exchangeable or exercisable for or convertible into Common Shares; or
- publicly announce an intention to do any of the foregoing, without the prior written consent of Cantor Fitzgerald & Co., as a Representative of the underwriters.

However, in the case of our directors and executives, and our shareholders that hold at least 5% of our outstanding Common Shares immediately prior to this offering, 50% of their Common Shares that are subject to the lock-up described above will be released from such lock-up, if (i) at least 180 days from the date of this prospectus have elapsed, and (ii) at any point prior to such release, the 20-day volume-weighted average price of the Common Shares was at least 30% greater than the initial public offering price per share set forth on the cover of this prospectus (which we refer to as the “Milestone”). If the Milestone is met during the initial 180 days from the date of this prospectus, 50% of their Common Shares subject to the lock-up described above will be released on the 181st day from the date of this prospectus. If the Milestone is met after 180 days have elapsed from the date of this prospectus, 50% of their Common Shares subject to the lock-up described above will be released on the tenth business day following the date the Milestone is met.

In addition, we and each such person subject to the foregoing lock-up restrictions (which we refer to as a “Locked-up Person”) agree that, without the prior written consent of Cantor Fitzgerald & Co., we or such other Locked-up Person will not, during the restricted period, make any demand for, or exercise any right with respect to, the registration of any Common Shares or any security exercisable or exchangeable for or convertible into Common Shares.

The restrictions in the immediately preceding paragraphs do not apply in certain circumstances, including:

- (a) in the case of our directors and executives, and our shareholders that hold at least 5% of our outstanding Common Shares immediately prior to this offering, subject to certain exceptions:
 - transfers in connection with bona fide gifts or bona fide estate planning purposes;
 - transfers to immediate family members, related trusts or legal entities;
 - transfers to any fund or other entity controlling or controlled by such Locked-up Person or by his, her or its affiliate;
 - if such Locked-up Person is a corporation, partnership, limited liability company, trust or other business entity, transfers to another legal entity that is an affiliate of such Locked-up Person or as a distribution to general or limited partners or stockholders or other equity holders of such Locked-up Person;
 - if such Locked-up Person is a trust, transfers to beneficiaries of such trust;
 - transfers by operation of law, including pursuant to a qualified domestic order or in connection with a divorce settlement, divorce decree or separation agreement;
 - transfers by will or intestate succession upon the death of such Locked-up Person;
 - transfers of any Common Shares acquired in the open market after the closing of this offering;
 - exercises of outstanding options or settlements of equity awards pursuant to our 2024 Incentive Compensation Plan or other similar plans;
 - exercises, vestings or settlements of options, deferred share units, warrants or other rights to purchase or acquire any Common Shares;

Table of Contents

- transfers in connection with bona fide third-party tender offers, mergers, consolidations, or other similar transactions that are approved by our board of directors, offered to all our shareholders, and involve a change of control in our Company; and
 - the establishment of, but not sales under, Rule 10b5-1 trading plans; and
- (b) in the case of our Company, in connection with:
- certain issuances of our Common Shares or related securities in connection with our 2024 Incentive Compensation Plan or other similar plans;
 - issuances of our Common Shares upon the exercise of warrants outstanding as of the date of this prospectus;
 - issuances of up to 10% of our Common Shares outstanding as of immediately following the completion of this offering in connection with certain acquisitions, joint ventures, and similar strategic transactions by our Company; and
 - the filing of any Registration Statements on Form S-8.

Cantor Fitzgerald & Co. may, in its sole discretion and at any time or from time to time before the end of the (i) 365-day period in the case of our directors and executives, and our shareholders that hold at least 5% of our outstanding Common Shares immediately prior to this offering, and (ii) 180-day period in the case of our Company, release all or any portion of the securities subject to lock-up agreements.

Market Making, Stabilization and Other Transactions

The underwriters may make a market in our Common Shares as permitted by applicable laws and regulations. However, the underwriters are not obligated to do so, and the underwriters may discontinue any market-making activities at any time in their sole discretion without notice. Accordingly, no assurance can be given as to the liquidity of the trading market for our Common Shares, that you will be able to sell any of the Common Shares held by you at a particular time, or that the prices that you receive when you sell will be favorable.

The underwriters have advised us that they may engage, pursuant to Regulation M under the Exchange Act, in short sale transactions, stabilizing transactions, syndicate covering transactions, or the imposition of penalty bids in connection with this offering. These activities may have the effect of stabilizing or maintaining the market price of our Common Shares at a level above that which might otherwise prevail in the open market. Establishing short sales positions may involve “covered” short sales, which are sales made in an amount not greater than the underwriters’ option to purchase additional Common Shares in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional Common Shares or purchasing Common Shares in the open market. In determining the source of Common Shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional Common Shares.

A stabilizing bid is a bid for the purchase of Common Shares on behalf of the underwriters for the purpose of fixing or maintaining the price of the Common Shares. A syndicate covering transaction is the bid for, or the purchase of, Common Shares on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriters’ purchases to cover syndicate short sales may have the effect of raising or maintaining the market price of our Common Shares or preventing or retarding a decline in the market price of our Common Shares. As a result, the price of our Common Shares may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the Common Shares originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

[Table of Contents](#)

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our Common Shares. The underwriters are not obligated to engage in any of these activities and, if commenced, may end any of these activities at any time. These transactions may be effected on the NYSE, in the over-the-counter market, or otherwise.

Electronic Distribution

A prospectus in electronic format may be made available by e-mail or on web sites or through online services maintained by one or more of the underwriters, selling group members (if any), or their respective affiliates. The underwriters may agree with us to allocate a specific number of Common Shares for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the respective web sites of the underwriters and any information contained in any other web sites maintained by any of the underwriters is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters, and should not be relied upon by investors.

Other Activities and Relationships

The underwriters and certain of their respective affiliates are full service financial institutions engaged in a wide range of activities for their own accounts and the accounts of their customers, which may include, among other things, corporate finance, mergers and acquisitions, merchant banking, equity and fixed income sales, trading and research, derivatives, foreign exchange, futures, asset management, custody, clearance, and securities lending. The underwriters and certain of their respective affiliates have performed, and may in the future perform, from time to time, various investment banking and financial advisory services for us and our affiliates, for which the underwriters and such respective affiliates received or will receive customary fees and expenses.

In addition, in the ordinary course of their respective businesses, the underwriters and their respective affiliates may, directly or indirectly, hold long or short positions, trade and otherwise conduct such activities in or with respect to debt or equity securities and/or bank debt of, and/or derivative products. Such investment and securities activities may involve our securities and instruments. The underwriters and their respective affiliates may also make investment recommendations or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long or short positions in such securities or instruments.

Stamp Taxes

If you purchase any of our Common Shares offered by this prospectus, you may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus.

Notice to Investors

This prospectus does not constitute an offer to sell to, or a solicitation of an offer to buy from, anyone in any country or jurisdiction (i) in which any such offer or solicitation is not authorized, (ii) in which any person making any such offer or solicitation is not qualified to do so, or (iii) in which any such offer or solicitation would otherwise be unlawful. No action has been taken that would, or is intended to, permit a public offer of the securities or possession or distribution of this prospectus or any other offering or publicity material relating to the securities in any country or jurisdiction (other than the United States and Canada) where any such action for that purpose is required. Accordingly, each of the underwriters has undertaken that it will not, directly or indirectly, offer or sell any securities or have in its possession, distribute or publish any prospectus, form of application, advertisement, or other document or information in any country or jurisdiction except under circumstances that will, to the best of its knowledge and belief, result in compliance with any applicable laws and regulations, and that all offers and sales of securities by it will be made on the same terms.

Abu Dhabi Global Market

This prospectus relates to an “exempt offer” as that term is defined in Rule 4.3.1 of the Markets Rulebook of the Financial Services Regulatory Authority (which we refer to as the “FSRA”). This prospectus is intended for distribution only to persons of a type specified in 4.3.1 of the FSRA Markets Rulebook. It must not be delivered to, or relied on by, any other person. The FSRA has no responsibility for reviewing or verifying any documents in connection with exempt offers. The FSRA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for this prospectus. Our Common Shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of our Common Shares offered by this prospectus should conduct their own due diligence on our Common Shares. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Australia

This document does not constitute a prospectus, product disclosure statement, or other disclosure document under the Corporations Act 2001 (Cth) of Australia (which we refer to as the “Corporations Act”). This document has not been lodged with the Australian Securities & Investments Commission and is only directed to the categories of exempt persons set out below. Accordingly, if you receive this document in Australia:

You confirm and warrant that you are:

- a “sophisticated investor” under section 708(8)(a) or (b) of the Corporations Act;
- a “sophisticated investor” under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant’s certificate to our Company which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made; or
- a “professional investor” within the meaning of section 708(11)(a) or (b) of the Corporations Act.

To the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor or professional investor under the Corporations Act, any offer made to you under this document is void and incapable of acceptance.

You warrant and agree that you will not offer any of the Common Shares issued to you pursuant to this document for resale in Australia within 12 months of those securities being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Dubai International Financial Centre

This prospectus relates to an “exempt offer” as that term is defined in Article 14(3)(a) of the DIFC Markets Law 2012, as amended, and Rule 2.3 of the Markets Rulebook of the Dubai Financial Services Authority (which we refer to as the “DFSA”). This prospectus is intended for distribution only to persons of a type specified in Rules 2.3.1(a) and 2.3.1(b) of the DFSA Markets Rulebook. This prospectus must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents relating to exempt offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for this prospectus. The securities to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of our Common Shares offered by this prospectus should conduct their own due diligence on the securities. If you do not understand the contents of this prospectus, you should consult an authorized financial advisor.

European Economic Area

Neither this prospectus nor any related free writing prospectus is a prospectus for the purposes of Regulation (EU) 2017/1129, as amended (which we refer to as the “Prospectus Regulation”). This prospectus and any related

Table of Contents

free writing prospectus, and any offer if made subsequently, is directed only at persons in Member States of the European Economic Area (which we refer to as the “EEA”) who are “qualified investors” within the meaning of Article 2(e) of the Prospectus Regulation. This prospectus and any related free writing prospectus have been prepared on the basis that any offer of our Common Shares in any Member State of the EEA will be made pursuant to an exemption under the Prospectus Regulation from the requirement to publish a prospectus for offers of Common Shares. Accordingly, any person making or intending to make an offer in a Member State of the EEA of our Common Shares which are the subject of the offering contemplated in this prospectus and any related free writing prospectus may only do so in circumstances in which no obligation arises for Brazil Potash Corp. or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Regulation in relation to such offer. Neither Brazil Potash Corp. nor the underwriters have authorized, nor do they authorize, the making of any offer of our Common Shares in the EEA in circumstances in which an obligation arises for Brazil Potash Corp. or the underwriters to publish a prospectus for such offer.

In relation to each Member State of the EEA (each referred to as a “Relevant State”), no Common Shares have been offered or will be offered pursuant to this offering to the public in that Relevant State prior to the publication of a prospectus in relation to the Common Shares which has been approved by the competent authority in such Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that our Common Shares may be offered to the public in that Relevant State at any time:

- (a) to any legal entity which is a qualified investor as defined under Article 2 of the Prospectus Regulation;
- (b) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the Prospectus Regulation), subject to obtaining the prior consent of the relevant underwriter or underwriters for any such offer; or
- (c) in any other circumstances falling within Article 1(4) of the Prospectus Regulation;

provided that, no such offer of our Common Shares shall require Brazil Potash Corp. or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation.

For the purposes of this provision, the expression an “offer to the public” in relation to our Common Shares in any Relevant State means the communication in any form and by any means of sufficient information regarding the terms of the offer and any Common Shares to be offered so as to enable an investor to decide whether or not to purchase or subscribe for any Common Shares. Each person in a Relevant State who acquires any Common Shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with Brazil Potash Corp. and the underwriters that it is a qualified investor within the meaning of the Prospectus Regulation.

In the case of our Common Shares being offered to a financial intermediary (as that term is used in Article 5(1) of the Prospectus Regulation), each such financial intermediary will be deemed to have represented, acknowledged and agreed to and with Brazil Potash Corp. and the underwriters that the Common Shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer to the public, other than their offer or resale in a Relevant State to qualified investors or in circumstances in which the prior consent of the underwriters has been obtained to each such proposed offer or resale. Neither Brazil Potash Corp. nor the underwriters have authorized, nor do they authorize, the making of any offer of our Common Shares through any financial intermediary, other than offers made by the underwriters which constitute the final placement of Common Shares contemplated in this document.

Brazil Potash Corp., the underwriters, and their respective affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

Hong Kong

No securities have been offered or sold, or will be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to “professional investors” as defined in the Securities and Futures Ordinance (Cap. 571 of the laws of Hong Kong) (which we refer to as the “SFO”) and any rules made thereunder; or in other circumstances which do not result in the document being a “prospectus” as defined in the Companies (Winding UP and Miscellaneous Provisions) Ordinance (Cap. 32 of the laws of Hong Kong) (which we refer to as the “C(WUMP)O”), or which do not constitute an offer to the public within the meaning of the C(WUMP)O. No document, invitation or advertisement relating to our Common Shares has been issued or will be issued or has been or will be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong), other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the SFO and any rules made thereunder.

The contents of this document have not been reviewed by any regulatory authority in Hong Kong. You are advised to exercise caution in relation to this offering. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice.

Israel

This document does not constitute a prospectus under the Israeli Securities Law, 5728-1968 (which we refer to as the “Israeli Securities Law”), and has not been filed with or approved by the Israel Securities Authority. In the State of Israel, this document is being distributed only to, and is directed only at, and any offer of our Common Shares is directed only at, investors listed in the first addendum (which we refer to as the “Addendum”) to the Israeli Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, underwriters, venture capital funds, entities with equity in excess of NIS 50 million, and “qualified individuals”, each as defined in the Addendum (as it may be amended from time to time), collectively referred to as “Qualified Investors” (in each case purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified Investors will be required to submit written confirmation that they fall within the scope of the Addendum, are aware of the meaning of same, and agree to it.

Japan

Our Common Shares have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948 of Japan, as amended) (which we refer to as the “FIEA”), and accordingly the initial purchaser acknowledges and agrees that it will not offer or sell any securities, directly or indirectly, in Japan, or to, or for the account or benefit of, any resident of Japan (which term as used herein means, unless otherwise provided herein, any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for reoffering or resale, directly or indirectly, in Japan, or to, or for the account or benefit of, any resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the FIEA and any other applicable laws, regulations and ministerial guidelines of Japan.

Kazakhstan

This prospectus does not constitute an offer, or an invitation to make offers, to sell, purchase, exchange or otherwise transfer shares in Kazakhstan to or for the benefit of any Kazakhstan person or entity, except for those persons or entities that are capable to do so under the legislation of the Republic of Kazakhstan and any other

[Table of Contents](#)

laws applicable to such capacity of such persons or entities. This prospectus shall not be construed as an advertisement (i.e., information intended for an unlimited group of persons which is distributed and placed in any form and aimed to create or maintain interest in, or promote, our Company and our products, trademarks, works, services and/or our securities) in, and for the purpose of the laws of, Kazakhstan, unless such advertisement is in full compliance with Kazakhstan laws.

Russian Federation

This prospectus or the information contained herein is not an offer, or an invitation to make offers, to sell, purchase, exchange or transfer any securities in the Russian Federation to or for the benefit of any Russian person or entity, and does not constitute an advertisement or offering of any securities in the Russian Federation within the meaning of Russian securities laws. Information contained in this prospectus is not intended for any persons in the Russian Federation who are not “qualified investors”, within the meaning of Article 51.2 of the Federal Law no. 39-FZ dated 22 April 1996 “On the securities market” (as amended) (which we refer to as “Russian QIs”), and must not be distributed or circulated into the Russian Federation or made available in the Russian Federation to any persons who are not Russian QIs, unless and to the extent they are otherwise permitted to access such information under Russian law.

Singapore

This document has not been and will not be registered as a prospectus under the Securities and Futures Act, 2001 (which we refer to as the “SFA”) by the Monetary Authority of Singapore, and the offer of our Common Shares in Singapore is made primarily pursuant to the exemptions under Section 274 and 275 of the SFA. Accordingly, this document and any other document or material in connection with the offer or sale, or invitation for subscription or purchase of, our Common Shares may not be issued, circulated or distributed, nor may our Common Shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to any person in Singapore, other than (i) to an institutional investor as defined in Section 4A of the SFA (which we refer to as an “Institutional Investor”) pursuant to Section 274 of the SFA, (ii) to an accredited investor as defined in Section 4A of the SFA (which we refer to as an “Accredited Investor”) or other relevant person as defined in Section 275(2) of the SFA (which we refer to as a “Relevant Person”) pursuant to Section 275(1) of the SFA, or to any person pursuant to an offer referred to in Section 275(1A) of the SFA in accordance with the conditions specified in Section 275 of the SFA and (where applicable) Regulation 3 of the Securities and Futures (Classes of Investors) Regulations 2018, or (iii) otherwise pursuant to, and in accordance with, the conditions of any other applicable exemption or provision of the SFA. **In the event that you are not an investor falling within any of the categories set out above, please return this document immediately. You may not forward or circulate this document to any other person in Singapore.**

It is a condition of the offer that where our Common Shares are subscribed for or acquired pursuant to an offer made in reliance on Section 275 of the SFA by a Relevant Person which is:

- (a) a corporation (which is not an Accredited Investor), the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an Accredited Investor; or
- (b) a trust (where the trustee is not an Accredited Investor), the sole purpose of which is to hold investments and each beneficiary of the trust is an individual who is an Accredited Investor,

securities or securities-based derivatives contracts (each as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries’ rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has subscribed for or acquired the Common Shares, except:

1. to an Institutional Investor, an Accredited Investor, a Relevant Person, or which arises from an offer referred to in Section 275(1A) of the SFA (in the case of that corporation) or Section 276(4) of the SFA (in the case of that trust);

Table of Contents

2. where no consideration is or will be given for the transfer;
3. where the transfer is by operation of law;
4. as specified in Section 276(7) of the SFA; or
5. as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Switzerland

Our Common Shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange (which we refer to as “SIX”) or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to our Common Shares or this offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to this offering, our Company or our Common Shares have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, and the offer of our Common Shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes (which we refer to as the “CISA”). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of our Common Shares.

United Arab Emirates Outside of the Dubai International Financial Centre and the Abu Dhabi Global Market

This prospectus has not been reviewed, approved, or licensed by the Securities and Commodities Authority (which we refer to as the “SCA”), and does not constitute a public offering of securities in the United Arab Emirates (which we refer to as the “UAE”), as that term is defined in SCA Chairman Resolution No. 13/R.M. of 2021 Concerning the Regulations Manual of the Financial Activities and Status Regularization Mechanisms Rulebook (which we refer to as the “SCA Rulebook”). This prospectus will only be made available on an exempt private offering basis pursuant to Article 6, Chapter 5, of Section 3 of the SCA Rulebook to Professional Investors or Counterparties, as each of the terms is defined in the SCA Rulebook, respectively, or on a reverse solicitation basis. Nothing in this prospectus constitutes the provision of any type of financial service engagement in any of the financial activities set out in Article 1, Chapter 2 of the SCA Rulebook.

The SCA accepts no liability in relation to the marketing, issuance and/or sale of our Common Shares and is not making any recommendation with respect to any investment. Nothing contained in this prospectus is intended to constitute UAE investment, legal, tax, accounting or other professional advice. This prospectus is for the information of prospective investors only, and nothing in this prospectus is intended to endorse or recommend a particular course of action. Prospective investors should consult with an appropriate professional for specific advice rendered on the basis of their situation.

United Kingdom

In the United Kingdom, neither this prospectus nor any related free writing prospectus is a prospectus for the purposes of Regulation (EU) 2017/1129 as it forms part of domestic law in the United Kingdom by virtue of the European Union (Withdrawal) Act 2018, as amended (which we refer to as the “UK Prospectus Regulation”).

[Table of Contents](#)

This prospectus and any related free writing prospectus have been prepared on the basis that any offer if made subsequently is directed only at persons in the United Kingdom who are “qualified investors” within the meaning of Article 2(e) of the UK Prospectus Regulation. This prospectus and any related free writing prospectus have been prepared on the basis that any offer of our Common Shares in the United Kingdom will be made pursuant to an exemption under the UK Prospectus Regulation from the requirement to publish a prospectus for offers of our Common Shares. Accordingly, any person making or intending to make an offer in the United Kingdom of our Common Shares which are the subject of the offering contemplated in this prospectus and any related free writing prospectus may only do so in circumstances in which no obligation arises for Brazil Potash Corp. or any of the underwriters to publish a prospectus pursuant to Section 85 of the United Kingdom’s Financial Services and Markets Act 2000, as amended (which we refer to as the “FSMA”), in relation to such offer. Neither Brazil Potash Corp. nor the underwriters have authorized, nor do they authorize, the making of any offer of Common Shares in circumstances in which an obligation arises for Brazil Potash Corp. or the underwriters to publish a prospectus for such offer.

This prospectus and any related free writing prospectus may not be distributed or circulated to any person in the United Kingdom, other than to (i) persons who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (which we refer to as the “Order”); and (ii) high net worth entities falling within Article 49(2)(a) to (d) of the Order (all such persons collectively being referred to as “relevant persons”). This prospectus and any related free writing prospectus are directed only at relevant persons. Other persons should not act on this prospectus and any related free writing prospectus or any of its contents. This prospectus and any related free writing prospectus are confidential and is being supplied to you solely for your information and may not be reproduced, redistributed or passed on to any other person, or published, in whole or in part, for any other purpose.

No Common Shares have been offered or will be offered pursuant to this offering to the public in the United Kingdom prior to the publication of a prospectus in relation to our Common Shares which has been approved by the Financial Conduct Authority, except that our Common Shares may be offered to the public in the United Kingdom at any time:

- (a) to any legal entity which is a qualified investor as defined under Article 2 of the UK Prospectus Regulation;
- (b) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of the relevant underwriter or underwriters for any such offer; or
- (c) in any other circumstances falling within Section 86 of the FSMA;

provided that, no such offer of our Common Shares shall require Brazil Potash Corp. or any underwriter to publish a prospectus pursuant to Section 85 of the FSMA.

For the purposes of this provision, the expression an “offer to the public” in relation to our Common Shares in the United Kingdom means the communication in any form and by any means of sufficient information regarding the terms of the offer and any Common Shares to be offered so as to enable an investor to decide whether or not to purchase or subscribe for any Common Shares and the expression.

Any invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) in connection with the sale or issue of our Common Shares may only be communicated or caused to be communicated in circumstances in which Section 21(1) of the FSMA does not apply to Brazil Potash Corp.

All applicable provisions of the FSMA must be complied with in respect to anything done by any person in relation to our Common Shares in, from or otherwise involving the United Kingdom.

[Table of Contents](#)

Each person in the United Kingdom who acquires any Common Shares in this offering or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with Brazil Potash Corp. and the underwriters that it is a qualified investor within the meaning of the UK Prospectus Regulation.

In the case of any Common Shares being offered to a financial intermediary (as that term is used in Article 5(1) of the UK Prospectus Regulation), each such financial intermediary will be deemed to have represented, acknowledged and agreed to and with Brazil Potash Corp. and the underwriters that the Common Shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer to the public, other than their offer or resale in the United Kingdom to qualified investors or in circumstances in which the prior consent of the underwriters has been obtained to each such proposed offer or resale. Neither Brazil Potash Corp. nor the underwriters have authorized, nor do they authorize, the making of any offer of our Common Shares through any financial intermediary, other than offers made by the underwriters which constitute the final placement of Common Shares contemplated in this document.

Brazil Potash Corp., the underwriters, and their respective affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

EXPENSES RELATED TO THE OFFERING

The following table sets forth the costs and expenses, other than the underwriting discounts and commissions and expenses, payable by us in connection with this offering. All amounts shown are estimates and subject to future contingencies, except the U.S. Securities and Exchange Commission registration fee, the Financial Industry Regulatory Authority filing fee, and the NYSE entry and listing fee.

Description	Amount
U.S. Securities and Exchange Commission registration fee	\$ *
Financial Industry Regulatory Authority filing fee	*
NYSE entry and listing fee	*
Accounting and audit fees and expenses	*
Legal fees and expenses	*
Transfer agent fees and expenses	*
Printing expenses	*
Miscellaneous	*
Total	\$ *

* To be provided by amendment.

LEGAL MATTERS

We are being represented by Greenberg Traurig, P.A. with respect to certain matters of U.S. law, and by Wildeboer Dellelce LLP, Toronto, Ontario, with respect to certain matters of Canadian law. The validity of the Common Shares offered in this offering are being passed upon for us by Wildeboer Dellelce LLP, Toronto, Ontario. The underwriters are being represented by Sidley Austin LLP, New York, New York, with respect to certain matters of U.S. law, and by Bennett Jones LLP, Toronto, Ontario, with respect to certain matters of Canadian law.

EXPERTS

MNP LLP, an independent registered public accounting firm, has audited our consolidated financial statements as of, and for the years ended, December 31, 2023, 2022 and 2021, as set forth in their reports thereon. We have included such consolidated financial statements in this prospectus in reliance on the reports of such firm given on their authority as experts in accounting and auditing. MNP LLP is independent with respect to us in accordance with the U.S. federal securities laws and the applicable rules and regulations of the SEC and the Public Company Accounting Oversight Board on auditor independence. The principal business address of MNP LLP is 50 Burnhamthorpe Road W, Suite 900, Mississauga, Ontario, Canada, L5B 3C2.

Certain portions of the description of the Autazes Project and the Autazes Property were summarized or extracted from the Technical Report, which was prepared by ERCOSPLAN Ingenieurgesellschaft Geotechnik und Bergbau mbH (which we refer to as “ERCOSPLAN”) in accordance with the SEC Mining Modernization Rules. The economic analysis for the Autazes Project in the Technical Report was completed by L&M Assessoria Empresarial (which we refer to as “L&M”), based on information provided by ERCOSPLAN (who was responsible for preparing the production schedule, and the estimated capital and operating costs for the mine, processing plant, infrastructure and port). Portions of the Technical Report have been extracted, summarized and disclosed in this prospectus with the consent of ERCOSPLAN and L&M.

ENFORCEABILITY OF CIVIL LIABILITIES

We are a corporation existing under the laws of the Province of Ontario, Canada. All of our directors and executives reside outside of the United States, and significantly all of our assets and the assets of such persons are located outside of the United States. As a result, it may not be possible for investors to effect service of process within the United States upon these persons or us, or to enforce against them or us judgments obtained in U.S. courts, whether or not predicated upon the civil liability provisions of the federal securities laws of the United States or of the securities laws of any state of the United States. There is doubt as to the enforceability in Canada, either in original actions or in actions for enforcement of judgments of U.S. courts, of civil liabilities predicated solely on the federal securities laws of the United States or the securities laws of any state of the United States.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form F-1 under the Securities Act relating to the offering of our Common Shares pursuant to this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules which are part of the registration statement. Some items included in the registration statement have been omitted from this prospectus in accordance with the rules and regulations of the SEC. For further information about our Company and our Common Shares being offered by this prospectus, we refer you to the registration statement, including all amendments, supplements, exhibits, and schedules thereto. Statements contained in this prospectus regarding the contents of any agreement, contract or other document are not necessarily complete. If an agreement, contract or other document has been filed as an exhibit to the registration statement, please refer to a copy of such agreement, contract or other document that has been filed. Each statement in this prospectus relating to an agreement, contract or other document that is filed as an exhibit to the registration statement is qualified in all respects by reference to the full text of such agreement, contract or other document filed as an exhibit to the registration statement.

You may access and read the registration statement, including the related exhibits and schedules thereto, this prospectus, and any document we file with the SEC at the SEC's Internet website that contains reports and other information regarding issuers that file electronically with the SEC. Our filings with the SEC are available to the public without charge through the SEC's website at www.sec.gov.

Upon completion of this offering, we will be subject to the information reporting requirements of the Securities Exchange Act of 1934, as amended (which we refer to as the "Exchange Act"), that are applicable to "foreign private issuers", and under those requirements, we will file or furnish reports with the SEC. Those reports or other information may be accessed and read at the SEC's Internet website described above. As a "foreign private issuer", we will be exempt from the rules under the Exchange Act related to the furnishing and content of proxy statements, and our officers, directors, and principal shareholders will be exempt from the reporting and "short-swing" profit recovery provisions contained in Section 16 of the Exchange Act with respect to their purchases and sales of our Common Shares. In addition, as a "foreign private issuer", we are also not subject to the requirements of Regulation Fair Disclosure (also known as "Regulation FD") promulgated under the Exchange Act. Furthermore, we will not be required under the Exchange Act to file annual or other reports and financial statements with the SEC as frequently or as promptly as U.S. companies that have securities registered under the Exchange Act. As such, we will file with the SEC, within four months after the end of each fiscal year, or such other applicable time as required by the SEC, an annual report on Form 20-F containing financial statements audited by an independent registered public accounting firm. We also intend to furnish to the SEC certain other material information under cover of Form 6-K.

Our corporate website is www.brazilpotash.com. After the consummation of this offering, you may go to our website to access our periodic reports and other information that we file or furnish with the SEC as soon as

[Table of Contents](#)

reasonably practicable after such material is electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not incorporated by reference into, and is not a part of, this prospectus or our registration statement of which this prospectus forms a part. We have included our website address in this prospectus solely as an inactive textual reference.

INDEX TO FINANCIAL STATEMENTS

FINANCIAL STATEMENTS OF BRAZIL POTASH CORP.

Audited Financial Statements as of, and for the Years Ended, December 31, 2023 and 2022

Report of Independent Registered Public Accounting Firm (PCAOB ID: 1930)	F-2
Consolidated Statements of Financial Position as at December 31, 2023 and December 31, 2022	F-3
Consolidated Statements of Loss and Other Comprehensive Loss for the Years Ended December 31, 2023 and 2022	F-4
Consolidated Statements of Changes in Equity for the Years ended December 31, 2023 and 2022	F-5
Consolidated Statements of Cash Flows for the Years Ended December 31, 2023 and 2022	F-6
Notes to the Consolidated Financial Statements (for the Years Ended December 31, 2023 and 2022)	F-7

Audited Financial Statements as of, and for the Years Ended, December 31, 2022 and 2021

Report of Independent Registered Public Accounting Firm (PCAOB ID: 1930)	F-27
Consolidated Statements of Financial Position as at December 31, 2022 and December 31, 2021	F-29
Consolidated Statements of Loss and Other Comprehensive Loss for the Years Ended December 31, 2022 and 2021	F-30
Consolidated Statements of Changes in Equity for the Years ended December 31, 2022 and 2021	F-31
Consolidated Statements of Cash Flows for the Years Ended December 31, 2022 and 2021	F-32
Notes to the Consolidated Financial Statements (for the Years Ended December 31, 2022 and 2021)	F-33

Condensed Interim Consolidated Financial Statements as of March 31, 2024 and for the Three Months Ended March 31, 2024 and 2023

Condensed Interim Consolidated Statements of Financial Position as at March 31, 2024 (unaudited) and December 31, 2023	F-55
Condensed Interim Consolidated Statements of Loss and Other Comprehensive Loss for the Three Months Ended March 31, 2024 and 2023 (unaudited)	F-56
Condensed Interim Consolidated Statements of Changes in Equity for the Three Months Ended March 31, 2024 and 2023 (unaudited)	F-57
Condensed Interim Consolidated Statements of Cash Flows for the Three Months Ended March 31, 2024 and 2023 (unaudited)	F-58
Notes to the Condensed Interim Consolidated Financial Statements (for the Three Months Ended March 31, 2024 and 2023) (unaudited)	F-59



REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Brazil Potash Corp.

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated statements of financial position of Brazil Potash Corp. and its subsidiary (the “Company”) as of December 31, 2023 and 2022, and the related consolidated statements of loss and other comprehensive loss, changes in equity, and cash flows for the years ended December 31, 2023 and 2022, and the related notes to the consolidated financial statements.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Company as of December 31, 2023 and 2022, and the results of its consolidated operations and its consolidated cash flows for the years ended December 31, 2023 and 2022, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board (“IFRS”).

Material Uncertainty Related to Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has continuing operating losses and has an accumulated deficit that raises substantial doubt about its ability to continue as a going concern. Management’s plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

The logo for MNP LLP, featuring the letters 'MNP' in a large, stylized, handwritten font, with 'LLP' in a smaller, plain font to the right.

Chartered Professional Accountants;
Licensed Public Accountants;

We have served as the Company’s auditor since 2021.

Mississauga, Canada

April 19, 2024

[Table of Contents](#)**Brazil Potash Corp.**Consolidated Statements of Financial Position
(Expressed in U.S. dollars)

<u>As at:</u>	<u>December 31,</u> <u>2023</u>	<u>December 31,</u> <u>2022</u>
ASSETS		
Current		
Cash and cash equivalents (Note 6)	\$ 2,450,239	\$ 11,804,907
Amounts receivable (Note 7)	149,757	167,854
Prepaid expenses (Note 8)	236,329	98,884
Total current assets	<u>2,836,325</u>	<u>12,071,645</u>
Non-current		
Property and equipment (Note 9)	1,012,032	936,707
Exploration and evaluation assets (Note 10)	129,298,494	120,216,752
Total assets	<u>\$ 133,146,851</u>	<u>\$ 133,225,104</u>
LIABILITIES		
Current		
Trade payables and accrued liabilities (Notes 11, 18)	\$ 1,730,103	\$ 1,154,872
Total current liabilities	<u>1,730,103</u>	<u>1,154,872</u>
Non-current		
Deferred income tax liability (Note 5)	2,196,087	1,883,661
Total liabilities	<u>3,926,190</u>	<u>3,038,533</u>
Equity		
Share capital (Note 12)	242,487,728	235,611,237
Share-based payments reserve (Note 13)	64,280,247	63,924,814
Warrants reserve (Note 14)	604,000	604,000
Accumulated other comprehensive loss	(65,419,483)	(70,332,349)
Deficit	(112,731,831)	(99,621,131)
Total equity	<u>129,220,661</u>	<u>130,186,571</u>
Total liabilities and equity	<u>\$ 133,146,851</u>	<u>\$ 133,225,104</u>

Reporting entity and going concern (Note 1)
Commitments and contingencies (Note 19)
Subsequent events (Note 20)*See accompanying notes to the consolidated financial statements.*

[Table of Contents](#)**Brazil Potash Corp.**Consolidated Statements of Loss and Other Comprehensive Loss
(Expressed in U.S. dollars)

	Year ended December 31, 2023	Year ended December 31, 2022
Expenses		
Consulting and management fees (Note 18)	\$ 5,441,156	\$ 2,713,548
Professional fees	1,453,310	2,185,220
Share-based compensation (Notes 13, 18)	4,703,254	24,474,191
Travel expenses	390,531	2,704,879
General office expenses	120,228	183,843
Foreign exchange (gain) loss	(10,552)	62,479
Communications and promotions	1,251,155	398,880
Operating Loss	13,349,082	32,723,040
Finance income	(302,720)	(259,019)
Loss for the year before income taxes	13,046,362	32,464,021
Deferred income tax provision (Note 5)	160,838	155,360
Loss for the year before income taxes	\$ 13,207,200	\$ 32,619,381
Other comprehensive loss:		
<i>Items that subsequently may be reclassified into net income:</i>		
Foreign currency translation	(4,912,866)	(3,881,076)
Total comprehensive loss for the year	\$ 8,294,334	\$ 28,738,305
Basic and diluted loss per share	\$ 0.09	\$ 0.23
Weighted average number of common shares outstanding—basic and diluted (Note 15)	141,569,049	139,629,405

See accompanying notes to the consolidated financial statements.

[Table of Contents](#)

Brazil Potash Corp.

Consolidated Statements of Changes in Equity
(Expressed in U.S. dollars)

	Common Shares		Warrants	Share-based payments reserve	Accumulated Other Comprehensive Loss	Accumulated Deficit	Shareholders' Equity
	#	\$	\$	\$	\$	\$	\$
Balance, December 31, 2021	138,392,554	227,154,731	604,000	43,023,258	(74,213,425)	(69,276,058)	127,292,506
Deferred share units	—	—	—	22,996,915	—	—	22,996,915
Deferred share units exercised (Notes 12 and 13(b))	666,667	1,666,668	—	(1,666,668)	—	—	—
Reg A Offering (Note 12)	1,869,861	7,479,444	—	—	—	—	7,479,444
Share issuance costs (Note 12)	—	(689,606)	—	—	—	—	(689,606)
Option extension (Note 13(a))	—	—	—	657,800	—	(537,800)	120,000
Option grant (Note 13(a))	—	—	—	1,725,617	—	—	1,725,617
Option expiry (Note 13(a))	—	—	—	(2,812,108)	—	2,812,108	—
Net loss and comprehensive income for the year	—	—	—	—	3,881,076	(32,619,381)	(28,738,305)
Balance, December 31, 2022	140,929,082	235,611,237	604,000	63,924,814	(70,332,349)	(99,621,131)	130,186,571
Deferred share units (Note 13(b))	—	—	—	4,650,337	—	—	4,650,337
Deferred share units exercised (Notes 12 and 13(b))	100,000	400,000	—	(400,000)	—	—	—
Option vesting (Note 13(a))	—	—	—	180,587	—	—	180,587
Option exercise (Note 13(a))	1,323,000	6,476,491	—	(3,978,991)	—	—	2,497,500
Option expiry (Note 13(a))	—	—	—	(96,500)	—	96,500	—
Net loss and comprehensive income for the year	—	—	—	—	4,912,866	(13,207,200)	(8,294,334)
Balance, December 31, 2023	142,352,082	242,487,728	604,000	64,280,247	(65,419,483)	(112,731,831)	129,220,661

See accompanying notes to the consolidated financial statements.

[Table of Contents](#)**Brazil Potash Corp.**Consolidated Statements of Cash Flows
(Expressed in U.S. dollars)

	Year ended December 31, 2023 \$	Year ended December 31, 2022 \$
CASH FLOWS FROM OPERATING ACTIVITIES		
Loss for the year	(13,207,200)	(32,619,381)
Adjustment for:		
Finance income	(302,720)	(259,019)
Share-based compensation	4,703,254	24,474,191
Deferred income tax provision	160,838	155,360
	(8,645,828)	(8,248,849)
Change in amounts receivable	19,562	890,292
Change in prepaid expenses	(135,897)	1,784
Change in trade payables and accrued liabilities	565,410	(860,869)
Net cash used in operating activities	(8,196,753)	(8,217,642)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from Reg A offering, net of share issue costs	—	8,348,378
Option exercise	2,497,500	—
Net cash from financing activities	2,497,500	8,348,378
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisition of property and equipment	(6,938)	(13,129)
Exploration and evaluation assets	(3,930,790)	(3,716,772)
Finance income	302,720	259,019
Net cash used in investing activities	(3,635,008)	(3,470,882)
Effect of exchange rate changes on cash and cash equivalents	(20,407)	634
NET DECREASE IN CASH AND CASH EQUIVALENTS	(9,354,668)	(3,339,512)
CASH AND CASH EQUIVALENTS, beginning of year	11,804,907	15,144,419
CASH AND CASH EQUIVALENTS, end of year	2,450,239	11,804,907
SUPPLEMENTAL INFORMATION:		
Depreciation of assets capitalized to exploration and evaluation assets	4,526	3,577
Share-based compensation included in exploration and evaluation assets	127,670	368,341
Change in receivable on Reg A offering	—	(1,558,540)

See accompanying notes to the consolidated financial statements.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

1. Reporting entity and going concern

Brazil Potash Corp. (the “Company”) was incorporated under the laws of the Province of Ontario, Canada by Articles of Incorporation on October 10, 2006. The Company remained inactive until June 16, 2009. On June 18, 2009, the Company’s subsidiary Potássio do Brasil Ltda. (the “Subsidiary”) was incorporated. The principal activity of Brazil Potash Corp. is the exploration and development of potash properties in Brazil. The Company’s head office is located at 198 Davenport Road, Toronto, Ontario, M5R 1J2, Canada.

The consolidated financial statements include the financial statements of the Company and its subsidiary that is listed in the following table:

	Country of incorporation	% Ownership	
		December 31, 2023	December 31, 2022
Potassio do Brasil Ltda.	Brazil	100%	100%

The Company received its Preliminary Social and Environmental License (the “LP”) for its potash mining project in Brazil (the “Autazes Project”) from the Amazonas Environmental Protection Institute (“IPAAM”) in July 2015 based on submission of a full Environmental and Social Impact Assessment prepared by the Company and its consultant Golder Associates Inc. (“Golder”) in January 2015. Prior to receiving the LP, the Company and Golder participated in public hearings and conducted several rounds of consultations with local indigenous communities near the Autazes Project in accordance with the guidelines and requirements established by Fundação Nacional do Índio (“FUNAI”). Despite this work, the Brazil Federal Public Ministry opened a civil investigation in December 2016 that questioned the validity of the Company’s LP based on a motion from a non-governmental organization that the Company’s consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169, as Brazil is a signatory to this international convention. As a result of the foregoing investigation, in March 2017, the Company agreed with the court overseeing such investigation, the Brazil Federal Public Ministry, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mineral Agency, FUNAI, and representatives of the Mura indigenous people (who make up the over 40 indigenous communities and tribes near the Autazes Project) to suspend its LP and to conduct additional consultations with the local Mura indigenous communities near the Autazes Project in accordance with International Labour Organization 169 (the “March 2017 Suspension Agreement”).

The reinstatement of the Company’s LP is subject to the initiation of additional consultations with the indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169, as per the March 2017 Suspension Agreement. There are two major steps that need to be followed in connection with these consultations. The first step is that the indigenous communities need to determine the means of, and who within their tribes will be involved in, the consultations. The first step has been completed. The second step is the actual consultation process, which initially started in November 2019 but was suspended due to the outbreak of COVID-19. In April 2022, following the lifting of COVID-19 related restrictions, the Company resumed its additional consultations with the Mura indigenous people. Such consultations are being conducted in accordance with International Labour Organization Convention 169 and are currently ongoing.

On September 25, 2023, the Mura indigenous people completed free, prior and informed consultations following United Nations International Labour Organization Convention 169 protocols with over 90% voting in support, based on 94% of the invited tribe’s participating, to permit and construct the Project.

On August 25, 2023, the Company submitted to the Brazilian Amazonas Environmental Protection Institute (IPAAM) our application for the Installation Licenses to ensure that we moved to the next stage of our permitting process, prior to the expiration of our Preliminary Environmental License on August 31, 2023 in accordance with

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

1. Reporting entity and going concern *(continued)*

its terms. On October 17, 2023, the Appellate Court accepted the new action from the Attorney General of the State of Amazonas and granted an injunction to suspend the Subsequent Lower Court Decision, therefore reinstating our environmental licensing and allowing it to proceed, as well as clarifying that the Brazilian Amazonas Environmental Protection Institute has jurisdiction over issuing the Company's licenses.

In April 2024, the Company received from the Brazilian Amazonas Environmental Protection Institute our initial Installation License for the construction of the mine at the Autazes Project, following which, the Company started mine surface work and shaft construction.

Going Concern

The preparation of the consolidated financial statements requires an assessment on the validity of the going concern assumption. The validity of the going concern concept is dependent on financing being available for the continuing working capital requirements of the Company and for the development of the Company's projects.

The Company incurred a loss of \$13,207,200 for the year ended December 31, 2023 (\$32,619,381 for the year ended December 31, 2022) and as at December 31, 2023 had an accumulated deficit of \$112,731,831 (December 31, 2022—\$99,621,131) and working capital of \$1,106,222 as at December 31, 2023 (including cash of \$2,450,239) (December 31, 2022 – working capital of \$10,916,773 (including cash of \$11,804,907)).

The Company requires equity capital and/or financing for working capital and exploration and development of its properties as well as to repay its trade payables and current liabilities. As a result of continuing operating losses, the Company's continuance as a going concern is dependent upon its ability to obtain adequate financing and financing to repay its current obligations, finance its exploration and development activities, and to reach profitable levels of operation. It is not possible to predict whether financing efforts will be successful or if the Company will obtain the necessary financing in order to finance its exploration and development activities or to attain profitable levels of operations. Management has previously been successful in raising the necessary funding to continue operations in the normal course of operations, and during the year ended December 31, 2022, completed Tier 2 offerings pursuant to Regulation A (Regulation A+) under the Securities Act of 1933 (see Note 12).

However, there is no assurance, that the Company will continue to be successful in closing the offering of shares, be successful in raising sufficient financing, or achieve profitable operations, to fund its operating expenses, or the future exploration and development of its properties. This raises substantial doubt about the Company's ability to continue as a going concern. These consolidated financial statements do not include any adjustments to the carrying amount, or classification of assets and liabilities, if the Company was unable to continue as a going concern. These adjustments may be material.

On the basis that additional funding as outlined above has and will be received when required, the directors are satisfied that it is appropriate to continue to prepare the consolidated financial statements of the Company on the going concern basis.

2. Basis of preparation

(a) *Statement of compliance*

The consolidated financial statements of the Company have been prepared in accordance with International Financial Reporting Standards ("IFRS") issued by the International Accounting Standards Board ("IASB") and interpretations of the International Financial Reporting Interpretations Committee ("IFRIC").

The consolidated financial statements were authorized for issue by the Board of Directors on April 19, 2024.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

2. Basis of preparation (continued)

(b) *Basis of measurement*

The consolidated financial statements have been prepared on the historical cost basis, unless otherwise disclosed.

(c) *Functional and presentation currency*

Based on the economic substance of the underlying business transactions and circumstances relevant to the parent, the functional currency of the Company has been determined to be the U.S. dollar, with its subsidiary determining its own functional currency based on its own circumstances. The functional currency of Potássio do Brasil Ltda. has been determined to be the Brazilian Real. The Company's presentation currency is the U.S. Dollar.

3. Material accounting policies

The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements.

(a) *Basis of consolidation*

These consolidated financial statements comprise the financial statements of the Company and its wholly owned subsidiary, Potássio do Brasil Ltda., in Brazil as at December 31, 2023.

The Company's subsidiary is fully consolidated from the date of acquisition or incorporation, being the date on which the Company obtained control, and continues to be consolidated until the date that such control ceases. These consolidated financial statements comprise results for the years ended December 31, 2023 and 2022.

The financial statements of the subsidiary are prepared for the same reporting period as the parent company, using consistent accounting policies.

All intra-company balances, income and expenses and unrealized gains and losses resulting from intra-company transactions are eliminated in full upon consolidation.

(b) *Foreign currency transactions*

Transactions in foreign currencies are initially recorded in the functional currency at the rate at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at the rate of exchange at the consolidated statements of financial position date. All differences are taken to statements of loss and other comprehensive loss.

For presentation of Company's consolidated financial statements, if the functional currency of the Company or its subsidiary is different than U.S. dollars as at the reporting date, the assets and liabilities are translated into U.S. dollars at the rate ruling at the statements of financial position date and the income and expenses are translated using the average exchange rate for the period. The foreign exchange differences arising are recorded in the cumulative translation account in other comprehensive income. On disposal of a foreign entity the deferred cumulative amount recognized in equity relating to the particular operation is recognized in the consolidated statements of loss and other comprehensive loss.

(c) *Cash and cash equivalents*

Cash and cash equivalents in the consolidated statements of financial position comprise cash at banks and on hand, and short-term deposits with an original maturity of three months or less, which are readily convertible into a known amount of cash.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

3. Material accounting policies (continued)

(d) *Property and equipment*

(i) Recognition and measurement

Items of equipment are measured at cost less accumulated depreciation and accumulated impairment losses.

(ii) Depreciation

Depreciation calculated over the depreciable amount, which is the cost of an asset, or other amount substituted for cost, less its residual value.

The estimated lives for the current period are as follows:

• Vehicle	5 years
• Office equipment	5 years
• Furniture and fixtures	10 years

The Company's land is carried at cost.

Impairment of property and equipment:

When events or changes in the economic environment indicate a risk of impairment to property and equipment, an impairment test is performed to determine whether the carrying amount of the asset or group of assets under consideration exceeds its or their recoverable amount. Recoverable amount is defined as the higher of an asset's fair value (less costs of disposal) and its value in use. Value in use is equal to the present value of future cash flows expected to be derived from the use and sale of the asset.

(e) *Exploration and evaluation assets*

Costs incurred prior to obtaining the appropriate license are expensed in the period in which they are incurred.

Exploration and evaluation expenditures comprise costs of initial search for mineral deposits and performing a detailed assessment of deposits that have been identified as having economic potential. The cost of exploration properties and leases, which include the cost of acquiring prospective properties and exploration rights, including interest, and costs incurred in exploration and evaluation activities, are capitalized as assets as part of exploration and evaluation assets. Exploration and evaluation costs are capitalized as an asset until technical feasibility and commercial viability of extraction of reserves are demonstrable, then the capitalized exploration costs are reclassified to property, plant and equipment. Exploration and evaluation costs include an allocation of administration and salary costs as determined by management.

Depreciation on equipment used in exploration and evaluation is charged to exploration and evaluation assets.

Prior to reclassification to property and equipment, exploration and evaluation assets are assessed for impairment and any impairment loss is recognized immediately in the statements of loss and other comprehensive loss.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

3. Material accounting policies (continued)

(e) *Exploration and evaluation assets (continued)*

Impairment of exploration and evaluation assets:

Exploration and evaluation assets are assessed for impairment when facts and circumstances suggest that the carrying amount may exceed its recoverable amount. The Company reviews and tests for impairment on an ongoing basis and specifically if the following occurs:

- (i) the period for which the Company has a right to explore in the specific area has expired or is expected to expire;
- (ii) the exploration and evaluation have not led to the discovery of economic reserves;
- (iii) the development of the reserves is not economically or commercially viable; and
- (iv) the exploration is located in an area that has become politically unstable.

No amortization is charged during the exploration and evaluation phase.

(f) *Financial instruments*

The Company recognizes financial assets and financial liabilities on the date the Company becomes a party to the contractual provisions of the instruments. A financial asset is derecognized either when the Company has transferred substantially all the risks and rewards of ownership of the financial asset or when cash flows expire. A financial liability is derecognized when the obligation specified in the contract is discharged, canceled or expired. The Company's financial assets include cash and cash equivalents, and amounts receivable, excluding HST receivable. The Company's financial liabilities include trade payables and accrued liabilities.

Non-derivative financial instruments are recognized initially at fair value plus attributable transaction costs, where applicable for financial instruments not classified as fair value through profit or loss. Subsequent to initial recognition, non-derivative financial instruments are classified and measured as described below:

Financial assets at fair value through profit or loss ("FVTPL")— cash and cash equivalents are classified as financial assets at FVTPL and are measured at fair value. Cash and cash equivalents comprise cash at banks and on hand with original maturity of three months or less and are readily convertible to specified amounts of cash.

Amortized cost — Amounts receivable, excluding HST receivable, are classified as and measured at amortized cost using the effective interest rate method, adjusted for any expected credit losses.

Financial assets at fair value through other comprehensive income ("FVOCI") — Financial assets designated as financial assets at fair value through other comprehensive income on initial recognition are recorded at fair value on the trade date with directly attributable transaction costs included in the recorded amount. Subsequent changes in fair value are recognized in other comprehensive income. The Company does not have any financial assets measured at fair value through other comprehensive income.

Non-derivative financial liabilities — Trade payables and accrued liabilities are accounted for at amortized cost, using the effective interest rate method.

(g) *Provisions*

Provisions are recognized when: (i) the Company has a present obligation (legal or constructive) as a result of a past event, and (ii) it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. If the

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

3. Material accounting policies (continued)

(g) *Provisions (continued)*

effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, where appropriate, the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage of time is recognized as a finance cost.

(h) *Income taxes*

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive loss.

Current tax is the expected tax payable or receivable on the taxable income or loss for the year, using tax rates enacted at the reporting date, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognized for the following temporary differences: the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss, and differences relating to investments in subsidiary and jointly controlled entities to the extent that it is probable that they will not reverse in the foreseeable future. In addition, deferred tax is not recognized for taxable temporary differences arising on the initial recognition of goodwill. Deferred tax is measured at the tax rates that are expected to be applied to temporary differences when they reverse, based on the laws that have been enacted or substantively enacted by the reporting date. Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis, or their tax assets and liabilities will be realized simultaneously.

A deferred tax asset is recognized for unused tax losses, tax credits and deductible temporary differences, to the extent that it is probable that future taxable profits will be available against which they can be utilized. Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realized.

(i) *Share-based payments*

The Company records compensation cost associated with equity-settled share-based awards based on the fair value of the equity instrument at the date of grant. The fair value of stock options and warrants is determined using the Black-Scholes option pricing model. The fair value of deferred share units ("DSUs") is measured at the market value of the underlying shares, as estimated by management, on the date of grant. The compensation expense is recognized on a straight-line basis over the vesting period, if any, based on the estimate of equity instruments expected to vest. The estimate of options and DSUs expected to vest is revised at the end of each reporting period. When options, DSUs or warrants are exercised, the proceeds received, together with any related amount in contributed surplus, is credited to share capital.

New accounting pronouncements

In February 2021, the IASB issued narrow-scope amendments to IAS 1 – Presentation of Financial Statements ("IAS 1"), IFRS Practice Statement 2 – Making Materiality Judgments ("IFRS Practice Statement 2") and IAS 8 – Accounting Policies, Changes in Accounting Estimates and Errors ("IAS 8").

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

3. Material accounting policies (continued)

New accounting pronouncements (continued)

The amendments to IAS 1 require companies to disclose their material accounting policy information rather than their significant accounting policies. The amendments to IFRS Practice Statement 2 provide guidance on how to apply the concept of materiality to accounting policy disclosures.

The amendments to IAS 8 clarify how companies distinguish changes in accounting policies from changes in accounting estimates. That distinction is important because changes in accounting estimates are applied prospectively only to future transactions and other future events, but changes in accounting policies are generally also applied retrospectively to past transactions and other past events. The amendments are effective for annual reporting periods beginning on or after January 1, 2023. Adoption of these amendments did not have a significant impact on the Company's consolidated financial statements.

Recent accounting pronouncements not yet adopted

Certain pronouncements were issued by the IASB or the IFRIC that are mandatory for accounting periods commencing on or after January 1, 2024. Many are not applicable or do not have a significant impact to the Company and have been excluded.

4. Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with IFRS requires management to make judgments, estimates and assumptions that affect the reported amounts of assets, liabilities and contingent liabilities at the date of the consolidated financial statements and reported amounts of revenue and expenses during the reporting period. Estimates and assumptions are continually evaluated and are based on management's experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. However, actual outcomes can differ from those estimates.

In particular, information about significant areas of estimation uncertainty considered by management, and judgements made, in preparing the consolidated financial statements are described below:

(i) *Impairment of exploration and evaluation expenditures*

The carrying values of capitalized amounts are reviewed when indicators of impairment are present. If it is determined that capitalized exploration and evaluation costs are not recoverable, or the property is abandoned or management has determined an impairment in value, the property is written down to its recoverable amount.

The recoverability of amounts shown for exploration and evaluation assets is dependent on the existence of economically recoverable reserves, the ability to obtain financing to complete the development of such reserves and meet obligations under various agreements, and the success of future operations or dispositions. If a project does not prove viable, all unrecoverable costs associated with the project net of any related existing impairment provisions are written off.

(ii) *Contingencies*

By their nature, contingencies will only be resolved when one or more future events occur or fail to occur. The assessment of contingencies inherently involves the exercise of significant judgement and estimates of the outcome of future events.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

4. Use of estimates and judgments (continued)

(iii) *Fair value of stock-based compensation and warrants*

In determining the fair value of stock-based compensation and warrants, option pricing models are used that require management to make estimates and assumptions regarding the expected life and market price of its equity instruments, volatility, share price and risk-free interest rates.

(iv) *Going concern*

As is common with exploration companies, the Company's ability to continue its on-going and planned exploration activities and continue operations as a going concern, is dependent upon the recoverability of costs incurred to date on mineral properties, the existence of economically recoverable reserves, and the ability to obtain necessary equity financing from time to time. Management's assessment of the going concern assumption requires significant judgement.

5. Income taxes

The provision for income tax differs from the amount that would have resulted by applying the combined Canadian statutory income tax rates of approximately 26.5% (2022 – 26.5%):

	December 31, 2023	December 31, 2022
Loss before income tax	\$(13,046,362)	\$(32,464,021)
Canadian Statutory Tax Rate	26.5%	26.5%
Expected tax recovery	\$ (3,457,286)	\$ (8,602,966)
Share-based compensation	1,246,362	6,485,661
Foreign tax rate differential	935	1,937
Change in tax benefit not recognized	2,370,827	2,270,728
Total	<u>\$ 160,838</u>	<u>\$ 155,360</u>

The components of tax expense included in the determination of the loss for the years are as follows:

	December 31, 2023	December 31, 2022
Current tax expense	\$ —	\$ —
Deferred tax expense	160,838	155,360
Total	<u>\$ 160,838</u>	<u>\$ 155,360</u>

The following table reflects the change in deferred income tax liability at December 31, 2023 and 2022:

	December 31, 2023	December 31, 2022
Balance, beginning of year	\$(1,883,661)	\$(1,617,383)
Deferred income tax expense	(160,838)	(155,360)
Foreign currency translation	(151,588)	(110,918)
Balance, end of year	<u>\$ (2,196,087)</u>	<u>\$ (1,883,661)</u>

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

5. Income taxes (continued)

The following table summarizes the components of deferred income tax:

	December 31, 2023	December 31, 2022
Exploration and evaluation assets	\$(3,139,298)	\$(2,692,830)
Loss carryforwards	943,211	809,169
Deferred tax liabilities, net	\$(2,196,087)	\$(1,883,661)

As at December 31, 2023, deferred tax assets for the carry forward of certain unused tax losses and unused tax credits have not been recognized as it is not probable that taxable income will be available against which the unused tax losses and credits can be utilized. Deductible temporary differences for which no deferred tax assets have been recognized are attributable to the following:

<u>Canada</u>	December 31, 2023	December 31, 2022
Non-capital losses	\$ 77,312,000	\$ 68,327,000
Deductible temporary differences	\$ 1,267,042	\$ 2,497,249

<u>Brazil</u>	December 31, 2023	December 31, 2022
Non-capital losses	\$ 5,200,082	\$ 4,597,870

Brazilian tax losses carried forward can only be applied, in any year, in an amount up to 30% of taxable income for that year. Tax losses in Canada can be carried forward to reduce taxable income in future years. The losses are scheduled to expire as follows:

<u>Year of Expiry</u>	Amount
2043	\$ 8,985,000
2042	8,645,000
2041	4,268,000
2040	3,355,000
2039	4,681,000
2038	3,843,000
2037	4,804,000
2036	6,207,000
2035	8,182,000
2034	8,041,000
2033	4,762,000
2032	2,950,000
2031	3,127,000
2030	2,891,000
2029	2,571,000
	<u>\$ 77,312,000</u>

[Table of Contents](#)

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

6. Cash and cash equivalents

	December 31, 2023	December 31, 2022
Cash at banks	\$ 2,313,725	\$ 11,804,907
Short-term deposits	136,514	—
	<u>\$ 2,450,239</u>	<u>\$ 11,804,907</u>

Cash at banks earns interest at floating rates based on daily bank deposit rates. Short-term deposits are invested in certificate deposits at interbank rates with no fixed term of deposit.

7. Amounts receivable

	December 31, 2023	December 31, 2022
HST	\$ 105,785	\$ 165,385
Other receivables	43,972	2,469
Total amounts receivable	<u>\$ 149,757</u>	<u>\$ 167,854</u>

8. Prepaid expenses

	December 31, 2023	December 31, 2022
Prepaid insurance	\$ 19,585	\$ 17,656
Other	216,744	81,228
	<u>\$ 236,329</u>	<u>\$ 98,884</u>

9. Property and equipment

	Vehicles	Office equipment	Furniture and fixtures	Land	Total
Cost:					
At January 1, 2023	\$49,027	\$ 85,491	\$ 12,618	\$916,413	\$1,063,549
Additions	—	2,497	4,441	—	6,938
Effect of foreign exchange	3,812	6,727	1,079	71,258	82,876
At December 31, 2023	<u>\$52,839</u>	<u>\$ 94,715</u>	<u>\$ 18,138</u>	<u>\$987,671</u>	<u>\$1,153,363</u>
Depreciation:					
At January 1, 2023	\$48,704	\$ 68,119	\$ 10,019	\$ —	\$ 126,842
Effect of foreign exchange	3,787	5,427	749	—	9,963
Depreciation charge for the period	—	4,092	434	—	4,526
At December 31, 2023	<u>\$52,491</u>	<u>\$ 77,638</u>	<u>\$ 11,202</u>	<u>\$ —</u>	<u>\$ 141,331</u>
Net book value:					
At December 31, 2023	<u>\$ 348</u>	<u>\$ 17,077</u>	<u>\$ 6,936</u>	<u>\$987,671</u>	<u>\$1,012,032</u>
At January 1, 2023	\$ 323	\$ 17,372	\$ 2,599	\$916,413	\$ 936,707

[Table of Contents](#)

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

9. Property and equipment (continued)

	Vehicles	Office equipment	Furniture and fixtures	Land	Total
Cost:					
At January 1, 2022	\$45,839	\$ 68,582	\$ 11,032	\$856,829	\$ 982,282
Additions	—	12,262	867	—	13,129
Effect of foreign exchange	3,188	4,647	719	59,584	68,138
At December 31, 2022	\$49,027	\$ 85,491	\$ 12,618	\$916,413	\$1,063,549
Depreciation:					
At January 1, 2022	\$45,538	\$ 60,727	\$ 9,056	\$ —	\$ 115,321
Effect of foreign exchange	3,166	4,191	587	—	7,944
Depreciation charge for the year	—	3,201	376	—	3,577
At December 31, 2022	\$48,704	\$ 68,119	\$ 10,019	\$ —	\$ 126,842
Net book value:					
At December 31, 2022	\$ 323	\$ 17,372	\$ 2,599	\$916,413	\$ 936,707
At January 1, 2022	\$ 301	\$ 7,855	\$ 1,976	\$856,829	\$ 866,961

10. Exploration and evaluation assets

	Year ended December 31, 2023	Year ended December 31, 2022
Balance, beginning of year	\$ 120,216,752	\$ 112,188,359
Additions:		
Mineral rights and land fees	41,073	19,230
Site operations, environmental, consulting and technical costs	3,894,243	3,701,119
Share-based compensation (Note 13)	127,670	368,341
Effect of foreign exchange	5,018,756	3,939,703
Balance, end of year	\$ 129,298,494	\$ 120,216,752

11. Trade payables and accrued liabilities

	December 31, 2023	December 31, 2022
Trade payables	\$ 852,230	\$ 610,371
Accruals	877,873	544,501
Total trade payables and accrued liabilities	\$ 1,730,103	\$ 1,154,872

Included in trade payables and accrued liabilities are amounts invoiced or accrued, respectively, according to consulting contracts with directors, officers and consultants of the Company (see Note 18).

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

12. Share capital

(a) *Authorized*

Unlimited number of common shares without par value.

(b) *Issued*

	Year ended December 31, 2023		Year ended December 31, 2022	
	Number of shares	Stated Value \$	Number of shares	Stated Value \$
Common shares				
Balance, beginning of year	140,929,082	235,611,237	138,392,554	227,154,731
Reg A offering, net of issue costs	—	—	1,869,861	6,789,838
DSU exercise	100,000	400,000	666,667	1,666,668
Option exercise	1,323,000	6,476,491	—	—
Balance, end of year	<u>142,352,082</u>	<u>242,487,728</u>	<u>140,929,082</u>	<u>235,611,237</u>

On July 31, 2023, 1,323,000 options with weighted average exercise prices of \$1.89, were exercised for gross proceeds of \$2,497,500.

On April 3, 2023, 100,000 DSUs with a grant date fair value of \$400,000 were exercised.

On December 21, 2022, 666,667 DSUs with a grant date fair value of \$1,666,668 were exercised.

On January 28, 2022, February 2, 2022, March 24, 2022, April 8, 2022, May 11, 2022, June 22, 2022, July 22, 2022, August 8, 2022, and August 31, 2022, the Company closed portions of a Reg A Offering issuing 1,869,861 common shares of the Company at a purchase price of \$4.00 per share for gross proceeds of \$7,479,444.

During the year ended December 31, 2022, the Company paid share issue costs of \$689,606 in connection with the offerings.

13. Share-based payments

The continuity of share-based payments reserve activity during the years was as follows:

	Year ended December 31, 2023	Year ended December 31, 2022
Balance, beginning of the year	\$ 63,924,814	\$ 43,023,258
Vesting and forfeiture of options	180,587	1,725,617
Vesting of DSUs	4,650,337	22,996,915
Option extension	—	657,800
DSU exercise	(400,000)	(1,666,668)
Option exercise	(3,978,991)	—
Expired options	(96,500)	(2,812,108)
Balance, end of the year	<u>\$ 64,280,247</u>	<u>\$ 63,924,814</u>

(a) *Option plan*

The Company has an incentive share option plan (“the Plan”) whereby the Company may grant to directors, officers, employees and consultants options to purchase shares of the Company. The Plan provides for the

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

13. Share-based payments (continued)

(a) *Option plan (continued)*

issuance of share options to acquire up to 10% of the Company's issued and outstanding capital at the date of grant. The Plan is a rolling plan, as the number of shares reserved for issuance pursuant to the grant of stock options will increase as the Company's issued and outstanding share capital increases. Options granted under the Plan will be for a term not to exceed five years.

The Plan provides that it is solely within the discretion of the Board to determine who would receive share options and in what amounts. In no case (calculated at the time of grant) shall the Plan result in:

- the number of options granted in a twelve-month period to any one consultant exceeding 2% of the issued shares of the Company;
- the aggregate number of options granted in a twelve-month period to any one optionee exceeding 5% of the outstanding shares of the Company; and
- the number of options granted in a twelve-month period to employees and management company employees undertaking investor relations activities exceeding in aggregate 2% of the issued shares of the Company.

Share option transactions continuity during the periods were as follows (in number of options):

	Year ended December 31, 2023		Year ended December 31, 2022	
	Number of options	Weighted average exercise price	Number of options	Weighted average exercise price
Balance, beginning of year	8,120,500	\$ 2.28	7,545,500	\$ 1.96
Granted	50,000	4.00	1,250,000	4.00
Extended	—	—	200,000	2.50
Exercised	(1,323,000)	1.89	—	—
Cancelled	(1,025,000)	3.96	(875,000)	2.07
Balance, end of year	5,822,500	\$ 2.09	8,120,500	\$ 2.28

On January 20, 2022, the Company granted 1,250,000 options with exercise prices of \$4.00 and an expiry date of January 20, 2027. The options vest in four equal instalments over two years starting on the date of grant. The fair value of the options of \$1.734 was estimated using the Black-Scholes option pricing model, with the following weighted average assumptions: a market price of common shares of \$4.00, expected dividend yield of 0%, expected volatility of 48% based on the historic volatility of comparable companies, risk-free interest rate of 1.68% and an expected life of 5.0 years. The estimated grant date fair value of the options is amortized over the vesting period. During the year ended December 31, 2023, the Company recognized an expense of \$85,487 (year ended December 31, 2022 – expense of \$1,725,617) related to this amortization included in the consolidated statements of loss and other comprehensive. On May 11, 2023, 1,000,000 of the options were cancelled, unexercised, and replaced with 400,000 DSUs (see Note 13(b)).

The Company extended the expiry dates of options held by a consultant of the Company such that 200,000 options with exercise prices of \$2.50 per share and expiring on November 25, 2021, would expire on July 22, 2025. The weighted average incremental fair value of the options of \$0.60 was estimated using the Black-Scholes option pricing model, calculated immediately before and after the extension, with the following weighted average assumptions: a market price of common shares of \$4.00, expected dividend

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

13. Share-based payments (continued)

(a) *Option plan (continued)*

yield of 0%, expected volatility of 48% based on the historic volatility of comparable companies, risk-free interest rate of 1.46% and an expected life of 3.6 years. The total value of the option extension was \$120,000 which was capitalized to exploration and evaluation assets.

On March 31, 2023, 25,000 options with exercise prices of \$2.50, were cancelled.

On May 11, 2023, the Company granted 50,000 options with exercise prices of \$4.00 and an expiry date of May 11, 2028. The options vested immediately on the date of grant. The fair value of the options of \$1.902 was estimated using the Black-Scholes option pricing model, with the following weighted average assumptions: a market price of common shares of \$4.00, expected dividend yield of 0%, expected volatility of 51% based on the historic volatility of comparable companies, risk-free interest rate of 2.94% and an expected life of 5.0 years. During the year ended December 31, 2023, the Company recognized an expense of \$95,100 included in the consolidated statements of loss and other comprehensive.

On July 31, 2023, 540,000 options with exercise prices of \$1.00 and 783,000 options with exercise prices of \$2.50, were exercised.

At December 31, 2023, outstanding options to acquire common shares of the Company were as follows:

Date of expiry	Options outstanding	Options exercisable	Exercise price
June 1, 2024	250,000	250,000	\$ 3.75
July 20, 2025	3,157,500	3,157,500	\$ 2.50
July 20, 2025	2,115,000	2,115,000	\$ 1.00
January 20, 2027	250,000	187,500	\$ 4.00
May 11, 2028	50,000	50,000	\$ 4.00
	<u>5,822,500</u>	<u>5,760,000</u>	

(b) *Deferred share units plan ("DSU plan")*

The Company has a DSU plan that provides for the grant of DSUs to employees, officers or directors of the Company. The Plan allows the Company the ability to issue one common share from treasury for each DSU held on the date upon which the participant ceases to be a director, officer or employee of the corporation. The maximum number of Common Shares available for issuance under the DSU plan may not exceed 10% of the fully diluted issued share capital of the Company at any time.

DSU transactions continuity during the years were as follows (in number of DSUs):

	Year ended December 31, 2023	Year ended December 31, 2022
Balance, beginning of year	13,058,333	7,700,000
Cancelled	—	(2,425,000)
Exercised	(100,000)	(666,667)
Granted	1,250,000	8,450,000
Balance, end of year	<u>14,208,333</u>	<u>13,058,333</u>

Of the 14,208,333 DSUs outstanding, 11,179,167 have vested.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

13. Share-based payments (continued)

(b) *Deferred share units plan (“DSU plan”) (continued)*

The 6,700,000 DSUs granted during the year ended December 31, 2015 had the following vesting conditions:

- (i) As to one-third of the DSUs, vesting shall occur immediately;
- (ii) As to the second one-third, upon the later of (a) completion by the Company of a pre-feasibility study or feasibility study; and (b) receipt by the Company of the preliminary license for the project; and
- (iii) As to the final one third of the DSUs, upon the Company completing arrangements for project construction financing, as detailed in the pre-feasibility study or feasibility study for the project.

Of the 6,700,000 DSUs granted, 566,667 were forfeit, unvested, and 4,466,667 DSUs have vested, of which 666,667 were exercised and 333,333 were cancelled. The remaining 1,666,666 DSUs, which have the vesting condition (iii) above, were revised such that the vesting condition previously estimated to be met December 2019 was changed to June 30, 2023, then to March 31, 2024, and then to March 31, 2025 as that is the estimated timeline. The estimated fair value of the DSUs at the date of grant is recognized over the vesting period. During the year ended December 31, 2023, the Company expensed \$111,302, related to this amortization (year ended December 31, 2022 – recovery of \$561,969) of which, \$22,260 (year ended December 31, 2022 – \$60,489) was capitalized to exploration and evaluation assets, with the remaining \$89,042 (year ended December 31, 2022 – recovery of \$622,458) was charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at grant date were valued using an estimated market price of \$2.50.

On August 9, 2019, the Company granted 500,000 DSUs. 200,000 DSUs vested immediately, while 150,000 DSUs would vest when the Company obtains its installation licenses for the Autazes project estimated to be March 31, 2022, and the final 150,000 DSUs would vest upon the Company initiating project construction estimated to be in July 2022. The expected vesting dates of the DSUs were subsequently revised such that the DSUs expected to vest March 31, 2022 and July 2022 are expected to vest early in 2024 and March 31, 2025, respectively. The fair value of the DSUs at the date of grant is amortized over the vesting period. During the year ended December 31, 2023, the Company an expense of \$105,410 (year ended December 31, 2022 – expense of \$187,852) was capitalized to exploration and evaluation assets. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$3.75.

On February 15, 2022, the Company granted 3,450,000 DSUs. The DSUs vest in six equal tranches every six months over a three-year term. On August 15, 2022, 2,025,000 of the DSUs were cancelled. The fair value of the DSUs is amortized over the vesting period. During the year ended December 31, 2023, the Company recognized an expense of \$1,674,489 (year ended December 31, 2022 – \$3,371,032) related to this amortization charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$4.00.

On September 16, 2022, the Company granted 5,000,000 DSUs. The DSUs vest immediately. During the year ended December 31, 2022, the Company recognized an expense of \$20,000,000, related to the estimated fair value of the DSUs at the date of grant charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$4.00.

On May 11, 2023, the Company granted 500,000 DSUs. The DSUs vest immediately. During the year ended December 31, 2023, the Company recognized an expense of \$2,000,000, related to the estimated fair value

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

13. Share-based payments (continued)

(b) *Deferred share units plan (“DSU plan”) (continued)*

of the DSUs at the date of grant charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant were valued using an estimated market price of \$4.00.

On May 11, 2023, the Company also granted 400,000 DSUs to replace 1,000,000 options cancelled on May 11, 2023 (see Note 13(a)). The fair value of the options on the date of exchange was attributed to the fair value of the DSUs. During the year ended December 31, 2023, the Company recognized an expense of \$353,826 related to the estimated value of fair value of these equity instruments charged to the consolidated statements of loss and other comprehensive loss.

On October 11, 2023, the Company granted 350,000 DSUs to consultants of the Company. 100,000 of the DSUs vest in four equal installments over twelve months from the date of grant and 250,000 DSUs vest on October 11, 2024. During the year ended December 31, 2023, the Company recognized an expense of \$405,310, related to the estimated fair value of the DSUs at the date of grant charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$4.00.

During the year ended December 31, 2023, the total amount related to the vesting of DSUs was \$4,650,337 (year ended December 31, 2022 – \$22,996,915) of which an expense of \$127,670 (year ended December 31, 2022 – \$248,341) was capitalized to exploration and evaluation assets and an expense of \$4,522,667 (year ended December 31, 2022 – \$22,748,574) is included in the consolidated statements of loss and other comprehensive loss.

14. Warrants

At December 31, 2023, outstanding warrants to acquire common shares of the Company were as follows:

<u>Number of warrants</u>	<u>Exercise price</u>	<u>Expiry Date</u>
1,147,500	\$ 1.00	*

* On September 11, 2009, the Company issued 1,147,500 broker warrants in connection with a private placement financing. These warrants are exercisable for up to twelve months from the date the Company begins trading on a public exchange.

There were no warrant transactions during the year ended December 31, 2023 or the year ended December 31, 2022.

15. Loss per share

Basic loss per share is calculated by dividing the loss for the year by the weighted average number of common shares outstanding during the years ended December 31:

	<u>2023</u>	<u>2022</u>
Loss for the year attributable to common shareholders	\$ 13,207,200	\$ 32,619,381
Weighted average number of common shares	141,569,049	139,629,405
Basic and diluted loss per common share	\$ 0.09	\$ 0.23

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

15. Loss per share (continued)

The basic and diluted loss per share excludes options exercisable for 5,760,000 common shares of the Company at a weighted average exercise price of \$2.07, warrants exercisable for 1,147,500 common shares of the Company at a weighted average exercise price of \$1.00 and 11,179,167 vested DSUs as these are anti-dilutive.

16. Financial Risk Management Objectives and Policies

The Company's financial instruments comprise cash and cash equivalents, other receivables, trade payables and accrued liabilities. The main purpose of these financial instruments is to raise finance to fund operations.

The Company does not enter into any derivative transactions.

The Company's risk exposures and the impact on the Company's financial instruments are summarized below:

(a) *Credit risk*

Credit risk arises when a failure by counterparties to discharge their obligations could reduce the amount of future cash inflows from financial assets. With respect to credit risk arising from financial assets of the Company, which comprise cash and minimal receivables, the Company's exposure to credit risk arises from default of counterparties, with a maximum exposure equal to the carrying amount of these instruments. Cash and cash equivalents are held with high credit quality financial institutions. Management believes that the credit risk concentration with respect to these financial instruments is remote.

(b) *Liquidity risk*

The Company's approach to managing liquidity risk is to ensure that it will have sufficient liquidity to meet liabilities when due. As at December 31, 2023, the Company had a cash and cash equivalents balance of \$2,450,239 to settle current liabilities of \$1,730,103.

(c) *Market risk*

Market risk is the risk that changes in market prices, such as interest rates, foreign exchange rates and equity prices will affect the Company's income or the value of its holdings of financial instruments.

(d) *Interest rate risk*

The Company has cash and cash equivalent balances as at December 31, 2023. The Company considers interest rate risk to be minimal as cash is held on deposit at major financial institutions.

(e) *Foreign currency risk*

Foreign currency risk is created by fluctuations in the fair value or cash flows of financial instruments due to changes in foreign exchange rates and exposure as a result of investment in its foreign subsidiary. The Company's foreign currency risk arises primarily with respect to the Canadian dollar and Brazilian Reals. Fluctuations in the exchange rates between these currencies and the U.S. dollar could have a material impact on the Company's business, financial condition and results of operations. The Company does not engage in hedging activity to mitigate this risk.

The following summary illustrates the fluctuations in the exchange rates applied during the year ended December 31, 2023:

	<u>Average rate</u>	<u>Closing rate</u>
CAD	0.7433	0.7561
BRL	0.2002	0.2066

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

16. Financial Risk Management Objectives and Policies (continued)

(e) *Foreign currency risk (continued)*

A \$0.01 strengthening or weakening of the U.S. dollar against the Canadian dollar at December 31, 2023 would result in an increase or decrease in operating loss of \$2,044 and an increase or decrease in other comprehensive income of approximately \$nil. A \$0.01 strengthening or weakening of the U.S. dollar against the Brazilian Real would result in an increase or decrease in operating loss of approximately \$nil and an increase or decrease in other comprehensive loss in the consolidated statements of loss and other comprehensive loss of approximately \$3,513,000.

(f) *Capital management*

The Company manages its capital to ensure that it will be able to continue as a going concern in order to support the ongoing exploration and development of its mineral property in Brazil and to provide sufficient working capital to meet its ongoing obligations.

In the management of capital, the Company includes the components of shareholders' equity, cash and cash equivalents, as well as short-term investments (if any).

The Company manages its capital structure and makes adjustments to it in accordance with the aforementioned objectives, as well as, in light of changes in economic conditions and the risk characteristics of the underlying assets. In order to maintain or adjust its capital structure, the Company may issue new shares, acquire or dispose of assets and adjust the amount of cash and cash equivalents and short-term investments. There is no dividend policy. The Company is not subject to any externally imposed capital requirements, nor is its subsidiary in Brazil. There were no changes to the Company's capital management during the years ended December 31, 2023 or 2022.

17. Financial Instruments

The fair values of financial assets and liabilities, together with the carrying amounts shown in the consolidated statements of financial position, are as follows:

	<u>Financial instrument classification</u>	<u>Carrying amount</u>	<u>Fair value</u>
As at December 31, 2023		\$	\$
Financial assets:			
Cash and cash equivalents	FVPL	2,450,239	2,450,239
Other receivables	Amortized cost	43,972	43,972
Financial liabilities:			
Trade payables and accrued liabilities	Amortized cost	1,730,103	1,730,103
As at December 31, 2022		\$	\$
Financial assets:			
Cash and cash equivalents	FVPL	11,804,907	11,804,907
Other receivables	Amortized cost	2,469	2,469
Financial liabilities:			
Trade payables and accrued liabilities	Amortized cost	1,154,872	1,154,872

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

17. Financial Instruments (continued)

The fair value of short-term financial instruments approximates their carrying value due to the relatively short period of time to maturity. These include cash and cash equivalents, amounts receivable, trade payables and accrued liabilities.

18. Related Party Disclosures

(a) *Key management personnel compensation*

In addition to their contracted fees, directors and executive officers also participate in the Company's Share option program and DSU plan. Certain executive officers are subject to a mutual termination notice ranging from one to twelve months. Key management personnel compensation comprised:

	Year ended December 31, 2023	Year ended December 31, 2022
Directors & officers compensation	\$ 4,644,388	\$ 1,589,996
Share-based payments	875,755	16,764,919
	\$ 5,520,143	\$ 18,354,915

Included in the above amounts, is \$579,996 (December 31, 2022 — \$579,996) paid or accrued according to a contract for business and operational consulting services with Forbes & Manhattan, Inc. during the year ended December 31, 2023 and a discretionary bonus of \$2,000,000 paid to Forbes & Manhattan, Inc. during the year ended December 31, 2023, a company for which Mr. Stan Bharti (a director of the Company) is the Executive Chairman.

During the year ended December 31, 2023, the Company recorded an expense of \$875,755 (year ended December 31, 2022 — expense of \$16,764,919) in share-based compensation related to the amortization of the estimated fair value of DSUs granted to directors and officers of the Company in 2015, 2022 and 2023. As at December 31, 2023, 10,200,000 DSUs were granted to officers and directors of the Company of which 8,283,334 have vested, and 1,916,666 have not yet vested (See Note 13(b)). During the year ended December 31, 2023, a former officer of the Company exercised 1,323,000 options with weighted average exercise prices of \$1.89.

(b) *Transactions with other related parties*

As at December 31, 2023, trade payables and accrued liabilities included an amount of \$17,088 (December 31, 2022 — \$16,686) owing to directors and officers of the Company for consulting fees and \$nil owing to directors and officers for expense reimbursement (December 31, 2022 — \$9,299).

During the year ended December 31, 2023, the Company recorded an expense of \$47,028 (year ended December 31, 2022 — \$1,818,755) for travel costs with Tali Flying LP, a company which has a common director. As at December 31, 2023, trade payables and accrued liabilities included \$nil (December 31, 2022 — \$39,495) owing to Tali Flying LP and prepaid expenses included \$139,785 (December 31, 2022 — \$nil) advanced to Tali Flying LP.

These transactions, occurring in the normal course of operations, are measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2023 and 2022

19. Commitments and contingencies

The Company is party to certain management contracts. These contracts require payments of approximately \$9,221,000 to directors, officers and consultants of the Company upon the occurrence of a change in control of the Company, as such term is defined by each respective consulting agreement. The Company is also committed to payments upon termination of approximately \$1,258,000 pursuant to the terms of these contracts. As a triggering event has not taken place, these amounts have not been recorded in these consolidated financial statements.

20. Subsequent events

In April 2024, the Company received mine installation license.

Subsequent to December 31, 2023, 200,000 DSUs were exercised.



REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Brazil Potash Corp.

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated statement of financial position of Brazil Potash Corp. and its subsidiary (the “Company”) as of December 31, 2022 and 2021, and the related consolidated statements of loss and other comprehensive loss, changes in equity, and cash flows for the years ended December 31, 2022 and 2021, and the related notes to the consolidated financial statements.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Company as of December 31, 2022 and 2021, and the results of its consolidated operations and its consolidated cash flows for the years ended December 31, 2022 and 2021, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

Material Uncertainty Related to Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has suffered recurring losses from operations and has an accumulated deficit that raises substantial doubt about its ability to continue as a going concern. Management’s plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

[Table of Contents](#)

/s/ *MNP LLP*

Chartered Professional Accountants

Licensed Public Accountants

We have served as the Company's auditor since 2021.

Mississauga, Canada

April 28, 2023

50 Burnhamthorpe Road West, Suite 900, Mississauga, Ontario, L5B 3C2
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[Table of Contents](#)**Brazil Potash Corp.**Consolidated Statements of Financial Position
(Expressed in U.S. dollars)

<u>As at:</u>	<u>December 31,</u> <u>2022</u>	<u>December 31,</u> <u>2021</u>
ASSETS		
Current		
Cash and cash equivalents (Note 6)	\$ 11,804,907	\$ 15,144,419
Amounts receivable (Note 7)	167,854	2,616,544
Prepaid expenses (Note 8)	98,884	99,566
Total current assets	12,071,645	17,860,529
Non-current		
Property and equipment (Note 9)	936,707	866,961
Exploration and evaluation assets (Note 10)	120,216,752	112,188,359
Total assets	<u>\$ 133,225,104</u>	<u>\$ 130,915,849</u>
LIABILITIES		
Current		
Trade payables and accrued liabilities (Notes 11, 19)	\$ 1,154,872	\$ 2,005,960
Total current liabilities	1,154,872	2,005,960
Non-current		
Deferred income tax liability (Note 5)	1,883,661	1,617,383
Total liabilities	3,038,533	3,623,343
Equity		
Share capital (Note 13)	235,611,237	227,154,731
Share-based payments reserve (Note 14)	63,924,814	43,023,258
Warrants reserve (Note 15)	604,000	604,000
Accumulated other comprehensive loss	(70,332,349)	(74,213,425)
Deficit	(99,621,131)	(69,276,058)
Total equity	130,186,571	127,292,506
Total liabilities and equity	<u>\$ 133,225,104</u>	<u>\$ 130,915,849</u>

Reporting entity and going concern (Note 1)

Commitments & contingencies (Note 20)

See accompanying notes to the consolidated financial statements.

[Table of Contents](#)**Brazil Potash Corp.**Consolidated Statements of Loss and Other Comprehensive Loss
(Expressed in U.S. dollars)

	Year ended December 31, 2022	Year ended December 31, 2021
Expenses		
Consulting and management fees (Note 19)	\$ 2,713,548	\$ 2,023,284
Professional fees	2,185,220	644,117
Share-based compensation (Notes 14, 19)	24,474,191	357,189
Travel expenses	2,704,879	231,821
General office expenses	183,843	148,715
Foreign exchange loss	62,479	68,243
Communications and promotions	398,880	62,528
Operating Loss	32,723,040	3,535,897
Finance costs	—	405,249
Finance income	(259,019)	(5,056)
Loss for the year before income taxes	32,464,021	3,936,090
Deferred income tax provision (Note 5)	155,360	93,276
Loss for the year	\$ 32,619,381	\$ 4,029,366
Other comprehensive loss:		
<i>Items that subsequently may be reclassified into net income:</i>		
Foreign currency translation	(3,881,076)	4,131,016
Total comprehensive loss for the year	\$ 28,738,305	\$ 8,160,382
Basic and diluted loss per share	\$ 0.23	\$ 0.03
Weighted average number of common shares outstanding - basic and diluted (Note 16)	139,629,405	131,176,764

See accompanying notes to the consolidated financial statements.

[Table of Contents](#)

Brazil Potash Corp.

Consolidated Statements of Changes in Equity
(Expressed in U.S. dollars)

	Common Shares		Warrants	Share-based payments reserve	Accumulated Other Comprehensive Loss	Accumulated Deficit	Shareholders' Equity
	#	\$	\$	\$	\$	\$	\$
Balance, December 31, 2020	130,144,334	197,304,457	23,715,254	43,259,413	(70,082,409)	(89,245,146)	104,951,569
Deferred share units	—	—	—	651,045	—	—	651,045
Reg A Offering (Note 13)	8,248,220	32,992,880	—	—	—	—	32,992,880
Share issuance costs (Note 13)	—	(3,142,606)	—	—	—	—	(3,142,606)
Option expiry (Note 14)	—	—	—	(887,200)	—	887,200	—
Warrant Expiry (Note 15)	—	—	(23,111,254)	—	—	23,111,254	—
Net loss and comprehensive loss for the year	—	—	—	—	(4,131,016)	(4,029,366)	(8,160,382)
Balance, December 31, 2021	138,392,554	227,154,731	604,000	43,023,258	(74,213,425)	(69,276,058)	127,292,506
Balance, December 31, 2021	138,392,554	227,154,731	604,000	43,023,258	(74,213,425)	(69,276,058)	127,292,506
Deferred share units (Note 14(b))	—	—	—	22,996,915	—	—	22,996,915
Deferred share units exercised	666,667	1,666,668	—	(1,666,668)	—	—	—
Reg A Offering (Note 13)	1,869,861	7,479,444	—	—	—	—	7,479,444
Share issuance costs (Note 13)	—	(689,606)	—	—	—	—	(689,606)
Option extension (Note 14(a))	—	—	—	657,800	—	(537,800)	120,000
Option grant (Note 14(a))	—	—	—	1,725,617	—	—	1,725,617
Option expiry (Note 14)	—	—	—	(2,812,108)	—	2,812,108	—
Net loss and comprehensive loss for the year	—	—	—	—	3,881,076	(32,619,381)	(28,738,305)
Balance, December 31, 2022	140,929,082	235,611,237	604,000	63,924,814	(70,332,349)	(99,621,131)	130,186,571

See accompanying notes to the consolidated financial statements.

[Table of Contents](#)**Brazil Potash Corp.**Consolidated Statements of Cash Flows
(Expressed in U.S. dollars)

	Year ended December 31, 2022 \$	Year ended December 31, 2021 \$
CASH FLOWS FROM OPERATING ACTIVITIES		
Loss for the year	(32,619,381)	(4,029,366)
Adjustment for:		
Finance income	(259,019)	(5,056)
Finance costs	—	405,249
Share-based compensation	24,474,191	357,189
Deferred income tax provision	155,360	93,276
	(8,248,849)	(3,178,708)
Change in amounts receivable	890,292	(539,404)
Change in prepaid expenses	1,784	(54,193)
Change in trade payables and accrued liabilities	(860,869)	(5,836,694)
Net cash used in operating activities	(8,217,642)	(9,608,999)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from Reg A offering, net of share issue costs	8,348,378	28,291,734
Loan proceeds	—	814,603
Loan repayment	—	(3,228,687)
Net cash from financing activities	8,348,378	25,877,650
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisition of property and equipment	(13,129)	(4,664)
Exploration and evaluation assets	(3,716,772)	(1,164,584)
Finance income	259,019	5,056
Net cash used in investing activities	(3,470,882)	(1,164,192)
Effect of exchange rate changes on cash and cash equivalents	634	(32,478)
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(3,339,512)	15,071,981
CASH AND CASH EQUIVALENTS, beginning of year	15,144,419	72,438
CASH AND CASH EQUIVALENTS, end of year	11,804,907	15,144,419
SUPPLEMENTAL INFORMATION:		
Depreciation of assets capitalized to exploration and evaluation assets	3,577	1,366
Share-based compensation included in exploration and evaluation assets	368,341	293,856
Change in receivable on Reg A offering	(1,558,540)	1,558,540

See accompanying notes to the consolidated financial statements.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

1. Reporting entity and going concern

Brazil Potash Corp. (the “Company”) was incorporated under the laws of the Province of Ontario, Canada by Articles of Incorporation on October 10, 2006. The Company remained inactive until June 16, 2009. On June 18, 2009, the Company’s subsidiary Potássio do Brasil Ltda. (the “Subsidiary”) was incorporated. The principal activity of Brazil Potash Corp. is the exploration and development of potash properties in Brazil. The Company’s head office is located at 198 Davenport Road, Toronto, Ontario, M5R 1J2, Canada.

The consolidated financial statements include the financial statements of the Company and its subsidiary that is listed in the following table:

	Country of incorporation	% Ownership	
		December 31, 2022	December 31, 2021
Potassio do Brasil Ltda.	Brazil	100%	100%

The Company received its Preliminary Social and Environmental License (the “LP”) for its potash mining project in Brazil (the “Autazes Project”) from the Amazonas Environmental Protection Institute (“IPAAM”) in July 2015 based on submission of a full Environmental and Social Impact Assessment prepared by the Company and its consultant Golder Associates Inc. (“Golder”) in January 2015. Prior to receiving the LP, the Company and Golder participated in public hearings and conducted several rounds of consultations with local indigenous communities near the Autazes Project in accordance with the guidelines and requirements established by Fundação Nacional do Índio (“FUNAI”). Despite this work, the Brazil Federal Public Ministry opened a civil investigation in December 2016 that questioned the validity of the Company’s LP based on a motion from a non-governmental organization that the Company’s consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169, as Brazil is a signatory to this international convention. As a result of the foregoing investigation, in March 2017, the Company agreed with the court overseeing such investigation, the Brazil Federal Public Ministry, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mineral Agency, FUNAI, and representatives of the Mura indigenous people (who make up the over 40 indigenous communities and tribes near the Autazes Project) to suspend its LP and to conduct additional consultations with the local Mura indigenous communities near the Autazes Project in accordance with International Labour Organization 169 (the “March 2017 Suspension Agreement”).

The reinstatement of the Company’s LP is subject to the initiation of additional consultations with the indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169, as per the March 2017 Suspension Agreement. There are two major steps that need to be followed in connection with these consultations. The first step is that the indigenous communities need to determine the means of, and who within their tribes will be involved in, the consultations. The first step has been completed. The second step is the actual consultation process, which initially started in November 2019 but was suspended due to the outbreak of COVID-19. In April 2022, following the lifting of COVID-19 related restrictions, the Company resumed its additional consultations with the Mura indigenous people. Such consultations are being conducted in accordance with International Labour Organization Convention 169 and are currently ongoing. The Company believes it will complete the first of up to three rounds of such additional consultations with the indigenous communities involved in the second quarter of 2023.

Going Concern

The Company’s operations could be significantly adversely affected by the effects of a widespread global outbreak of a contagious disease and other unforeseen events, including the recent outbreak of a respiratory

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

1. Reporting entity and going concern (continued)

Going Concern (continued)

illness caused by COVID-19 and the related economic repercussions. The Company cannot accurately predict the impact COVID-19 will have on its operations and the ability of others to meet their obligations with the Company, including uncertainties relating to the ultimate geographic spread of the virus, the severity of the disease, the duration of the outbreak, and the length of travel and quarantine restrictions imposed by governments of affected countries. In addition, a significant outbreak of contagious diseases in the human population could result in a widespread health crisis that could adversely affect the economies and financial markets of many countries, resulting in an economic downturn that could further affect the Company's operations and ability to finance its operations.

The preparation of the consolidated financial statements requires an assessment on the validity of the going concern assumption. The validity of the going concern concept is dependent on financing being available for the continuing working capital requirements of the Company and for the development of the Company's projects.

The Company incurred a loss of \$32,619,381 for the year ended December 31, 2022 (\$4,029,366 for the year ended December 31, 2021) and as at December 31, 2022 had an accumulated deficit of \$99,621,131 (December 31, 2021 – \$69,276,058) and working capital of \$10,916,773 as at December 31, 2022 (including cash of \$11,804,907) (December 31, 2021 – working capital of \$15,854,569 (including cash of \$15,144,419)).

The Company requires equity capital and/or financing for working capital and exploration and development of its properties as well as to repay its trade payables and current liabilities. As a result of continuing operating losses, the Company's continuance as a going concern is dependent upon its ability to obtain adequate financing and financing to repay its current obligations, finance its exploration and development activities, and to reach profitable levels of operation. It is not possible to predict whether financing efforts will be successful or if the Company will obtain the necessary financing in order to finance its exploration and development activities or to attain profitable levels of operations. Management has previously been successful in raising the necessary funding to continue operations in the normal course of operations and on April 1, 2021, May 5, 2021 and August 4, 2021, the Company entered into loan agreements to fund operating expenses, and during the years ended December 31, 2021 and 2022 completed Tier 2 offerings pursuant to Regulation A (Regulation A+) under the Securities Act of 1933 (see Note 13).

However, there is no assurance, that the Company will continue to be successful in closing the offering of shares, be successful in raising sufficient financing, or achieve profitable operations, to fund its operating expenses, or the future exploration and development of its properties. This raises substantial doubt about the Company's ability to continue as a going concern. These consolidated financial statements do not include any adjustments to the carrying amount, or classification of assets and liabilities, if the Company was unable to continue as a going concern. These adjustments may be material. On the basis that additional funding as outlined above has and will be received when required, the directors are satisfied that it is appropriate to continue to prepare the consolidated financial statements of the Company on the going concern basis.

2. Basis of preparation

(a) *Statement of compliance*

The consolidated financial statements of the Company have been prepared in accordance with International Financial Reporting Standards ("IFRS") issued by the International Accounting Standards Board ("IASB") and interpretations of the International Financial Reporting Interpretations Committee ("IFRIC").

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

2. Basis of preparation (continued)

(a) *Statement of compliance (continued)*

The consolidated financial statements were authorized for issue by the Board of Directors on April 28, 2023.

(b) *Basis of measurement*

The consolidated financial statements have been prepared on the historical cost basis, unless otherwise disclosed.

(c) *Functional and presentation currency*

Based on the economic substance of the underlying business transactions and circumstances relevant to the parent, the functional currency of the Company has been determined to be the U.S. dollar, with its subsidiary determining its own functional currency based on its own circumstances. The functional currency of Potássio do Brasil Ltda. has been determined to be the Brazilian Real. The Company's presentation currency is the United States Dollar.

3. Significant accounting policies

The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements.

(a) *Basis of consolidation*

These consolidated financial statements comprise the financial statements of the Company and its wholly owned subsidiary, Potássio do Brasil Ltda., in Brazil as at December 31, 2022.

The Company's subsidiary is fully consolidated from the date of acquisition or incorporation, being the date on which the Company obtained control, and continues to be consolidated until the date that such control ceases. These consolidated financial statements comprise results for the years ended December 31, 2022 and 2021.

The financial statements of the subsidiary are prepared for the same reporting period as the parent company, using consistent accounting policies.

All intra-company balances, income and expenses and unrealized gains and losses resulting from intra-company transactions are eliminated in full upon consolidation.

(b) *Foreign currency transactions*

Transactions in foreign currencies are initially recorded in the functional currency at the rate at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at the rate of exchange at the consolidated statements of financial position date. All differences are taken to statements of loss and other comprehensive loss.

For presentation of Company's consolidated financial statements, if the functional currency of the Company or its subsidiary is different than U.S. dollars as at the reporting date, the assets and liabilities are translated into U.S. dollars at the rate ruling at the statements of financial position date and the income and expenses are translated using the average exchange rate for the period. The foreign exchange differences arising are recorded in the cumulative translation account in other comprehensive income. On disposal of a foreign entity the deferred cumulative amount recognized in equity relating to the particular operation is recognized in the consolidated statements of loss and other comprehensive loss.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

3. Significant accounting policies (continued)

(c) *Cash and cash equivalents*

Cash and cash equivalents in the consolidated statements of financial position comprise cash at banks and on hand, and short-term deposits with an original maturity of three months or less, which are readily convertible into a known amount of cash.

(d) *Property and equipment*

(i) Recognition and measurement

Items of equipment are measured at cost less accumulated depreciation and accumulated impairment losses.

(ii) Depreciation

Depreciation calculated over the depreciable amount, which is the cost of an asset, or other amount substituted for cost, less its residual value.

The estimated lives for the current period are as follows:

• Vehicle	5 years
• Office equipment	5 years
• Furniture and fixtures	10 years

The Company's land is carried at cost.

Impairment of property and equipment:

When events or changes in the economic environment indicate a risk of impairment to property and equipment, an impairment test is performed to determine whether the carrying amount of the asset or group of assets under consideration exceeds its or their recoverable amount. Recoverable amount is defined as the higher of an asset's fair value (less costs of disposal) and its value in use. Value in use is equal to the present value of future cash flows expected to be derived from the use and sale of the asset.

(e) *Exploration and evaluation assets*

Costs incurred prior to obtaining the appropriate license are expensed in the period in which they are incurred.

Exploration and evaluation expenditures comprise costs of initial search for mineral deposits and performing a detailed assessment of deposits that have been identified as having economic potential. The cost of exploration properties and leases, which include the cost of acquiring prospective properties and exploration rights, including interest, and costs incurred in exploration and evaluation activities, are capitalized as assets as part of exploration and evaluation assets. Exploration and evaluation costs are capitalized as an asset until technical feasibility and commercial viability of extraction of reserves are demonstrable, then the capitalized exploration costs are reclassified to property, plant and equipment. Exploration and evaluation costs include an allocation of administration and salary costs as determined by management.

Depreciation on equipment used in exploration and evaluation is charged to exploration and evaluation assets.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

3. Significant accounting policies (continued)

(e) *Exploration and evaluation assets (continued)*

Prior to reclassification to property and equipment, exploration and evaluation assets are assessed for impairment and any impairment loss is recognized immediately in the statements of loss and other comprehensive loss.

Impairment of exploration and evaluation assets:

Exploration and evaluation assets are assessed for impairment when facts and circumstances suggest that the carrying amount may exceed its recoverable amount. The Company reviews and tests for impairment on an ongoing basis and specifically if the following occurs:

- (i) the period for which the Company has a right to explore in the specific area has expired or is expected to expire;
- (ii) the exploration and evaluation have not led to the discovery of economic reserves;
- (iii) the development of the reserves is not economically or commercially viable; and
- (iii) the exploration is located in an area that has become politically unstable.

No amortization is charged during the exploration and evaluation phase.

(f) *Financial instruments*

The Company recognizes financial assets and financial liabilities on the date the Company becomes a party to the contractual provisions of the instruments. A financial asset is derecognized either when the Company has transferred substantially all the risks and rewards of ownership of the financial asset or when cash flows expire. A financial liability is derecognized when the obligation specified in the contract is discharged, canceled or expired. The Company's financial assets include cash and cash equivalents, and amounts receivable, excluding HST receivable. The Company's financial liabilities include trade payables and accrued liabilities.

Non-derivative financial instruments are recognized initially at fair value plus attributable transaction costs, where applicable for financial instruments not classified as fair value through profit or loss. Subsequent to initial recognition, non-derivative financial instruments are classified and measured as described below:

Financial assets at fair value through profit or loss ("FVTPL") – cash and cash equivalents are classified as financial assets at FVTPL and are measured at fair value. Cash and cash equivalents comprise cash at banks and on hand with original maturity of three months or less and are readily convertible to specified amounts of cash.

Amortized cost – Amounts receivable, excluding HST receivable, are classified as and measured at amortized cost using the effective interest rate method, less impairment losses, if any.

Financial assets at fair value through other comprehensive income ("FVOCI") – Financial assets designated as financial assets at fair value through other comprehensive income on initial recognition are recorded at fair value on the trade date with directly attributable transaction costs included in the recorded amount. Subsequent changes in fair value are recognized in other comprehensive income. The Company does not have any financial assets measured at fair value through other comprehensive income.

Non-derivative financial liabilities – Trade payables and accrued liabilities are accounted for at amortized cost, using the effective interest rate method.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

3. Significant accounting policies (continued)

(g) *Provisions*

Provisions are recognized when: (i) the Company has a present obligation (legal or constructive) as a result of a past event, and (ii) it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, where appropriate, the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage of time is recognized as a finance cost.

(h) *Income taxes*

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive loss.

Current tax is the expected tax payable or receivable on the taxable income or loss for the year, using tax rates enacted at the reporting date, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognized for the following temporary differences: the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss, and differences relating to investments in subsidiary and jointly controlled entities to the extent that it is probable that they will not reverse in the foreseeable future. In addition, deferred tax is not recognized for taxable temporary differences arising on the initial recognition of goodwill.

Deferred tax is measured at the tax rates that are expected to be applied to temporary differences when they reverse, based on the laws that have been enacted or substantively enacted by the reporting date. Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realized simultaneously.

A deferred tax asset is recognized for unused tax losses, tax credits and deductible temporary differences, to the extent that it is probable that future taxable profits will be available against which they can be utilized. Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realized.

(i) *Share-based payments*

The Company records compensation cost associated with equity-settled share-based awards based on the fair value of the equity instrument at the date of grant. The fair value of stock options and warrants is determined using the Black-Scholes option pricing model. The fair value of deferred share units ("DSUs") is measured at the market value of the underlying shares, as estimated by management, on the date of grant. The compensation expense is recognized on a straight-line basis over the vesting period, if any, based on the estimate of equity instruments expected to vest. The estimate of options and DSUs expected to vest is revised at the end of each reporting period. When options, DSUs or warrants are exercised, the proceeds received, together with any related amount in contributed surplus, is credited to share capital.

(j) *New accounting pronouncements*

IAS 16 – Property, Plant and Equipment ("IAS 16") was amended. The amendments introduce new guidance, such that the proceeds from selling items before the related property, plant and equipment is

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

3. Significant accounting policies (continued)

(j) *New accounting pronouncements (continued)*

available for its intended use can no longer be deducted from the cost. Instead, such proceeds are to be recognized in profit or loss, together with the costs of producing those items. The adoption of the amendments to IAS 16 on January 1, 2022 did not have a significant impact on the consolidated financial statements.

IAS 37 – Provisions, Contingent Liabilities, and Contingent Assets (“IAS 37”) was amended. The amendments clarify that when assessing if a contract is onerous, the cost of fulfilling the contract includes all costs that relate directly to the contract – i.e., a full-cost approach. Such costs include both the incremental costs of the contract (i.e., costs a company would avoid if it did not have the contract) and an allocation of other direct costs incurred on activities required to fulfill the contract – e.g., contract management and supervision, or depreciation of equipment used in fulfilling the contract. The adoption of the amendments to IAS 37 on January 1, 2022 did not have a significant impact on the consolidated financial statements.

(k) *Recent accounting pronouncements not yet adopted*

Certain pronouncements were issued by the IASB or the IFRIC that are mandatory for accounting periods commencing on or after January 1, 2023. Many are not applicable or do not have a significant impact to the Company and have been excluded.

IAS 1 – Presentation of Financial Statements (“IAS 1”) was amended in January 2020 to provide a more general approach to the classification of liabilities under IAS 1 based on the contractual arrangements in place at the reporting date. The amendments clarify that the classification of liabilities as current or noncurrent is based solely on a company’s right to defer settlement at the reporting date. The right needs to be unconditional and must have substance. The amendments also clarify that the transfer of a company’s own equity instruments is regarded as settlement of a liability, unless it results from the exercise of a conversion option meeting the definition of an equity instrument. The amendments are effective for annual periods beginning on January 1, 2023. The Company does not expect the amendments to IAS 1 to have a significant impact on the consolidated financial statements.

IAS 1 – In February 2021, the IASB issued ‘Disclosure of Accounting Policies’ with amendments that are intended to help preparers in deciding which accounting policies to disclose in their financial statements. The amendments are effective for year ends beginning on or after January 1, 2023. The Company does not expect the amendments to IAS 1 to have a significant impact on the consolidated financial statements.

IAS 8 – In February 2021, the IASB issued ‘Definition of Accounting Estimates’ to help entities distinguish between accounting policies and accounting estimates. The amendments are effective for year ends beginning on or after January 1, 2023. The Company does not expect the amendments to IAS 8 to have a significant impact on the consolidated financial statements.

4. Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with IFRS requires management to make judgments, estimates and assumptions that affect the reported amounts of assets, liabilities and contingent liabilities at the date of the consolidated financial statements and reported amounts of revenue and expenses during the reporting period. Estimates and assumptions are continually evaluated and are based on management’s experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. However, actual outcomes can differ from those estimates.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

4. Use of estimates and judgments (continued)

In particular, information about significant areas of estimation uncertainty considered by management in preparing the consolidated financial statements is described below:

(i) Impairment of exploration and evaluation expenditures

The carrying values of capitalized amounts are reviewed when indicators of impairment are present. If it is determined that capitalized exploration and evaluation costs are not recoverable, or the property is abandoned or management has determined an impairment in value, the property is written down to its recoverable amount.

The recoverability of amounts shown for exploration and evaluation assets is dependent on the existence of economically recoverable reserves, the ability to obtain financing to complete the development of such reserves and meet obligations under various agreements, and the success of future operations or dispositions. If a project does not prove viable, all unrecoverable costs associated with the project net of any related existing impairment provisions are written off.

(ii) Contingencies

By their nature, contingencies will only be resolved when one or more future events occur or fail to occur. The assessment of contingencies inherently involves the exercise of significant judgement and estimates of the outcome of future events.

(iii) Fair value of stock-based compensation and warrants

In determining the fair value of stock-based compensation and warrants, option pricing models are used that require management to make estimates and assumptions regarding the expected life and market price of its equity instruments, volatility, share price and risk-free interest rates.

(iv) Going concern

As is common with exploration companies, the Company's ability to continue its on-going and planned exploration activities and continue operations as a going concern, is dependent upon the recoverability of costs incurred to date on mineral properties, the existence of economically recoverable reserves, and the ability to obtain necessary equity financing from time to time. Management's assessment of the going concern assumption requires significant judgement.

5. Income taxes

The provision for income tax differs from the amount that would have resulted by applying the combined Canadian statutory income tax rates of approximately 26.5% (2021 – 26.5%):

	December 31, 2022	December 31, 2021
Loss before income tax	\$(32,464,021)	\$(3,936,090)
Canadian Statutory Tax Rate	26.5%	26.5%
Expected tax recovery	\$ (8,602,966)	\$(1,043,064)
Share-based compensation	6,485,661	94,655
Foreign tax rate differential	1,937	3,376
Change in tax benefit not recognized	2,270,728	1,038,309
Total	<u>\$ 155,360</u>	<u>\$ 93,276</u>

[Table of Contents](#)

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

5. Income taxes (continued)

The components of tax expense included in the determination of the loss for the year are as follows:

	December 31, 2022	December 31, 2021
Current tax expense	\$ —	\$ —
Deferred tax expense	155,360	93,276
Total	<u>\$ 155,360</u>	<u>\$ 93,276</u>

The following table reflects the change in deferred income tax liability at December 31, 2022 and 2021:

	December 31, 2022	December 31, 2021
Balance, beginning of year	\$(1,617,383)	\$(1,640,003)
Deferred income tax expense	(155,360)	(93,276)
Foreign currency translation	(110,918)	115,896
Balance, end of year	<u>\$ (1,883,661)</u>	<u>\$ (1,617,383)</u>

The following table summarizes the components of deferred income tax:

	December 31, 2022	December 31, 2021
Exploration and evaluation assets	\$(2,692,830)	\$(2,312,310)
Loss carryforwards	809,169	694,927
Deferred tax liabilities, net	<u>\$ (1,883,661)</u>	<u>\$ (1,617,383)</u>

As at December 31, 2022, deferred tax assets for the carry forward of certain unused tax losses and unused tax credits have not been recognized as it is not probable that taxable income will be available against which the unused tax losses and credits can be utilized. Deductible temporary differences for which no deferred tax assets have been recognized are attributable to the following:

	December 31, 2022	December 31, 2021
<u>Canada</u>		
Non-capital losses	\$ 68,327,000	\$ 59,682,000
Deductible temporary differences	\$ 2,497,249	\$ 2,624,085
Property and equipment	\$ —	\$ 1,452
<u>Brazil</u>		
Non-capital losses	\$ 4,597,870	\$ 3,905,608

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

5. Income taxes (continued)

Brazilian tax losses carried forward can only be applied, in any year, in an amount up to 30% of taxable income for that year. Tax losses in Canada can be carried forward to reduce taxable income in future years. The losses are scheduled to expire as follows:

Year of Expiry	Amount
2042	\$ 8,645,000
2041	4,268,000
2040	3,355,000
2039	4,681,000
2038	3,843,000
2037	4,804,000
2036	6,207,000
2035	8,182,000
2034	8,041,000
2033	4,762,000
2032	2,950,000
2031	3,127,000
2030	2,891,000
2029	2,571,000
	\$ 68,327,000

6. Cash and cash equivalents

	2022	2021
Cash at banks	\$ 11,804,907	\$ 14,971,250
Short-term deposits	—	173,169
	\$ 11,804,907	\$ 15,144,419

Cash at banks earns interest at floating rates based on daily bank deposit rates. Short-term deposits are invested in certificate deposits at interbank rates with no fixed term of deposit.

7. Amounts receivable

	December 31, 2022	December 31, 2021
HST	\$ 165,385	\$1,055,941
Other receivables	2,469	1,560,603
Total amounts receivable	\$ 167,854	\$2,616,544

Other receivables at December 31, 2021 consisted of amounts receivable on the Company's Reg A financings (see Note 13), all of which were collected during the year ended December 31, 2022. No allowance was required to be taken.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

8. Prepaid expenses

	2022	2021
Prepaid insurance	<u>\$ 17,656</u>	<u>\$ 56,373</u>
Other	<u>81,228</u>	<u>43,193</u>
	<u>\$ 98,884</u>	<u>\$ 99,566</u>

9. Property and equipment

	Vehicles	Office equipment	Furniture and fixtures	Land	Total
Cost:					
At January 1, 2022	\$45,839	\$ 68,582	\$ 11,032	\$856,829	\$ 982,282
Additions	—	12,262	867	—	13,129
Effect of foreign exchange	3,188	4,647	719	59,584	68,138
At December 31, 2022	<u>\$49,027</u>	<u>\$ 85,491</u>	<u>\$ 12,618</u>	<u>\$916,413</u>	<u>\$ 1,063,549</u>
Depreciation:					
At January 1, 2022	\$45,538	\$ 60,727	\$ 9,056	\$ —	\$ 115,321
Effect of foreign exchange	3,166	4,191	587	—	7,944
Depreciation charge for the year	—	3,201	376	—	3,577
At December 31, 2022	<u>\$48,704</u>	<u>\$ 68,119</u>	<u>\$ 10,019</u>	<u>\$ —</u>	<u>\$ 126,842</u>
Net book value:					
At December 31, 2022	<u>\$ 323</u>	<u>\$ 17,372</u>	<u>\$ 2,599</u>	<u>\$916,413</u>	<u>\$ 936,707</u>
At January 1, 2022	<u>\$ 301</u>	<u>\$ 7,855</u>	<u>\$ 1,976</u>	<u>\$856,829</u>	<u>\$ 866,961</u>
Cost:					
At January 1, 2021	\$49,225	\$ 68,805	\$ 11,805	\$920,117	\$ 1,049,952
Additions	—	4,664	—	—	4,664
Effect of foreign exchange	(3,386)	(4,887)	(773)	(63,288)	(72,334)
At December 31, 2021	<u>\$45,839</u>	<u>\$ 68,582</u>	<u>\$ 11,032</u>	<u>\$856,829</u>	<u>\$ 982,282</u>
Depreciation:					
At January 1, 2021	\$48,901	\$ 64,244	\$ 9,233	\$ —	\$ 122,378
Effect of foreign exchange	(3,363)	(4,449)	(611)	—	(8,423)
Depreciation charge for the year	—	932	434	—	1,366
At December 31, 2021	<u>\$45,538</u>	<u>\$ 60,727</u>	<u>\$ 9,056</u>	<u>\$ —</u>	<u>\$ 115,321</u>
Net book value:					
At December 31, 2021	<u>\$ 301</u>	<u>\$ 7,855</u>	<u>\$ 1,976</u>	<u>\$856,829</u>	<u>\$ 866,961</u>
At January 1, 2021	<u>\$ 324</u>	<u>\$ 4,561</u>	<u>\$ 2,572</u>	<u>\$920,117</u>	<u>\$ 927,574</u>

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

10. Exploration and evaluation assets

	Year ended December 31, 2022	Year ended December 31, 2021
Balance, beginning of year	\$ 112,188,359	\$ 114,893,005
Additions:		
Mineral rights and land fees	19,230	17,362
Additions to exploration and evaluation assets	3,701,119	1,148,588
Share-based compensation (Note 14)	368,341	293,856
Effect of foreign exchange	3,939,703	(4,164,452)
Balance, end of year	\$ 120,216,752	\$ 112,188,359

11. Trade payables and accrued liabilities

	December 31, 2022	December 31, 2021
Trade payables	\$ 610,371	\$ 1,022,440
Accruals	544,501	972,377
Current portion of land fee installments	—	11,143
Total trade payables and accrued liabilities	\$ 1,154,872	\$ 2,005,960

Included in trade payables and accruals are amounts invoiced or accrued, respectively, according to consulting contracts with directors, officers and consultants of the Company (see Note 19).

During the year ended December 31, 2017, the Company entered into an installment program with the National Mining Agency (“ANM”) for the payment of its mineral rights and land fees. The installment program allows for the payment of outstanding land fees on a monthly basis over a period of five years. Each installment is charged interest at the rate posted by the Special Settlement and Custody System (“SELIC”) until the month prior to payment plus 1% in the month of payment. Any monthly installments not paid by the due date would incur additional fines of 0.33% per day up to a maximum of 20%. Failure to pay two consecutive monthly installments will result in the cancellation of the instalment plan. As at December 31, 2022, the balance owing on the installment plan was \$nil (December 31, 2021 - \$11,143 (R\$62,177)), included in current portion of land fee installments in the table above, which approximated the present value of the expected payments.

12. Loans payable

	Sentient	2227929 Ontario Inc.	Aberdeen	Sulliden	Greenway	Newdene	Total
Balance, December 31, 2020	\$ 1,125,410	\$ 115,622	\$ 461,012	\$ 71,617	\$ —	\$ —	\$ 1,773,661
Draw downs		160,000	381,000	—	138,603	135,000	814,603
Interest and financing fees	256,467	29,363	74,036	8,053	12,771	9,232	389,922
Extension fee transferred from accounts payable ¹	250,000	—	—	—	—	—	250,000
Payments	(1,631,877)	(304,985)	(916,048)	(79,670)	(151,875)	(144,232)	(3,228,687)
Effect of foreign exchange	—	—	—	—	501	—	501
Balance, December 31, 2022 and 2021	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —

1. The extension fees were accrued during the years ended December 31, 2020 and 2019 and transferred from accounts payable and accrued liabilities to the loan balance on September 30, 2021. See below.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

12. Loans payable (continued)

On October 29, 2019, Brazil Potash entered into a loan agreement with Sentient Global Resource Fund IV LP, (“Sentient”). Pursuant to the terms of the loan agreement (the “Loan”), Sentient agreed to lend the Company \$1,000,000 at an interest rate of 30% per annum and an initial repayment date of April 29, 2020. The Company also accrued a setup fee of \$200,000 to accounts payable and accrued liabilities, in connection with the loan. On April 29, 2020, the Company accrued an extension fee of \$50,000 to accounts payable and accrued liabilities, to extend the due date on the loan to July 31, 2020. The Company began accruing interest on the loan on August 1, 2020. On September 30, 2021, the Company entered into an amended and restated loan agreement with Sentient (the “Amended Loan”). Under the terms of the Amended Loan, the principal and accrued interest due and payable under the original loan along with the extension fees of \$250,000, previously included in accounts payable and accrued liabilities, totaling \$1,599,794, was capitalized to the loan balance at September 30, 2021. The Amended Loan accrued interest at a rate of 12%. The principal and accrued interest was due and payable no later than June 30, 2022. The Amended Loan included restrictive covenants which restricted the Company from incurring any other indebtedness with a maturity earlier than June 30, 2022 or making any payments of interest, fees or principal under any loan agreements entered into on or after September 30, 2021 until the Amended Loan is paid in full. On November 30, 2021, the Company repaid the balance of the loan, including interest accrued. A director of the Company is a principal at Sentient.

On June 15, 2020, the Company entered into a loan agreement with 2227929 Ontario Inc. (“2227929”) Pursuant to the terms of the loan agreement, 2227929 agreed to lend the Company \$40,000 at an interest rate of 12% per annum. On December 17, 2020 and during the year ended December 31, 2021, the Company drew down additional amounts of \$70,000 and \$160,000, respectively, on the loan. Interest and principal were due and payable three months from the date of the agreement. On September 15, 2020, the loan was further extended three months under the same terms. On December 15, 2020, the loan was extended to July 31, 2021 and on September 30, 2021 the loan was further extended to June 30, 2022. On November 29, 2021, the Company repaid the balance of the loan including interest accrued.

On July 2, 2020, the Company entered into a loan agreement with Aberdeen International Inc. (“Aberdeen”) Pursuant to the terms of the loan agreement, Aberdeen agreed to lend the Company \$100,000 at an interest rate of 12% per annum. Interest and principal are due and payable on or before January 2, 2021. During the year ended December 31, 2020, Aberdeen advanced an additional \$348,000 to the Company under the same terms. On January 15, 2021, the Company drew down an additional \$32,000. On February 9, 2021, the loans were extended to July 31, 2021. On September 30, 2021, the loan was further extended to June 30, 2022. On November 29, 2021, the Company repaid the balance of the loan, including interest accrued. Stan Bharti (a director of the Company) is a director and officer of Aberdeen and Ryan Ptolemy (an officer of the Company), is an officer of Aberdeen.

On April 1, 2021 and August 4, 2021, the Company entered into additional loan agreements with Aberdeen with a maturity date of December 31, 2021. Pursuant to the terms of the loan agreement, Aberdeen agreed to lend the Company \$200,000 and \$149,000 at an interest rate of 12% per annum. On September 30, 2021, the loans were extended to June 30, 2022. On November 29, 2021, the Company repaid the balance of the loan, including interest accrued.

On October 22, 2020, the Company entered into a loan agreement with Sulliden Mining Capital Inc. (“Sulliden”). Pursuant to the terms of the loan agreement, Sulliden agreed to lend the Company \$70,000 at an interest rate of 12% per annum. Interest and principal were due and payable on or before December 21, 2020. On February 10, 2021, Sulliden agreed to extend the maturity date of the loan to July 31, 2021. On July 31, 2021, the maturity

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

12. Loans payable (continued)

date of the loan was extended to December 31, 2021 and on September 30, 2021 the loan was further extended to June 30, 2022. On November 29, 2021, the Company repaid the balance of the loan, including interest accrued. Stan Bharti (a director of the Company) is a director and officer of Sulliden and Ryan Ptolemy (an officer of the Company), is an officer of Sulliden.

On February 26, 2021, the Company entered into a loan agreement with Greenway Investments International Ltd. (“Greenway”). Pursuant to the terms of the loan agreement, Greenway agreed to lend the Company CAD\$175,000 (\$138,603), at an interest rate of 12% per annum. Interest and principal are due and payable on or before September 1, 2021. On September 30, 2021, the loan was extended to June 30, 2022. On November 29, 2021, the Company repaid the balance of the loan, including interest accrued.

On May 5, 2021, the Company entered into a loan agreement with Newdene Gold Inc. (“Newdene”). Pursuant to the terms of the loan agreement, Newdene agreed to lend the Company \$135,000, at an interest rate of 12% per annum. Interest and principal are due and payable on or before December 31, 2021. On September 30, 2021, the loan was extended to June 30, 2022. On November 29, 2021, the Company repaid the balance of the loan, including interest accrued.

13. Share capital**(a) Authorized**

Unlimited number of common shares without par value.

(b) Issued

	Year ended December 31, 2022		Year ended December 31, 2021	
	Number of shares	Stated Value \$	Number of shares	Stated Value \$
Common shares				
Balance, beginning of year	138,392,554	227,154,731	130,144,334	197,304,457
Reg A offering, net of issue costs	1,869,861	6,789,838	8,248,220	29,850,274
DSU exercise	666,667	1,666,668	—	—
Balance, end of year	<u>140,929,082</u>	<u>235,611,237</u>	<u>138,392,554</u>	<u>227,154,731</u>

On May 19, October 18, November 2, November 25 and December 20, 2021, the Company closed Tier 2 offerings pursuant to Regulation A (Regulation A+) (“Reg A Offering”) issuing 8,248,220 common shares of the Company at a purchase price of \$4.00 per share for gross proceeds of \$32,992,880. The Company paid share issue costs of \$3,142,606 in connection with the offerings.

On January 28, 2022, February 2, 2022, March 24, 2022, April 8, 2022, May 11, 2022, June 22, 2022, July 22, 2022, August 8, 2022, and August 31, 2022, the Company closed portions of a Reg A Offering issuing 1,869,861 common shares of the Company at a purchase price of \$4.00 per share for gross proceeds of \$7,479,444.

During the year ended December 31, 2022, the Company paid share issue costs of \$689,606 in connection with the offerings.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

13. Share capital (continued)

On December 21, 2022, 666,667 DSUs with a grant date fair value of \$1,666,668 were exercised.

14. Share-based payments

The continuity of share-based payments reserve activity during the years was as follows:

	Year ended December 31, 2022	Year ended December 31, 2021
Balance, beginning of the year	\$ 43,023,258	\$ 43,259,413
Vesting of options	1,725,617	—
Vesting of DSUs	22,996,915	651,045
Option extension	657,800	—
DSU exercise	(1,666,668)	—
Expired options	(2,812,108)	(887,200)
Balance, end of the year	\$ 63,924,814	\$ 43,023,258

(a) *Option plan*

The Company has an incentive share option plan (the “Plan”) whereby the Company may grant to directors, officers, employees and consultants options to purchase shares of the Company. The Plan provides for the issuance of share options to acquire up to 10% of the Company’s issued and outstanding capital at the date of grant. The Plan is a rolling plan, as the number of shares reserved for issuance pursuant to the grant of stock options will increase as the Company’s issued and outstanding share capital increases. Options granted under the Plan will be for a term not to exceed five years.

The plan provides that it is solely within the discretion of the Board to determine who would receive share options and in what amounts. In no case (calculated at the time of grant) shall the plan result in:

- the number of options granted in a twelve-month period to any one consultant exceeding 2% of the issued shares of the Company;
- the aggregate number of options granted in a twelve-month period to any one optionee exceeding 5% of the outstanding shares of the Company; and
- the number of options granted in a twelve-month period to employees and management company employees undertaking investor relations activities exceeding in aggregate 2% of the issued shares of the Company.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

14. Share-based payments (continued)

(a) *Option plan (continued)*

Share option transactions continuity during the period were as follows (in number of options):

	Year ended December 31, 2022		Year ended December 31, 2021	
	Number of options	Weighted average exercise price	Number of options	Weighted average exercise price
Balance, beginning of year	7,545,500	\$ 1.96	7,945,500	\$ 2.02
Granted	1,250,000	\$ 4.00	—	\$ —
Extended	200,000	\$ 2.50	—	\$ —
Expired	(875,000)	\$ 2.07	(400,000)	\$ 3.13
Balance, end of year	8,120,500	\$ 2.28	7,545,500	\$ 1.96

On January 20, 2022, the Company granted 1,250,000 options with exercise prices of \$4.00 and an expiry date of January 20, 2027. The options vest in four equal instalments over two years starting on the date of grant. The fair value of the options of \$1.734 was estimated using the Black-Scholes option pricing model, with the following weighted average assumptions: a market price of common shares of \$4.00, expected dividend yield of 0%, expected volatility of 48% based on the historic volatility of comparable companies, risk-free interest rate of 1.68% and an expected life of 5.0 years. During the year ended December 31, 2022, the Company recognized an expense of \$1,725,617 was charged to the consolidated statements of loss and other comprehensive loss.

The Company extended the expiry dates of options held by a consultant of the Company such that 200,000 options with exercise prices of \$2.50 per share and expiring on November 25, 2021, would expire on July 22, 2025. The weighted average incremental fair value of the options of \$0.60 was estimated using the Black-Scholes option pricing model, calculated immediately before and after the extension, with the following weighted average assumptions: a market price of common shares of \$4.00, expected dividend yield of 0%, expected volatility of 48% based on the historic volatility of comparable companies, risk-free interest rate of 1.46% and an expected life of 3.6 years. The total value of the option extension was \$120,000 which was capitalized to exploration and evaluation assets.

During the year ended December 31, 2022, 875,000 options with weighted average exercise prices of \$2.07 per share, expired, unexercised.

At December 31, 2022, outstanding options to acquire common shares of the Company were as follows:

Date of expiry	Options outstanding	Options exercisable	Exercise price
July 30, 2023	540,000	540,000	\$ 1.00
July 30, 2023	783,000	783,000	\$ 2.50
June 1, 2024	250,000	250,000	\$ 3.75
July 20, 2025	3,182,500	3,182,500	\$ 2.50
July 20, 2025	2,115,000	2,115,000	\$ 1.00
January 20, 2027	1,250,000	625,000	\$ 4.00
	8,120,500	7,495,500	

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

14. Share-based payments (continued)

(b) *Deferred share unit plan (“DSU plan”)*

The Company has a DSU plan that provides for the grant of DSUs to employees, officers or directors of the Company. The Plan allows the Company the ability to issue one common share from treasury for each DSU held on the date upon which the participant ceases to be a director, officer or employee of the corporation. The maximum number of Common Shares available for issuance under the DSU plan may not exceed 10% of the fully diluted issued share capital of the Company at any time.

DSU transactions continuity during the years were as follows (in number of DSUs):

	Year ended December 31, 2022	Year ended December 31, 2021
Balance, beginning of year	7,700,000	7,700,000
Cancelled	(2,425,000)	—
Exercised	(666,667)	—
Granted	8,450,000	—
Balance, end of year	13,058,333	7,700,000

Of the 13,058,333 DSUs outstanding, 9,905,000 have vested.

The 6,700,000 DSUs granted during the year ended December 31, 2015 had the following vesting conditions:

- (i) As to one-third of the DSUs, vesting shall occur immediately;
- (ii) As to the second one-third, upon the later of (a) completion by the Company of a pre-feasibility study or feasibility study; and (b) receipt by the Company of the preliminary license for the project; and
- (iii) As to the final one third of the DSUs, upon the Company completing arrangements for project construction financing, as detailed in the pre-feasibility study or feasibility study for the project.

Of the 6,700,000 DSUs granted, 4,133,334 DSUs have vested, of which 666,667 were exercised, 900,000 were forfeited and 1,666,666, which have the vesting condition (iii) above, were revised such that the vesting condition previously estimated to be met December 2019 was changed to June 30, 2023 as that is the estimated timeline. The estimated fair value of the DSUs at the date of grant is recognized over the vesting period. During the year ended December 31, 2022, the Company recognized a recovery of \$561,969, related to this amortization (year ended December 31, 2021 – expense of \$425,879) of which, an expense of \$60,489 (December 31, 2021 – \$68,690) was capitalized to exploration and evaluation assets, with the remaining recovery of \$622,458 (year ended December 31, 2021 – expense of \$357,189) was charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at grant date were valued using an estimated market price of \$2.50.

On July 25, 2017, the Company granted an additional 1,000,000 DSUs. The DSUs vested immediately. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$3.75.

On August 9, 2019, the Company granted 500,000 DSUs. 200,000 DSUs vested immediately, while 150,000 DSUs would vest when the Company obtains its installation licenses for the Autazes project estimated to be March 31, 2022 and the final 150,000 DSUs would vest upon the Company initiating project construction estimated to be in July 2022. The expected vesting dates of the DSUs were subsequently revised such that

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

14. Share-based payments (continued)

(b) *Deferred share unit plan (“DSU plan”) (continued)*

the DSUs expected to vest March 31, 2022 and July 2022 are expected to vest June 30, 2023. The fair value of the DSUs at the date of grant is amortized over the vesting period. During the year ended December 31, 2022, the Company recognized an expense of \$187,852 (year ended December 31, 2021 – \$225,166) was capitalized to exploration and evaluation assets. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$3.75.

On February 15, 2022, the Company granted 3,450,000 DSUs. The DSUs vest in six equal tranches every six months over a three-year term. On August 15, 2022, 2,025,000 of the DSUs were cancelled. The fair value of the DSUs is amortized over the vesting period. During the year ended December 31, 2022, the Company recognized an expense of \$3,371,032 related to this amortization charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$4.00.

On September 16, 2022, the Company granted 5,000,000 DSUs. The DSUs vest immediately. During the year ended December 31, 2022, the Company recognized an expense of \$20,000,000, related to the estimated fair value of the DSUs at the date of grant charged to the consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$4.00.

During the year ended December 31, 2022, the total amount related to the vesting of DSUs was \$22,996,915 (year ended December 31, 2021 – \$651,045) of which \$248,341 (year ended December 31, 2021 – \$293,856) was capitalized to exploration and evaluation assets and \$22,748,574 (year ended December 31, 2021 – \$357,189) is included in the consolidated statements of loss and other comprehensive loss.

15. Warrants

At December 31, 2022, outstanding warrants to acquire common shares of the Company were as follows:

<u>Number of warrants</u>	<u>Exercise price</u>	<u>Expiry Date</u>
1,147,500	\$ 1.00	*

* On September 11, 2009, the Company issued 1,147,500 broker warrants in connection with a private placement financing. These warrants are exercisable for up to twelve months from the date the Company begins trading on a public exchange.

Warrant transactions during the years were as follows:

	<u>Year ended December 31, 2022</u>			<u>Year ended December 31, 2021</u>		
	<u>Number of warrants</u>	<u>Weighted average exercise price</u>	<u>Grant date fair value</u>	<u>Number of warrants</u>	<u>Weighted average exercise price</u>	<u>Grant date fair value</u>
Balance, beginning of year	1,147,500	\$ 1.00	\$ 604,000	23,343,500	\$ 2.43	\$ 23,715,254
Expired	—	—	—	(22,196,000)	2.50	(23,111,254)
Balance, end of year	1,147,500	\$ 1.00	\$ 604,000	1,147,500	\$ 1.00	\$ 604,000

On May 15, 2021, 22,196,000 warrants with exercise prices of \$2.50 expired, unexercised.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

16. Loss per share

Basic loss per share is calculated by dividing the loss for the year by the weighted average number of common shares outstanding during the year ended December 31:

	2022	2021
Loss for the year attributable to common shareholders	<u>\$ 32,619,381</u>	<u>\$ 4,029,366</u>
Weighted average number of common shares	<u>139,629,405</u>	<u>131,176,764</u>
Basic and diluted loss per common share	<u>\$ 0.23</u>	<u>\$ 0.03</u>

The basic and diluted loss per share excludes options exercisable for 7,495,500 common shares of the Company at a weighted average exercise price of \$2.28, warrants exercisable for 1,147,500 common shares of the Company at a weighted average exercise price of \$1.00 and 9,905,000 vested DSUs as these are anti-dilutive.

17. Financial Risk Management Objectives and Policies

The Company's financial instruments comprise cash and cash equivalents, amounts receivable, trade payables and accrued liabilities. The main purpose of these financial instruments is to raise finance to fund operations.

The Company does not enter into any derivative transactions.

The Company's risk exposures and the impact on the Company's financial instruments are summarized below:

(a) *Credit risk*

Credit risk arises when a failure by counterparties to discharge their obligations could reduce the amount of future cash inflows from financial assets. With respect to credit risk arising from financial assets of the Company, which comprise cash and minimal receivables, the Company's exposure to credit risk arises from default of counterparties, with a maximum exposure equal to the carrying amount of these instruments. Cash and cash equivalents are held with high credit quality financial institutions. Other amounts receivable consists of amounts collected on behalf of the Company by a service provider used in connection with its Reg A financing. Management believes that the credit risk concentration with respect to these financial instruments is remote.

(b) *Liquidity risk*

The Company's approach to managing liquidity risk is to ensure that it will have sufficient liquidity to meet liabilities when due. As at December 31, 2022, the Company had a cash and cash equivalents balance of \$11,804,907 to settle current liabilities of \$1,154,872.

(c) *Market risk*

Market risk is the risk that changes in market prices, such as interest rates, foreign exchange rates and equity prices will affect the Company's income or the value of its holdings of financial instruments.

(d) *Interest rate risk*

The Company has cash and cash equivalent balances as at December 31, 2022. The Company considers interest rate risk to be minimal as cash is held on deposit at major financial institutions.

(e) *Foreign currency risk*

Foreign currency risk is created by fluctuations in the fair value or cash flows of financial instruments due to changes in foreign exchange rates and exposure as a result of investment in its foreign subsidiary. The

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

17. Financial Risk Management Objectives and Policies (continued)

(e) *Foreign currency risk (continued)*

Company's foreign currency risk arises primarily with respect to the Canadian dollar and Brazilian Reals. Fluctuations in the exchange rates between these currencies and the US dollar could have a material impact on the Company's business, financial condition and results of operations. The Company does not engage in hedging activity to mitigate this risk.

The following summary illustrates the fluctuations in the exchange rates applied during the year ended December 31, 2022:

	<u>Average rate</u>	<u>Closing rate</u>
CAD	0.7692	0.7383
BRL	0.1936	0.1917

A \$0.01 strengthening or weakening of the US dollar against the Canadian dollar at December 31, 2022 would result in an increase or decrease in operating loss of \$1,785 and an increase or decrease in other comprehensive income of approximately \$nil. A \$0.01 strengthening or weakening of the US dollar against the Brazilian Real would result in an increase or decrease in operating loss of approximately \$nil and an increase or decrease in other comprehensive loss in the consolidated statements of loss and other comprehensive loss of approximately \$3,344,862.

(f) *Capital management*

The Company manages its capital to ensure that it will be able to continue as a going concern in order to support the ongoing exploration and development of its mineral property in Brazil and to provide sufficient working capital to meet its ongoing obligations.

In the management of capital, the Company includes the components of shareholders' equity, cash and cash equivalents, as well as short-term investments (if any).

The Company manages its capital structure and makes adjustments to it in accordance with the aforementioned objectives, as well as, in light of changes in economic conditions and the risk characteristics of the underlying assets. In order to maintain or adjust its capital structure, the Company may issue new shares, acquire or dispose of assets and adjust the amount of cash and cash equivalents and short-term investments. There is no dividend policy. The Company is not subject to any externally imposed capital requirements, nor is its subsidiary in Brazil. There were no changes to the Company's capital management during the years ended December 31, 2022 and 2021.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

18. Financial Instruments

The fair values of financial assets and liabilities, together with the carrying amounts shown in the consolidated statements of financial position, are as follows:

	Financial instrument classification	Carrying amount	Fair value
As at December 31, 2022		\$	\$
Financial assets:			
Cash and cash equivalents	FVPL	11,804,907	11,804,907
Amounts receivable	Amortized cost	2,469	2,469
Financial liabilities:			
Trade payables and accrued liabilities	Amortized cost	1,154,872	1,154,872
As at December 31, 2021		\$	\$
Financial assets:			
Cash and cash equivalents	FVPL	15,144,419	15,144,419
Amounts receivable	Amortized cost	1,560,603	2,616,544
Financial liabilities:			
Trade payables and accrued liabilities	Amortized cost	2,005,960	2,005,960

The fair value of short-term financial instruments approximates their carrying value due to the relatively short period of time to maturity. These include cash and cash equivalents, restricted cash, amounts receivable, trade payables and accrued liabilities and loans.

19. Related Party Disclosures

(a) *Key management personnel compensation*

In addition to their contracted fees, directors and executive officers also participate in the Company's Share option program and DSU plan. Certain executive officers are subject to a mutual termination notice ranging from one to twelve months. Key management personnel compensation comprised:

	Year ended December 31, 2022	Year ended December 31, 2021
Directors & officers compensation	\$ 1,589,996	\$ 1,674,175
Share-based payments	16,764,919	412,141
	\$ 18,354,915	\$ 2,086,316

Included in the above amounts, is \$579,996 (December 31, 2021 - \$579,996) paid or accrued according to a contract for business and operational consulting services with Forbes & Manhattan, Inc., a company for which Mr. Stan Bharti (a director of the Company) is the Executive Chairman.

Brazil Potash Corp.

Notes to the Consolidated Financial Statements
For the years ended December 31, 2022 and 2021

19. Related Party Disclosures (continued)

(a) *Key management personnel compensation (continued)*

During the year ended December 31, 2022, the Company recorded an expense of \$16,764,919 (December 31, 2021 – \$412,141) in share-based compensation related to the amortization of the estimated fair value of DSUs granted to directors and officers of the Company in 2015 and 2022. As at December 31, 2022, 9,500,000 DSUs were granted to officers and directors of the Company of which 7,416,960 have vested, and 2,083,040 have not yet vested (See Note 14(b)).

(b) *Transactions with other related parties*

As at December 31, 2022, trade payables and accrued liabilities included an amount of \$16,686 (December 31, 2021 - \$177,824) owing to directors and officers of the Company for consulting fees and \$9,299 owing to directors and officers for expense reimbursement (December 31, 2021 - \$nil).

During the year ended December 31, 2022, the Company recorded an expense of \$1,818,755 (December 31, 2021 - \$207,127) for travel costs with Tali Flying LP, a company which has a common director. As at December 31, 2022, trade payables and accrued liabilities included \$39,495 (December 31, 2021 - \$67,408) owing to Tali Flying LP.

These transactions, occurring in the normal course of operations, are measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

20. Commitments and contingencies

The Company is party to certain management contracts. These contracts require payments of approximately \$8,000,000 to directors, officers and consultants of the Company upon the occurrence of a change in control of the Company, as such term is defined by each respective consulting agreement. The Company is also committed to payments upon termination of approximately \$1,518,000 pursuant to the terms of these contracts. As a triggering event has not taken place, these amounts have not been recorded in these consolidated financial statements.

[Table of Contents](#)**Brazil Potash Corp.**Condensed Interim Consolidated Statements of Financial Position
(Expressed in U.S. dollars)

As at:	March 31, 2024 (Unaudited)	December 31, 2023
ASSETS		
Current		
Cash and cash equivalents	\$ 1,143,184	\$ 2,450,239
Amounts receivable (Note 3)	92,108	149,757
Prepaid expenses	258,013	236,329
Total current assets	1,493,305	2,836,325
Non-current		
Property and equipment (Note 4)	980,892	1,012,032
Exploration and evaluation assets (Note 5)	126,628,457	129,298,494
Total assets	\$ 129,102,654	\$ 133,146,851
LIABILITIES		
Current		
Trade payables and accrued liabilities (Notes 6, 11)	\$ 1,842,526	\$ 1,730,103
Total current liabilities	1,842,526	1,730,103
Non-current		
Deferred income tax liability	2,148,494	2,196,087
Total liabilities	3,991,020	3,926,190
Equity		
Share capital (Note 7)	243,237,728	242,487,728
Share-based payments reserve (Note 8)	63,078,202	64,280,247
Warrants reserve (Note 9)	604,000	604,000
Accumulated other comprehensive loss	(67,623,860)	(65,419,483)
Deficit	(114,184,436)	(112,731,831)
Total equity	125,111,634	129,220,661
Total liabilities and equity	\$ 129,102,654	\$ 133,146,851

Reporting entity and going concern (Note 1)

Commitments and contingencies (Note 12)

Subsequent event (Note 13)

See accompanying notes to the condensed interim consolidated financial statements.

[Table of Contents](#)**Brazil Potash Corp.**

Condensed Interim Consolidated Statements of Loss and Other Comprehensive Loss
(Expressed in U.S. dollars)
(Unaudited)

	Three months ended March 31, 2024	Three months ended March 31, 2023
Expenses		
Consulting and management fees (Note 11)	\$ 577,465	\$ 3,796,388
Professional fees	54,380	407,909
Share-based compensation (Notes 8, 11)	629,033	(103,985)
Travel expenses (Note 11)	82,541	127,713
General office expenses	36,605	32,262
Foreign exchange gain	(3,054)	(3,680)
Communications and promotions	59,392	60,130
Operating Loss	1,436,362	4,316,737
Finance income	(4,444)	(115,727)
Loss for the period before income taxes	1,431,918	4,201,010
Deferred income tax provision	20,687	33,466
Loss for the period before income taxes	1,452,605	4,234,476
Other comprehensive loss (income):		
Items that subsequently may be reclassified into net income:		
Foreign currency translation	2,204,377	(1,697,715)
Total comprehensive loss for the period	\$ 3,656,982	\$ 2,536,761
Basic and diluted loss per share	\$ 0.01	\$ 0.03
Weighted average number of common shares outstanding - basic and diluted	142,358,675	140,929,082

See accompanying notes to the condensed interim consolidated financial statements.

[Table of Contents](#)

Brazil Potash Corp.

Condensed Interim Consolidated Statement of Changes in Equity
(Expressed in U.S. dollars)
(Unaudited)

	Common Shares		Warrants	Share-based payments reserve	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Shareholders' Equity
	#	\$	\$	\$	\$	\$	\$
Balance, December 31, 2022	140,929,082	235,611,237	604,000	63,924,814	(70,332,349)	(99,621,131)	130,186,571
Deferred share units	—	—	—	285,357	—	—	285,357
Option vesting	—	—	—	(479,856)	—	—	(479,856)
Option expiry (Note 8(a))	—	—	—	(96,500)	—	96,500	—
Net loss and comprehensive income for the period	—	—	—	—	1,697,715	(4,234,476)	(2,536,761)
Balance, March 31, 2023	140,929,082	235,611,237	604,000	63,633,815	(68,634,634)	(103,759,107)	127,455,311
Balance, December 31, 2023	142,352,082	242,487,728	604,000	64,280,247	(65,419,483)	(112,731,831)	129,220,661
Deferred share units (Note 8(b))	—	—	—	(455,015)	—	—	(455,015)
Deferred share units exercised (Notes 7 and 8(b))	200,000	750,000	—	(750,000)	—	—	—
Option vesting (Note 8(a))	—	—	—	2,970	—	—	2,970
Net loss and comprehensive loss for the period	—	—	—	—	(2,204,377)	(1,452,605)	(3,656,982)
Balance, March 31, 2024	142,552,082	243,237,728	604,000	63,078,202	(67,623,860)	(114,184,436)	125,111,634

See accompanying notes to the condensed interim consolidated financial statements.

[Table of Contents](#)**Brazil Potash Corp.**

Condensed Interim Consolidated Statements of Cash Flows
(Expressed in U.S. dollars)
(Unaudited)

	Three months ended March 31, 2024 \$	Three months ended March 31, 2023 \$
CASH FLOWS FROM		
OPERATING ACTIVITIES		
Loss for the period	(1,452,605)	(4,234,476)
Adjustment for:		
Finance income	(4,444)	(114,821)
Share-based compensation	629,033	(103,985)
Deferred income tax provision	20,687	33,466
	(807,329)	(4,419,816)
Change in amounts receivable	56,607	(474,694)
Change in prepaid expenses	(22,284)	(149,387)
Change in trade payables and accrued liabilities	116,649	33,332
Net cash used in operating activities	(656,357)	(5,010,565)
CASH FLOWS FROM		
INVESTING ACTIVITIES		
Acquisition of property and equipment	(1,485)	(1,084)
Exploration and evaluation assets	(630,213)	(664,419)
Finance income	4,444	114,821
Net cash used in investing activities	(627,254)	(550,682)
Effect of exchange rate changes on cash and cash equivalents	(23,444)	4,158
NET DECREASE IN CASH AND CASH EQUIVALENTS	(1,307,055)	(5,557,089)
CASH AND CASH EQUIVALENTS, beginning of period	2,450,239	11,804,907
CASH AND CASH EQUIVALENTS, end of period	1,143,184	6,247,818
SUPPLEMENTAL INFORMATION:		
Depreciation of assets capitalized to exploration and evaluation assets	1,242	1,042
Share-based compensation (recovery) included in exploration and evaluation assets	(1,081,078)	(90,514)

See accompanying notes to the condensed interim consolidated financial statements.

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

1. Reporting entity and going concern

Brazil Potash Corp. (the “Company”) was incorporated under the laws of the Province of Ontario, Canada by Articles of Incorporation on October 10, 2006. The Company remained inactive until June 16, 2009. On June 18, 2009, the Company’s subsidiary Potássio do Brasil Ltda. (the “Subsidiary”) was incorporated. The principal activity of Brazil Potash Corp. is the exploration and development of potash properties in Brazil. The Company’s head office is located at 198 Davenport Road, Toronto, Ontario, M5R 1J2, Canada.

The unaudited condensed interim consolidated financial statements (“Interim Financial Statements”) include the financial statements of the Company and its subsidiary that is listed in the following table:

	Country of incorporation	% Ownership	
		March 31, 2024	December 31, 2023
Potássio do Brasil Ltda.	Brazil	100%	100%

The Company received its Preliminary Social and Environmental License (the “LP”) for its potash mining project in Brazil (the “Autazes Project”) from the Amazonas Environmental Protection Institute (“IPAAM”) in July 2015 based on submission of a full Environmental and Social Impact Assessment prepared by the Company and its consultant Golder Associates Inc. (“Golder”) in January 2015. Prior to receiving the LP, the Company and Golder participated in public hearings and conducted several rounds of consultations with local indigenous communities near the Autazes Project in accordance with the guidelines and requirements established by Fundação Nacional do Índio (“FUNAI”). Despite this work, the Brazil Federal Public Ministry opened a civil investigation in December 2016 that questioned the validity of the Company’s LP based on a motion from a non-governmental organization that the Company’s consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169, as Brazil is a signatory to this international convention. As a result of the foregoing investigation, in March 2017, the Company agreed with the court overseeing such investigation, the Brazil Federal Public Ministry, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mineral Agency, FUNAI, and representatives of the Mura indigenous people (who make up the over 40 indigenous communities and tribes near the Autazes Project) to suspend its LP and to conduct additional consultations with the local Mura indigenous communities near the Autazes Project in accordance with International Labour Organization 169 (the “March 2017 Suspension Agreement”).

On September 25, 2023, the Mura indigenous people completed free and informed consultations following United Nations International Labour Organization Convention 169 protocols with over 90% voting in support, based on 94% of the invited tribe’s participating, to permit and construct the Project.

On August 25, 2023, the Company submitted to the Brazilian Amazonas Environmental Protection Institute (IPAAM) our application for the Installation License to ensure that the Company moved to the next stage of our permitting process, prior to the expiration of our Preliminary Environmental License on August 31, 2023 in accordance with its terms. On October 17, 2023, the Appellate Court accepted the new action from the Attorney General of the State of Amazonas and granted an injunction to suspend the Subsequent Lower Court Decision, therefore reinstating our environmental licensing and allowing it to proceed, as well as clarifying that the Brazilian Amazonas Environmental Protection Institute has jurisdiction over issuing the Company’s licenses.

In April 2024, the Company received from the Brazilian Amazonas Environmental Protection Institute the initial Installation License for the construction of the mine at the Autazes Project, following which, the Company started mine surface work and shaft construction.

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

1. Reporting entity and going concern (continued)

Going Concern

The preparation of the Interim Financial Statements requires an assessment on the validity of the going concern assumption. The validity of the going concern concept is dependent on financing being available for the continuing working capital requirements of the Company and for the development of the Company's projects.

The Company incurred a loss of \$1,452,605 for the three months ended March 31, 2024 (\$4,234,476 for the three months ended March 31, 2023) and as at March 31, 2024 had an accumulated deficit of \$114,184,436 (December 31, 2023 - \$112,731,831) and negative working capital of \$349,221 as at March 31, 2024 (including cash of \$1,143,184) (December 31, 2023 – working capital of \$1,106,222 (including cash of \$2,450,239)).

The Company requires equity capital and/or financing for working capital and exploration and development of its properties as well as to repay its trade payables and current liabilities. As a result of continuing operating losses, the Company's continuance as a going concern is dependent upon its ability to obtain adequate financing and financing to repay its current obligations, finance its exploration and development activities, and to reach profitable levels of operation. It is not possible to predict whether financing efforts will be successful or if the Company will obtain the necessary financing in order to finance its exploration and development activities or to attain profitable levels of operations. Management has previously been successful in raising the necessary funding to continue operations in the normal course of operations and during the year ended December 31, 2022 completed Tier 2 offerings pursuant to Regulation A (Regulation A+) under the Securities Act of 1933.

However, there is no assurance, that the Company will continue to be successful in closing the offering of shares, be successful in raising sufficient financing, or achieve profitable operations, to fund its operating expenses, or the future exploration and development of its properties. This raises substantial doubt about the Company's ability to continue as a going concern. These Interim Financial Statements do not include any adjustments to the carrying amount, or classification of assets and liabilities, if the Company was unable to continue as a going concern. These adjustments may be material.

On the basis that additional funding as outlined above has and will be received when required, the directors are satisfied that it is appropriate to continue to prepare the Interim Financial Statements of the Company on the going concern basis.

2. Basis of preparation

(a) *Statement of compliance*

The Interim Financial Statements are in compliance with IAS 34, Interim Financial Reporting. Accordingly, certain information and disclosures normally included in annual financial statements prepared in accordance with International Financial Reporting Standards ("IFRS"), as issued by the International Accounting Standards Board ("IASB"), have been omitted or condensed. These Interim Financial Statements should be read in conjunction with the Company's consolidated financial statements for the year ended December 31, 2023.

The Interim Financial Statements were authorized for issue by the Board of Directors on May 22, 2024.

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

2. Basis of preparation (continued)

(b) Material accounting policies

The Interim Financial Statements were prepared using the same accounting policies and methods as those used in the Company's consolidated financial statements for the year ended December 31, 2023, except as noted below.

New accounting pronouncements

IAS 1 – Presentation of Financial Statements (“IAS 1”) was amended in October 2022. The amendments require new disclosures for non-current liabilities that are subject to covenants within 12 months after the reporting period. The amendments also clarify that when a liability includes a conversion option that may be settled with a company's own shares, the classification of the host liability takes into account the conversion option when classifying the liability as current or non-current. The adoption of the amendments to IAS 1 on January 1, 2024 did not have a significant impact on the Interim Financial Statements.

3. Amounts receivable

	March 31, 2024	December 31, 2023
HST	\$ 85,130	\$ 105,785
Other receivables	6,978	43,972
Total amounts receivable	\$ 92,108	\$ 149,757

4. Property and equipment

	Vehicles	Office equipment	Furniture and fixtures	Land	Total
Cost:					
At January 1, 2024	\$52,839	\$ 94,715	\$ 18,138	\$987,671	\$1,153,363
Additions	—	571	914	—	1,485
Effect of foreign exchange	(1,638)	(2,942)	(553)	(30,625)	(35,758)
At March 31, 2024	\$51,201	\$ 92,344	\$ 18,499	\$957,046	\$ 1,119,090
Depreciation:					
At January 1, 2023	\$52,491	\$ 77,638	\$ 11,202	\$ —	\$ 141,331
Effect of foreign exchange	(1,627)	(2,417)	(331)	—	(4,375)
Depreciation charge for the period	—	1,123	119	—	1,242
At March 31, 2024	\$50,864	\$ 76,344	\$ 10,990	\$ —	\$ 138,198
Net book value:					
At March 31, 2024	\$ 337	\$ 16,000	\$ 7,509	\$957,046	\$ 980,892
At January 1, 2023	\$ 348	\$ 17,077	\$ 6,936	\$987,671	\$1,012,032

[Table of Contents](#)

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

4. Property and equipment (continued)

	Vehicles	Office equipment	Furniture and fixtures	Land	Total
Cost:					
At January 1, 2023	\$49,027	\$ 85,491	\$ 12,618	\$916,413	\$1,063,549
Additions	—	2,497	4,441	—	6,938
Effect of foreign exchange	3,812	6,727	1,079	71,258	82,876
At December 31, 2023	\$52,839	\$ 94,715	\$ 18,138	\$987,671	\$1,153,363
Depreciation:					
At January 1, 2023	\$48,704	\$ 68,119	\$ 10,019	\$ —	\$ 126,842
Effect of foreign exchange	3,787	5,427	749	—	9,963
Depreciation charge for the period	—	4,092	434	—	4,526
At December 31, 2023	\$52,491	\$ 77,638	\$ 11,202	\$ —	\$ 141,331
Net book value:					
At December 31, 2023	\$ 348	\$ 17,077	\$ 6,936	\$987,671	\$1,012,032
At January 1, 2023	\$ 323	\$ 17,372	\$ 2,599	\$916,413	\$ 936,707

5. Exploration and evaluation assets

	March 31, 2024	December 31, 2023
Balance, beginning of period	\$ 129,298,494	\$ 120,216,752
Additions:		
Mineral rights and land fees	—	41,073
Site operations, environmental, consulting and technical costs	631,455	3,894,243
Share-based compensation (Note 8)	(1,081,078)	127,670
Effect of foreign exchange	(2,220,414)	5,018,756
Balance, end of period	\$ 126,628,457	\$ 129,298,494

6. Trade payables and accrued liabilities

	March 31, 2024	December 31, 2023
Trade payables	\$ 1,012,715	\$ 852,230
Accruals	829,811	877,873
Total trade payables and accrued liabilities	\$ 1,842,526	\$ 1,730,103

Included in trade payables and accrued liabilities are amounts invoiced or accrued, respectively, according to consulting contracts with directors, officers and consultants of the Company (see Note 11).

7. Share capital

(a) *Authorized*

Unlimited number of common shares without par value.

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

7. Share capital (continued)

(b) Issued

	March 31, 2024		December 31, 2023	
	Number of shares	Stated Value \$	Number of shares	Stated Value \$
Common shares				
Balance, beginning of period	142,352,082	242,487,728	140,929,082	235,611,237
DSU exercise (Note 8)	200,000	750,000	100,000	400,000
Option exercise	—	—	1,323,000	6,476,491
Balance, end of period	142,552,082	243,237,728	142,352,082	242,487,728

On March 28, 2024, 200,000 DSUs with a grant date fair value of \$750,000 were exercised.

On July 31, 2023, 1,323,000 options with weighted average exercise prices of \$1.89, were exercised for gross proceeds of \$2,497,500.

On April 3, 2023, 100,000 DSUs with a grant date fair value of \$400,000 were exercised.

8. Share-based payments

The continuity of share-based payments reserve activity during the periods was as follows:

	March 31, 2024	December 31, 2023
Balance, beginning of the period	\$ 64,280,247	\$ 63,924,814
Vesting and forfeiture of options	2,970	180,587
Vesting and forfeiture of DSUs	(455,015)	4,650,337
DSU exercise	(750,000)	(400,000)
Option exercise	—	(3,978,991)
Expired options	—	(96,500)
Balance, end of the period	\$ 63,078,202	\$ 64,280,247

(a) Option plan

The Company has an incentive share option plan (“the Plan”) whereby the Company may grant to directors, officers, employees and consultants options to purchase shares of the Company. The Plan provides for the issuance of share options to acquire up to 10% of the Company’s issued and outstanding capital at the date of grant. The Plan is a rolling plan, as the number of shares reserved for issuance pursuant to the grant of stock options will increase as the Company’s issued and outstanding share capital increases. Options granted under the Plan will be for a term not to exceed five years.

The plan provides that it is solely within the discretion of the Board to determine who would receive share options and in what amounts. In no case (calculated at the time of grant) shall the plan result in:

- the number of options granted in a twelve-month period to any one consultant exceeding 2% of the issued shares of the Company;

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

8. Share-based payments (continued)

(a) Option plan (continued)

- the aggregate number of options granted in a twelve-month period to any one optionee exceeding 5% of the outstanding shares of the Company; and
- the number of options granted in a twelve-month period to employees and management company employees undertaking investor relations activities exceeding in aggregate 2% of the issued shares of the Company.

Share option transactions continuity during the periods were as follows (in number of options):

	March 31, 2024		December 31, 2023	
	Number of options	Weighted average exercise price	Number of options	Weighted average exercise price
Balance, beginning of period	5,822,500	\$ 2.09	8,120,500	\$ 2.28
Granted	—	—	50,000	4.00
Exercised	—	—	(1,323,000)	1.89
Cancelled	—	—	(1,025,000)	3.96
Balance, end of period	5,822,500	\$ 2.09	5,822,500	\$ 2.09

On January 20, 2022, the Company granted 1,250,000 options with exercise prices of \$4.00 and an expiry date of January 20, 2027. The options vest in four equal instalments over two years starting on the date of grant. The fair value of the options of \$1.734 was estimated using the Black-Scholes option pricing model, with the following weighted average assumptions: a market price of common shares of \$4.00, expected dividend yield of 0%, expected volatility of 48% based on the historic volatility of comparable companies, risk-free interest rate of 1.68% and an expected life of 5.0 years. The estimated grant date fair value of the options is amortized over the vesting period. During the three months ended March 31, 2024, the Company recognized an expense of \$2,970 (three months ended March 31, 2023 – recovery of \$479,856) related to this amortization charged to the condensed interim consolidated statements of loss and other comprehensive. On May 11, 2023, 1,000,000 of the options were cancelled, unexercised, and replaced with 400,000 DSUs (see Note 8(b)).

On March 31, 2023, 25,000 options with exercise prices of \$2.50, were cancelled.

On May 11, 2023, the Company granted 50,000 options with exercise prices of \$4.00 and an expiry date of May 11, 2028. The options vested immediately on the date of grant. The fair value of the options of \$1.902 was estimated using the Black-Scholes option pricing model, with the following weighted average assumptions: a market price of common shares of \$4.00, expected dividend yield of 0%, expected volatility of 51% based on the historic volatility of comparable companies, risk-free interest rate of 2.94% and an expected life of 5.0 years.

On July 31, 2023, 540,000 options with exercise prices of \$1.0 and 783,000 options with exercise prices of \$2.50, were exercised.

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

8. Share-based payments (continued)

(a) Option plan (continued)

At March 31, 2024, outstanding options to acquire common shares of the Company were as follows:

<u>Date of expiry</u>	<u>Options outstanding</u>	<u>Options exercisable</u>	<u>Exercise price</u>
June 1, 2024	250,000	250,000	\$ 3.75
July 20, 2025	3,157,500	3,157,500	\$ 2.50
July 20, 2025	2,115,000	2,115,000	\$ 1.00
January 20, 2027	250,000	250,000	\$ 4.00
May 11, 2028	50,000	50,000	\$ 4.00
	<u>5,822,500</u>	<u>5,822,500</u>	

(b) Deferred share units plan (“DSU plan”)

The Company has a DSU plan that provides for the grant of DSUs to employees, officers or directors of the Company. The Plan allows the Company the ability to issue one common share from treasury for each DSU held on the date upon which the participant ceases to be a director, officer or employee of the corporation. The maximum number of Common Shares available for issuance under the DSU plan may not exceed 10% of the fully diluted issued share capital of the Company at any time.

DSU transactions continuity during the periods were as follows (in number of DSUs):

	Three months ended March 31, 2024	Year ended December 31, 2023
Balance, beginning of period	14,208,333	13,058,333
Forfeit	(300,000)	—
Exercised	(200,000)	(100,000)
Granted	—	1,250,000
Balance, end of period	<u>13,708,333</u>	<u>14,208,333</u>

Of the 13,708,333 DSUs outstanding, 11,241,667 have vested.

The 6,700,000 DSUs granted during the year ended December 31, 2015 had the following vesting conditions:

- (i) As to one-third of the DSUs, vesting shall occur immediately;
- (ii) As to the second one-third, upon the later of (a) completion by the Company of a pre-feasibility study or feasibility study; and (b) receipt by the Company of the preliminary license for the project; and
- (iii) As to the final one third of the DSUs, upon the Company completing arrangements for project construction financing, as detailed in the pre-feasibility study or feasibility study for the project.

Of the 6,700,000 DSUs granted, 566,667 were forfeit, unvested, and 4,466,667 DSUs have vested, of which 666,667 were exercised and 333,333 were cancelled. The remaining 1,666,666 DSUs, which have the vesting condition (iii) above, were revised such that the vesting condition previously estimated to be met

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

8. Share-based payments (continued)

(b) Deferred share units plan (“DSU plan”) (continued)

December 2019 was changed to June 30, 2023, then to March 31, 2024, and then to March 31, 2025, as that is the estimated timeline. The estimated fair value of the DSUs at the date of grant is recognized over the vesting period. During the three months ended March 31, 2024, the Company expensed \$30,174, related to this amortization (three months ended March 31, 2023 – recovery of \$221,933) of which, \$6,035 (three months ended March 31, 2023 – recovery of \$44,387) was capitalized to exploration and evaluation assets, with the remaining \$24,139 (three months ended March 31, 2023 – recovery of \$177,546) was charged to the condensed interim consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at grant date were valued using an estimated market price of \$2.50.

On August 9, 2019, the Company granted 500,000 DSUs. 200,000 DSUs vested immediately, while 150,000 DSUs would vest when the Company obtains its installation license for the Autazes project estimated to be March 31, 2022, and the final 150,000 DSUs would vest upon the Company initiating project construction estimated to be in July 2022. The expected vesting dates of the DSUs were subsequently revised such that the DSUs expected to vest March 31, 2022 and July 2022 are expected to vest early in 2024 and March 31, 2025, respectively. On March 28, 2024, the 200,000 DSUs that were vested were exercised and the remaining 300,000 DSUs were forfeited, unvested. The fair value of the DSUs at the date of grant is amortized over the vesting period. During the three months ended March 31, 2024, the Company a recovery of \$1,087,113 (three months ended March 31, 2023 – recovery of \$46,127) was capitalized to exploration and evaluation assets. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$3.75.

On February 15, 2022, the Company granted 3,450,000 DSUs. The DSUs vest in six equal tranches every six months over a three-year term. On August 15, 2022, 2,025,000 of the DSUs were cancelled. The fair value of the DSUs is amortized over the vesting period. During the three months ended March 31, 2024, the Company recognized an expense of \$233,532 (three months ended March 31, 2023 – \$553,417) related to this amortization charged to the condensed interim consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$4.00.

On May 11, 2023, the Company granted 500,000 DSUs. The DSUs vest immediately. The fair value of the DSUs at the date of grant were valued using an estimated market price of \$4.00.

On May 11, 2023, the Company also granted 400,000 DSUs to replace 1,000,000 options cancelled on May 11, 2023 (see Note 8(a)). The fair value of the options on the date of exchange was attributed to the fair value of the DSUs.

On October 11, 2023, the Company granted 350,000 DSUs to consultants of the Company. 100,000 of the DSUs vest in four equal installments over twelve months from the date of grant and 250,000 DSUs vest on October 11, 2024. During the three months ended March 31, 2024, the Company recognized an expense of \$368,392 (three months ended March 31, 2023 - \$nil), related to the estimated fair value of the DSUs at the date of grant charged to the condensed interim consolidated statements of loss and other comprehensive loss. The fair value of the DSUs at the date of grant was valued using an estimated market price of \$4.00.

During the three months ended March 31, 2024, the total amount related to the vesting of DSUs was a recovery of \$455,015 (three months ended March 31, 2023 – expense of \$285,357) of which a recovery of

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

8. Share-based payments (continued)

(b) Deferred share units plan (“DSU plan”) (continued)

\$1,081,078 (three months ended March 31, 2023 – recovery of \$90,514) was capitalized to exploration and evaluation assets and an expense of \$626,063 (three months ended March 31, 2023 – expense of \$375,871) is included in the condensed interim consolidated statements of loss and other comprehensive loss.

9. Warrants

At March 31, 2024, outstanding warrants to acquire common shares of the Company were as follows:

<u>Number of warrants</u>	<u>Exercise price</u>	<u>Expiry Date</u>
1,147,500	\$ 1.00	*

* On September 11, 2009, the Company issued 1,147,500 broker warrants in connection with a private placement financing. These warrants are exercisable for up to twelve months from the date the Company begins trading on a public exchange.

There were no warrant transactions during the three months ended March 31, 2024 or the year ended December 31, 2023.

10. Financial Risk Management Objectives and Policies

The Company’s financial instruments comprise cash and cash equivalents, other receivables, trade payables and accrued liabilities. The main purpose of these financial instruments is to raise finance to fund operations.

The Company does not enter into any derivative transactions.

The Company’s risk exposures and the impact on the Company’s financial instruments are summarized below:

(a) Credit risk

Credit risk arises when a failure by counterparties to discharge their obligations could reduce the amount of future cash inflows from financial assets. With respect to credit risk arising from financial assets of the Company, which comprise cash and minimal receivables, the Company’s exposure to credit risk arises from default of counterparties, with a maximum exposure equal to the carrying amount of these instruments. Cash and cash equivalents are held with high credit quality financial institutions. Management believes that the credit risk concentration with respect to these financial instruments is remote.

(b) Liquidity risk

The Company’s approach to managing liquidity risk is to ensure that it will have sufficient liquidity to meet liabilities when due. As at March 31, 2024, the Company had a cash and cash equivalents balance of \$1,143,184 (December 31, 2023 - \$2,450,239) to settle current liabilities of \$1,842,526 (December 31, 2023 - \$1,730,103).

(c) Market risk

Market risk is the risk that changes in market prices, such as interest rates, foreign exchange rates and equity prices will affect the Company’s income or the value of its holdings of financial instruments.

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

10. Financial Risk Management Objectives and Policies *(continued)*

(d) Interest rate risk

The Company has cash and cash equivalent balances as at March 31, 2024. The Company considers interest rate risk to be minimal as cash is held on deposit at major financial institutions.

(e) Foreign currency risk

Foreign currency risk is created by fluctuations in the fair value or cash flows of financial instruments due to changes in foreign exchange rates and exposure as a result of investment in its foreign subsidiary. The Company's foreign currency risk arises primarily with respect to the Canadian dollar and Brazilian Reals. Fluctuations in the exchange rates between these currencies and the US dollar could have a material impact on the Company's business, financial condition and results of operations. The Company does not engage in hedging activity to mitigate this risk.

The following summary illustrates the fluctuations in the exchange rates applied during the three months ended March 31, 2024:

	<u>Average rate</u>	<u>Closing rate</u>
CAD	0.7415	0.7380
BRL	0.2020	0.2002

A \$0.01 strengthening or weakening of the US dollar against the Canadian dollar at March 31, 2024 would result in an increase or decrease in operating loss of \$4,576 and an increase or decrease in other comprehensive income of approximately \$nil. A \$0.01 strengthening or weakening of the US dollar against the Brazilian Real would result in an increase or decrease in operating loss of approximately \$nil and an increase or decrease in other comprehensive loss in the condensed interim consolidated statements of loss and other comprehensive loss of approximately \$3,570,000.

(f) Capital management

The Company manages its capital to ensure that it will be able to continue as a going concern in order to support the ongoing exploration and development of its mineral property in Brazil and to provide sufficient working capital to meet its ongoing obligations.

In the management of capital, the Company includes the components of shareholders' equity, cash and cash equivalents, as well as short-term investments (if any).

The Company manages its capital structure and makes adjustments to it in accordance with the aforementioned objectives, as well as, in light of changes in economic conditions and the risk characteristics of the underlying assets. In order to maintain or adjust its capital structure, the Company may issue new shares, acquire or dispose of assets and adjust the amount of cash and cash equivalents and short-term investments. There is no dividend policy. The Company is not subject to any externally imposed capital requirements, nor is its subsidiary in Brazil. There were no changes to the Company's capital management during the three months ended March 31, 2024 or the year ended December 31, 2023.

Brazil Potash Corp.

Notes to the Condensed Interim Consolidated Financial Statements
For the three months ended March 31, 2024 and 2023

11. Related Party Disclosures

(a) Key management personnel compensation

In addition to their contracted fees, directors and executive officers also participate in the Company's Share option program and DSU plan. Certain executive officers are subject to a mutual termination notice ranging from one to twelve months. Key management personnel compensation comprised:

	Three months ended March 31, 2024	Three months ended March 31, 2023
Directors & officers compensation	\$ 403,856	\$ 3,147,739
Share-based payments	112,115	(27,752)
	<u>\$ 515,971</u>	<u>\$ 3,119,987</u>

Included in the above amounts, is \$144,999 (March 31, 2023 - \$144,999) paid or accrued according to a contract for business and operational consulting services with Forbes & Manhattan, Inc. during the three months ended March 31, 2024. The three months ended March 31, 2023 includes a discretionary bonus of \$2,000,000 paid to Forbes & Manhattan, Inc. during the prior period, a company for which Mr. Stan Bharti (a director of the Company) is the Executive Chairman.

During the three months ended March 31, 2024, the Company recorded an expense of \$112,115 (three months ended March 31, 2023 – recovery of \$27,752) in share-based compensation related to the amortization of the estimated fair value of DSUs granted to directors and officers of the Company in 2015, 2022 and 2023. As at March 31, 2024, 10,200,000 DSUs were granted to officers and directors of the Company of which 8,366,667 have vested, and 1,833,333 have not yet vested (See Note 8(b)).

(b) Transactions with other related parties

As at March 31, 2024, trade payables and accrued liabilities included an amount of \$125,691 (December 31, 2023 - \$17,088) owing to directors and officers of the Company for consulting fees and \$4,389 owing to directors and officers for expense reimbursement (December 31, 2023 - \$nil).

During the three months ended March 31, 2024, the Company recorded an expense of \$nil (three months ended March 31, 2023 - \$47,028) for travel costs with Tali Flying LP, a company which has a common director. As at March 31, 2024, trade payables and accrued liabilities included \$nil (December 31, 2023 - \$nil) owing to Tali Flying LP and prepaid expenses included \$136,443 (December 31, 2023 - \$139,785) advanced to Tali Flying LP.

These transactions, occurring in the normal course of operations, are measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

12. Commitments and contingencies

The Company is party to certain management contracts. These contracts require payments of approximately \$9,220,000 to directors, officers and consultants of the Company upon the occurrence of a change in control of the Company, as such term is defined by each respective consulting agreement. The Company is also committed to payments upon termination of approximately \$1,294,000 pursuant to the terms of these contracts. As a triggering event has not taken place, these amounts have not been recorded in these Interim Financial Statements.

13. Subsequent event

In April 2024, the Company received its mine installation license.

ANNEX – GLOSSARY OF TECHNICAL TERMS

The following are abbreviations and definitions of certain terms used in this prospectus, which are commonly used in the potash mining industry:

Defined Terms

In this prospectus, we use the following defined terms, which refer to concepts commonly used in the potash mining industry:

<u>Defined Term</u>	<u>Meaning</u>
“KCI”	Potassium Chloride
“MOP”	Muriate of Potash
“NI 43-101”	<i>National Instrument 43-101—Standards of Disclosure for Mineral Projects</i> of the Canadian Securities Administrators
“ROM”	Run-of-mine
“Scope 1 GHG Emissions”	Direct greenhouse gas (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles)
“Scope 2 GHG Emissions”	Indirect greenhouse gas (GHG) emissions associated with an organization’s purchase of electricity, steam, heat, or cooling. Although Scope 2 GHG Emissions physically occur at the facility where they are generated, they are accounted for in the organization’s GHG inventory because they are a result of the organization’s energy use.
“Scope 3 GHG Emissions”	Greenhouse gas (GHG) emissions that are the result of activities from assets not owned or controlled by the organization, but that the organization indirectly impacts in its value chain. Scope 3 GHG Emissions include all sources of GHG emissions not within the organization’s Scope 1 GHG Emissions and Scope 2 GHG Emissions. Scope 3 GHG Emission sources include emissions both upstream and downstream of the organization’s activities. Scope 3 GHG Emissions, also referred to as value chain GHG emissions, often represent the majority of an organization’s total GHG emissions.
“SEC Mining Modernization Rules”	Subpart 1300 of Regulation S-K—Disclosure by Registrants Engaged in Mining Operations under the Securities Act of 1933, as amended
“Technical Report”	The Technical Report, Update of the Autazes Potash Project—Pre-Feasibility Study (dated October 14, 2022), prepared by ERCOSPLAN Ingenieurgesellschaft Geotechnik und Bergbau mbH in accordance with the requirements of the SEC Mining Modernization Rules

Definitions under the SEC Mining Modernization Rules

In this prospectus, we use the following defined terms from the SEC Mining Modernization Rules:

“**Feasibility Study**” means a comprehensive technical and economic study of the selected development option for a mineral project, which includes detailed assessments of all applicable Modifying Factors together with any other relevant operational factors, and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is economically viable (which term, when used in the context of Mineral Reserve determination, means that the Qualified Person has determined, using a discounted cash flow analysis, or has otherwise analytically determined, that extraction of the Mineral Reserve is economically viable under reasonable investment and market assumptions). The results of the study may serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. A Feasibility Study is more comprehensive, and with a higher degree of accuracy, than a Pre-Feasibility Study. It must contain mining, infrastructure, and process designs completed with sufficient rigor to serve as the basis for an investment decision or to support project financing. The confidence level in the results of a Feasibility Study is higher than the confidence level in the results of a Pre-Feasibility Study. Terms such as full, final, comprehensive, bankable, or definitive feasibility study are equivalent to a Feasibility Study.

“**Indicated Mineral Resource**” means that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an Indicated Mineral Resource is sufficient to allow a Qualified Person to apply Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an Indicated Mineral Resource has a lower level of confidence than the level of confidence of a Measured Mineral Resource, an Indicated Mineral Resource may only be converted to a Probable Mineral Reserve.

“**Inferred Mineral Resource**” means that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an Inferred Mineral Resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an Inferred Mineral Resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the Modifying Factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a Mineral Reserve.

“**Initial Assessment**” means a preliminary technical and economic study of the economic potential of all or parts of the mineralization to support the disclosure of Mineral Resources. An Initial Assessment must be prepared by a Qualified Person and must include appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. An Initial Assessment is required for disclosure of Mineral Resources, but cannot be used as the basis for disclosure of Mineral Reserves.

“**Measured Mineral Resource**” means that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a Measured Mineral Resource is sufficient to allow a Qualified Person to apply Modifying Factors in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a Measured Mineral Resource has a higher level of confidence than the level of confidence of either an Indicated Mineral Resource or an Inferred Mineral Resource, a Measured Mineral Resource may be converted to a Probable Mineral Reserve or to a Proven Mineral Reserve.

“**Mineral Reserve**” means an estimate of tonnage and grade or quality of Indicated Mineral Resources and Measured Mineral Resources that, in the opinion of the Qualified Person, can be the basis of an economically

Table of Contents

viable project. More specifically, it is the economically mineable part of an Indicated Mineral Resource or Measured Mineral Resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

“**Mineral Resource**” means a concentration or occurrence of a material economic interest in or on the Earth’s crust, in such form, grade or quality, and quantity, that there are reasonable prospects for economic extraction. A Mineral Resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.

“**Modifying Factors**” mean the factors that a Qualified Person must apply to Indicated Mineral Resources and Measured Mineral Resources and then evaluate in order to establish the economic viability of Mineral Reserves. A Qualified Person must apply and evaluate Modifying Factors to convert Indicated Mineral Resources or Measured Mineral Resources to Probable Mineral Reserves or Proven Mineral Reserves. Modifying Factors include, but are not restricted to: mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, compliance, plans, negotiations, or agreements with local individuals or groups, and governmental factors. The number, type and specific characteristics of the Modifying Factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.

“**Pre-Feasibility Study**” means a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a Qualified Person has determined (in the case of underground mining) a preferred mining method, or (in the case of surface mining) a pit configuration, and in all cases has determined an effective method of mineral processing. A Pre-Feasibility Study includes a financial analysis based on reasonable assumptions (which are based on appropriate testing) about the Modifying Factors, and the evaluation of any other relevant factors that are sufficient for a Qualified Person to determine if all or part of the Indicated Mineral Resources or Measured Mineral Resources may be converted to Probable Mineral Reserves or Proven Mineral Reserves at the time of reporting. The financial analysis must have the level of detail necessary to demonstrate, at the time of reporting, that extraction is economically viable. A Pre-Feasibility Study is less comprehensive and results in a lower confidence level than a Feasibility Study. A Pre-Feasibility Study is more comprehensive and results in a higher confidence level than an Initial Assessment.

“**Probable Mineral Reserve**” means the economically mineable part of an Indicated Mineral Resource, and, in some cases, a Measured Mineral Resource.

“**Proven Mineral Reserve**” means the economically mineable part of a Measured Mineral Resource. A Proven Mineral Resource can only result from conversion of a Measured Mineral Resource.

“**Qualified Person**” is an individual who is: (1) a mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and (2) an eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared. For an organization to be a recognized professional organization, it must: (i) be either: (a) an organization recognized within the mining industry as a reputable professional association, or (b) a board authorized by U.S. federal or state or foreign statute to regulate professionals in the mining, geoscience or related field; (ii) admit eligible members primarily on the basis of their academic qualifications and experience; (iii) establish and require compliance with professional standards of competence and ethics; (iv) require or encourage continuing professional development; (v) have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and (vi) provide a public list of members in good standing.



BRAZIL POTASH CORP.

Common Shares

PROSPECTUS

Cantor

Freedom Capital Markets

Bradesco BBI

Roth Capital Partners

Clarksons Securities

, 2024

Until and including _____, 2024 (the 25th day after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 6. Indemnification of Directors and Officers.

We are incorporated under the laws of the Province of Ontario, Canada, and are governed by the *Business Corporations Act* (Ontario) (the “OBCA”). In accordance with the OBCA and pursuant to our bylaws (our “Bylaws”), subject to certain conditions, we shall, subject to the limitations contained in the OBCA, indemnify our directors and officers, any former director or officer, or any other individual who acts or acted at our request as a director or officer, or an individual acting in a similar capacity, of another entity, against all costs, charges and expenses, including any amount paid to settle an action or satisfy a judgment, reasonably incurred by such individual in respect of any civil, criminal, administrative, investigative or other proceeding in which such individual is involved because of such association with our Company or other entity, if such individual:

- acted honestly and in good faith with a view to our best interests, or, as the case may be, the best interests of the other entity for which such individual acted as a director or officer or in a similar capacity at our request; and
- in the case of a criminal or administration action or proceeding enforced by a monetary penalty, had reasonable grounds to believe the conduct was lawful.

Pursuant to our Bylaws, we shall also indemnify such individual in other circumstances as the OBCA permits or requires.

Additionally, we may purchase and maintain insurance for the benefit of any indemnified individual against such liabilities, in such amounts as our board of directors may from time to time determine and as permitted by the OBCA. We currently carry insurance policies insuring our directors and officers against certain liabilities that they may incur in their capacity as directors and officers.

Furthermore, we have entered into an indemnity agreement with each of our current directors and officers, and intend to enter into an indemnity agreement with each of our future directors and officers, whereby we have agreed or will agree to indemnify such directors and officers against all expenses and liabilities incurred in such capacity to the fullest extent permitted by law, subject to limited exceptions.

The form of underwriting agreement to be filed as Exhibit 1.1 to this registration statement will also provide for indemnification by the underwriters of our Company and our directors and officers for certain liabilities, including liabilities arising under the Securities Act of 1933, as amended (the “Securities Act”), but only to the extent that such liabilities are caused by information relating to the underwriters that was furnished by the underwriters to us in writing expressly for use in the prospectus forming a part of this registration statement and in certain other disclosure documents.

Insofar as indemnification by us for liabilities arising under the Securities Act may be permitted to our directors, officers or persons controlling us pursuant to the foregoing or otherwise, we have been informed that in the opinion of the U.S. Securities and Exchange Commission (the “SEC”) such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable. In the event a director, officer or controlling person asserts a claim for indemnification in connection with the successful defense of any action, suit or proceeding resulting from this offering, we will, unless otherwise advised by counsel, submit to a court of competent jurisdiction the question of whether such indemnification is against public policy. We will be governed by the final adjudication of such issue.

Item 7. Recent Sales of Unregistered Securities.

Set forth below is information regarding all securities issued by us without registration under the Securities Act during the past three years.

Regulation A Offering

Pursuant to an offering under Tier 2 of Regulation A promulgated under the Securities Act (our “Regulation A Offering”), we completed an offering of 10,118,706 Common Shares. Our Regulation A Offering was made pursuant to our Form 1-A Offering Statement, which was initially filed by us with the SEC on May 5, 2020 and qualified by the SEC on June 26, 2020, and our Post-Qualification Offering Circular Amendment No. 1 and Post-Qualification Offering Circular Amendment No. 2, which were filed by us with the SEC on June 25, 2021 and July 23, 2021, respectively, and qualified by the SEC on August 2, 2021. The Common Shares were offered in our Regulation A Offering at a purchase price of \$4.00 per Common Share.

In connection with our Regulation A Offering, we engaged Dalmore Group, LLC, a New York limited liability company and FINRA/SIPC registered broker-dealer (“Dalmore”), to provide broker-dealer services. Pursuant to the Amended Broker-Dealer Agreement between our Company and Dalmore, we agreed to pay Dalmore a one-time setup fee of \$5,000, a one-time consulting fee of \$50,000, as well as a 1% commission on the aggregate amount raised by us from the sale of our Common Shares in our Regulation A Offering.

Our Regulation A Offering closed on August 2, 2022, with an aggregate of 10,118,706 Common Shares sold and approximately \$40.5 million in gross proceeds raised. We used the net proceeds from our Regulation A Offering to fund our pre-operation administrative costs, including for conducting additional consultations with indigenous communities in accordance with International Labour Organization Convention 169, complying with our Preliminary Environmental License, conducting engineering for other applications and permits, conducting essential testwork prior to starting the engineering, procurement and construction management phase, maintaining our mineral rights, updating and optimizing the Technical Report, and executive compensation.

Stock Options

We have a Stock Option Plan, adopted in 2006 (our “Stock Option Plan”), pursuant to which we granted to certain of the directors, executives and employees of, and consultants to, our Company stock options to purchase our Common Shares.

In January 2022, pursuant to our Stock Option Plan, we granted to one of our consultants stock options to purchase an aggregate of 250,000 Common Shares at an exercise price of \$4.00 per share, with all such stock options vesting ratably in four equal installments, with the first installment vesting on the date of grant and the additional installments vesting every six months thereafter.

In May 2023, pursuant to our Stock Option Plan, we granted to one of our employees stock options to purchase an aggregate of 50,000 Common Shares at an exercise price of \$4.00 per share, with all such stock options vesting ratably in four equal installments, with the first installment vesting on the date of grant and the additional installments vesting every six months thereafter.

All of the foregoing grants of stock options under our Stock Option Plan were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act or Rule 701 under the Securities Act.

Deferred Share Units

We have a Deferred Share Unit Plan, adopted in 2015, and amended and restated in May 2024 (our “Deferred Share Unit Plan”), pursuant to which we granted to certain of the directors, executives and employees of, and consultants and other service providers to, our Company deferred share units (“DSUs”). DSUs vest in accordance with terms and conditions established by our compensation committee, as the administrator of our Deferred Share Unit Plan. In general, we will redeem vested DSUs held by a holder upon such holder ceasing to be a director, executive or employee of our Company, or upon the death of such holder, in exchange for the issuance of our Common Shares from our treasury to such holder on the basis of one Common Share for each

Table of Contents

vested DSU. Additionally, however, subject to the approval of our compensation committee and upon mutual agreement with the holder or the holder's estate, we may also redeem vested DSUs in exchange for a cash payment equal to the per share fair market value of our Common Shares at such time multiplied by the number of vested DSUs held by such holder.

In February 2022, pursuant to our Deferred Share Unit Plan, we granted to certain of our directors, executives, and consultants an aggregate of 1,425,000 DSUs, which vest ratably in six equal tranches every six months from the date of grant.

In September 2022, pursuant to our Deferred Share Unit Plan, we granted to certain of our directors, executives, and consultants an aggregate of 5,000,000 DSUs, which vested immediately.

In May 2023, pursuant to our Deferred Share Unit Plan, we granted to one of our executives and two of our employees an aggregate of 900,000 DSUs, which vest ratably in six equal tranches every six months from the date of grant.

In October 2023, pursuant to our Deferred Share Unit Plan, we granted to (i) a consultant 250,000 DSUs, which vest in full 12 months from the date of grant, and (ii) a consultant 100,000 DSUs, which vest ratably in four equal tranches every three months from the date of grant.

In May 2024, pursuant to our Deferred Share Unit Plan, we granted to one of our then directors and a consultant an aggregate of 1,250,000 DSUs, which vested immediately.

In June 2024, pursuant to our 2024 Incentive Compensation Plan, we granted to (i) one of our former directors and CD Capital Natural Resources BPC LP an aggregate of 725,000 DSUs, which vested immediately, and (ii) a consultant 250,000 DSUs, of which 50,000 vested immediately and the remaining 200,000 vest ratably in four equal tranches every year from the date of grant.

In August 2024, pursuant to our 2024 Incentive Compensation Plan, we granted to a consultant 1,000,000 DSUs, of which 250,000 vested immediately and the remaining 750,000 vest ratably in three equal tranches every six months from the date of grant.

All of the foregoing grants of DSUs under our Deferred Share Unit Plan were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act or Rule 701 under the Securities Act.

Warrant

In May 2024, we issued to CD Capital Natural Resources BPC LP, one of our largest shareholders, a warrant that was exercisable for 375,000 Common Shares at an exercise price of \$4.00 per Common Share. We believe that the issuance of such warrant was exempt from the registration requirements of the Securities Act in reliance on Section 4(a)(2) of the Securities Act. In June 2024, CD Capital Natural Resources BPC LP exercised such warrant in full.

Item 8. Exhibits and Financial Statement Schedules.

(a) The following exhibits are filed as part of this registration statement and are numbered in accordance with Item 601 of Regulation S-K:

<u>Exhibit No.</u>	<u>Description</u>
1.1*	Form of Underwriting Agreement
3.1	Articles of Incorporation of Brazil Potash Corp.
3.2	Bylaws of Brazil Potash Corp.
4.1	Specimen Common Share Certificate
4.2	Form of Warrant Certificate

Table of Contents

<u>Exhibit No.</u>	<u>Description</u>
4.3*	Form of Underwriters' Warrants
5.1*	Opinion of Wildeboer Dellelce LLP, Canadian counsel to Brazil Potash Corp., as to the validity of the Common Shares issued by Brazil Potash Corp.
10.1†	Stock Option Plan
10.2†	Form of Stock Option Agreement
10.3†	Amended and Restated Deferred Share Unit Plan
10.4†	2024 Incentive Compensation Plan
10.5	Form of Indemnity Agreement between Brazil Potash Corp. and each of its directors and executives.
10.6†	Independent Contractor Agreement, dated as of July 1, 2009, between Brazil Potash Corp. and Gower Exploration Consulting Inc.
10.7†	Amendment to Independent Contractor Agreement, dated as of February 1, 2015, between Brazil Potash Corp. and Gower Exploration Consulting Inc.
10.8†	Amendment to Independent Contractor Agreement, dated as of January 1, 2019, between Brazil Potash Corp. and Gower Exploration Consulting Inc.
10.9†	Independent Contractor Agreement, dated as of October 1, 2009, between Brazil Potash Corp. and Forbes & Manhattan, Inc.
10.10†	Amendment to Independent Contractor Agreement, dated as of September 1, 2011, between Brazil Potash Corp. and Forbes & Manhattan, Inc.
10.11†	Amendment to Independent Contractor Agreement, dated as of February 1, 2015, between Brazil Potash Corp. and Forbes & Manhattan, Inc.
10.12†	Independent Contractor Agreement, dated as of January 1, 2014, between Brazil Potash Corp. and Neil Said
10.13†	Amendment to Independent Contractor Agreement, dated as of November 1, 2021, between Brazil Potash Corp. and Neil Said
10.14†	Independent Contractor Agreement, dated as of August 1, 2014, between Brazil Potash Corp. and Ryan Ptolemy
10.15†	Amendment to Independent Contractor Agreement, dated as of November 1, 2021, between Brazil Potash Corp. and Ryan Ptolemy
10.16†	Independent Contractor Agreement, dated as of February 1, 2015, between Brazil Potash Corp. and Iron Strike Inc.
10.17†	Service Agreement, dated as of September 16, 2021, between Potássio do Brasil Ltda. and J. Mendo Consultoria Empresarial Ltda. [English translation]
10.18	Loan Agreement, dated as of June 15, 2020, between Brazil Potash Corp. and 2227929 Ontario Inc.
10.19	Maturity Date Extension, dated December 17, 2020, between 2227929 Ontario Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and 2227929 Ontario Inc.
10.20	Maturity Date Extension, dated September 30, 2021, between 2227929 Ontario Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and 2227929 Ontario Inc.
10.21	Loan Agreement, dated as of July 2, 2020, between Brazil Potash Corp. and Aberdeen International Inc.
10.22	Maturity Date Extension, dated February 9, 2021, between Aberdeen International Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Aberdeen International Inc.

Table of Contents

<u>Exhibit No.</u>	<u>Description</u>
10.23	<u>Maturity Date Extension, dated September 30, 2021, between Aberdeen International Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Aberdeen International Inc.</u>
10.24	<u>Loan Agreement, dated as of April 1, 2021, between Brazil Potash Corp. and Aberdeen International Inc.</u>
10.25	<u>Maturity Date Extension, dated September 30, 2021, between Aberdeen International Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Aberdeen International Inc.</u>
10.26	<u>Loan Agreement, dated as of August 4, 2021, between Brazil Potash Corp. and Aberdeen International Inc.</u>
10.27	<u>Maturity Date Extension, dated September 30, 2021, between Aberdeen International Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Aberdeen International Inc.</u>
10.28	<u>Loan Agreement, dated as of October 22, 2020, between Brazil Potash Corp. and Sulliden Mining Capital Inc.</u>
10.29	<u>Maturity Date Extension, dated February 10, 2021, between Sulliden Mining Capital Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Sulliden Mining Capital Inc.</u>
10.30	<u>Maturity Date Extension, dated September 30, 2021, between Sulliden Mining Capital Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Sulliden Mining Capital Inc.</u>
10.31	<u>Loan Agreement, dated as of February 26, 2021, between Brazil Potash Corp. and Greenway Investments International Ltd.</u>
10.32	<u>Maturity Date Extension, dated September 30, 2021, between Greenway Investments International Ltd. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Greenway Investments International Ltd.</u>
10.33	<u>Loan Agreement, dated as of May 5, 2021, between Brazil Potash Corp. and Newdene Gold Inc.</u>
10.34	<u>Maturity Date Extension, dated September 30, 2021, between Newdene Gold Inc. and Brazil Potash Corp., amending Loan Agreement between Brazil Potash Corp. and Newdene Gold Inc.</u>
10.35+	<u>Offtake Agreement, dated as of September 29, 2022, between Potássio do Brasil Ltda. and Amaggi Exportação E Importação Ltda. [English translation]</u>
10.36+	<u>Distribution and Marketing Agreement, dated as of September 29, 2022, between Potássio do Brasil Ltda. and Amaggi Exportação E Importação Ltda. [English translation]</u>
10.37+	<u>Shipping Agreement, dated as of September 30, 2022, between Potássio do Brasil Ltda. and Hermasa Navegação da Amazônia Ltda. [English translation]</u>
10.38	<u>Form of Lease Agreement for rural land, between lessor and Potássio do Brasil Ltda., as lessee [English translation]</u>
21.1	<u>List of Subsidiaries</u>
23.1	<u>Consent of MNP LLP, independent registered public accounting firm</u>
23.2*	Consent of Wildeboer Dellelce LLP (included in Exhibit 5.1)

Table of Contents

<u>Exhibit No.</u>	<u>Description</u>
23.3	Consent of ERCOSPLAN Ingenieurgesellschaft Geotechnik und Bergbau mbH with respect to the Technical Report
23.4	Consent of L&M Assessoria with respect to Chapter 19 of the Technical Report
24.1	Power of Attorney (included on the signature page to this registration statement)
96.1	Technical Report Summary of the Autazes Potash Project—Pre-Feasibility Study
107	Filing Fee Table

* To be provided by amendment.

† Management contract or compensatory plan or arrangement.

+ Pursuant to Item 601(b)(10)(iv) of Regulation S-K, certain information contained in this exhibit has been omitted because such information is not material and is the type of information that we treat as private or confidential.

(b) Financial Statements Schedules

See our consolidated financial statements starting on page F-1. All other schedules have been omitted because they are not required or are not applicable, or the information is otherwise set forth in our consolidated financial statements and the related notes thereto.

Item 9. Undertakings

- (a) The undersigned registrant (which we refer to as the “Registrant”) hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.
- (b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the U.S. Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.
- (c) The Registrant hereby undertakes:
 - (1) that, for purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A under the Securities Act and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective; and
 - (2) that, for the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form F-1, and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Toronto, Ontario, Canada on August 20, 2024.

BRAZIL POTASH CORP.

By: /s/ Matthew Simpson

Name: Matthew Simpson

Title: Chief Executive Officer and Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each of the undersigned executives and directors of the Registrant, a corporation existing under the laws of the Province of Ontario, Canada, which is filing this registration statement on Form F-1 with the U.S. Securities and Exchange Commission under the provisions of the Securities Act of 1933, as amended, and the Registrant's Authorized Representative in the United States, hereby constitutes and appoints Matthew Simpson and Ryan Ptolemy, and each of them, as such individual's true and lawful attorneys-in-fact and agents, with full power to act separately and full power of substitution and resubstitution, for such individual and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, including a prospectus or an amended prospectus therein and any registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and all other documents in connection therewith to be filed with the U.S. Securities and Exchange Commission, granting unto each said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or either of them or his or her or their substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Matthew Simpson</u> Matthew Simpson	Chief Executive Officer and Director (Principal Executive Officer)	August 20, 2024
<u>/s/ Ryan Ptolemy</u> Ryan Ptolemy	Chief Financial Officer (Principal Financial and Accounting Officer)	August 20, 2024
<u>/s/ Stan Bharti</u> Stan Bharti	Executive Chairman	August 20, 2024
<u>/s/ Deborah Battiston</u> Deborah Battiston	Director	August 20, 2024
<u>/s/ Brett Lynch</u> Brett Lynch	Director	August 20, 2024
<u>/s/ Pierre Pettigrew</u> Pierre Pettigrew	Director	August 20, 2024
<u>/s/ Peter Tagliamonte</u> Peter Tagliamonte	Director	August 20, 2024

Signature of Authorized Representative in the United States

Pursuant to the requirements of the Securities Act of 1933, as amended, the undersigned certifies that it is the duly authorized representative in the United States of Brazil Potash Corp. and has duly caused this registration statement on Form F-1 to be signed by the undersigned, thereunto duly authorized, on August 20, 2024.

Authorized Representative in the United States:

CT Corporation System

By: /s/ Madonna Cuddihy

Name: Madonna Cuddihy

Title: Assistant Secretary

Request ID: 008526481
Demande n°:
Transaction ID: 030482252
Transaction n°:
Category ID: CT
Catégorie:

Province of Ontario
Province de l'Ontario
Ministry of Consumer and Business Services
Ministère des Services aux consommateurs et aux entreprises
Companies and Personal Property Security Branch
Direction des compagnies et des sûretés mobilières

Date Report Produced: 2006/10/10
Document produit le:
Time Report Produced: 13:08:13
Imprimé à:

Certificate of Incorporation Certificat de constitution

This is to certify that

Ceci certifie que

2115567 ONTARIO INC.

Ontario Corporation No.

Numéro matricule de la personne morale en Ontario

002115567

is a corporation incorporated,
under the laws of the Province of Ontario.

est une société constituée aux termes
des lois de la province de l' Ontario.

These articles of incorporation
are effective on

Les présents statuts constitutifs
entrent en vigueur le

OCTOBER 10 OCTOBRE, 2006



Director/Directrice
Business Corporations Act/Loi sur les sociétés par actions

5. Restrictions, if any, on business the corporation may carry on or on powers the corporation may exercise.
Limites, s'il y a lieu, imposées aux activités commerciales ou aux pouvoirs de la société.

None

6. The classes and any maximum number of shares that the corporation is authorized to issue:
Catégories et nombre maximal, s'il y a lieu, d'actions que la société est autorisée à émettre:

The Corporation is authorized to issue an unlimited number of common shares.

7. Rights, privileges, restrictions and conditions (if any) attaching to each class of shares and directors authority with respect to any class of shares which may be issued in series:

Droits, privilèges, restrictions et conditions, s'il y a lieu, rattachés à chaque catégorie d'actions et pouvoirs des administrateurs relatifs à chaque catégorie d'actions qui peut être émise en série :

None

8. The issue, transfer or ownership of shares is/is not restricted and the restrictions (if any) are as follows:
L'émission, le transfert ou la propriété d'actions est/n'est pas restreint. Les restrictions, s'il y a lieu, sont les suivantes:

None

9. Other provisions if any:

Autres dispositions, s'il y a lieu:

Without in any way restricting the powers conferred upon the Corporation or its board of directors by the Business Corporations Act, as now enacted or as the same may from time to time be amended, re-enacted or replaced, the board of directors may from time to time, without authorization of the shareholders, in such amounts and on such terms as it deems expedient:

- (a) borrow money upon the credit of the Corporation;
- (b) issue, re-issue, sell or pledge debt obligations of the Corporation;
- (c) subject to the provisions of the Business Corporations Act, as now enacted or as the same may from time to time be amended, re-enacted or replaced, give a guarantee on behalf of the Corporation to secure performance of an obligation of any person; and
- (d) mortgage, hypothecate, pledge or otherwise create a security interest in all or any property of the Corporation owned or subsequently acquired, to secure any obligation of the Corporation.

The board of directors may from time to time delegate to a director, a committee of directors or an officer of the Corporation any or all powers conferred on the board as set out above, to such extent and in such manner as the board shall determine at the time of such delegation.

10. The names and addresses of the incorporators are:
Noms et adresses des fondateurs:

First name, middle names and surname or corporate name
Prénom, autres prénoms et nom de famille ou dénomination sociale

Full address for service or address of registered office or of principal place of business giving street & No. or R.R.
No., municipality and postal code
Domicile élu au complet, adresse du siège social ou adresse de l'établissement principal, y compris la rue et le numéro ou le numéro de la R.R., le nom de la municipalité et le code postal

ANTHONY JOHN
WONNACOTT

259 HILLSDALE AVENUE EAST
TORONTO ONTARIO
CANADA M4S 1T7

6. The amendment has been duly authorized as required by sections 168 and 170 (as applicable) of the *Business Corporations Act*.
La modification a été dûment autorisée conformément aux articles 168 et 170 (selon le cas) de la *Loi sur les sociétés par actions*.
7. The resolution authorizing the amendment was approved by the shareholders/directors (as applicable) of the corporation on
Les actionnaires ou les administrateurs (selon le cas) de la société ont approuvé la résolution autorisant la modification le

2009/03/15

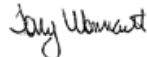
(Year, Month, Day)
(année, mois, jour)

These articles are signed in duplicate.
Les présents statuts sont signés en double exemplaire.

2115567 ONTARIO INC.

(Print name of corporation from Article 1 on page 1)
(Veuillez écrire le nom de la société de l'article un à la page une).

By/
Par :



(Signature)
(Signature)

SECRETARY

(Description of Office)
(Fonction)

BRAZIL POTASH CORP.

(the “Corporation”)

BY-LAW NO. A-3

A by-law relating generally to the transaction of the business and affairs of the Corporation.

CONTENTS

Article 1	-	Interpretation
Article 2	-	Business of the Corporation
Article 3	-	Borrowing and Debt Obligations
Article 4	-	Directors
Article 5	-	Committees
Article 6	-	Officers
Article 7	-	Protection of Directors, Officers and Others
Article 8	-	Shares
Article 9	-	Dividends and Rights
Article 10	-	Meetings of Shareholders
Article 11	-	Notices
Article 12	-	Forum Selection
Article 13	-	Effective Date

TABLE OF CONTENTS

Article 1	1
INTERPRETATION	1
1.1 Definitions	1
1.2 Interpretation	2
1.3 Number	2
1.4 Gender	2
1.5 Headings	2
1.6 Conflict with Unanimous Shareholder Agreement	2
Article 2	3
BUSINESS OF THE CORPORATION	3
2.1 Registered Office	3
2.2 Books and Records	3
2.3 Corporate Seal	3
2.4 Financial Year	3
2.5 Execution of Contracts, Etc.	3
2.6 Banking Arrangements	4
2.7 Voting Securities in Other Issuers	4
2.8 Divisions	4
Article 3	5
BORROWING AND DEBT OBLIGATIONS	5
3.1 Borrowing Power	5
3.2 Delegation	5
Article 4	5
DIRECTORS	5
4.1 Number of Directors and Quorum	5
4.2 Qualification	5
4.3 Election and Term	5
4.4 Removal of Directors	5
4.5 Termination of Office	6
4.6 Vacancies	6
4.7 Action by the Board	6
4.8 Participation	6
4.9 Place of Meetings	6
4.10 Calling of Meetings	6
4.11 Notice of Meeting	6
4.12 First Meeting of New Board	7
4.13 Adjourned Meeting	7
4.14 Regular Meetings	7
4.15 Chairperson	7
4.16 Votes to Govern	7
4.17 Conflict of Interest	7
4.18 Remuneration and Expenses	7
4.19 Resolution in Writing by Directors	8
4.20 Only One Director	8

Article 5	8
COMMITTEES	8
5.1 Committees of the Board	8
5.2 Audit Committee	8
5.3 Transaction of Business	8
5.4 Advisory Committees	8
5.5 Procedure	8
5.6 Limits on Authority	9
Article 6	10
OFFICERS	10
6.1 Positions and Appointment	10
6.2 President	10
6.3 Secretary	10
6.4 Treasurer	10
6.5 Powers and Duties	10
6.6 Term of Office	10
6.7 Terms of Employment and Remuneration	10
6.8 Disclosure of Interest	10
6.9 Agents and Attorneys	10
Article 7	11
PROTECTION OF DIRECTORS, OFFICERS AND OTHERS	11
7.1 Limitation of Liability	11
7.2 Indemnity	11
7.3 Insurance	11
Article 8	11
SHARES	11
8.1 Allotment of Shares	11
8.2 Commissions	12
8.3 Transfer Agents and Registrars	12
8.4 Registration of a Share Transfer	12
8.5 Lien for Indebtedness	12
8.6 Non-Recognition of Trusts	12
8.7 Share Certificates	12
8.8 Replacement of Share Certificates	12
8.9 Joint Holders	12
8.10 Deceased Shareholders	13
Article 9	13
DIVIDENDS AND RIGHTS	13
9.1 Dividends	13
9.2 Dividend Cheques	13
9.3 Non-Receipt of Cheques	13
9.4 Record Date for Dividends and Rights	13
9.5 Unclaimed Dividends	13
Article 10	14
MEETINGS OF SHAREHOLDERS	14
10.1 Annual Meetings	14

10.2	Special Meetings	14
10.3	Place of Meetings	14
10.4	Meetings Held by Electronic Means	14
10.5	Notice of Meetings	14
10.6	List of Shareholders Entitled to Notice	14
10.7	Record Date for Notice	14
10.8	Meetings Without Notice	15
10.9	Chairperson, Secretary and Scrutineers	15
10.10	Persons Entitled to be Present	15
10.11	Participation in Meeting by Electronic Means	15
10.12	(a) Quorum	15
	(b) Separate Class Vote	16
10.13	Right to Vote	16
10.14	Proxyholders and Representatives	16
10.15	Time for Deposit of Proxies	16
10.16	Joint Shareholders	16
10.17	Votes to Govern	17
10.18	Show of Hands	17
10.19	Ballots	17
10.20	Electronic Voting	17
10.21	Adjournment	17
10.22	Resolution in Writing by Shareholders	18
10.23	Only One Shareholder	18
Article 11		18
NOTICES		18
11.1	Method of Giving Notices	18
11.2	Notice to Joint Holders	18
11.3	Computation of Time	19
11.4	Undelivered Notices	19
11.5	Omissions and Errors	19
11.6	Persons Entitled by Death or Operation of Law	19
11.7	Waiver of Notice	19
Article 12		19
FORUM SELECTION		19
12.1	Forum for Adjudication of Certain Disputes	19
Article 13		20
EFFECTIVE DATE		20
13.1	Effective Date	20
13.2	Amendment	20
13.3	Repeal	20

BE IT ENACTED as a by-law of the Corporation as follows:

**ARTICLE 1
INTERPRETATION**

1.1 Definitions. In the by-laws of the Corporation, unless the context otherwise requires:

“**Act**” means the *Business Corporations Act* (Ontario) and any statute that may be substituted therefor, as from time to time amended;

“**Applicable Securities Laws**” means the applicable securities legislation of each relevant province and territory in Canada, as from time to time amended, the written rules, regulations and forms made or promulgated under any such legislation and the published national instruments, multilateral instruments, policies, bulletins and notices of the securities commissions and similar regulatory authorities of each province or territory of Canada;

“**appoint**” includes “**elect**” and vice versa;

“**articles**” means the articles of incorporation of the Corporation, as from time to time amended or restated;

“**board**” means the board of directors of the Corporation and “**director**” means a member of the board;

“**by-laws**” means this by-law and all other by-laws of the Corporation from time to time in force and effect;

“**cheque**” includes a bank draft;

“**day**” means a clear day and a period of days shall be deemed to commence on the day following the event that began the period and shall be deemed to terminate at midnight of the last day of the period, except that if the last day of the period falls on a non-business day, the period shall terminate at midnight of the day next following that is not a non-business day;

“**meeting of shareholders**” includes an annual meeting of shareholders, a special meeting of shareholders and an annual and special meeting of shareholders;

“**non-business day**” means Saturday, Sunday and any other day that is a holiday as defined in the *Legislation Act* (Ontario), as from time to time amended;

“**ordinary resolution**” means a resolution that is: (i) submitted to a meeting of the shareholders of the Corporation and passed, with or without amendment, at the meeting by at least a majority of the votes cast; or (ii) signed by at least a majority of the shareholders entitled to vote on that resolution;

“**person**” includes an individual, sole proprietorship, partnership, unincorporated association, unincorporated syndicate, unincorporated organization, trust, body corporate, and a natural person in his or her capacity as trustee, executor, administrator, or other legal representative;

“**recorded address**” means: (i) in the case of a shareholder, the address of the shareholder as recorded in the securities register; (ii) in the case of joint shareholders, the address appearing in the securities register in respect of such joint holding or the first address so appearing if there are more than one; (iii) in the case of an officer, auditor or member of a committee of the board, the latest address as recorded in the records of the Corporation; and (iv) in the case of a director, the latest address as recorded in the records of the Corporation or in the most recent notice filed under the *Corporations Information Act* (Ontario), whichever is more current;

“**reporting issuer**” includes: (i) an “offering corporation” within the meaning of the Act; (ii) a corporation that is a ‘reporting issuer’ under Applicable Securities Laws; (iii) in the case of a corporation that is not a ‘reporting issuer’ for the purpose of Applicable Securities Laws, a corporation: (1) that has filed a prospectus, registration statement or similar document under any securities legislation in any jurisdiction within Canada or under the laws of a jurisdiction outside Canada; (2) any of the securities of which are listed and posted for trading by the Corporation on a securities exchange or quotation system in or outside Canada; or (3) that is involved in, formed for, resulting from or continued after an amalgamation, a reorganization, an arrangement or a statutory procedure, if one of the participating bodies corporate is a corporation to which subparagraph (1) or (2) applies;

“**signing officer**” means, in relation to any instrument, any person authorized to sign the instrument on behalf of the Corporation by or pursuant to section 2.5;

“**special meeting of shareholders**” includes a meeting of any class, classes or series of shareholders and a special meeting of all shareholders entitled to vote at an annual meeting of shareholders;

“**special resolution**” means a resolution: (i) passed by a majority of not less than two-thirds of the votes cast by the shareholders who voted in respect of that resolution; or (ii) signed by all the shareholders entitled to vote on that resolution; and

“**unanimous shareholder agreement**” means either: (i) a lawful written agreement among all the shareholders of the Corporation, or among all the shareholders and one or more persons who are not shareholders; or (ii) a written declaration of the registered owner of all of the issued shares of the Corporation; in each case, that restricts, in whole or in part, the powers of the directors to manage, or supervise the management of the business and affairs of the Corporation, as from time to time amended.

1.2 Interpretation. Save as aforesaid, words and expressions defined in the Act have the same meanings when used herein.

1.3 Number. Words importing the singular number include the plural and vice versa.

1.4 Gender. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms.

1.5 Headings. Headings are inserted in this by-law for reference purposes only and are not to be considered or taken into account in construing the terms or provisions hereof or to be deemed in any way to clarify, modify or explain the effect of any such terms or provisions.

1.6 Conflict with Unanimous Shareholder Agreement. Where any provision in the by-laws conflicts with any provision of any unanimous shareholder agreement, the provision of such unanimous shareholder agreement shall govern.

ARTICLE 2
BUSINESS OF THE CORPORATION

2.1 Registered Office. Until changed in accordance with the Act, the registered office of the Corporation shall be within the municipality or geographic township within Ontario initially specified in the articles and thereafter as the shareholders may, from time to time, determine by special resolution, and at such location therein as the board may, from time to time, determine by resolution. The Corporation may have other offices, both within and outside of Canada, as the board from time to time shall determine or the business of the Corporation may require.

2.2 Books and Records. Any records administered by or on behalf of the Corporation in the regular course of its business, including its securities register, books of account and minute books, may be maintained in a bound or loose-leaf book or may be entered or recorded by any system of mechanical or electronic data processing or any other information storage device, method, or one or more electronic networks or databases (including one or more distributed electronic networks or databases). The Corporation shall make such records available for inspection pursuant to applicable law.

2.3 Corporate Seal. The corporate seal of the Corporation, if adopted, shall be in such form as the board may by resolution, from time to time, adopt. An instrument or agreement executed on behalf of the Corporation by a director, an officer or an agent of the Corporation is not invalid merely because the corporate seal, if adopted, is not affixed to it.

2.4 Financial Year. The financial year of the Corporation shall end on such date in each year as shall be determined, from time to time, by resolution of the board.

2.5 Execution of Contracts, Etc. Contracts, documents or instruments in writing requiring the signature of the Corporation may be signed by any one director or officer of the Corporation, and all contracts, documents or instruments in writing so signed shall be binding upon the Corporation without any further authorization or formality. The board shall have the power, from time to time, by resolution to appoint any one or more officers or other persons on behalf of the Corporation either to sign contracts, documents or instruments in writing generally or to sign specific contracts, documents or instruments in writing.

The corporate seal of the Corporation, if adopted, may be affixed to contracts, documents or instruments in writing signed by an officer or person appointed by resolution of the board.

The term “contracts, documents or instruments in writing” as used in this by-law shall include, without limitation, agreements, deeds, mortgages, hypothecs, charges, conveyances, transfers and assignments of property, real or personal, movable or immovable, powers of attorney, releases, receipts and discharges for the payment of money or other obligations, conveyances, transfers and assignments of shares, share warrants, stocks, bonds, debentures, notes or other securities, instruments of proxy and all paper writings.

Without limiting the generality of the foregoing, any one director or officer is authorized to sell, assign, transfer, exchange, convert or convey all securities owned by or registered in the name of the Corporation and to sign and execute (under the corporate seal, if adopted, of the Corporation or otherwise) all assignments, transfers, conveyances, powers of attorney and other instruments that may be necessary for the purpose of selling, assigning, transferring, exchanging, converting or conveyancing any such securities.

Subject to the Act and applicable electronic commerce legislation, any contracts, documents or instruments required to be created or provided in writing and required or permitted to be executed by one or more persons on behalf of the Corporation may be: (i) created in electronic document form and provided by electronic means; (ii) signed by mechanically reproduced signature or electronic signature, which signature or signatures shall be as valid to all intents and purposes as if they had been signed manually and notwithstanding that the person or persons whose signature or signatures is or are so reproduced may have ceased to hold office at the date of delivery or issue of such contract, document or instrument in writing;

and (iii) executed in separate counterparts, each of which when duly executed by one or more of such persons shall be an original and all such counterparts together shall constitute one and the same such contract, document or instrument in writing. Notwithstanding the foregoing, the board may, from time to time, direct the manner in which and the person or persons by whom any particular contract, document or instrument in writing, or class of contracts, documents or instruments in writing, may or shall be signed.

2.6 Banking Arrangements. The banking business of the Corporation including, without limitation, the borrowing of money and the giving of security therefor shall be transacted with such banks, trust companies or other persons as may, from time to time, be designated by or under the authority of the board. Such banking business or any part thereof shall be transacted under such agreements, instructions and delegations of powers as the board may, from time to time, prescribe or authorize.

2.7 Voting Securities in Other Issuers. The person or persons authorized under section 2.5 may execute and deliver proxies and arrange for the issuance of voting certificates or other evidence of the right to exercise the voting rights attaching to any securities held by the Corporation. Such instruments, certificates or other evidence shall be in favour of such person or persons as may be determined by the person executing such proxies or arranging for the issuance of voting certificates or such other evidence of the right to exercise such voting rights. In addition, the board may, from time to time, direct the manner in which and the person or persons by whom any particular voting rights or class of voting rights may or shall be exercised.

2.8 Divisions. The board may cause the business and operations of the Corporation, or any part thereof, to be divided or segregated into one or more divisions having regard to, without limitation, the character or type of businesses or operations, geographical territories, product lines or goods or services as the board may consider appropriate in each case. From time to time, the board, or any officer authorized by the board, may authorize, upon such basis as may be considered appropriate in each case:

- (a) Sub-Division and Consolidation — the further division of the business and operations of any such division into sub-units and the consolidation of the business and operations of any such divisions and sub-units;
- (b) Name — the designation of any such division or sub-unit by, and the carrying on of the business and operations of any such division or sub-unit under, a name other than the legal name of the Corporation, subject to applicable laws and regulations regarding registration of any such other name; provided that the Corporation shall set out its legal name in legible characters in all contracts, invoices, negotiable instruments and orders for goods or services issued or made by or on behalf of the Corporation; and
- (c) Officers — the appointment of officers for any such division or other sub-unit, the determination of their powers and duties, and the removal of any such officer so appointed, without prejudice to such officer's rights under any employment contract or in law, provided that any such officers shall not, as such, be officers of the Corporation, unless expressly designated as such.

**ARTICLE 3
BORROWING AND DEBT OBLIGATIONS**

3.1 Borrowing Power. Without limiting the borrowing powers of the Corporation as set forth in the Act, the board may, from time to time, on behalf of the Corporation, without authorization of the shareholders:

- (a) borrow money upon the credit of the Corporation;
- (b) issue, reissue, sell or pledge bonds, debentures, notes or other evidence of indebtedness or guarantees of the Corporation, whether secured or unsecured;
- (c) to the extent permitted by the Act, give a guarantee on behalf of the Corporation to secure performance of any present or future indebtedness, liability or obligation of any person; and
- (d) charge, mortgage, hypothecate, pledge, or otherwise create a security interest in all or any currently owned or subsequently acquired real or personal, movable or immovable, property of the Corporation, including book debts, rights, powers, franchises and undertakings, to secure any such bonds, debentures, notes or other evidences of indebtedness or guarantee or any other present or future indebtedness, liability or obligation of the Corporation.

Nothing in this section limits or restricts the borrowing of money by the Corporation on bills of exchange or promissory notes made, drawn, accepted or endorsed by or on behalf of the Corporation.

3.2 Delegation. The board may, from time to time, delegate to a committee of the board, one or more directors or officers of the Corporation or any other person as may be designated by the board all or any of the powers conferred on the board by section 3.1 or by the Act to such extent and in such manner as the board shall determine at the time of each such delegation.

**ARTICLE 4
DIRECTORS**

4.1 Number of Directors and Quorum. Until changed in accordance with the Act, the board shall consist of the number of directors, within the minimum and maximum number of directors provided for in the articles, as is determined by special resolution or, if such special resolution empowers the board to determine the number, by a resolution of the board; provided, however, that in the latter case, the directors may not, between meetings of shareholders, increase the number of directors on the board to a total number greater than one and one-third times the number of directors required to have been elected at the last annual meeting of shareholders. Except as provided under section 4.17, the quorum for the transaction of business at any meeting of the board shall consist of a majority of the number of directors determined in the manner set forth above; provided that where the board consists of fewer than three directors, all directors shall constitute a quorum at any meeting of the board.

4.2 Qualification. The following persons are disqualified from being a director of the Corporation: (i) a person who is less than 18 years of age; (ii) a person who has been found under the *Substitute Decisions Act, 1992* (Ontario) or under the *Mental Health Act* (Ontario) to be incapable of managing property or who has been found to be incapable by a court in Canada or elsewhere; (iii) a person who is not an individual; or (iv) a person who has the status of bankrupt. A director need not be a shareholder.

4.3 Election and Term. The election of directors shall take place at the first meeting and thereafter at each annual meeting of shareholders and all the directors then in office shall retire but, if qualified, shall be eligible for re-election. The election of directors shall be by ordinary resolution. If an election of directors is not held at the proper time, the incumbent directors shall continue in office until their successors are elected.

4.4 Removal of Directors. Subject to the provisions of the Act, the shareholders may by ordinary resolution passed at an annual meeting or special meeting called for such purpose remove any director or directors from office and the vacancy created by such removal may be filled at the same meeting, failing which, provided a quorum of directors remains in office, such vacancy may be filled by the board. Where the holders of any class or series of shares of the Corporation have an exclusive right to elect one or more directors, a director so elected may only be removed by an ordinary resolution at a meeting of the shareholders of that class or series.

4.5 Termination of Office. A director ceases to hold office when the director: (i) dies; (ii) is removed from office by the shareholders; (iii) ceases to be qualified for election as a director; or (iv) sends or delivers to the Corporation a written resignation or, if a time is specified in such resignation, at the time so specified, whichever is later.

4.6 Vacancies. Subject to the provisions of the Act, a quorum of the board may fill a vacancy in the board, except a vacancy resulting from an increase in the number or, except as set out hereunder, in the maximum number of directors, as the case may be, or a failure to elect the number of directors required to be elected at any meeting of shareholders. Where the articles provide for a minimum and maximum number of directors and a special resolution has been passed empowering the directors to determine the number of directors, the directors may not, between meetings of shareholders, appoint an additional director if, after such appointment, the total number of directors would be greater than one and one-third times the number of directors required to have been elected at the last annual meeting of shareholders. In the absence of a quorum of the board, or if the vacancy has arisen from a failure of the shareholders to elect the number of directors required by section 4.1, the directors then in office shall forthwith call a special meeting of shareholders to fill the vacancy. If the directors fail to call a meeting or if there are no directors then in office, any shareholder may call the meeting. A director appointed or elected to fill a vacancy holds office for the unexpired term of that director's predecessor.

4.7 Action by the Board. Subject to any unanimous shareholder agreement, the board shall manage, or supervise the management of, the business and affairs of the Corporation. Subject to section 4.8, the powers of the board may be exercised by resolution passed at a meeting at which a quorum is present or by resolution in writing signed by all the directors entitled to vote on that resolution at a meeting of the board. Where there is a vacancy in the board, the remaining directors may exercise all the powers of the board so long as a quorum remains in office.

4.8 Participation. If all the directors of the Corporation present at or participating in a meeting consent, a director may participate in a meeting of the board or of a committee of the board by means of telephonic, electronic or other communication facility that permits all participants to communicate simultaneously and instantaneously with each other during the meeting. A director participating in a meeting by such means is deemed to be present in person at the meeting for the purposes of the Act. Any consent shall be effective whether given before or after the meeting to which it relates and may be given with respect to all meetings of the board and of committees of the board.

4.9 Place of Meetings. Meetings of the board may be held at any place within or outside Ontario and, in any financial year of the Corporation, any or all of the meetings of the board may be held at any place outside Canada.

4.10 Calling of Meetings. Meetings of the board shall be held, from time to time, at such place, at such time and on such day as the board, the chairperson of the board, the president (if the president is a director) or any two directors may determine.

4.11 Notice of Meeting. Notice of the time and place of each meeting of the board shall be given in the manner provided in section 11.1 to each director not less than 48 hours before the time when the meeting is to be held. A notice of a meeting of directors need not specify the purpose of or the business to be transacted at the meeting except where the Act requires such purpose or business to be specified. A director may, in any manner and at any time, waive a notice of or otherwise consent to a meeting of the board and, subject to the Act, attendance of a director at a meeting of the board is a waiver of notice of the meeting.

4.12 First Meeting of New Board. Provided a quorum of directors is present, each newly elected board may hold its first meeting, without notice, immediately following the meeting of shareholders at which such board is elected.

4.13 Adjourned Meeting. Notice of an adjourned meeting of the board is not required if the time and place of the adjourned meeting is announced at the original meeting.

4.14 Regular Meetings. The board may appoint a day or days in any month or months for regular meetings of the board at a place and hour to be named. A copy of any resolution of the board fixing the place and time of such regular meetings shall be sent to each director forthwith after being passed, but no other notice shall be required for any such regular meeting except where the Act requires the purpose thereof or the business to be transacted thereat to be specified.

4.15 Chairperson. The chairperson of any meeting of the board shall be the first mentioned of the following officers as have been appointed and who is a director and is present at the meeting: chairperson of the board; president; chief executive officer; or a vice-president. If no such officer is present, the directors present shall choose one of their number to be chairperson. If the secretary of the Corporation is absent, the chairperson shall appoint some person, who need not be a director, to act as secretary of the meeting.

4.16 Votes to Govern. At all meetings of the board, every question shall be decided by a majority of the votes cast on the question. In case of an equality of votes, the chairperson of the meeting shall not be entitled to a second or casting vote.

4.17 Conflict of Interest. A director or officer of the Corporation who is a party to, or who is a director or an officer of or has a material interest in any person who is a party to, a material contract or transaction or proposed material contract or transaction with the Corporation, shall disclose the nature and extent of his or her interest at the time and in the manner provided by the Act. Any such contract or transaction or proposed contract or transaction shall be referred to the board or shareholders for approval even if such contract is one that in the ordinary course of the Corporation's business would not require approval by the board or the shareholders. Such director shall not attend any part of a meeting of directors during which the contract or transaction is discussed and shall not vote on any resolution to approve such contract or transaction or proposed contract or proposed transaction except as permitted by the Act.

If no quorum exists for the purpose of voting on a resolution to approve a contract or transaction only because a director is not permitted to be present at the meeting by reason of such director's interest in such contract or transaction, the remaining directors shall be deemed to constitute a quorum for the purposes of voting on the resolution. Where all the directors are required to make disclosure under this section, the contract or transaction may be approved only by the shareholders.

4.18 Remuneration and Expenses. Subject to any unanimous shareholder agreement, the directors shall be paid such remuneration for their services as the board may, from time to time, determine and such remuneration shall be in addition to the salary paid to any officer or employee of the Corporation who is also a director. The directors may also by resolution award special remuneration to any director in undertaking any special services on behalf of the Corporation other than the normal work ordinarily required of a director. The confirmation of any such resolution or resolutions by the shareholders shall not be required, except as required by law or regulation. The directors shall also be entitled to be reimbursed for travelling and other expenses properly incurred by them in connection with the performance of their duties as directors of the Corporation.

4.19 Resolution in Writing by Directors. A resolution in writing signed by all the directors entitled to vote on that resolution at a meeting is as valid as if it had been passed at a meeting of the directors unless a written statement or written representation with respect to the subject matter of the resolution is submitted by a director or the auditor, respectively, in accordance with the Act. A resolution in writing may be signed by the directors in any number of counterparts, each of which shall be deemed an original and all of which taken together shall constitute one and the same resolution in writing, and by a director using a facsimile or other electronic signature, in which case the other directors, the Corporation and the shareholders are entitled to rely on such electronic signature as conclusive evidence that such resolution in writing has been duly executed by such director.

4.20 Only One Director. Where the Corporation has only one director, that director may constitute a meeting.

ARTICLE 5 COMMITTEES

5.1 Committees of the Board. The board may, from time to time, establish (or dissolve) one or more committees of directors, however designated, and delegate to any such committee any of the powers and duties of the board, subject to the limitations on such delegation contained in the Act. The board may appoint and remove the members of each committee subject to the requirements of the Act.

5.2 Audit Committee. If the Corporation is a reporting issuer, the board shall, and the board otherwise may, establish an audit committee to be composed of not fewer than three directors, a majority of whom are not officers or employees of the Corporation or any of its affiliates and all of whom must otherwise meet the requirements of applicable law, including the requirements of any securities exchange on which the Corporation's shares are listed. Each member of the audit committee shall hold office, at the pleasure of the board, until the next annual meeting of shareholders and, in any event, only so long as the member shall be a director. In addition to the powers and duties delegated by the board pursuant to section 5.1, the audit committee shall have the powers and duties provided in the Act and other applicable laws and securities exchange rules. The audit committee shall review the financial statements of the Corporation prior to approval thereof by the board. The auditor of the Corporation is entitled to receive notice of every meeting of the audit committee and, at the expense of the Corporation, to attend and be heard thereat; and, if so requested by a member of the audit committee, shall attend every meeting of the audit committee held during the term of office of the auditor. The auditor of the Corporation or any member of the audit committee may call a meeting of the audit committee.

5.3 Transaction of Business. Subject to the provisions of section 4.8, the powers of a committee of directors appointed by the board may be exercised by a meeting at which a quorum is present or by resolution in writing signed by all members of such committee who would have been entitled to vote on that resolution at a meeting of the committee. Meetings of such committee may be held at such place or places designated in section 4.9.

5.4 Advisory Committees. The board may, from time to time, appoint such advisory bodies as it may deem advisable.

5.5 Procedure. Unless otherwise determined by the board, each committee and advisory body shall have the power to fix its quorum (provided a quorum is not less than a majority of its members), to elect its chairperson, and to regulate its procedure, subject to applicable law and the requirements of any securities exchange on which the Corporation's shares are listed.

5.6 Limits on Authority. Despite any other provision of this by-law, no managing director and no committee of directors appointed by the board has authority to:

- (a) submit to the shareholders any question or matter requiring the approval of the shareholders;
- (b) fill a vacancy among the directors or in the office of auditor or appoint or remove any of the chief executive officers, however designated, the chief financial officer, however designated, the chairperson or the president of the Corporation;
- (c) subject to the Act, issue securities except in the manner and on the terms authorized by the directors;
- (d) declare dividends;
- (e) purchase, redeem or otherwise acquire shares issued by the Corporation;
- (f) pay a commission referred to in the Act;
- (g) approve a management proxy circular referred to in the Act;
- (h) approve a take-over bid circular, directors' circular or issuer bid circular referred to in the Applicable Securities Laws;
- (i) approve any financial statements referred to in the Act (unless otherwise permitted under the Act and Applicable Securities Laws);
- (j) approve an amalgamation between the Corporation and: (i) its holding body corporate; (ii) any one or more of its subsidiaries; and (iii) any one or more corporations where the Corporation and any such corporations are subsidiaries of the same holding body corporate;
- (k) approve an amendment to the Corporation's articles to: (i) divide any class of unissued shares into series and determine the designation, rights, privileges, restrictions and conditions thereof, where the articles authorize the directors to approve such amendment; and (ii) change a Corporation's name that is a numbered name to a name that is not a numbered name; or
- (l) adopt, amend, or repeal by-laws.

ARTICLE 6
OFFICERS

6.1 Positions and Appointment. Subject to the articles or any unanimous shareholder agreement, the board may, from time to time, designate such offices of the Corporation and appoint such officers as the board may consider advisable, including, without limitation, a president, a secretary and a treasurer. None of such officers, other than a chairperson of the board, need be a director of the Corporation. Any two or more offices may be held by the same individual.

6.2 President. If appointed, the president shall, subject to the control of the board, have general supervision over the business and affairs of the Corporation, and he or she shall have such other powers and duties as the board may specify.

6.3 Secretary. If appointed, the secretary shall give or cause to be given as and when instructed, all notices to shareholders, directors, officers, auditors and members of committees of the board; he or she shall attend and be the secretary of all meetings of the board, shareholders and committees of the board; he or she shall enter or cause to be entered in the minute book of the Corporation minutes of all proceedings at such meetings and shall be custodian of all books, papers, records, documents and instruments belonging to the Corporation, except when some other officer or agent has been appointed for that purpose; and he or she shall have such other powers and duties as the board may specify.

6.4 Treasurer. If appointed, the treasurer shall keep proper accounting records in compliance with the Act and shall be responsible for the custody of the funds and securities of the Corporation; he or she shall render to the board whenever required an account of all his or her transactions as treasurer and of the financial position of the Corporation, except when some other officer or agent has been appointed for that purpose; and he or she shall have such other powers and duties as the board may specify.

6.5 Powers and Duties. Subject to the articles or any unanimous shareholder agreement, and unless otherwise provided in this Article Six, the powers and duties of each officer of the Corporation shall be such as the terms of their engagement call for or as provided, from time to time, by resolution of the board. In the absence of such terms of engagement or resolution, the respective officers shall have the powers and duties and shall discharge the duties customarily and usually held and performed by like offices of corporations similar in organization and business purposes to the Corporation subject to the control of the board. Any such officer may, from time to time, delegate any of his or her powers and duties to another officer or employee of the Corporation, and such delegate may exercise and perform such powers and duties, unless the board otherwise directs.

6.6 Term of Office. The board, in its discretion, may remove any officer of the Corporation, with or without cause, without prejudice to such officer's rights under any employment contract. Otherwise, each officer appointed by the board shall hold office until his or her successor is appointed or until the earlier of his or her resignation or death. The board may appoint a person to an office to replace an officer who has been removed or who has ceased to be an officer for any other reason.

6.7 Terms of Employment and Remuneration. The terms of employment and the remuneration of an officer appointed by the board shall be settled by the board, from time to time.

6.8 Disclosure of Interest. An officer shall disclose to the Corporation any interest in a material contract or material transaction, whether made or proposed, with the Corporation in accordance with section 4.17 and the Act.

6.9 Agents and Attorneys. Subject to the provisions of the Act, the Corporation, by or under the authority of the board, shall have power, from time to time, to appoint agents or attorneys for the Corporation in or outside Canada with such powers of management, administration or otherwise (including the power to sub-delegate) as may be thought fit.

ARTICLE 7
PROTECTION OF DIRECTORS, OFFICERS AND OTHERS

7.1 Limitation of Liability. Every director and officer of the Corporation shall, in exercising the powers and discharging the duties of office, act honestly and in good faith with a view to the best interests of the Corporation and exercise the care, diligence and skill that a reasonably prudent person would exercise in comparable circumstances. Subject to the foregoing, to the extent permitted by applicable law, no director or officer shall be liable for the acts, receipts, neglects or defaults of any other director, officer or employee, or for joining in any receipt or other act for conformity, or for any loss, damage or expense happening to the Corporation through the insufficiency or deficiency of title to any property acquired for or on behalf of the Corporation, or for the insufficiency or deficiency of any security in or upon which any of the monies of the Corporation shall be invested, or for any loss or damage arising from the bankruptcy, insolvency or tortious acts of any person with whom any of the monies, securities or effects of the Corporation shall be deposited, or for any loss occasioned by any error of judgment or oversight on the part of such director or officer, or for any other loss, damage or misfortune whatever which shall happen in the execution of the duties of such director's or officer's office or in relation thereto; unless the same are occasioned by such director's or officer's own willful neglect or fault; provided that nothing herein shall relieve any director or officer from the duty to act in accordance with the Act and the regulations thereunder or from liability for any breach thereof.

7.2 Indemnity. Subject to the limitations contained in the Act, the Corporation shall indemnify a director or officer of the Corporation, a former director or officer of the Corporation, or another individual who acts or acted at the Corporation's request as a director or officer, or an individual acting in a similar capacity, of another entity, against all costs, charges and expenses, including an amount paid to settle an action or satisfy a judgment, reasonably incurred by the individual in respect of any civil, criminal, administrative, investigative or other proceeding in which the individual is involved because of that association with the Corporation or other entity, provided:

- (a) the individual acted honestly and in good faith with a view to the best interests of the Corporation or, as the case may be, to the best interests of the other entity for which the individual acted as director or officer or in a similar capacity at the Corporation's request; and
- (b) in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, the individual had reasonable grounds for believing that the individual's conduct was lawful.

The Corporation shall also indemnify such individual in such other circumstances as the Act permits or requires. Nothing in this by-law shall limit the right of any individual entitled to indemnity to claim indemnity apart from the provisions of this by-law.

7.3 Insurance. Subject to the Act, the Corporation may purchase and maintain insurance for the benefit of any individual referred to in section 7.2 against such liabilities and in such amounts as the board may, from time to time, determine and as permitted by the Act.

ARTICLE 8
SHARES

8.1 Allotment of Shares. Subject to the Act, the articles or any unanimous shareholder agreement, the board may, from time to time, allot or grant options to purchase the whole or any part of the authorized and unissued shares of the Corporation at such times and to such persons and for such consideration as the board shall determine, provided that no share shall be issued until it is fully paid as provided by the Act.

8.2 Commissions. The board may, from time to time, authorize the Corporation to pay a reasonable commission to any person in consideration of the person purchasing or agreeing to purchase shares of the Corporation, whether from the Corporation or from any other person, or procuring or agreeing to procure purchasers for any such shares, in accordance with applicable law.

8.3 Transfer Agents and Registrars. The board may, from time to time, appoint, for each class of securities issued by the Corporation: (a) a trustee, transfer agent or other agent to keep the securities register and the register of transfers and one or more persons to keep branch registers; and (b) a registrar, trustee or agent to maintain a record of issued security certificates and, subject to the Act, one person may be appointed for the purposes of clauses (a) and (b) in respect of all securities of the Corporation or any class or classes thereof. The board may at any time terminate such appointment.

8.4 Registration of a Share Transfer. Subject to the provisions of the Act, no transfer of a share in respect of which a certificate has been issued shall be registered in a securities register except upon surrender of the certificate representing such share with an endorsement which complies with the Act made thereon or delivered therewith duly executed by an appropriate person as provided by the Act, together with such reasonable assurance that the endorsement is genuine and effective as the board may, from time to time, prescribe upon payment of all applicable taxes and a reasonable fee (not to exceed the amount permitted by the Act) prescribed by the board upon compliance with such restrictions on transfer as are authorized by the articles and upon satisfaction of any lien referred to in section 8.5.

8.5 Lien for Indebtedness. Unless the Corporation is a reporting issuer, the Corporation has a lien on the shares registered in the name of a shareholder or the shareholder's legal representative for a debt of that shareholder owed to the Corporation, to the extent of such debt; and the directors may enforce such lien, subject to any other provision of the articles or to any unanimous shareholder agreement: (i) by applying any dividends or other distributions paid or payable on or in respect of the shares thereby affected in repayment of the debt of that shareholder to the Corporation; (ii) by the sale of the shares thereby affected; and/or (iii) by any other action, suit, remedy or proceeding authorized or permitted by law or by equity, and, pending such enforcement, the Corporation may refuse to register a transfer of the whole or any part of such shares.

8.6 Non-Recognition of Trusts. Subject to the provisions of the Act, the Corporation may treat as absolute owner of any share the person in whose name the share is registered in the securities register as if that person had full legal capacity and authority to exercise all rights of ownership, irrespective of any indication to the contrary through knowledge or notice or description in the Corporation's records or on the share certificate.

8.7 Share Certificates. The shares of the Corporation may be represented by certificates. Share certificates shall be in the form approved by the board. Notwithstanding section 2.5, certificates representing shares of each class or series shall be signed by any two officers or directors of the Corporation and need not be under corporate seal. Any or all such signatures may be electronic signatures. Should any officer, director, transfer agent or registrar whose manual or electronic signature is affixed to such a certificate ceases to be such officer, director, transfer agent or registrar before such certificate has been issued, it may nevertheless be issued by the Corporation with the same effect as if such officer, director, transfer agent or registrar were still such at the date of its issue.

8.8 Replacement of Share Certificates. The board or any officer or agent designated by the board may direct the issue of a new share or other such certificate in lieu of and upon cancellation of a certificate that has been mutilated or in substitution for a certificate claimed to have been lost, destroyed or wrongfully taken on payment of such reasonable fee (not to exceed the amount permitted by the Act) and on such terms as to indemnity, reimbursement of expenses and evidence of loss and of title as the board may, from time to time, prescribe, whether generally or in any particular case.

8.9 Joint Holders. If two or more persons are registered as joint holders of any share, the Corporation shall not be required to issue more than one certificate in respect thereof, and delivery of a certificate to one of several joint holders shall be sufficient delivery to all of them. Any one of such persons may give effectual receipts for the certificate issued in respect thereof or for any dividend, bonus, return of capital or other money payable or warrant issuable in respect of such share.

8.10 Deceased Shareholders. In the event of the death of a holder, or of one of the joint holders, of any share, the Corporation shall not be required to make any entry in the securities register in respect thereof or to make any dividend or other payments in respect thereof; except upon production of all such documents as may be required by law and upon compliance with the reasonable requirements of the Corporation and its transfer agent.

ARTICLE 9 DIVIDENDS AND RIGHTS

9.1 Dividends. Subject to the provisions of the Act and the articles, the board may, from time to time, declare dividends payable to the shareholders according to their respective rights and interests in the Corporation. Dividends may be paid in money or property or by issuing fully paid shares of the Corporation or options or rights to acquire fully paid shares of the Corporation.

9.2 Dividend Cheques. A dividend payable in money shall be paid by cheque drawn on the Corporation's bankers or one of them to the order of each registered holder of shares of the class or series in respect of which the dividend has been declared and mailed by prepaid ordinary mail to such registered holder at the recorded address of such holder, unless such holder otherwise directs. In the case of joint holders, the cheque shall, unless such joint holders otherwise direct, be made payable to the order of all of such joint holders and mailed to them at their recorded address, or to the first recorded address if there are more than one. The mailing of a cheque in accordance with this section, unless not paid on due presentation, shall satisfy and discharge the liability for the dividend to the extent of the sum represented thereby plus the amount of any tax which the Corporation is required to and does withhold.

9.3 Non-Receipt of Cheques. In the event of non-receipt of any dividend cheque by the person to whom it is sent in accordance with section 9.2, the Corporation shall issue to such person a replacement cheque for a like amount on such terms as to indemnity, reimbursement of expenses, and evidence of non-receipt and of title as the board may, from time to time, prescribe, whether generally or in any particular case.

9.4 Record Date for Dividends and Rights. The board may fix in advance a date, preceding by not more than 50 days the date for the payment of any dividend or the date for the issue of any warrant or other evidence of right to subscribe for securities of the Corporation, as a record date for the determination of the persons entitled to receive payment of such dividend or to exercise the right to subscribe for such securities; and notice of any such record date, unless waived in accordance with the Act, shall be given not less than seven days before such record date in the manner provided for by the Act. If no record date is so fixed, the record date for the determination of the persons entitled to receive payment of any dividend or to exercise the right to subscribe for securities of the Corporation shall be at the close of business on the day on which the resolution relating to such dividend or right to subscribe is passed by the board.

9.5 Unclaimed Dividends. Subject to applicable law and the requirements of any securities exchange on which the Corporation's shares are listed, any dividend unclaimed after a period of six years from the date on which the same has been declared to be payable shall be forfeited and shall revert to the Corporation.

ARTICLE 10
MEETINGS OF SHAREHOLDERS

10.1 Annual Meetings. The annual meeting of shareholders shall be held at such time and on such day in each year and, subject to section 10.3, at such place as the board may, from time to time, determine, for the purpose of considering the financial statements and reports required by the Act to be placed before the annual meeting, electing directors, appointing auditors (unless the Corporation is exempted under the Act from appointing an auditor), and for the transaction of such other business as may properly be brought before the meeting.

10.2 Special Meetings. The board shall have power to call a special meeting of shareholders at any time.

10.3 Place of Meetings. Meetings of shareholders shall be held at: (i) the registered office of the Corporation; (ii) elsewhere in the municipality in which the head office is situate; or (iii) if the board shall so determine, at some other place within or outside Ontario.

10.4 Meetings Held by Electronic Means. The directors or shareholders who call a meeting of shareholders pursuant to the Act, may determine that the meeting shall be held, in accordance with the Act and the regulations thereto, by means of a telephonic, electronic or other communication facility that permits all participants to communicate instantaneously and simultaneously with each other during the meeting, provided the Corporation makes provision for electronic voting at such meeting in accordance with the Act and section 10.20. Any person who participates in a meeting through those means shall be deemed for the purposes of the Act to be present in person at such meeting.

10.5 Notice of Meetings. Notice of the time and place of each meeting of shareholders shall be given in the manner provided in Article Eleven not less than 10 days, unless the Corporation is a reporting issuer, in which case not less than 21 days, and in each case no more than 50 days before the date of the meeting to each director, to the auditor, and to each shareholder who at the close of business on the record date for notice is entered in the securities register as the holder of one or more shares carrying the right to vote at the meeting. Notice of a meeting of shareholders called for any purpose other than the consideration of minutes of an earlier meeting, consideration of the financial statements and auditor's report thereon (if any), election of directors and re-appointment of the incumbent auditor shall state the nature of such business in sufficient detail to permit the shareholder to form a reasonable judgment thereon and shall state the text of any special resolution or by-law to be submitted to the meeting. A shareholder and any other person entitled to attend a meeting of shareholders may in any manner waive notice of or otherwise consent to a meeting of shareholders, and, subject to the Act, attendance of any such shareholder or any such other person is a waiver of notice of the meeting.

10.6 List of Shareholders Entitled to Notice. For every meeting of shareholders, the Corporation shall prepare a list of shareholders entitled to receive notice of the meeting, arranged in alphabetical order and showing the number of shares held by each shareholder entitled to vote at the meeting in accordance with the Act. If a record date for the meeting is fixed pursuant to section 10.7, the shareholders listed shall be those registered at the close of business on such record date. If no record date is fixed, the shareholders listed shall be those registered at the close of business on the day immediately preceding the day on which notice of the meeting is given or, where no such notice is given, on the day on which the meeting is held. The list shall be available for examination by any shareholder during usual business hours at the registered office of the Corporation or at the place where the central securities register is maintained and at the meeting for which the list was prepared. Where a separate list of shareholders has not been prepared, the names of persons appearing in the securities register at the requisite time as the holder of one or more shares carrying the right to vote at such meeting shall be deemed to be a list of shareholders.

10.7 Record Date for Notice. The board may fix in advance a date, preceding the date of any meeting of shareholders by not more than 60 days and not less than 30 days, as the record date for the determination of the shareholders entitled to notice of the meeting, and if so required by the Act, notice of any such record date shall, unless waived in accordance with the Act, be given not less than seven days before such record date, by newspaper advertisement in the manner provided in the Act. If no record date is so fixed, the record date for the determination of the shareholders entitled to receive notice of the meeting shall be at the close of business on the day immediately preceding the day on which the notice is given or, if no notice is given, the day on which the meeting is held.

10.8 Meetings Without Notice. A meeting of shareholders may be held without notice at any time and place permitted by the Act: (a) if all the shareholders entitled to vote thereat are present in person or represented by proxy or if those not present or represented by proxy waive notice of or otherwise consent to such meeting being held; and (b) if the auditors and the directors are present or waive notice of, or otherwise consent to, such meeting being held; so long as such shareholders, auditors or directors present are not attending for the express purpose of objecting to the transaction of any business on the grounds that the meeting is not lawfully called. At such meeting, any business may be transacted which the Corporation at a meeting of shareholders may transact. If the meeting is held at a place outside Ontario, shareholders not present or represented by proxy, but who have waived notice of or otherwise consented to such meeting, shall also be deemed to have consented to the meeting being held at such place.

10.9 Chairperson, Secretary and Scrutineers. The chairperson of any meeting of shareholders shall be the first mentioned of the following officers as have been appointed and who is present at the meeting: chairperson of the board, president or a vice-president who is a shareholder. If no such officer is present within 15 minutes from the time fixed for holding the meeting, the persons present and entitled to vote shall choose one of their number to be chairperson. If the secretary of the Corporation is absent, the chairperson of the meeting shall appoint a person, who need not be a shareholder, to act as secretary of the meeting. In advance of any meeting of shareholders, the board may, and shall if required by law, appoint one or more scrutineers, who need not be shareholders and who may be employees of the Corporation, to act at the meeting or any adjournment thereof and make a written report thereof.

10.10 Persons Entitled to be Present. The only persons entitled to be present at a meeting of shareholders shall be those entitled to vote thereat, the directors and the auditor of the Corporation, if any, and others who, although not entitled to vote, are entitled or required under any provision of the Act, the articles or the by-laws to be present at the meeting. Any other person may be admitted only on the invitation of the chairperson of the meeting or with the consent of the meeting.

10.11 Participation in Meeting by Electronic Means. Any person entitled to attend a meeting of shareholders may participate in the meeting, in accordance with the Act and the by-laws, by means of telephonic, electronic or other communications facilities that permits all participants to communicate instantaneously and simultaneously with each other during the meeting, provided the Corporation makes available such telephonic, electronic or other communications facility. A person participating in such a meeting is deemed to be present in person at the meeting and a shareholder or proxy holder entitled to vote at such a meeting may vote, in accordance with the Act, by means of the telephonic, electronic or other communications facility that the Corporation has made available for that purpose, whether such meeting is to be held at a designated place or solely by means of a telephonic, electronic or other communications facility.

10.12 (a) Quorum. Unless otherwise required by law, the articles or this by-law, at each meeting of shareholders, holders of not less than 25% of the shares entitled to vote at a meeting of shareholders, present in person or represented by proxy, shall constitute a quorum. If a quorum is present at the opening of any meeting of shareholders, the shareholders present or represented by proxy may proceed with the business of the meeting notwithstanding that a quorum is not present throughout the meeting. If a quorum is not present at the opening of any meeting of shareholders, the shareholders present or represented by proxy may adjourn the meeting to a fixed time and place but may not transact any other business.

Notwithstanding the foregoing, in the event that the Corporation is a reporting issuer, subject to any minimum quorum requirement for a shareholder meeting of any securities exchange upon which the Corporation's shares are listed, at each meeting of the shareholders, the holders of not less than 10% of the shares entitled to vote at a meeting of shareholders, present in person or represented by proxy, shall constitute a quorum.

(b) **Separate Class Vote.** Subject to the Act, where a separate vote by a class or series or classes or series is required, a majority of the outstanding shares of such class or series or classes or series, present in person or represented by proxy, shall constitute a quorum entitled to vote on that matter and, in all matters other than the election of directors, the affirmative vote of the majority of shares of such class or series or classes or series present in person or represented by proxy at the meeting shall be the act of such class or series or classes or series.

10.13 Right to Vote. Subject to the provisions of the Act as to authorized representatives of any other body corporate or association, at any meeting of shareholders for which the Corporation has prepared the list referred to in section 10.6, every person who is named in such list shall be entitled to vote the shares shown thereon opposite that person's name at the meeting to which such list relates except to the extent that, where the Corporation has fixed a record date in respect of such meeting pursuant to section 10.7, such person has transferred any shares after such record date and the transferee, having produced properly endorsed certificates evidencing such shares or having otherwise established ownership of such shares, has demanded not later than 10 days before the meeting that the transferee's name be included in such list. In any such case, the transferee shall be entitled to vote the transferred shares at the meeting. At any meeting of shareholders for which the Corporation has not prepared the list referred to in section 10.6, every person shall be entitled to vote at the meeting who at the time of the commencement of the meeting is entered in the securities register as the holder of one or more shares carrying the right to vote at such meeting.

10.14 Proxyholders and Representatives. Every shareholder entitled to vote at a meeting of shareholders may appoint a proxyholder, or one or more alternate proxyholders, who need not be a shareholder, to attend and act as the shareholder's representative at the meeting in the manner and to the extent authorized and with the authority conferred by the proxy. A proxy shall be in writing executed by the shareholder or the shareholder's attorney or, if the shareholder is a body corporate, by an officer or attorney of such shareholder duly authorized, and shall conform to the requirements of the Act. Alternatively, a shareholder which is a body corporate or association may authorize by resolution of its directors or governing body an individual to represent it at a meeting of shareholders and such individual may exercise on the shareholder's behalf all the powers it could exercise if it were an individual shareholder. The authority of such an individual shall be established by depositing with the Corporation a certified copy of such resolution, or in such other manner as may be satisfactory to the secretary of the Corporation or the chairperson of the meeting. Any such proxyholder or representative need not be a shareholder.

10.15 Time for Deposit of Proxies. The board may specify in a notice calling a meeting of shareholders a time, preceding the time of such meeting by not more than 48 hours (excluding non-business days) before which time proxies to be used at that meeting must be deposited with the Corporation or an agent thereof, and any period of time so fixed shall be specified in the notice calling the meeting. A proxy shall be acted upon only if, prior to the time so specified, it shall have been deposited with the Corporation or an agent thereof specified in the notice or, if no time is specified in the notice, it has been received by the secretary of the Corporation or by the chairperson of the meeting or any adjournment thereof prior to the time of voting.

10.16 Joint Shareholders. If two or more persons hold shares jointly, any one of them present in person or duly represented by proxy at a meeting of shareholders may, in the absence of the other or others, vote the shares; but if two or more of those persons are present in person or represented by proxy and vote, they shall vote as one the shares jointly held by them.

10.17 Votes to Govern. At any meeting of shareholders, every question shall, unless otherwise required by the articles, the by-laws or by law, be determined by a majority of the votes cast on the question. In case of an equality of votes, either upon a show of hands or upon a poll, the chairperson of the meeting shall not be entitled to a second or casting vote in addition to the vote or votes to which the chairperson is entitled as a shareholder or proxy nominee.

10.18 Show of Hands. Subject to the provisions of the Act and the rules and policies of any securities exchange upon which the Corporation's shares are listed, any question at a meeting of shareholders shall be decided by a show of hands unless a ballot thereon is required or demanded as hereinafter provided. Upon a show of hands, every person who is present and entitled to vote shall have one vote. Whenever a vote by show of hands shall have been taken upon a question, unless a ballot thereon is so required or demanded, a declaration by the chairperson of the meeting that the vote upon the question has been carried, carried by a particular majority or defeated and an entry to that effect in the minutes of the meeting shall be *prima facie* evidence of the fact without proof of the number or proportion of the votes recorded in favour of or against any resolution or other proceeding in respect of the question, and the result of the vote so taken shall be the decision of the shareholders upon the question.

10.19 Ballots. On any question proposed for consideration at a meeting of shareholders, and whether or not a show of hands has been taken thereon, the chairperson of the meeting or any person who is present and entitled to vote, whether as shareholder, proxyholder or representative, on such questions at the meeting may demand a ballot. Whether or not a ballot has been demanded, all such questions at a meeting of shareholders shall be decided by ballot if so required by the provisions of the Act and/or the rules and policies of any securities exchange upon which the Corporation's shares are listed. A ballot so required or demanded shall be taken in such manner as the chairperson of the meeting shall direct. A requirement or demand for a ballot may be withdrawn at any time prior to the taking of the ballot. If a ballot is taken, each person present shall be entitled, in respect of the shares which such person is entitled to vote at the meeting upon the question, to that number of votes provided by the Act or the articles, and the result of the ballot so taken shall be the decision of the shareholders upon the said question.

10.20 Electronic Voting. Any vote referred to in sections 10.18 and 10.19 may be held entirely by means of a telephonic, electronic or other communication facility if the Corporation makes available such a communication facility; provided the facility enables the votes to be gathered in a manner that permits their subsequent verification.

10.21 Adjournment. The chairperson at a meeting of shareholders may, with the consent of the meeting, adjourn the meeting, from time to time, and place to place. If a meeting of shareholders is adjourned for less than 30 days, it shall not be necessary to give notice of the adjourned meeting, other than by announcement at the earlier meeting that it has been adjourned. Subject to the Act, if a meeting of shareholders is adjourned by one or more adjournments for an aggregate of 30 days or more, notice of the adjourned meeting shall be given as if for an original meeting.

In addition, the chairperson at a meeting of shareholders may, without the consent of the meeting, if the electronic platform at a meeting of shareholders held in part or entirely by means of a telephonic, electronic or other communication facility has become inadequate for the purposes referred to in sections 10.4 and 10.20, interrupt or adjourn the meeting. All business conducted at that meeting of shareholders up to the time of that adjournment shall be valid.

10.22 Resolution in Writing by Shareholders. In the case of a corporation that is not a reporting issuer, and subject to the Corporation's articles or any unanimous shareholder agreement, an ordinary resolution in writing signed by at least a majority of the shareholders, or their attorney authorized in writing, entitled to vote on that resolution at a meeting is as valid as if it had been passed at a meeting of the shareholders, unless a written statement or written representation with respect to the subject matter of the resolution is submitted by a director or the auditor, respectively, in accordance with the Act. Within 10 business days of an ordinary resolution being passed in writing, the Corporation shall issue a notice of the resolution to all voting shareholders who did not sign the written ordinary resolution, which notice shall include the text of the resolution and a description of and reasons for the business dealt with by the written resolution.

A special resolution in writing signed by all of the shareholders, or their attorney authorized in writing, entitled to vote on that resolution at a meeting is as valid as if it had been passed at a meeting of the shareholders, unless a written statement or written representation with respect to the subject matter of the resolution is submitted by a director or the auditor, respectively, in accordance with the Act.

A resolution in writing may be signed by the shareholders in any number of counterparts, each of which shall be deemed an original and all of which taken together shall constitute one and the same resolution in writing, and by a shareholder using a facsimile or other electronic signature, in which case the other shareholders, the Corporation and the directors are entitled to rely on such electronic signature as conclusive evidence that such resolution in writing has been duly executed by such shareholder.

10.23 Only One Shareholder. Where the Corporation has only one shareholder or only one holder of any class or series of shares, the shareholder present in person or duly represented by proxy constitutes a meeting.

ARTICLE 11 NOTICES

11.1 Method of Giving Notices. Any notice, communication or other document to be given by the Corporation to a shareholder, director, officer, or auditor of the Corporation under any provision of the articles or by-laws shall be sufficiently given if: (i) delivered personally to the person to whom it is to be given; or (ii) delivered to such person's last address as shown on the records of the Corporation; or (iii) mailed by prepaid post in a sealed envelope addressed to such person at the last address shown on the records of the Corporation; or (iv) sent by electronic document in accordance with the *Electronic Commerce Act, 2000* (Ontario) or electronic transmission, including the use of, or participation in, one or more electronic networks or databases (including one or more distributed electronic networks or databases). A notice, communication or document so delivered shall be deemed to have been given when: (i) delivered personally, when it is delivered; (ii) delivered to such person's last address shown on the records of the Corporation, when delivered at the address aforesaid; (iii) mailed by prepaid post, on the third day after mailing, unless there are reasonable grounds for believing that the addressee did not receive the notice or document at that time or at all; and (iv) sent by way of electronic document, when it is sent through an information system used to generate, send, receive, store, or otherwise process an electronic document. The secretary may change the address on the records of the Corporation of any shareholder, director, officer, or auditor of the Corporation in accordance with any information believed by the secretary to be reliable.

11.2 Notice to Joint Holders. If two or more persons are registered as joint holders of any share, any notice shall be addressed to all of such joint holders but notice addressed to one of such persons shall be sufficient notice to all of them.

11.3 Computation of Time. In computing the date when notice must be given under any provision of the articles or the by-laws requiring a specified number of days' notice of any meeting or other event, the date of giving the notice shall be excluded and the date of the meeting or other event shall be included.

11.4 Undelivered Notices. If any notice given or document sent to a shareholder pursuant to section 11.1 is returned on three consecutive occasions because the shareholder cannot be found, the Corporation shall not be required to give any further notices or send further documents to the shareholder until the shareholder informs the Corporation in writing of the shareholder's new address.

11.5 Omissions and Errors. The accidental omission to give any notice to any shareholder, director, officer, auditor, or member of a committee of the board, or the non-receipt of any notice by any such person or any error in any notice not affecting the substance thereof, shall not invalidate any action taken at any meeting held pursuant to such notice or otherwise founded thereon.

11.6 Persons Entitled by Death or Operation of Law. Every person who, by operation of law, transfer, death of a shareholder or any other means whatsoever, shall become entitled to any share, shall be bound by every notice in respect of such share which shall have been duly given to the shareholder from whom that person derives title to such share prior to the name and address of that person being entered on the securities register (whether such notice was given before or after the happening of the event upon which the person became so entitled) and prior to the person furnishing to the Corporation the proof of authority or evidence of entitlement prescribed by the Act.

11.7 Waiver of Notice. Any shareholder, proxyholder, other person entitled to attend a meeting of shareholders, director, officer, auditor or member of a committee of the board may at any time waive any notice, or waive or abridge the time for any notice, required to be given to that person under any provision of the Act, the articles, the by-laws or otherwise, and such waiver or abridgement, whether given before or after the meeting or other event of which notice is required to be given, shall cure any default in the giving or in the time of such notice, as the case may be. Any waiver or abridgement shall be in writing except a waiver of notice of a meeting of shareholders or of the board or of a committee of the board which may be given in any manner.

ARTICLE 12 FORUM SELECTION

12.1 Forum for Adjudication of Certain Disputes. Unless the Corporation consents in writing to the selection of an alternative forum, the Superior Court of Justice of the Province of Ontario, Canada and the appellate Courts therefrom (or, failing such court, any other "court" as defined in the Act) having jurisdiction and the appellate Courts therefrom), shall, to the fullest extent permitted by law, be the sole and exclusive forum for: (i) any derivative action or proceeding brought on behalf of the Corporation; (ii) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any director, officer, or other employee of the Corporation to the Corporation; (iii) any action or proceeding asserting a claim arising pursuant to any provision of the Act or the articles or the by-laws of the Corporation (as either may be amended, from time to time); or (iv) any action or proceeding asserting a claim otherwise related to the "affairs" (as defined in the Act) of the Corporation. If any action or proceeding, the subject matter of which is within the scope of the preceding sentence, is filed in a Court other than a Court located within the Province of Ontario (a "Foreign Action") in the name of any securityholder, such securityholder shall be deemed to have consented to: (a) the personal jurisdiction of the provincial and federal Courts located within the Province of Ontario in connection with any action or proceeding brought in any such Court to enforce the forum set out in the preceding sentence; and (b) having service of process made upon such securityholder in any such action or proceeding by service upon such securityholder's counsel in the Foreign Action as agent for such securityholder.

ARTICLE 13
EFFECTIVE DATE

13.1 Effective Date. This by-law shall come into force when made by the board in accordance with the Act.

13.2 Amendment. Subject to the Act and the articles, the board may, by resolution, make, amend or repeal any by-law. Any such by-law, amendment or repeal shall be effective from the date of the resolution of the board until the next meeting of shareholders where it may be confirmed, rejected or amended by the shareholders by ordinary resolution. If the by-law, amendment or repeal is confirmed or confirmed as amended by the shareholders, it remains effective in the form in which it was confirmed. Such by-law, amendment or repeal ceases to have effect if it is not submitted to the shareholders at the next meeting of shareholders or if it is rejected by the shareholders at the meeting.

13.3 Repeal. All previous by-laws of the Corporation are repealed as of the coming into force of this by-law. Such repeal shall not affect the validity of any act done or right, privilege, obligation or liability acquired or incurred under, or the validity of any contract or agreement made pursuant to, or the validity of any articles or predecessor charter documents of the Corporation obtained pursuant to, any such by-law prior to its repeal. All officers and persons acting under any by-law so repealed shall continue to act as if appointed under the provisions of this by-law and all resolutions of the shareholders or the board or a committee of the board with continuing effect passed under any repealed by-law shall continue good and valid except to the extent inconsistent with this by-law and until amended or repealed.

* * * * *

The foregoing is the complete text of By-law No. A-3 of the Corporation, as adopted by the board of the Corporation on May 22, 2024.

DATED May 22, 2024.

/s/ Matthew Simpson

Name: Matthew Simpson

Title: Chief Executive Officer

BRAZIL POTASH CORP.

(INCORPORATED UNDER THE LAWS OF ONTARIO)

THIS CERTIFIES THAT

NUMBER
CERT.9999

SHARES
9,000,000,000

SPECIMEN NINE BILLION AND 00/100 JANUARY 01, 2009

is the registered owner of

NINE BILLION AND 00/100 JANUARY 01, 2009

FULLY PAID AND NON-ASSESSABLE COMMON SHARES IN THE CAPITAL OF

BRAZIL POTASH CORP.

transferable only on the books of the Corporation by the registered holder in person or by duly authorized Attorney on surrender of this Certificate properly endorsed.

This Certificate is not valid until countersigned and registered by the Transfer Agent and Registrar of the Corporation.

IN WITNESS WHEREOF the Corporation has caused this Certificate to be signed by its duly authorized officers.

DATED: JANUARY 01, 2009

COUNTERSIGNED AND REGISTERED by
TSX Trust Company
Toronto, Ontario, Canada.
Transfer Agent and Registrar

OR

COUNTERSIGNED by
Continental Stock Transfer & Trust Co.
1 State Street, 30th Floor
New York, NY 10004
Co-Transfer Agent

Matthew Simpson
Matthew Simpson
CEO

By _____
AUTHORIZED OFFICER

By _____
AUTHORIZED OFFICER

Ryan Ptolemy
Ryan Ptolemy
CFO

The Shares represented by this Certificate are transferable at the offices of TSX Trust Company, Toronto, Ontario, Canada, and at the offices of Continental Stock Transfer & Trust Company, New York, New York, USA

SECURITY INSTRUCTIONS ON REVERSE VOIR LES INSTRUCTIONS DE SECURITE AU VERSO

00017045

UNLESS PERMITTED UNDER SECURITIES LEGISLATION, THE HOLDER OF THIS SECURITY MUST NOT TRADE THE SECURITY BEFORE THE DATE WHICH IS FOUR MONTHS AND A DAY AFTER THE LATER OF: (i) [MONTH DATE YEAR] AND (ii) THE DATE THE ISSUER BECAME A REPORTING ISSUER IN ANY PROVINCE OR TERRITORY.

**WARRANT TO PURCHASE COMMON SHARES
OF
BRAZIL POTASH CORP.**
(incorporated under the laws of Ontario)

Number WT-xx-xx-xxx

Number of Warrants represented
by this certificate: []

THIS CERTIFIES THAT, for value received, [] (the “**Holder**”), being the registered holder of this warrant (“**Warrant**”) is entitled, at any time prior to 5:00 p.m. (Toronto time) on the Expiry Day (as defined below) to subscribe for and purchase the number of common shares (the “**Warrant Shares**”) of Brazil Potash Corp. (the “**Company**”) set forth above on the basis of one Warrant Share at a price of US\$[] (the “**Exercise Price**”) for each Warrant exercised, subject to adjustment as set out herein, by surrendering to the Company at its principal office, 65 Queen Street West, Suite 805, Toronto, Ontario M5H 2M5, this Warrant certificate (the “**Warrant Certificate**”), with a completed and executed Subscription Form, and payment in full for the Warrant Shares being purchased.

The Company shall treat the Holder as the absolute owner of this Warrant for all purposes and the Company shall not be affected by any notice or knowledge to the contrary. The Holder shall be entitled to the rights evidenced by this Warrant free from all equities and rights of set-off or counterclaim between the Company and the original or any intermediate holder and all persons may act accordingly and the receipt by the Holder of the Warrant Shares issuable upon exercise hereof shall be a good discharge to the Company and the Company shall not be bound to inquire into the title of any such Holder.

1. **Definitions:** In this Warrant Certificate, unless there is something in the subject matter or context inconsistent therewith, the following expressions shall have the following meanings namely:
- (a) “**Adjustment Period**” means the period commencing on the date hereof and ending at the Expiry Time;
 - (b) “**Business Day**” means any day other than a Saturday, Sunday, legal holiday or a day on which banking institutions are closed in Toronto, Ontario;
 - (c) “**Change of Control**” means any of the following:
 - (i) a takeover bid (as defined in the *Securities Act* (Ontario)), which is successful in acquiring Common Shares, (ii) the sale of all or substantially all the assets of the Company,
 - (iii) the sale, exchange or other disposition of a majority of the outstanding Common Shares in a single transaction or series of related transactions,
 - (iv) the dissolution of the Company’s business or the liquidation of its assets;

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- (d) “**Common Shares**” means the common shares of the Company as such shares are constituted on the date hereof, as the same may be reorganized, reclassified or otherwise changed pursuant to any of the events set out in Section 11 hereof;
 - (e) “**Company**” means Brazil Potash Corp., a company incorporated under the laws of Ontario and its successors and assigns;
 - (f) “**Current Market Price**” of a Common Share at any date means the price per share equal to the weighted average price at which the Common Shares have traded on any stock exchange for the 20 Trading Days prior to the relevant date as may be selected by the directors of the Company or, if the Common Shares are not listed on any stock exchange, then on the over-the-counter market with the weighted average price per Common Share being determined by dividing the aggregate sale price of all Common Shares sold on the said exchange or market, as the case may be, during the said 20 Trading Days by the aggregate number of Common Shares so sold or, if the Common Shares are not listed or quoted on any stock exchange or over-the-counter market, such price as may be reasonably determined by the directors of the Company after consideration of the market value of the Company and the price at which the Company has issued any Common Shares in the previous 12 months;
 - (g) “**Exercise Price**” means US\$[] per Warrant Share, subject to adjustment in accordance with Section 11 hereof;
 - (h) “**Expiry Day**” means [MONTH DATE YEAR];
 - (i) “**Expiry Time**” means 5:00 p.m. (Toronto time), on the Expiry Day;
 - (j) “**Holder**” shall have the meaning ascribed thereto on the face page hereof;
 - (k) “**person**” means an individual, corporation, partnership, unincorporated syndicate, unincorporated organization, trust, trustee, executor, administrator, or other legal representative, or any group or combination thereof or any other entity whatsoever;
 - (l) “**Trading Day**” with respect to a stock exchange, market or over-the-counter market means a day on which such stock exchange or over-the-counter market is open for business;
 - (m) “**U.S. Person**” means U.S. person as that term is defined in Regulation S adopted by the United States Securities Exchange Commission under the U.S. Securities Act;
 - (n) “**U.S. Securities Act**” means the United States Securities Act of 1933, as amended;
 - (o) “**Warrant**” means a Warrant exercisable to purchase one Common Share at the Exercise Price until the Expiry Time; and
 - (p) “**Warrant Share**” means the Common Shares issuable upon the exercise of the Warrants.
2. **Expiry Time:** At the Expiry Time, all rights under the Warrants evidenced hereby, in respect of which the right of subscription and purchase herein provided for shall not theretofore have been exercised, shall expire and be of no further force and effect.

3. **Exercise Procedure:**

- (a) The Holder may exercise the right to subscribe and purchase the number of Warrant Shares herein provided, by delivering to the Company prior to the Expiry Time at its principal office this Warrant Certificate, with the Subscription Form attached hereto duly completed and executed by the Holder or its legal representative or attorney, duly appointed by an instrument in writing in form and manner satisfactory to the Company, together with a certified cheque or bank draft payable to or to the order of the Company in an amount equal to the aggregate Exercise Price in respect of the Warrants so exercised. Any Warrant Certificate so surrendered shall be deemed to be surrendered only upon delivery thereof to the Company at its principal office set forth herein (or to such other address as the Company may notify the Holder).
- (b) Upon such delivery as aforesaid, the Company shall cause to be issued to the Holder hereof the Warrant Shares subscribed for not exceeding those which such Holder is entitled to purchase pursuant to this Warrant Certificate and the Holder hereof shall become a shareholder of the Company in respect of the Warrant Shares subscribed for with effect from the date of such delivery and shall be entitled to delivery of a certificate evidencing the Warrant Shares and the Company shall cause such certificates to be mailed to the Holder hereof at the address or addresses specified in such subscription as soon as practicable, and in any event within five (5) Business Days of such delivery.
- (c) The certificate or certificates representing Warrant Shares issued before the date that is four months and a day after the later of: (i) [MONTH DATE YEAR]; and (ii) the date the Company became a reporting issuer in any province or territory, shall be impressed with a legend substantially in the following form:

UNLESS PERMITTED UNDER SECURITIES LEGISLATION, THE HOLDER OF THIS SECURITY MUST NOT TRADE THE SECURITY BEFORE THE DATE THAT IS FOUR MONTHS AND A DAY AFTER THE LATER OF: (i) [MONTH DATE YEAR]; AND (ii) THE DATE THE COMPANY BECAME A REPORTING ISSUER IN ANY PROVINCE OR TERRITORY.

- (d) This Warrant may not be exercised in the United States or by or on behalf of a U.S. Person unless an exemption is available from the registration requirements of the U.S. Securities Act and applicable state securities laws and the holder of this Warrant has furnished an opinion of counsel of recognized standing in form and substance satisfactory to the Company to such effect.
- (e) If the certificate or certificates representing the Warrants that have been surrendered for exercise bear the legend described below, the certificate or certificates representing the Warrant Shares subscribed for and issued upon exercise of the Warrants shall be correspondingly impressed with the following legend unless such legend is no longer required under the applicable requirements of the U.S. Securities Act or applicable U.S. state laws and regulations,

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN, AND WILL NOT BE, REGISTERED UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE "U.S. SECURITIES ACT"), OR UNDER ANY STATE SECURITIES LAWS. THE HOLDER HEREOF, BY PURCHASING THESE SECURITIES, AGREES FOR THE BENEFIT OF BRAZIL POTASH CORP. (THE "CORPORATION") THAT THESE SECURITIES MAY BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED ONLY (A) TO THE CORPORATION, (B) OUTSIDE THE UNITED STATES IN ACCORDANCE WITH REGULATION S UNDER THE U.S. SECURITIES ACT AND IN COMPLIANCE WITH CANADIAN LOCAL LAWS AND REGULATIONS, (C) WITHIN THE UNITED STATES IN COMPLIANCE WITH THE EXEMPTION FROM REGISTRATION PROVIDED BY (i) RULE 144A UNDER THE U.S. SECURITIES ACT, IF APPLICABLE, OR (ii) RULE 144, IF APPLICABLE, AND, IN EACH CASE, IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS, OR (D) IN ANOTHER TRANSACTION THAT DOES NOT REQUIRE REGISTRATION UNDER THE U.S. SECURITIES ACT OR ANY APPLICABLE STATE SECURITIES LAWS, AND, IN THE CASE OF (C)(II) AND (D), THE SELLER FURNISHES TO THE CORPORATION AN OPINION OF COUNSEL OF RECOGNIZED STANDING IN FORM AND SUBSTANCE REASONABLY SATISFACTORY TO THE CORPORATION TO SUCH EFFECT.

DELIVERY OF THIS CERTIFICATE MAY NOT CONSTITUTE “GOOD DELIVERY” IN SETTLEMENT OF TRANSACTIONS ON STOCK EXCHANGES IN CANADA. PROVIDED THAT THE CORPORATION IS A “FOREIGN ISSUER” WITHIN THE MEANING OF REGULATION S AT THE TIME OF SALE, A NEW CERTIFICATE, BEARING NO LEGEND, DELIVERY OF WHICH WILL CONSTITUTE “GOOD DELIVERY” MAY BE OBTAINED FROM THE TRANSFER AGENT FOR THE CORPORATION UPON DELIVERY OF THIS CERTIFICATE AND A DULY EXECUTED DECLARATION, IN A FORM SATISFACTORY TO THE TRANSFER AGENT FOR THE CORPORATION AND THE CORPORATION, AND SUCH OTHER DOCUMENTATION AS MAY BE REASONABLY REQUIRED BY THE CORPORATION OR THE TRANSFER AGENT FOR THE CORPORATION, TO THE EFFECT THAT THE SALE OF THE SECURITIES REPRESENTED HEREBY IS BEING MADE IN COMPLIANCE WITH RULE 904 OF REGULATION S UNDER THE SECURITIES ACT.”

provided that:

- (i) if any such securities are being sold under clause (B) above and in compliance with Canadian local laws and regulations, and provided that the Company is a “foreign issuer” within the meaning of Regulation S of the U.S. Securities Act at the time of sale, the legend set forth above may be removed by providing a declaration to the transfer agent for the Company in a form satisfactory to the transfer agent, as may be amended from time to time by the Company, to the effect that such securities are being sold in compliance with Rule 904 of Regulation S of the U.S. Securities Act, together with any documentation as may be required by the Company or its transfer agent to the effect that an exemption from the registration requirements of the U.S. Securities Act or state securities laws are available; and
 - (ii) If any such securities are being sold under clause (C)(II) or (D) above, the legend may be removed by delivery to the transfer agent for the Company and the Company of an opinion of counsel, of recognized standing reasonably satisfactory to the Company, that such legend is no longer required under applicable requirements of the U.S. Securities Act or state securities laws.
4. **Partial Exercise:** The Holder may subscribe for and purchase a number of Warrant Shares less than the maximum number the Holder is entitled to purchase pursuant to the full exercise of this Warrant Certificate. In the event of any such subscription prior to the Expiry Time, the Holder shall be entitled to receive, without charge, a new Warrant Certificate in respect of the balance of the Warrant Shares which the Holder was entitled to subscribe for pursuant to this Warrant Certificate and which were then not purchased.

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5. **No Fractional Shares:** Notwithstanding any adjustments provided for in Section 11 hereof or otherwise, the Company shall not be required upon the exercise of any Warrants to issue fractional Warrant Shares in satisfaction of its obligations hereunder and, in any such case, the number of Warrant Shares issuable upon the exercise of any Warrants shall be rounded down to the nearest whole number.
 6. **Exchange of Warrant Certificates:** This Warrant Certificate may be exchanged for Warrant Certificates representing in the aggregate the same number of Warrants and entitling the Holder thereof to subscribe for and purchase an equal aggregate number of Warrant Shares at the same Exercise Price and on the same terms as this Warrant Certificate (with or without legends as may be appropriate).
 7. **Transfer of Warrants:** Subject to the terms hereof, this Warrant may be transferred, subject to the terms set forth in the Transfer Form attached hereto. No transfer of this Warrant shall be effective unless this Warrant Certificate is accompanied by a duly executed Transfer Form or other instrument of transfer in such form as the Company may from time to time prescribe, together with such evidence of the genuineness of each endorsement, execution and authorization and of other matters as may reasonably be required by the Company, and delivered to the Company. No transfer of this Warrant shall be made if in the opinion of counsel to the Company such transfer would result in the violation of any applicable securities laws. Subject to the foregoing, the Company shall issue and mail as soon as practicable, and in any event within five (5) Business Days of such delivery, a new Warrant Certificate (with or without legends as may be appropriate) registered in the name of the transferee or as the transferee may direct and shall take all other necessary actions to effect the transfer as directed.
 8. **Not a Shareholder:** Nothing in this Warrant Certificate or in the holding of a Warrant evidenced hereby shall be construed as conferring upon the Holder any right or interest whatsoever as a shareholder of the Company.
 9. **No Obligation to Purchase:** Nothing herein contained or done pursuant hereto shall obligate the Holder to subscribe for or the Company to issue any Warrant Shares except those Warrant Shares in respect of which the Holder shall have exercised its right to purchase hereunder in the manner provided herein.
 10. **Covenants:**
 - (a) The Company covenants and agrees that so long as any Warrants evidenced hereby remain outstanding, it shall reserve and there shall remain unissued out of its authorized capital a sufficient number of Warrant Shares to satisfy the right of purchase herein provided for, it will cause the Warrant Shares subscribed for and purchased in the manner herein provided to be issued and delivered as directed and such Warrant Shares shall be issued as fully paid and non- assessable Common Shares and the holders thereof shall not be liable to the Company or to its creditors in respect thereof.
 - (b) The Company covenants and agrees that until the Expiry Time, while the Warrants (or remaining portion thereof) shall be outstanding, the Company shall use its best efforts to preserve and maintain its corporate existence and the Company shall take all action as may be necessary to ensure that the issuance of the Warrant Shares upon the exercise of the Warrants is in compliance with all applicable laws and applicable requirements of any exchange on which the Common Shares of the Company may become listed.
 - (c) If the issuance of the Warrant Shares upon the exercise of the Warrants requires any filing or registration with or approval of any securities regulatory authority or other governmental authority or compliance with any other requirement under any law before such Warrant Shares may be validly issued (other than the filing of a prospectus or similar disclosure document), the Company agrees to take such actions as may be necessary to secure such filing, registration, approval or compliance, as the case may be.
 - (d) The Company will do, execute, acknowledge and deliver or cause to be done, executed, acknowledged and delivered, all other acts, deeds and assurances in law as may be reasonably required for the better accomplishing and effecting of the intentions and provisions of this Warrant Certificate.

11. **Adjustments:**

- (a) **Adjustment:** The rights of the holder of this Warrant, including the number of Warrant Shares issuable upon the exercise of such Warrants and/or the Exercise Price, will be adjusted from time to time in the events and in the manner provided in, and in accordance with the provisions of, this Section. The purpose and intent of the adjustments provided for in this Section is to ensure that the rights and obligations of the Holder are neither diminished or enhanced as a result of any of the events set forth in paragraphs (b), (c) or (d) of this Section. Accordingly, the provisions of this Section shall be interpreted and applied in accordance with such purpose and intent.
- (b) The Exercise Price in effect at any date will be subject to adjustment from time to time as follows:
- (i) **Share Reorganization:** If and whenever at any time during the Adjustment Period, the Company shall (A) subdivide, redivide or change the outstanding Common Shares into a greater number of Common Shares, (B) consolidate, combine or reduce the outstanding Common Shares into a lesser number of Common Shares, or (C) fix a record date for the issue of Common Shares or securities convertible into or exchangeable for Common Shares to all or substantially all of the holders of Common Shares by way of a stock dividend or other distribution, then, in each such event, the Exercise Price shall, on the record date for such event or, if no record date is fixed, the effective date of such event, be adjusted so that it will equal the rate determined by multiplying the Exercise Price in effect immediately prior to such date by a fraction, of which the numerator shall be the total number of Common Shares outstanding on such date before giving effect to such event, and of which the denominator shall be the total number of Common Shares outstanding on such date after giving effect to such event. Such adjustment shall be made successively whenever any such event shall occur. Any such issue of Common Shares by way of a stock dividend shall be deemed to have been made on the record date for such stock dividend for the purpose of calculating the number of outstanding Common Shares under paragraphs 11(b)(i) and (ii) hereof.
- (ii) **Rights Offering:** If and whenever at any time during the Adjustment Period, the Company shall fix a record date for the issue of rights, options or warrants to all or substantially all of the holders of Common Shares entitling the holders thereof, within a period expiring not more than 45 days after the record date for such issue, to subscribe for or purchase Common Shares (or securities convertible into or exchangeable for Common Shares) at a price per share (or having a conversion or exchange price per share) less than 95% of the Current Market Price on such record date, then the Exercise Price shall be adjusted immediately after such record date so that it will equal the rate determined by multiplying the Exercise Price in effect on such record date by a fraction, of which the numerator shall be the total number of Common Shares outstanding on such record date plus the number of Common Shares equal to the number arrived at by dividing the aggregate price of the total number of additional Common Shares so offered for subscription or purchase (or the aggregate conversion or exchange price of the convertible or exchangeable securities so offered) by such Current Market Price, and of which the denominator shall be the total number of Common Shares outstanding on such record date plus the total number of additional Common Shares so offered for subscription or purchase (or into or for which the convertible or exchangeable securities so offered are convertible or exchangeable). Any Common Shares owned by or held for the account of the Company or any subsidiary of the Company shall be deemed not to be outstanding for the purpose of any such computation. Such adjustment shall be made successively whenever such a record date is fixed, provided that if two or more such record dates referred to in this paragraph 11(b)(ii) are fixed within a period of 25 Trading Days, such adjustment will be made successively as if each of such record dates occurred on the earliest of such record dates. To the extent that any such rights, options or warrants are not exercised prior to the expiration thereof, the Exercise Price shall then be readjusted to the Exercise Price which would then be in effect based upon the number of Common Shares (or securities convertible into or exchangeable for Common Shares) actually issued upon the exercise of such rights, options or warrants, as the case may be.

- (iii) Distribution: If and whenever at any time during the Adjustment Period, the Company shall fix a record date for the making of a distribution to all or substantially all of the holders of Common Shares of (A) shares of any class other than Common Shares whether of the Company or any other corporation, (B) rights, options or warrants to acquire Common Shares or securities exchangeable for or convertible into Common Shares or property or other assets of the Company (other than a Rights Offering as described above), (C) evidences of indebtedness, or (D) cash, securities or other property or assets then, in each such case and if such distribution does not fall under clauses (i) or (ii) above, the Exercise Price will be adjusted immediately after such record date so that it will equal the rate determined by multiplying the Exercise Price in effect on such record date by a fraction, of which the numerator shall be the total number of Common Shares outstanding on such record date multiplied by the Current Market Price on the earlier of such record date and the date on which the Company announces its intention to make such distribution, less the aggregate fair market value (as determined by the directors, acting reasonably, at the time such distribution is authorized) of such shares or rights, options or warrants or evidences of indebtedness or cash, securities or other property or assets so distributed, and of which the denominator shall be the total number of Common Shares outstanding on such record date multiplied by such Current Market Price. Any Common Shares owned by or held for the account of the Company or any subsidiary of the Company shall be deemed not to be outstanding for the purpose of any such computation. Such adjustment shall be made successively whenever such a record date is fixed, provided that if two or more such record dates referred to in this paragraph 11(b)(iii) are fixed within a period of 25 Trading Days, such adjustment will be made successively as if each of such record dates occurred on the earliest of such record dates. To the extent that any such rights, options or warrants so distributed are not exercised prior to the expiration thereof, the Exercise Price shall then be readjusted to the Exercise Price which would then be in effect based upon such rights, options or warrants or evidences of indebtedness or cash, securities or other property or assets actually distributed or based upon the number or amount of securities or the property or assets actually issued or distributed upon the exercise of such rights, options or warrants, as the case may be.
- (c) Reclassifications: If and whenever at any time during the Adjustment Period, there is (A) any reclassification of or amendment to the outstanding Common Shares, any change of the Common Shares into other shares or any other reorganization of the Company (other than as described in subsection 11(b) hereof), (B) any consolidation, amalgamation, arrangement, merger or other form of business combination of the Company with or into any other corporation resulting in any reclassification of the outstanding Common Shares, any change of the Common Shares into other shares or any other reorganization of the Company, or (C) any sale, lease, exchange or transfer of the undertaking or assets of the Company as an entirety or substantially as an entirety to another corporation or entity, then, in each such event, the Holder of this Warrant which is thereafter exercised shall be entitled to receive, and shall accept, in lieu of the number of Common Shares to which such Holder was theretofore entitled upon such exercise, the kind and number or amount of shares or other securities or property which such Holder would have been entitled to receive as a result of such event if, on the effective date thereof, such Holder had been the registered holder of the number of Common Shares to which such Holder was theretofore entitled upon such exercise. If necessary as a result of any such event, appropriate adjustments will be made in the application of the provisions set forth in this subsection with respect to the rights and interests thereafter of the Holder of this Warrant Certificate to the end that the provisions set forth in this subsection will thereafter correspondingly be made applicable, as nearly as may reasonably be, in relation to any shares or other securities or property thereafter deliverable upon the exercise of this Warrant. Any such adjustments will be made by and set forth in an instrument supplemental hereto approved by the directors, acting reasonably, and shall for all purposes be conclusively deemed to be an appropriate adjustment.

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- (d) If at any time during the Adjustment Period any adjustment or readjustment in the Exercise Price shall occur pursuant to the provisions of subsection 11(b) or 11(c) of this Warrant Certificate, then the number of Warrant Shares purchasable upon the subsequent exercise of the Warrants shall be simultaneously adjusted or readjusted, as the case may be, by multiplying the number of Warrant Shares purchasable upon the exercise of the Warrants immediately prior to such adjustment or readjustment by a fraction which shall be the reciprocal of the fraction used in the adjustment or readjustment of the Exercise Price.

12. Rules Regarding Calculation of Adjustment of Exercise Price:

- (a) The adjustments provided for in Section 11 are cumulative and will, in the case of adjustments to the Exercise Price, be computed to the nearest whole Warrant Share and will be made successively whenever an event referred to therein occurs, subject to the following subsections of this Section 12.
- (b) No adjustment in the Exercise Price is required to be made unless such adjustment would result in a change of at least 1% in the prevailing Exercise Price and no adjustment in the Exercise Price is required unless such adjustment would result in a change of at least one one-hundredth of a Warrant Share; provided, however, that any adjustments which, except for the provisions of this subsection, would otherwise have been required to be made, will be carried forward and taken into account in any subsequent adjustments.
- (c) No adjustment in the Exercise Price will be made in respect of any event described in Section 11, other than the events referred to in clauses 11(1)(c), if the Holder is entitled to participate in such event on the same terms, *mutatis mutandis*, as if the Holder had exercised this Warrant prior to or on the effective date or record date of such event.
- (d) If at any time a question or dispute arises with respect to adjustments provided for in Section 11, such question or dispute will be conclusively determined by the auditor of the Company or, if they are unable or unwilling to act, by such other firm of independent chartered accountants as may be selected by action of the directors of the Company and any such determination, subject to regulatory approval and absent manifest error, will be binding upon the Company and the Holder. The Company will provide such auditor or chartered accountant with access to all necessary records of the Company.
- (e) In case the Company after the date of issuance of this Warrant takes any action affecting the Common Shares, other than action described in Section 11, which in the opinion of the board of directors of the Company would materially affect the rights of the Holder, the Exercise Price will be adjusted in such manner, if any, and at such time, by action of the directors of the Company in their sole discretion, acting reasonably and in good faith, but subject in all cases to any necessary regulatory approval. Failure of the taking of action by the directors of the Company so as to provide for an adjustment on or prior to the effective date of any action by the Company affecting the Common Shares will be conclusive evidence that the board of directors of the Company has determined that it is equitable to make no adjustment in the circumstances.
- (f) If the Company sets a record date to determine the holders of the Common Shares for the purpose of entitling them to receive any dividend or distribution or sets a record date to take any other action and, thereafter and before the distribution to such shareholders of any such dividend or distribution or the taking of any other action, decides not to implement its plan to pay or deliver such dividend or distribution or take such other action, then no adjustment in the Exercise Price will be required by reason of the setting of such record date.

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- (g) In the absence of a resolution of the directors of the Company fixing a record date for any event which would require any adjustment to this Warrant, the Company will be deemed to have fixed as the record date therefor the date on which the event is effected.
- (h) As a condition precedent to the taking of any action which would require any adjustment to the Warrant Shares issuable under this Warrant, including the Exercise Price, the Company shall take any corporate action which may be necessary in order that the Company or any successor to the Company or successor to the undertaking or assets of the Company have unissued and reserved in its authorized capital and may validly and legally issue as fully paid and non-assessable all the shares or other securities which the Holder is entitled to receive on the full exercise thereof in accordance with the provisions hereof.
- (i) The Company will from time to time, immediately after the occurrence of any event which requires an adjustment or readjustment as provided in Section 11, forthwith give notice to the Holder specifying the event requiring such adjustment or readjustment and the results thereof, including the resulting Exercise Price.
- (j) The Company covenants to and in favour of the Holder that so long as this Warrant remains outstanding, it will give notice to the Holder of the effective date or of its intention to fix a record date for any event referred to in Section 11 whether or not such action would give rise to an adjustment in the Exercise Price or the number and type of securities issuable upon the exercise of the Warrants, and, in each case, such notice shall specify the particulars of such event and the record date and the effective date for such event; provided that the Company shall only be required to specify in such notice such particulars of such event as have been fixed and determined on the date on which such notice is given. Such notice shall be given not less than 14 days in each case prior to such applicable record date or effective date.
- (k) In any case that an adjustment pursuant to Section 11 shall become effective immediately after a record date for or an effective date of an event referred to herein, the Company may defer, until the occurrence and consummation of such event, issuing to the Holder of this Warrant, if exercised after such record date or effective date and before the occurrence and consummation of such event, the additional Warrant Shares or other securities or property issuable upon such exercise by reason of the adjustment required by such event, provided, however, that the Company will deliver to the Holder an appropriate instrument evidencing the Holder's right to receive such additional Warrant Shares or other securities or property upon the occurrence and consummation of such event and the right to receive any dividend or other distribution in respect of such additional Warrant Shares or other securities or property declared in favour of the holders of record of Common Shares or of such other securities or property on or after the Exercise Date or such later date as the Holder would, but for the provisions of this subsection, have become the holder of record of such additional Warrant Shares or of such other securities or property.
13. **Representation and Warranty:** The Company hereby represents and warrants with and to the Holder that the Company is duly authorized and has all corporate and lawful power and authority to create and issue this Warrant and the Warrant Shares issuable upon the exercise hereof and perform its obligations hereunder and that this Warrant Certificate represents a valid, legal and binding obligation of the Company enforceable in accordance with its terms.
14. **If Share Transfer Books Closed:** The Company shall not be required to deliver certificates for Warrant Shares while the share transfer books of the Company are properly closed, prior to any meeting of shareholders or for the payment of dividends or for any other purpose and in the event of the surrender of any Warrant in accordance with the provisions hereof and the making of any subscription and payment for the Warrant Shares called for thereby during any such period delivery of certificates for Warrant Shares may be postponed for a period not exceeding three (3) Business Days after the date of the re-opening of said share transfer books provided that any such postponement of delivery of certificates shall be without prejudice to the right of the Holder, if the Holder has surrendered the same and made payment during such period, to receive such certificates for the Warrant Shares called for after the share transfer books shall have been re-opened.

15. **Lost Certificate:** If the Warrant Certificate evidencing the Warrants issued hereby becomes stolen, lost, mutilated or destroyed the Company shall issue and countersign a new Warrant Certificate of like denomination, tenor and date as the Warrant Certificate so stolen, lost mutilated or destroyed provided that the Holder shall bear the reasonable cost of the issue thereof and in case of loss, destruction or theft, shall, as a condition precedent to the issue thereof, furnish to the Company such evidence of ownership and of the loss, destruction or theft of the Warrant Certificate as shall be satisfactory to the Company, in its sole discretion acting reasonably, and the Holder may also be required to furnish an indemnity in form satisfactory to the Company, in its sole discretion acting reasonably, and shall pay the reasonable charges of the Company in connection therewith.
16. **Change of Control:** If a Change of Control shall or is proposed to occur prior to the Expiry Date, the Company will procure that an offer to participate in such Change of Control is made to all Holders in respect of all outstanding Warrants. Such offer will enable all Holders to participate (in whole or in part) at their election in such Change of Control by exercising their Warrants with the resulting Common Shares participating on the same terms as all other Common Shares of the Company. The Company will use all reasonable endeavours to assist Holders to participate to the fullest extent that they wish in the Change of Control including agreeing to a reduced period of time for notice of exercise of Warrants, issuing the arising Common Shares promptly to enable participation and, in respect of a Change of Control where holders of Common Shares will receive a cash payment, establishing a mechanism whereby the Holder will not be required to pay the Exercise Price to the Company prior to receipt of the consideration under the Change of Control (ie the Company will procure an agreement between the Holder and the offeror under the Change of Control for the arising Common Shares to participate in the Change of Control with the offeror to pay the Company the Exercise Price for each relevant Common Share participating due to the exercise of the Warrants and the Holder to receive the difference between the consideration per Common Share and the Exercise Price). For the avoidance of doubt, the Holder will hold the right to elect whether their Warrants participate in whole or part in a Change of Control.
17. **Stock Exchange:** If the Common Shares are listed on any stock exchange the Company undertakes to use reasonable endeavours at its own cost to have the Warrants listed for admission and trading on such stock exchange, subject to any necessary regulatory approval.
18. **Governing Law:** This Warrant shall be governed by, and construed in accordance with, the laws of the Province of Ontario and the laws of Canada applicable therein but the reference to such laws shall not, by conflict of laws, rules or otherwise, require the application of the law of any jurisdiction other than the Province of Ontario.
19. **Severability:** If any one or more of the provisions or parts thereof contained in this Warrant Certificate should be or become invalid, illegal or unenforceable in any respect in any jurisdiction, the remaining provisions or parts thereof contained herein shall be and shall be conclusively deemed to be, as to such jurisdiction, severable therefrom.
20. **Amendments:** The provisions of these Warrants may from time to time be amended, modified or waived, if such amendment, modification or waiver is in writing and consented to in writing by the Company and the holders of at least 80% of the Warrants then outstanding.
21. **Headings:** The headings of the articles, sections, subsections and clauses of this Warrant Certificate have been inserted for convenience and reference only and do not define, limit, alter or enlarge the meaning of any provision of this Warrant Certificate.
22. **Numbering of Articles, etc.:** Unless otherwise stated, a reference herein to a numbered or lettered article, section, subsection, clause, subclause or schedule refers to the article, section, subsection, clause, subclause or schedule bearing that number or letter in this Warrant Certificate.

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23. **Gender:** Whenever used in this Warrant Certificate, words importing the singular number only shall include the plural, and vice versa, and words importing the masculine gender shall include the feminine gender.
24. **Day not a Business Day:** In the event that any day on or before which any action is required to be taken hereunder is not a Business Day, then such action shall be required to be taken on or before the requisite time on the next succeeding day that is a Business Day.
25. **Binding Effect:** This Warrant Certificate and all of its provisions shall enure to the benefit of the Holder, its successors, assigns and legal personal representatives and shall be binding upon the Company and its successors.
26. **Notice:** Unless herein otherwise expressly provided, a notice to be given hereunder will be deemed to be validly given if the notice is sent by telecopier or prepaid same day courier addressed as follows:
- (a) If to the Holder at the latest address of the Holder as recorded on the books of the Company; and
 - (b) If to the Company at:
Brazil Potash Corp.
65 Queen Street West
Suite 805
Toronto, ON M5H 2M5

Attention: Marilia Bento
Facsimile No.: (416) 861-8165
27. **Time of Essence:** Time shall be of the essence hereof.

IN WITNESS WHEREOF, the Company has caused this Warrant Certificate to be signed by its duly authorized officer as of this 29th day of November, 2019.

BRAZIL POTASH CORP.

Per: _____
Authorized Signing Officer

SUBSCRIPTION FORM

TO:

Brazil Potash Corp.
65 Queen Street West
Suite 805
Toronto, ON M5H 2M5

The undersigned holder of the within Warrant hereby irrevocably subscribes for _____ Warrant Shares of Brazil Potash Corp. (the “**Company**”) pursuant to the within Warrant and tenders herewith a certified cheque or bank draft for US\$_____ (US\$[] per Warrant Share) in full payment therefor.

(Please check the **ONE** box applicable):

- A. The undersigned holder (i) at the time of exercise of the Warrant is not in the United States; (ii) is not a “U.S. person” as defined in Regulation S under the United States Securities Act of 1933, as amended (the “**U.S. Securities Act**”), (iii) is not exercising the Warrant on behalf of a “U.S. person”; and (iv) did not execute or deliver this exercise form in the United States.
- B. The undersigned holder is the original U.S. Purchaser and (a) purchased the Units (of which the Warrants were a part) directly from the Company pursuant to a subscription agreement for the purchase of Units; (b) is exercising the Warrants solely for its own account or for the account of the original beneficial purchaser, if any; (c) each of it and any beneficial purchaser was on the date the Units was purchased from the Company, and is on the date of exercise of the Warrants, an “accredited investor” (as defined in Rule 501(a) of Regulation D under the U.S. Securities Act; and (d) the representations, warranties and covenants set forth in the written subscription agreement for the purchase of Units from the Corporation continue to be true and correct.
- C. The undersigned holder is a U.S. person and has delivered to the Company an opinion of counsel (which will not be sufficient unless it is from counsel of recognized standing and in form and substance satisfactory to the Company) to the effect that an exemption from the registration requirements of the U.S. Securities Act and applicable state securities laws is available.

The undersigned hereby directs that the Warrant Shares be issued as follows:

NAME(S) IN FULL	ADDRESS(ES)	NUMBER OF WARRANT SHARES

DATED this _____ day of _____, 20____.

NAME: _____

Signature of Authorized
Representative: _____

Print Name: _____

Print Address: _____

_____ Please check if the certificates representing the Warrant Shares are to be delivered at the office where this Warrant Certificate is surrendered, failing which the certificates representing the Warrant Shares will be mailed to the address in the registration instructions set out above.

If any Warrants represented by this Warrant Certificate are not being exercised, a new Warrant Certificate representing the unexercised Warrants will be issued and delivered with the certificate representing the Warrant Shares.

Notes:

Certificates will not be registered or delivered to an address in the United States unless Box B or Box C above is checked.

If Box C is to be checked, holders are encouraged to consult with the Company in advance to determine that the legal opinion tendered in connection with exercise will be satisfactory in form and substance to the Company.

TRANSFER FORM

FOR VALUE RECEIVED, the undersigned transferor hereby sells, assigns and transfers unto

(Transferee)

(Address)

(Social Insurance Number)

_____of the Warrants registered in the name of the undersigned transferor represented by the attached Warrant Certificate.

THE UNDERSIGNED TRANSFEROR HERBY CERTIFIES AND DECLARES that the Warrants are not being offered, sold or transferred to, or for the account or benefit of, a U.S. Person (as defined in Regulation S under the United States Securities Act of 1933, as amended (the “**U.S. Securities Act**”)) or a person within the United States unless registered under the U.S. Securities Act and any applicable state securities laws or unless an exemption from such registration is available.

DATED this _____ day of _____.

Signature of Registered Holder
(Transferor)

Print name of Registered Holder

Address

NOTE:

The signature on this transfer form must correspond with the name as recorded on the face of the Warrant Certificate in every particular without alteration or enlargement or any change whatsoever or this transfer form must be signed by a duly authorized trustee, executor, administrator, curator, guardian, attorney of the Holder or a duly authorized signing officer in the case of a corporation If this transfer form is signed by any of the foregoing, or any person acting in a fiduciary or representative capacity, the Warrant Certificate must be accompanied by evidence of authority to sign.

BRAZIL POTASH CORP.

STOCK OPTION PLAN

1. STATEMENT OF PURPOSE

1.1 **Principal Purposes** – The principal purposes of the Plan are to provide the Company with the advantages of the incentive inherent in share ownership on the part of employees, officers, directors and consultants responsible for the continued success of the Company; to create in such individuals a proprietary interest in, and a greater concern for, the welfare and success of the Company; to encourage such individuals to remain with the Company; and to attract new employees, officers, directors and consultants to the Company.

1.2 **Benefit to Shareholders** – The Plan is expected to benefit shareholders by enabling the Company to attract and retain skilled and motivated personnel by offering such personnel an opportunity to share in any increase in value of the Shares resulting from their efforts.

2. INTERPRETATION

2.1 **Defined Terms** – For the purposes of this Plan, the following terms shall have the following meanings:

- (a) “**Act**” means the *Securities Act* (Ontario), as amended from time to time;
- (b) “**Affiliate**” shall have the meaning ascribed to such term in the Act;
- (c) “**Associate**” shall have the meaning ascribed to such term in the Act;
- (d) “**Board**” means the Board of Directors of the Company;
- (e) “**Change in Control**” means:
 - (i) a takeover bid (as defined in the Act), which is successful in acquiring Shares,
 - (ii) the change of control of the Board resulting from the election by the members of the Company of less than a majority of the persons nominated for election by management of the Company,
 - (iii) the sale of all or substantially all the assets of the Company,
 - (iii) the sale, exchange or other disposition of a majority of the outstanding Shares in a single transaction or series of related transactions,
 - (iii) the dissolution of the Company’s business or the liquidation of its assets,
 - (vi) a merger, amalgamation or arrangement of the Company in a transaction or series of transactions in which the Company’s shareholders receive less than 51% of the outstanding shares of the new or continuing corporation, or
 - (vii) the acquisition, directly or indirectly, through one transaction or a series of transactions, by any Person, of an aggregate of more than 50% of the outstanding Shares;
- (f) “**Committee**” means a committee of the Board appointed in accordance with this Plan, or if no such committee is appointed, the Board itself;

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- (g) “**Company**” means Brazil Potash Corp., a company incorporated under the laws of Ontario;
- (h) “**Consultant**” means an individual, other than an Employee, senior officer or director of the Company or a Related Company, or a Consultant Company, who;
- (i) is engaged to provide on an ongoing bona fide basis, consulting, technical, management or other services to the Company or a Related Company, other than services provided in relation to a distribution,
 - (ii) provides the services under a written contract between the Company or a Related Company and the individual or Consultant Company,
 - (iii) in the reasonable opinion of the Company spends or will spend a significant amount of time and attention on the affairs and business of the Company or a Related Company, and
 - (iv) has a relationship with the Company or a Related Company that enables the individual or Consultant Company to be knowledgeable about the business and affairs of the Company;
- (i) “**Consultant Company**” means, for an individual Consultant, a company of which the individual is an employee or shareholder, or a partnership of which the individual is an employee or partner;
- (j) “**Date of Grant**” means the date specified in the Option Agreement as the date on which the Option is effectively granted;
- (k) “**Disability**” means any disability with respect to an Optionee which the Board, in its sole and unfettered discretion, considers likely to prevent permanently the Optionee from:
- (i) being employed or engaged by the Company, a Related Company or another employer, in a position the same as or similar to that in which he was last employed or engaged by the Company or a Related Company; or
 - (ii) acting as a director or officer of the Company or a Related Company;
- (l) “**Disinterested Shareholder Approval**” means an ordinary resolution approved by a majority of the votes cast by members of the Company at a shareholders’ meeting, excluding votes attaching to Shares beneficially owned by Insiders to whom Options may be granted and Associates of those persons and including, on a resolution that requires disinterested approval, votes cast by any holders of non-voting and subordinate voting shares of the Company who shall be given full voting rights on such a resolution;
- (m) “**Effective Date**” means the effective date of this Plan, which is the later of the day of its approval by the shareholders of the Company and the day of its acceptance for filing by the Exchange if such acceptance for filing is required under the rules or policies of the Exchange;
- (n) “**Eligible Person**” means:
- (i) an Employee, senior officer or director of the Company or any Related Company,
 - (ii) a Consultant,

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- (iii) an issuer, all of the voting securities of which are beneficially owned by one or more of the persons referred to in (i) above,
 - (iv) a Management Company Employee if at the Date of Grant the Company is a “reporting issuer” as defined in the Act;
- (o) “**Employee**” means:
- (i) an individual who is considered an employee under the *Income Tax Act* (Canada) (i.e. for whom income tax, employment insurance and CPP deductions must be made at source),
 - (ii) an individual who works full-time for the Company or a Related Company providing services normally provided by an employee and who is subject to the same control and direction by the Company or a Related Company over the details and methods of work as an employee of the Company or a Related Company, but for whom income tax deductions are not made at source, or
 - (iii) an individual who works for the Company or a Related Company, on a continuing and regular basis for a minimum amount of time per week, providing services normally provided by an employee and who is subject to the same control and direction by the Company or a Related Company over the details and methods of work as an employee of the Company or a Related Company, but for whom income tax deductions are not made at source;
- (p) “**Exchange**” means the stock exchange or over the counter market on which the Shares are listed;
- (q) “**Exchange Act**” means the United States *Securities Exchange Act* of 1934, as amended;
- (r) “**Fair Market Value**” means, where the Shares are listed for trading on an Exchange, the last closing price of the Shares before the Date of Grant on the Exchange which is the principal trading market for the Shares, as may be determined for such purpose by the Committee, provided that, so long as the Shares are listed only on the TSXVE, the “Fair Market Value” shall not be lower than the last closing price of the Shares before the Date of Grant less the maximum discount permitted under the policies of the TSXVE;
- (s) “**Guardian**” means the guardian, if any, appointed for an Optionee;
- (t) “**Insider**” shall have the meaning ascribed to such term in the Act;
- (u) “**Investor Relations Activities**” means any activities or oral or written communications, by or on behalf of the Company or a shareholder of the Company that promote or reasonably could be expected to promote the purchase or sale of securities of the Company, but does not include:
- (i) the dissemination of information provided, or records prepared, in the ordinary course of business of the Company
 - (A) to promote the sale of products or services of the Company, or
 - (B) to raise public awareness of the Company,that cannot reasonably be considered to promote the purchase or sale of securities of the Company,

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- (ii) activities or communications necessary to comply with the requirements of
 - (A) applicable securities laws,
 - (B) the rules and policies of the TSXVE, if the Shares are listed only on the TSXVE, or the by-laws, rules or other regulatory instruments of any other self-regulatory body or exchange having jurisdiction over the Company,
 - (iii) communications by a publisher of, or writer for, a newspaper, magazine or business or financial publication, that is of general and regular paid circulation, distributed only to subscribers to it for value or to purchasers of it, if
 - (A) the communication is only through the newspaper, magazine or publication and
 - (B) the publisher or writer receives no commission or other consideration other than for acting in the capacity of publisher or writer, or
 - (iv) activities or communications that may be otherwise specified by the TSXVE, if the Shares are listed only on the TSXVE;
 - (v) “**Management Company Employee**” means an individual employed by a Person providing management services to the Company, which management services are required for the ongoing successful operation of the business enterprise of the Company but excluding a Person engaged in Investor Relations Activities;
 - (w) “**Option**” means an option to purchase unissued Shares granted pursuant to the terms of this Plan;
 - (x) “**Option Agreement**” means a written agreement between the Company and an Optionee specifying the terms of the Option being granted to the Optionee under the Plan;
 - (y) “**Option Price**” means the exercise price per Share specified in an Option Agreement, adjusted from time to time in accordance with the provisions of Sections 6.2 and 10;
 - (z) “**Optionee**” means an Eligible Person to whom an Option has been granted;
 - (aa) “**Person**” means a natural person, company, government or political subdivision or agency of a government; and where two or more Persons act as a partnership, limited partnership, syndicate or other group for the purpose of acquiring, holding or disposing of securities of an issuer, such syndicate or group shall be deemed to be a Person;
 - (bb) “**Plan**” means this Stock Option Plan of the Company;
 - (cc) “**Qualified Successor**” means a person who is entitled to ownership of an Option upon the death of an Optionee, pursuant to a will or the applicable laws of descent and distribution upon death;
 - (dd) “**Related Company**” shall mean a company which is an Affiliate of the Company;
 - (ee) “**Shares**” means the common shares in the capital of the Company as constituted on the Date of Grant, adjusted from time to time in accordance with the provisions of Section 10;
 - (ff) “**Term**” means the period of time during which an Option may be exercised; and

(gg) “TSXVE” means the TSX Venture Exchange.

3. ADMINISTRATION

3.1 **Board or Committee** – The Plan shall be administered by the Board or by a Committee appointed in accordance with Section 3.2.

3.2 **Appointment of Committee** – The Board may at any time appoint a Committee to administer the Plan on behalf of the Board in accordance with such terms and conditions as the Board may prescribe, consistent with this Plan. Once appointed, the Committee shall continue to serve until otherwise directed by the Board. From time to time, the Board may increase the size of the Committee and appoint additional members, remove members (with or without cause) and appoint new members in their place, fill vacancies however caused, or remove all members of the Committee and thereafter directly administer the Plan. In the absence of the appointment of a Committee by the Board, the Board shall administer the Plan.

3.3 **Quorum and Voting** – A majority of the members of the Committee shall constitute a quorum, and, subject to the limitations in this Section 3, all actions of the Committee shall require the affirmative vote of members who constitute a majority of such quorum. No member of the Committee who is a director to whom an Option may be granted may participate in the decision to grant such Option (but any such member may be counted in determining the existence of a quorum at any meeting of the Committee in which action is to be taken with respect to the granting of an Option to him).

3.4 **Powers of Board and Committee** – The Board shall from time to time authorize and approve the grant by the Company of Options under this Plan, and any Committee appointed under Section 3.2 shall have the authority to review the following matters in relation to the Plan and to make recommendations thereon to the Board;

- (a) administration of the Plan in accordance with its terms,
- (b) determination of all questions arising in connection with the administration, interpretation and application of the Plan, including all questions relating to the value of the Shares,
- (c) correction of any defect, supply of any information or reconciliation of any inconsistency in the Plan in such manner and to such extent as shall be deemed necessary or advisable to carry out the purposes of the Plan,
- (d) prescription, amendment and rescission of the rules and regulations relating to the administration of the Plan;
- (e) determination of the duration and purpose of leaves of absence from employment which may be granted to Optionees without constituting a termination of employment for purposes of the Plan,
- (f) with respect to the granting of Options:
 - (i) determination of the employees, officers, directors or consultants to whom Options will be granted, based on the eligibility criteria set out in this Plan,
 - (ii) determination of the terms and provisions of the Option Agreement which shall be entered into with each Optionee (which need not be identical with the terms of any other Option Agreement) and which shall not be inconsistent with the terms of this Plan,
 - (iii) amendment of the terms and provisions of an Option Agreement provided the Board obtains:

- (A) the consent of the Optionee, and
- (B) if required, the approval of any stock exchange on which the Shares are listed,
- (iv) determination of when Options will be granted,
- (v) determination of the number of Shares subject to each Option, and
- (vi) determination of the vesting schedule, if any, for the exercise of each Option, and
- (g) other determinations necessary or advisable for administration of the Plan.

3.5 **Obtain Approvals** – The Board will seek to obtain any regulatory, Exchange or shareholder approvals which may be required pursuant to applicable securities laws or Exchange rules.

3.6 **Administration by Committee** – The Committee shall have all powers necessary or appropriate to accomplish its duties under this Plan. In addition, the Committee's administration of the Plan shall in all respects be consistent with the Exchange policies and rules.

4. ELIGIBILITY

4.1 **Eligibility for Options** – Options may be granted to any Eligible Person.

4.2 **Insider Eligibility for Options** – Notwithstanding Section 4.1, if the Shares are listed only on the TSXVE, grants of Options to Insiders shall be subject to the policies of the TSXVE.

4.3 **No Violation of Securities Laws** – No Option shall be granted to any Optionee unless the Committee has determined that the grant of such Option and the exercise thereof by the Optionee will not violate the securities law of the jurisdiction in which the Optionee resides.

5. SHARES SUBJECT TO THE PLAN

5.1 **Number of Shares** – The maximum number of Shares issuable from time to time under the Plan is that number of Shares as is equal to 10% of the number of issued Shares at the Date of Grant of an Option. The maximum number of Shares issuable under the Plan shall be adjusted, where necessary, to take account of the events referred to in Section 10.

5.2 **Expiry of Option** – If an Option expires or terminates for any reason without having been exercised in full, the unpurchased Shares subject thereto shall again be available for the purposes of the Plan.

5.3 **Reservation of Shares** – The Company will at all times reserve for issuance and keep available such number of Shares as shall be sufficient to satisfy the requirements of the Plan.

6. OPTION TERMS

6.1 **Option Agreement** – Each Option granted to an Optionee shall be confirmed by the execution and delivery of an Option Agreement and the Board shall specify the following terms in each such Option Agreement:

- (a) the number of Shares subject to option pursuant to such Option, subject to the following limitations if the Shares are listed only on the TSXVE:

- (i) the number of Shares reserved for issuance pursuant to Options to any one Optionee shall not exceed 5% of the issued Shares in any 12-month period (unless the Company is designated as a “Tier 1” listed company by the TSXVE and has obtained Disinterested Shareholder Approval to exceed this number),
 - (ii) the number of Shares reserved for issuance pursuant to Options to any one Consultant shall not exceed 2% of the issued Shares in any 12-month period, and
 - (iii) the aggregate number of Shares reserved for issuance pursuant to Options to Employees and Management Company Employees conducting Investor Relations Activities shall not exceed 2% of the issued Shares in any 12-month period;
- (b) the Date of Grant;
 - (c) the Term, provided that, if the Shares are listed only on the TSXVE, the length of the Term shall in no event be greater than five years following the Date of Grant, except, if the Company is designated as “Tier 1” listed company by the TSXVE, then the Term shall be no greater than ten years following the Date of Grant, for all Optionees;
 - (d) the Option Price, provided that the Option Price shall not be less than the Fair Market Value of the Shares on the Date of Grant;
 - (e) subject to Section 6.2 below, any vesting schedule upon which the exercise of an Option is contingent;
 - (f) if the Optionee is an Employee, Consultant or Management Company Employee, a representation by the Company and the Optionee that the Optionee is a bona fide Employee, Consultant or Management Company Employee, as the case may be, of the Company or a Related Company; and
 - (g) such other terms and conditions as the Board deems advisable and are consistent with the purposes of this Plan.

6.2 **Vesting Schedule** – The Board, as applicable, shall have complete discretion to set the terms of any vesting schedule of each Option granted, including, without limitation, discretion to:

- (a) permit partial vesting in stated percentage amounts based on the Term of such Option; and
- (b) permit full vesting after a stated period of time has passed from the Date of Grant.

6.3 **Amendments to Options** – Amendments to the terms of previously granted Options are subject to regulatory approval, if required. If required by the Exchange, Disinterested Shareholder Approval shall be required for any reduction in the Option Price of a previously granted Option if the Optionee is an Insider of the Company at the time of the proposed reduction in the Option Price.

6.4 **Uniformity** – Except as expressly provided herein, nothing contained in this Plan shall require that the terms and conditions of Options granted under the Plan be uniform.

7. EXERCISE OF OPTION

7.1 **Method of Exercise** – Subject to any limitations or conditions imposed upon an Optionee pursuant to the Option Agreement or Section 6 hereof, an Optionee may exercise an Option by giving written notice thereof, specifying the number of Shares in respect of which the Option is exercised, to the Company at its principal place of business at any time after the Date of Grant until 4:00 p.m. (Toronto time) on the last day of the Term, such notice to be accompanied by full payment of the aggregate Option Price to the extent the Option is so exercised. Such payment shall be in lawful money (Canadian funds) by cash, cheque, bank draft or wire transfer. Payment by cheque made payable to the Company in the amount of the aggregate Option Price shall constitute payment of such Option Price unless the cheque is not honoured upon presentation, in which case the Option shall not have been validly exercised.

7.2 **Issuance of Certificates** – Not later than the third business day after exercise of an Option in accordance with Section 7.1, the Company shall issue and deliver to the Optionee a certificate or certificates evidencing the Shares with respect to which the Option has been exercised. Until the issuance of such certificate or certificates, no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to such Shares, notwithstanding the exercise of the Option. No adjustment will be made for a dividend or other right for which the record date is prior to the date the certificate is issued, except as provided by Section 10 hereof.

7.3 **Compliance with U.S. Securities Laws** – As a condition to the exercise of an Option, the Board may require the Optionee to represent and warrant in writing at the time of such exercise that the Shares are being purchased only for investment and without any then-present intention to sell or distribute such Shares. At the option of the Board, a stop-transfer order against such Shares may be placed on the stock books and records of the Company and a legend, indicating that the stock may not be pledged, sold or otherwise transferred unless an opinion of counsel is provided stating that such transfer is not in violation of any applicable law or regulation, may be stamped on the certificates representing such Shares in order to assure an exemption from registration. The Board may also require such other documentation as may from time to time be necessary to comply with United States' federal and state securities laws. The Company has no obligation to undertake registration of Options or the Shares issuable upon the exercise of the Options.

8. TRANSFERABILITY OF OPTIONS

8.1 **Non-Transferable/Legending** – Except as permitted by applicable securities laws and the policies of the Exchange, and as provided otherwise in this Section 8, Options are non-assignable and non-transferable. If the Shares are listed only on the TSXVE, then, in addition to any resale restrictions under applicable securities laws, if the Company is, at the Date of Grant of an Option, designated as a “Tier 2” listed company by the TSXVE or, if the Company is not so designated but the Option Price is based on a discount from the last closing price of the Shares on the TSXVE, the Option Agreement and the certificates representing the Shares issued on the exercise of such Option shall bear the TSXVE legend with a four-month hold period commencing on the Date of Grant.

8.2 **Death of Optionee** – Subject to Section 8.3, if the employment of an Optionee as an Employee of, or the services of a Consultant providing services to, the Company or any Related Company, or the employment of an Optionee as a Management Company Employee, or the position of the Optionee as a director or senior officer of the Company or any Related Company, terminates as a result of such Optionee's death, any Options held by such Optionee shall pass to the Qualified Successor of the Optionee and shall be exercisable by such Qualified Successor until the earlier of a period of not more than one year following the date of such death and the expiry of the Term of the Option.

8.3 **Disability of Optionee** – If the employment of an Optionee as an Employee of, or the services of a Consultant providing services to, the Company or any Related Company, or the employment of an Optionee as a Management Company Employee, or the position of the Optionee as a director or senior officer of the Company or any Related Company, is terminated by reason of such Optionee's Disability, any Options held by such Optionee that could have been exercised immediately prior to such termination of employment or service shall be exercisable by such Optionee, or by his Guardian, for a period of 30 days following the termination of employment or service of such Optionee. If such Optionee dies within that 30-day period, any Option held by such Optionee that could have been exercised immediately prior to his or her death shall pass to the Qualified Successor of such Optionee, and shall be exercisable by the Qualified Successor until the earlier of a period of 30 days following the death of such Optionee and the expiry of the Term of the Option.

8.4 **Vesting** – Options held by a Qualified Successor or exercisable by a Guardian shall, during the period prior to their termination, continue to vest in accordance with any vesting schedule to which such Options are subject.

8.5 **Deemed Non-Interruption of Employment** – Employment shall be deemed to continue intact during any military or sick leave or other bona fide leave of absence if the period of such leave does not exceed 90 days or, if longer, for so long as the Optionee's right to reemployment with the Company or any Related Company is guaranteed either by statute or by contract. If the period of such leave exceeds 90 days and the Optionee's reemployment is not so guaranteed, then the Optionee's employment shall be deemed to have terminated on the ninety-first day of such leave.

9. TERMINATION OF OPTIONS

9.1 **Termination of Options** – To the extent not earlier exercised or terminated in accordance with Section 8, an Option shall terminate at the earliest of the following dates:

- (a) the termination date specified for such Option in the Option Agreement;
- (b) where the Optionee's position as an Employee, a Consultant, a director or a senior officer of the Company or any Related Company, or a Management Company Employee, is terminated for cause, the date of such termination for cause;
- (c) where the Optionee's position as an Employee, a Consultant, a director or a senior officer of the Company or any Related Company, or a Management Company Employee terminates for a reason other than the Optionee's Disability or death or for cause, not more than 90 days after such date of termination or, if the Shares are listed only on the TSXVE and if the Company is designated as a "Tier 2" listed company by the TSXVE, then in the case of a person employed to provide Investor Relations Activities, not more than 30 days after such person ceases to be employed to provide Investor Relations Activities; PROVIDED that if an Optionee's position changes from one of the said categories to another category, such change shall not constitute termination or cessation for the purpose of this Subsection 9.1(c); and
- (d) the date of any sale, transfer, assignment or hypothecation, or any attempted sale, transfer, assignment or hypothecation, of such Option in violation of Section 8.1.

9.2 **Lapsed Options** – If Options are surrendered, terminate or expire without being exercised in whole or in part, new Options may be granted covering the Shares not purchased under such lapsed Options. If an Option has been surrendered in connection with the regranting of a new Option to the same Optionee on different terms than the original Option granted to such Optionee, then, if required, the new Option is subject to approval of the Exchange.

9.3 **Exclusion From Severance Allowance, Retirement Allowance or Termination Settlement** – If the Optionee retires, resigns or is terminated from employment or engagement with the Company or any Related Company, the loss or limitation, if any, pursuant to the Option Agreement with respect to the right to purchase Option Shares which were not vested at that time or which, if vested, were cancelled, shall not give rise to any right to damages and shall not be included in the calculation of nor form any part of any severance allowance, retiring allowance or termination settlement of any kind whatsoever in respect of such Optionee.

10. ADJUSTMENTS TO OPTIONS

10.1 **Alteration in Capital Structure** – If there is any change in the Shares through or by means of a declaration of stock dividends of the Shares or consolidations, subdivisions or reclassifications of the Shares, or otherwise, the number of Shares available under the Plan, the Shares subject to any Option and the Option Price therefor shall be adjusted proportionately by the Board and, if required, approved by the Exchange, and such adjustment shall be effective and binding for all purposes of the Plan.

10.2 **Effect of Amalgamation, Merger or Arrangement** – If the Company amalgamates, merges or enters into a plan of arrangement with or into another corporation, any Shares receivable on the exercise of an Option shall be converted into the securities, property or cash which the Optionee would have received upon such amalgamation, merger or arrangement if the Optionee had exercised the Option immediately prior to the record date applicable to such amalgamation, merger or arrangement, and the exercise price shall be adjusted proportionately by the Board and such adjustment shall be binding for all purposes of the Plan.

10.3 **Acceleration on Change in Control** – Upon a Change in Control, all Options shall become immediately exercisable, notwithstanding any contingent vesting provisions to which such Options may have otherwise been subject.

10.4 **Acceleration of Date of Exercise** – Subject to the approval of the Exchange, if required, the Board shall have the right to accelerate the date of vesting of any portion of any Option which remains unvested.

10.5 **Determinations to be Binding** – If any questions arise at any time with respect to the Option Price or exercise price or number of Option Shares or other property deliverable upon exercise of an Option following an event referred to in this Section 10, such questions shall be conclusively determined by the Board, whose decisions shall be final and binding.

10.6 **Effect of a Take-Over** – If a *bona fide* offer (the “Offer”) for Shares is made to an Optionee or to shareholders generally or to a class of shareholders which includes the Optionee, which Offer constitutes a take-over bid within the meaning of section 89 of the Act, the Company shall, immediately upon receipt of notice of the Offer, notify each Optionee of full particulars of the Offer, whereupon any Option held by an Optionee may be exercised in whole or in part, notwithstanding any contingent vesting provisions to which such Options may have otherwise been subject, by the Optionee so as to permit the Optionee to tender the Shares received upon such exercise (the “Optioned Shares”) to the Offer. If:

- (a) the Offer is not completed within the time specified therein; or
- (b) all of the Optioned Shares tendered by the Optionee pursuant to the Offer are not taken up and paid for by the offeror pursuant thereto;

the Optioned Shares or, in the case of clause (b) above, the Optioned Shares that are not taken up and paid for, may be returned by the Optionee to the Company and reinstated as authorized but unissued Shares and with respect to such returned Optioned Shares, the Option shall be reinstated as if it had not been exercised. If any Optioned Shares are returned to the Company under this Section, the Company shall refund to the Optionee any Option Price paid for such Optioned Shares.

11. APPROVAL, TERMINATION AND AMENDMENT OF PLAN

11.1 **Shareholder Approval** – This Plan, if the Shares are listed only on the TSXVE, is subject to approval by the Company’s shareholders on a yearly basis at the Company’s next ensuing annual general meeting.

11.2 **Power of Board to Terminate or Amend Plan** – Subject to the approval of the Exchange, if required, the Board may terminate, suspend or discontinue the Plan at any time or amend or revise the terms of the Plan; provided, however, that, except as provided in Section 10, the Board may not do any of the following without obtaining, within 12 months either before or after the Board’s adoption of a resolution authorizing such action, approval by the Company’s shareholders at a meeting duly held in accordance with the applicable corporate laws:

- (a) materially modify the requirements as to eligibility for participation in the Plan; or
- (b) materially increase the benefits accruing to participants under the Plan;

however, the Board may amend the terms of the Plan to comply with the requirements of any applicable regulatory authority, or as a result of changes in the policies of the Exchange relating to director, officer and employee stock options, without obtaining the approval of the Company's shareholders.

11.3 **No Grant During Suspension of Plan** – No Option may be granted during any suspension, or after termination, of the Plan. Amendment, suspension or termination of the Plan shall not, without the consent of the Optionee, alter or impair any rights or obligations under any Option previously granted.

12. CONDITIONS PRECEDENT TO ISSUANCE OF SHARES

12.1 **Compliance with Laws** – Shares shall not be issued with respect to an Option unless the exercise of such Option and the issuance and delivery of such shares shall comply with all relevant provisions of law, including, without limitation, any applicable United States' state securities laws, the Securities Act of 1933, as amended, the Exchange Act, the rules and regulations thereunder and the requirements of any Exchange or automated interdealer quotation system of a registered national securities association upon which such Shares may then be listed or quoted, and such issuance shall be further subject to the approval of counsel for the Company with respect to such compliance, including the availability of an exemption from registration for the issuance and sale of such Shares. The inability of the Company to obtain from any regulatory body the authority deemed by the Company to be necessary for the lawful issuance and sale of any Shares under this Plan, or the unavailability of an exemption from registration for the issuance and sale of any Shares under this Plan, shall relieve the Company of any liability with respect to the non-issuance or sale of such Shares other than with respect to a refund of any Option Price paid.

13. USE OF PROCEEDS

13.1 **Use of Proceeds** – Proceeds from the sale of Shares pursuant to the Options granted and exercised under the Plan shall constitute general funds of the Company and shall be used for general corporate purposes, or as the Board otherwise determines.

14. NOTICES

14.1 **Notices** – All notices, requests, demands and other communications required or permitted to be given under this Plan and the Options granted under this Plan shall be in writing and shall be either delivered personally to the party to whom notice is to be given, in which case notice shall be deemed to have been duly given on the date of such personal delivery; telecopied, in which case notice shall be deemed to have been duly given on the date the telecopy is sent; or mailed to the party to whom notice is to be given, by first class mail, registered or certified, return receipt requested, postage prepaid, and addressed to the party at his or its most recent known address, in which case such notice shall be deemed to have been duly given on the tenth postal delivery day following the date of such mailing.

15. MISCELLANEOUS PROVISIONS

15.1 **No Obligations to Exercise** – Optionees shall be under no obligation to exercise Options granted under this Plan.

15.2 **No Obligation to Retain Optionee** – Nothing contained in this Plan shall obligate the Company or any Related Company to retain an Optionee as an employee, officer, director or consultant for any period, nor shall this Plan interfere in any way with the right of the Company or any Related Company to reduce such Optionee's compensation.

15.3 **Binding Agreement** – The provisions of this Plan and of each Option Agreement with an Optionee shall be binding upon such Optionee and the Qualified Successor or Guardian of such Optionee.

15.4 **Use of Terms** – Where the context so requires, references herein to the singular shall include the plural, and vice versa, and references to a particular gender shall include either or both genders.

15.5 **Headings** – The headings used in this Plan are for convenience of reference only and shall not in any way affect or be used in interpreting any of the provisions of this Plan.

15.6 **No Representation or Warranty** – The Company makes no representation or warranty as to the future value of any Shares issued in accordance with the provisions of this Plan.

15.7 **Income Taxes** – As a condition of and prior to participation in the Plan any Optionee shall on request authorize the Company in writing to withhold from any remuneration otherwise payable to such Optionee any amounts required by any taxing authority to be withheld for taxes of any kind as a consequence of such Optionee's participation in the Plan.

15.8 **Compliance with Applicable Law** – If any provision of the Plan or any Option Agreement contravenes any law or any order, policy, by-law or regulation of any regulatory body or stock exchange or over the counter market having authority over the Company or the Plan, then such provision shall be deemed to be amended to the extent required to bring such provision into compliance therewith.

15.9 **Conflict** – In the event of any conflict between the provisions of this Plan and an Option Agreement, the provisions of this Plan shall govern.

15.10 **Governing Law** – This Plan and each Option Agreement issued pursuant to this Plan shall be governed by the laws of the Province of Ontario.

15.11 **Time of Essence** – Time is of the essence of this Plan and of each Option Agreement. No extension of time will be deemed to be, or to operate as, a waiver of the essentiality of time.

15.12 **Entire Agreement** – This Plan and the Option Agreement sets out the entire agreement between the Company and the Optionees relative to the subject matter hereof and supersedes all prior agreements, undertakings and understandings, whether oral or written.

16. EFFECTIVE DATE OF PLAN

16.1 **Effective Date of Plan** – This Plan shall be effective on the day of its approval by the shareholders of the Company.

**BRAZIL POTASH CORP.
STOCK OPTION PLAN - OPTION AGREEMENT**

This Option Agreement is entered into between Brazil Potash Corp. (the "Company") and the Optionee named below pursuant to the Stock Option Plan (the "Plan"), a copy of which is attached hereto, and confirms that:

1. on [] (the "Grant Date");
2. [] (the "Optionee");
3. was granted the option (the "Option") to purchase [] Common Shares (the "Option Shares") of the Company;
4. for the price of USDS[] per share (the "Option Price");
5. which shall subject, be exercisable ("Vested") as follows:

Options to immediately, with all share certificates to bear the following legend, if applicable:

UNLESS PERMITTED UNDER SECURITIES LEGISLATION, THE HOLDER OF THIS SECURITY MUST NOT TRADE THE SECURITY BEFORE THE DATE THAT IS 4 MONTHS AND A DAY AFTER THE LATER OF (i) [], AND (ii) THE DATE THE ISSUER BECAME A REPORTING ISSUER IN ANY PROVINCE OR TERRITORY IN CANADA.

6. terminating on [], unless terminated earlier in accordance with Section 9 of the Plan (the "Expiry Date");

all on the terms and subject to the conditions set out in the Plan. For greater certainty, once Option Shares have become Vested, they continue to be exercisable until the termination or cancellation thereof as provided in this Option Agreement and the Plan.

By signing this Option Agreement, the Optionee acknowledges that the Optionee has read and understands the Plan and agrees to the terms and conditions of the Plan and this Option Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Option Agreement as of the [] day of [].

BRAZIL POTASH CORP.

[Name of Optionee]

Per:

Authorized Signatory

OPTIONEE

Witness

Brazil Potash Corp.
Amended and Restated Deferred Share Unit Plan
Definitions and Interpretation

1.01 **Definitions:** For purposes of the DSU Plan, unless a word or term is otherwise defined it shall have the following meanings:

- (a) “Act” means the *Business Corporations Act* (Ontario) or its successor, as amended from time to time;
- (b) “Board” means the board of directors of the Corporation;
- (c) “Change of Control” means any of the following:
 - (i) a takeover bid (as defined in the *Securities Act* (Ontario), not taking into account any exception to the definition), which is successful in acquiring Common Shares,
 - (ii) the sale of all or substantially all the assets of the Corporation,
 - (iii) the sale, exchange or other disposition of a majority of the outstanding Common Shares in a single transaction or series of related transactions,
 - (iv) the dissolution of the Corporation’s business or the liquidation of its assets,
 - (v) a merger, amalgamation or arrangement of the Corporation in a transaction or series of transactions in which the Corporation’s shareholders receive less than 51% of the outstanding shares of the new or continuing corporation,
 - (vi) the acquisition, directly or indirectly, through one transaction or a series of transactions, by any person or entity, of an aggregate of more than 50% of the outstanding Common Shares, or
 - (vii) as a result of or in connection with: (A) a contested election of directors; or (B) a consolidation, merger, amalgamation, arrangement or other reorganization or acquisitions involving the Corporation or any of its Affiliates and another corporation or other entity, the nominees named in the most recent management information circular of the Corporation for election to the Corporation’s board of directors do not constitute a majority of the Corporation’s board of directors;

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- (d) “Committee” means the Board or, if applicable, the Compensation Committee of the Corporation;
 - (e) “Common Shares” means the common shares of the Corporation;
 - (f) “Corporation” means Brazil Potash Corp., a corporation incorporated under the Act;
 - (g) “Designated Affiliate” means an affiliate of the Corporation designated by the Committee for purposes of the DSU Plan from time to time;
 - (h) “Director” means a member of the Board from time to time;
 - (i) “DSU” means the right to receive a DSU Payment evidenced by way of book-keeping entry in the books of the Corporation and administrated pursuant to the DSU Plan;
 - (j) “DSU Grant Letter” has the meaning in section 3.03 hereof;
 - (k) “DSU Issue Date” means the date recommended by the Committee and, if the Committee is not the Board, confirmed by the Board from time to time. If a DSU Issue Date falls during a blackout period pursuant to the Corporation’s Disclosure, Confidentiality and Insider Trading Policy, such DSU Issue Date shall become the fifth trading day following the expiry of such blackout period, unless otherwise determined by the Board;
 - (l) “DSU Payment” means the issuance of the equivalent number of Common Shares to a Participant on the Separation Date equal to the number of vested DSUs held by the Participant on the Separation Date;
 - (m) “DSU Plan” means this amended and restated deferred share unit plan;
 - (n) “Eligible Participant” means a person who is a director, officer or employee of, or consultant or other service provider to, the Corporation or a Designated Affiliate, and such person shall continue to be an Eligible Participant for so long as such person continues to be a director, officer or employee of, or consultant or other service provider to, the Corporation or a Designated Affiliate;
 - (o) “Market Value” means the fair market value of such Common Shares as determined by the Committee in its sole discretion. If the Common Shares are listed and posted for trading on any Stock Exchange, recognised by the Board, then the Market Value means the weighted average trading price of the Common Shares for the five consecutive trading days immediately prior to the date as of which the Market Value is defined;

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- (p) “Participant” for the DSU Plan means each Eligible Participant to whom DSUs are issued;
 - (q) “Separation Date” means the date that a Participant ceases to be an Eligible Participant for any reason whatsoever, including death of the Eligible Participant, and is otherwise not employed by the Corporation or a Designed Affiliate;
 - (r) “Stock Exchanges” means any other stock exchange, such as the TSX, on which the Common Shares may be listed from time to time; and
 - (s) “TSX” means The Toronto Stock Exchange.

1.02 **Securities Definition:** In the DSU Plan, the term “affiliate”, shall have the meaning given to such term in the *Securities Act* (Ontario).

1.03 **Headings:** The headings of all articles, parts, sections, and paragraphs in the DSU Plan are inserted for convenience of reference only and shall not affect the construction or interpretation of the DSU Plan.

1.04 **Context, Construction:** Whenever the singular or masculine are used in the DSU Plan, the same shall be construed as being the plural or feminine or neuter or vice versa where the context so requires.

1.05 **Canadian Funds:** Unless otherwise provided, all references to dollar amounts in the DSU Plan are to lawful money of Canada.

Purpose and Administration of the DSU Plan

2.01 **Purpose of the DSU Plan:** The purpose of the DSU Plan is to strengthen the alignment of interests between the Eligible Participants and the shareholders of the Corporation by linking compensation to the future value of the Common Shares. In addition, the DSU Plan has been adopted for the purpose of advancing the interests of the Corporation through the motivation, attraction and retention of key employees of the Corporation and the Designated Affiliates of the Corporation, it being generally recognized that DSU plans aid in attracting, retaining and encouraging key employee commitment and performance due to the opportunity offered to them to receive compensation in line with the value of the Common Shares.

2.02 **Administration of the DSU Plan:** The DSU Plan shall be administered by the Committee and the Committee shall have full discretionary authority to administer the DSU Plan including the authority to interpret and construe any provision of the DSU Plan and to adopt, amend and rescind such rules and regulations for administering the DSU Plan as the Committee may deem necessary in order to comply with the requirements of the DSU Plan. All actions taken and all interpretations and determinations made by the Committee in good faith shall be final and conclusive and shall be binding on the Participants and the Corporation. All costs incurred in connection with the DSU Plan shall be for the account of the Corporation.

2.03 **Delegation to Compensation Committee:** All of the powers exercisable under the DSU Plan, may, to the extent permitted by applicable law and as determined by resolution of the Directors, be exercised by the Compensation Committee.

2.04 **Record Keeping:** The Corporation shall maintain a register in which shall be recorded:

- (a) the name and address of each Participant in the DSU Plan;
- (b) the number of DSUs granted to each Participant under the DSU Plan; and
- (c) the date and price at which DSUs were granted.

DSU Plan

3.01 **Participants:** The Committee may grant and issue to each Eligible Participant on each DSU Issue Date, that number of DSUs as determined by resolution of the Committee.

3.02 **Redemption:** Provided that the Participant has made the withholding tax payment set out in section 4.01 hereof, each vested DSU held by such Participant who ceases to be an Eligible Participant shall be redeemed by the Corporation on the relevant Separation Date for a DSU Payment to be made to such Participant on such date as the Corporation determines not later than 60 days after the Separation Date and in any event no later than December 31 of that same year, without any further action on the part of the holder of the DSU in accordance with the terms of this part 3.

If a DSU is subject to vesting condition(s), the Participant holding such DSU shall not be entitled to the DSU Payment if the Participant ceases to be an Eligible Participant, other than if the Participant ceases to be an Eligible Participant in the event of, in connection with, or as a result of, a Change of Control, prior to the vesting condition(s) having been satisfied, and such DSU shall then be deemed cancelled. In the event of a Change of Control, each DSU shall automatically vest and be redeemable upon the occurrence of the Separation Date in accordance with the preceding paragraph.

If the Participant has not made the withholding tax payment set out in section 4.01 hereof within 60 days after the Separation Date, the Participant shall not be entitled to the DSU Payments with respect to such vested DSUs held by the Participant.

3.03 **DSU Letter:** Each grant of DSUs under the DSU Plan shall be evidenced by a letter of the Corporation (“**DSU Grant Letter**”).

Such DSUs shall be subject to all applicable terms and conditions of the DSU Plan and may be subject to any other terms and conditions, including, without limitation, vesting conditions, which are not inconsistent with the DSU Plan and which the Committee deems appropriate for inclusion in a DSU Grant Letter. The provisions of the various DSU Grant Letters entered into under the DSU Plan need not be identical, and may vary from grant to grant and from Participant to Participant.

3.04 Dividends: In the event that a dividend (other than stock dividend) is declared and paid by the Corporation on Common Shares, a Participant will be credited with additional DSUs. The number of such additional DSUs will be calculated by dividing the total amount of the dividends that would have been paid to the Participant if the DSUs in the Participant's account on the dividend record date had been outstanding Common Shares (and the Participant held no other Common Shares), by the Market Value of a Common Share on the date on which the dividends were paid on the Common Shares.

3.05 Term of the DSU Plan: The DSU Plan is effective as of May 22, 2024. The DSU Plan shall remain in effect until it is terminated by the Board. Upon termination of the Plan, the Corporation shall redeem all remaining DSUs under section 3.02 hereof, as at the applicable Separation Date for each of the remaining Participants.

Withholding Taxes

4.01 Withholding Taxes: The Corporation or any Designated Affiliate may take such steps as are considered necessary or appropriate for the withholding of any taxes or other amounts which the Corporation or any Designated Affiliate is required by any law or regulation of any governmental authority whatsoever to withhold in connection with any DSU or DSU Payment, including, without limiting the generality of the foregoing, the withholding of all or any portion of any DSU Payment or the withholding of the issue of Common Shares to be issued under the DSU Plan (if applicable), until such time as the Participant has paid to, or made satisfactory arrangements for the payment to, the Corporation or any Designated Affiliate for any amount which the Corporation or Designated Affiliate is required by law to withhold with respect to such taxes or other amounts. Without limitation to the foregoing, the Committee may adopt administrative rules under the DSU Plan, which provide for the sale, on behalf of the Participant, of Common Shares (or a portion thereof) in the market upon the issuance of such shares under the DSU Plan, to satisfy the Corporation's or Designated Affiliate's withholding obligations under the DSU Plan. If the Participant has not made the required withholding tax payment within 60 days after the Separation Date, the Participant shall not be entitled to the DSU Payments with respect to such vested DSUs held by the Participant.

General

5.01 Amendment of DSU Plan: The Committee may from time to time in the absolute discretion of the Committee amend, modify and change the provisions of the DSU Plan, provided that any amendment, modification or change to the provisions of the DSU Plan that would:

- (a) materially increase the benefits under the DSU Plan;
- (b) materially modify the requirements as to eligibility for participation in the DSU Plan; or
- (c) terminate the DSU Plan;

shall be effective only on approval by the Board, and, if required, by any Stock Exchange or and any other regulatory authorities having jurisdiction over the Corporation and provided any such amendment shall be effective only if the DSU Plan will continue to meet the requirements of paragraph 6801(d) of the regulations to the *Income Tax Act* (Canada) or any successor provision. Notwithstanding any of the foregoing, all amendments, modifications or changes to this DSU Plan are subject to any unanimous shareholder agreements that may be in place from time to time.

5.02 Non-Assignable: Except as otherwise may be expressly provided for under this DSU Plan or pursuant to a will or by the laws of descent and distribution, no DSU and no other right or interest of a Participant is assignable or transferable, and any such assignment or transfer in violation of this DSU Plan shall be null and void.

5.03 Rights as a Shareholder and Director: No holder of any DSUs shall have any rights as a shareholder of the Corporation at any time. Nothing in the Plan shall confer on any Eligible Participant the right to continue as a Director, employee or officer of the Corporation or as a director, employee or officer of any Designated Affiliate or interfere with right to terminate or remove such director, employee or officer.

5.04 Adjustment in Number of Payments Subject to the DSU Plan: In the event there is any change in the Common Shares, whether by reason of a stock dividend, stock split, reverse stock split, consolidation, subdivision, reclassification or otherwise, an appropriate proportionate adjustment shall be made by the Committee with respect to the number of DSUs then outstanding under the DSU Plan as the Committee, in its sole discretion, may determine to prevent dilution or enlargement of rights. All such adjustments, as determined by the Committee, shall be conclusive, final and binding for all purposes of the DSU Plan.

5.05 No Representation or Warranty: The Corporation makes no representation or warranty as to the future value of any rights under DSUs issued in accordance with the provisions of the DSU Plan. No amount will be paid to, or in respect of, an Eligible Participant under this DSU Plan or pursuant to any other arrangement, and no additional DSUs will be granted to such Eligible Participant to compensate for a downward fluctuation in the price of the Common Shares, nor will any other form of benefit be conferred upon, or in respect of, an Eligible Participant for such purpose.

5.06 Compliance with Applicable Law: If any provision of the DSU Plan or any DSU contravenes any law or any order, policy, by-law or regulation of any regulatory body having jurisdiction, then such provision shall be deemed to be amended to the extent necessary to bring such provision into compliance. For avoidance of doubt, in the event the Common Shares become listed on any Stock Exchange, the Board may amend this DSU Plan, at its sole discretion, in order to comply with the requirements of such Stock Exchange, including, without limitation, adding insider participation limits as contemplated under the TSX Company Manual.

5.07 Interpretation: This DSU Plan shall be governed by and construed in accordance with the laws of the Province of Ontario.

5.08 Unfunded Benefit: All DSU Payments to be made constitute unfunded obligations of the Corporation payable solely from its general assets and subject to the claims of its creditors. The Corporation has not established any trust or separate fund to provide for the payment of benefits under the DSU Plan.

5.09 No Other Benefit: No amount will be paid to, or in respect of, a Participant under the DSU Plan to compensate for a downward fluctuation in the price of a Common Share, nor will any other form of benefit be conferred upon, or in respect of, a Participant (or a person with whom the Participant does not deal at arm's length within the meaning of the Income Tax Act (Canada)), for such purpose.

ADDITIONAL PROVISION FOR TREASURY BASED SHARE ISSUANCES

6.01 Treasury Issuances: The Corporation shall have the power, at the Committee's discretion, to satisfy DSU Payments payable under DSUs by the issuance of Common Shares from treasury on the basis of, subject to adjustment in accordance with Section 5.04 hereof, one Common Share for each DSU. If applicable, evidence of Common Shares issued pursuant to this section shall bear any legend as may be required by applicable securities laws or Stock Exchange rules.

6.02 Maximum: The maximum number of Common Shares made available for the DSU Plan shall not exceed 10.0% of the fully diluted Common Shares from time to time, subject to adjustments pursuant to section 5.04 hereof.

**BRAZIL POTASH CORP.
2024 INCENTIVE COMPENSATION PLAN**

BRAZIL POTASH CORP.
2024 INCENTIVE COMPENSATION PLAN

1. Purpose	1
2. Definitions	1
3. Administration.	5
4. Shares Subject to Plan.	6
5. Eligibility	7
6. Specific Terms of Awards.	8
7. Certain Provisions Applicable to Awards.	14
8. Change in Control.	17
9. General Provisions.	19
Schedule A — <i>Canada</i>	A-1

BRAZIL POTASH CORP.
2024 INCENTIVE COMPENSATION PLAN

1. **Purpose.** The purpose of this Brazil Potash Corp. 2024 INCENTIVE COMPENSATION PLAN (this “**Plan**”) is to assist Brazil Potash Corp., a company incorporated and existing under the laws of the Province of Ontario, Canada, and its Related Entities in attracting, motivating, retaining and rewarding high-quality executives and other employees, officers, directors, consultants and other persons who provide services to the Company or its Related Entities by enabling such persons to acquire or increase a proprietary interest in the Company in order to strengthen the mutuality of interests between such persons and the Company’s shareholders, and providing such persons with performance incentives to expend their maximum efforts in the creation of shareholder value.

2. **Definitions.** For purposes of this Plan, the following terms shall be defined as set forth below, in addition to such terms defined elsewhere herein.

(a) “**Award**” means any Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, Deferred Share Unit Award, Share granted as a bonus or in lieu of another Award, Dividend Equivalent, Other Stock-Based Award or Performance Award, together with any other right or interest relating to Shares or other property (including cash), granted to a Participant under this Plan.

(b) “**Award Agreement**” means any written agreement, contract or other instrument or document evidencing any Award granted by the Committee hereunder.

(c) “**Beneficiary**” means the person, persons, trust or trusts that have been designated by a Participant in his or her most recent written beneficiary designation filed with the Committee to receive the benefits specified under this Plan upon such Participant’s death or to which Awards or other rights are transferred if and to the extent permitted under Section 9(b) hereof. If, upon a Participant’s death, there is no designated Beneficiary or surviving designated Beneficiary, then the term Beneficiary means the Participant’s estate.

(d) “**Board**” means the Company’s Board of Directors.

(e) “**Cause**” shall, with respect to any Participant, have the meaning specified in the Award Agreement. In the absence of any definition in the Award Agreement, “Cause” shall have the equivalent meaning or the same meaning as “cause” or “for cause” set forth in any employment, consulting, or other agreement for the performance of services between the Participant and the Company or a Related Entity or, in the absence of any such agreement or any such definition in such agreement, such term shall mean (i) the material failure by the Participant to perform, in a reasonable manner, his or her duties as assigned by the Company or a Related Entity, (ii) any material violation or breach by the Participant of his or her employment, consulting or other similar agreement with the Company or a Related Entity, if any, (iii) any material violation or breach by the Participant of any non-competition, non-solicitation, non-disclosure and/or other similar agreement with the Company or a Related Entity, (iv) any act by the Participant of dishonesty or bad faith with respect to the Company or a Related Entity, (v) use of alcohol, drugs or other similar substances in a manner that adversely affects the Participant’s work performance, or (vi) the commission by the Participant of any act, misdemeanor, or crime reflecting unfavorably upon the Participant or the Company or any Related Entity. The good faith determination by the Committee of whether the Participant’s Continuous Service was terminated by the Company for “Cause” shall be final and binding for all purposes hereunder.

(f) “**Change in Control**” means a Change in Control as defined in Section 8(b) hereof.

(g) “**Code**” means the Internal Revenue Code of 1986, as amended, including the regulations thereunder and the successor provisions and regulations thereto.

(h) “**Committee**” means a committee of the Board designated and empowered by the Board to administer this Plan; *provided, however*, that, if the Board fails to designate and empower such a committee or if there are no longer any members on the committee so designated by the Board, or for any other reason determined by the Board, then the Independent members of the Board shall serve as the Committee. While it is intended that the Committee shall consist of at least two directors, each of whom shall be (i) a “non-employee director” within the meaning of Rule 16b-3 (or any successor rule) under the Exchange Act, unless administration of this Plan by “non-employee directors” is not then required in order for exemptions under Rule 16b-3 not to be applicable or otherwise not to apply to transactions under this Plan, and (ii) “Independent”, the failure of the Committee to be so comprised shall not invalidate any Award that otherwise satisfies the terms of this Plan.

(i) “**Company**” means Brazil Potash Corp., a company incorporated and existing under the laws of the Province of Ontario, Canada, and any successor thereto.

(j) “**Consultant**” means any consultant or advisor who provides services to the Company or any Related Entity, so long as (i) such person renders bona fide services that are not in connection with the offer and sale of the Company’s securities in a capital-raising transaction, (ii) such person does not directly or indirectly promote or maintain a market for the Company’s securities, and (iii) the identity of such person would not preclude the Company from offering or selling securities to such person pursuant to this Plan in reliance on the registration of those securities on a Form S-8 Registration Statement under the Securities Act of 1933, as amended.

(k) “**Continuous Service**” means the uninterrupted provision of services to the Company or any Related Entity in any capacity of Employee, Director, Consultant or other service provider. Continuous Service shall not be considered to be interrupted in the case of (i) any approved leave of absence, (ii) transfers among the Company, any Related Entities, or any successor entities, in any capacity of Employee, Director, Consultant or other service provider, or (iii) any change in status as long as the individual remains in the service of the Company or a Related Entity in any capacity of Employee, Director, Consultant or other service provider (except as otherwise provided in the Award Agreement). An approved leave of absence shall include sick leave, military leave, or any other authorized personal leave.

(l) “**Deferred Share Unit**” means a right to receive Shares, including Restricted Stock, cash measured based upon the value of Shares, or a combination thereof, at the end of a specified deferral period.

(m) “**Deferred Share Unit Award**” means an Award of Deferred Share Units granted to a Participant under Section 6(f) hereof.

(n) “**Director**” means a member of the Board or the board of directors of any Related Entity.

(o) “**Disability**” means a permanent and total disability (within the meaning of Section 22(e) of the Code), as determined by a medical doctor satisfactory to the Committee.

(p) “**Dividend Equivalent**” means a right, granted to a Participant under Section 6(h) hereof, to receive cash, Shares, other Awards or other property equal in value to dividends paid with respect to a specified number of Shares, or other periodic payments.

(q) “**Effective Date**” means the effective date of this Plan, which shall be the Shareholder Approval Date.

(r) “**Eligible Person**” means each officer, Director, Employee, Consultant and other person who provides services to the Company or any Related Entity. The foregoing notwithstanding, only Employees of the Company, or any parent corporation or subsidiary corporation of the Company (as those terms are defined in Sections 424(e) and (f) of the Code, respectively), shall be Eligible Persons for purposes of receiving any Incentive Stock Options. An Employee on leave of absence may, in the discretion of the Committee, be considered as still in the employ of the Company or a Related Entity for purposes of eligibility for participation in this Plan.

(s) “**Employee**” means any person, including an officer or Director, who is an employee of the Company or any Related Entity, or is a prospective employee of the Company or any Related Entity (conditioned upon and effective not earlier than, such person becoming an employee of the Company or any Related Entity). The payment of a director’s fee by the Company or a Related Entity shall not be sufficient to constitute “employment” by the Company.

(t) “**Exchange Act**” means the Securities Exchange Act of 1934, as amended, including the rules thereunder and the successor provisions and rules thereto.

(u) “**Fair Market Value**” means the fair market value of Shares, Awards or other property on the date as of which the value is being determined, as determined by the Committee, or under procedures established by the Committee, subject to the following:

(i) If, on such date, the Shares are listed on a national or regional securities exchange or market system in the United States or Canada, the Fair Market Value of a Share shall be the closing price of a Share (or the mean of the closing bid and ask prices of a Share if the Share is so quoted instead) on the immediately preceding business day as quoted on the New York Stock Exchange or such other national or regional securities exchange or market system in the United States or Canada constituting the primary market for the Share. If the relevant date does not fall on a day on which the Share has traded on such securities exchange or market system, the date on which the Fair Market Value shall be established shall be the last day on which the Share was so traded prior to the relevant date, or such other appropriate day as shall be determined by the Board, in its discretion.

(ii) If, on such date, the Shares are not listed on a national or regional securities exchange or market system in the United States or Canada, the Fair Market Value of a Share shall be as determined by the Committee in good faith without regard to any restriction other than a restriction which, by its terms, will never lapse.

(v) “**Incentive Stock Option**” means any Option intended to be designated as an incentive stock option within the meaning of Section 422 of the Code or any successor provision thereto.

(w) “**Incumbent Board**” means the Incumbent Board as defined in Section 8(b)(ii) hereof.

(x) “**Independent**”, when referring to either members of the Board or members of the Committee, shall have the same meaning as used in, as applicable, (i) the rules of the Listing Market, and/or (ii) applicable Canadian securities laws (including Sections 1.4 and 1.5 of National Instrument 52-110—*Audit Committees* of the Canadian Securities Administrators).

(y) “**Listing Market**” means the New York Stock Exchange or any other national securities exchange on which any securities of the Company are listed for trading, and if not listed for trading, by the rules of the New York Stock Exchange.

(z) “**Option**” means a right granted to a Participant under Section 6(b), hereof, to purchase Shares or other Awards at a specified price during specified time periods.

(aa) “**Optionee**” means a person to whom an Option is granted under this Plan or any person who succeeds to the rights of such person under this Plan.

(bb) “**Other Stock-Based Awards**” means Awards granted to a Participant under Section 6(j), hereof.

(cc) “**Parent**” means any corporation (other than the Company), whether now or hereafter existing, in an unbroken chain of corporations ending with the Company, if each of the corporations in the chain (other than the Company) owns stock possessing 50% or more of the combined voting power of all classes of stock in one of the other corporations in the chain.

(dd) “**Participant**” means a person who has been granted an Award under this Plan which remains outstanding, including a person who is no longer an Eligible Person.

(ee) “**Performance Award**” means any Award granted pursuant to Section 6(i), hereof.

(ff) “**Performance Period**” means that period established by the Committee at the time any Performance Award is granted or at any time thereafter during which any performance goals specified by the Committee with respect to such Award are to be measured.

(gg) “**Prior Plans**” means the (i) Brazil Potash Corp. Stock Option Plan approved by shareholders of the Company in 2009, and (ii) Brazil Potash Corp. Deferred Share Unit Plan effective in 2015.

(hh) “**Related Entity**” means any Parent or Subsidiary, and any business, corporation, partnership, limited liability company or other entity designated by the Committee in which the Company, a Parent or a Subsidiary holds a substantial ownership interest, directly or indirectly, and with respect to which the Company may offer or sell securities pursuant to this Plan in reliance upon the registration of those Securities on a Form S-8 Registration Statement under the Securities Act of 1933, as amended.

(ii) “**Restricted Stock**” means any Share issued with such risks of forfeiture and other restrictions as the Committee, in its sole discretion, may impose (including any restriction on the right to vote such Share and the right to receive any dividends), which restrictions may lapse separately or in combination at such time or times, in installments or otherwise, as the Committee may deem appropriate.

(jj) “**Restricted Stock Award**” means an Award granted to a Participant under Section 6(d), hereof.

(kk) “**Restricted Stock Unit**” means a right to receive Shares, including Restricted Stock, cash measured based upon the value of Shares, or a combination thereof, at the end of a specified deferral period.

(ll) “**Restricted Stock Unit Award**” means an Award of Restricted Stock Units granted to a Participant under Section 6(e) hereof.

(mm) “**Restriction Period**” means the period of time specified by the Committee that Restricted Stock Awards shall be subject to such restrictions on transferability, risk of forfeiture and other restrictions, if any, as the Committee may impose.

(nn) “**Rule 16b-3**” means Rule 16b-3, as from time to time in effect and applicable to this Plan and the Participants, promulgated by the Securities and Exchange Commission under Section 16 of the Exchange Act.

(oo) “**Shareholder Approval Date**” means the date on which this Plan is approved by shareholders of the Company eligible to vote in the election of directors, by a vote sufficient to meet the requirements of Section 422 of the Code, Rule 16b-3 under the Exchange Act, and applicable requirements under the rules of the Listing Market.

(pp) “**Shares**” means the common shares, no par value per share, of the Company, and such other securities as may be substituted (or resubstituted) for Shares pursuant to Section 9(c) hereof.

(qq) “**Stock Appreciation Right**” means a right granted to a Participant under Section 6(c) hereof.

(rr) “**Subsidiary**” means any corporation or other entity in which the Company has a direct or indirect ownership interest of 50% or more of the total combined voting power of the then outstanding securities or interests of such corporation or other entity entitled to vote generally in the election of directors or in which the Company has the right to receive 50% or more of the distribution of profits or 50% or more of the assets on liquidation or dissolution.

(ss) “**Substitute Awards**” means Awards granted or Shares issued by the Company in assumption of, or in substitution or exchange for, awards previously granted, or the right or obligation to make future awards, by a company (i) acquired by the Company or any Related Entity, (ii) which becomes a Related Entity after the date hereof, or (iii) with which the Company or any Related Entity combines.

3. **Administration.**

(a) **Authority of the Committee.** This Plan shall be administered by the Committee unless (and subject to the limitations imposed by Section 3(b) hereof) the Board elects to administer or to exercise any power or authority granted to the Committee under this Plan, in which case this Plan shall be administered by only those members of the Board who are Independent members of the Board, and references herein to the “Committee” shall be deemed to include references to the Independent members of the Board. The Committee shall have full and final authority, subject to and consistent with the provisions of this Plan, to select Eligible Persons to become Participants, grant Awards, determine the type, number and other terms and conditions of, and all other matters relating to, Awards, prescribe Award Agreements (which need not be identical for each Participant) and rules and regulations for the administration of this Plan, construe and interpret this Plan and Award Agreements and correct defects, supply omissions or reconcile inconsistencies therein, and to make all other decisions and determinations as the Committee may deem necessary or advisable for the administration of this Plan. In exercising any discretion granted to the

Committee under this Plan or pursuant to any Award, the Committee shall not be required to follow past practices, act in a manner consistent with past practices, or treat any Eligible Person or Participant in a manner consistent with the treatment of any other Eligible Persons or Participants. Decisions of the Committee shall be final, conclusive and binding on all persons or entities, including the Company, any Related Entity or any Participant or Beneficiary, or any transferee under Section 9(b) hereof or any other person claiming rights from or through any of the foregoing persons or entities.

(b) **Manner of Exercise of Committee Authority.** The Committee, and not the Board, shall exercise sole and exclusive discretion on any matter relating to a Participant then subject to Section 16 of the Exchange Act with respect to the Company to the extent necessary in order that transactions by such Participant shall be exempt under Rule 16b-3 under the Exchange Act. The express grant of any specific power to the Committee, and the taking of any action by the Committee, shall not be construed as limiting any power or authority of the Committee. The Committee may delegate to members of the Board, or officers or managers of the Company or any Related Entity, or committees thereof, the authority, subject to such terms and limitations as the Committee shall determine, to perform such functions, including administrative functions as the Committee may determine to the extent that such delegation will not result in the loss of an exemption under Rule 16b-3(d)(1) for Awards granted to Participants subject to Section 16 of the Exchange Act in respect of the Company, if and to the extent applicable. The Committee may appoint agents to assist it in administering this Plan.

(c) **Limitation of Liability.** The Committee and the Board, and each member thereof, shall be entitled to, in good faith, rely or act upon any report or other information furnished to him or her by any officer or Employee, the Company's independent auditors, Consultants or any other agents assisting in the administration of this Plan. Members of the Committee and the Board, and any officer or Employee acting at the direction or on behalf of the Committee or the Board, shall not be personally liable for any action or determination taken or made in good faith with respect to this Plan, and shall, to the extent permitted by law, be fully indemnified and protected by the Company with respect to any such action or determination.

4. **Shares Subject to Plan.**

(a) **Limitation on Overall Number of Shares Available for Delivery Under Plan.** Subject to adjustment as provided in Section 9(c) hereof, the total number of Shares reserved and available for delivery under this Plan as of any date (the "**Reserved and Available Shares**") shall be equal to fifteen percent (15%) of the total number of issued and outstanding Shares as of such date, less the number of Shares with respect to which Awards have previously been granted under this Plan (the "**Currently Outstanding Awards**"). Any Shares delivered under this Plan may consist, in whole or in part, of authorized and unissued shares or treasury shares.

(b) **Application of Limitation to Grants of Awards.** No Award may be granted if the number of Shares to be delivered in connection with such an Award exceeds the number of Reserved and Available Shares. The Committee may adopt reasonable counting procedures to ensure appropriate counting, avoid double counting (as, for example, in the case of tandem or substitute awards), and make adjustments if the number of Shares actually delivered differs from the number of Shares previously counted in connection with an Award.

(c) **Availability of Shares Not Delivered under Awards and Adjustments to Limits.**

(i) If any Shares subject to an Award under this Plan are forfeited, expire or otherwise terminate without issuance of such Shares, or any Award granted under this Plan is settled for cash or otherwise does not result in the issuance of all or a portion of the Shares subject

to such Award or option, the Shares to which those Awards or options were subject shall, to the extent of such forfeiture, expiration, termination, non-issuance or cash settlement, not be deemed to be, and not be counted as, a Currently Outstanding Award.

(ii) In the event that any Option or other Award granted under this Plan is exercised through the tendering of Shares (either actually or by attestation) or by the withholding of Shares by the Company, or withholding tax liabilities arising from such Option or other Award, or option, are satisfied by the tendering of Shares (either actually or by attestation) or by the withholding of Shares by the Company, then only the number of Shares issued net of the Shares tendered or withheld shall be counted for purposes of determining the number of Currently Outstanding Awards.

(iii) Substitute Awards shall not be deemed to be, and not be counted as, Currently Outstanding Awards, and shall not reduce the Reserved and Available Shares authorized for delivery under this Plan or authorized for delivery to a Participant in any period. Additionally, in the event that an entity acquired by the Company or any Related Entity or with which the Company or any Related Entity combines has shares available under a pre-existing plan approved by its shareholders and not adopted in contemplation of such acquisition or combination, the shares available for delivery pursuant to the terms of such pre-existing plan (as adjusted, to the extent appropriate, using the exchange ratio or other adjustment or valuation ratio or formula used in such acquisition or combination to determine the consideration payable to the holders of common stock of the entities party to such acquisition or combination) may be used for Awards under this Plan and shall not reduce the Reserved and Available Shares authorized for delivery under this Plan if and to the extent that the use of such Shares would not require approval of the Company's shareholders under the rules of the Listing Market. Awards using such available shares shall not be made after the date awards or grants could have been made under the terms of the pre-existing plan, absent the acquisition or combination, and shall only be made to individuals who were not Employees or Directors prior to such acquisition or combination.

(iv) Any Share that shall not be deemed to be, and not be counted as, a Currently Outstanding Award pursuant to this [Section 4\(c\)](#), shall be considered as one (1) Share.

(v) Notwithstanding anything in this [Section 4\(c\)](#) to the contrary but subject to adjustment as provided in [Section 9\(c\)](#) hereof, the maximum aggregate number of Shares that may be delivered under this Plan as a result of the exercise of Incentive Stock Options shall be 20,000,000. In no event shall any Incentive Stock Options be granted under this Plan after the tenth anniversary of the Effective Date.

(vi) Notwithstanding anything in this [Section 4](#) to the contrary, but subject to adjustment as provided in [Section 9\(c\)](#) hereof, in any fiscal year of the Company during any part of which this Plan is in effect, no Participant who is a Director but is not also an Employee or Consultant may be granted any Awards that have a "fair value" as of the date of grant, as determined in accordance with FASB ASC Topic 718 (or any other applicable accounting guidance), that exceeds \$1,000,000 in the aggregate.

(vii) In light of the adoption of this Plan, no awards may be granted under the Prior Plans after the Effective Date. Any awards granted under the Prior Plans prior to the Effective Date shall remain outstanding subject to the terms and conditions set forth in the applicable award agreements and the applicable Prior Plan.

5. **Eligibility.** Awards may be granted under this Plan only to Eligible Persons.

6. *Specific Terms of Awards.*

(a) **General.** Awards may be granted on the terms and conditions set forth in this Section 6. In addition, the Committee may impose on any Award or the exercise thereof, at the date of grant or thereafter (subject to Section 9(c) hereof), such additional terms and conditions, not inconsistent with the provisions of this Plan, as the Committee shall determine, including terms requiring forfeiture of Awards in the event of termination of the Participant's Continuous Service and terms permitting a Participant to make elections relating to his or her Award. Except as otherwise expressly provided herein, the Committee shall retain full power and discretion to accelerate, waive or modify, at any time, any term or condition of an Award that is not mandatory under this Plan subject to applicable law and the rules of the Listing Market. Except in cases in which the Committee is authorized to require other forms of consideration under this Plan, or to the extent other forms of consideration must be paid to satisfy the requirements of the laws of the Province of Ontario, Canada and the Listing Market, no consideration other than services may be required for the grant (as opposed to the exercise) of any Award.

(b) **Options.** The Committee is authorized to grant Options to any Eligible Person on the following terms and conditions:

(i) **Exercise Price.** Other than in connection with Substitute Awards, the exercise price per Share purchasable under an Option shall be determined by the Committee, provided that such exercise price shall not be less than 100% of the Fair Market Value of a Share on the date of grant of the Option. If an Employee owns or is deemed to own (by reason of the attribution rules applicable under Section 424(d) of the Code) more than 10% of the combined voting power of all classes of stock of the Company (or any parent corporation or subsidiary corporation of the Company, as those terms are defined in Sections 424(e) and (f) of the Code, respectively) and an Incentive Stock Option is granted to such Employee, the exercise price of such Incentive Stock Option (to the extent required by the Code at the time of grant) shall be no less than 110% of the Fair Market Value of a Share on the date such Incentive Stock Option is granted. Other than pursuant to Sections 9(c)(i) and 9(c)(ii) hereof, the Committee shall not be permitted to (A) lower the exercise price per Share of an Option after it is granted, (B) cancel an Option when the exercise price per Share exceeds the Fair Market Value of the underlying Shares in exchange for cash or another Award (other than in connection with Substitute Awards), (C) cancel an outstanding Option in exchange for an Option with an exercise price that is less than the exercise price of the original Options, or (D) take any other action with respect to an Option that may be treated as a repricing pursuant to the applicable rules of the Listing Market, in each case without approval of the Company's shareholders and, if applicable, the Listing Market.

(ii) **Time and Method of Exercise.** The Committee shall determine the time or times at which or the circumstances under which an Option may be exercised in whole or in part (including based on achievement of performance goals and/or future service requirements), the method by which notice of exercise is to be given and the form of exercise notice to be used, the time or times at which Options shall cease to be or become exercisable following termination of Continuous Service or upon other conditions, the methods by which the exercise price may be paid or deemed to be paid (including in the discretion of the Committee a cashless exercise procedure), the form of such payment, including, without limitation, cash, Shares (including without limitation the withholding of Shares otherwise deliverable pursuant to the Award), other Awards or awards granted under other plans of the Company or a Related Entity, or other property (including notes or other contractual obligations of Participants to make payment on a deferred basis provided that such deferred payments are not in violation of Section 13(k) of the Exchange Act, if applicable, or any rule or regulation adopted thereunder or any other applicable law), and the methods by or forms in which Shares will be delivered or deemed to be delivered to Participants.

(iii) **Settlement With Restricted Stock.** The Committee may, in its sole discretion, provide that the Shares to be issued upon exercise of an Option shall be in the form of Restricted Stock or other similar securities.

(iv) **Incentive Stock Options.** The terms of any Incentive Stock Option granted under this Plan shall comply in all respects with the provisions of Section 422 of the Code. Anything in this Plan to the contrary notwithstanding, no term of this Plan relating to Incentive Stock Options (including any Stock Appreciation Right issued in tandem therewith) shall be interpreted, amended or altered, nor shall any discretion or authority granted under this Plan be exercised, so as to disqualify either this Plan or any Incentive Stock Option under Section 422 of the Code, unless the Participant has first requested, or consents to, the change that will result in such disqualification. Thus, if and to the extent required to comply with Section 422 of the Code, Options granted as Incentive Stock Options shall be subject to the following special terms and conditions:

(A) the Option shall not be exercisable for more than ten years after the date such Incentive Stock Option is granted; *provided, however,* that, if a Participant owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10% of the combined voting power of all classes of stock of the Company (or any parent corporation or subsidiary corporation of the Company, as those terms are defined in Sections 424(e) and (f) of the Code, respectively) and the Incentive Stock Option is granted to such Participant, the term of the Incentive Stock Option shall be (to the extent required by the Code at the time of the grant) for no more than five years from the date of grant;

(B) the aggregate Fair Market Value (determined as of the date the Incentive Stock Option is granted) of the Shares with respect to which Incentive Stock Options granted under this Plan and all other option plans of the Company (and any parent corporation or subsidiary corporation of the Company, as those terms are defined in Sections 424(e) and (f) of the Code, respectively) that become exercisable for the first time by the Participant during any calendar year shall not (to the extent required by the Code at the time of the grant) exceed \$100,000; and

(C) if Shares acquired by exercise of an Incentive Stock Option are disposed of within two years following the date the Incentive Stock Option is granted or one year following the transfer of such Shares to the Participant upon exercise, the Participant shall, promptly following such disposition, notify the Company in writing of the date and terms of such disposition and provide such other information regarding the disposition as the Committee may reasonably require.

(c) **Stock Appreciation Rights.** The Committee may grant Stock Appreciation Rights to any Eligible Person in conjunction with all or part of any Option granted under this Plan or at any subsequent time during the term of such Option (a "**Tandem Stock Appreciation Right**"), or without regard to any Option (a "**Freestanding Stock Appreciation Right**"), in each case upon such terms and conditions as the Committee may establish in its sole discretion, not inconsistent with the provisions of this Plan, including the following:

(i) **Right to Payment.** A Stock Appreciation Right shall confer on the Participant to whom it is granted a right to receive, upon exercise thereof, the excess of (A) the Fair Market Value of one Share on the date of exercise over (B) the grant price of the Stock Appreciation Right as determined by the Committee. The grant price of a Stock Appreciation Right shall not be

less than 100% of the Fair Market Value of a Share on the date of grant, in the case of a Freestanding Stock Appreciation Right, or less than the associated Option exercise price, in the case of a Tandem Stock Appreciation Right. Other than pursuant to Sections 9(c)(i) and 9(c)(ii) hereof, the Committee shall not be permitted to (A) lower the grant price per Share of a Stock Appreciation Right after it is granted, (B) cancel a Stock Appreciation Right when the grant price per Share exceeds the Fair Market Value of the underlying Shares in exchange for another Award (other than in connection with Substitute Awards), (C) cancel an outstanding Stock Appreciation Right in exchange for a Stock Appreciation Right with a grant price that is less than the grant price of the original Stock Appreciation Right, or (D) take any other action with respect to a Stock Appreciation Right that may be treated as a repricing pursuant to the applicable rules of the Listing Market, in each case without approval of the Company's shareholders and, if applicable, the Listing Market.

(ii) **Other Terms.** The Committee shall determine at the date of grant or thereafter, the time or times at which and the circumstances under which a Stock Appreciation Right may be exercised in whole or in part (including based on achievement of performance goals and/or future service requirements), the time or times at which Stock Appreciation Rights shall cease to be or become exercisable following termination of Continuous Service or upon other conditions, the method of exercise, method of settlement, form of consideration payable in settlement, method by or forms in which Shares will be delivered or deemed to be delivered to Participants, whether or not a Stock Appreciation Right shall be in tandem or in combination with any other Award, and any other terms and conditions of any Stock Appreciation Right.

(iii) **Tandem Stock Appreciation Rights.** Any Tandem Stock Appreciation Right may be granted at the same time as the related Option is granted or, for Options that are not Incentive Stock Options, at any time thereafter before exercise or expiration of such Option. Any Tandem Stock Appreciation Right related to an Option may be exercised only when the related Option would be exercisable and the Fair Market Value of the Shares subject to the related Option exceeds the exercise price at which Shares can be acquired pursuant to the Option. In addition, if a Tandem Stock Appreciation Right exists with respect to less than the full number of Shares covered by a related Option, then an exercise or termination of such Option shall not reduce the number of Shares to which the Tandem Stock Appreciation Right applies until the number of Shares then exercisable under such Option equals the number of Shares to which the Tandem Stock Appreciation Right applies. Any Option related to a Tandem Stock Appreciation Right shall no longer be exercisable to the extent the Tandem Stock Appreciation Right has been exercised, and any Tandem Stock Appreciation Right shall no longer be exercisable to the extent the related Option has been exercised.

(d) **Restricted Stock Awards.** The Committee is authorized to grant Restricted Stock Awards to any Eligible Person on the following terms and conditions:

(i) **Grant and Restrictions.** Restricted Stock Awards shall be subject to such restrictions on transferability, risk of forfeiture and other restrictions, if any, as the Committee may impose, or as otherwise provided in this Plan during the Restriction Period. The terms of any Restricted Stock Award granted under this Plan shall be set forth in a written Award Agreement which shall contain provisions determined by the Committee and not inconsistent with this Plan. The restrictions may lapse separately or in combination at such times, under such circumstances (including based on achievement of performance goals and/or future service requirements), in such installments or otherwise, as the Committee may determine at the date of grant or thereafter. Except to the extent restricted under the terms of this Plan and any Award Agreement relating to a Restricted Stock Award, a Participant granted Restricted Stock shall have all of the rights of a shareholder, including the right to vote the Restricted Stock and the right to receive dividends

thereon (subject to any mandatory reinvestment or other requirement imposed by the Committee). During the period that the Restricted Stock Award is subject to a risk of forfeiture, subject to Section 9(b) hereof and except as otherwise provided in the Award Agreement, the Restricted Stock may not be sold, transferred, pledged, hypothecated, margined or otherwise encumbered by the Participant or Beneficiary.

(ii) **Forfeiture.** Except as otherwise determined by the Committee, upon termination of a Participant's Continuous Service during the applicable Restriction Period, the Participant's Restricted Stock that is at that time subject to a risk of forfeiture that has not lapsed or otherwise been satisfied shall be forfeited and reacquired by the Company; *provided* that the Committee may provide, by resolution or other action or in any Award Agreement, or may determine in any individual case, that forfeiture conditions relating to Restricted Stock Awards shall be waived in whole or in part in the event of terminations resulting from specified causes, and the Committee may in other cases waive in whole or in part the forfeiture of Restricted Stock, subject to the applicable rules of the Listing Market.

(iii) **Certificates for Stock.** Restricted Stock granted under this Plan may be evidenced in such manner as the Committee shall determine. If certificates representing Restricted Stock are registered in the name of the Participant, the Committee may require that such certificates bear an appropriate legend referring to the terms, conditions and restrictions applicable to such Restricted Stock, that the Company retain physical possession of the certificates, and that the Participant deliver a stock power to the Company, endorsed in blank, relating to the Restricted Stock.

(iv) **Dividends and Splits.** As a condition to the grant of a Restricted Stock Award, the Committee may require or permit a Participant to elect that any cash dividends paid on a Share of Restricted Stock be automatically reinvested in additional Shares of Restricted Stock or applied to the purchase of additional Awards under this Plan, or may require that payment be delayed (with or without interest at such rate, if any, as the Committee shall determine) and remain subject to restrictions and a risk of forfeiture to the same extent as the Restricted Stock with respect to which such cash dividend is payable, in each case in a manner that does not violate the requirements of Section 409A of the Code, if applicable. Unless otherwise determined by the Committee, Shares distributed in connection with a stock split or stock dividend, and other property distributed as a dividend, shall be subject to restrictions and a risk of forfeiture to the same extent as the Restricted Stock with respect to which such Shares or other property have been distributed.

(e) **Restricted Stock Unit Award.** The Committee is authorized to grant Restricted Stock Unit Awards to any Eligible Person on the following terms and conditions:

(i) **Award and Restrictions.** Satisfaction of a Restricted Stock Unit Award shall occur upon expiration of the deferral period specified for such Restricted Stock Unit Award by the Committee (or, if permitted by the Committee, as elected by the Participant in a manner that does not violate the requirements of Section 409A of the Code, if applicable). In addition, a Restricted Stock Unit Award shall be subject to such restrictions (which may include a risk of forfeiture) as the Committee may impose, if any, which restrictions may lapse at the expiration of the deferral period or at earlier specified times (including based on achievement of performance goals and/or future service requirements), separately or in combination, in installments or otherwise, as the Committee may determine. A Restricted Stock Unit Award may be satisfied by delivery of Shares, cash equal to the Fair Market Value of the specified number of Shares covered by the Restricted Stock Units, or a combination thereof, as determined by the Committee at the date of grant or thereafter. Prior to satisfaction of a Restricted Stock Unit Award, a Restricted Stock

Unit Award carries no voting or dividend or other rights associated with Share ownership. Prior to satisfaction of a Restricted Stock Unit Award, except as otherwise provided in an Award Agreement and as permitted under Section 409A of the Code, if applicable, a Restricted Stock Unit Award may not be sold, transferred, pledged, hypothecated, margined or otherwise encumbered by the Participant or any Beneficiary.

(ii) **Forfeiture.** Except as otherwise determined by the Committee, upon termination of a Participant's Continuous Service during the applicable deferral period or portion thereof to which forfeiture conditions apply (as provided in the Award Agreement evidencing the Restricted Stock Unit Award), the Participant's Restricted Stock Unit Award that is at that time subject to a risk of forfeiture that has not lapsed or otherwise been satisfied shall be forfeited; *provided* that the Committee may provide, by resolution or other action or in any Award Agreement, or may determine in any individual case, that forfeiture conditions relating to a Restricted Stock Unit Award shall be waived in whole or in part in the event of terminations resulting from specified causes, and the Committee may in other cases waive in whole or in part the forfeiture of any Restricted Stock Unit Award, subject to the applicable rules of the Listing Market.

(iii) **Dividend Equivalents.** Unless otherwise determined by the Committee at the date of grant, and except as otherwise provided in the last sentence of [Section 6\(h\)](#) hereof, any Dividend Equivalents that are granted with respect to any Restricted Stock Unit Award shall be either (A) paid with respect to such Restricted Stock Unit Award at the dividend payment date in cash or in Shares of unrestricted stock having a Fair Market Value equal to the amount of such dividends, or (B) deferred (with or without interest as determined by the Committee in its sole discretion) with respect to such Restricted Stock Unit Award and the amount or value thereof may be automatically deemed reinvested in additional Restricted Stock Units, other Awards or other investment vehicles, as the Committee shall determine or permit the Participant to elect. The applicable Award Agreement shall specify whether any Dividend Equivalents shall be paid at the dividend payment date, deferred or deferred at the election of the Participant. If the Participant may elect to defer the Dividend Equivalents, such election shall be made within 30 days after the grant date of the Restricted Stock Unit Award, but in no event later than 12 months before the first date on which any portion of such Restricted Stock Unit Award vests (or at such other times prescribed by the Committee as shall not result in a violation of Section 409A of the Code, if applicable).

(f) **Deferred Share Unit Award.** The Committee is authorized to grant Deferred Share Unit Awards to any Eligible Person on the following terms and conditions:

(i) **Award and Restrictions.** Satisfaction of a vested Deferred Share Unit Award shall occur upon the termination of a Participant's Continuous Service for any reason (including death), provided that such termination constitutes a separation from service within the meaning of Section 409A of the Code or a loss of office or employment pursuant to regulation 6801(d) of the *Income Tax Act* (Canada). In addition, a Deferred Share Unit Award shall be subject to such restrictions (which may include a risk of forfeiture) as the Committee may impose, if any, which restrictions may lapse at the expiration of the deferral period or at earlier specified times (including based on achievement of performance goals and/or future service requirements), separately or in combination, in installments or otherwise, as the Committee may determine. A Deferred Share Unit Award may be satisfied by delivery of Shares, cash equal to the Fair Market Value of the specified number of Shares covered by the Deferred Share Units, or a combination thereof, as determined by the Committee at the date of grant or thereafter. Prior to satisfaction of a Deferred Share Unit Award, a Deferred Share Unit Award carries no voting or dividend or other

rights associated with Share ownership. Prior to satisfaction of a Deferred Share Unit Award, except as otherwise provided in an Award Agreement and as permitted under Section 409A of the Code, if applicable, a Deferred Share Unit Award may not be sold, transferred, pledged, hypothecated, margined or otherwise encumbered by the Participant or any Beneficiary.

(ii) **Forfeiture.** Except as otherwise determined by the Committee, upon termination of a Participant's Continuous Service during the applicable deferral period or portion thereof to which forfeiture conditions apply (as provided in the Award Agreement evidencing the Deferred Share Unit Award), the Participant's Deferred Share Unit Award that is at that time subject to a risk of forfeiture that has not lapsed or otherwise been satisfied shall be forfeited; *provided* that the Committee may provide, by resolution or other action or in any Award Agreement, or may determine in any individual case, that forfeiture conditions relating to a Deferred Share Unit Award shall be waived in whole or in part in the event of terminations resulting from specified causes, and the Committee may in other cases waive in whole or in part the forfeiture of any Deferred Share Unit Award, subject to the applicable rules of the Listing Market.

(iii) **Dividend Equivalents.** Unless otherwise determined by the Committee at the date of grant, and except as otherwise provided in the last sentence of Section 6(h) hereof, any Dividend Equivalents that are granted with respect to any Deferred Share Unit Award shall be either (A) paid with respect to such Deferred Share Unit Award at the dividend payment date in cash or in Shares of unrestricted stock having a Fair Market Value equal to the amount of such dividends, or (B) deferred (with or without interest as determined by the Committee in its sole discretion) with respect to such Deferred Share Unit Award and the amount or value thereof may be automatically deemed reinvested in additional Deferred Share Units, other Awards or other investment vehicles, as the Committee shall determine or permit the Participant to elect. The applicable Award Agreement shall specify whether any Dividend Equivalents shall be paid at the dividend payment date, deferred or deferred at the election of the Participant. If the Participant may elect to defer the Dividend Equivalents, such election shall be made within 30 days after the grant date of the Deferred Share Unit Award, but in no event later than 12 months before the first date on which any portion of such Deferred Share Unit Award vests (or at such other times prescribed by the Committee as shall not result in a violation of Section 409A of the Code, if applicable).

(g) **Bonus Stock and Awards in Lieu of Obligations.** The Committee is authorized to grant Shares to any Eligible Persons as a bonus, or to grant Shares or other Awards in lieu of obligations to pay cash or deliver other property under this Plan or under other plans or compensatory arrangements, provided that, in the case of Eligible Persons subject to Section 16 of the Exchange Act, the amount of such grants remains within the discretion of the Committee to the extent necessary to ensure that acquisitions of Shares or other Awards are exempt from liability under Section 16(b) of the Exchange Act, if applicable. Shares or Awards granted hereunder shall be subject to such other terms as shall be determined by the Committee.

(h) **Dividend Equivalents.** The Committee is authorized to grant Dividend Equivalents to any Eligible Person entitling the Eligible Person to receive cash, Shares, other Awards, or other property equal in value to the dividends paid with respect to a specified number of Shares, or other periodic payments. Dividend Equivalents may be awarded on a free-standing basis or in connection with another Award. Except as otherwise provided in the last sentence of Section 6(h) hereof, the Committee may provide that Dividend Equivalents shall be paid or distributed when accrued or at some later date, or whether such Dividend Equivalents shall be deemed to have been reinvested in additional Shares, Awards, or other investment vehicles, and subject to such restrictions on transferability and risks of forfeiture, as the Committee may specify. Any such determination by the Committee shall be made at the grant date of the

applicable Award. Notwithstanding the foregoing, Dividend Equivalents credited in connection with an Award that vests based on the achievement of performance goals shall be subject to restrictions and risk of forfeiture to the same extent as the Award with respect to which such Dividend Equivalents have been credited.

(i) **Performance Awards.** The Committee is authorized to grant Performance Awards to any Eligible Person payable in cash, Shares, or other Awards, on terms and conditions established by the Committee. The performance criteria to be achieved during any Performance Period and the length of the Performance Period shall be determined by the Committee upon the grant of each Performance Award. Except as provided in Section 8 hereof or as may be provided in an Award Agreement, Performance Awards will be distributed only after the end of the relevant Performance Period. The performance goals to be achieved for each Performance Period shall be conclusively determined by the Committee. The amount of the Award to be distributed shall be conclusively determined by the Committee. Performance Awards may be paid in a lump sum or in installments following the close of the Performance Period or, in accordance with procedures established by the Committee, on a deferred basis in a manner that does not violate the requirements of Section 409A of the Code, if applicable.

(j) **Other Stock-Based Awards.** The Committee is authorized, subject to limitations under applicable law, to grant to any Eligible Person such other Awards that may be denominated or payable in, valued in whole or in part by reference to, or otherwise based on, or related to, Shares, as deemed by the Committee to be consistent with the purposes of this Plan. Other Stock-Based Awards may be granted to Participants either alone or in addition to other Awards granted under this Plan, and such Other Stock-Based Awards shall also be available as a form of payment in the settlement of other Awards granted under this Plan. The Committee shall determine the terms and conditions of such Awards. Shares delivered pursuant to an Award in the nature of a purchase right granted under this Section 6(j) shall be purchased for such consideration (including without limitation loans from the Company or a Related Entity provided that such loans are not in violation of Section 13(k) of the Exchange Act, if applicable, or any rule or regulation adopted thereunder or any other applicable law), paid for at such times, by such methods, and in such forms, including, without limitation, cash, Shares, other Awards or other property, as the Committee shall determine.

7. Certain Provisions Applicable to Awards.

(a) **Stand-Alone, Additional, Tandem, and Substitute Awards.** Awards granted under this Plan may, in the discretion of the Committee, be granted either alone or in addition to, in tandem with, or in substitution or exchange for, any other Award or any award granted under another plan of the Company, any Related Entity, or any business entity to be acquired by the Company or a Related Entity, or any other right of a Participant to receive payment from the Company or any Related Entity. Such additional, tandem, and substitute or exchange Awards may be granted at any time. If an Award is granted in substitution or exchange for another Award or award, the Committee shall require the surrender of such other Award or award in consideration for the grant of the new Award. In addition, Awards may be granted in lieu of cash compensation, including in lieu of cash amounts payable under other plans of the Company or any Related Entity, in which the value of Shares subject to the Award is equivalent in value to the cash compensation (for example, Restricted Stock or Restricted Stock Units), or in which the exercise price, grant price or purchase price of the Award in the nature of a right that may be exercised is equal to the Fair Market Value of the underlying Shares minus the value of the cash compensation surrendered (for example, Options or Stock Appreciation Right granted with an exercise price or grant price “discounted” by the amount of the cash compensation surrendered), provided that any such determination to grant an Award in lieu of cash compensation must be made in a manner intended to be exempt from or comply with Section 409A of the Code.

(b) **Term of Awards.** The term of each Award shall be for such period as may be determined by the Committee; *provided* that in no event shall the term of any Option or Stock Appreciation Right exceed a period of ten years (or in the case of an Incentive Stock Option such shorter term as may be required under Section 422 of the Code); *provided, however*, that, in the event that on the last day of the term of an Option or a Stock Appreciation Right, other than an Incentive Stock Option, (i) the exercise of the Option or Stock Appreciation Right is prohibited by applicable law, or (ii) Shares may not be purchased, or sold by certain employees or directors of the Company due to the “black-out period” of a Company policy or a “lock-up” agreement undertaken in connection with an issuance of securities by the Company, the term of the Option or Stock Appreciation Right may be extended by the Committee for a period of up to 30 days following the end of the legal prohibition, black-out period or lock-up agreement, provided that such extension of the term of the Option or Stock Appreciation Right would not cause the Option or Stock Appreciation Right to violate the requirements of Section 409A of the Code, if applicable.

(c) **Form and Timing of Payment Under Awards; Deferrals.** Subject to the terms of this Plan and any applicable Award Agreement, payments to be made by the Company or a Related Entity upon the exercise of an Option or other Award or settlement of an Award may be made in such forms as the Committee shall determine, including, without limitation, cash, Shares, other Awards or other property, and may be made in a single payment or transfer, in installments, or on a deferred basis, provided that any determination to pay in installments or on a deferred basis shall be made by the Committee at the date of grant. Any installment or deferral provided for in the preceding sentence shall, however, subject to the terms of this Plan, be subject to the Company’s compliance with the provisions of the Sarbanes-Oxley Act of 2002, as amended, if applicable, the applicable rules and regulations adopted by the Securities and Exchange Commission thereunder, all applicable rules of the Listing Market and any other applicable law, and in a manner intended to be exempt from or otherwise satisfy the requirements of Section 409A of the Code, if applicable. Subject to Section 7(e) hereof and the applicable rules of the Listing Market, the settlement of any Award may be accelerated, and cash paid in lieu of Shares in connection with such settlement, in the sole discretion of the Committee or upon occurrence of one or more specified events (in addition to a Change in Control). Any such settlement shall be at a value determined by the Committee in its sole discretion, which, without limitation, may in the case of an Option or Stock Appreciation Right be limited to the amount if any by which the Fair Market Value of a Share on the settlement date exceeds the exercise or grant price. Installment or deferred payments may be required by the Committee (subject to Section 7(e) hereof, including the consent provisions thereof in the case of any deferral of an outstanding Award not provided for in the original Award Agreement) or permitted at the election of the Participant on terms and conditions established by the Committee. The acceleration of the settlement of any Award, and the payment of any Award in installments or on a deferred basis, all shall be done in a manner that is intended to be exempt from or otherwise satisfy the requirements of Section 409A of the Code, if applicable. The Committee may, without limitation, make provision for the payment or crediting of a reasonable interest rate on installment or deferred payments or the grant or crediting of Dividend Equivalents or other amounts in respect of installment or deferred payments denominated in Shares.

(d) **Exemptions from Section 16(b) Liability.** It is the intent of the Company that the grant of any Awards to or other transaction by a Participant who is subject to Section 16 of the Exchange Act shall be exempt from Section 16 pursuant to an applicable exemption (except for transactions acknowledged in writing to be non-exempt by such Participant). Accordingly, if any provision of this Plan or any Award Agreement does not comply with the requirements of Rule 16b-3 then applicable to any such transaction, such provision shall be construed or deemed amended to the extent necessary to conform to the applicable requirements of Rule 16b-3 so that such Participant shall avoid liability under Section 16(b) of the Exchange Act.

(e) *Code Section 409A.*

(i) The Award Agreement for any Award that the Committee reasonably determines to constitute a “nonqualified deferred compensation plan” under, and that is subject to, Section 409A of the Code (a “**Section 409A Plan**”), and the provisions of the Section 409A Plan applicable to that Award, shall be construed in a manner consistent with the applicable requirements of Section 409A of the Code, and the Committee, in its sole discretion and without the consent of any Participant, may amend any Award Agreement (and the provisions of this Plan applicable thereto) if and to the extent that the Committee determines that such amendment is necessary or appropriate to comply with the requirements of Section 409A of the Code.

(ii) If any Award constitutes a Section 409A Plan, then the Award shall be subject to the following additional requirements, if and to the extent required to comply with Section 409A of the Code:

(A) Payments under the Section 409A Plan may be made only upon (u) the Participant’s “separation from service”, (v) the date the Participant becomes “disabled”, (w) the Participant’s death, (x) a “specified time (or pursuant to a fixed schedule)” specified in the Award Agreement at the date of the deferral of such compensation, (y) a “change in the ownership or effective control of the corporation, or in the ownership of a substantial portion of the assets” of the Company, or (z) the occurrence of an “unforeseeable emergency”;

(B) The time or schedule for any payment of the deferred compensation may not be accelerated, except to the extent provided in applicable Treasury Regulations or other applicable guidance issued by the Internal Revenue Service;

(C) Any elections with respect to the deferral of such compensation or the time and form of distribution of such deferred compensation shall comply with the requirements of Section 409A(a)(4) of the Code; and

(D) In the case of any Participant who is “specified employee”, a distribution on account of a “separation from service” may not be made before the date which is six months after the date of the Participant’s “separation from service” (or, if earlier, the date of the Participant’s death).

For purposes of the foregoing, the terms in quotations shall have the same meanings as those terms have for purposes of Section 409A of the Code, and the limitations set forth herein shall be applied in such manner (and only to the extent) as shall be necessary to comply with any requirements of Section 409A of the Code that are applicable to the Award.

(iii) Notwithstanding the foregoing, or any provision of this Plan or any Award Agreement, the Company does not make any representation to any Participant or Beneficiary that any Awards made pursuant to this Plan are exempt from, or satisfy, the requirements of, Section 409A of the Code, and the Company shall have no liability or other obligation to indemnify or hold harmless the Participant or any Beneficiary for any tax, additional tax, interest or penalties that the Participant or any Beneficiary may incur in the event that any provision of this Plan, or any Award Agreement, or any amendment or modification thereof, or any other action taken with respect thereto, is deemed to violate any of the requirements of Section 409A of the Code.

8. *Change in Control.*

(a) **Effect of “Change in Control”.** If and only to the extent provided in any employment or other agreement between the Participant and the Company or any Related Entity, or in any Award Agreement, or to the extent otherwise determined by the Committee in its sole discretion and without any requirement that each Participant be treated consistently, and except as otherwise provided in Section 8(a)(iv) hereof, upon the occurrence of a “Change in Control”, as defined in Section 8(b) hereof:

(i) Any Option or Stock Appreciation Right that was not previously vested and exercisable as of the time of the Change in Control, may become immediately vested and exercisable, subject to applicable restrictions set forth in Section 9(a) hereof.

(ii) Any restrictions, deferral of settlement, and forfeiture conditions applicable to a Restricted Stock Award, Restricted Stock Unit Award or an Other Stock-Based Award subject only to future service requirements granted under this Plan may lapse and such Awards shall be deemed fully vested as of the time of the Change in Control, except to the extent of any waiver by the Participant and subject to applicable restrictions set forth in Section 9(a) hereof.

(iii) With respect to any outstanding Award subject to achievement of performance goals and conditions under this Plan, the Committee may, in its discretion, consider such Awards to have been earned and payable based on achievement of performance goals or based upon target performance (either in full or pro-rata based on the portion of the Performance Period completed as of the Change in Control), except to the extent of any waiver by the Participant and subject to applicable restrictions set forth in Section 9(a) hereof.

(iv) Except as otherwise provided in any employment or other agreement for services between the Participant and the Company or any Subsidiary, and unless the Committee otherwise determines in a specific instance, each outstanding Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award or Other Stock-Based Award shall not be accelerated as described in Sections 8(a)(i), (ii), and (iii), if either (A) the Company is the surviving entity in the Change in Control and the Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award or Other Stock-Based Award continues to be outstanding after the Change in Control on substantially the same terms and conditions as were applicable immediately prior to the Change in Control, or (B) the successor company or its parent company assumes or substitutes for the applicable Award, as determined in accordance with Section 9(c)(ii) hereof.

(b) **Definition of “Change in Control”.** Unless otherwise specified in any employment or other agreement for services between the Participant and the Company or any Related Entity, or in an Award Agreement, a “Change in Control” shall mean the occurrence of any of the following:

(i) The acquisition by any person or entity of beneficial ownership of more than fifty percent (50%) of the combined voting power of the then outstanding voting securities of the Company entitled to vote generally in the election of directors (the “**Outstanding Company Voting Securities**”) (the foregoing beneficial ownership hereinafter being referred to as a “**Controlling Interest**”); *provided, however*, that, for purposes of this Section 8(b), the following acquisitions shall not constitute or result in a Change in Control: (v) any acquisition directly from the Company; (w) any acquisition by the Company; (x) any acquisition by any person that as of the Effective Date owns beneficial ownership of a Controlling Interest; (y) any acquisition by any employee benefit plan (or related trust) sponsored or maintained by the Company or any Related

Entity; or (z) any acquisition by any entity pursuant to a transaction which complies with clauses (1), (2) and (3) of subsection (iii) below; or

(ii) During any period of two (2) consecutive years (not including any period prior to the Effective Date) individuals who constitute the Board on the Effective Date (the “**Incumbent Board**”) cease for any reason to constitute at least a majority of the Board; *provided, however*, that any individual becoming a director subsequent to the Effective Date whose election, or nomination for election by the Company’s stockholders, was approved by a vote of at least a majority of the directors then comprising the Incumbent Board shall be considered as though such individual were a member of the Incumbent Board, but excluding, for this purpose, any such individual whose initial assumption of office occurs as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents by or on behalf of a person other than the Board; or

(iii) Consummation of (A) a reorganization, merger, amalgamation, arrangement, statutory share exchange or consolidation or similar transaction involving (x) the Company or (y) any one or more Subsidiaries whose combined revenues for the prior fiscal year represented more than 50% of the consolidated revenues of the Company and its Subsidiaries for the prior fiscal year (the “**Major Subsidiaries**”), or (B) a sale or other disposition of all or substantially all of the assets of the Company and/or the Major Subsidiaries, or the acquisition of assets or equity of another entity by the Company or any of its Subsidiaries (each of the events referred to in clauses (A) and (B) sometimes hereinafter being referred to a “**Business Combination**”), unless, following such Business Combination, (1) all or substantially all of the individuals and entities who were the beneficial owners, respectively, of the Outstanding Company Voting Securities immediately prior to such Business Combination beneficially own, directly or indirectly, more than fifty percent (50%) of the combined voting power of the then outstanding voting securities entitled to vote generally in the election of members of the board of directors (or comparable governing body of an entity that does not have such a board), as the case may be, of the entity resulting from such Business Combination (including, without limitation, an entity which as a result of such transaction owns the Company or all or substantially all of the Company’s assets either directly or through one or more subsidiaries) (the “**Continuing Entity**”) in substantially the same proportions as their ownership, immediately prior to such Business Combination, of the Outstanding Company Voting Securities (excluding any outstanding voting securities of the Continuing Entity that such beneficial owners hold immediately following the consummation of the Business Combination as a result of their ownership, prior to such consummation, of voting securities of any company or other entity involved in or forming part of such Business Combination other than the Company), (2) no person (excluding any employee benefit plan (or related trust) of the Company or any Continuing Entity or any entity controlled by the Continuing Entity or any person that as of the Effective Date has beneficial ownership of a Controlling Interest) beneficially owns, directly or indirectly, fifty percent (50%) or more of the combined voting power of the then outstanding voting securities of the Continuing Entity except to the extent that such ownership existed prior to the Business Combination, and (3) at least a majority of the members of the Board of Directors or other governing body of the Continuing Entity were members of the Incumbent Board at the time of the execution of the initial agreement, or of the action of the Board, providing for such Business Combination; or

(iv) Approval by the stockholders of the Company of a complete liquidation or dissolution of the Company.

Notwithstanding anything to the contrary herein, the term “Change in Control” shall not include any sale of assets, continuation, merger, amalgamation, arrangement or other transaction effected exclusively for the purpose of changing the domicile of the Company.

9. General Provisions.

(a) **Compliance With Legal and Other Requirements.** The Company may, to the extent deemed necessary or advisable by the Committee, postpone the issuance or delivery of Shares or payment of other benefits under any Award until completion of such registration or qualification of such Shares or other required action under any U.S. or Canadian federal, state or provincial law, rule or regulation, listing or other required action with respect to the Listing Market, or compliance with any other obligation of the Company, as the Committee may consider necessary or appropriate, and may require any Participant to make such representations, furnish such information and comply with or be subject to such other conditions as it may consider appropriate in connection with the issuance or delivery of Shares or payment of other benefits in compliance with applicable laws, rules, and regulations, listing requirements, or other obligations.

(b) **Limits on Transferability; Beneficiaries.** No Award or other right or interest granted under this Plan shall be pledged, hypothecated or otherwise encumbered or subject to any lien, obligation or liability of such Participant to any party, or assigned or transferred by such Participant otherwise than by will or the laws of descent and distribution or to a Beneficiary upon the death of a Participant, and such Awards or rights that may be exercisable shall be exercised during the lifetime of the Participant only by the Participant or his or her guardian or legal representative, except that Awards and other rights (other than Incentive Stock Options and Stock Appreciation Rights in tandem therewith) may be transferred to one or more Beneficiaries or other transferees during the lifetime of the Participant, and may be exercised by such transferees in accordance with the terms of such Award, but only if and to the extent such transfers are permitted by the Committee pursuant to the express terms of an Award Agreement (subject to any terms and conditions which the Committee may impose thereon), are by gift or pursuant to a domestic relations order, and are to a “**Permitted Assignee**” that is a permissible transferee under the applicable rules of the Securities and Exchange Commission for registration of securities on a Form S-8 registration statement. For this purpose, a Permitted Assignee shall mean (i) the Participant’s spouse, children or grandchildren (including any adopted and step children or grandchildren), parents, grandparents or siblings, (ii) a trust for the benefit of one or more of the Participant or the persons referred to in clause (i), (iii) a partnership, limited liability company or corporation in which the Participant or the persons referred to in clauses (i) and (ii) are the only partners, members or shareholders, (iv) a foundation in which any person or entity designated in clauses (i), (ii) or (iii) above control the management of assets, or (v) a “permitted assign”, as defined in National Instrument 45-106—*Prospectus Exemptions* of the Canadian Securities Administrators. For this purpose, “permitted assign” means, for a person that is an employee, executive officer, director or consultant of an issuer or of a related entity of the issuer: (t) a trustee, custodian, or administrator acting on behalf of, or for the benefit of the person; (u) a holding entity of the person; (v) a RRSP, RRIF, or TFSA of the person; (w) a spouse of the person; (x) a trustee, custodian, or administrator acting on behalf of, or for the benefit of the spouse of the person; (y) a holding entity of the spouse of the person; or (z) a RRSP, RRIF, or TFSA of the spouse of the person. A Beneficiary, transferee, or other person claiming any rights under this Plan from or through any Participant shall be subject to all terms and conditions of this Plan and any Award Agreement applicable to such Participant, except as otherwise determined by the Committee, and to any additional terms and conditions deemed necessary or appropriate by the Committee.

(c) *Adjustments.*

(i) *Adjustments to Awards.* In the event that any extraordinary dividend or other distribution (whether in the form of cash, Shares, or other property), recapitalization, forward or reverse split, reorganization, merger, consolidation, spin-off, combination, repurchase, share exchange, liquidation, dissolution or other similar corporate transaction or event affects the Shares and/or such other securities of the Company or any other issuer, then the Committee shall, in such manner as it may deem appropriate and equitable, substitute, exchange or adjust any or all of (A) the number and kind of Shares which may be delivered in connection with Awards granted thereafter, (B) the number and kind of Shares by which annual per-person Award limitations are measured under [Section 4](#) hereof, (C) the number and kind of Shares subject to or deliverable in respect of outstanding Awards, (D) the exercise price, grant price or purchase price relating to any Award and/or make provision for payment of cash or other property in respect of any outstanding Award, and (E) any other aspect of any Award that the Committee determines to be appropriate in order to prevent the reduction or enlargement of benefits under any Award.

(ii) *Adjustments in Case of Certain Transactions.* In the event of any merger, amalgamation, arrangement, consolidation or other reorganization in which the Company does not survive, or in the event of any Change in Control (and subject to the provisions of [Section 8](#) hereof relating to the vesting of Awards in the event of any Change in Control), any outstanding Awards may be dealt with in accordance with any of the following approaches, without the requirement of obtaining any consent or agreement of a Participant as such, as determined by the agreement effectuating the transaction or, if and to the extent not so determined, as determined by the Committee: (A) the continuation of the outstanding Awards by the Company, if the Company is a surviving entity, (B) the assumption or substitution for, as those terms are defined below, the outstanding Awards by the surviving entity or its parent or subsidiary, (C) full exercisability or vesting and accelerated expiration of the outstanding Awards, or (D) settlement of the value of the outstanding Awards in cash or cash equivalents or other property followed by cancellation of such Awards (which value, in the case of Options or Stock Appreciation Rights, shall be measured by the amount, if any, by which the Fair Market Value of a Share exceeds the exercise or grant price of the Option or Stock Appreciation Right as of the effective date of the transaction). For the purposes of this Plan, an Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, Performance Award or Other Stock-Based Award shall be considered assumed or substituted for if following the applicable transaction the Award confers the right to purchase or receive, for each Share subject to the Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, Performance Award or Other Stock-Based Award immediately prior to the applicable transaction, on substantially the same vesting and other terms and conditions as were applicable to the Award immediately prior to the applicable transaction, the consideration (whether stock, cash or other securities or property) received in the applicable transaction by holders of Shares for each Share held on the effective date of such transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); *provided, however*, that, if such consideration received in the applicable transaction is not solely common stock of the successor company or its parent or subsidiary, the Committee may, with the consent of the successor company or its parent or subsidiary, provide that the consideration to be received upon the exercise or vesting of an Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, Performance Award or Other Stock-Based Award, for each Share subject thereto, will be solely common stock of the successor company or its parent or subsidiary substantially equal in fair market value to the per share consideration received by holders of Shares in the applicable transaction. The determination of such substantial equality of value of consideration shall be made by the Committee in its sole discretion and its determination shall be conclusive and binding. The Committee shall give written

notice of any proposed transaction referred to in this Section 9(c)(ii) a reasonable period of time prior to the closing date for such transaction (which notice may be given either before or after the approval of such transaction), in order that Participants may have a reasonable period of time prior to the closing date of such transaction within which to exercise any Awards that are then exercisable (including any Awards that may become exercisable upon the closing date of such transaction). A Participant may condition his or her exercise of any Awards upon the consummation of the transaction.

(iii) **Other Adjustments.** The Committee is authorized to make adjustments in the terms and conditions of, and the criteria included in, Awards (including Awards subject to satisfaction of performance goals, or performance goals and conditions relating thereto) in recognition of unusual or nonrecurring events (including, without limitation, acquisitions and dispositions of businesses and assets) affecting the Company, any Related Entity or any business unit, or the financial position of the Company or any Related Entity, or in response to changes in applicable laws, regulations, accounting principles, tax rates and regulations or business conditions or in view of the Committee's assessment of the business strategy of the Company, any Related Entity or business unit thereof, performance of comparable organizations, economic and business conditions, personal performance of a Participant, and any other circumstances deemed relevant, subject in all cases to the rules of the Listing Market.

(d) **Award Agreements.** Each Award Agreement shall either be (a) in writing in a form approved by the Committee and executed by the Company by an officer duly authorized to act on its behalf, or (b) an electronic notice in a form approved by the Committee and recorded by the Company (or its designee) in an electronic recordkeeping system used for the purpose of tracking one or more types of Awards as the Committee may provide. In each case and if required by the Committee, the Award Agreement shall be executed or otherwise electronically accepted by the recipient of the Award in such form and manner as the Committee may require. The Committee may authorize any officer of the Company to execute any or all Award Agreements on behalf of the Company. The Award Agreement shall set forth the material terms and conditions of the Award as established by the Committee consistent with the provisions of this Plan.

(e) **Taxes.** The Company and any Related Entity are authorized to withhold from any Award granted, any payment relating to an Award under this Plan, including from a distribution of Shares, or any payroll or other payment to a Participant, amounts of withholding and other taxes due or potentially payable in connection with any transaction involving an Award, and to take such other action as the Committee may deem advisable to enable the Company or any Related Entity and Participants to satisfy obligations for the payment of withholding taxes and other tax obligations relating to any Award. This authority shall include authority to withhold or receive Shares or other property and to make cash payments in respect thereof in satisfaction of a Participant's tax obligations, either on a mandatory or elective basis in the discretion of the Committee. The amount of withholding tax paid with respect to an Award by the withholding of Shares otherwise deliverable pursuant to the Award or by delivering Shares already owned shall not exceed the maximum statutory withholding required with respect to that Award (or such other limit as the Committee shall impose, including without limitation, any limit imposed to avoid or limit any financial accounting expense relating to the Award).

(f) **Changes to this Plan and Awards.** The Board may amend, alter, suspend, discontinue or terminate this Plan, or the Committee's authority to grant Awards under this Plan, without the consent of shareholders or Participants, except that any amendment or alteration to this Plan shall be subject to the approval of the Company's shareholders not later than the annual meeting next following such Board action if such shareholder approval is required by any federal or state law or regulation (including, without limitation, Rule 16b-3) or the rules of the Listing Market, and the Board may otherwise,

in its discretion, determine to submit other such changes to this Plan to shareholders for approval; *provided* that, except as otherwise permitted by this Plan or Award Agreement, without the consent of an affected Participant, no such Board action may materially and adversely affect the rights of such Participant under the terms of any previously granted and outstanding Award. The Committee may waive any conditions or rights under, or amend, alter, suspend, discontinue or terminate any Award theretofore granted and any Award Agreement relating thereto, except as otherwise provided in this Plan; *provided* that, except as otherwise permitted by this Plan or Award Agreement, without the consent of an affected Participant, no such Committee or the Board action may materially and adversely affect the rights of such Participant under terms of such Award.

(g) Clawback of Benefits.

(i) The Company may (A) cause the cancellation of any Award, (B) require reimbursement of any Award by a Participant or Beneficiary, and (C) effect any other right of recoupment of equity or other compensation provided under this Plan if and to the extent the Company determines that doing so would be necessary or appropriate to comply with any applicable laws or stock exchange requirements. By accepting any Award, the Participant is agreeing that all of the Participant's Award Agreements may be unilaterally amended by the Company, without the Participant's consent, to the extent that the Company in its discretion determines to be necessary or appropriate to comply with any applicable laws or stock exchange requirements.

(ii) If the Participant, without the consent of the Company, while employed by or providing services to the Company or any Related Entity or after termination of such employment or service, violates a non-competition, non-solicitation or non-disclosure covenant or agreement or otherwise engages in activity that is in conflict with or adverse to the interest of the Company or any Related Entity, as determined by the Committee in its sole discretion, then (i) any outstanding, vested or unvested, earned or unearned portion of the Award may, at the Committee's discretion, be canceled and (ii) the Committee, in its discretion, may require the Participant or other person to whom any payment has been made or Shares or other property have been transferred in connection with the Award to forfeit and pay over to the Company, on demand, all or any portion of the gain (whether or not taxable) realized upon the exercise of any Option or Stock Appreciation Right and the value realized (whether or not taxable) on the vesting or payment of any other Award during the time period specified in the Award Agreement or otherwise specified by the Committee.

(h) **Automatic Forfeiture.** Unless otherwise set forth in an Award Agreement or determined by the Committee, where a Participant is terminated for Cause, or, in the case of a Director, is otherwise removed as a result of losing his/her eligibility to serve on the Board due to an order by a regulatory body or stock exchange or for culpable conduct as determined by the Committee, all Awards (both vested and unvested) held by such Participant as at the date of such termination or cessation of service shall be immediately cancelled without liability or compensation therefor and be of no further force and effect. Further, unless otherwise set forth in an Award Agreement or determined by the Committee, where a Participant dies or his/her Continuous Service is terminated for any reason other than in the circumstances described in the immediately preceding sentence hereof, all unvested Awards at the time of death or termination shall be cancelled without liability or compensation therefor 90 days following such date, and such unvested Awards shall be of no further force and effect thereafter

(i) **Limitation on Rights Conferred Under Plan.** Neither this Plan nor any action taken hereunder or under any Award shall be construed as (i) giving any Eligible Person or Participant the right to continue as an Eligible Person or Participant or in the employ or service of the Company or a Related Entity; (ii) interfering in any way with the right of the Company or a Related Entity to terminate

any Eligible Person's or Participant's Continuous Service at any time; (iii) giving an Eligible Person or Participant any claim to be granted any Award under this Plan or to be treated uniformly with other Participants and Employees; or (iv) conferring on a Participant any of the rights of a shareholder of the Company or any Related Entity including, without limitation, any right to receive dividends or distributions, any right to vote or act by written consent, any right to attend meetings of shareholders or any right to receive any information concerning the Company's or any Related Entity's business, financial condition, results of operation or prospects, unless and until such time as the Participant is duly issued Shares on the books and records of the Company or any Related Entity (including, if applicable, as the same may be maintained by any applicable registrar and transfer agent of the Company or any Related Entity) in accordance with the terms of an Award. None of the Company, any Related Entity or their respective officers or directors shall have any fiduciary obligation to the Participant with respect to any Awards unless and until the Participant is duly issued Shares pursuant to the Award on the books and records of the Company or any Related Entity (including, if applicable, as the same may be maintained by any applicable registrar and transfer agent of the Company or any Related Entity) in accordance with the terms of an Award. Neither the Company, nor any Related Entity, nor any of their respective officers, directors, representatives or agents is granting any rights under this Plan to the Participant whatsoever, oral or written, express or implied, other than those rights expressly set forth in this Plan or the Award Agreement.

(j) **Unfunded Status of Awards; Creation of Trusts.** This Plan is intended to constitute an "unfunded" plan for incentive and deferred compensation. With respect to any payments not yet made to a Participant or obligation to deliver Shares pursuant to an Award, nothing contained in this Plan or any Award Agreement shall give any such Participant any rights that are greater than those of a general creditor of the Company or Related Entity that issues the Award; *provided* that the Committee may authorize the creation of trusts and deposit therein cash, Shares, other Awards or other property, or make other arrangements to meet the obligations of the Company or Related Entity under this Plan. Such trusts or other arrangements shall be consistent with the "unfunded" status of this Plan unless the Committee otherwise determines with the consent of each affected Participant. The trustee of such trusts may be authorized to dispose of trust assets and reinvest the proceeds in alternative investments, subject to such terms and conditions as the Committee may specify and in accordance with applicable law.

(k) **Non-exclusivity of this Plan.** Neither the adoption of this Plan by the Board nor its submission to the shareholders of the Company for approval shall be construed as creating any limitations on the power of the Board or a committee thereof to adopt such other incentive arrangements as it may deem desirable.

(l) **Payments in the Event of Forfeitures; Fractional Shares.** Unless otherwise determined by the Committee, in the event of a forfeiture of an Award with respect to which a Participant paid cash or other consideration, the Participant shall be repaid the amount of such cash or other consideration. No fractional Shares shall be issued or delivered pursuant to this Plan or any Award. The Committee shall determine whether cash, other Awards or other property shall be issued or paid in lieu of such fractional shares or whether such fractional shares or any rights thereto shall be forfeited or otherwise eliminated.

(m) **Governing Law.** Except as otherwise provided in any Award Agreement, the validity, construction and effect of this Plan, any rules and regulations under this Plan, and any Award Agreement shall be determined in accordance with the laws of the state of Delaware, without giving effect to principles of conflict of laws, and applicable federal law.

(n) **Foreign Laws.** The Committee shall have the authority to adopt such modifications, procedures, and subplans as may be necessary or desirable to comply with provisions of the laws of foreign countries in which the Company or its Related Entities may operate to assure the viability

of the benefits from Awards granted to Participants performing services in such countries and to meet the objectives of this Plan.

(o) **Plan Effective Date and Shareholder Approval; Termination of Plan.** This Plan shall become effective on the Effective Date, subject to subsequent approval, within 12 months of its adoption by the Board, by shareholders of the Company eligible to vote in the election of directors, by a vote sufficient to meet the requirements of Code Section 422, Rule 16b-3 under the Exchange Act (if applicable), applicable requirements under the rules of any stock exchange or automated quotation system on which the Shares may be listed or quoted, and other laws, regulations, and obligations of the Company applicable to this Plan. Awards may be granted subject to shareholder approval but may not be exercised or otherwise settled in the event the shareholder approval is not obtained. This Plan shall terminate at the earliest of (a) such time as no Shares remain available for issuance under this Plan, (b) termination of this Plan by the Board, or (c) the tenth anniversary of the Effective Date. Awards outstanding upon expiration of this Plan shall remain in effect until they have been exercised or terminated or have expired.

(p) **Construction and Interpretation.** Whenever used herein, nouns in the singular shall include the plural, and the masculine pronoun shall include the feminine gender. Headings of Sections hereof are inserted for convenience and reference and constitute no part of this Plan.

(q) **Severability.** If any provision of this Plan or any Award Agreement shall be determined to be illegal or unenforceable by any court of law in any jurisdiction, the remaining provisions hereof and thereof shall be severable and enforceable in accordance with their terms, and all provisions shall remain enforceable in any other jurisdiction.

* * * * *

CANADA

This Schedule A sets out the terms of Awards made to Canadian Taxpayers. The terms of this Plan will apply except to the extent modified by this schedule.

1) Definitions

For purposes of this Schedule:

“**Canadian Taxpayer**” means a Participant who is a resident of Canada or is otherwise subject to tax in Canada whether, including as a result of participating in this Plan.

2) Specific Terms of Awards – Stock Appreciation Rights

For purposes of Section 6(c)(i) hereof (*Right to Payment*), the grant price of any Tandem Stock Appreciation Rights shall be not less than 100% of the Fair Market Value of a Share on the date of grant, regardless of whether such Tandem Stock Appreciation Rights are granted at the same time or subsequent to the Options to which they relate.

3) Specific Terms of Awards – Restricted Stock Awards

For purposes of Section 6(d)(iv) hereof (*Dividends and Splits*), the Committee may require or permit a Participant to elect that any cash dividends paid on a Share of Restricted Stock be automatically reinvested in additional Shares of Restricted Stock but may not be applied to the purchase of additional Awards under this Plan or delayed. Any dividends reinvested in additional Shares of Restricted Stock shall remain subject to the restrictions and a risk of forfeiture to the same extent as the Restricted Stock with respect to which such cash dividend is payable.

4) Specific Terms of Awards – Restricted Stock Unit Award

For purposes of Section 6(e)(i) hereof (*Award and Restrictions*), the Company shall satisfy, and the deferral period shall expire in respect of, any Restricted Stock Unit Awards that are payable in cash, cash and shares, or solely shares if such determination is made by the Committee subsequent to the grant of such Restricted Stock Unit Awards by December 31 of the third year following the year in which the services giving rise to the Restricted Stock Unit Awards were rendered. For greater certainty, such limitations regarding the deferral and satisfaction of Restricted Stock Unit Awards shall not apply to any Restricted Stock Unit Awards if, at the time of grant (and not subsequent to), the Committee determines that such Restricted Stock Unit Awards are to be satisfied solely by delivery of Shares to the Participant.

For purposes of Section 6(e)(iii) hereof (*Dividend Equivalents*), Dividend Equivalents granted with respect to Restricted Stock Unit Awards shall be credited, at the dividend payment date, as additional Restricted Stock Unit Awards (or fractions thereof) having a Fair Market Value equal to the amount of such dividends. Any such Dividend Equivalents credited as additional Restricted Stock Unit Awards (or fractions thereof) shall be satisfied in the same manner and at the same time as the Restricted Stock Unit Awards to which they relate.

5) Specific Terms of Awards – Dividend Equivalents

For purposes of Section 6(h) hereof (*Dividend Equivalents*) and subject to the last sentence of Section 6(h), any Dividend Equivalents granted in connection with another Award shall, at the dividend payment date, be credited as additional Awards (or fractions thereof) of the same type having a Fair Market Value equal to the amount of such dividends and shall be satisfied in the same manner and time as the Awards to which they relate. If Dividend Equivalents are granted on a free-standing basis, such Dividend Equivalents shall be satisfied (i) at the time the dividends are paid if such Dividend Equivalents are to be satisfied in cash (as determined by the Committee at the time of grant), or (ii) at the time specified by the Committee (as determined by the Committee at the time of grant) if such Dividend Equivalents are to be satisfied in Shares. For greater certainty, no Dividend Equivalents granted on a free-standing basis will be satisfied in Awards for Canadian Taxpayers.

6) Specific Terms of Awards – Performance Awards

For purposes of Section 6(i) hereof (*Performance Awards*), Performance Awards payable in cash shall be satisfied the earlier of (i) no later than December 31 of the third year following the year in which the services giving rise to such Performance Awards were rendered, and (ii) December 31 of the year in which the performance goals are achieved for the particular Performance Period. For greater certainty, the foregoing restriction does not apply to Performance Awards payable solely in Shares. No Performance Awards shall be satisfied in Awards for Canadian Taxpayers.

7) Specific Terms of Awards – Other Stock-Based Awards

For purposes of Section 6(j) hereof (*Other Stock-Based Awards*), any Other Stock-Based Awards granted under such section shall be subject to the same conditions as those provided in other provisions of this Plan for such type of Award, including this Schedule “A”.

8) Certain Provisions Applicable to Awards

For purposes of Section 7(c) hereof (*Form and Timing of Payment Under Awards; Deferrals*), no deferral or installment payments of Awards shall be permitted in respect Awards payable in cash and all such Awards shall be satisfied in a single payment within the time provided under this Plan for such type of Award. For greater certainty, any Awards which have become payable in a particular year shall be satisfied and paid by December 31 of such year. Neither the Committee nor the Company shall have the right to pay cash in lieu of Shares under any Award, including in respect of any accelerated settlement of an Award but may, however, permit a Participant to elect to receive cash in lieu of Shares. In addition, the Committee may, as a condition of accelerating the settlement of an Award, require the Participant to participate on the same basis and in the same manner as the rest of the shareholders of the Company in one or more of specified events (in addition to a Change of Control).

9) General Provisions

For purposes of Section 9(c)(i) hereof (*Adjustments to Awards*), the Committee shall be permitted to take any action it deems desirable in respect of any Awards payable in Shares to ensure such substitution, exchange or adjustment meets the requirements of subsection 7(1.4) or (1.5), as applicable, of the *Income Tax Act* (Canada).

For purposes of Section 9(e) hereof (*Taxes*), the Participant acknowledges that he or she is solely liable for any taxes, penalties or other source deductions (“*Withholding Taxes*”) which may be payable to Canada Revenue Agency under the *Income Tax Act* (Canada) or any other taxing authority in respect of the Awards, including upon the grant, exercise, transfer, vesting or payment thereof and agrees to make arrangements satisfactory to the Company for the payment of cash to the Company (or an applicable Related Entity) sufficient to satisfy any such Withholding Taxes. All Awards are contingent upon satisfaction of all applicable Withholding Taxes and the Participant authorizes the Company and any Related Entities to withhold any such amounts as provided in Section 9(e) hereof (*Taxes*) in satisfaction of such Withholding Taxes. The Company agrees not to withhold or reduce the number of Shares issuable under any Award in satisfaction of Withholding Taxes without prior consent of the Participant.

**FORM OF
INDEMNITY AGREEMENT**

THIS INDEMNITY AGREEMENT (this “**Agreement**”) is made effective as of the [•] day of [•], 2024.

BETWEEN:

BRAZIL POTASH CORP., a corporation governed by the laws of the Province of Ontario, Canada (the “**Corporation**”)

- and -

[•], an individual principally resident in the [•] (the “**Indemnified Party**”)

RECITALS:

- A. The Indemnified Party is or will become a duly elected or appointed director or officer of the Corporation;
- B. The by-laws of the Corporation contemplate that the Corporation shall indemnify the Indemnified Party in certain circumstances;
- C. The Corporation considers it desirable and in the best interests of the Corporation to enter into this Agreement to set out the circumstances and manner in which the Indemnified Party may be indemnified in respect of certain liabilities or expenses which the Indemnified Party may incur as a result of acting as a director or officer of the Corporation; and
- D. The Indemnified Party has agreed to serve or to continue to serve as a director or officer of the Corporation, subject to the Corporation providing the Indemnified Party with an indemnity against certain liabilities and coverage under directors’ and officers’ liability insurance, and, in order to induce the Indemnified Party to serve and to continue to so serve, the Corporation has agreed to provide the indemnity in this Agreement, as well as the coverage of the Indemnified Party under the directors’ and officers’ liability insurance in accordance with this Agreement.

THEREFORE, the Parties agree as follows:

**ARTICLE 1
DEFINITIONS AND PRINCIPLES OF INTERPRETATION**

1.1 Definitions

Whenever used in this Agreement, the following words and terms shall have the meanings set out below:

- (a) “**Act**” means the *Business Corporations Act* (Ontario), as the same exists on the date hereof or may hereafter be amended;
- (b) “**Agreement**” means this Agreement, including all schedules, and all amendments or restatements as permitted, and references to “**Article**” or “**Section**” mean the specified Article or Section of this Agreement;
- (c) “**Business Day**” means a day other than a Saturday, a Sunday or any other day on which major commercial banking institutions in Toronto, Ontario are closed for business;

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- (d) **“Claim”** includes any civil, criminal, quasi-criminal, administrative, or regulatory action, suit, or proceeding or investigative action of any nature or kind, including any arbitration or other alternative dispute resolution mechanism, or any appeal of any kind thereof, or any inquiry or investigation (whether formal or informal), whether completed, current, pending, asserted, threatened, or contemplated, in each case whether instituted by (or in the right of) the Corporation or any governmental agency or any other person or entity, in which the Indemnified Party, by reason of the Indemnified Party being or having been a director or officer of the Corporation, is or may be joined as a party, witness or otherwise, or is or may be liable for or in respect of any Losses related thereto;
 - (e) **“Expenses”** include reasonable attorneys’ fees and all other reasonable direct or indirect costs, charges, expenses and obligations, including judgments, fines, penalties, interest, appeal bonds, amounts paid in settlement (which settlement shall have been approved by the Corporation in accordance with the terms hereof), and counsel fees and disbursements (including, without limitation, experts’ fees, court costs, retainers, appeal bond premiums, transcript fees, duplicating, printing and binding costs, as well as telecommunications, postage and courier charges) paid or incurred in connection with investigating, prosecuting, defending, settling, arbitrating, being a witness in or participating in (including on appeal), or preparing to investigate, prosecute, defend, settle, arbitrate, be a witness in or participate in, any Claim relating to any indemnifiable event, and shall include (without limitation) all attorneys’ fees and all other expenses incurred by or on behalf of an Indemnified Party in connection with preparing and submitting any requests or statements for indemnification, advancement or any other right provided by this Agreement;
 - (f) **“Losses”** includes all liabilities, amounts paid to settle or dispose of any Claim or satisfy any judgment, fines, penalties or liabilities, without limitation, and whether incurred alone or jointly with others, including any amounts which the Indemnified Party may actually and reasonably suffer, sustain, incur or be required to pay in respect of the investigation, defence, settlement or appeal of or preparation for any Claim or with any action to establish a right to indemnification under this Agreement, and for greater certainty, includes all Taxes, interest, penalties and related outlays of the Indemnified Party arising from any indemnification of the Indemnified Party by the Corporation pursuant to this Agreement;
 - (g) **“Parties”** means the Corporation and the Indemnified Party together, and **“Party”** means either one of them;
 - (h) **“Policy”** means the directors’ and officers’ insurance policy maintained by the Corporation in accordance with Article 3 hereof; and
 - (i) **“Taxes”** includes any assessment, reassessment, claim or other amount for taxes, charges, duties, levies, imposts or similar amounts, including any interest and penalties in respect thereof.

1.2 Certain Rules of Interpretation

In this Agreement:

- (a) **Governing Law** – This Agreement is a contract made under and shall be governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada applicable in the Province of Ontario. The Parties hereby irrevocably submit and attorn to the non-exclusive jurisdiction of the courts of the Province of Ontario with respect

to all matters arising out of or relating to this Agreement and all matters, agreements or documents contemplated by this Agreement. The Parties hereby waive any objections they may have to the venue being in such courts including, without limitation, any claim that any such venue is in an inconvenient forum.

- (b) **Headings** – Headings of Articles and Sections are inserted for convenience of reference only and shall not affect the construction or interpretation of this Agreement.
- (c) **Number** – Unless the context otherwise requires, words importing the singular include the plural and vice versa.
- (d) **Currency** – All references to “\$”, dollars or currency, unless otherwise notes, are to Canadian dollars.
- (e) **Severability** – If, in any jurisdiction, any provision of this Agreement or its application to any Party or circumstance is restricted, prohibited or unenforceable, such provision shall, as to such jurisdiction, be ineffective only to the extent of such restriction, prohibition or unenforceability without invalidating the remaining provisions of this Agreement and without affecting the validity or enforceability of such provision in any other jurisdiction or without affecting its application to other Parties or circumstances.
- (f) **Entire Agreement** – This Agreement constitutes the entire agreement between the Parties and sets out all the covenants, promises, warranties, representations, conditions, understandings and agreements between the Parties pertaining to the subject matter of this Agreement and supersedes all prior agreements, understandings, negotiations and discussions, oral or written. There are no covenants, promises, warranties, representations, conditions, understandings or other agreements, oral or written, between the Parties in connection with the subject matter of this Agreement except as specifically set forth in this Agreement.
- (g) **Corporation** – Any references to the Corporation in this Agreement, or to the Indemnified Party’s employment by, or providing services to, the Corporation, shall include any position held by the Indemnified Party in any majority-owned subsidiary of the Corporation or in any other corporation, partnership, joint venture or other entity in which the Indemnified Party serves at the Corporation’s request and/or direction.

ARTICLE 2 OBLIGATIONS

2.1 Obligations of the Corporation

- (a) **General Indemnity** – Except as otherwise provided herein, in the event that the Indemnified Party was, is or becomes subject to, a party to or witness or other participant in, or is threatened to be made subject to, a party to or witness or other participant in, a Claim by reason of (or arising in part out of) serving or having served as a director or officer of the Corporation, the Corporation agrees to indemnify and hold the Indemnified Party harmless to the fullest extent permitted by law, including but not limited to the indemnity under the Act, from and against any and all Losses and Expenses which the Indemnified Party may actually and reasonably suffer, sustain, incur or be required to pay in respect of any such Claim; *provided* that the indemnity provided for in this [Article 2](#) shall not be available if:

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- (i) in relation to the subject matter of such Claim, the Indemnified Party did not act honestly and in good faith with a view to the best interests of the Corporation;
 - (ii) in the case of a Claim other than a civil proceeding, the Indemnified Party did not have reasonable grounds for believing that the Indemnified Party's conduct in respect of which the Claim was brought was lawful; or
 - (iii) the Claim is brought against the Indemnified Party by or on behalf of the Corporation.
- (b) **Taxes** – For greater certainty, a Claim subject to indemnification pursuant to Article 2 hereof shall include any Taxes which the Indemnified Party may be subject to or suffer or incur as a result of, in respect of, arising out of or referable to any indemnification of the Indemnified Party by the Corporation pursuant to this Agreement; *provided, however*, that any amount required to be paid with respect to such Taxes shall be payable by the Corporation only upon the Indemnified Party remitting or being required to remit any amount payable on account of such Taxes.
- (c) **Indemnity as of Right** – Provided that the Indemnified Party is entitled to the indemnity provided for under this Article 2, the Corporation shall indemnify the Indemnified Party, to the fullest extent permitted by law, in respect of all Losses, and Expenses actually and reasonably incurred by the Indemnified Party in respect of any Claim, if after the final disposition of such Claim, the Indemnified Party:
- (i) has not been reimbursed for those Losses and Expenses; and
 - (ii) is wholly successful, on the merits or otherwise, in defense or in the outcome of such Claim, or is substantially successful on the merits in the outcome of such Claim.
- (d) **Specific Indemnity for Statutory Obligations** – Without limiting the generality of the preceding Sections 2.1(a) through 2.1(c) hereof, the Corporation agrees, to the extent permitted by law, to indemnify and save the Indemnified Party harmless from and against any and all Losses arising by operation of statute and incurred by or imposed upon the Indemnified Party in relation to the affairs of the Corporation in the Indemnified Party's capacity as a director or officer thereof, including but not limited to all statutory obligations to creditors, employees, suppliers, contractors, subcontractors, and any government or any agency or division of any government, whether federal, provincial, state, regional or municipal; *provided, however*, that the indemnity provided for in this Section 2.1(d) shall not be available in the circumstances set out in Sections 2.1(a)(i), 2.1(a)(ii), or 2.1(a)(iii) above.
- (e) **Partial Indemnification** – If the Indemnified Party is determined to be entitled under any provisions of this Agreement to indemnification by the Corporation for some or a portion of the Losses incurred in respect of any Claim but not for the total amount thereof, the Corporation shall nevertheless indemnify the Indemnified Party for the portion thereof to which the Indemnified Party is determined by a court of competent jurisdiction to be so entitled.
- (f) **Advance of Expenses** – Subject to the Corporation receiving a written undertaking from the Indemnified Party that the Indemnified Party shall repay the amounts advanced to or

on its behalf by the Corporation if it is ultimately determined that the payment of Expenses is prohibited by this Agreement or the Act, the Corporation shall, at the request of the Indemnified Party, arrange to pay on behalf of or reimburse (but without duplication) the Indemnified Party for any Expenses actually and reasonably incurred by the Indemnified Party in investigating, defending, appealing, preparing for, providing evidence in, or instructing and receiving the advice of the Indemnified Party's counsel or other professional advisors in regard to any Claim or other matter for which the Indemnified Party may be entitled to an indemnity or reimbursement hereunder, and such amounts shall be treated as a non-interest bearing advance or loan to the Indemnified Party, pending approval of a court of competent jurisdiction (if required), to the payment thereof as an indemnity and provided that the Indemnified Party is entitled to the indemnity provided for under this Article 2. In the event it is ultimately determined by a court of competent jurisdiction that (i) the Indemnified Party is prohibited from indemnity under Sections 2.1(a)(i), 2.1(a)(ii) or 2.1(a)(iii) above, or (ii) the Indemnified Party was not entitled to be so fully indemnified under this Article 2, such loan or advance, or the appropriate portion thereof shall, upon written notice of such determination being given by the Corporation to the Indemnified Party detailing the basis for such determination, be repayable on demand.

- (g) **Per Diem Charge** – In addition to any other amount payable to an Indemnified Party under this Agreement, the Indemnified Party shall be entitled to receive from the Corporation a reasonable per diem payment (the “**Per Diem Charge**”) for time spent with respect to any Claim for which the Indemnified Party is otherwise entitled to indemnification pursuant to any one of the foregoing provisions of Section 2 of this Agreement. For directors, the Per Diem Charge shall be an amount equal to the greater of \$350 per hour up to a maximum of \$1,400 per day or the per diem amount payable to directors for directors' meetings, as set by the board of directors of the Corporation (the “**Board of Directors**”) and in place at the time the Per Diem Charge is payable. For officers, the Per Diem Charge shall be zero if the Indemnified Party is still employed by the Corporation at the time the Per Diem Charge is payable or has been terminated for cause by the Corporation, and the Per Diem Charge shall be in an amount equal to \$350 per hour up to a maximum of \$1,400 per day (based on a four-hour day) if the Indemnified Party is not employed by the Corporation at the time the Per Diem Charge is payable other than as a result of termination for cause.
- (h) **Review by the Corporation**—A determination by the Corporation that the Indemnified Party is not entitled to indemnification pursuant to this Article 2 shall be made only by any appropriate person or body consisting of a member or members of the Board of Directors or any other person or body appointed by the Board of Directors who is not a party to the particular Claim for which the Indemnified Party is seeking indemnification (such person or body, the “**Reviewing Party**”). If there has been no determination by the Reviewing Party within 30 days after written demand is presented to the Corporation, or if the Reviewing Party determines that the Indemnified Party would not be permitted to be indemnified in whole or in part under applicable law, the Indemnified Party shall have the right to commence litigation in any court in the Province of Ontario having subject matter jurisdiction thereof and in which venue is proper seeking an initial determination by the court or challenging any such determination by the Reviewing Party or any aspect thereof, including the legal or factual bases therefor, and the Corporation hereby consents to service of process and to appear in any such proceeding.
- (i) **Claim Initiated by the Indemnified Party**—Notwithstanding anything in this Agreement to the contrary, the Indemnified Party shall not be entitled to indemnification, advancement of Expenses or Per Diem Charge pursuant to this Agreement in connection with any Claim

initiated by the Indemnified Party, unless (i) the Corporation has joined in or the Board of Directors has authorized or consented to the initiation of such Claim, or (ii) the Claim is one to enforce the Indemnified Party's rights under this Agreement (including an action pursued by the Indemnified Party to secure a determination that the Indemnified Party should be indemnified under applicable law).

- (j) **Application to Court** – Notwithstanding any other provision of this Agreement, on the application of the Corporation or the Indemnified Party to a court of competent jurisdiction, the court may do one or more of the following:
- (i) order the Corporation to indemnify the Indemnified Party against any Losses incurred by the Indemnified Party in respect of a Claim;
 - (ii) order the Corporation to pay some or all of the Expenses incurred by the Indemnified Party in respect of a Claim;
 - (iii) order the enforcement of, or any payment under, this Agreement;
 - (iv) order the Corporation to pay some or all of the expenses actually and reasonably incurred by any person in obtaining an order under this Section 2.1(j); or
 - (v) make any other order that the court considers appropriate.

2.2 Notice of Proceedings

The Indemnified Party shall give notice in writing to the Corporation as soon as practicable upon being served with any statement of claim, writ, notice of motion, indictment, subpoena, investigation order or other document commencing, threatening or continuing any Claim involving the Corporation or the Indemnified Party which may result in a claim for indemnification under this Agreement, and the Corporation agrees to give the Indemnified Party notice in writing as soon as practicable upon it being served with any statement of claim, writ, notice of motion, indictment, subpoena, investigation order or other document commencing or continuing any Claim involving the Indemnified Party. Such notice shall include a description of the Claim or threatened Claim, a summary of the facts giving rise to the Claim or threatened Claim and, if possible, an estimate of any potential liability arising under the Claim or threatened Claim. Failure by either party to so notify the other of any Claim shall not relieve the Corporation from liability under this Agreement except to the extent that the failure materially prejudices the Indemnified Party or the Corporation, as the case may be.

2.3 Subrogation

Promptly after receiving written notice from the Indemnified Party of any Claim or threatened Claim (other than a Claim brought against the Indemnified Party by or on behalf of the Corporation), the Corporation may, and upon the written request of the Indemnified Party shall, by notice in writing to the Indemnified Party, in a timely manner assume conduct of the defence thereof and retain counsel on behalf of the Indemnified Party who is reasonably satisfactory to the Indemnified Party, to represent the Indemnified Party in respect of the Claim. On delivery of such notice by the Corporation, other than pursuant to Section 2.5 hereof, the Corporation shall not be liable to the Indemnified Party under this Agreement for any fees and disbursements of counsel the Indemnified Party may subsequently incur with respect to the same matter. In the event the Corporation assumes conduct of the defence on behalf of the Indemnified Party, the Indemnified Party hereby consents to the conduct thereof and of any action taken by the Corporation, in good faith, in connection therewith, and the Indemnified Party shall fully cooperate in such defence

including, without limitation, the provision of documents, attending examinations for discovery, making affidavits, meeting with counsel, testifying and divulging to the Corporation all information reasonably required to defend or prosecute the Claim.

2.4 Estoppel

The Corporation agrees that if it fails to pay, to the extent permitted by law, any costs, charges or expenses hereunder, including such expenses as set forth in Section 2.5 hereof, it is precluded from and shall constitute as an estoppel against any claims made by the Corporation against the Indemnified Party.

2.5 Separate Counsel

In connection with any Claim or other matter for which the Indemnified Party may be entitled to indemnity under this Agreement, the Indemnified Party shall have the right to employ separate counsel and consultants of the Indemnified Party's choosing and to participate in the defence thereof, and, provided that the Indemnified Party acts reasonably in selecting such counsel and consultants and such selection is approved by the Corporation (which approval shall not be unreasonably delayed, conditioned or withheld), all reasonable fees, expenses and disbursements of such counsel and consultants shall be at the Corporation's expense and shall be paid within 30 days of invoices being submitted to the Corporation.

2.6 No Presumptions

For purposes of this Agreement, the termination of any Claim by judgment, order, settlement (whether with or without court approval), or conviction will not create a presumption that the Indemnified Party did not meet any applicable standard of conduct or have any particular belief, or that indemnification hereunder is otherwise not permitted, unless the Indemnified Party was judged by a court or other competent authority to have committed any fault or omitted to do anything that the Indemnified Party ought to have done.

2.7 Settlement of a Claim

No admission of liability and no settlement of any Claim in a manner adverse to the Indemnified Party shall be made without the consent of the Indemnified Party, acting reasonably. No admission of liability shall be made by the Indemnified Party without the consent of the Corporation and the Corporation shall not be liable for any settlement of any Claim made without its consent, acting reasonably.

2.8 Other Rights and Remedies Unaffected

The indemnification and payment provided in this Agreement shall not derogate from or exclude any other rights to which the Indemnified Party may be entitled under any provision of the Act or otherwise at law, the notice of articles or articles of the Corporation, any applicable policy of insurance, guarantee or third-party indemnity, any vote of shareholders of the Corporation, or otherwise, both as to matters arising out of the Indemnified Party's capacity as a director or officer of the Corporation or as to matters arising out of any other capacity in which the Indemnified Party may act for or on behalf of the Corporation.

ARTICLE 3 INSURANCE

3.1 Insurance

- (a) **The Policy** – The Corporation shall pay all premiums payable under the Policy and use commercially reasonable efforts to maintain the coverage provided under the Policy.

-
- (b) **Variation of Policy** – So long as the Indemnified Party is a director or officer of the Corporation, the Corporation shall not seek to amend or discontinue the Policy or allow the Policy to lapse without the Indemnified Party's prior written consent, acting reasonably.
- (c) **Run-Off Coverage** – In the event the Policy is discontinued for any reason, the Corporation shall purchase, maintain and administer, or cause to be purchased, maintained and administered for a period of six (6) years after such discontinuance, insurance for the benefit of the Indemnified Party (the "**Run-Off Coverage**"), on such terms as the Corporation then maintains in existence for its directors and officers, to the extent permitted by law and provided such Run-Off Coverage is available on commercially acceptable terms and premiums (as determined by the Board of Directors acting reasonably). The Run-Off Coverage shall provide coverage only in respect of events occurring prior to the discontinuance of the Policy.
- (d) **Exclusion of Indemnity** – Notwithstanding any other provision in this Agreement to the contrary, the Corporation shall not be obligated to indemnify the Indemnified Party under this Agreement for any Losses which have been paid to, by or on behalf of, the Indemnified Party under the Policy or any other applicable policy of insurance maintained by the Corporation.
- (e) **Directors and Officers Insurance** – Following the Indemnified Party ceasing to be a director or officer of the Corporation, for any reason whatsoever, the Corporation shall continue to purchase and maintain directors' and officers' liability insurance for the benefit of the Indemnified Party and the Indemnified Party's heirs and legal representatives, such that the Indemnified Party's insurance coverage is, at all times, the same as any insurance coverage the Corporation purchases and maintains for the benefit of its then current directors and officers, from time to time. Notwithstanding the foregoing, if (i) liability insurance coverage for former directors and officers is no longer available, or (ii) it is no longer industry practice among responsible companies to procure liability insurance for former directors and officers and the cost to the Corporation to do so would be commercially unreasonable (as determined by the then Board of Directors acting reasonably), the Corporation shall be relieved of its obligation to procure liability insurance coverage for former directors and officers; *provided*, that the Corporation procures such level of insurance coverage, if any, as is available for former directors and officers at a commercially reasonable rate and adopts comparable measures to protect its former directors and officers in the circumstances as are adopted by other responsible companies. The onus is on the Corporation to establish that the circumstances described in the previous sentence exist.
- (f) **Deductible under Directors and Officers Insurance** – If for any reason whatsoever, any directors' and officers' liability insurer asserts that the Indemnified Party is subject to a deductible under any existing or future directors' and officers' liability insurance purchased and maintained by the Corporation for the benefit of the Indemnified Party and the Indemnified Party's heirs and legal representatives, the Corporation shall pay the deductible for and on behalf of the Indemnified Party.

**ARTICLE 4
MISCELLANEOUS**

4.1 Continuance

The Corporation shall give to the Indemnified Party 30 days notice of any application by the Corporation for a certificate of continuance in any jurisdiction, indicating the jurisdiction in which it is proposed that the Corporation will be continued and the proposed date of continuance. Upon receipt of such notice, the Indemnified Party may require the Corporation to agree to such amendments to this Agreement as the Indemnified Party, acting reasonably, considers necessary or desirable in order to provide the Indemnified Party with a comprehensive indemnity under the laws of the proposed jurisdiction of continuance.

4.2 Effective Time

This Agreement shall be deemed to have effect as and from the first date that the Indemnified Party became or becomes a director or officer of the Corporation.

4.3 Multiple Proceedings

No action or proceeding brought or instituted under this Agreement and no recovery pursuant thereto shall be a bar or defence to any further action or proceeding which may be brought under this Agreement.

**ARTICLE 5
GENERAL**

5.1 Term

- (a) The obligations of the Corporation under this Agreement, other than under Article 3 hereof, shall continue until the later of: (a) seven (7) years following the date that the Indemnified Party ceases to act as a director or officer of the Corporation; and (b) with respect to any Claim commenced prior to the expiration of such seven (7) year period with respect to which the Indemnified Party is entitled to claim indemnification hereunder, one (1) year after the final termination of that Claim.
- (b) The obligations of the Corporation under Article 3 hereof shall continue until seven (7) years following the date that the Indemnified Party ceases to act as a director or officer of the Corporation.

5.2 Deeming Provision

The Indemnified Party shall be deemed to have acted or be acting at the specific request of the Corporation upon the Indemnified Party's being appointed or elected as a director or officer of the Corporation.

5.3 Assignment

Neither Party may assign this Agreement or any rights or obligations under this Agreement without the prior written consent of the other Party. This Agreement shall enure to the benefit of and be binding upon the Parties and the heirs, executors and administrators and other legal representatives of the Indemnified Party and the successors and permitted assigns (including any direct or indirect successor by reason of amalgamation) of the Corporation.

5.4 Amendments and Waivers

No supplement, modification, amendment or waiver or termination of this Agreement and, unless otherwise specified, no consent or approval by any Party, shall be binding unless executed in writing by the Party to be bound thereby. For greater certainty, the rights of the Indemnified Party and the liability of the Corporation under this Agreement shall not be prejudiced, affected, discharged, impaired, mitigated or released by permitting or consenting to, or the discharge or release of the Corporation under, any assignment in bankruptcy, receivership, insolvency or any other creditor's proceedings of or against the Corporation or by the winding-up or dissolution of the Corporation.

5.5 Notices

Any notice, request, consent, approval or communication required or permitted to be given to either Party in connection with this Agreement (a "Notice") shall be in writing and shall be deemed sufficiently given if delivered (whether in person, by courier service or other personal method of delivery), or if transmitted by facsimile or e-mail:

- (a) in the case of a Notice to the Indemnified Party at:

[•]
E-mail: [•]

- (b) in the case of a Notice to the Corporation at:

198 Davenport Road
Toronto, Ontario, M5R 1J2 Canada
Attention: Matthew Simpson, Chief Executive Officer
E-mail: msimpson@brazilpotash.com

Any Notice delivered or transmitted to a Party as provided above shall be deemed to have been given and received on the day such Notice is delivered or transmitted; *provided* that if any Notice is delivered or transmitted on a Business Day prior to 5:00 p.m. local time in the place of delivery or receipt. However, if such Notice is delivered or transmitted after 5:00 p.m. local time or if such day is not a Business Day, then the Notice shall be deemed to have been given and received on the next Business Day.

Either Party may, from time to time, change its contact information for Notice set out in this [Section 5.5](#) by giving Notice to the other Party in accordance with the provisions of this [Section 5.5](#).

5.6 Further Assurances

The Corporation and the Indemnified Party shall, with reasonable diligence, do all such further acts, deeds or things and execute and deliver all such further documents as may be necessary or advisable for the purpose of assuring and conferring on the Indemnified Party the rights hereby created or intended, and of giving effect to and carrying out the intention or facilitating the performance of the terms of this Agreement, or to evidence any loan or advance made pursuant to [Sections 2.1\(f\)](#) or [2.1\(g\)](#), hereof.

5.7 Independent Legal Advice

The Indemnified Party acknowledges that (a) the Indemnified Party has been advised to obtain independent legal advice with respect to entering into this Agreement, (b) the Indemnified Party has obtained such independent legal advice or has expressly determined not to seek such advice, and (c) the Indemnified Party

is entering into this Agreement with full knowledge of the contents hereof, of the Indemnified Party's own free will, and with full capacity and authority to do so.

5.8 Execution and Delivery

This Agreement may be executed by the Parties in counterparts and may be executed and delivered by facsimile or PDF e-mail attachment, and all such counterparts and facsimiles or attachments together shall constitute one and the same agreement.

[Signature page follows]

IN WITNESS OF WHICH, the Parties have duly executed this Agreement.

BRAZIL POTASH CORP.

By: _____
Name: Matthew Simpson
Title: Chief Executive Officer

INDEMNIFIED PARTY

[•]

INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of July, 2009.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, and having an office at 65 Queen Street West, 8th Floor, Toronto, Ontario, M5H 2M5
(hereinafter called the “**Company**”)

OF THE FIRST PART

AND:

GOWER EXPLORATION CONSULTING INC., through David Gower, an individual with an address of 1315 Blackburn Drive, Oakville, Ontario, L6M 2N5
(hereinafter called the “**Consultant**”)

OF THE SECOND PART

FOR VALUABLE CONSIDERATION, it is hereby agreed as follows:

1. The Consultant shall provide management consulting services to the Company in the capacity as the President of the Company. The Consultant shall serve the Company (and/or such subsidiary or subsidiaries of the company as the Company may from time to time require) in such consulting capacity or capacities as may from time to time be determined by resolution of the Board of Directors of the Company and shall perform such duties and exercise such powers as may from time to time be determined by resolution of the Board of Directors, as an independent contractor.
2. The term of this Agreement shall be from July 1, 2009 and shall continue thereafter indefinitely, subject to the termination provisions in paragraph 11 and paragraph 13.
3. The base fee for the Consultant’s services hereunder shall be at the rate of USD\$25,000.00 per month (the “**Base Fees**”), plus applicable goods and services tax, together with any such increments thereto and bonuses (including additional grants of options) as the Board of Directors of the Company may from time to time determine, payable in equal monthly amounts in advance on the first business day of each calendar month.

In addition, the Consultant shall be entitled to a signing bonus equal to USD\$75,000, to be paid within 10 days of the Consultant providing an invoice to the Company for such signing bonus.

4. The Consultant shall be responsible for:

- a. the payment of income taxes and goods and services tax remittances as shall be required by any governmental entity with respect to fees paid by the Company to the Consultant;
- b. maintaining proper financial records of the Consultant, which records will detail, amongst other things, expenses incurred on behalf of the Company; and
- c. obtaining all necessary licenses and permits and for complying with all applicable federal, provincial and municipal laws, codes and regulations in connection with the provision of services hereunder and the Consultant shall, when requested, provide the Company with adequate evidence of compliance with this paragraph.

5. The terms “subsidiary” and “subsidiaries” as used herein mean any corporation or company of which more than 50% of the outstanding shares carrying voting rights at all times (provided that the ownership of such shares confers the right at all times to elect at least a majority of the Board of Directors of such corporation or company) are for the time being owned by or held for the Company and/or any other corporation or company in like relation to the Company and include any corporation or company in like relation to a subsidiary.

6. During the term of this Agreement, the Consultant shall provide the consulting services to the Company, and the Consultant shall be available to provide such services to the Company in a timely manner subject to availability at the time of the request. Due to conflict of interest considerations, the Consultant shall provide the Company with written notice prior to providing any services to any enterprise other than the Company. Similarly, the Consultant hereby represents and warrants to the Company that the entering into of this Agreement and the performance of its obligations hereunder does not and will not conflict with the terms of any other consulting or employment agreement to which the Consultant is a party.

7. The Consultant shall be reimbursed for all traveling and other expenses actually and properly incurred as an agent of the Company in connection with the duties hereunder. For all such expenses the Consultant shall furnish to the Company an itemized invoice, detailing the expenses incurred, including receipts for such expenses on a monthly basis, and the Company will reimburse the Consultant within fourteen (14) days of receipt of the Consultant’s invoice for all appropriate invoiced expenses.

8. The Consultant shall not, either during the continuance of this contract or at any time thereafter, disclose the private affairs of the Company and/or its subsidiary or subsidiaries, or any secrets of the Company and/or subsidiary or subsidiaries, to any person other than the Directors of the Company and/or its subsidiary or subsidiaries or for the Company’s purposes and shall not (either during the continuance of this Agreement or at any time thereafter) use, for the Consultant’s own purposes or for any purpose other than those of the Company, any information the Consultant may acquire in relation to the business and affairs of the Company and/or its subsidiary or subsidiaries. This obligation of confidentiality shall not apply to the information that is publicly available prior to the date of this agreement and information that subsequently becomes publicly available other than through the Consultant’s breach of this agreement. In addition, the Consultant agrees to execute and abide by the Company’s Code of Conduct.

9. The Company shall own and have the right and license to use, copy, modify and prepare derivative works of any of the Consultant's Work Product (defined herein) generated by the services to be performed by the Consultant pursuant hereto as well as pre-existing work product to be provided to the Company during the course of the engagement. "Work Product" shall mean all intellectual property including trade secrets, copyrights, patentable inventions or any other rights in any programming, documentation, technology or other work product created in connection with the services to be performed by the Consultant pursuant hereto.

10. The Consultant shall well and faithfully serve the Company or any subsidiary as aforesaid during the continuance of this Agreement to the best of the Consultant's ability in a competent and professional manner and use best efforts to promote the interests of the Company.

11. This Agreement may be terminated at any time for just cause without notice or payment in lieu of notice and without payment of any fees whatsoever either by way of anticipated earnings or damages of any kind by advising the Consultant in writing. Just cause shall be defined to include, but is not limited to the following:

- a. Dishonesty or fraud;
- b. Theft;
- c. Breach of fiduciary duties;
- d. Being guilty of bribery or attempted bribery; or
- e. Gross mismanagement.

Other than in the context of a Change of Control (as defined herein), the Company may terminate this Agreement at any time without cause by making a payment to the Consultant that is equivalent to six (6) months Base Fees owed under the term of this Agreement. The Consultant may terminate this Agreement upon three (3) months-notice to the Company. In the event of termination under this paragraph, the stock options granted to the Consultant shall be dealt with in accordance with the terms of the Company's stock option plan.

12. In the event this Agreement is terminated for just cause, then at the request of the Board of Directors of the Company, the Consultant shall forthwith resign any position or office that the Consultant then holds with the Company or any subsidiary of the Company.

13. In the event that there is a Change in Control of the Company, either the Consultant or the Company shall have one year from the date of such Change in Control to elect to have the Consultant's appointment terminated. In the event that such an election is made, the Company shall, within 30 days of such election, make a lump sum termination payment to the Consultant that is equivalent to 36 months Base Fees plus an amount that is equivalent to all cash bonuses paid to the Consultant in the 36 months prior to the Change in Control. My stock options granted to the Consultant shall be dealt with in accordance with the terms of the Company's stock option plan. Additionally, all stock options granted to the Consultant, but not yet vested, shall vest immediately. Similarly, following a Change in Control, any shares granted to the Consultant under the Company's share compensation plan, but not yet vested, shall vest immediately.

“Change in Control” shall be defined as the acquisition by any person (person being defined as an individual, a corporation, a partnership, an unincorporated association or organization, a trust, a government or department or agency thereof and the heirs, executors, administrators or other legal representatives of an individual and an associate or affiliate of any thereof as such terms are defined in the Canada Business Corporations Act) of: (1) shares or rights or options to acquire shares of the Company or securities which are convertible into shares of the Company or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 30% or more of the votes entitled to be cast at a meeting of the shareholders of the Company; (2) shares or rights or options to acquire shares of any material subsidiary of the Company or securities which are convertible into shares of the material subsidiary or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 30% or more of the votes entitled to be cast at a meeting of the shareholders of the material subsidiary; or (3) more than 50% of the material assets of the Company, including the acquisition of more than 50% of the material assets of any material subsidiary of the Company.

14. The Consultant expressly agrees and represents that the services to be performed by the Consultant pursuant hereto are not in contravention of any non-compete or non-solicitation obligations by which the Consultant is bound.

15. The services to be performed by the Consultant pursuant hereto are personal in character, and neither this Agreement nor any rights or benefits arising thereunder are assignable by the Consultant without the previous written consent of the Company.

16. The parties shall indemnify and save each other harmless from and against all claims, actions, losses, expenses, costs or damages of every nature and kind whatsoever which either party, including their respective officers, employees or agents may suffer as a result of the negligence of the other party in the performance or non-performance of this Agreement.

17. It is expressly agreed, represented and understood that the parties hereto have entered into an arms-length independent contract for the rendering of consulting services and that the Consultant is not the employee, agent or servant of the Company. Further, this agreement shall not be deemed to constitute or create any partnership, joint venture, master-servant, employer-employee, principal-agent or any other relationship apart from an independent contractor and contractee relationship. Payments made to the Consultant hereunder shall be made without deduction at source by the Company for the purpose of withholding income tax, unemployment insurance payments or Canada Pension Plan contributions or the like.

18. My notice in writing or permitted to be given to the Consultant hereunder shall be sufficiently given if delivered to the Consultant personally or mailed by registered mail, postage prepaid, addressed to the Consultant at the last residential address known to the Secretary of the Company. Any such notice mailed as aforesaid shall be deemed to have been received by the Consultant on the second business day following the date of mailing. Any notice in writing required or permitted to be given to the Company hereunder shall be given by registered mail, postage prepaid, addressed to the Company at the address shown on page 1 hereof. Any such notice mailed as aforesaid shall be deemed to have been received by the Company on the second business day following the date of the mailing. Any such address for the giving of notices hereunder may be changed by notice in writing given hereunder.

19. The provisions of this Agreement shall ensure to the benefit of and be binding upon the heirs, executors, administrators and legal personal representatives of the Consultant and the successors and assigns of the Company. For this purpose, the terms "successors" and "assigns" shall include any person, firm or corporation or other entity which at any time, whether by merger, purchase or otherwise, shall acquire all or substantially all of the assets or business of the Company.

20. The division of this Agreement into paragraphs is for the convenience of reference only and shall not affect the construction or interpretation of this Agreement. The terms "this Agreement", "hereof", "hereunder" and similar expressions refer to this Agreement and not to any particular paragraph or other portion hereof and include any agreement or instrument supplemental or ancillary hereto. Unless something in the subject matter or context is inconsistent therewith, references herein to paragraphs are to paragraphs of this Agreement.

21. Every provision of this Agreement is intended to be severable. If any term or provision hereof is determined to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the provisions of this Agreement.

22. This Agreement is being delivered and is intended to be performed in the Province of Ontario and shall be construed and enforced in accordance with, and the rights of both parties shall be governed by, the laws of such Province and the laws of Canada applicable therein. For the purpose of all legal proceedings this Agreement shall be deemed to have been performed in the Province of Ontario and the courts of the Province of Ontario shall have jurisdiction to entertain any action arising under this Agreement. The Company and the Consultant each hereby attorns to the jurisdiction of the courts of the Province of Ontario provided that nothing herein contained shall prevent the Company from proceeding at its election against the Consultant in the courts of any other province or country.

23. No amendment to this Agreement shall be valid or binding unless set forth in writing and duly executed by both of the parties hereto. No waiver of any breach of any term or provision of this Agreement shall be effective or binding unless made in writing and signed by the party purporting to give the same and, unless otherwise provided in the written waiver, shall be limited to the specific breach waived.

IN WITNESS WHEREOF, this Agreement has been executed as of the 1st day of July, 2009.

BRAZIL POTASH CORP.

/s/ Anthony John Wonnacott
Authorized Signing Officer

GOWER EXPLORATION CONSULTING INC.

/s/ David Gower
Authorized Signing Officer

AMENDMENT TO INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of February, 2015.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 805, Toronto, Ontario, M5H 2M5

(hereinafter called the “**Company**”)

AND:

OF THE FIRST PART

GOWER EXPLORATION CONSULTING INC., an individual with an address of 1315 Blackburn Drive, Oakville, Ontario L6M 2N5

(hereinafter called the “**Consultant**”)

OF THE SECOND PART

WHEREAS the Company and the Consultant entered into an independent contractor agreement dated for reference the 1st day of July, 2009 (the “Agreement”);

AND WHEREAS the parties are desirous of amending certain terms of the Agreement.

THEREFORE, the Agreement is amended as follows:

1. Paragraph 3 of the Agreement is amended as follows:

The base fee for the Consultant’s services hereunder shall be at the rate of US\$33,333 per month (the “**Base Fees**”), plus applicable goods and services tax, together with any such increments thereto and bonuses (including additional grants of options) as the Board of Directors of the Company may from time to time determine, payable in equal monthly amounts in advance on the first business day of each calendar month.

2. All other terms and conditions of the Agreement are hereby reaffirmed.

[THIS SPACE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, this amendment has been executed as of the day, month and year first above written.

BRAZIL POTASH CORP.

/s/ Matthew Simpson
Authorized Signing Officer

/s/ David Gower
GOWER EXPLORATION CONSULTING INC.

AMENDMENT TO INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made the 1st day of January, 2019.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada and having an office at 65 Queen Street West, Suite 805, Toronto, Ontario, M5H 2M5

(hereinafter called the “Company”)

AND:

OF THE FIRST PART

GOWER EXPLORATION CONSULTING, INC., an individual with an address of 1315 Blackburn Drive, Oakville, Ontario L6M 2N5

(hereinafter called the “Consultant”)

OF THE SECOND PART

WHEREAS the Company and the Consultant entered into an independent contractor agreement dated for reference the 1st day of July, 2009 and amended on February 1, 2015 (the “Agreement”);

AND WHEREAS the parties are desirous of amending certain terms of the Agreement.

THEREFORE, the Agreement is amended as follows:

1. Paragraph 3 of the Agreement is amended as follows:

The base fee for the Consultant’s services hereunder shall be at the rate of USD\$0.00 per month (the “Base Fees”). In consideration for the Consultant’s services hereunder, all DSU’s and stock options presently issued to the Consultant shall remain in full force and effect.

2. Paragraph 13 of the Agreement is amended as follows:

In the event that there is a Change in Control (as defined below) during the term of this Agreement and within twelve months following completion of the Change in Control the Company terminates this Agreement, then the Company shall, within 30 days of such termination, make a lump sum termination payment to the Consultant that is equivalent to 36 months, multiplied by US\$33,333 plus an amount that is equivalent to all cash bonuses paid to the Consultant in the 36 months prior to the Change of Control. Following a Change in Control, all stock options granted to the Consultant shall be dealt with in accordance with the terms of the Company’s stock option plan however all stock options granted to the Consultant, but not yet vested, shall vest immediately.

As used herein, “Change in Control” shall be defined as the occurrence of any one or more of the following events:

- (1) the acquisition, directly or indirectly, by any person (person being defined as an individual, a corporation, a partnership, an unincorporated association or organization, a trust, a government or department or agency thereof and the heirs, executors, administrators or other legal representatives of an individual and an associate or affiliate of any thereof as such terms are defined in the *Business Corporations Act (Ontario)* or group of persons acting jointly or in concert, as such terms are defined in the Securities Act (Ontario), of: (A) shares or rights or options to acquire shares of the Company or securities that are convertible into shares of the Company or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast at a meeting of the shareholders of the Company; (B) shares or rights or options to acquire shares, or their equivalent, of any material subsidiary or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast at a meeting of the shareholders of the material subsidiary; or (C) more than 50% of the material assets of the Company, including the acquisition of more than 50% of the material assets of any material subsidiary of the Company; or

-
- (2) as a result of or in connection with: (A) a contested election of directors; or (B) a consolidation, merger, amalgamation, arrangement or other reorganization or acquisitions involving the Company or any of its Affiliates and another corporation or other entity, the nominees named in the most recent management information circular of the Company for election to the Company's board of directors do not constitute a majority of the Company's board of directors.
- (3) All other terms and conditions of the Agreement are hereby reaffirmed.

IN WITNESS WHEREOF, the amendment has been executed as of the day, month and year first above written.

BRAZIL POTASH CORP.

/s/ Matthew Simpson

Matthew Simpson

GOWER EXPLORATION CONSULTING INC.

/s/ David Gower

David Gower

INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of October, 2009

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, and having an office at 65 Queen Street West, 8th Floor, Toronto, Ontario, M5H 2M5

(hereinafter called the “**Company**”)

OF THE FIRST PART

AND:

FORBES & MANHATTAN, INC., an Ontario company, having an office at 65 Queen Street West, Suite 805, P.O. Box 71, Toronto, Ontario, M5H 2M5

(hereinafter called the “**Consultant**”)

OF THE SECOND PART

FOR VALUABLE CONSIDERATION, it is hereby agreed as follows:

1. The Consultant shall provide management consulting services as a special consultant to the Company, and the Consultant shall serve the Company (and/or such subsidiary or subsidiaries of the company as the Company may from time to time require) in such consulting capacity or capacities as may from time to time be determined by resolution of the Board of Directors of the Company and shall perform such duties and exercise such powers as may from time to time be determined by resolution of the Board of Directors, as an independent contractor.
2. The term of this Agreement shall commence on the date hereof and shall continue on a month to month basis thereafter, subject to the termination provisions contained herein.
3. The base fee for the Consultant’s services hereunder shall be at the rate of USD\$15,000 per month, plus applicable goods and services tax, together with any such increments thereto and bonuses (including grants of options) as the Board of Directors of the Company may from time to time determine, payable in advance on the first business day of each calendar month.
4. The Consultant shall be responsible for:
 - a. the payment of income taxes and goods and services tax remittances as shall be required by any governmental entity with respect to fees paid by the Company to the Consultant;
 - b. maintaining proper financial records of the Consultant, which records will detail, amongst other things, expenses incurred on behalf of the Company; and
 - c. obtaining all necessary licenses and permits and for complying with all applicable federal, provincial and municipal laws, codes and regulations in connection with the provision of services hereunder and the Consultant shall, when requested, provide the Company with adequate evidence of compliance with this paragraph.

5. The terms “subsidiary” and “subsidiaries” as used herein mean any corporation or company of which more than 50% of the outstanding shares carrying voting rights at all times (provided that the ownership of such shares confers the right at all times to elect at least a majority of the Board of Directors of such corporation or company) are for the time being owned by or held for the Company and/or any other corporation or company in like relation to the Company and include any corporation or company in like relation to a subsidiary.

6. During the term of this Agreement, the Consultant shall provide the consulting services to the Company, and the Consultant shall be available to provide such services to the Company in a timely manner subject to availability at the time of the request.

7. The Consultant shall be reimbursed for all traveling and other expenses actually and properly incurred in connection with the duties hereunder. For all such expenses the Consultant shall furnish to the Company an itemized invoice, detailing the services performed and expenses incurred, including receipts for such expenses on a monthly basis, and the Company will reimburse the Consultant within fourteen (14) days of receipt of the Consultant’s invoice for all appropriate invoiced expenses.

8. The Consultant shall not, either during the continuance of this contract or at any time thereafter, disclose the private affairs of the Company and/or its subsidiary or subsidiaries, or any secrets of the Company and/or subsidiary or subsidiaries, to any person other than the Directors of the Company and/or its subsidiary or subsidiaries or for the Company’s purposes and shall not (either during the continuance of this Agreement or at any time thereafter) use, for the Consultant’s own purposes or for any purpose other than those of the Company, any information the Consultant may acquire in relation to the business and affairs of the Company and/or its subsidiary or subsidiaries.

9. The Company shall own and have the right and license to use, copy, modify and prepare derivative works of any of the Consultant’s Work Product (defined herein) generated by the services to be performed by the Consultant pursuant hereto as well as all pre-existing work product provided to the Company during the course of the engagement.

“Work Product” shall mean all intellectual property including trade secrets, copyrights, patentable inventions or any other rights in any programming, documentation, technology or other work product created in connection with the services to be performed by the Consultant pursuant hereto.

10. The Consultant shall well and faithfully serve the Company or any subsidiary as aforesaid during the continuance of this Agreement to the best of the Consultant’s ability in a competent and professional manner and use best efforts to promote the interests of the Company.

11. The Consultant agrees with the Company that during the term of this Agreement, so long as the Board of Directors of the Company may so desire, to serve the Company as an officer and director, as applicable, without additional fees other than as provided in paragraph 3.

12. This Agreement may be terminated at any time for just cause without notice or payment in lieu of notice and without payment of any fees whatsoever either by way of anticipated earnings or damages of any kind by advising the Consultant in writing. Just cause shall be defined to include, but is not limited to the following:

- a. Dishonesty or fraud;
- b. Theft;
- c. Breach of fiduciary duties;
- d. Being guilty of bribery or attempted bribery; or
- e. Gross mismanagement.

13. In the event this Agreement is terminated for just cause, then at the request of the Board of Directors of the Company, the Consultant shall forthwith resign any position or office that the Consultant then holds with the Company or any subsidiary of the Company.

14. In addition to the termination provisions contained in paragraph 12 either party may terminate this agreement upon ninety (90) days written notice to the other party, or upon a different period of time as may be mutually agreed upon.

15. The services to be performed by the Consultant pursuant hereto are personal in character, and neither this Agreement nor any rights or benefits arising thereunder are assignable by the Consultant without the previous written consent of the Company.

16. The Company is aware that the Consultant has now and will continue to have financial interests in other companies and properties and the Company recognizes that these companies and properties will require a certain portion of the Consultant's time. The Company agrees that the Consultant may continue to devote time to such outside interests, provided that such interests do not conflict with, in any way, the time required for the Consultant to perform their duties under this Agreement.

17. The services to be performed by the Consultant pursuant hereto are personal in character, and neither this Agreement nor any rights or benefits arising thereunder are assignable by the Consultant without the previous written consent of the Company.

18. The parties shall indemnify and save each other harmless from and against all claims, actions, losses, expenses, costs or damages of every nature and kind whatsoever which either party, including their respective officers, employees or agents may suffer as a result of the negligence of the other party in the performance or non-performance of this Agreement.

19. It is expressly agreed, represented and understood that the parties hereto have entered into an arms length independent contract for the rendering of consulting services and that the Consultant is not the employee, agent or servant of the Company. Further, this agreement shall not be deemed to constitute or create any partnership, joint venture, master-servant, employer- employee, principal-agent or any other relationship apart from an independent contractor and contractee relationship. Payments made to the Consultant hereunder shall be made without deduction at source by the Company for the purpose of withholding income tax, unemployment insurance payments or Canada Pension Plan contributions or the like.

20. Any notice in writing or permitted to be given to the Consultant hereunder shall be sufficiently given if delivered to the Consultant personally or mailed by registered mail, postage prepaid, addressed to the Consultant at the last residential address known to the Secretary of the Company. Any such notice mailed as aforesaid shall be deemed to have been received by the Consultant on the first business day following the date of mailing. Any notice in writing required or permitted to be given to the Company hereunder shall be given by registered mail, postage prepaid, addressed to the Company at the address shown on page 1 hereof. Any such notice mailed as aforesaid shall be deemed to have been received by the Company on the first business day following the date of the mailing. Any such address for the giving of notices hereunder may be changed by notice in writing given hereunder.

21. The provisions of this Agreement shall enure to the benefit of and be binding upon the heirs, executors, administrators and legal personal representatives of the Consultant and the successors and assigns of the Company. For this purpose, the terms "successors" and "assigns" shall include any person, firm or corporation or other entity which at any time, whether by merger, purchase or otherwise, shall acquire all or substantially all of the assets or business of the Company.

22. The division of this Agreement into paragraphs is for the convenience of reference only and shall not affect the construction or interpretation of this Agreement. The terms "this Agreement", "hereof", "hereunder" and similar expressions refer to this Agreement and not to any particular paragraph or other portion hereof and include any agreement or instrument supplemental or ancillary hereto. Unless something in the subject matter or context is inconsistent therewith, references herein to paragraphs are to paragraphs of this Agreement.

23. Every provision of this Agreement is intended to be severable. If any term or provision hereof is determined to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the provisions of this Agreement.

24. This Agreement is being delivered and is intended to be performed in the Province of Ontario and shall be construed and enforced in accordance with, and the rights of both parties shall be governed by, the laws of such Province and the laws of Canada applicable therein. For the purpose of all legal proceedings this Agreement shall be deemed to have been performed in the Province of Ontario and the courts of the Province of Ontario shall have jurisdiction to entertain any action arising under this Agreement. The Company and the Consultant each hereby attorns to the jurisdiction of the courts of the Province of Ontario provided that nothing herein contained shall prevent the Company from proceeding at its election against the Consultant in the courts of any other province or country.

25. No amendment to this Agreement shall be valid or binding unless set forth in writing and duly executed by both of the parties hereto. No waiver of any breach of any term or provision of this Agreement shall be effective or binding unless made in writing and signed by the party purporting to give the same and, unless otherwise provided in the written waiver, shall be limited to the specific breach waived.

IN WITNESS WHEREOF, this Agreement has been executed as of the day, month and year first above written.

BRAZIL POTASH CORP.

/s/ Ryan Ptolemy
Authorized Signing Officer

FORBES & MANHATTAN, INC.

/s/ Stan Bharti
Authorized Signing Officer

AMENDMENT TO INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of September, 2011.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 805, Toronto, Ontario, M5H 2M5
(hereinafter called the "**Company**")

AND:

OF THE FIRST PART

FORBES & MANHATTAN, INC., an Ontario company having an address of 65 Queen Street W. Suite 800 Toronto, Ontario Inc.
(hereinafter called the "**Consultant**")

OF THE SECOND PART

WHEREAS the Company and the Consultant entered into an independent contractor agreement dated for reference the 1st day of October, 2009 (the "**Agreement**");

WHEREAS this agreement supersedes and replaces any and all previous agreements between the Company and Stan Bharti;

AND WHEREAS the parties are desirous of amending certain terms of the Agreement.

THEREFORE, the Agreement is amended as follows:

1. Paragraph 3 of the Agreement is amended as follows:

The base fee for the Consultant's services hereunder shall be at the rate of US\$40,000 per month (the "**Base Fees**"), plus applicable goods and services tax, together with any such increments thereto and bonuses (including additional grants of options) as the Board of Directors of the Company may from time to time determine, payable in equal monthly amounts in advance on the first business day of each calendar month.

2. All other terms and conditions of the Agreement are hereby reaffirmed.

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IN WITNESS WHEREOF, this amendment has been executed as of the day, month and year first above written.

BRAZIL POTASH CORP.

/s/ Ryan Ptolemy

Authorized Signing Officer

FORBES & MANHATTAN, INC.

/s/ Stan Bharti

Authorized Signing Officer

/s/ Stan Bharti

Stan Bharti

AMENDMENT TO INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of February, 2015.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 805, Toronto, Ontario, M5H 2M5

(hereinafter called the “Company”)

OF THE FIRST PART

AND:

FORBES & MANHATTAN, INC., an Ontario company having an address of 65 Queen Street W. Suite 800 Toronto, Ontario Inc.

(hereinafter called the “Consultant”)

OF THE SECOND PART

WHEREAS the Company and the Consultant entered into an independent contractor agreement dated for reference the 1st day of October, 2009 (the “Agreement”) amended on September 1, 2011;

AND WHEREAS the parties are desirous of amending certain terms of the Agreement.

THEREFORE, the Agreement is amended as follows:

1. Paragraph 3 of the Agreement is amended as follows:

The base fee for the Consultant’s services hereunder shall be at the rate of US\$48,333 per month (the “Base Fees”), plus applicable goods and services tax, together with any such increments thereto and bonuses (including additional grants of options) as the Board of Directors of the Company may from time to time determine, payable in equal monthly amounts in advance on the first business day of each calendar month.

2. All other terms and conditions of the Agreement are hereby reaffirmed.

[THIS SPACE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, this amendment has been executed as of the day, month and year first above written.

BRAZIL POTASH CORP.

/s/ Ryan Ptolemy
Authorized Signing Officer

FORBES & MANHATTAN, INC.

/s/ Stan Bharti
Authorized Signing Officer

INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of January, 2014

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 805, Toronto, Ontario, M5H 2M5

(hereinafter called the “Company”)

OF THE FIRST PART

AND:

NEIL SAID, an individual with an address of 619 – 33 Mill Street, Toronto, Ontario M5A 3R3

(hereinafter called the “Consultant”)

OF THE SECOND PART

FOR VALUABLE CONSIDERATION, it is hereby agreed as follows:

1. The Consultant shall provide legal consulting services to the Company.
2. The term of this Agreement shall commence on January 1, 2014 and shall continue until terminated by either party in accordance with this Agreement.
3. The Consultant shall charge for such services at a rate of CAD\$2,500 plus applicable taxes per month (the “Base Fee”). The Base Fee shall be invoiced monthly in advance on the last business day of the prior calendar month and shall be payable in full by the Company within 14 days of receipt of the Consultant’s invoice.
4. The Consultant shall be eligible to participate in any security compensation plan of the Company, including its stock option plan.
5. The Consultant shall be responsible for:
 - a. the payment of income taxes and other tax remittances as shall be required by any governmental entity with respect to fees paid by the Company to the Consultant;
 - b. maintaining proper financial records of the Consultant, which records will detail, amongst other things, expenses incurred on behalf of the Company; and
 - c. obtaining all necessary licenses and permits and for complying with all applicable federal, provincial and municipal laws, codes and regulations in connection with the provision of services hereunder and the Consultant shall, when requested, provide the Company with adequate evidence of compliance with this paragraph.

6. During the term of this Agreement, the Consultant shall provide the Services to the Company, and the Consultant shall be available to provide such services to the Company in a timely manner subject to availability at the time of the request. Due to conflict of interest considerations, the Consultant shall provide the Company with written notice prior to providing any services to any enterprise other than the Company. Similarly, the Consultant hereby represents and warrants to the Company that the entering into of this Agreement and the performance of its obligations hereunder does not and will not conflict with the terms of any other consulting or employment agreement to which the Consultant is a party.

7. The Consultant shall be reimbursed for all reasonable expenses actually and properly incurred as an agent of the Company in connection with the duties hereunder. For all such expenses the Consultant shall furnish to the Company an itemized invoice detailing the expenses incurred, including receipts for such expenses on a monthly basis, and the Company will reimburse the Consultant within 14 days of receipt of the Consultant's invoice for all appropriate invoiced expenses.

8. The Consultant shall not, either during the continuance of this contract or at any time thereafter, disclose the private affairs of the Company or any secrets of the Company to any person other than the directors, officers, employees, agents, servants or consultants of the Company and shall not (either during the continuance of this Agreement or at any time thereafter) use, for the Consultant's own purposes or for any purpose other than those of the Company, any information the Consultant may acquire in relation to the business and affairs of the Company. This obligation of confidentiality shall not apply to the information that is publicly available prior to the date of this agreement and information that subsequently becomes publicly available other than through the Consultant's breach of this agreement or to any disclosure which may be required by law.

9. The Consultant shall well and faithfully serve the Company during the continuance of this Agreement to the best of the Consultant's ability in a competent and professional manner and in the interests of the Company.

10. This Agreement may be terminated at any time for just cause without notice or payment in lieu of notice and without payment of any fees whatsoever either by way of anticipated earnings or damages of any kind by advising the Consultant in writing. Just cause shall be defined to include, but is not limited to the following:

- a. Dishonesty or fraud;
- b. Theft;
- c. Breach of fiduciary duties;
- d. Being guilty of bribery or attempted bribery; or
- e. Gross mismanagement.

In the absence of a Change of Control (as defined below), the Company may terminate this Agreement without cause by making a payment to the Consultant that is equivalent to 12 months Base Fees in the form of a lump sum payment, within 30 days of the termination date. The Consultant may terminate this Agreement upon written notice to the Company.

11. In the event this Agreement is terminated for just cause, then at the request of the Board of Directors of the Company, the Consultant shall forthwith resign any position or office that the Consultant then holds with the Company or any subsidiary of the Company. In the event that there is a Change in Control of the Company, either the Consultant or the Company shall have one year from the date of such Change in Control to elect to have the Consultant's appointment terminated. In the event that such an election is made, the Company shall, within 30 days of such election, make a lump sum termination payment to the Consultant that is equivalent to 36 months Base Fees plus an amount that is equivalent to all cash bonuses paid to the Consultant in the 36 months prior to the Change in Control as well as all accrued bonuses on unrealized gains.

Following a Change in Control, all stock options granted to the Consultant shall be dealt with in accordance with the terms of the Company's stock option plan however all stock options granted to the Consultant, but not yet vested, shall vest immediately. Similarly, following a Change in Control, all shares granted to the Consultant under the Company's share compensation plan, but not yet vested, shall vest immediately.

As used herein, "Change in Control" shall be defined as the occurrence of any one or more of the following events:

(1) the acquisition, directly or indirectly, by any person (person being defined as an individual, a corporation, a partnership, an unincorporated association or organization, a trust, a government or department or agency thereof and the heirs, executors, administrators or other legal representatives of an individual and an associate or affiliate of any thereof as such terms are defined in the *Business Corporations Act (Ontario)*) or group of persons acting jointly or in concert, as such terms are defined in the *Securities Act*, Ontario of: (A) shares or rights or options to acquire shares of the Company or securities which are convertible into shares of the Company or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast at a meeting of the shareholders of the Company; (B) shares or rights or options to acquire shares, or their equivalent, of any material subsidiary of the Company or securities which are convertible into shares of the material subsidiary or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast a meeting of the shareholders of the material subsidiary; or (C) more than 50% of the material assets of the Company, including the acquisition of more than 50% of the material assets of any material subsidiary of the Company; or

(2) as a result of or in connection with: (A) a contested election of directors; or (B) a consolidation, merger, amalgamation, arrangement or other reorganization or acquisitions involving the Company or any of its Affiliates and another corporation or other entity, the nominees named in the most recent management information circular of the Company for election to the Company's board of directors do not constitute a majority of the Company's board of directors.

12. The Consultant expressly agrees and represents that the services to be performed by the Consultant pursuant hereto are not in contravention of any non-compete or non-solicitation obligations by which the Consultant is bound.

13. The services to be performed by the Consultant pursuant hereto are personal in character, and neither this Agreement nor any rights or benefits arising thereunder are assignable by the Consultant without the previous written consent of the Company.

14. The Company shall indemnify and save the Consultant harmless from and against all claims, actions, losses, expenses, costs or damages of every nature and kind whatsoever the Consultant may suffer as a result of the gross negligence or willful misconduct of the Company or its directors, officers, employees, agents or other consultants in the performance or non-performance of this Agreement. The Consultant shall indemnify and save the Company harmless from and against all claims, actions, losses, expenses, costs or damages of every nature and kind whatsoever which the Company and its officers, employees, agents or other consultants may suffer as a result of the gross negligence or willful misconduct of the Consultant in the performance or non-performance of this Agreement.

15. It is expressly agreed, represented and understood that the parties hereto have entered into an arms length independent contract for the rendering of consulting services and that the Consultant is not the employee, agent or servant of the Company. Further, this agreement shall not be deemed to constitute or create any partnership, joint venture, master-servant, employer-employee, principal-agent or any other relationship apart from an independent contractor and contractee relationship. Payments made to the Consultant hereunder shall be made without deduction at source by the Company for the purpose of withholding income tax, unemployment insurance payments or Canada Pension Plan contributions or the like.

16. Any notice in writing required or permitted to be given to the Consultant hereunder shall be sufficiently given if delivered to the Consultant personally or mailed by registered mail, postage prepaid, addressed to the Consultant at the address shown on page 1 hereof. Any notice in writing required or permitted to be given to the Company hereunder shall be given by registered mail, postage prepaid, addressed to the Company at the address shown on page 1 hereof. Any such address for the giving of notices hereunder may be changed by notice in writing given hereunder. Any such notice mailed as aforesaid shall be deemed to have been received by the Company on the first business day following the date of the mailing.

17. The provisions of this Agreement shall enure to the benefit of and be binding upon the heirs, executors, administrators and legal personal representatives of the Consultant and the successors and assigns of the Company. For this purpose, the terms "successors" and "assigns" shall include any person, firm or corporation or other entity which at any time, whether by merger, purchase or otherwise, shall acquire all or substantially all of the assets or business of the Company.

18. This Agreement embodies the entire understanding and agreement between the parties with respect to the subject matter hereunder and supersedes any prior understandings, negotiations, representations and agreements relating thereto. No other contract, agreement, representation or warranty between the parties hereto relating to the engagement exists.

19. The division of this Agreement into paragraphs is for the convenience of reference only and shall not affect the construction or interpretation of this Agreement. The terms "this Agreement", "hereof", "hereunder" and similar expressions refer to this Agreement and not to any particular paragraph or other portion hereof and include any agreement or instrument supplemental or ancillary hereto. Unless something in the subject matter or context is inconsistent therewith, references herein to paragraphs are to paragraphs of this Agreement.

20. Every provision of this Agreement is intended to be severable. If any term or provision hereof is determined to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the provisions of this Agreement.

21. This Agreement is being delivered and is intended to be performed in the Province of Ontario and shall be construed and enforced in accordance with, and the rights of both parties shall be governed by, the laws of such Province and the laws of Canada applicable therein. For the purpose of all legal proceedings this Agreement shall be deemed to have been performed in the Province of Ontario and the courts of the Province of Ontario shall have jurisdiction to entertain any action arising under this Agreement. The Company and the Consultant each hereby attorns to the jurisdiction of the courts of the Province of Ontario provided that nothing herein contained shall prevent the Company from proceeding at its election against the Consultant in the courts of any other province or country.

22. No amendment to this Agreement shall be valid or binding unless set forth in writing and duly executed by both of the parties hereto. No waiver of any breach of any term or provision of this Agreement shall be effective or binding unless made in writing and signed by the party purporting to give the same and, unless otherwise provided in the written waiver, shall be limited to the specific breach waived.

23. This Agreement may be signed in counterparts and each of such counterparts shall constitute an original document and such counterparts, taken together, shall constitute one and the same instrument. Counterparts may be executed either in original, faxed or PDF form and the parties adopt any signatures received by a receiving fax machine or PDF copy as original signatures of the parties.

IN WITNESS WHEREOF, this Agreement has been executed as of the 1st day of January 2014.

BRAZIL POTASH CORP.

/s/ Matthew Simpson

Authorized Signing Officer

/s/ Neil Said

NEIL SAID

AMENDMENT TO INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of November, 2021.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 198 Davenport Road, Toronto, ON
(hereinafter called the "Company")

AND:

OF THE FIRST PART

NEIL SAID, an individual with an address of 225 Kingswood Road, Toronto, ON M5A 3R3
(hereinafter called the "Consultant")

OF THE SECOND PART

WHEREAS the Company and the Consultant entered into an independent contractor agreement dated for reference the 1st day of January, 2014, as amended on July 1, 2018 (together, the "Agreement");

AND WHEREAS the parties are desirous of amending certain terms of the Agreement.

THEREFORE, the Agreement is amended as follows:

1. Paragraph 3 of the Agreement is amended as follows:

Effective January 1, 2021, the base fee for the Consultant's services hereunder shall be at the rate of USD\$10,000 per month (the "Base Fees"), plus applicable goods and services tax, together with any such increments thereto and bonuses (including additional grants of options) as the Board of Directors of the Company may from time to time determine, payable in equal monthly amounts in advance on the first business day of each calendar month.

2. All other terms and conditions of the Agreement are hereby reaffirmed.

IN WITNESS WHEREOF, this amendment has been executed as of the day, month and year first above written.

BRAZIL POTASH CORP.

/s/ Matt Simpson

Authorized Signing Officer

/s/ Neil Said

Neil Said

INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of August, 2014

BETWEEN:

BRAZIL POTASH CORPORATION, a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 805, Toronto, Ontario, M5H 2M5
(hereinafter called the “Company”)

OF THE FIRST PART

AND:

RYAN PTOLEMY, an individual with an address of _____
(hereinafter called the “Consultant”)

OF THE SECOND PART

FOR VALUABLE CONSIDERATION, it is hereby agreed as follows:

1. The Consultant shall provide consulting services to the Company (and/or such subsidiary or subsidiaries of the company as the Company may from time to time require) in the capacity of Chief Financial Officer or in such other consulting capacity or capacities as may from time to time be determined by resolution of the Board of Directors of the Company and shall perform such duties and exercise such powers as may from time to time be determined by resolution of the Board of Directors, as an independent contractor.
2. The term of this Agreement shall commence on the date hereof and continue on a month- to-month basis, subject to the termination provisions herein.
3. The base fee for the Consultant’s services hereunder shall be at the rate of \$5000.00 per month (the “Base Fees”), subject to annual review, plus applicable goods and services tax, together with any such increments thereto and bonuses as the Board of Directors of the Company may from time to time determine, payable in equal monthly amounts in advance on the first business day of each calendar month.
4. The Consultant shall be entitled to participate in the following benefit plans at the expense of the Company: Group Life Insurance Plan; Accidental Death & Dismemberment Plan; Long Term Disability Plan; Extended Health Care and Dental Care Plan. In the event that the Company discontinues any of the aforementioned benefit plans, the Consultant hereby acknowledges that the Company, in connection with said discontinuance, shall not be liable in any manner whatsoever to the Consultant.
5. The Consultant shall be responsible for:
 - a. the payment of income taxes and goods and services tax remittances as shall be required by any governmental entity with respect to fees paid by the Company to the Consultant;
 - b. maintaining proper financial records of the Consultant, which records will detail, amongst other things, expenses incurred on behalf of the Company; and
 - c. obtaining all necessary licenses and permits and for complying with all applicable federal, provincial and municipal laws, codes and regulations in connection with the provision of services hereunder and the Consultant shall, when requested, provide the Company with adequate evidence of compliance with this paragraph.

6. The terms “subsidiary” and “subsidiaries” as used herein mean any corporation or company of which more than 50% of the outstanding shares carrying voting rights at all times (provided that the ownership of such shares confers the right at all times to elect at least a majority of the Board of Directors of such corporation or company) are for the time being owned by or held for the Company and/or any other corporation or company in like relation to the Company and include any corporation or company in like relation to a subsidiary.

7. During the term of this Agreement, the Consultant shall provide the consulting services to the Company, and the Consultant shall be available to provide such services to the Company in a timely manner. The Consultant may perform other services for and on behalf of third parties if and only if: (i) The Consultant provides written notice, in a timely manner, advising the Company as to the nature of the services being contemplated; and (ii) the performance of the services does not affect the performance of the Services provided by the Consultant or responsibilities and obligations under this Agreement. Without limiting the generality of the foregoing, the Consultant shall immediately advise the Company, in writing, of any potential conflict of interest, and for the purposes of this Agreement, the term “conflict of interest” shall include, without limitation, performing services for a competitor of the Company.

8. The Consultant shall be reimbursed for any pre-approved travel and other business expenses actually and properly incurred on behalf of the Company or the specific company to which the Consultant is seconded, as the case may be, in connection with the duties hereunder. For all such expenses the Consultant shall furnish to the Company or the specific company to which the Consultant is seconded, as the case may be, an itemized invoice, detailing the expenses incurred, including receipts for such expenses on a monthly basis, and the Company or the specific company to which the Consultant is seconded, as the case may be, will reimburse the Consultant within fourteen (14) days of receipt of the Consultant’s invoice for all appropriate invoiced expenses. In addition, the Company shall provide travel insurance and medical insurance to cover the consultant during all international travel performed by the Consultant for the Company. It shall be the sole responsibility of the Consultant to procure such insurance.

9. The Consultant shall not, either during the continuance of this contract or at any time thereafter, disclose the private affairs of the Company and/or its subsidiary or subsidiaries, or any secrets of the Company and/or subsidiary or subsidiaries, to any person other than the Directors of the Company and/or its subsidiary or subsidiaries or for the Company’s purposes and shall not (either during the continuance of this Agreement or at any time thereafter) use, for the Consultant’s own purposes or for any purpose other than those of the Company, any information the Consultant may acquire in relation to the business and affairs of the Company and/or its subsidiary or subsidiaries. This obligation of confidentiality shall not apply to information that is publicly available prior to the date of this agreement and information that subsequently becomes publicly available other than through the Consultant’s breach of this agreement. In order to reflect the intentions of the parties, this obligation of Confidentiality shall survive the termination of this agreement.

10. The Company shall own and have the right and license to use, copy, modify and prepare derivative works of any of the Consultant's Work Product (defined herein) generated by the services to be performed by the Consultant pursuant hereto as well as all pre-existing work product provided to the Company during the course of the engagement. Without limiting the generality of the foregoing, any opportunities developed by the Consultant during his engagement with the Company shall be for the sole benefit of the Company. In order to reflect the intentions of the parties, this obligation shall survive the termination of this agreement.

"Work Product" shall mean all intellectual property including trade secrets, copyrights, patentable inventions or any other rights in any programming, documentation, technology or other work product created in connection with the services to be performed by the Consultant pursuant hereto.

11. The Consultant shall well and faithfully serve the Company or any subsidiary as aforesaid during the continuance of this Agreement to the best of the Consultant's ability in a competent and professional manner and use best efforts to promote the interests of the Company.

12. This Agreement may be terminated at any time for just cause without notice or payment in lieu of notice and without payment of any fees whatsoever either by way of anticipated earnings or damages of any kind by advising the Consultant in writing. Just cause shall be defined to include, but is not limited to the following:

- a. Fraud;
- b. Theft;
- c. Breach of fiduciary duties;
- d. Being guilty of bribery or attempted bribery; or
- e. Gross mismanagement.

Other than in the context of a Change in Control (as defined herein), the Company may terminate this Agreement without cause by making a payment to the Consultant that is equivalent to twelve (12) months Base Fees and a pro rata share of any bonuses that have been determined and accrued to the date of termination but not paid, in the form of a lump sum payment, within thirty (30) days of the termination date. The Consultant may terminate this agreement by giving the Company three (3) months notice.

13. In the event that this Agreement is terminated for just cause, then at the request of the Board of Directors, the Consultant shall forthwith resign any position or office that the Consultant then holds with the Company or any subsidiary of the Company.

14. In the event that there is a Change in Control of the Company, either the Consultant or the Company shall have one year from the date of such Change in Control to elect to have the Consultant's appointment terminated. In the event that such an election is made, the Company shall, within 30 days of such election, make a lump sum termination payment to the Consultant that is equivalent to 36 months Base Fees plus an amount that is equivalent to all cash bonuses paid to the Consultant in the 36 months prior to the Change in Control. Following a Change in Control all stock options granted to the Consultant shall be dealt with in accordance with the terms of the Company's stock option plan however all stock options granted to the Consultant, but not yet vested, shall vest immediately. Similarly, following a Change in Control, all shares granted to the Consultant under the Company's share compensation plan, but not yet vested, shall vest immediately.

“Change in Control” shall be defined as the acquisition by any person (person being defined as an individual, a corporation, a partnership, an unincorporated association or organization, a trust, a government or department or agency thereof and the heirs, executors, administrators or other legal representatives of an individual and an associate or affiliate of any thereof as such terms are defined in the Canada Business Corporations Act) of: (1) shares or rights or options to acquire shares of the Company or securities which are convertible into shares of the Company or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast at a meeting of the shareholders of the Company; (2) shares or rights or options to acquire shares, or their equivalent, of any material subsidiary of the Company or securities which are convertible into shares of the material subsidiary or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast at a meeting of the shareholders of the material subsidiary; or (3) more than 50% of the material assets of the Company, including the acquisition of more than 50% of the material assets of any material subsidiary of the Company.

15. The services to be performed by the Consultant pursuant hereto are personal in character, and neither this Agreement nor any rights or benefits arising thereunder are assignable by the Consultant without the previous written consent of the Company.

16. The Consultant expressly agrees and represents that the services to be performed by the Consultant pursuant hereto are not in contravention of any non-compete or non-solicitation obligations by which the Consultant is bound.

17. The parties shall indemnify and save each other harmless from and against all claims, actions, losses, expenses, costs or damages of every nature and kind whatsoever which either party, including their respective officers, employees or agents may suffer as a result of the negligence of the other party in the performance or non-performance of this Agreement.

18. It is expressly agreed, represented and understood that the parties hereto have entered into an arms length independent contract for the rendering of consulting services and that the Consultant is not the employee, agent or servant of the Company. Further, this agreement shall not be deemed to constitute or create any partnership, joint venture, master-servant, employer- employee, principal- agent or any other relationship apart from an independent contractor and contractee relationship. Payments made to the Consultant hereunder shall be made without deduction at source by the Company for the purpose of withholding income tax, unemployment insurance payments or Canada Pension Plan contributions or the like.

19. Any notice in writing or permitted to be given to the Consultant hereunder shall be sufficiently given if delivered to the Consultant personally or mailed by registered mail, postage prepaid, addressed to the Consultant at the last residential address known to the Secretary of the Company. Any such notice mailed as aforesaid shall be deemed to have been received by the Consultant on the first business day following the date of mailing. Any notice in writing required or permitted to be given to the Company hereunder shall be given by registered mail, postage prepaid, addressed to the Company at the address shown on page 1 hereof. Any such notice mailed as aforesaid shall be deemed to have been received by the Company on the first business day following the date of the mailing. Any such address for the giving of notices hereunder may be changed by notice in writing given hereunder.

20. The provisions of this Agreement shall enure to the benefit of and be binding upon the heirs, executors, administrators and legal personal representatives of the Consultant and the successors and assigns of the Company. For this purpose, the terms “successors” and “assigns” shall include any person, firm or corporation or other entity which at any time, whether by merger, purchase or otherwise, shall acquire all or substantially all of the assets or business of the Company.

21. This Agreement embodies the entire understanding and agreement between the parties with respect to the subject matter hereunder and supersedes any prior understandings, negotiations, representations and agreements relating thereto. No other contract, agreement, representation or warranty between the parties hereto relating to the engagement exists.

22. The division of this Agreement into paragraphs is for the convenience of reference only and shall not affect the construction or interpretation of this Agreement. The terms "this Agreement", "hereof", "hereunder" and similar expressions refer to this Agreement and not to any particular paragraph or other portion hereof and include any agreement or instrument supplemental or ancillary hereto. Unless something in the subject matter or context is inconsistent therewith, references herein to paragraphs are to paragraphs of this Agreement.

23. Every provision of this Agreement is intended to be severable. If any term or provision hereof is determined to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the provisions of this Agreement.

24. This Agreement is being delivered and is intended to be performed in the Province of Ontario and shall be construed and enforced in accordance with, and the rights of both parties shall be governed by, the laws of such Province and the laws of Canada applicable therein. For the purpose of all legal proceedings this Agreement shall be deemed to have been performed in the Province of Ontario and the courts of the Province of Ontario shall have jurisdiction to entertain any action arising under this Agreement. The Company and the Consultant each hereby attoms to the jurisdiction of the courts of the Province of Ontario provided that nothing herein contained shall prevent the Company from proceeding at its election against the Consultant in the courts of any other province or country.

25. No amendment to this Agreement shall be valid or binding unless set forth in writing and duly executed by both of the parties hereto. No waiver of any breach of any term or provision of this Agreement shall be effective or binding unless made in writing and signed by the party purporting to give the same and, unless otherwise provided in the written waiver, shall be l i. The Consultant shall provide consulting services to the Company (and/or such subsidiary or subsidiaries of the company as the Company may from time to time require) in the capacity of Chief Financial Officer or in such other consulting capacity or capacities as may from time to time be determined by resolution of the Board of Directors of the Company and shall perform such duties and exercise such powers as may from time to time be determined by resolution of the Board of Directors, as an independent contractor.

IN WITNESS WHEREOF, this Agreement has been executed as of the day, month and year first above written.

BRAZIL POTASH CORPORATION

/s/ David Argyle
Authorized Signing Officer

/s/ Ryan Ptolemy
RYAN PTOLEMY

AMENDMENT TO INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is made as of the 1st day of November, 2021.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 198 Davenport Road, Toronto, ON (hereinafter called the "Company")

AND:

OF THE FIRST PART

RYAN PTOLEMY, an individual with an address of 930 – 55 Steward Street, Toronto, ON M5V 2V1 (hereinafter called the "Consultant")

OF THE SECOND PART

WHEREAS the Company and the Consultant entered into an independent contractor agreement dated for reference the 1st day of August, 2014 (the "Agreement");

AND WHEREAS the parties are desirous of amending certain terms of the Agreement.

THEREFORE, the Agreement is amended as follows:

1. Paragraph 3 of the Agreement is amended as follows:

Effective January 1, 2021, the base fee for the Consultant's services hereunder shall be at the rate of USD\$10,000 per month (the "Base Fees"), plus applicable goods and services tax, together with any such increments thereto and bonuses (including additional grants of options) as the Board of Directors of the Company may from time to time determine, payable in equal monthly amounts in advance on the first business day of each calendar month.

2. All other terms and conditions of the Agreement are hereby reaffirmed.

IN WITNESS WHEREOF, this amendment has been executed as of the day, month and year first above

BRAZIL POTASH CORP.

/s/ Matt Simpson
Authorized Signing Officer

/s/ Ryan Ptolemy
Ryan Ptolemy

INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT is effective as of the 1st day of February, 2015.

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, and having a registered office at 800 – 65 Queen Street West, Toronto, Ontario, M5H 2M5

(hereinafter called the “Company”)

OF THE FIRST PART

AND:

IRON STRIKE INC., a body corporate duly incorporated under the laws of Ontario, and having a registered office at 1462 Highbush Trail, Pickering, Ontario, L1V 1N5

(hereinafter called the “Consultant”)

OF THE SECOND PART

FOR VALUABLE CONSIDERATION duly exchanged, it is hereby agreed as follows:

1. The Consultant shall provide the services of Matthew Simpson to deliver management, business and operational consulting services to the Company in the capacity as the Chief Executive Officer of the Company. The Consultant shall serve the Company (and/or such subsidiary or subsidiaries of the company as the Company may from time to time require) in such consulting capacity or capacities as determined by resolution of the board of directors of the Company and shall perform such duties and exercise such powers as may from time to time be determined by resolution of the board of directors, as an independent contractor.

2. The term of this Agreement shall be on a month to month basis commencing on the date of this agreement, subject to the termination provisions in paragraphs [13 to 16].

3. The base fee for the Consultant’s services hereunder shall be at an initial rate of US\$33,333.33 per month (the “Initial Base Fee”), plus applicable taxes. As of July 1, 2015 the Initial Base Fee shall increase to US\$54,166.67 per month (the “Base Fee”), plus applicable taxes, together with any such increments thereto as the Board of Directors of the Company may from time to time determine, payable in advance on the first business day of each calendar month.

4. In addition, the Company intends to establish a milestone-based bonus program whereby members of management would receive a cash bonus upon completion of a strategic transaction (including investment) involving the Company. Awards under such plan would be made in the discretion of the Board taking into account, among other things, the contribution individuals make to the completion of the strategic transaction, the terms and structure of the transaction and the value that the transaction implies to the Company and its assets. The Consultant shall be entitled to participate, in the discretion of the board of directors of the Company as to quantum, frequency, and criteria, in any such cash based incentive program of the Company. The Consultant’s eligibility to participate in any such plan shall survive the termination of this Agreement for a period of six months.

5. The Consultant shall be responsible for:

- a. the payment of income taxes and goods and services tax remittances as shall be required by any governmental entity with respect to fees paid by the Company to the Consultant;
- b. maintaining proper financial records of the Consultant, which records will detail, amongst other things, expenses incurred on behalf of the Company; and
- c. obtaining all necessary licenses and permits and for complying with all applicable federal, provincial and municipal laws, codes and regulations in connection with the provision of services hereunder and the Consultant shall, when requested, provide the Company with adequate evidence of compliance with this paragraph.

6. The terms “subsidiary” and “subsidiaries” as used herein mean any corporation or company of which more than 50% of the outstanding shares carrying voting rights at all times (provided that the ownership of such shares confers the right at all times to elect at least a majority of the Board of Directors of such corporation or company) are for the time being owned by or held for the Company and/or any other corporation or company in like relation to the Company and include any corporation or company in like relation to a subsidiary.

7. During the term of this Agreement, the Consultant shall provide the consulting services to the Company, and the Consultant shall be available to provide such services to the Company in a timely manner subject to availability at the time of the request. Due to conflict of interest considerations, the Consultant shall provide the Company with written notice prior to providing any services to any enterprise other than the Company and the Company acknowledges that the Consultant has advised the Company that the Consultant currently provides services to the following: Forbes & Manhattan, Inc., Black Iron Inc. and certain other companies within the Forbes & Manhattan Group of Companies. Similarly, the Consultant hereby represents and warrants to the Company that the entering into of this Agreement and the performance of its obligations hereunder does not and will not conflict with the terms of any other consulting or employment agreement to which the Consultant is a party.

8. The Consultant shall be reimbursed for all traveling and other expenses actually and properly incurred as an agent of the Company in connection with the duties hereunder. For all such expenses the Consultant shall furnish to the Company an itemized invoice, detailing the expenses incurred, including receipts for such expenses on a monthly basis, and the Company will reimburse the Consultant within fourteen days of receipt of the Consultant’s invoice for all appropriate invoiced expenses.

9. The Consultant shall not, either during the continuance of this contract or at any time thereafter, disclose the private affairs of the Company and/or its subsidiary or subsidiaries, or any secrets of the Company and/or subsidiary or subsidiaries, to any person other than the Directors of the Company and/or its subsidiary or subsidiaries or for the Company's purposes and shall not (either during the continuance of this Agreement or at any time thereafter) use, for the Consultant's own purposes or for any purpose other than those of the Company, any information the Consultant may obtain in relation to the business and affairs of the Company and/or its subsidiary or subsidiaries. This obligation of confidentiality shall not apply to the information that is publicly available prior to the date of this agreement and information that subsequently becomes publicly available other than through the Consultant's breach of this agreement. In addition, the Consultant agrees to execute and abide by the Company's Code of Conduct.

10. The Company shall own and have the right and license to use, copy, modify and prepare derivative works of any of the Consultant's Work Product (defined herein) generated by the services to be performed by the Consultant pursuant hereto during the course of the engagement. "Work Product" shall mean all intellectual property including trade secrets, copyrights, patentable inventions or any other rights in any programming, documentation, technology or other work product created in connection with the services to be performed by the Consultant pursuant hereto.

11. The Consultant shall well and faithfully serve the Company or any subsidiary as aforesaid during the continuance of this Agreement to the best of the Consultant's ability in a competent and professional manner and use best efforts to promote the interests of the Company.

12. This Agreement may be terminated at any time for just cause without notice or payment in lieu of notice and without payment of any fees whatsoever either by way of anticipated earnings or damages of any kind by advising the Consultant in writing. Just cause shall be defined to include, but is not limited to the following:

- a. Fraud;
- b. Theft;
- c. Breach of fiduciary duties;
- d. Being guilty of bribery or attempted bribery; or
- e. Gross mismanagement.

The Company may terminate this Agreement without cause by making a payment to the Consultant that is equivalent to six months Base Fees payable to the Consultant. In the event of termination under this paragraph, any securities compensation granted to the Consultant shall be dealt with in accordance with the terms of the Company's stock option plan.

13. The Consultant may terminate this Agreement by giving the Company three months written notice of his intention to terminate the Agreement and shall forthwith resign any position or office that the Consultant then holds with the Company or any subsidiary of the Company. On the giving of such notice by Consultant, or at any time thereafter, the Company shall have the right to elect to immediately terminate this Agreement, and upon such election, shall provide the Consultant with a lump sum equal to the base salary only for three months or to such proportion of the time that remains outstanding at the time of the election.

14. In the event this Agreement is terminated for just cause, then at the request of the Board of Directors of the Company, the Consultant shall forthwith resign any position or office that the Consultant then holds with the Company or any subsidiary of the Company.

15. In the event that there is a Change in Control (as defined below) during the term of this Agreement and within the twelve months following completion of the Change in Control the Company terminates this Agreement, then the Company shall, within 30 days of such termination, make a lump sum termination payment to the Consultant that is equivalent to 36 months Base Fees plus an amount that is equivalent to all cash bonuses paid to the Consultant in the 36 months prior to the Change in Control. Following a Change in Control, all stock options granted to the Consultant shall be dealt with in accordance with the terms of the Company's stock option plan however all stock options granted to the Consultant, but not yet vested, shall vest immediately.

As used herein, "Change in Control" shall be defined as the occurrence of any one or more of the following events:

(1) the acquisition, directly or indirectly, by any person (person being defined as an individual, a corporation, a partnership, an unincorporated association or organization, a trust, a government or department or agency thereof and the heirs, executors, administrators or other legal representatives of an individual and an associate or affiliate of any thereof as such terms are defined in the *Business Corporations Act (Ontario)*) or group of persons acting jointly or in concert, as such terms are defined in the *Securities Act (Ontario)*, of: (A) shares or rights or options to acquire shares of the Company or securities that are convertible into shares of the Company or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast at a meeting of the shareholders of the Company; (B) shares or rights or options to acquire shares, or their equivalent, of any material subsidiary of the Company or securities which are convertible into shares of the material subsidiary or any combination thereof such that after the completion of such acquisition such person would be entitled to exercise 50% or more of the votes entitled to be cast a meeting of the shareholders of the material subsidiary; or (C) more than 50% of the material assets of the Company, including the acquisition of more than 50% of the material assets of any material subsidiary of the Company; or

(2) as a result of or in connection with: (A) a contested election of directors; or (B) a consolidation, merger, amalgamation, arrangement or other reorganization or acquisitions involving the Company or any of its Affiliates and another corporation or other entity, the nominees named in the most recent management information circular of the Company for election to the Company's board of directors do not constitute a majority of the Company's board of directors.

16. The Consultant expressly agrees and represents that the services to be performed by the Consultant pursuant hereto are not in contravention of any non-compete or non-solicitation obligations by which the Consultant is bound.

17. The services to be performed by the Consultant pursuant hereto are personal in character, and neither this Agreement nor any rights or benefits arising thereunder are assignable by the Consultant without the previous written consent of the Company.

18. The parties shall indemnify and save each other harmless from and against all claims, actions, losses, expenses, costs or damages of every nature and kind whatsoever which either party, including their respective officers, employees or agents may suffer as a result of the negligence of the other party in the performance or non-performance of this Agreement.

19. It is expressly agreed, represented and understood that the parties hereto have entered into an arms length independent contract for the rendering of consulting services and that the Consultant is not the employee, agent or servant of the Company. Further, this agreement shall not be deemed to constitute or create any partnership, joint venture, master-servant, employer-employee, principal-agent or any other relationship apart from an independent contractor and contractee relationship. Payments made to the Consultant hereunder shall be made without deduction at source by the Company for the purpose of withholding income tax, unemployment insurance payments or Canada Pension Plan contributions or the like.

20. Any notice in writing or permitted to be given to the Consultant hereunder shall be sufficiently given if delivered to the Consultant personally or mailed by registered mail, postage prepaid, addressed to the Consultant at the last residential address known to the Secretary of the Company. Any such notice mailed as aforesaid shall be deemed to have been received by the Consultant on the second business day following the date of mailing. Any notice in writing required or permitted to be given to the Company hereunder shall be given by registered mail, postage prepaid, addressed to the Company at the address shown on page 1 hereof. Any such notice mailed as aforesaid shall be deemed to have been received by the Company on the second business day following the date of the mailing. Any such address for the giving of notices hereunder may be changed by notice in writing given hereunder.

21. The provisions of this Agreement shall enure to the benefit of and be binding upon the heirs, executors, administrators and legal personal representatives of the Consultant and the successors and assigns of the Company. For this purpose, the terms "successors" and "assigns" shall include any person, firm or corporation or other entity which at any time, whether by merger, purchase or otherwise, shall acquire all or substantially all of the assets or business of the Company.

22. The division of this Agreement into paragraphs is for the convenience of reference only and shall not affect the construction or interpretation of this Agreement. The terms "this Agreement", "hereof", "hereunder" and similar expressions refer to this Agreement and not to any particular paragraph or other portion hereof and include any agreement or instrument supplemental or ancillary hereto. Unless something in the subject matter or context is inconsistent therewith, references herein to paragraphs are to paragraphs of this Agreement.

23. Every provision of this Agreement is intended to be severable. If any term or provision hereof is determined to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the provisions of this Agreement.

24. This Agreement shall be governed by and interpreted exclusively in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein. The courts of Ontario shall have the exclusive jurisdiction over this Agreement and any claim or dispute arising under it.

25. No amendment to this Agreement shall be valid or binding unless set forth in writing and duly executed by both of the parties hereto. No waiver of any breach of any term or provision of this Agreement shall be effective or binding unless made in writing and signed by the party purporting to give the same and, unless otherwise provided in the written waiver, shall be limited to the specific breach waived.

26. The Consultant acknowledges that the Company recommended that the Consultant obtain independent legal advice before executing this Agreement and that by executing this Agreement, the Consultant represents that such independent legal advice was obtained.

IN WITNESS WHEREOF, this Agreement has been executed as of the day, month and year first above written.

BRAZIL POTASH CORP.

/s/ Ryan Ptolemy

Authorized Signing Officer

IRON STRIKE INC.

/s/ Matthew Simpson

Matthew Simpson

SERVICE AGREEMENT

Signed on September 16, 2021, on one side:

POTÁSSIO DO BRASIL LTDA., limited liability company, registered with the CNPJ/MF under no. 10.971.768/0001-66, headquartered in Manaus/AM, located at Rua Rio Içá, nº. 310, SI 105, Bairro Nossa Senhora das Graças, CEP: 69053-100, herein represented in the form of its articles of association, hereinafter individually referred to as “CONTRACTING PARTY”; and

E, on the other:

J.MENDO CONSULTORIA EMPRESARIAL LTDA, limited liability company, registered with the CNPJ/MF under no. 07.885.199/0001-21, headquartered in Nova Lima/MG, located at Rua Ministro Orozimbo Nonato, no. 442 - Sala 416, Bairro Vila da Serra, CEP: 34.006-053, herein represented in the form of its entrepreneur registration, hereinafter referred to simply as “CONTRACTOR”,

CONTRACTING PARTY and CONTRACTOR individually referred to as “Party” and, jointly, as “Parties”, resolve to enter into this Service Agreement (“Agreement”), in accordance with the following terms and conditions:

1. PURPOSE

1.1. This Agreement has the purpose of providing, by the CONTRACTED PARTY to the CONTRACTING PARTY, consulting and management services for mining projects conducted by the CONTRACTING PARTY, including the supervision and coordination of teams and works related to said projects, hereinafter referred to as “Services”.

1.2. The documents listed below, duly initialed by the Parties, form an inseparable part of this Agreement. In case of contradiction, the provisions of this Agreement shall prevail over those of the Annexes:

(“Annex I”) CONTRACTING PARTY’s Code of Conduct and Anti-Corruption Policy

2. TERM OF CONTRACT

This Agreement shall be effective immediately from the date of signature. The term of this contract is indefinite.

3. PRICE, BILLING AND PAYMENT METHOD

3.1. For the execution of the Services, the CONTRACTING PARTY will pay the CONTRACTED PARTY the monthly amount of R\$ 60,000.00 (sixty thousand reais) for the Services demanded in the form of item 1.1.

3.1.1. For budgetary purposes only and for possible application of penalties, the value of this Agreement will be R\$ 720,000.00 (seven hundred and twenty thousand reais).

3.2. For the billing and payment of the Services, the CONTRACTOR will prepare, on the last business day of each month, the measurement bulletin of the Services (“Measurement Bulletin”), which must be accompanied by the report of the services actually requested and provided in the 30 (thirty) days prior to its preparation.

3.3. It is expressly agreed that all remuneration due to the CONTRACTOR are included in the Price and all costs that may contribute to the formation of the prices offered are considered, including, but not limited to, administration, supervision, taxes, fees, tariffs, social security payments, labor contributions, and the CONTRACTOR shall not have any claim to change the Price.

3.4. Upon receipt of the invoice, the CONTRACTING PARTY must make its payment within 7 business days, by means of bank transfer/deposit in the current account of n. 13-003989-2 of agency n. 4232, of Banco Santander SA (033) owned by the CONTRACTOR, the respective vouchers serving as definitive proof of discharge of each payment.

3.5. In case of delay in payment caused unjustifiably and exclusively by the CONTRACTING PARTY, interest on late payment will be added at the rate of 0.5% (half percent) per month, calculated *pro rata die*, from the due date until the date of actual payment, provided that, when notified, the CONTRACTING PARTY has not fulfilled the obligation within the new agreed term or responded to the notification. No other penalties and/or interest will apply in this case.

3.6. The CONTRACTOR expressly waives the right to extract a duplicate of the invoice issued due to the Services provided, or any other document capable of instrumentalizing a protest, under penalty of incurring a penalty equivalent to the value of the document improperly extracted, without prejudice to criminal representation, filing of action for repairing damages and other penalties provided for in this Agreement on a cumulative basis.

4. OBLIGATIONS OF THE CONTRACTOR

4.1. In addition to the other obligations mentioned in this Agreement, the CONTRACTOR is responsible for:

4.1.1. Strictly observing (i) the legislation in force, (ii) the regulations, requirements and recommendations of the competent public bodies, as well as, (iii) the recommendations of the CONTRACTING PARTY, and its internal rules, which will be provided to the CONTRACTED PARTY when requested.

4.1.2. Obtain and maintain in force all authorizations, grants, licenses and registrations, before the Public Administration or private entities, necessary for the legal and safe execution of the Services.

4.1.3. Be technically responsible for the execution of the Services, observing the CONTRACTING PARTY's guidelines, always with the exception of the CONTRACTOR's exclusive and full responsibility for all its activities.

4.1.4. Repair, at its own expense and within the period established by the CONTRACTING PARTY, the Services that may be rejected by the CONTRACTING PARTY, for not meeting the specifications of the Contract, and the CONTRACTING PARTY shall not owe any other amount, for any reason whatsoever.

4.1.5. Provide necessary personnel, including specialized and auxiliary labor, bearing, with exclusive responsibility, the salaries and any social charges, provided that it is not considered, by mutual agreement between the Parties, an increase in the scope of services provided for in this Agreement. In this case, the Parties may negotiate for the review of the values presented in the formation of the price stipulated in Clause 3 above.

4.1.6. Comply with and ensure that its employees and any person under their responsibility comply with occupational safety, hygiene and medicine standards, including, without limitation, the use of personal protective equipment ("PPE"), if necessary, which must provide the your personnel involved in this Agreement, and to any person under your responsibility.

4.1.7. Immediately inform the CONTRACTING PARTY, verbally and in writing, of any changes or cancellations that may occur in the course of providing the Services.

4.1.8. Not to subcontract the Services object of this Agreement, in whole or in part, without the prior and express consent, in writing, of the CONTRACTING PARTY.

4.1.9. Respect and enforce the prohibition of slave or slavery-like work, as well as the work of persons under 18 (eighteen) years of age in night, dangerous or unhealthy activities and of persons under 16 (sixteen) years of age in any work, except on condition that apprentices, from 14 (fourteen) years old.

4.1.10. The CONTRACTOR declares that it is able to perform all acts of its civil life and guarantees that it has the right to enter into this Agreement and to fully comply with the obligations assumed herein, without this fact entailing the violation of any provision of its Entrepreneur Registration and /or third party rights.

5. OBLIGATIONS OF THE CONTRACTING PARTY

5.1. In addition to the other obligations mentioned in this Agreement, the CONTRACTING PARTY is responsible for:

5.1.1. Paying the Contact Price, pursuant to Clause 3 above.

5.1.2. Provide the CONTRACTOR with the information essential for the proper performance of the Services.

5.1.3. Provide transportation, accommodation and food to the CONTRACTOR's employees, when the services are provided at the CONTRACTING PARTY's projects site. Travel, food and accommodation expenses when incurred by the CONTRACTOR's employees to provide the services, must be previously authorized by the CONTRACTING PARTY and will be reimbursed following the CONTRACTING PARTY's Compliance rules.

6. TAX INCIDENCES

6.1. The CONTRACTOR shall be exclusively responsible for any and all taxes, whether Federal, State or Municipal, that are levied on the Services, by virtue of any legal provision in force or that may be instituted, including the Tax on Services of Any Nature - ISSQN, to be collected in accordance with the provisions of art. 3 of LC116/2003, and proof of payment in the municipality(ies) where the services are provided must be forwarded to the CONTRACTING PARTY together with the Invoice for payment, under penalty of withholding payment.

6.2. The CONTRACTOR expressly authorizes the CONTRACTING PARTY to make all withholdings related to taxes and public prices levied on the Contract when necessary.

6.3. If, during the term of the Agreement, new taxes are created or the current rates are modified, in order to demonstrably increase or decrease the CONTRACTOR's burden, directly related to this Agreement, the Price may be revised in order to adapt it to these changes, compensating, at the earliest opportunity, any differences resulting from these changes, in accordance with the new values found by consensus of the Parties.

6.4. If, aware of the existence of tax incentives applicable to the Contract, the CONTRACTOR causes the non-use, revocation, reduction or suspension thereof, it will bear the resulting burden.

7. DEFAULT AND FINE

7.1. If the CONTRACTOR fails to comply with any of the obligations of this Agreement, including, but not limited to, the terms established in this instrument and/or its Annexes, provided that the CONTRACTING PARTY has not demonstrably given rise to the default, the CONTRACTING PARTY may, at any time, issue a notice of default ("Notice of Default"), describing the contractual breach so that the CONTRACTED PARTY fulfills the defaulted obligation within 15 (fifteen) calendar days, counted from its receipt.

7.2. If the CONTRACTED PARTY does not comply with the defaulted obligation within a maximum period of up to 15 (fifteen) consecutive days, established in item 7.1, and there is no specific fine in this Agreement, the CONTRACTING PARTY may retroactively apply a non-compensatory daily penalty, from the date of non-compliance with the obligation or, in the impossibility of specifying this date, of receipt of the Notice of Default, without the need for a new notification, in the amount corresponding to 1% (one percent) of the Estimated Value indicated in item 3.1.1, corrected with interest of 1% (one percent) per month, until the fulfillment of the defaulted obligation. In the event of default of an obligation whose subsequent fulfillment is impossible or is not usable by the CONTRACTING PARTY, at its sole discretion, the Notice of Default will not be necessary, so that the CONTRACTING PARTY may directly apply a fine in the amount of 10% (ten percent) of the Estimated Value of the Contract, immediately after the CONTRACTOR receives a notification for this purpose ("Notice of Fine"), and the CONTRACTOR may use the same expedient, in similar cases.

7.3. In any of the cases provided for in items 7.2 and 7.3 above, the CONTRACTING PARTY is hereby authorized to deduct from the payments to the CONTRACTED PARTY the amounts of the fines owed to it, regardless of specific notification for this purpose.

7.3.1. The fines and penalties provided for in this Agreement will be applied cumulatively, according to the occurrence of the events that give rise to their incidence.

7.4. In addition to the collection of a non-compensatory criminal fine, the CONTRACTING PARTY may enforce the defaulted obligation, as per 12.3 below, and/or terminate this Agreement in full right, by means of a notice with immediate effect.

7.5. Regardless of the imposition of a fine, contractual termination or forced compliance with the defaulted obligation, the CONTRACTING PARTY will also be entitled to compensation for direct material damages, demonstrably suffered.

7.6. Neither Party may demand indirect material damages, non-material damages, losses or lost profits from the other Party in the face of the breach of this Agreement, except as provided in Clause 10 below

8. PERFORMANCE BONUS.

8.1. The CONTRACTING PARTY may freely, in exceptional cases and at its free, sole and exclusive discretion, authorize the invoicing, by the CONTRACTED PARTY, of extra amounts, as a special bonus, in cases of outstanding performance and/or success in carrying out the contracted services, without this implying, under any circumstances, in the alteration of the terms of this CONTRACT, nor in a right acquired by the CONTRACTOR.

8.2 The provision of this clause does not enable, under any circumstances, the collection of any amount as a bonus for performance by the CONTRACTOR.

8.3 Any occasional payment of special performance bonuses does not imply the possibility of such payment happening again, even if the same conditions that based the previous payment are repeated.

8.4 The CONTRACTOR did not consider the performance bonus in the formation of the price stipulated in Clause 3 above, and recognizes that it can provide the services contracted herein without receiving any amount as a performance bonus, regardless of the period of time in which such services are provided.

8.5 The CONTRACTING PARTY, or a related party of the CONTRACTING PARTY, may also freely, in exceptional cases and at its free, sole and exclusive discretion, grant the CONTRACTED PARTY or its related party, stock options (Stock Options) of the CONTRACTING PARTY or its part related, as a special bonus, in cases of outstanding performance and/or success in carrying out contracted services, without this implying, under any circumstances, in changing the terms of this Agreement, nor in a right acquired by the CONTRACTOR.

8.6 Subject to the final approval of the Board of Directors of Brazil Potash (the CONTRACTING PARTY's parent company), a performance bonus of BRL 1,200,000.00 (One million, two hundred thousand reais), in the event of the final and irrevocable obtaining of the installation license (LI) of the CONTRACTING PARTY's Autazes project based on the CONTRACTED PARTY's direct and substantial involvement in achieving this objective, was offered to the CONTRACTING PARTY by the CONTRACTED PARTY.

8.7. Subject to the final approval of the Board of Directors of Brazil Potash (parent company of the CONTRACTING PARTY), an option to acquire 500,000 (five hundred thousand) shares of Brazil Potash at the price of US\$ 4.00 (four US dollars) was offered to the CONTRACTING PARTY by the CONTRACTED PARTY.

9. ANTI-BRIBERY AND ETHICAL CONDUCT

9.1. The CONTRACTOR undertakes, under the penalties provided for in this instrument and in the applicable legislation, to strictly observe and comply with national and foreign anti-corruption laws (together "Anti-Corruption Laws"), as well as the rules contained in the Code of Conduct and of the CONTRACTING PARTY's internal policies ("Anti-Corruption Policy").

9.2. The CONTRACTOR declares and guarantees that:

9.2.1. it is not involved or will be involved, directly or indirectly, by its representatives, administrators, directors, partners or shareholders, advisors, consultants, subcontractors and employees, during the fulfillment of the obligations provided for in this contract, in any activity or practice that constitutes a violation of the terms of the Anti-Corruption Laws and/or the Anti-Corruption Policy;

9.2.2. and its representatives, administrators, officers, directors, partners or shareholders, advisors, consultants, employees, directly or indirectly (i) under investigation due to allegations of bribery and/or corruption; (ii) in the course of a judicial and/or administrative proceeding have either been convicted or indicted on charges of corruption or bribery; (iii) listed in any governmental entity, neither known nor suspected of terrorism and/or money laundering practices; (iv) subject to economic and business restrictions or sanctions, of any nature, by any governmental entity; and (v) banned or prevented from doing business, of any nature, in accordance with any law that is imposed or enforced by any governmental entity;

9.2.3. directly or indirectly, has not offered, promised, paid, agreed or authorized the payment of cash, given or agreed to give gifts or anything of value and, during the term of this Agreement, will not offer, promise, pay, agree or authorize the cash payment, giving or agreeing to give gifts or anything of value to any person or entity, public or private, with the aim of unlawfully benefiting you, the CONTRACTING PARTY and/or its business;

9.2.4. directly or indirectly, it will not receive, transfer, maintain, use or hide resources that result from any illegal activity, nor will it hire as an employee or in any way maintain a professional relationship with individuals or legal entities involved in criminal activities, in particular Anti-corruption laws, money laundering, drug trafficking, people, plants and wild animals and terrorism;

9.2.5. (a) the CONTRACTOR's current legal representatives and professionals directly or indirectly linked to the performance of the Contract ("CONTRACTOR's Representatives") are not public agents;

(b) that it will immediately inform, in writing, when any Representative of the CONTRACTOR becomes a public agent; and (c) if the event provided for in item "b" above actually occurs, the CONTRACTING PARTY may, at its sole discretion (i) terminate this contract, without imposing any fine or penalty; (ii) request the immediate removal of the person from all activities related to the performance of the Agreement.

9.2.6. You acknowledge and agree that this Agreement is subject to the FCPA – Foreign Corrupt Practices Act (USA), the UK Bribery Act (United Kingdom); the Corruption of Foreign Public Officials Act (Canada) and any other countries' anti-bribery laws that may apply.

9.3. Upon request by the CONTRACTING PARTY, the CONTRACTED PARTY, at its own expense, will provide the CONTRACTING PARTY, in a timely manner, with any and all materials, documents, information, data or certificate(s) in relation to the CONTRACTED PARTY's compliance with the Laws and this clause.

9.4. The CONTRACTOR undertakes to maintain books, accounts, records and invoices demonstrating in a detailed, accurate and correct way its operations, precisely complying with the accounting standards, and agrees that, if deemed necessary, the CONTRACTING PARTY shall have the right, directly or indirectly, with the help of third parties that it may indicate, audit the books, accounts, records, invoices and supporting documentation that support the operations related to the Agreement to verify compliance with the provisions of the Anti-Corruption Laws and also the Anti-Corruption Policy. Likewise, the CONTRACTOR, in the course of any audit, undertakes to present the information and documents that may be necessary, whenever requested, within the period set by the CONTRACTING PARTY.

9.5. The CONTRACTED PARTY agrees that the breach of this Clause will be considered a serious breach of this Agreement, giving the CONTRACTING PARTY the right to terminate this Agreement motivated and immediately, without prejudice to the suspension and retention of payments, by means of simple communication, application of contractual fines, including termination, and collection of corresponding losses and damages.

9.6. The CONTRACTOR shall promptly notify the CONTRACTING PARTY in writing of any suspicion or violation of the provisions of the Anti-Corruption Laws and/or the Anti-Corruption Policy by the CONTRACTED PARTY or any of its representatives, administrators, directors, partners or shareholders, advisors, consultants, subcontractors and employees, as well as participation in bribery or corruption practices, as well as failure to comply with any declaration provided for in this Clause.

9.7. The CONTRACTING PARTY will not be jointly or severally liable for lawsuits and/or administrative proceedings, losses or damages resulting from the CONTRACTOR's failure to comply with any Anti-Corruption Law or this anti-corruption clause or related to the termination of the contract, in accordance with this clause, and the CONTRACTOR shall indemnify and exempt the CONTRACTING PARTY, its affiliates, and their respective shareholders, directors, directors, employees, agents, successors and assignees, from any such lawsuits, administrative proceedings, losses or damages and other expenses of any nature related to the default, including related costs, investigation expenses, court costs and attorneys' fees.

9.8. In the event of any legal action and/or administrative proceeding against the CONTRACTED PARTY related to its non-compliance with the Anti-Corruption Laws, the CONTRACTOR shall notify the CONTRACTING PARTY, in writing, of such action before its publication and/or disclosure, or within 10 working days of receipt.

9.9. The CONTRACTED PARTY is responsible to the CONTRACTING PARTY for the acts performed by its representatives, administrators, directors, directors, partners or shareholders, advisors, consultants, subcontractors and employees, as well as the controlling, controlled, affiliated or subcontracted companies of the CONTRACTED PARTY, directly or indirectly involved in the performance of this Agreement.

10. CONFIDENTIALITY

10.1. It is incumbent upon the Parties to maintain in absolute secrecy any and all information that has been made available to them by the other Party, or to which they have had access, developed or acquired as a result, directly or indirectly, of the execution and fulfillment of this Agreement, including, but not limited to information of a technical, operational, financial, legal and/or commercial nature (the "Information Confidential").

10.2. Confidential Information will not be considered as information presented in the records of lawsuits that are not subject to secrecy of justice and confidential procedures, or those whose disclosure, previously authorized by the Parties, is necessary for the representation of the interests of the Parties as the case may be.

10.3. The Parties undertake to (i) treat Confidential Information with due confidentiality and not disclose it to third parties or any person, unless such disclosure is necessary for the performance of this Agreement; (ii) not use, under any circumstances, the Confidential Information for their own benefit or that of third parties; (iii) not produce any type of copy or backup of Confidential Information, unless the other Party's prior written authorization; (iv) at any time, at the request of the other Party, immediately return or destroy the Confidential Information, obliging itself not to use it anymore; (v) in the event of a court order for the disclosure of Confidential Information or a request by regulatory and/or administrative entities, immediately inform the other Party, in writing, in order to allow it to take the measures it deems appropriate.

10.4. The duty of confidentiality will remain in effect for another 5 (five) years after the expiration of this Agreement. In the event of non-compliance with this Clause 9, the opposing Party shall be entitled to compensation for the direct and indirect losses and damages suffered as a result of the breach of the confidentiality obligation.

11. RESPONSIBILITIES

11.1. The CONTRACTOR shall keep the CONTRACTING PARTY harmless and fully reimburse any amounts to which it may be administratively sued, sued and/or condemned due to: (i) non-fulfilment, at the proper time, of any obligation attributable to the CONTRACTED PARTY, originating from this Agreement or from law, whether of a tax, labor, social security, civil, environmental or any other nature; (ii) its involvement in proceedings of any nature relating to obligations under this Agreement that are the responsibility of the CONTRACTED PARTY, including in labor claims filed by employees of the CONTRACTED PARTY, whether the CONTRACTING PARTY is considered an isolated, subsidiary or jointly liable party, either as a defendant or intervening; and (iii) damages of any nature, related to this Agreement and caused to the CONTRACTING PARTY.

11.2. The CONTRACTING PARTY is hereby authorized to retain and offset the amount equivalent to that being claimed against the amounts billed against it by the CONTRACTED PARTY or by a company of the CONTRACTED PARTY's group, under this or another contract, returning it to the CONTRACTED PARTY after: (i) the successful administrative closure of the claim; (ii) irrevocable decision dismissing the deed or excluding the CONTRACTING PARTY from the defendant's side; or (iii) full payment of the debt by the CONTRACTOR duly proven.

11.3. In judicial and/or administrative proceedings in which the CONTRACTING PARTY is involved, in any capacity, for demands related to the CONTRACTED PARTY's conduct, the CONTRACTING PARTY will reimburse the CONTRACTING PARTY, regardless of the result of the judicial or administrative proceedings related to acts or omissions of the CONTRACTED PARTY in which the CONTRACTING PARTY involved, the value of the hours spent by its lawyers and agents, in addition to the legal and administrative expenses and the costs that it incurs, serving as the basis for the reimbursement agreed herein, the remuneration of the CONTRACTING PARTY's lawyers and agents, in addition to the fees contractually paid to third-party lawyers to monitor the processes, upon presentation of the respective vouchers.

11.3.1. If the CONTRACTOR does not take such measures within 30 (thirty) days, counted from the CONTRACTING PARTY's request, the CONTRACTING PARTY may arrange for damages to be repaired and, regardless of notification, deduct the corresponding amount, duly corrected, from the first subsequent invoice presented by the CONTRACTOR due to this or another contract.

12. TERMINATION

12.1. This Agreement may be terminated by the CONTRACTING PARTY, at any time, without reason, by giving written notice, at least 30 (thirty) days in advance, in which case no fine or any other penalty will be due, without prejudice to the provisions of item 12.3 below.

12.2. This Agreement may be terminated by either Party immediately, in a motivated manner, provided that, notified in the form of Clause 7 retro, the opposing Party does not comply with the defaulted obligation within the agreed period or in other cases provided for in this Agreement, provided that, in any case, the Party will be entitled to a fine corresponding to 10% (ten percent) of the Estimated Value of the Agreement, corresponding losses and damages, in addition to procedural expenses and attorney's fees. In all cases and events of termination of this Agreement, whether any reason is present or absent, (i) the CONTRACTING PARTY shall pay the CONTRACTED PARTY all Services that have been proven to have been authorized, performed, approved and not paid, less any damages to the CONTRACTING PARTY caused by the CONTRACTOR; and (ii) the obligations arising from previous liabilities, liabilities, product quality, confidentiality and *compliance will remain in force*.

12.3. Upon terminating the Agreement for any reason, the CONTRACTING PARTY may hire whoever it deems fit to perform the Services yet to be performed, regardless of any consultation or interference from the CONTRACTED PARTY.

13. GENERAL PROVISIONS

13.1. This Agreement supersedes and cancels any other agreement, oral or written, between the Parties involving the same object.

13.2. **Additions.** The terms and conditions of this Agreement may only be modified or amended by a written document signed by both Parties.

13.3. **Extrajudicial executive title.** This Agreement is an extrajudicial enforceable instrument, and its obligations may be subject to a specific enforcement action. The Parties agree that failure to comply with any of the obligations set forth in this Agreement may be subject to specific performance by the aggrieved Party, in accordance with the rules contained in articles 497, 798, 815 of the Brazilian Civil Procedure Code (Law 13.105/2015), at the sole discretion of the aggrieved Party.

13.4. **Independence of clauses and provisions.** If, for any reason, any provision of this instrument is held to be invalid, illegal or unenforceable, such provision shall be disregarded only to the extent of its effective scope, and the validity, legality and enforceability of the other provisions of this Agreement will not be affected or compromised.

13.5. **Compensation and Retention of Values.** The amounts due from one Party to the other, in any capacity, including without limitation payments, fines and indemnities of any nature may be offset and/or withheld as the case may be.

13.6. **Novation.** The non-exercise, by the Parties, of any of the rights or prerogatives provided for in this Agreement, or even in the applicable legislation, as well as any partial negotiation, will be considered as an act of mere liberality, not constituting an alteration or novation of the obligations established herein, the fulfillment of which may be required at any time.

13.7. **Assignment.** The CONTRACTOR may not assign any of the rights or obligations arising from this instrument without the prior written consent of the CONTRACTING PARTY.

13.8. **Succession.** This Agreement binds the Parties and their successors of any kind.

13.9. **Liability in subcontracting and assignments.** Under no circumstances, the subcontracting or assignment, authorized or not by the CONTRACTING PARTY, releases the CONTRACTED PARTY from its responsibilities and obligations assumed in this Agreement, keeping the CONTRACTED PARTY fully responsible to the CONTRACTING PARTY for the acts or omissions carried out by third parties and arising from the subcontracting and/or its replacement.

13.10. **Not exclusivity.** The contract hereby agreed is not exclusive and does not establish an employment relationship between the Parties or any relationship of personal subordination between their managers, employees, agents and/or third parties under the responsibility of the Parties.

13.11. **Act of God or force majeure.** Neither Party will be liable for non-compliance with its contractual obligations as a result of a fortuitous event or force majeure, under the terms of the Civil Law in force, and for that purpose, it must immediately communicate the occurrence of such fact to the other Party and inform the harmful effects of the event.

13.12. **Data queries.** The CONTRACTOR authorizes the CONTRACTING PARTY to make inquiries in credit analysis and information services, including SERASA - Centralização de Serviços de Bancos S/A and SPC/CDL - Credit Protection Service, regarding their regularity, as well as the regularity of its partners. The CONTRACTOR also authorizes the archiving of personal and reputable data obtained in such bodies and their use by the CONTRACTING PARTY, within the legal limit.

13.13. **Declaration of technical capability.** The CONTRACTOR assures that, on the date of signature of this Agreement, it already had the necessary technical, operational and economic capacity to meet the CONTRACTING PARTY's demand, not having made, for the purposes of the sole paragraph of article 473 of the Civil Code, special mobilization or investment additional payment for the performance of this contract.

13.14. **Notification.** All notifications and communications regarding this Agreement between CONTRACTING PARTY and CONTRACTOR will be made through their managers and sent to the following addresses:

BRAZIL POTASH CORP

198 Davenport Road Toronto, ON, Canada M5R 1J2
A/C Sr. Matt Simpson
Tel. +1-416-309-2138 – E-mail: msimpson@brazilpotash.com

J.Mendo Consultoria Empresarial Ltda.

Rua Ministro Orozimbo Nonato, nº 442 – Sala 416 Bairro Vila da Serra
Nova Lima, MG – CEP: 34.006-053
A/C Sr. Adriano Espescht
Tel.: +55-31-98441-6936 – E-mail: adriano@jmendo.com.br

14. Jurisdiction

14.1. The Parties elect the jurisdiction of the District of Manaus, AM, as the only one competent to resolve issues arising from this Agreement, with express waiver of any other, however special it may be.

And because they are fair and contracted, the Parties sign this Agreement in 2 (two) copies of equal content and form, in the presence of the witnesses below.

Belo Horizonte, MG, September 16, 2021.

/s/ Guilherme Andrade dos Anjos Jacome

POTÁSSIO DO BRASIL LTDA.
Guilherme Andrade dos Anjos
Jacome
CONTRATANTE

/s/ Adriano Viana Espescht

J.MENDO
CONSULTORIA
EMPRESARIAL LTDA
Adriano Viana Espescht
CONTRATADA

Testemunhas:

/s/ Eldanise Barbosa Saraiva

Nome: Eldanise Barbosa Saraiva
CPF: 306.876.082-87

LOAN AGREEMENT

BETWEEN:

BRAZIL POTASH CORP., a corporation existing pursuant to the laws of the Province of Ontario (hereinafter referred to as the “**Borrower**”)

OF THE FIRST PART

- and -

2227929 Ontario Inc., a corporation existing pursuant to the laws of the Province of Ontario (hereinafter referred to as the “**Lender**”)

OF THE SECOND PART

WHEREAS the Lender has agreed to lend and the Borrower has agreed to borrow US\$40,000 (the “Loan”) subject to the terms and conditions contained in this Loan Agreement.

NOW THEREFORE in consideration of the mutual promises and covenants hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1. The Loan

The Lender hereby agrees to lend to the Borrower the principal sum of US\$40,000 in lawful money of the United States of America (the “Principal”). The Borrower agrees that interest shall be calculated and payable at a rate of 12.0% per annum and in accordance with the terms of the Loan Agreement. All interest shall be paid on the maturity date.

2. Repayment

The Borrower may repay the Principal and all accrued interest in full by no later than 3 months from the date hereof.

3. Use of Proceeds

The Borrower shall use the proceeds of the Loan solely for general corporate purposes.

4. Waivers Generally

No waiver of any right or remedy of the Lender hereunder shall be effective unless in writing and signed by the Lender and any waiver granted by the Lender shall be effective only to the extent and in the circumstances specified therein. No failure, delay or omission by the Lender to exercise or enforce any rights or remedies under this Loan Agreement shall constitute a waiver thereof or of any other rights or remedies of the Lender.

5. Events of Default

An event of default (“**Event of Default**”) shall occur if:

- a. The Borrower shall fail to pay to the Lender any amount of Principal, interest or any other amount when due and payable hereunder;
- b. The Borrower shall fail to use the proceeds of the Loan exactly in accordance with the requirements set out in Section 3 hereunder;
- c. The Borrower shall sell or attempt to sell all or substantially all its assets;
- d. A creditor shall take or purport to take possession or to assert a prior claim, hypothec or lien in respect of any substantial part of the property of the Borrower and such procedure is not contested in good faith by the Borrower immediately upon such event, or if a lien, execution, distress or any process of any court be levied or enforced against any of the foregoing and remain unsatisfied for such period as would permit such property or such part thereof to be sold thereunder;
- e. A resolution is passed or a petition filed for the wind-up or liquidation of the Borrower or if the Borrower institutes proceedings under any bankruptcy, insolvency or analogous law or is adjudicated as bankrupt or insolvent, or consents to (or fails to contest in good faith) the institution of bankruptcy or insolvency proceedings against it or makes (or serves notice of intention to make) any proposal under any bankruptcy, insolvency or analogous laws, or consents (or fails to contest in good faith) to the filing of any such petition or to the appointment of a receiver of, or of any substantial part of, the property of the Borrower or makes a general assignment for the benefit of creditors, or makes or agrees to make any bulk sale without complying with the provisions of any applicable bulk sale provision, or admits (in writing or otherwise) its inability to pay its debts generally as they become due, or ceases or threatens to cease to carry on business as a going concern, or takes corporate action in furtherance of any of the aforesaid purposes; or
- f. In the event of any breach or default by the Borrower of its obligations, undertakings, covenants, representations and warranties pursuant to this Loan Agreement.

In each and every such Event of Default the Lender may, at its option, by written notice to the Borrower declare the Principal advanced pursuant to this Loan Agreement outstanding hereunder, together with all other amounts payable hereunder (including any interest thereon accrued and unpaid), to be due and payable and the same shall forthwith become immediately due and payable to the Lender, anything therein or herein to the contrary notwithstanding, and the Borrower shall pay forthwith to the Lender the amount of the Principal then outstanding and all other amounts payable hereunder, from the date of the said declaration until payment is received by the Lender.

Should an Event of Default occur, the Lender may, at its option, exercise its rights by any act, proceeding, recourse or procedure authorized or permitted by law and may file its proof and any other documents necessary or desirable so that the request of the Lender may be considered in any liquidation or other proceeding with respect to the Borrower.

6. Miscellaneous

No remedy herein conferred upon or reserved to the Lender is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now existing or hereafter to exist by law or by statute.

The delay or omission of the Lender to exercise any recourse mentioned above shall not invalidate any such recourse nor be interpreted as a waiver of any default hereunder.

The Borrower shall assume and pay all reasonable costs, charges and expenses including reasonable solicitors' costs, charges and expenses as between solicitor and his own client that may be incurred by the Lender in respect of any proceedings taken or things done by the Lender or on its behalf in connection with this Loan Agreement to collect all amounts due hereunder, and the Borrower shall consent to those costs, charges and expenses being charged.

7. Assigns, Successors and Governing Law

This Loan Agreement shall not be assignable by the Borrower without the prior written consent of the Lender. This Loan Agreement shall enure to the benefit of and be binding upon the respective successors of the Borrower and the Lender and the assigns of the Lender and the permitted assigns of the Borrower. This Loan Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario.

Dated as of the 15th day of June, 2020

BRAZIL POTASH CORP.

By: /s/ Matt Simpson
Authorized Signing Officer

2227929 ONTARIO INC.

By: /s/ Fred Leigh
Authorized Signing Officer

2227929 Ontario Inc.

December 17, 2020

Matt Simpson
Brazil Potash Corp.
65 Queen Street West
Suite 900
Toronto, Ontario
M5H 2M5

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, 2227929 Ontario Inc. hereby confirms the extension of the Maturity Date of the Loan from December 15, 2020 to July 31, 2021. In addition, 2227929 Ontario Inc advanced an additional US\$70,000 under the same terms.

As of the date hereof, the aggregate amount owing to 2227929 Ontario Inc. pursuant to the Loan Agreement is US\$114,894.07, consisting of US\$110,000 in Principal and US\$4,894.20 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

2227929 Ontario Inc.

/s/ Fred Leigh

Fred Leigh, Director

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson

Matt Simpson, CEO

2227929 Ontario Inc.

September 30, 2021

Matt Simpson
Brazil Potash Corp.
198 Davenport Road
Toronto, Ontario
M5R 1J2

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, 2227929 Ontario Inc. hereby confirms the extension of the Maturity Date of the Loan from July 31, 2021 to June 30, 2022.

As of the date hereof, the aggregate amount owing to 2227929 Ontario Inc. pursuant to the Loan Agreement is US\$299,659.06, consisting of US\$270,000 in Principal and US\$29,659.06 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

2227929 Ontario Inc.

/s/ Fred Leigh
Fred Leigh, Director

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson
Matt Simpson, CEO

LOAN AGREEMENT

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 805, Toronto, Ontario, M5H 2M5

(hereinafter referred to as the “Borrower”)

OF THE FIRST PART

- and -

ABERDEEN INTERNATIONAL INC., a body corporate existing under the laws of the Province of Ontario

(hereinafter referred to as the “Lender”)

OF THE SECOND PART

WHEREAS the Lender and the Borrower have agreed to enter into an arrangement whereby the Lender has agreed to lend and the Borrower has agreed to borrow USD\$100,000 (the “Loan”) subject to the terms and conditions contained herein;

AND WHEREAS the Borrower requires the Loan on a short-term basis to cover working capital needs.

NOW THEREFORE in consideration of the mutual promises and covenants hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1. The Loan

The Lender hereby agrees to lend to the Borrower the principal sum of USD\$100,000 in lawful money of Canada (the “Principal”). Interest shall be payable on the Principal, as well as interest on interest accrued and unpaid when due and shall be calculated and payable at a rate of 12.0% per annum (the “Interest Rate”) and in accordance with the terms of this Loan Agreement.

2. Repayment

The Borrower shall repay the Loan (including the Principal and accrued interest) in cash on or before January 2, 2021. The Borrower and the Lender may negotiate repayment of the Loan via the transfer of securities or other investment products but any arrangement for repayment other than cash remains subject to a subsequent written agreement.

3. Conditions of Advance

The Lender agrees to advance the Loan up to USD\$100,000 upon the execution of this Agreement by the Lender, solely on the condition that the Loan is used by the Borrower towards working capital and investment opportunities.

4. Waiver of Formalities

The Lender hereby waives presentment, notice of dishonour and protest.

5. Waivers Generally

No waiver of any right or remedy of the Lender hereunder shall be effective unless in writing and signed by the Lender and any waiver granted by the Lender shall be effective only to the extent and in the circumstances specified therein. No failure, delay or omission by the Lender to exercise or enforce any rights or remedies under this note or any security collateral hereto shall constitute a waiver thereof or of any other rights or remedies of the Lender.

6. Assigns, Successors and Governing Law

This note shall not be assignable by the Borrower without the prior written consent of the Lender. This note shall enure to the benefit of and be binding upon the respective successors of the Borrower and the Lender and the assigns of the Lender and the permitted assigns of the Borrower. This note shall be governed by and construed in accordance with the laws of the Province of Ontario.

Dated as of the 2nd day of July, 2020

BRAZIL POTASH CORP.

By: /s/ Matt Simpson
Authorized Signing Officer

ABERDEEN INTERNATIONAL INC.

By: /s/ Ryan Ptolemy
Authorized Signing Officer



February 9, 2021

Matt Simpson
Brazil Potash Corp.
65 Queen Street West Suite 900
Toronto, Ontario M5H 2M5

Dear Mr. Ptolemy:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Aberdeen hereby confirms the extension of the Maturity Date of the Loan from January 2, 2021 to July 31, 2021. Aberdeen confirms no extension fee will be applied.

As of the date hereof, the aggregate amount owing to Aberdeen pursuant to the Loan Agreement is US\$461,270.49, consisting of US\$448,000 in Principal and US\$13,270.49 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

ABERDEEN INTERNATIONAL INC.

/s/ Ryan Ptolemy
Ryan Ptolemy, CFO

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson
Matt Simpson, CEO



September 30, 2021

Matt Simpson
Brazil Potash Corp.
198 Davenport Road
Toronto, Ontario
M5R 1J2

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Aberdeen hereby confirms the extension of the Maturity Date of the Loan from December 31, 2021 to June 30, 2022. Aberdeen confirms no extension fee will be applied.

As of the date hereof, the aggregate amount owing to Aberdeen pursuant to the Loan Agreement is US\$211,967.12, consisting of US\$200,000 in Principal and US\$11,967.12 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

ABERDEEN INTERNATIONAL INC.

/s/ Ryan Ptolemy
Ryan Ptolemy, CFO

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson
Matt Simpson, CEO

LOAN AGREEMENT

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 900, Toronto, Ontario, M5H 2M5

(hereinafter referred to as the “Borrower”)

OF THE FIRST PART

- and -

ABERDEEN INTERNATIONAL INC., a body corporate existing under the laws of the Province of Ontario

(hereinafter referred to as the “Lender”)

OF THE SECOND PART

WHEREAS the Lender and the Borrower have agreed to enter into an arrangement whereby the Lender has agreed to lend and the Borrower has agreed to borrow USD\$200,000 (the “Loan”) subject to the terms and conditions contained herein;

AND WHEREAS the Borrower requires the Loan on a short-term basis to cover working capital needs.

NOW THEREFORE in consideration of the mutual promises and covenants hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1. The Loan

The Lender hereby agrees to lend to the Borrower the principal sum of USD\$200,000 in lawful money of the United States of America (the “Principal”). Interest shall be payable on the Principal, as well as interest on interest accrued and unpaid when due and shall be calculated and payable at a rate of 12.0% per annum (the “Interest Rate”) and in accordance with the terms of this Loan Agreement.

2. Repayment

The Borrower shall repay the Loan (including the Principal and accrued interest) in cash on or before December 31, 2021. The Borrower and the Lender may negotiate repayment of the Loan via the transfer of securities or other investment products but any arrangement for repayment other than cash remains subject to a subsequent written agreement.

3. Conditions of Advance

The Lender agrees to advance the Loan up to USD\$200,000 upon the execution of this Agreement by the Lender, solely on the condition that the Loan is used by the Borrower towards working capital and investment opportunities.

4. Waiver of Formalities

The Lender hereby waives presentment, notice of dishonour and protest.

5. Waivers Generally

No waiver of any right or remedy of the Lender hereunder shall be effective unless in writing and signed by the Lender and any waiver granted by the Lender shall be effective only to the extent and in the circumstances specified therein. No failure, delay or omission by the Lender to exercise or enforce any rights or remedies under this note or any security collateral hereto shall constitute a waiver thereof or of any other rights or remedies of the Lender.

6. Assigns, Successors and Governing Law

This note shall not be assignable by the Borrower without the prior written consent of the Lender. This note shall enure to the benefit of and be binding upon the respective successors of the Borrower and the Lender and the assigns of the Lender and the permitted assigns of the Borrower. This note shall be governed by and construed in accordance with the laws of the Province of Ontario.

Dated as of the 1st day of April, 2021

BRAZIL POTASH CORP.

/s/ Matthew Simpson

Matthew Simpson
Authorized Signing Officer

ABERDEEN INTERNATIONAL INC.

/s/ Ryan Ptolemy

Ryan Ptolemy
Authorized Signing Officer



September 30, 2021

Matt Simpson
Brazil Potash Corp.
198 Davenport Road
Toronto, Ontario
M5R 1J2

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Aberdeen hereby confirms the extension of the Maturity Date of the Loan from December 31, 2021 to June 30, 2022. Aberdeen confirms no extension fee will be applied.

As of the date hereof, the aggregate amount owing to Aberdeen pursuant to the Loan Agreement is US\$151,792.22, consisting of US\$149,000 in Principal and US\$2,792.22 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

ABERDEEN INTERNATIONAL INC.

/s/ Ryan Ptolemy
Ryan Ptolemy, CFO

Accepted and agreed as of the date first
written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson
Matt Simpson, CEO

LOAN AGREEMENT

BETWEEN:

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 198 Davenport Rd, Toronto, Ontario, M5R 1J2
(hereinafter referred to as the “Borrower”)

OF THE FIRST PART

- and -

ABERDEEN INTERNATIONAL INC., a body corporate existing under the laws of the Province of Ontario
(hereinafter referred to as the “Lender”)

OF THE SECOND PART

WHEREAS the Lender and the Borrower have agreed to enter into an arrangement whereby the Lender has agreed to lend and the Borrower has agreed to borrow USD\$149,000 (the “Loan”) subject to the terms and conditions contained herein;

AND WHEREAS the Borrower requires the Loan on a short-term basis to cover working capital needs.

NOW THEREFORE in consideration of the mutual promises and covenants hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1. The Loan

The Lender hereby agrees to lend to the Borrower the principal sum of USD\$149,000 in lawful money of the United States of America (the “Principal”). Interest shall be payable on the Principal, as well as interest on interest accrued and unpaid when due and shall be calculated and payable at a rate of 12.0% per annum (the “Interest Rate”) and in accordance with the terms of this Loan Agreement.

2. Repayment

The Borrower shall repay the Loan (including the Principal and accrued interest) in cash on or before December 31, 2021. The Borrower and the Lender may negotiate repayment of the Loan via the transfer of securities or other investment products but any arrangement for repayment other than cash remains subject to a subsequent written agreement.

3. Conditions of Advance

The Lender agrees to advance the Loan up to USD\$149,000 upon the execution of this Agreement by the Lender, solely on the condition that the Loan is used by the Borrower towards working capital and investment opportunities.

4. Waiver of Formalities

The Lender hereby waives presentment, notice of dishonour and protest.

5. Waivers Generally

No waiver of any right or remedy of the Lender hereunder shall be effective unless in writing and signed by the Lender and any waiver granted by the Lender shall be effective only to the extent and in the circumstances specified therein. No failure, delay or omission by the Lender to exercise or enforce any rights or remedies under this note or any security collateral hereto shall constitute a waiver thereof or of any other rights or remedies of the Lender.

6. Assigns, Successors and Governing Law

This note shall not be assignable by the Borrower without the prior written consent of the Lender. This note shall enure to the benefit of and be binding upon the respective successors of the Borrower and the Lender and the assigns of the Lender and the permitted assigns of the Borrower. This note shall be governed by and construed in accordance with the laws of the Province of Ontario.

Dated as of the 4th day of August, 2021

BRAZIL POTASH CORP.

By: /s/ Matt Simpson
Matt Simpson
Authorized Signing Officer

ABERDEEN INTERNATIONAL INC.

By: /s/ Ryan Ptolemy
Ryan Ptolemy
Authorized Signing Officer



September 30, 2021

Matt Simpson
Brazil Potash Corp.
198 Davenport Road
Toronto, Ontario
M5R 1J2

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Aberdeen hereby confirms the extension of the Maturity Date of the Loan from July 31, 2021 to June 30, 2022. Aberdeen confirms no extension fee will be applied.

As of the date hereof, the aggregate amount owing to Aberdeen pursuant to the Loan Agreement is US\$535,936.11, consisting of US\$480,000 in Principal and US\$55,936.11 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

ABERDEEN INTERNATIONAL INC.

/s/ Ryan Ptolemy
Ryan Ptolemy, CFO

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson
Matt Simpson, CEO

LOAN AGREEMENT

BETWEEN:

BRAZIL POTASH CORP., a corporation existing pursuant to the laws of the Province of Ontario (hereinafter referred to as the “**Borrower**”)

OF THE FIRST PART

- and -

SULLIDEN MINING CAPITAL INC., a corporation existing pursuant to the laws of the Province of Ontario (hereinafter referred to as the “**Lender**”)

OF THE SECOND PART

WHEREAS the Lender has agreed to lend and the Borrower has agreed to borrow up to US\$70,000 (the “**Loan**”) subject to the terms and conditions contained in this Loan Agreement.

NOW THEREFORE in consideration of the mutual promises and covenants hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1. The Loan

The Lender hereby agrees to lend to the Borrower the principal sum of US\$70,000 in lawful money of the United States of America (the “**Principal**”). The Borrower agrees that interest shall be calculated and payable at a rate of 12.0% per annum and in accordance with the terms of the Loan Agreement. All interest shall be paid on the maturity date.

2. Repayment

The Borrower may repay the Principal and all accrued interest in full by no later than December 21, 2020.

3. Use of Proceeds

The Borrower shall use the proceeds of the Loan solely for general corporate purposes.

4. Waivers Generally

No waiver of any right or remedy of the Lender hereunder shall be effective unless in writing and signed by the Lender and any waiver granted by the Lender shall be effective only to the extent and in the circumstances specified therein. No failure, delay or omission by the Lender to exercise or enforce any rights or remedies under this Loan Agreement shall constitute a waiver thereof or of any other rights or remedies of the Lender.

5. Events of Default

An event of default (“**Event of Default**”) shall occur if:

- a. The Borrower shall fail to pay to the Lender any amount of Principal, interest or any other amount when due and payable hereunder;
- b. The Borrower shall fail to use the proceeds of the Loan exactly in accordance with the requirements set out in Section 3 hereunder;
- c. The Borrower shall sell or attempt to sell all or substantially all its assets;
- d. A creditor shall take or purport to take possession or to assert a prior claim, hypothec or lien in respect of any substantial part of the property of the Borrower and such procedure is not contested in good faith by the Borrower immediately upon such event, or if a lien, execution, distress or any process of any court be levied or enforced against any of the foregoing and remain unsatisfied for such period as would permit such property or such part thereof to be sold thereunder;
- e. A resolution is passed or a petition filed for the wind-up or liquidation of the Borrower or if the Borrower institutes proceedings under any bankruptcy, insolvency or analogous law or is adjudicated as bankrupt or insolvent, or consents to (or fails to contest in good faith) the institution of bankruptcy or insolvency proceedings against it or makes (or serves notice of intention to make) any proposal under any bankruptcy, insolvency or analogous laws, or consents (or fails to contest in good faith) to the filing of any such petition or to the appointment of a receiver of, or of any substantial part of, the property of the Borrower or makes a general assignment for the benefit of creditors, or makes or agrees to make any bulk sale without complying with the provisions of any applicable bulk sale provision, or admits (in writing or otherwise) its inability to pay its debts generally as they become due, or ceases or threatens to cease to carry on business as a going concern, or takes corporate action in furtherance of any of the aforesaid purposes; or
- f. In the event of any breach or default by the Borrower of its obligations, undertakings, covenants, representations and warranties pursuant to this Loan Agreement.

In each and every such Event of Default the Lender may, at its option, by written notice to the Borrower declare the Principal advanced pursuant to this Loan Agreement outstanding hereunder, together with all other amounts payable hereunder (including any interest thereon accrued and unpaid), to be due and payable and the same shall forthwith become immediately due and payable to the Lender, anything therein or herein to the contrary notwithstanding, and the Borrower shall pay forthwith to the Lender the amount of the Principal then outstanding and all other amounts payable hereunder, from the date of the said declaration until payment is received by the Lender.

Should an Event of Default occur, the Lender may, at its option, exercise its rights by any act, proceeding, recourse or procedure authorized or permitted by law and may file its proof and any other documents necessary or desirable so that the request of the Lender may be considered in any liquidation or other proceeding with respect to the Borrower.

6. Miscellaneous

No remedy herein conferred upon or reserved to the Lender is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now existing or hereafter to exist by law or by statute.

The delay or omission of the Lender to exercise any recourse mentioned above shall not invalidate any such recourse nor be interpreted as a waiver of any default hereunder.

The Borrower shall assume and pay all reasonable costs, charges and expenses including reasonable solicitors' costs, charges and expenses as between solicitor and his own client that may be incurred by the Lender in respect of any proceedings taken or things done by the Lender or on its behalf in connection with this Loan Agreement to collect all amounts due hereunder, and the Borrower shall consent to those costs, charges and expenses being charged.

7. Assigns, Successors and Governing Law

This Loan Agreement shall not be assignable by the Borrower without the prior written consent of the Lender. This Loan Agreement shall enure to the benefit of and be binding upon the respective successors of the Borrower and the Lender and the assigns of the Lender and the permitted assigns of the Borrower. This Loan Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario.

Dated as of the 22nd day of October, 2020

BRAZIL POTASH CORP.

By: /s/ Matt Simpson
Authorized Signing Officer

SULLIDEN MINING CAPITAL INC.

By: /s/ Ryan Ptolemy
Authorized Signing Officer



February 10, 2021

Matt Simpson
Brazil Potash Corp.
65 Queen Street West
Suite 900
Toronto, Ontario
M5H 2M5

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Sulliden hereby confirms the extension of the Maturity Date of the Loan to July 31, 2021. Sulliden confirms no extension fee will be applied.

As at December 21, 2020, the aggregate amount owing to Sulliden pursuant to the Loan Agreement is US\$71,245.52, consisting of US\$70,000 in Principal and US\$1,245.52 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

SULLIDEN MINING CAPITAL INC.

/s/ Ryan Ptolemy
Ryan Ptolemy, CFO

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson
Matt Simpson, CEO



September 30, 2021

Matt Simpson
Brazil Potash Corp.
198 Davenport Rd
Toronto, Ontario
M5R 1J2

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Sulliden hereby confirms the extension of the Maturity Date of the Loan to June 30, 2022. Sulliden confirms no extension fee will be applied.

As at September 30, 2021, the aggregate amount owing to Sulliden pursuant to the Loan Agreement is US\$78,172.24, consisting of US\$70,000 in Principal and US\$8,172.24 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

SULLIDEN MINING CAPITAL

/s/ Ryan Ptolemy

Ryan Ptolemy, CFO

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson

Matt Simpson, CEO

LOAN AGREEMENT**BETWEEN:**

BRAZIL POTASH CORP., a corporation existing pursuant to the laws of the Province of Ontario (hereinafter referred to as the “Borrower”)

OF THE FIRST PART

- and -

GREENWAY INVESTMENTS INTERNATIONAL LTD., a corporation existing pursuant to the laws of Barbados (hereinafter referred to as the “Lender”)

OF THE SECOND PART

WHEREAS the Lender has agreed to lend and the Borrower has agreed to borrow CAD\$175,000 subject to the terms and conditions contained in this Loan Agreement (the “Loan”).

NOW THEREFORE in consideration of the mutual promises and covenants hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1. The Loan

The Lender hereby agrees to lend to the Borrower the principal sum of CAD\$175,000 in lawful Canadian money (the “Principal”).

2. Interest Rates

The Borrower and the Lender agree that interest shall accrue at 12% per annum on the Principal from the date hereof until the Repayment Date (defined below).

3. Repayment

The Borrower shall have the right to repay the Principal and all accrued Interest in full at any time. The Borrower shall repay the Principal and all accrued Interest by no later than September 1, 2021 (the “Repayment Date”), subject to extension upon the mutual agreement of the Lender and Borrower.

4. Use of Proceeds

The Borrower shall use the proceeds of the Loan solely for working capital and general corporate purposes.

5. Waivers Generally

No waiver of any right or remedy of the Lender hereunder shall be effective unless in writing and signed by the Lender and any waiver granted by the Lender shall be effective only to the extent and in the circumstances specified therein. No failure, delay or omission by the Lender to exercise or enforce any rights or remedies under this note or any security collateral hereto shall constitute a waiver thereof or of any other rights or remedies of the Lender.

6. Events of Default

- a. An event of default (“**Event of Default**”) shall occur if:
 - i. The Borrower shall fail to pay to the Lender any amount of Principal, Interest or any other amount when due and payable hereunder;
 - ii. the Borrower shall fail to make any payment of principal, interest or fees under any other loan agreement that the Borrower has entered into;
 - iii. The Borrower shall fail to use the proceeds of the Loan in accordance with the requirements set out in Section 3 hereunder;
 - iv. The Borrower shall sell or attempt to sell all or substantially all of its assets;
 - v. A creditor shall take or purport to take possession or to assert a prior claim, hypothec or lien in respect of any substantial part of the property of the Borrower and such procedure is not contested in good faith by the Borrower immediately upon such event, or if a lien, execution, distress or any process of any court be levied or enforced against any of the foregoing and remain unsatisfied for such period as would permit such property or such part thereof to be sold thereunder;
 - vi. A resolution is passed or a petition filed for the wind-up or liquidation of the Borrower or if the Borrower institutes proceedings under any bankruptcy, insolvency or analogous law or is adjudicated as bankrupt or insolvent, or consents to (or fails to contest in good faith) the institution of bankruptcy or insolvency proceedings against it or makes (or serves notice of intention to make) any proposal under any bankruptcy, insolvency or analogous laws, or consents (or fails to contest in good faith) to the filing of any such petition or to the appointment of a receiver of, or of any substantial part of, the property of the Borrower or makes a general assignment for the benefit of creditors, or makes or agrees to make any bulk sale without complying with the provisions of any applicable bulk sale provision, or admits (in writing or otherwise) its inability to pay its debts generally as they become due, or ceases or threatens to cease to carry on business as a going concern, or takes corporate action in furtherance of any of the aforesaid purposes; or
 - vii. In the event of any breach or default by the Borrower of its obligations, undertakings, covenants, representations and warranties pursuant to this Loan Agreement.
- b. Upon the occurrence of each and every such Event of Default, the Lender shall provide notice to the Borrower and the Borrower shall have 30 days to cure such Event of Default (other than a failure to pay amounts due to the Lender in accordance with Section 7(a)(i) above, for which there shall be no cure period). In the event the Event of Default has not been cured within such 30 day period, the Lender may, at its option, by written notice to the Borrower declare the Principal advanced pursuant to this Loan Agreement outstanding hereunder, together with all other amounts payable hereunder (including any Interest thereon accrued and unpaid), to be due and payable and the same shall forthwith become immediately due and payable to the Lender, anything therein or herein to the contrary notwithstanding, and the Borrower shall pay forthwith to the Lender the amount of the Principal then outstanding and all other amounts payable hereunder, from the date of the said declaration until payment is received by the Lender.

-
- c. Should an Event of Default occur, the Lender may, at its option, exercise its rights by any act, proceeding, recourse or procedure authorized or permitted by law and may file its proof and any other documents necessary or desirable so that the request of the Lender may be considered in any liquidation or other proceeding with respect to the Borrower.
 - d. No remedy herein conferred upon or reserved to the Lender is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now existing or hereafter to exist by law or by statute.
 - e. The delay or omission of the Lender to exercise any recourse mentioned above shall not invalidate any such recourse nor be interpreted as a waiver of any default hereunder.

7. Security Undertaking

This loan is granted on an unsecured basis. The Borrower agrees and covenants not to grant security over any of its assets to a third party unless the Borrower has granted the same security to the Lender to secure the Borrower's obligations hereunder on at least a pari passu basis with such other security, provided however that this provision shall not apply to any security over the assets of the Borrower granted to Anglo Pacific or any of its affiliates pursuant to a royalty agreement.

8. Assigns, Successors and Governing Law

This note shall not be assignable by the Borrower without the prior written consent of the Lender. This note shall enure to the benefit of and be binding upon the respective successors of the Borrower and the Lender and the assigns of the Lender and the permitted assigns of the Borrower. This note shall be governed by and construed in accordance with the laws of the Province of Ontario.

9. Interest Act and Criminal Rate of Interest

Each interest rate which is calculated under this note on any basis other than a full calendar year (the "deemed interest period") is, for the purposes of the *Interest Act* (Canada), equivalent to a yearly rate calculated by dividing such interest rate by the actual number of days in the deemed interest period, then multiplying such result by the actual number of days in the calendar year (365 or 366).

In no event shall the aggregate "interest" (as defined in Section 347 (the "**Criminal Code Section**") of the *Criminal Code* (Canada)) payable to the Lender under this note exceed the effective annual rate of interest lawfully permitted under the Criminal Code Section. Further, if any payment, collection or demand pursuant to this note in respect of such "interest" is determined to be contrary to the provisions of the Criminal Code Section, such payment, collection, or demand shall be deemed to have been made by mutual mistake of the Lender and the Borrower and such "interest" shall be deemed to have been adjusted with retroactive effect to the maximum amount or rate of interest, as the case may be, as would not be so prohibited by law or so result in the receipt by the Lender of interest at a rate not in contravention of the Criminal Code Section.

**GREENWAY INVESTMENTS INTERNATIONAL
LTD.**

By: /s/ Fred Leigh
Authorized Signing Officer

BRAZIL POTASH CORP.

By: /s/ Matt Simpson
Authorized Signing Officer

Greenway Investments International Ltd.

September 30, 2021

Matt Simpson
Brazil Potash Corp.
198 Davenport Road
Toronto, Ontario
M5R 1J2

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Greenway Investments International Ltd. hereby confirms the extension of the Maturity Date of the Loan from September 1, 2021 to June 30, 2022.

As of the date hereof, the aggregate amount owing to Greenway Investments International Ltd. pursuant to the Loan Agreement is CAD\$187,484.93, consisting of CAD\$175,000 in Principal and CAD\$12,484.93 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

Greenway Investments International Ltd.

/s/ Fred Leigh
Fred Leigh, Director

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson
Matt Simpson, CEO

LOAN AGREEMENT**BETWEEN:**

BRAZIL POTASH CORP., a body corporate duly incorporated under the laws of Ontario, Canada, and having an office at 65 Queen Street West, Suite 900, Toronto, Ontario, M5H 2M5

(hereinafter referred to as the “Borrower”)

OF THE FIRST PART

- and -

NEWDENE GOLD INC., a body corporate existing under the laws of the Province of Ontario, and having an office at 65 Queen Street west, Suite 900, Toronto, Ontario, M5H 2M5.

(hereinafter referred to as the “Lender”)

OF THE SECOND PART

WHEREAS the Lender and the Borrower have agreed to enter into an arrangement whereby the Lender has agreed to lend and the Borrower has agreed to borrow USD\$135,000 (the “Loan”) subject to the terms and conditions contained herein;

AND WHEREAS the Borrower requires the Loan on a short-term basis to cover working capital needs.

NOW THEREFORE in consideration of the mutual promises and covenants hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1. The Loan

The Lender hereby agrees to lend to the Borrower the principal sum of USD\$135,000 in lawful money of the United States of America (the “Principal”). Interest shall be payable on the Principal, as well as interest on interest accrued and unpaid when due and shall be calculated and payable at a rate of 12.0% per annum (the “Interest Rate”) and in accordance with the terms of this Loan Agreement.

2. Repayment

The Borrower shall repay the Loan (including the Principal and accrued interest) in cash on or before December 31, 2021. The Borrower and the Lender may negotiate repayment of the Loan via the transfer of securities or other investment products but any arrangement for repayment other than cash remains subject to a subsequent written agreement.

3. Conditions of Advance

The Lender agrees to advance the Loan up to USD\$135,000 upon the execution of this Agreement by the Lender, solely on the condition that the Loan is used by the Borrower towards working capital and investment opportunities.

4. Waiver of Formalities

The Lender hereby waives presentment, notice of dishonour and protest.

5. Waivers Generally

No waiver of any right or remedy of the Lender hereunder shall be effective unless in writing and signed by the Lender and any waiver granted by the Lender shall be effective only to the extent and in the circumstances specified therein. No failure, delay or omission by the Lender to exercise or enforce any rights or remedies under this note or any security collateral hereto shall constitute a waiver thereof or of any other rights or remedies of the Lender.

6. Assigns, Successors and Governing Law

This note shall not be assignable by the Borrower without the prior written consent of the Lender. This note shall enure to the benefit of and be binding upon the respective successors of the Borrower and the Lender and the assigns of the Lender and the permitted assigns of the Borrower. This note shall be governed by and construed in accordance with the laws of the Province of Ontario.

Dated as of the 5th day of May, 2021

BRAZIL POTASH CORP.

/s/ Matthew Simpson

Matthew Simpson
Authorized Signing Officer

NEWDENE GOLD INC.

/s/ Kam Gill

Kam Gill
Authorized Signing Officer

Newdene Gold Inc.

September 30, 2021

Matt Simpson
Brazil Potash Corp.
198 Davenport Road
Toronto, Ontario
M5R 1J2

Dear Mr. Simpson:

Re: Maturity Date Extension

Further to our recent discussions, in accordance with Paragraph 2 of the Loan Agreement, Newdene Gold Inc. hereby confirms the extension of the Maturity Date of the Loan from December 31, 2021 to June 30, 2022.

As of the date hereof, the aggregate amount owing to Newdene Gold Inc. pursuant to the Loan Agreement is US\$141,568.77, consisting of US\$135,000 in Principal and US\$6,568.77 in interest. All capitalized terms referred to herein have such meaning as set out in the Loan Agreement.

Kindly indicate your agreement and acceptance of the extension of the Maturity Date and amounts owing set forth herein by executing the below.

Yours very truly,

Newdene Gold Inc.

/s/ Kam Gill

Kam Gill, Director

Accepted and agreed as of the date first written above:

BRAZIL POTASH CORP.

/s/ Matt Simpson

Matt Simpson, CEO

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [*], HAS BEEN OMITTED BECAUSE SUCH INFORMATION (I) IS NOT MATERIAL, (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED, AND (III) IS THE TYPE OF INFORMATION THAT THE COMPANY TREATS AS PRIVATE OR CONFIDENTIAL.**

COMMERCIAL PRODUCT PURCHASE COMMITMENT AND OTHER AGREEMENTS

By this instrument, the Parties:

POTÁSSIO DO BRASIL LTDA, a limited company registered in the National Register of Legal Entities of the Ministry of Economy - CNPJ/ME under No. 10.971.768/0001-66, headquartered in the city of Manaus, State of Amazonas, at Rua Rio Içá, no. 310, 1st floor, room 105, district Nossa Senhora das Graças, Zip Code 69.053-100, herein represented in the form of its Articles of Organization (“PDB”); and

AMAGGI EXPORTAÇÃO E IMPORTAÇÃO LTDA, a limited liability company registered with the National Register of Legal Entities of the Ministry of Economy - CNPJ/ME under No. 77.294.254/0001-94, headquartered in the city of Cuiabá, capital of the State of Mato Grosso, at Avenida André Antonio Maggi, No. 303, Alvorada district, Zip Code 78.049-080, herein represented in the form of its Articles of Organization (“AMAGGI”).

PDB and AMAGGI when jointly designated, hereinafter “PARTIES” and, when individually and indistinctly designated, hereinafter “PARTY”.

WHEREAS:

- I. PDB is a company in the mining segment, and is the holder of 05 (five) mining rights granted by the National Mining Agency - ANM which, once the respective mining ordinance is published, will enable the Company to carry out mining, processing and commercialization activities of potassium chloride, whose main characteristics are defined in Annex I to the present instrument (“PRODUCT”), and, in this sense, PDB is developing a project for the exploration of a sylvinitic mine located in the Municipality of Autazes, State of Amazonas (“PROJECT”);
- II. The PROJECT is an enterprise developed by PDB and, for the time being, is not operational, however PDB, after the accomplishment of studies, analyses and projections of technical character, all of them elaborated in accordance with the best techniques and market practices, concluded that the PROJECT has a reserve with production capacity presented in its PAE - Economic Utilization Plan of up to 2,400,000 (two million four hundred thousand) tons of PRODUCT per year, making up a total quantity of proven reserves in accordance with the Economic Exploitation Plan submitted and approved, via an order in the Electronic Information System, by the National Mining Agency on 12/18/2020 for process 880.407/2008 and on 12/14/2020 for the other processes numbers 880.094/2019, 880.095/2019, 880.096/2019 and 880.097/2019;
- III. The PROJECT under development by PDB contemplates the construction and operation, by PDB, of an industrial park with production capacity of, approximately, 2,400,000 (two million and four hundred thousand) tons of PRODUCT per year, as well as a port terminal, at the margins of Madeira River, in the Municipality of Autazes/AM, for the outflow of the referred production via the Madeira-Amazonas river corridor being certain that the PROJECT’s conception contemplates the best social and environmental practices, seeking to create benefits to the local communities, as well as foreseeing the development of its activities with observance of the highest environmental standards and norms;
- IV. PDB, in the course of the development and operation of the PROJECT, shall obtain and maintain in good standing all licenses and permits corresponding to and applicable to the PROJECT, pursuant to Clause 6 below;
- V. PDB’s commercial strategy includes, as of now, the contracting of potash commercialization commitments between PDB and companies consuming this input, and AMAGGI and PDB have initiated negotiations to this end;
- VI. AMAGGI is a Brazilian company that is part of a conglomerate of companies operating in several countries, among others, in the agribusiness segment, notably in the production, origination and exportation of agricultural commodities, and is interested in acquiring the PRODUCT, provided that certain conditions negotiated by common agreement and in good faith between the PARTIES are met;

VII. On the same date as this instrument, the PARTIES entered into a commercial representation agreement, whereby AMAGGI undertook to provide commercial representation services to PDB (“AGENCY AGREEMENT”); and

VIII. The PARTIES wish to regulate the acquisition commitment, by AMAGGI (or any other company belonging to the AMAGGI GROUP, as defined below), and the obligation to sell, by PDB, certain annual quantities of PRODUCT defined in Table 01 herein, by entering into this commercial commitment.

Hereby set forth the present Commercial Commitment for the Acquisition of Products and Other Agreements (“COMMITMENT”), which shall be governed by the clauses and conditions set forth below, according to:

Clause 1. RECIPROCAL OBLIGATION TO BUY AND SELL (“TAKE OR PAY”)

1.1. Subject to compliance with the SUSPENSIVE CONDITIONS set forth in Clause 6 below, AMAGGI undertakes to purchase from PDB, and PDB undertakes to sell to AMAGGI the minimum annual quantities of PRODUCT indicated in Table 01 below, subject to the provisions of Clause 5. For the purposes of Table 01 below, “First Period” is understood as the period starting on the first business day subsequent to the end of the TEST PERIOD, as provided in this COMMITMENT, extending until December 31 of the year in which such date occurs, respecting the adjustments set forth in said Table 01. The other periods will correspond to the subsequent calendar years (each one, including the “First Period”, a “PERIOD”):

TABLE 01

<u>PERIOD*</u>	<u>PRODUCT QUANTITY/YEAR</u>
(1st) First Period	100,000 (one hundred thousand) tons*
(2nd) Second Period	200,000 (two hundred thousand) tons
(3rd) Third Period	300,000 (three hundred thousand) tons
(4th) Fourth Period	500,000 (five hundred thousand) tons
(5th) 5th Period	500,000 (five hundred thousand) tons
(6th) Sixth Period	500,000 (five hundred thousand) tons
(7th) Seventh Period	500,000 (five hundred thousand) tons
(8th) Eighth Period	500,000 (five hundred thousand) tons
(9th) Ninth Period	500,000 (five hundred thousand) tons
(10th) Tenth Period	500,000 (five hundred thousand) tons
(11th) Eleventh Period	500,000 (five hundred thousand) tons
(12th) Twelfth Period	500,000 (five hundred thousand) tons
(13th) Thirteenth Period	500,000 (five hundred thousand) tons
(14th) Fourteenth Period	500,000 (five hundred thousand) tons
(15th) Fifteenth Period	500,000 (five hundred thousand) tons
(16th) Sixteenth Period	500,000 (five hundred thousand) tons
(17th) Seventeenth Period	400,000 (four hundred thousand) tons

* Note: (a) In the case of the First Period, the amount provided for here is merely a reference given on the assumption that the First Period would last the same as a calendar year. Thus, the quantity of PRODUCT foreseen for the First Period will be adjusted proportionally to the fraction of the calendar year included in the First Period. (b) The quantities eventually decreased in the First Period (as per preceding item “a”) will, at the sole option of AMAGGI, be added to the quantities presented in the Seventeenth Period.

1.2. Observing the TEST PERIOD (as defined below) and the rules applicable to it, the PERIODS set forth in Table 01 above have been agreed upon by mutual agreement between the PARTIES, and, except for the First Period, will be counted from January 1st to December 31st of each year.

1.2.1. The right to acquire the PRODUCT under the conditions set forth in this COMMITMENT and all other rights attributed to AMAGGI, as set forth herein, all companies of the AMAGGI GROUP that, like AMAGGI, also meet the requirements of the PDB credit policy in effect at the time of the purchase order. For the purposes of this COMMITMENT, the term “AMAGGI GROUP” shall be understood to mean any individual or legal entity that holds any direct or indirect interest in the capital stock of AMAGGI as well as its parent company, subsidiaries, affiliates, companies under common and/or shared control and companies in which their respective partners or shareholders (any of them) participate or will participate in the corresponding corporate capital, regardless of the number of quotas or shares they hold in such companies, as well as the natural persons of any of the partners or shareholders of the AMAGGI GROUP who act as rural producers, either in Brazil or abroad. For clarity purposes, the obligations attributed to AMAGGI in this instrument are/will not be enforceable on the other companies of the AMAGGI GROUP.

1.3. The PARTIES recognize and agree that the present COMMITMENT constitutes a customary market obligation, called a “take or pay obligation”, whereby, once the conditions set forth in this COMMITMENT have been met and its compliance has been maintained in each of the PERIODS referred to in Table 01 above, then (a) the obligation to purchase, by AMAGGI the quantities of PRODUCT set forth above shall be immediately payable by PDB with respect to the corresponding year; and (b) the obligation to sell and deliver, by PDB to AMAGGI, the quantities of PRODUCT set forth above shall be immediately due and payable by AMAGGI in the time, volumes and form set forth in this COMMITMENT. Thus, subject to these conditions, each year the volumes of PRODUCT set forth in the table above will be considered as firm and mandatory volumes (“MANDATORY VOLUME”) for the purposes of this COMMITMENT, subject to the possibility of increasing the MANDATORY VOLUME in a given PERIOD as provided in this COMMITMENT.

1.4. Without prejudice to compliance with the other clauses and obligations set forth in this AGREEMENT, once the SUSPENSORY CONDITIONS set forth at Clause 6 below are complied with, if any of the PARTIES does not comply with the respective obligations assumed and set forth for a given year, then the non-breaching PARTY shall be entitled to receive a non-compensatory penalty in the amount corresponding to a percentage of the prevailing price of the PRODUCT in relation to the quantities of the MANDATORY VOLUME not sold and delivered by PDB or not purchased by AMAGGI, as the case may be, without prejudice to the collection of additional damages and the right to specific performance of the obligation, all in accordance with the following conditions:

TABLE 02

Amount of Product Not Sold and Delivered by PDB or Not Purchased by AMAGGI, As Established In This COMMITMENT:	Fine Due By The Breaching Party (% of Price)
Up to 20% (twenty percent) of the MANDATORY VOLUME in a given year.	There will be no penalty for either PARTY (tolerance).
Between 20% (twenty percent) and 50% (fifty percent) of the MANDATORY VOLUME not sold by PDB or not purchased by AMAGGI, as the case may be.	A fine attributable to the breaching PARTY in the amount of 30% (thirty percent) of the value of the PRICE* charged in the PERIOD on the volume not sold by PDB or not purchased by AMAGGI in relation to the MANDATORY VOLUME.
Above 50% (fifty percent) of the MANDATORY VOLUME not sold by PDB or not purchased by AMAGGI, as the case may be.	A fine attributable to the breaching PARTY in the amount of 50% (fifty percent) of the value of the PRICE* practiced in the PERIOD on the volume not sold by PDB or not purchased by AMAGGI in relation to the MANDATORY VOLUME.

* For the purposes of this Table the “PRICE” is considered the average gross price of the PRODUCT in the PERIOD to which the penalty refers, thus not being considered the REBATE (as defined below), discounts or withholdings for the purposes of this calculation.

1.5. Determination of Volumes and Amounts Due: The PARTY that understands that the opposing PARTY has not purchased or supplied, as the case may be, the MANDATORY VOLUME, shall have the option to submit the amounts it believes are due from PARTY to PARTY by virtue of the take or pay obligations provided for in

this Clause by January 31 of the year following the PERIOD to which the MANDATORY VOLUME purchase and sale obligation refers. The document presented in accordance with this Clause must contain the corresponding calculations, amounts due, and the supporting documents for the same (“CALCULATION MEMORIAL”).

1.6. If the opposing PARTY disagrees with the amounts presented in the CALCULATION MEMORIAL, then it will have up to 15 (fifteen) days to contest them, provided it also does so in writing, submitting documents proving the inapplicability or inaccuracy of the amounts charged or due, as the case may be, posted in that CALCULATION MEMORIAL. Once the notification of disagreement with the values in the CALCULATION MEMORIAL is received in due time, the PARTIES should negotiate by common agreement and in good faith the solution to the disagreement presented. The amounts that are uncontroversial, that means, to which the PARTIES do not present any objection, will be paid by the debtor PARTY within 15 (fifteen) days from the end of the period for manifestation regarding the CALCULATION MEMORIAL, foreseen in this Clause. On the other hand, any controversial amounts shall be subject to negotiation between the PARTIES, in good faith, seeking the resolution of the conflict within thirty (30) days from the date of submission of the CALCULATION MEMORIAL and, if the dispute is not resolved, the dispute shall be submitted to arbitration by an independent accounting expert, appointed by mutual agreement by the PARTIES, whose costs shall be divided equally between the PARTIES. The independent expert's report must be submitted within 45 (forty-five) days from the appointment of the independent expert, and will replace the CALCULATION MEMORIAL. If the PARTIES cannot agree on the name of the independent expert within fifteen (15) days of a PARTY's request for the appointment of the expert, the PARTIES may resort directly to the forum provided for in Clause 10.2 of this COMMITMENT.

1.7. On the other hand, if the other PARTY does not manifest itself regarding the CALCULATION MEMORIAL in the term foreseen in Clause 1.6, the amount of the penalties or credits foreseen therein shall be paid to the creditor PARTY up to February 20 (twenty) of the year following the PERIOD calculated in the CALCULATION MEMORIAL.

1.8. To the amounts to be paid by the breaching PARTY as a result of the fine for the take or pay obligation agreed herein shall be added all taxes, duties, fees and contributions levied on the payment due, so that the non-breaching PARTY receives such net amounts of any taxes and discounts of any nature.

1.9. Priority: PDB hereby declares, warrants and agrees that the sales obligation of the MANDATORY VOLUME dealt with in this COMMITMENT and the delivery by PDB to AMAGGI of the respective quantities of PRODUCT will always take precedence over any other contract, commitment or obligation contracted and/or to be contracted by PDB with any third party.

Clause 2. PRODUCT SPECIFICATIONS AND DELIVERY CONDITION

2.1. The PRODUCT must present the characteristics, specifications and physical-chemical composition contained in “Annex I” of the present COMMITMENT.

2.2. The PARTIES agree that PDB is solely responsible for the quality, specifications and other characteristics of the PRODUCT, in accordance with applicable laws and regulations. The specifications of the PRODUCT (and thus its conformity to the rules established herein) will be verified for each lot, at the origin, by a technical report (“REPORT”) issued by a duly qualified technician, verified at the PDB laboratories, which must be duly certified and homologated by the Brazilian authorities, with all costs being borne by PDB. If the PRODUCT is within the validity period pre-determined by the PDB (whose validity period may not be longer than the maximum periods allowed by the Brazilian authorities), it will be optional for AMAGGI or any user of the PRODUCT may contract an independent inspection to verify the quality of the PRODUCT at the time and place of its delivery, and issue a respective report (“SECOND REPORT”). In the event of inconsistency between the results contained in the REPORT and those verified in the SECOND REPORT, the PARTIES shall appoint by mutual agreement an independent laboratory, which will issue a new report (“THIRD REPORT”), whose conclusion will prevail over those of the SECOND REPORT, thus ending the controversy. If the PRODUCT is confirmed not to be in accordance with the specifications set forth in the REPORT, PDB will remain liable for all losses, damages and direct losses suffered by AMAGGI and/or any third party due to the use of the PRODUCT as provided by law.

2.3. Product Quality Test Period: Without prejudice to PDB's responsibility set forth in this COMMITMENT, in particular the responsibility for the quality of the PRODUCT and for holding AMAGGI harmless from any direct losses, damages and injuries on account of the commercialization and use of the PRODUCT, subject to the limits of liability set forth in this COMMITMENT, the PARTIES agree that, during the initial period of operation of the PROJECT, for a period sufficient for analyses and confirmations as to the compliance of the PRODUCT

with the specifications of this Clause 2, limited to a maximum term of 6(six) months from the date of commencement of commercial operation of the PROJECT (TEST PERIOD) and until the beginning of the First Period, the "Take or Pay" obligations set forth above shall not apply, and it is certain that, once the tests are concluded and the specifications of the PRODUCT are confirmed to the foreseen in "Annex I", the TEST PERIOD will be considered ended and the "Take or Pay" obligation effective PERIODS set forth in Table 01 above will begin, in the terms specified in Table 01 above, with the consequent counting of deadlines and corresponding volumes. The PARTIES agree that the confirmation of the quality of the PRODUCT in the TEST PERIOD shall not exclude PDB's obligation to maintain the quality of the PRODUCT in strict compliance with the technical standards defined in Clause 2.1 above, whose quality, composition and other physical-chemical characteristics shall be maintained in accordance with such standards during the entire term of this COMMITMENT.

2.4. The PRODUCT will be delivered to AMAGGI in the quantity, quality and specifications set forth in this COMMITMENT, on a DAP (Deliver at Place, Incoterms 2020) delivery condition at the delivery location determined in each purchase order.

Clause 3. INITIAL CONFIRMATION

3.1. PDB is obligated to confirm to AMAGGI the date of commencement of commercial operations of the PROJECT. Said confirmation should be provided in writing, at least 1 (one) year before the date foreseen for the beginning of PROJECT activities and commercial operations ("CONFIRMATION"). The following rules shall apply to said CONFIRMATION, which the PARTIES hereby accept and expressly agree to: (a) once the CONFIRMATION is effected and the TEST PERIOD is concluded, as of the beginning of the First Period, PDB shall be obligated to make the sale and delivery of the PRODUCT to AMAGGI, and AMAGGI, in turn, shall be obligated to purchase the PRODUCT delivered by PDB, in all PERIODS and in the quantities set forth in Table 1 above (subject to the option to increase volumes provided for Clause 5 below); (b) if AMAGGI does not purchase the quantities of PRODUCT set forth in Table 1, or if PDB does not sell and deliver them to AMAGGI, in the periods and volumes agreed upon therein, then the delinquent party shall be obligated to pay, on behalf of the innocent party, the penalties set forth in Table 02 above, subject to the provisions of Clauses 1.5 and 1.7.

Clause 4. PRODUCT PRICE AND PAYMENT TERMS

4.1. Subject to the provisions of Clause 4.2 below, the price of the PRODUCT will be defined between the PARTIES, according to the market conditions at the place of delivery of the PRODUCT, at the time of confirmation (order), by AMAGGI, of each purchase of the PRODUCT ("PRICE"). The deliveries will be made within the period to be agreed upon by the PARTIES as from the presentation of purchase orders by AMAGGI, which will be subject to the MONTHLY SCHEDULE defined in the form of Clause 5, observing that PDB will not be obligated to make, each month, any delivery greater than the one indicated in the MONTHLY SCHEDULE for that month or, each PERIOD, any delivery greater than the MANDATORY VOLUME for that PERIOD, as amended in the form of Clause 5. The PARTIES hereby agree that at no time shall the PRICE within each month in each PERIOD, practiced with AMAGGI, without regard to the REBATE (as defined below), be higher than the price of the PRODUCT practiced by PDB for the sale of the PRODUCT to third parties under the same conditions, including location, term and mode of delivery.

4.1.1. AMAGGI shall have the exclusive right to fix the price of the quantities of PRODUCT established for each PERIOD (including additional quantities of PRODUCT, as established in Clause 5), this fixation will occur in whole or in part (i.e. once or more than once), always at the discretion of AMAGGI, this may be done from the starting date of each PERIOD up to 30 (thirty) days prior to the delivery date of the respective quantities of the PRODUCT.

4.2. During the whole term of this COMMITMENT, over the final PRICE of the PRODUCT commercialized by PDB to the AMAGGI GROUP (and even if such PRICE remains modified, pursuant to Clause 4.4 below), a commercial discount ("REBATE") in the amount of [***]% ([**]) percent of such PRICE shall apply. This REBATE will also apply to any additional quantities of PRODUCT, should AMAGGI exercise the option contained in Clause 5 below (increase in volumes).

4.2.1. If PDB fails to grant the REBATE to AMAGGI GROUP, and, after notified by AMAGGI, does not grant the REBATE within 5 (five) days, PDB shall pay AMAGGI a compensatory penalty in the amount of 200% (two hundred percent) of the amount of the REBATE that should have been granted.

4.3. The price of the PRODUCT object of a business confirmation will have its value determined according to the criteria foreseen in this Clause at the moment of such confirmation. The corresponding amount will be paid by AMAGGI to PDB within 10 (ten) days after the delivery of the PRODUCT in the specifications foreseen in the “Annex I” of this COMMITMENT, considering also the other conditions foreseen herein and those established in each purchase confirmation.

4.4. In view of the fact that it is PDB’s business strategy to contract “take or pay” obligations for the development of its commercial operations, the PARTIES hereby establish that (a) if PDB practices or contracts with third parties the supply of the PRODUCT for values more advantageous than the value corresponding to the PRICE contracted with AMAGGI (being understood as PRICE, for the purposes of this Clause, the value of the PRODUCT for delivery in the same location, term and method of delivery contracted with the third party, before the application/incidence of the REBATE), then this condition will be automatically applicable to the present COMMITMENT, the PRICE being automatically modified to the most advantageous amounts herein mentioned and practiced with third parties, over which, thereafter, the discounts related to the REBATE will apply; and, additionally (b) in case PDB contracts with any third parties any other business conditions more advantageous than the business conditions herein established, these conditions will automatically take advantage of the obligations assumed by AMAGGI under this COMMITMENT. For purposes of clarity, once AMAGGI has fixed the prices of a given lot of PRODUCT (whatever the advance of such price fixing in relation to the shipment and delivery dates of the lot of PRODUCT in question), it will not have the prerogatives to demand price equalization and conditions (provided for in the preceding items “a” and “b”) in relation to such quantities of PRODUCT.

Clause 5. VOLUME INCREASE AND MONTHLY SCHEDULING

5.1. PDB hereby grants AMAGGI the option to increase the annual quantities of PRODUCT set forth in Table 1 above, at its sole discretion, subject to the provisions of Clause 5.2.

5.2. Such option may be exercised by AMAGGI, in writing, each year, until the end of the third quarter of the year preceding the PERIOD to which the option granted herein refers. For clarity purposes, this option may be exercised (a) once only or (b) more than once, in relation to any of the PERIODS shown in the same Table 01, as long as the antecedence established here is observed. Within 10 (ten) days after exercising the option to request additional quantities of PRODUCT for delivery in the following year, pursuant to this Clause, PDB will inform you whether it confirms the availability of the additional quantity of PRODUCT requested by AMAGGI (or part of it), taking into account the other duly substantiated commitments (respecting the duties of confidentiality) made by PDB and the production of the PRODUCT.

5.3. Whenever AMAGGI exercises the option granted herein and PDB confirms the availability of the additional quantity of PRODUCT requested by AMAGGI (or part thereof), PDB shall be automatically obliged to sell, and AMAGGI shall be automatically obliged to purchase, said additional quantities of PRODUCT at the same prices and under the same conditions set forth in this COMMITMENT (including the application of the DEBATE- as defined above), without prejudice to the other obligations assumed by the PARTIES under this COMMITMENT.

5.4. The additional quantities of PRODUCT defined in the form of this Clause 5 will be automatically incorporated into the MANDATORY VOLUMES set forth in Table 01 above, obliging AMAGGI to acquire them from PDB and PDB to sell them to AMAGGI, being certain that, verified the default of any of the PARTIES in the fulfillment of these obligations, the same “take or pay” penalties foreseen in Clause 1.4 will be applicable, according to Table 02 above.

5.5. By September 30th of each year, after the close of the TEST PERIOD, AMAGGI shall submit to the PDB its monthly PRODUCT acquisition schedule, indicating the distribution of the MANDATORY VOLUME of PRODUCT, as originally defined in Table 01 above or as may be amended pursuant to this Clause 5, over the months of the following PERIOD (“MONTHLY PROGRAMMING”), and such MONTHLY PROGRAMMING, once agreed upon between the PARTIES shall be binding with respect to the distribution of the MANDATORY VOLUME over the months of the PERIOD. The MONTHLY SCHEDULE may be revised quarterly during the PERIOD to which it refers, by mutual agreement of the PARTIES. For purposes of clarity, once the PARTIES agree to the revision of the quantities of PRODUCT in each PERIOD or of the MONTHLY SCHEDULE, under the terms of this Clause 5.5, they will be obliged to comply with it. For the First Period, the MONTHLY PROGRAMMING will be presented by AMAGGI within 10 (ten) days from the end of the TEST PERIOD.

Clause 6. SUSPENSIVE CONDITIONS

6.1. The PARTIES acknowledge and agree that the obligations related to the supply and acquisition of the PRODUCT set forth in this COMMITMENT are conditioned upon compliance by both AMAGGI and PDB with the following conditions (“SUSPENSIVE CONDITIONS”). Once the SUSPENSIVE CONDITIONS are met, it will be the obligation of the PARTIES to maintain compliance with the provisions of the items below during the entire term of this COMMITMENT.

6.1.1. SUSPENSIVE CONDITIONS applicable to AMAGGI: In order for the purchase and sale obligations of the PRODUCT to be enforceable against PDB, AMAGGI undertakes to comply with (and to maintain in compliance with) the following SUSPENSIVE CONDITIONS:

- (a) Laws Compliance. AMAGGI shall be in compliance with all laws, rules, regulations, decisions (judicial, arbitral and/or administrative), conditions and norms (“LAWS”) applicable to its activities set forth in this COMMITMENT;
- (b) No Prohibitions. There may not be any LAW, court decision, arbitration decision, administrative decision, orders, decisions of interlocutory character and sentences, whether final or definitive, restrictive injunction, whether preliminary or definitive or any other determination prohibiting, hindering or limiting AMAGGI’s activities foreseen in this COMMITMENT, there may be no litigation in progress to prohibit, suspend, forbid or declare illegal, invalid or ineffective, even partially, the performance by AMAGGI of the duties undertaken herein;
- (c) No Demands. There may not be any demand, of any nature (including, but not limited to), labor, tax, civil, criminal, environmental, competition, criminal, administrative, regulatory or any other nature that seeks to prohibit, impede or limit AMAGGI’s performance of its obligations under this COMMITMENT or for which are under investigation any violations, by AMAGGI, of LAWS related to (x) the “Social and Environmental Aspects” of the activities related to this COMMITMENT, as provided in Clause 12.13 ; or (y) the anti-corruption legislation, as provided in Clause 8; and
- (d) ESG issues. Without prejudice to the provisions of Clause 12.130 below, no violation (or attempt to violate) by AMAGGI of any applicable LAWS, regulations and principles applicable to human rights and decent work with respect to employees of AMAGGI shall have occurred with respect to AMAGGI’s activities and the communities in the areas of influence of said activities. There shall not have occurred any use of indigenous, child or slave labor, as well as there shall not have occurred any damage caused by AMAGGI’s activities, directly or indirectly, to the ecosystem balance. Also, there must not have occurred any intervention in areas that have a protected biome or ecosystem, without having obtained the proper authorization from the competent government authorities to carry out its activities in such a place. AMAGGI shall not, in the performance of its duties, have made any intervention in areas inhabited (or close enough to cause negative impacts) by indigenous or traditional populations without obtaining the proper authorizations under the terms foreseen in the LAW, as well as no intervention may have occurred in areas through illegal deforestation. All of AMAGGI’s activities shall have been carried out in accordance with the respective permits issued by the municipal, state and/or federal agencies, in relation to which AMAGGI will be in compliance with all regulatory and environmental obligations.

6.1.2. SUSPENSIVE CONDITIONS applicable to PDB: In order for the purchase and sale obligations of the PRODUCT to be enforceable against AMAGGI, PDB undertakes to comply with (and maintain in compliance with) the following SUSPENSIVE CONDITIONS:

- (a) Obtaining Licenses and Starting Operations. PDB must have obtained and maintain in effect the operating license (L.O.) of the PROJECT, and shall have initiated the commercial operations of the PROJECT, and shall also have obtained and maintained in effect all licenses and authorizations necessary for the activities set forth in this COMMITMENT, being conferred to PDB the right, in good faith, after the beginning of the commercial operation, to request the renewal of the necessary licenses, in a timely manner;

- (b) Laws Compliance. PDB shall be in compliance with all the LAWS applicable to its activities set forth in this COMMITMENT, in particular the LAWS related to the “Socio-Environmental Aspects of the Project”, as provided in Clause 12.13 below;
- (c) No Prohibitions. There shall be no LAW, court decision, arbitration award, administrative decision, interlocutory decisions, final or conclusive rulings, restraining order, preliminary or final injunction or any other determination prohibiting, preventing or limiting the transactions of the PDB, nor shall there be any pending litigation seeking to prohibit, suspend, bar or declare illegal, invalid or ineffective, even partially, the transactions of the PDB or the consummation of the transactions contemplated herein;
- (d) No demands. There shall not exist any claim of any nature (including, but not limited to) labor, tax, civil, criminal, environmental, competition, criminal, administrative, regulatory or other proceeding (i) that seeks to prohibit, impede or limit the operations of PDB under this COMMITMENT (ii) by which any violations by PDB of LAWS related to (x) the “Socio-Environmental Aspects of the Project”, as set forth in Clause 12.13; or (y) the anti-corruption legislation, as set forth in Clause 8, are under investigation; and
- (e) ESG issues. Notwithstanding the provisions of Clause 12.13 below, there shall have been no violation (or attempted violation) by PDB of any applicable LAWS, regulations, and principles of human rights and decent work with respect to the PROJECT workers and the communities in areas of influence of the development. There should not have occurred any use of indigenous, child or slave labor, as well as should not have occurred any damage caused by the PROJECT, directly or indirectly, to the balance of the ecosystem, neither should not have occurred any intervention in areas that have biome or ecosystem protected, without having obtained the proper authorization from the competent government authorities to exercise its activities in such location. A PDB não poderá, no desempenho de suas atribuições decorrentes deste COMPROMISSO, ter efetuado qualquer intervenção em áreas habitadas (ou em proximidade suficiente para causar impactos negativos) por populações indígenas ou tradicionais, sem a obtenção das devidas autorizações, nos termos previstos em LEI, bem como não poderá ter ocorrido qualquer intervenção em áreas mediante desmatamento ilegal. All the mining, industrial and any other activities of PDB shall have been carried out in accordance with the respective permits issued by the National Mining Agency - ANM, in relation to which PDB shall be in compliance with all regulatory and environmental obligations, including those related to the Institute of Environmental Protection of Amazonas - IPAAM.

6.2. Waiver of Suspensive Conditions: Subject to the provisions of Clause 6.3 below, only AMAGGI may, in its sole and exclusive discretion, at any time waive any (or more than one) SUSPENSIVE CONDITION that applies to or must be satisfied by PDB; Similarly, only PDB may, in its sole and exclusive discretion, at any time, waive any (or more than one) SUSPENSIVE CONDITION that applies to or must be satisfied by AMAGGI.

6.3. Continued Compliance: Once the above SUSPENSIVE CONDITIONS have been met, the PARTIES shall undertake to keep them fully complied with, in force and in strict compliance and validity throughout the term of this COMMITMENT. If either PARTY waives compliance with one (or more than one) SUSPENSIVE CONDITION at any time pursuant to Clause 6.2, it may require that the waived SUSPENSIVE CONDITION be subsequently complied with.

6.4. Non-Compliance with Conditions Precedent: The PARTIES reaffirm their agreement that (a) the commencement of the effects of the present COMMITMENT, thus understood as the immediate enforceability of the obligations hereunder, is subject to full compliance with the SUSPENSIVE CONDITIONS herein established, or its waiver as provided in Clause 6.2, as applicable; and (b) once the operation of the PROJECT is initiated, if any SUSPENSIVE CONDITION is not complied with during the term of this COMMITMENT, the PARTY to whom it pertains shall have the right to waive the SUSPENSIVE CONDITION in question, pursuant to Clause 6.2, the right to unilaterally terminate this COMMITMENT, without any penalty and regardless of any formality, subject to Clauses 6.4.1 and 6.4.2 below.

6.4.1. The right to terminate the COMMITMENT pursuant to this section may not be exercised while (i) any challenge or appeal by the affected PARTY to any decision or proceeding impairing or likely to impair the maintenance of any SUSPENSIVE CONDITION is pending or (ii) any legal time limit for filing such a challenge or appeal is pending.

6.4.2. In case any of the PARTIES (by itself and/or by any companies of its economic group) proves the existence of a request made by any of its financing parties or strategic partners, demanding the rescission of the present COMMITMENT due to any fact related to the non-maintenance of any SUSPENSIVE CONDITION attributable to the opposing PARTY, under penalty of early maturity of the obligations held by it (and/or any companies in its economic group) with such fundings or strategic partners, then the PARTY shall have the right to immediately rescind this COMMITMENT without regard to the provisions of Clause 6.4.1. In this case, none of the PARTIES will be subject to the payment of any penalty or indemnification as a result of the rescission of this AGREEMENT.

6.5. If the event referred to in item “b” of Clause 6.4 above occurs (except in the event foreseen in Clause 6.4.2), the PARTY to which the SUSPENSIVE CONDITION The non-complying Party shall be immediately liable to pay, on behalf of the non-complying Party, the totality of the amounts corresponding to the take-or-pay penalty set forth in this COMMITMENT, in relation to the quantities of PRODUCT that should have been supplied and purchased in the 3 (three) year period counted from the rescission date of the COMMITMENT, applying For the calculation of this value, the average of the PRODUCT PRICES charged by PDB in the three (3) years prior to the moment of rescission, or, if three (3) years have not yet elapsed since the beginning of the supply of PRODUCT to AMAGGI, the average of the PRODUCT PRICES charged by PDB since the beginning of the supply to AMAGGI until the moment of rescission. Over the resulting value, the penalty will be calculated in relation to the quantities of PRODUCT that will no longer be purchased and delivered over three (3) years from the rescission date, according to the rule in “Table 02” of this COMMITMENT, whose resulting value will be the amount due in this case. To the referred value will be added the values corresponding to any and all incident taxes, so that the PARTY that has opted to terminate the COMMITMENT receives, at the end, the total value free of taxes.

Clause 7. VALIDITY AND RESCISSION

7.1. This COMMITMENT is entered into by the PARTIES on an irrevocable and irreversible basis, it being understood that the obligations set forth herein shall be effective as of the present date and shall remain fully valid, effective and enforceable until the conclusion of the last PERIOD set forth in Table 01 above. The PARTIES further establish that, due to its irrevocable and irreversible character, this COMMITMENT cannot be rescinded before its final term, except in the events expressly foreseen herein.

7.2. Rescission For Cause: Even taking into account the irrevocable and irreversible nature of the present COMMITMENT, it may be rescinded only in the following hypothesis: (a) by AMAGGI or PDB, as the case may be, in the events contemplated in Clause 6 above; (b) by any of the PARTIES, in the event of bankruptcy, judicial or extrajudicial recovery, or insolvency of a PARTY, without making due indemnities or penalties from PARTY to PARTY; or (c) by PDB, if the implementation of the PROJECT is definitively and demonstrably canceled up to the moment of CONFIRMATION (that means, without any resources being possible in order to resume the effectiveness of the implementation of the PROJECT), without any indemnity or penalty being due, in this case, from PARTY to PARTY. Due to the irrevocable and irreversible nature of this COMMITMENT, any other event of default different from those established in this Clause will not create the right, to either of the PARTIES, to terminate this instrument.

Clause 8. INTEGRITY AND ANTI-CORRUPTION LAWS

8.1. The PARTIES declare to be aware that the anti-corruption LAWS (Ordinary Law 12.846/2013 of the Federative Republic of Brazil, United Kingdom Bribery Act, with Canada’s Corruption of Foreign Public Officials Act and with the United States Foreign Corrupt Practices Act - FCPA, among others), deem illegal: (a) to offer, pay, promise or authorize the payment of any amount, gift or anything of value, including, but not limited to gifts, entertainment, advantages or any benefit, directly or indirectly, to a public official, or third parties related to him/her; (b) to finance, fund, sponsor or in any way subsidize the practice of the aforementioned acts; (c) to use a natural or(c) use an intermediary physical or legal person to hide or dissimulate its real interests or the identity of the beneficiaries of the aforementioned acts; and entities or public agents, or intervene in their activities, including in the scope of regulatory agencies and surveillance bodies of the national financial system.

8.2. For purposes of accomplishing the object of this COMMITMENT , the PARTIES warrant that they will in no way violate or contribute to the violation of anti-corruption LAWS.

8.3. The PARTIES, in particular, undertake not to promise, offer or give, directly or indirectly, any undue advantage or anything of value to a public agent, or to third parties related to him/her, with regard to the fulfillment of the object of this COMMITMENT or any other relationship involving the PARTIES, for any purpose or effect.

8.4. Without prejudice to the other clauses, conditions, obligations and penalties set forth in this COMMITMENT, in the event of effective violation of the anti-corruption LAWS, the breaching PARTY shall be liable to reimburse all eventual direct losses and damages caused to non-breaching PARTY.

8.5. If they become aware or suspect of: (a) any payment, offer, request or agreement to grant an undue advantage to a public official, or to third parties related to him/her, in order to obtain any benefit for one of the PARTIES, whether related to this COMMITMENT or not; or (b) any event that may render inaccurate or incorrect the statements made by one of the PARTIES contained in this COMMITMENT, or made at any time during the term of this UNDERTAKING with respect to the anti-corruption LAWS, the PARTIES undertake to inform each other immediately of the fact or suspicion to the best of their knowledge of the fact or suspicion.

8.6. Any non-compliance with the anti-corruption LAWS, in any of its aspects, will lead to the immediate rescission of the present COMMITMENT by the non-breaching PARTY, without prejudice to the penalties set forth in this COMMITMENT and the reparation of losses and damages, directly caused to said non-breaching PARTY.

8.7. The PARTIES undertake to fully comply with the provisions of AMAGGI's and PDB's Codes of Ethics and Conduct in effect on the date of signature of this COMMITMENT, which the PARTIES declare to have accessed, having understood in all its terms, obligations and provisions, and to respect the general principles contained in AMAGGI's and PDB's Codes of Ethics and Conduct, as updated from time to time.

8.8. The PARTIES, declare and warrant that, through any employee, director, manager, agent, consultant or any other third party acting on their behalf and interest, (a) they are not aware of any investigations, indictments, inquiries, accusations or criminal, civil or administrative proceedings for alleged violations of the anti-corruption LAWS, may these violations, in any way, prevent or not prevent compliance with this COMMITMENT or cause negative impact of any nature, to the other PARTY, including reputational impact; (b) do not negotiate and are not negotiating any type of agreement with the competent government authorities regarding potential violation of the anti-corruption LAWS; (c) have adequate practices and policies to avoid non-compliance with the anti-corruption LAWS by its employees, directors, managers, agents, consultants or any third party with whom it has any type of relationship; (d) it maintains and has maintained internal accounting controls in line with the best market practices; (e) it does not perform and has not performed any activity that can be or has been classified as clandestine mining or illegal mineral extraction.

Clause 9. THE ASSIGNMENT OR TRANSFER

9.1. The PARTIES are hereby authorized to assign, transfer, grant in guarantee or pledge ("ASSIGNMENT"), the future rights to receive the PRICE or other monetary values to national or foreign financial institutions or their representatives or agents with the purpose of structuring financial operations. Such assignment must obligatorily observe the following rules:

- (a) No assignment, in whole or in part, may be made whereby any rights under this COMMITMENT are transferred to any third party who is included (by itself or its related persons) on sanctions lists published and maintained by any governmental sanctioning authorities, such as OFAC of the United States Government, Her Majesty's Treasury of the United Kingdom Government and any others. In the same way, assignments may not be made in favor of any third party that, directly or indirectly, by itself and/or by persons related to it, is listed in the CEIS - Cadastro Nacional de Empresas Inidôneas e Suspensas (National Register of Dishonest and Suspended Companies);
- (b) All parties involved in the ASSIGNMENT must expressly declare (i) their knowledge and agreement that the COMMITMENT may be terminated in the events contemplated in this instrument; (ii) its awareness and agreement that the PRICE will only be paid after delivery of the PRODUCT in the exact terms and conditions agreed between AMAGGI and PDB, such terms and conditions to be in full compliance with the terms and conditions of this COMMITMENT. (iii) there will be no right of recourse, by the assignees/favored parties, in relation to AMAGGI; and (iv) its express awareness and agreement with all the terms, conditions and obligations agreed upon in this LOAN and in the obligations that, derived from it, are object of the ASSIGNMENT;

- (c) Once any ASSIGNMENT is made, the assignor PARTY shall communicate such fact to the other PARTY, within 10 (ten) days from the date of its formalization, providing all information and presenting all documents that the latter may reasonably request; and
- (d) AMAGGI (if PDB is the assignor PARTY) or PDB (if AMAGGI is the assignor PARTY) may oppose to the assignee any right of set-off of amounts it holds against the assignor PARTY, under this or any contracts, and all other exceptions it holds against the assignor PARTY.

Clause 10. THE APPLICABLE LAW AND THE FORUM OF CHOICE

10.1. The present COMMITMENT will be governed and interpreted according to the laws of the Federative Republic of Brazil.

10.2. The PARTIES, by common and reciprocal agreement, elect the Central Court of the Judicial District of São Paulo/SP as the only competent court to know and settle any doubts or disputes arising from the interpretation and execution of any of the clauses, conditions, rights and obligations set forth in this COMMITMENT and in any documents related to it, expressly waiving any other.

Clause 11. CONFIDENTIALITY AND PUBLICITY

11.1. The PARTIES undertake to maintain confidentiality and not to disclose or make public the terms and conditions of this COMMITMENT and any documents and agreements related to it, for a period of 3 (three) years after the termination of this COMMITMENT, for any reason, without the prior consent of the other PARTY. Furthermore, each of the PARTIES undertakes to treat as strictly confidential and not to disclose to any third party, and to cause its respective attorneys and consultants to treat as strictly confidential and not to disclose to any third party, any information related to the other PARTY that has come to their knowledge or knowledge as a result of the transactions contemplated in this COMMITMENT, except for any information that (a) is or will come to be in the public domain without breach of the obligation of confidentiality referred to in this clause; (b) was already known to the receiving PARTY at the time of such disclosure by the other PARTY; or (c) has been lawfully received by either PARTY from a third party not subject to any secrecy obligation to the other PARTY. For purposes of clarity, in any events of IPO, stock offerings, capital market operations, fund raising and any other similar events, where a PARTY intends to disclose any information of this COMMITMENT (including its existence) to any third party, including any governmental authorities, such PARTY shall not require the prior consent of the other PARTY with respect to such disclosure, but shall submit the material and information to be disclosed to the other PARTY at least ten (10) days prior to the date of disclosure.

11.2. The PARTIES are fully responsible for the confidentiality to be observed, under the terms provided for herein, by their managers, employees and/or any third party that, by their indication, has had access to information on: (a) the terms and conditions of this COMMITMENT and other related documents and information; and (b) the operations contemplated in this COMMITMENT.

11.3. The confidentiality obligation provided for herein shall not prevent the PARTIES from disclosing information to any governmental authority or any third party: (a) in the context of prior consent requests necessary for any services contracted between the PARTIES; (b) for purposes of the assignment authorized pursuant to Clause 9 above; and (c) pursuant to and within the strict limits of any court or arbitration order given to them in this regard. In the event that either PARTY is required, as required by the relevant GOVERNMENT AUTHORITY or by applicable law, to disclose in full or in part any confidential information referred to in this Clause, such PARTY may do so without giving room for indemnification or liability. However, it must, in any case: (x) provide only that piece of the information and documents that its advisors deem legally required; (y) use all reasonable efforts to obtain assurances from the party requesting the information/documents that confidential treatment will be accorded; and (z) notify the other PARTY promptly in writing of the need for a breach of confidentiality, enabling the other PARTY to take appropriate measures to protect the confidentiality of the information.

11.4. Notwithstanding the provisions of this Clause 11, the PARTIES agree that they may not make announcements or disclosures directed to the public in general and third parties, including clients and/or suppliers, in relation to the operations subject matter of this COMMITMENT (and to the COMMITMENT itself), being obliged to request the approval of the other PARTY of the content of the materials destined to disclosures dealt with herein.

Clause 12. FINAL PROVISIONS

12.1. Liability. The liability of each of the PARTIES under this COMMITMENT is limited to the penalties provided for herein and to the compensation for direct damages, it being expressly stipulated that none of the PARTIES shall be liable, under any circumstances, for loss of profits or indirect damages, such as loss of revenue, loss of sales and loss of contract, except in the case of willful misconduct, serious fault or fraud.

12.2. Notifications and Communications. All notices, communications, requests and other notices given from PARTY to PARTY under this COMMITMENT shall be in writing and sent by e-mail or by registered or certified mail to the following addresses:

If for PDB:

[***]

If for AMAGGI:

[***]

12.3. All notification, requests, and other notices shall be deemed given upon actual receipt or delivery, evidenced by written acknowledgment of receipt, confirmation, or other proof of actual receipt or delivery to the addresses listed above and in care of the representatives referred to therein. Any PARTY may from time to time, by written notice delivered in the above manner, state another address or a different or additional person to whom all such notices or notices shall be sent in the future.

12.4. Specific Execution. The commitments and obligations assumed by each one of the PARTIES in the present COMMITMENT are subject to specific execution. To this purpose, the PARTIES recognize that this COMMITMENT, duly signed by two witnesses, constitutes an extrajudicial execution instrument for all purposes and effects, in accordance with article 784, III, of the Brazilian Code of Civil Procedure.

12.5. Integral Commitment, Irrevocability and Irretractability. This COMMITMENT constitutes the entire agreement between the PARTIES with respect to its subject matter, superseding any and all prior agreements and understandings between the PARTIES, oral or written. The present COMMITMENT and the obligations established herein are contracted on an irrevocable and irreversible basis, not allowing for any type of regret, rescission or cancellation, except in the cases of rescission expressly established therein

12.6. Excessive Burdens; Freedom of Consent. The PARTIES declare that the obligations assumed by this instrument (a) are fully equitable, as well as that they have and shall have, throughout the validity of this COMMITMENT, full capacity to comply with such obligations, thus refraining from invoking, at any time, excessive burden in the performance of the same; and (b) were assumed by the PARTIES by full and unequivocal agreement, in existing in this contract any kind of addition of consent, coercion, the PARTIES exercising their freedom to contract, including having been assisted by their lawyers, consultants, accountants and technicians in this present agreement.

12.7. Costs and Expenses. Each one of the PARTIES will be solely responsible for any and all costs and expenses they have incurred and may incur as a result of the contractual relationship established herein, including (but not limited to) taxes, expenses, costs with advisors, consultants and any others, and no collection, claim for reimbursement or sharing of the same, under any heading, unless expressly provided for in this COMMITMENT.

12.8. Liberality. If one of the PARTIES tolerates any infraction in relation to any provision of this COMMITMENT (and/or of any other documents related to it), or omits to demand the fulfillment of any term or condition herein established, it does not mean that it has released the other PARTY from the obligations assumed, nor that the violated provision has been considered as cancelled. This act of liberality shall not constitute a novation of the clauses of this COMMITMENT, nor shall it affect its rights, which may be exercised at any time.

12.9. Amendments. Any amendment in this COMMITMENT will be valid only by means of a written instrument, duly executed by the PARTIES, which will become an integral part of this COMMITMENT for all purposes and effects.

12.10. Invalidity. Eventual unenforceability or invalidity of any clause, item, obligation, term, condition or provision established by force of this COMMITMENT may only be declared in court, by final condemning and/or declaratory sentence transited in res judicata, and even then it will not affect the enforceability or validity of the other clauses, items and provisions, except if the combination of its provisions results in the will of the PARTIES not having been to contract without the unenforceable or invalid provisions.

12.11. Disengagement. This COMMITMENT does not establish, by force of this agreement, any link of any nature, including, but not limited to, labor, environmental, regulatory, fiscal and responsibility on the part of AMAGGI with PDB, nor of PDB with AMAGGI (nor any commitments in this sense), except the bond of services rendered by AMAGGI with PDB, other than the provision of services established by this instrument. Each PARTY shall exclusively bear the responsibilities attributable to them by LAW, including labor responsibilities of their respective employees and their respective environmental, integrity, regulatory and tax responsibilities. No partnership, association, agency, consortium, mandate or joint liability of any kind is created by this COMMITMENT between the PARTIES.

12.12. Responsibility for Clause Drafting. The PARTIES have jointly participated in the negotiation and drafting of this COMMITMENT, and the drafting and construction of the clauses set forth herein shall always be considered as a jointly agreed wording between these PARTIES, in good faith, to express their mutual intent and purposes. In the event that an ambiguity or conflict in interpretation should arise, this COMMITMENT shall be so construed, i.e., as if jointly drafted by the PARTIES, and there shall be no presumption or burden of proof favoring or disfavoring any PARTY by virtue of the authorship of any provision hereof.

12.13. Socio-environmental Aspects of the Project. The PARTIES declare and warrant that, during the entire term of this COMMITMENT, they shall observe and comply with all social and environmental LAWS, undertaking to adopt effective environmental and social programs aligned with the applicable legal provisions pertinent to the activities of this COMMITMENT. If, during the entire term of this COMMITMENT, any of the PARTIES have indigenous labor, it will only be admitted through labor, employment and income programs provided for and admitted in LAW, and in strict compliance with the norms, LAWS and conventions of any nature applicable to labor and human and social development. Likewise, PDB declares and guarantees that the construction and operation of the PROJECT will be carried out with strict respect for the environment, and that its facilities have been conceived so as to cause the least possible environmental and social impact, which will be compensated in accordance with the provisions of LAW. No aspect of the PROJECT should be conceived or operated with damage or harm (even if potential) to the environment and the populations living there, except for the impacts foreseen and approved in the environmental licenses, to be compensated according to their terms. It will constitute an unconditional obligation of the PDB to attend to the realization of an Indigenous Component Study - ECI regarding the region where the PROJECT will be built and the indigenous people who live there. The development and operation of the PROJECT by PDB shall further comply, in all aspects, with any LAW related to (i) occupational health and safety; (ii) combating prostitution and child labor; and (iii) slave labor. AMAGGI represents and warrants that all of its activities during the period of this COMMITMENT will also comply, in all aspects, with any LAW related to (i) occupational health and safety; (ii) combating prostitution and child labor; and (iii) slave labor.

12.14. Data Protection. The PARTIES warrant that they perform and have performed, since the commencement of Law 13.709/2018 ("LGPD"), the processing of personal data in accordance with the LGPD and declare that: (a) store personal data in a secure and appropriate manner, in accordance with the applicable LAW; (b) follow a privacy policy and security procedures compatible with the type of personal data processed; (c) have appointed a controller, as determined by the applicable LAW; (d) make a record of the operations of the personal data processing; (e) have the consent of the owners of the personal data to carry out the processing or base each processing on any legal hypothesis provided by LAW; (f) only use personal data in a manner compatible with the purposes for which they are received (g) allow the personal data subjects to exercise their rights as provided by LAW; (h) ensure that technical and organizational security measures are used to protect the personal data against unlawful and unauthorized processing and against accidental leakage, destruction or damage; and (i) ensure that any employees or external service providers acting in conjunction with them in the performance of their services and who may have access to personal data comply with applicable laws on personal data protection.

12.15. Electronic Signatures. The PARTIES expressly agree, authorize, accept and recognize as valid any form of evidence of authorship of the signatories of this instrument and witnesses through their respective digital signatures, obtained through electronic certificates, even if they are electronic certificates not issued by the Brazilian Public Key Infrastructure ICP-Brazil under Article 10, paragraph 2, of Provisional Measure 2.200-2 of August 24, 2001, and, thus, acknowledge and admit, irrevocably, that such signatures are considered by them as valid and true, being certain that such certificates shall be sufficient for the truthfulness, authenticity, integrity, validity, and effectiveness of this COMMITMENT.

And so being just and contracted, the PARTIES sign this COMMITMENT jointly with two witnesses for all legal purposes and effects.

Cuiabá/MT, September 29, 2022

By: /s/ Adriano Viana Espescht
POTÁSSIO DO BRASIL LTDA.

Date: September 29, 2022

By: /s/ Gunnar Nebelung
AMAGGI EXPORTAÇÃO E IMPORTAÇÃO LTDA.

Date: September 29, 2022

Witnesses:

1. /s/ Davidson Pereira Aquino

Date: September 29, 2022

2. /s/ Amanda Salgado de Barros

Date: September 29, 2022

Annex I - Product Specifications

Product Reference Sheet

POTÁSSIO DO BRASIL

Origin: Autazes, Amazonas, Brazil Product: Potassium Chloride, KCl, Potassium, MOP

Typical Chemical Specification (1)

<u>Component</u>	<u>Typical (%)</u>	<u>Min (%)</u>	<u>Max (%)</u>
KCl	95.00	94.00	
NaCl	4.12		500
CaSO ₄	0.01		
K ₂ SO ₄	0.00		
MgSO ₄	0.05		
Na ₂ SO ₄	0.04		
MgCl ₂	0.00		
Insoluble	0.14		0.22
H ₂ O	0.20		

Typical Particle Size Distribution (1)

<u>Opening</u>	<u>Unit</u>	<u>Track</u>
6.0 mm	%	0-5
4.0 mm	%	20-40
2.8 mm	%	40-70
2.36 mm	%	65-85
2.0 mm	%	85-98
1.7 mm	%	95-100

Physical Properties

Density(2)	Kg/m ³	1.04-1.20
Resting Angle (1)	Degrees	32°
Size Guide Number (SGN)(1)		262
Color		Pink

Notes:

- 1 Strong: Bench Tests with Borehole Samples
- 2 Strong: Estimate

MANAUS - Rua Rio Iça. no. 310. Room 105. Nossa Senhora das Gracas. Zip Code 69053-100 - Manaus/AM

AUTAZES - Rua Coronel Soares no. 595. Olinda. Zip Code 69.240-000 - Autazes/AM

BELO HORIZONTE - Av Afonso Pena no. 3130. Room 701. Staff. Zip Code: 30130-009 - Belo Horizonte/MG

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [*], HAS BEEN OMITTED BECAUSE SUCH INFORMATION (I) IS NOT MATERIAL, (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED, AND (III) IS THE TYPE OF INFORMATION THAT THE COMPANY TREATS AS PRIVATE OR CONFIDENTIAL.**

PRIVATE INSTRUMENT OF RECIPROCAL ASSUMPTION OF OBLIGATIONS, COMMERCIAL REPRESENTATION AND OTHER AGREEMENTS

By this instrument, the Parties:

POTÁSSIO DO BRASIL LTDA, a limited liability company registered with the National Register of Legal Entities of the Ministry of Economy - CNPJ/ME under No. 10.971.768/0001-66, headquartered in the city of Manaus, State of Amazonas, at Rua Rio Içá, No. 310, 1st floor, room 105, municipality Nossa Senhora das Graças, Zip Code 69.053-100, herein represented in the form of its Articles of Organization (“PDB”); and

AMAGGI EXPORTAÇÃO E IMPORTAÇÃO LTDA, a limited liability company registered with the National Register of Legal Entities of the Ministry of Economy - CNPJ/ME under No. 77.294.254/0001-94, headquartered in the city of Cuiabá, capital of the State of Mato Grosso, at Avenida André Antonio Maggi, No. 303, Alvorada, Zip Code 78.049-080, herein represented by its Articles of Organization (“AMAGGI”).

PDB and AMAGGI when jointly designated, hereinafter “PARTIES” and, when individually and indistinctly designated, hereinafter “PARTY”.

WHEREAS:

- I. PDB is a company in the mining segment, being the holder of 05 (five) mining rights granted by the National Mining Agency - ANM, which, once the respective mining ordinance is published, will enable the Company to carry out mining activities, processing and commercialization of potassium chloride (“PRODUCT”), whose main characteristics are defined in ANNEX A, and, in this matter, PDB is developing a project for the exploration of a sylvinitic mine, located in the Municipality of Autazes, State of Amazonas (“PROJECT”);
- II. The PROJECT is an enterprise under development by PDB and, for the time being, is not operational, however PDB, after the accomplishment of studies, analyses and projections of technical character, all of them elaborated in accordance with the best techniques and market practices, concluded that the PROJECT has a reserve with production capacity presented in its PAE - Economic Utilization Plan, of approximately 2,400,000 (two million four hundred thousand) tons of PRODUCT per year, making up a total quantity of proven reserves in accordance with the Economic Utilization Plan submitted and approved, via an order in the Electronic Information System, by the National Mining Agency on 12/18/2020 for the process 880.407/2008 and on 12/14/2020 for the other processes numbers 880.094/2019, 880.095/2019, 880.096/2019 and 880.097/2019;
- III. The PROJECT under development by PDB contemplates the construction and operation, by PDB, of an industrial park with production capacity of, approximately, 2,400,000 (two million and four hundred thousand) tons of PRODUCT per year, as well as a port terminal, at the margins of Madeira River, in the Municipality of Autazes/AM, for the outflow of the referred production via the Madeira-Amazonas river, and it is certain that the conception contemplates the best social and environmental practices, seeking to create benefits to the local communities, as well as foreseeing the development of its activities with observance of the highest environmental standards and norms;
- IV. PDB, in the course of the development and operation of the PROJECT, shall obtain and maintain in good standing all licenses and permits corresponding to and applicable to the PROJECT, pursuant to Clause 6 below;
- V. PDB is interested in contracting out some of the necessary activities and strategic to the operation of the PROJECT and, in this regard, the PARTIES have initiated negotiations with a view to certain commercial agreements between them, with commercial representation of PDB by AMAGGI (without prejudice to the definition in the first clause below, hereinafter the “SERVICES”);

- VI. The Parties also execute, on this date, the Commercial Commitment for the Acquisition of Products and Other Agreements, whereby, among other agreements (a) PDB undertakes to sell to AMAGGI and AMAGGI undertakes to purchase from PDB, in a binding and irreversible manner, certain annual volumes of PRODUCTS, set forth therein; and (b) PDB undertakes, also on a binding and irreversible manner, to grant commercial discounts by way of REBATE on the sale of PRODUCTS to AMAGGI, all on the terms and conditions set forth in said instrument (“ACQUISITION COMMITMENT”);
- VII. AMAGGI is a company of Brazilian capital, that integrates a conglomerate of companies acting in several countries, among others, in the agribusiness segment, notably in the origination and export of agricultural commodities and in the import of inputs to the agricultural production and its resale to third parties and, in this sense, agrees to provide said SERVICES to PDB, according to the conditions and rules agreed herein; and
- VIII. The exclusivity right set forth in this CONTRACT consists in a premise agreed upon by the Parties since the beginning of the conception of their commercial relationship regarding the commercial representation, regardless of the existence of any other applicable conditions, and was determinant to AMAGGI’s decision to enter into this instrument.

It is hereby mutually agreed that this Private Instrument of Reciprocal Assumption of Obligations, Commercial Representation and Other Agreements (“CONTRACT”), which shall be governed by the clauses and conditions set forth below, according to:

CLAUSE 1. OBJECT

1.1. Subject to the terms and conditions of this instrument, the object of this CONTRACT is the rendering of commercial representation and advisory services for the potassium chloride market, both in Brazil (“SERVICES”), by AMAGGI to PDB, on an exclusive basis (subject to Clause 2 below), during the entire period of validity of this instrument, for commercialization of all the PRODUCT extracted from the mining and industrial complex of PDB in the Municipality of Autazes/AM (“AUTAZES MINE”), all for the remuneration set forth in Clause 2 below, and in accordance with the clauses, obligations and conditions established in this CONTRACT.

1.2. As part of the provision of the SERVICES herein agreed upon, AMAGGI shall work together with agricultural producers, trading companies and other potential buyers of the PRODUCT, whether or not in AMAGGI’s current relationship (“BUYER”), in order to commercialize it, acting on behalf of PDB. The development and provision of the SERVICES will occur according to the following rules:

- (a) AMAGGI, as the quality of PDB’s commercial representative, will work together with the BUYERS of the PRODUCT in order to commercialize it.
- (b) The SERVICES shall be provided in compliance with PDB’s Potassium Trading Policy at in Annex 1.2(b)(i), the PDB Pricing Policy in Annex 1.2(b)(ii) and the PDB Credit Policy in Annex 1.2(b)(iii). Annexes 1.2(b)(ii) and 1.2(b)(iii) shall be prepared and made available by the PDB at least 1 (one) year prior to the COMMERCIAL OPERATING START DATE, as defined below. PDB will inform AMAGGI of any updates to the policies in Annexes 1.2(b)(i), 1.2(b)(ii) and 1.2(b)(iii), subject to Clause 3.1. The policies in Annexes 1.2(b)(i), 1.2(b)(ii) and 1.2(b)(iii) shall include at least: (i) the corresponding prices for the sale of the PRODUCT; (ii) the information and conditions relating to freight and other logistical aspects; and (iii) the payment terms accepted by PDB.
- (c) As AMAGGI proceeds with the confirmation of the PRODUCT purchase order from any BUYER, then AMAGGI, by its commercial area (whose contact details will be informed in due course) shall promptly inform PDB of such commercialization, forwarding by electronic file to the responsible area, vendas@potassiodobrasil.com.br, the purchase order (“PURCHASE ORDER”) duly formalized by the BUYER.
- (d) Once the PURCHASE ORDER is received, the PDB shall proceed to the evaluation (or confirmation) of the potential BUYER’s credit, the availability of the PRODUCT and the availability of the logistics for delivery of the PRODUCT to the BUYER within the schedule contained in the PURCHASE ORDER, accepting or not the commercial operation, declaring this condition until 5:00 pm. (five pm) (GMT-4) of the 5th (fifth) business day counted from

the date of receipt of the PURCHASE ORDER. The PDB can only reject an ORDER OF BUYER for a justified, reasonable and relevant reason, including, without limitation, the unavailability of sufficient quantity of PRODUCT or logistic means to meet the PURCHASE ORDER, for any reason, or if the potential BUYER does not meet the criteria and rules of this CONTRACT that would be applicable to them, such as credit quality, integrity and compliance with ESG obligations, also as applicable).

- (e) From the approval date of the PURCHASE ORDER, under the terms and conditions set forth above, PDB shall, at its sole expense, make the delivery of the PRODUCT, with the issuance of all applicable operational, fiscal, regulatory and other documents. For the avoidance of doubt, AMAGGI will not be responsible for any aspects concerning the PRODUCT other than its commercialization, thus not being liable for credit risk, receivables, guarantee of the PRODUCT, default, operational aspects, logistics and any other.
- (f) Throughout the term of this CONTRACT, PDB undertakes to maintain a customer service channel on its website (<https://www.potassiodobrasil.com.br/>), through which BUYERS, as purchasers of the PRODUCT, as well as any third parties who will use the PRODUCT, may submit questions, complaints and suggestions. Without prejudice, PDB undertakes to keep AMAGGI informed of any eventualities and contingencies that may hinder or delay any delivery of the PRODUCT sold in any commercial operation in relation to the deadlines originally stated in a PURCHASE ORDER, so that AMAGGI may, if questioned by any BUYER, provide the relevant justifications.
- (g) PDB and AMAGGI agree to maintain, throughout the term of this CONTRACT, policies, rules and procedures for the treatment and protection of personal data and information related to the BUYERS and other third parties with whom they have any relationship, exempting one PARTY from any losses, doubts, litigations, complaints, fines, assessments and any other events of litigation and contingencies related thereto.

1.3. AMAGGI must provide the SERVICES set forth herein with its own means, manpower, experience and know-how, observing the possibility of subcontracting indicated in Clause 8, being responsible for all the costs and expenses, which are: (a) travel costs of AMAGGI's employees and subcontractors, which it allocates in the provision of the SERVICES, their travel, accommodation, car renting, equipment and any other means that are used by such employees in the provision of the SERVICES; and (b) costs and expenses related to facilities and physical structures, as well as costs for contracting telecommunications structures and other equipment, which are borne by AMAGGI for the provision of the SERVICES. Except as otherwise expressly provided in this CONTRACT, AMAGGI declares and warrants that the REMUNERATIONS comprise all and any costs of any nature incurred by AMAGGI or any subcontractors or suppliers in the performance of the SERVICES, including the taxes incurred, the cost of AMAGGI personnel and any third parties involved in the provision of the SERVICES, expenses based on social and labor legal requirements, including additional payments for hazardous duty and others due to such personnel for the provision of the SERVICES under this CONTRACT. Without prejudice, PDB is obliged to give, free of charge, during the whole period of validity of this CONTRACT, an adequate space, in its facilities, for the performance of AMAGGI representatives in the rendering of the SERVICES.

1.4. Commercialization Abroad. The PARTIES agree that the rules set forth herein are fully applicable to sales of the PRODUCT made in Brazil and abroad. However, any marketing of PRODUCT overseas may only occur under the terms of PDB's trading policy in Annex 1.2(b)(i), as modified or updated from time to time.

1.4.1. Subject to the provisions of Clause 1.4 above, if the PRODUCT is sold to buyers abroad, AMAGGI will be entitled to all the fees set forth in Clause 2, applying, in any event, to such sales, the rules, clauses and conditions agreed upon in this CONTRACT.

1.5. AMAGGI pledges to use its technical, marketing and commercial knowledge to provide the SERVICES according to what is established in this CONTRACT. The obligations here assumed by AMAGGI are not "result obligations", but "means obligations", subject to market variables, competition variables, logistic factors and others, with which PDB hereby expressly agrees.

CLAUSE 2. COMPENSATION

2.1. For the services provided under this CONTRACT, AMAGGI shall be entitled to the following remuneration (each, hereinafter, a "COMPENSATION" or collectively, the "COMPENSATIONS"):

2.1.1. Ordinary Compensation. For providing the SERVICES set forth in this CONTRACT, AMAGGI will receive from PDB, as a commission, the amount corresponding to [***]% ([***] percent) of the gross sales value of the PRODUCT commercialized within the scope of this CONTRACT, in accordance with the commercialization values contained in the price table practiced at the moment of the formalization of each PURCHASE ORDER during the term of this CONTRACT ("ORDINARY COMPENSATION").

2.1.2. Compensation for Non-Exclusive Sales. AMAGGI acknowledges that PDB may make sales of the PRODUCT (by itself and/or by any agents or third parties) without the intermediation of AMAGGI to any third party, such sales being considered "Non-Exclusive Sales". Without prejudice to other compensation provided for in this CONTRACT, and taking into account the exclusivity established by this instrument, the PARTIES agree that, despite the exclusivity, if any Non-Exclusive Sales occurs, at any time, AMAGGI shall receive a compensation in the amount of [***]% ([***] percent) of the gross value of each Non-Exclusive Sale, as consideration, this remuneration will be paid under the same terms and conditions established in this CONTRACT (COMPENSATION FOR NON-EXCLUSIVE SALES").

2.1.3. PDB undertakes not to sell, directly or through any third party, any quantities of the PRODUCT to AMAGGI's relationship costumers, being certain that, in case PDB does so, it must pay AMAGGI, for each sale so made, the total amount of the ORDINARY COMPENSATION on those said sales, as a compensatory penalty clause, and nothing else will be due to AMAGGI, in any way, as a result of such sales of PRODUCT by PDB.

2.1.4. For clarification purposes, in the case of any sales of PRODUCT to members of the AMAGGI GROUP, the REBATE provided for in the ACQUISITION COMMITMENT shall not be taken into account for purposes of calculating the amount of COMPENSATION due to AMAGGI in connection with such sales. Thus, said COMPENSATION will always be calculated based on the gross sales price of the PRODUCTS.

CLAUSE 3. PRICE AMENDMENT AND OTHER CONDITIONS

3.1. Throughout the term of this CONTRACT, in the event PDB intends to make modifications to PDB's Potassium Trading Policy set forth in Annex 1.2(b)(i), PDB's Pricing Policy in Annex 1.2(b)(ii) or PDB's Credit Policy in Annex 1.2(b)(iii), or in any commercial conditions applicable to the commercialization of the PRODUCT (term, foreign commercialization, possible interest, among others), then PDB shall submit these modifications to AMAGGI, in writing, at least seven (7) business days prior to the date set for the entry into force of the corresponding modification, in order to allow AMAGGI to schedule the necessary adjustments and its commercial planning.

3.2. If the minimum period for the adaptation of the above mentioned policies is not met, with the prior notice given in the form and deadlines defined above, PDB will be obliged to practice the conditions of the policies prior to the update (thus honoring the respective commercialization during the period in question) until the seven (7) business days referred to above is elapsed, unless with the express agreement of AMAGGI in relation to the waiver of that notice.

CLAUSE 4. PAYMENT

4.1. The amount of the COMPENSATION to be received by AMAGGI, both the ORDINARY COMPENSATION for the SERVICES provided under this CONTRACT as well as the COMPENSATION FOR NON-EXCLUSIVE SALES, will be calculated in accordance with the provisions of Clause 2 above and will be paid by PDB to AMAGGI on a monthly basis. By the 10th (tenth) day of each month, AMAGGI will issue the measurement report of the PRODUCT volumes sold and paid for in the previous month ("MEASUREMENT REPORT"), observing the terms of Clause 4.2, and will forward the document to the PDB for approval. After the approval of the MEASUREMENT REPORT by PDB, AMAGGI will be authorized to issue the invoice for payment. PDB will pay each invoice submitted by AMAGGI in accordance with the terms of this CONTRACT by crediting the bank account that AMAGGI will provide on each billing document. The deposit slip will serve as proof of payment for the purposes of this CONTRACT.

4.2. For the purposes of calculating the SERVICES provided and the COMPENSATION due in each billing period, the PARTIES agree to observe the following procedures:

- (a) The MEASUREMENT REPORT will be prepared based on the PURCHASE ORDERS and the fiscal documents and records related to each sale. PDB is obligated to allow AMAGGI access to its books and accounting registers, in order to support the preparation of the statements and calculations established herein.
- (b) Once the MEASUREMENT REPORT is approved by PDB, AMAGGI shall issue in favor of PDB the fiscal documents related to the rendering of the SERVICES in that period. If the collection documents presented by AMAGGI are in good order (according to the accounting and fiscal laws and practices), the amount corresponding to the COMPENSATION due will be paid to AMAGGI within 30 (thirty) days from the date of presentation of the MEASUREMENT REPORT by AMAGGI.
- (c) If there is any disagreement between the PARTIES as to the amount of COMPENSATION due to AMAGGI in any period, then PDB shall make the payment of the uncontroversial amounts, in the terms and deadlines set forth in item "b" above, and the PARTIES, negotiating in good faith shall reach an agreement regarding the controversial amounts within seven (7) days from the presentation of the MEASUREMENT REPORT by AMAGGI. If they reach an agreement, the amounts due will be paid within 15 (fifteen) days from the date of the agreement.
- (d) On the other hand, after the period of seven (7) days has elapsed from the beginning of negotiations between the PARTIES without reaching an agreement in this regard, then the PARTIES shall, by mutual agreement, elect an accounting audit firm to prepare a report, whose result will be the amount corresponding to the COMPENSATION due, thus ending the controversy. The report from the independent accounting audit company must be presented within 45 (forty-five) days from the appointment of the independent expert and will replace the MEASUREMENT REPORT. If the PARTIES cannot reach an agreement of the independent accounting audit firm within 15 (fifteen) days from the end of the 7 (seven) day period set forth in item "c" above, the PARTIES may resort directly to the jurisdiction set forth in Clause 15.1. of this CONTRACT. The amount so calculated shall be paid by PDB to AMAGGI within 30 (thirty) days from the date of conclusion of the report referred to herein or within the period determined in a decision obtained in the form of Clause 15.1 of this CONTRACT, as the case may be. The costs of hiring an audit will be borne jointly by the PARTIES (50% for each of them).

4.3. The taxes on the SERVICES set forth in this CONTRACT shall be borne, in conformity with the supervening of the corresponding taxable event, by the PARTY that is defined as the responsible taxpayer, under the terms of the current and applicable legislation. If the creation of new taxes on the SERVICES occurs, as well as if there is any change in the rates currently in effect, the PARTIES should negotiate in good faith, seeking to promote any necessary adjustments to the COMPENSATION, in order to restore the economic and financial balance of the service relationship established herein. For the purposes of this Clause, the term "taxes" includes any taxes, taxes, contributions, fees, and any other taxes, under the terms of the applicable legislation.

4.4. Buyer Default: For purposes of clarity, the PARTIES agree that the payment of the respective COMPENSATION to AMAGGI under this CONTRACT is, in any event, conditioned upon PDB's actual receipt of the portion of the consideration paid by the BUYER for the PRODUCT to which the compensation refers, and in case of partial payment of the price of the PRODUCT by the BUYER, AMAGGI's COMPENSATION shall be calculated and paid based on the portion of the gross value actually paid by the BUYER to PDB.

CLAUSE 5. STATEMENTS AND WARRANTIES

5.1. PDB's Statements and Warranties: By this private instrument, PDB hereby represents and warrants to AMAGGI as follows:

- (i) Power and Authorization: PDB is a limited liability company duly organized under the laws of the Brazil's Federative Republic, validly existing and in good standing under the said LAWS. PDB has the capacity, power, legitimacy and authority to (a) enter into this CONTRACT and all other documents and instruments related hereto, as set forth herein; (b) subject to obtaining

the necessary licenses and authorizations to be issued by GOVERNMENTAL AUTHORITIES and to the commencement of commercial operation of the PROJECT, assume and timely comply with the obligations set forth in this CONTRACT and in the other documents and instruments related to the implementation of the operations contemplated herein, even if formalized after the present date, and (c) subject to obtaining the necessary licenses and authorizations to be issued by the GOVERNMENTAL AUTHORITIES and to the commencement of commercial operation of the PROJECT, consummate the operations herein established in the form, terms and conditions contemplated herein, having taken all necessary measures to authorize their execution. For the purposes of this CONTRACT, the term "LAW" means any law, statute, regulation, rule, ordinance, order, warrant, determination, decision, judgment, order (whether preliminary or interlocutory) or requirement made, promulgated, entered into or imposed by any GOVERNMENTAL AUTHORITY (as defined below), including any subsequent amendments thereto.

- (ii) **Binding Effect:** This CONTRACT and all other documents and instruments contemplated hereby, even if subsequently executed, constitute (or shall constitute as subsequently executed in the form required by this CONTRACT) legal, valid, enforceable and binding obligations of PDB, enforceable in accordance with its terms and conditions. Except as provided in Annex 5.1(ii), PDB has not been served with any process of a judicial nature or arbitration proceeding, or any investigation involving any GOVERNMENTAL AUTHORITY which, if decided adversely, could interfere with PDB's ability to fulfill its obligations under this CONTRACT. For the purposes of this CONTRACT, "GOVERNMENTAL AUTHORITIES" means any judicial, legislative or executive authority (federal, state or municipal) or any subdivision, agency, department, judge, court (judicial or arbitral), commission, board, secretariat, administrative body or other respective governmental administrative or regulatory authority in Brazil, including, but not limited to, IBAMA, FUNAI, IPAAM, the National Mining Agency - ANM, the Ministry of Agriculture, Livestock and Supply - MAPA, the National Agency for Waterway Transport - ANTAQ, the Ministry of Infrastructure of Brazil, the Ministry of Infrastructure of Brazil, the Public Prosecutor's Office (Federal or State), the Public Prosecutor's Office of the Republic, States and Municipalities and the professional Councils that regulate professionals of any nature.
- (iii) **No Violation and No Consent:** The execution and performance of this CONTRACT and all other instruments contemplated hereby for the performance of PDB's obligations herein provided, and the performance of the acts for which PDB is responsible, shall not result in the violation of or conflict with: (a) any LAWS to which PDB is subject; (b) any provision of PDB's constitutional documents and/or any governance documents; (c) any decision rendered by any GOVERNMENTAL AUTHORITY to which PDB is subject; and (d) any obligations that the PDB has assumed to any third party, nor will they result in the imposition of any burdens, contingencies, administrative, judicial, arbitration proceedings and any obligations on the PDB. Except as provided in this CONTRACT (and assuming its effective receipt at the appropriate time), no authorization or order from or to any GOVERNMENT AUTHORITY is necessary or required, on this date and at the current stage of the implementation of the PROJECT, for the execution and full performance by PDB of this CONTRACT and the obligations hereunder. PDB declares that it will, in a timely manner, take all measures and perform all acts necessary to permit the full and timely performance of the obligations set forth in this CONTRACT and the obligations that are its responsibility in the development and operation of the PROJECT.
- (iv) **Demands:** Except as set forth in Annex 5.1(iv), there is no demand, of any nature (including, without limitation, labor, tax, civil, criminal, environmental, competition, criminal, administrative, regulatory or other claims) against PDB that (a) seeks to impeach or impede, alter, limit and/or materially delay the transactions contemplated hereby; and/or (b) impugns or contests the validity of this CONTRACT or any action taken or to be taken by PDB regarding to the terms of this CONTRACT; Similarly, PDB has not failed to comply with any agreement, decision, order, authorization, warrant, injunction or order of any GOVERNMENTAL AUTHORITY. There are no demands of any nature that may result in the revocation, annulment or any form of loss of licenses, especially those granted by the National Mining Agency - ANM.
- (v) **ESG Issues:** PDB holds all the authorizations required at this current stage of the PROJECT, all under applicable law to develop its business in good regularity. The PDB does not violate any

human rights, does not use indigenous manpower (except in conformity with the applicable LAWS), child or slave labor, does not cause damage to the balance of the ecosystem, nor intervenes in areas that have a protected biome or ecosystem, in all cases without having obtained proper authorization from the GOVERNMENTAL AUTHORITIES to exercise its activities in such a place or without such intervention being in accordance with the terms of the LP - Preliminary License, the LI - Installation License and the LO - Operation License of the AUTAZES MINE enterprise to be obtained by the PDB. The PDB will not effect any intervention in inhabited areas (or in proximity in disagreement with the LAWS) by indigenous or traditional populations, without obtaining the due authorizations established in LAW to exert its activities in such places; the PDB does not effect any intervention in areas through illegal deforestation. PDB does not conduct mining and industrial activities in disagreement with the respective permits issued by ANM, in relation to which it is in compliance with all regulatory and environmental obligations, except for the provisions of Annex 5.1(v).

- (vi) Integrity and Best Practices: PDB, including through any employee, director, manager, agent, consultant or any other third party acting on its behalf and interest, (a) is acquainted with the legal provisions governing integrity good practices, notably with Law no. 12.846/2013 of the Federative Republic of Brazil, with the United Kingdom Bribery Act, with Canada's Corruption of Foreign Public Officials Act and with the United States Foreign Corrupt Practices Act - FCPA ("ANTI-CORRUPTION LAWS"); (b) has not violated or violates any ANTI-CORRUPTION LAWS; (c) it is not aware of any criminal, civil or administrative investigations, indictments, inquests, accusations or proceedings for alleged violations of the ANTI-CORRUPTION LAWS, whether or not such violations may in any way impede performance of the CONTRACT (d) is not negotiating any type of agreement with GOVERNMENT AUTHORITIES regarding potential violations of the ANTI-CORRUPTION LAWS; (e) has adequate practices and policies to avoid noncompliance of the ANTI-CORRUPTION LAWS by its employees, directors, managers, agents, consultants or any third party with whom it maintains any type of relationship; (f) it maintains and has maintained internal accounting controls in line with the best market practices; (g) it has not performed and does not perform any activity that may be or has been classified as clandestine mining or illegal mineral extraction.
- (vii) Possession and Ownership of Assets: PDB represents and warrants that, prior to the commencement of commercial operation of the PROJECT, it will have peaceful possession (through contractual instruments or otherwise, provided that in accordance with applicable LAWS) and/or ownership of all fields where the PROJECT will be implemented.
- (viii) Accuracy of Representations: PDB represents and warrants that none of the information contained in the representations, warranties, obligations or agreements made by it hereunder contains any statement that is inaccurate, incorrect or does not correspond to reality as of this date.

5.2. PDB's Statements and Warranties: By this private instrument, PDB hereby represents and warrants to AMAGGI as follows:

- (i) Power and Authorization: AMAGGI is a limited liability company regularly incorporated under the Laws of the Brazil's Federative Republic, validly existing and in good standing under said LAWS. AMAGGI has the capacity, power, legitimacy and authority to (a) execute this CONTRACT and all other documents and instruments related hereto, in the form established herein in order to carry out the operations contemplated herein; (b) assume and timely comply with the obligations set forth in this CONTRACT and in all other documents and instruments related to the implementation of the operations contemplated herein, even if formalized after the date hereof, for which it states and warrants that it has sufficient technical and commercial capacity; and (c) consummate the operations set forth herein in the form, terms and conditions contemplated herein, having taken all necessary measures to authorize their execution.
- (ii) Binding Effect: This CONTRACT and all other documents and instruments contemplated hereby, even if subsequently executed, constitute (or shall constitute as subsequently executed in the form required by this CONTRACT) legal, valid, enforceable and binding obligations of PDB, enforceable in accordance with its terms and conditions. AMAGGI has not been summoned or notified about the existence of any process of a judicial nature or arbitration proceeding, or any investigation involving any GOVERNMENTAL AUTHORITY which, if decided adversely, could interfere with AMAGGI's ability to perform its obligations under this CONTRACT.

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- (iii) No Violation and No Consent: The execution and performance of this CONTRACT and all other instruments contemplated hereby for the performance of PDB's obligations herein provided, and the performance of the acts for which AMAGGI is responsible, shall not result in the violation of or conflict with: (a) any LAWS to which AMAGGI is subject; (b) any provision of constitutional documents and/or any governance documents of AMAGGI; (c) any decision rendered by any GOVERNMENTAL AUTHORITY to which AMAGGI is subject; and (d) any obligations that the AMAGGI has assumed to any third party, nor will they result in the imposition of any burdens, contingencies, administrative, judicial, arbitration proceedings and any obligations on the AMAGGI. Except for the amendment of AMAGGI's corporate purpose and its registration in the class entities that regulate the commercial representation activities, which must be provided by AMAGGI before the beginning of the rendering of services, no other authorization, formality or order or any GOVERNMENTAL AUTHORITY is necessary or required for the celebration and full compliance of this CONTRACT and its obligations.
- (iv) Compliance with Laws: AMAGGI complies and shall comply, in its operations and throughout the term of this CONTRACT, with all LAWS, rules and regulations stipulated by any GOVERNMENTAL AUTHORITIES (as updated, amended or replaced) in particular (but without limitation), performs its activities in full and unrestricted compliance with applicable LAWS, rules and regulations, including those relating to environmental protection and decent work.
- (v) Demands: There are no demands, of any nature (including, but without limitation, of a labor, tax, civil, criminal, environmental, competition, criminal, administrative, regulatory or other nature) against AMAGGI that (a) seeks to impugn or impede, alter, limit and/or significantly delay the transactions contemplated hereby; and/or (b) impugns or contests the validity of this CONTRACT or any act performed or to be performed by AMAGGI under this CONTRACT; similarly, AMAGGI has not breached any agreement, decision, order, authorization, warrant, injunction or order of any GOVERNMENTAL AUTHORITY, as well as there are no demands of any nature that may impede the assumption of the obligations set forth herein.
- (vi) ESG Issues: In the performance of its operations, AMAGGI holds all licenses and authorizations required under the applicable legislation to operate and develop its business, and complies with all necessary conditions for the maintenance of its respective licenses in good regularity. AMAGGI does not violate any human rights, does not use child or slave labor, and does not harm the ecosystem balance.
- (vii) Integrity and Good Practices: AMAGGI, including through any employee, director, manager, agent, consultant or any other third party acting on its behalf and interest, (a) is familiar with the ANTI-CORRUPTION LAWS; (b) has not violated or violates any ANTI-CORRUPTION LAWS; (c) is not aware of any criminal, civil or administrative investigations, indictments, inquests, accusations or proceedings for alleged violations of the ANTI-CORRUPTION LAWS, whether or not such violations may in any way impede the performance of the CONTRACT; (d) is not negotiating any type of agreement with GOVERNMENTAL AUTHORITIES regarding potential violation of the ANTI-CORRUPTION LAWS; (e) has adequate practices and policies to avoid non-compliance with the ANTI-CORRUPTION LAWS on the part of its employees, directors, managers, agents, consultants or any third party with whom it maintains any type of relationship; and (f) it maintains and has maintained internal accounting controls in line with the best market practices.
- (viii) Accuracy of Statements: AMAGGI represents and warrants that none of the information contained in the statements, warranties, obligations or agreements made by it hereunder contains any statement that is inaccurate, incorrect or does not correspond to reality as of this date.

CLAUSE 6. OBLIGATIONS OF THE PARTIES

6.1. Without prejudice to the other obligations established in this CONTRACT, the obligations of AMAGGI are:

- (i) Comply, fully and timely, with all the obligations of its assignment under this CONTRACT and its Annexes.
- (ii) to provide PDB with the clarifications and information that are necessary to follow up the execution of the SERVICES, when requested, in order to meet the needs of PDB's Sales Management.
- (iii) Carry out and present, jointly with PDB, the fiscal documentation in compliance with what is established in Clause 4 above.
- (iv) To issue the tax documentation related to the provision of the SERVICES, in the terms and conditions contained in the applicable LAWS.
- (v) Defend, indemnify and hold harmless PDB, its directors, officers, employees, assets and its affiliates, as the case may be, from and against any losses, disbursements, litigation, claims and contingencies, of any nature, suffered or incurred as a result of (a) any misrepresentation, insufficiency, omission, error or inaccuracy of any statement or warranty made by AMAGGI in this CONTRACT; and/or (b) partial or total non-fulfillment of any covenant or obligation assumed in this CONTRACT and/or provided by LAW, especially, without limitation, related to labor and social security obligations.
- (vi) Inform the PDB about any material events that make the statements and guarantees provided by AMAGGI in Clause 5.2 of this instrument untrue or incorrect, as well as any information that may adversely and negatively affect the provision of the SERVICES, within 5 (five) days from the date that AMAGGI became aware of such fact or event.

6.2. Without prejudice to the other obligations set forth in this CONTRACT, the obligations of PDB are:

- (i) Comply, fully and timely, with all the obligations of its assignment under this CONTRACT.
- (ii) Carry out, on time and in full, all payments under this CONTRACT in favor of AMAGGI.
- (iii) Send a written notice ("MOBILIZATION ORDER") to AMAGGI, 1 (one) year in advance of the expected beginning of the commercial operation of the AUTAZES MINE, indicating the date when it understands that the AUTAZES MINE will have the LO - Operation License, as well as all the necessary infrastructure for extraction of the PRODUCT from the AUTAZES MINE, its commercial production and respective outflow ("ENTRY INTO COMMERCIAL OPERATION" and "ENTRY INTO COMMERCIAL OPERATION DATE"). If the start of the commercial operation of the AUTAZES Mine is not verified on the ENTRY INTO COMMERCIAL OPERATION DATA and PDB does not obtain a supply of PRODUCT from third parties in order to comply with its obligations under this CONTRACT, AMAGGI may: (a) for a period of up to 6 (six) months from the ENTRY INTO COMMERCIAL OPERATION, charge PDB indemnity for loss and damages; and (b) as from the 7th (seventh) month from the ENTRY INTO COMMERCIAL OPERATION DATA, charge PDB indemnity for loss and damages in excess of the penalty amount, and terminate this CONTRACT, applying the penalty provided for in Clause 11.
- (iv) Guarantee that the whole PRODUCT is regularly supported by documents, licenses and authorizations foreseen in the LAWS, protecting, defending and indemnifying AMAGGI from any events, losses and contingencies of any nature that may be directly incurred, as well as indemnifying AMAGGI for any losses and expenses eventually suffered on account of non-compliance with what is established herein and of its responsibility.
- (v) Be responsible for all aspects related to the sold PRODUCT, from its extraction to the post-sale obligations, being responsible for credit analysis, payment of the taxes for which it is liable

under the terms of the applicable LAWS levied on sales operations, as well as for collection, logistics (whether these activities are performed by PDB and/or any third party contracted by PDB), warranties and any other responsibilities related to the extraction, processing, commercialization and guarantee of the PRODUCT.

- (vi) Be responsible to clients of the PRODUCT, in the form of the customers legislation applicable at the place of its use.
- (vii) Defend, indemnify and exempt AMAGGI, its administrators, employees, assets and its affiliates, as the case may be, from and against any losses, disbursements, litigations, claims and contingencies, of any nature, suffered or incurred as a result of the breach, partial or total, of any covenant or obligation assumed in this CONTRACT and/or provided for in LAW, subject to the limits of liability set forth in this CONTRACT.
- (viii) Obtain and maintain in force the operating license (L.O.) of the PROJECT, as well as all licenses and authorizations necessary for its activities provided for in this CONTRACT, being granted to PDB the right, in good faith, before and after the beginning of commercial operation, to request the renewal of the necessary licenses in a timely manner, as well as the right to answer and/or appeal administrative decisions or judicial decisions related to this obligation, when applicable, without this CONTRACT being characterized as a default (i) while such requests for renewal, answers or appeals are pending(ii) in case of a judicial decision that supersedes the absence of any license necessary for the operation of the PROJECT, or (iii) in cases where the PROJECT remains in operation, except as provided in Clause 11.
- (ix) Do not carry out any intervention in areas through illegal deforestation, nor carry out mining and industrial activities in disagreement with the respective grants issued by ANM.
- (x) PDB shall not commit any Serious Social-Environmental Noncompliance. "Serious Socio-Environmental Noncompliance" is understood to mean an act or omission that involves: (a) violating any human rights; (b) using indigenous labor (unless hired under official labor and social development programs, in accordance with applicable LAWS), child or slave labor; (c) causing damage to the balance(d) intervening in areas that have a protected biome or ecosystem, in all cases, without having obtained the proper authorization from the GOVERNMENTAL AUTHORITIES to carry out their activities in that location or provided that such intervention is in accordance with the terms of the LP - Previous License, and LI - Installation License and the LO - Operation License for the AUTAZES MINE enterprise to be obtained by PDB (e) make any intervention in areas inhabited (or in enough proximity to cause negative impacts) by indigenous or traditional populations, without obtaining the proper authorization in accordance with the applicable LAWS of such populations to exercise their activities in such locations.
- (xi) PDB shall inform AMAGGI of any material events that make the statements and assurances provided by PDB in Clause 5.1 of this instrument untrue, or incorrect or incomplete, as well as any relevant information that may adversely and negatively affect the PROJECT and its commercial operation, including, but not limited to, demands that may include PDB, and that may lead to the loss or non-obtaining of licenses relative to the PROJECT, within 5 (five) days from the date PDB became aware of such fact or event.

6.3. The list of obligations of each of the PARTIES, presented above, does not diminish, exclude or modify any other obligations assumed by the PARTIES and from PARTY to PARTY, under the terms and conditions contained in this CONTRACT, which the PARTIES agree to comply with, fully and timely, all under the terms and conditions agreed upon herein.

CLAUSE 7. DEFAULT AND ITS PENALTIES

7.1. Penalties for Delay in the Payment of the COMPENSATION: In case of PDB, as the contracting party of the SERVICES fail to pay any COMPENSATION due to AMAGGI, as its sales representative, and 2 (two) days after the due date of the payment obligation have elapsed, then the following charges and penalties shall be levied on the overdue and unpaid amounts: (a) a arrears penalty in the amount of 10% (ten percent) of the portion of the respective COMPENSATION due and unpaid; (b) updating of the amounts due and unpaid, by the positive variation of the Extended Consumer Price Index published Brazilian Institute of Geography and Statistics

("IPCA"), calculated and incident since the default date until the effective payment date; and (c) default interest at the rate of 1% (one percent) per month (or fraction of a month) calculated and applied according to the pro rata criterion, from the due date until the date of effective and full payment, without prejudice to the prerogatives of AMAGGI, at its sole discretion, to promote judicial or extrajudicial collection of the amounts due, as well as to suspend the execution of the SERVICES if the delay in payment of the COMPENSATION continues for more than 30 (thirty) days.

7.2. The penalties set forth in this Clause 7 are cumulative and not exhaustive, that means, the incidence of more than one penalty at the same time is allowed in the event of distinct triggering events. In addition, these penalties can be applied more than once, whenever an event of default subject to such penalties is characterized.

CLAUSE 8. ASSIGNMENT, TRANSFER AND SUBCONTRACTING

8.1. The following rules of assignment, transfer and subcontracting fully apply to this CONTRACT and the rights and obligations hereunder:

- (i) Assignment or Transfer by AMAGGI: AMAGGI is hereby authorized by PDB to assign or transfer, in whole or in part, in any manner or form, any of the rights and obligations under this CONTRACT to persons of the AMAGGI GROUP, upon simple notice provided to PDB 10 (ten) calendar days prior to the intended date for the formalization of the assignment, and it shall remain jointly and severally liable for the compliance with all the obligations assumed in this CONTRACT. For the purposes of this CONTRACT, the "AMAGGI GROUP" shall be understood to mean AMAGGI's parent company, its subsidiaries, affiliates, companies under common and/or shared control.
- (ii) Subcontracting of Services: AMAGGI, for operational reasons, may subcontract all or part of the SERVICES hereunder, being certain that (a) regarding to subcontracts or then partial assignments, AMAGGI may do so regardless of any formality or authorization, remaining jointly and severally liable for the fulfillment, by the subcontractor, of the obligations set forth herein; and (b) regarding the total assignment of the rights and obligations set forth herein, AMAGGI may do it as long as PDB expressly authorizes the referred subcontracting. In the hypothesis contemplated in item "b" above, AMAGGI must request the consent of PDB, in writing, at least 30 (thirty) days in advance of the date intended for subcontracting, being certain that the referred authorization cannot be denied except for a fair and reasonable reason. If PDB does not respond to such request within 20 (twenty) days from the date of such request, then AMAGGI will be authorized to proceed with such assignment.
- (iii) Assignment or Transfer by PDB: PDB is hereby authorized by AMAGGI to assign, transfer, pledge or grant in guarantee, in full or in part, this CONTRACT to national or foreign financial institutions solely for the purpose of structuring financial operations necessary for the implementation of the PROJECT.

8.2. Except by common and prior written agreement between the PARTIES, no other hypothesis of assignment, subcontracting or transfer of the rights and obligations agreed to in this CONTRACT will be admitted, except for the hypotheses expressly listed herein, and provided that the formalities foreseen herein are observed.

CLAUSE 9. CONFIDENTIALITY

9.1. The PARTIES agree to maintain confidentiality and not to disclose or make public the terms and conditions of this CONTRACT and any documents and agreements related hereto, for a period of 3 (three) years after termination of this CONTRACT, for any reason, without the prior consent of the other PARTY, except as expressly provided in this Clause. Furthermore, each of the PARTIES undertakes to treat as strictly confidential and not to disclose to any third party, and to cause its respective attorneys and consultants to treat as strictly confidential and not to disclose to any third party, any information related to the other PARTY which has come to their knowledge or knowledge as a result of the transactions contemplated by this CONTRACT, except any information which (a) is or becomes public knowledge without breach of the obligation of confidentiality under this Clause; (b) was already known to the receiving PARTY at the time of such disclosure by the other PARTY; or (c) was lawfully received by either PARTY from a third party not under any obligation of confidentiality to the other PARTY. For clarity purposes, in any events of IPOs, stock offerings, capital market operations, fundraising and any other similar events, where a PARTY intends to disclose any information of this CONTRACT (including

its existence) to any third party, including any GOVERNMENTAL AUTHORITIES, said PARTY shall give prior notice to the other PARTY, at least 10 (ten) business days in advance, regarding to such disclosure and the material and information to be disclosed, but no consent shall be required.

9.2. The PARTIES are fully responsible for the confidentiality to be observed, under the terms provided for herein, by their managers, employees and/or any third party that, by their indication, has had access to information about: (a) the terms and conditions of this CONTRACT and other related documents and information; and (b) the operations contemplated in this CONTRACT.

9.3. The confidentiality obligation provided for herein shall not prevent the PARTIES from disclosing information to any GOVERNMENTAL AUTHORITY or any third party: (a) in the context of prior consent requests necessary for the execution of the SERVICES; and (b) in the terms and strict limits of any judicial or arbitral order given to them regarding this. In the event that either PARTY is required, as required by the relevant GOVERNMENT AUTHORITY or by applicable law, to disclose in full or in part any confidential information referred to in this Clause, such PARTY may do so without giving room for indemnification or liability. However, it shall in any event: (a) provide only that piece of information and documents that its advisors deem legally required, (b) make all necessary efforts to obtain assurances from those who requested such information/documents that confidential treatment will be given to them, and (c) notify the other PARTY promptly in writing of the need for a breach of confidentiality, enabling the other PARTY to take appropriate measures to protect the confidentiality of the information.

CLAUSE 10. UNFORESEEABLE CIRCUMSTANCES AND FORCE MAJEURE

10.1. In the occurrence of any facts and/or events characterized and provided for in LAW, and according to Brazilian case law, as “unforeseeable circumstances” and/or “force majeure”, the PARTIES shall use their best efforts, by common agreement and in good faith, to minimize the consequences of such events on the provision of the SERVICES herein agreed.

10.2. The PARTY initially affected by any unforeseeable circumstances and/or force majeure shall immediately communicate the supervening of such event to the other PARTY, so that the PARTIES may adopt joint measures seeking to minimize the effects of such events, always in good faith.

10.3. In no event shall the occurrence of unforeseeable circumstances and/or force majeure events cause the termination of this CONTRACT, and the PARTIES shall suspend its execution until that the events at hand have been solved or, if this is not possible, they shall negotiate by mutual agreement and in good faith an alternative to the continuity of the contractual relationship established herein. In any case, the resumption of any operations (remobilization) at the end or minimization of the effects of unforeseeable events and/or force majeure shall occur in a scheduled and gradual manner, as agreed upon by common agreement between the PARTIES.

10.4. For good order, the PARTIES hereby acknowledge that the failure to obtain, loss or suspension of any licenses and/or authorizations applicable to each of the PARTIES for the performance of their obligations hereunder, due to an amendment in Brazilian legislation, governmental amendment or act of public authorities of the legislative, executive and/or judicial branches shall be considered as an unforeseeable events or force majeure, and the provisions of Clause 10 above.

CLAUSE 11. TERMINATION FOR CAUSE

11.1. Contract Rescission for Cause: Even taking into account its irrevocable and irreversible character this CONTRACT may be terminated (a) by either PARTY, in any event of material breach of the obligations of the opposing PARTY detailed in this CONTRACT, which, if subject to correction, is not solved within 15 (fifteen) days from receipt of notice from the innocent PARTY in this respect; (b) by any of the PARTIES, in the event of bankruptcy, judicial or extrajudicial court reorganization or insolvency of a PARTY; (c) by AMAGGI, in the event of a corporate reorganization of PDB, with the amendment of its direct or indirect control, without AMAGGI’s prior and express consent, except in the case of an IPO and listing of PDB’s shares or of its direct shareholder, Brazil Potassium Corp., governed by the laws of Ontario, Canada, and observed the restrictions in relation to countries subject to economic sanctions; (d) by AMAGGI, unilaterally, in the event of non-compliance by PDB (and/or any third party acting on its behalf and interest) with any of the obligations set forth in items “(ix)” and “(x)” of Clause 6.2, being certain that the rescission in this event will take place immediately, at the discretion of AMAGGI, and without the need for any notice or notification, observing, however, the provisions of items 11.1 . 1 and 11.1.2 below; (e) by PDB, unilaterally, in the event of Serious Environmental Default caused

by AMAGGI (and/or any third party acting on its behalf and interest), it being certain that rescission in this event shall occur immediately, at AMAGGI's sole discretion, and without the need for any notice or notification, subject however to the provisions of items 11.1.3 and 11.1.4 below; (f) by any of the PARTIES, in the event of non-compliance, by the other PARTY, with the integrity obligations set forth in Clause 11.2 below; or (g) unilaterally by AMAGGI, if the MOBILIZATION ORDER is not issued within 15 (fifteen) years from the date of this CONTRACT's signature ("TERM LIMIT").

11.1.1. The right to rescind this CONTRACT pursuant to item "d" of the Clause 11.1 above may not be exercised while (i) any answer or appeal by the PDB against any decision or proceeding which impairs or may impair the performance and maintenance of any of the obligations referred to in items "(ix)" and "(x)" of Clause 6.2 of this CONTRACT, or (ii) any legal term for the filing of such an answer or appeal.

11.1.2. If AMAGGI (by itself and/or by any companies of its economic group) proves the existence of a request made by any of its financing parties or strategic partners, demanding the rescission of this CONTRACT due to any fact related to the non-fulfillment by PDB of any of the obligations referred to in items "(ix)" and "(x)" of Clause 6.2 of this CONTRACT, under penalty of early termination of obligations held by AMAGGI (and/or any companies of its economic group) with such lenders or strategic partners, then AMAGGI shall have the right to immediately rescind this UNDERTAKING without observance of the provisions of Clause 11.1.1 above. In this case, PDB will not be subject to the payment of any penalty or indemnity to AMAGGI and AMAGGI will not be subject to the payment of any penalty or indemnity to PDB as a result of the rescission of this CONTRACT.

11.1.3. The right to rescind this CONTRACT under the terms of item "e" of Clause 11.1 above may not be exercised while there is pending (i) any answer or appeal by AMAGGI to any decision or proceeding regarding Serious Social and Environmental Non-Compliance by AMAGGI, or (ii) any legal time limit for the filing of such an answer or appeal.

11.1.4. If PDB (by itself and/or any companies of its economic group) proves the existence of a request made by any of its financing parties or strategic partners, demanding the rescission of this CONTRACT due to AMAGGI's Serious Social and Environmental Non-Compliance, under penalty of early maturity of the obligations held by PDB (and/or any companies of its economic group) with such financing parties or strategic partners, then PDB shall have the right to immediately rescind this UNDERTAKING without observance of the provisions of Clause 11.1.3 above. In this case, AMAGGI will not be subject to the payment of any penalty or indemnity to PDB and PDB will not be subject to the payment of any penalty or indemnity to PDB as a result of the rescission of this CONTRACT.

11.2. Subject to the provisions of Sections 11.1.2 and 11.1.4 above, rescission shall not affect the incidence of the penalties set forth in this CONTRACT and the obligation to indemnify the innocent PARTY for prejudices, losses and direct damages, given the irrevocable and irreversible nature of this CONTRACT.

CLAUSE 12. INTEGRITY AND ANTI-CORRUPTION LAWS

12.1. The PARTIES declare to be aware that the ANTI-CORRUPTION LAWS make it illegal: (a) to offer, pay, promise or authorize the payment of any amount, gift or anything of value, including, but not limited to gifts, entertainment, advantages or any benefit, directly or indirectly, to a government agent, or third parties related to him/her; (b) to finance, fund, sponsor or in any way subsidize the practice of the aforementioned acts; (c) to use an interposed individual or legal entity to hide or dissimulate its real interests or the identity of the beneficiaries of the aforementioned acts; and (d) hinder investigation or inspection activities by public agencies, entities or agents, or intervene in their activities, including in the scope of the regulatory agencies and the inspection bodies of the national financial system.

12.2. For purposes of accomplishing the subject matter of this CONTRACT, the PARTIES ensure that they will in no way violate or contribute to a violation of the ANTI-CORRUPTION LAWS.

12.3. The PARTIES, in particular, undertake not to promise, offer or give, directly or indirectly, any undue advantage or anything of value to a government agent, or to third parties related to him/her, regarding to the performance of the subject matter of this CONTRACT or any other relationship involving the PARTIES, for any purpose or effect.

12.4. Without prejudice to the other clauses, conditions, obligations and penalties set forth in this CONTRACT, in the event of an effective violation of the ANTI-CORRUPTION LAWS, the breaching PARTY shall be liable for the reimbursement of all eventual direct losses and damages caused to the non-breaching PARTY.

12.5. If they become aware or suspect of: (a) any payment, offer, request or agreement to grant an undue advantage to a government agent, or its related third party, in order to obtain any benefit for one of the PARTIES, whether related to this CONTRACT or not; or (b) any event that may render inaccurate or incorrect the statements made by one of the PARTIES contained in this CONTRACT or made at any time during the term of this CONTRACT regarding to the ANTI-CORRUPTION LAWS, the PARTIES agree to inform each other immediately of the fact or suspicion to the best of their knowledge of the fact or suspicion.

12.6. Any non-compliance with the ANTI-CORRUPTION LAWS, in any of its aspects, shall result in the immediate and motivated rescission of this instrument by the innocent PARTY, without prejudice to the penalties established in this CONTRACT and the reparation of the direct losses and damages caused to the non-breaching PARTY.

12.7. Each of the PARTIES undertakes to observe the principles contained in the Codes of Ethics and Conducts of the other PARTY, as updated from time to time.

CLAUSE 13. APPLICABLE LAW

13.1. This CONTRACT shall be governed by and construed in accordance with the LAWS of the Brazil's Federal Republic.

CLAUSE 14. FORUM

14.1. The PARTIES by common and reciprocal agreement elect the Central Court of the Judicial District of São Paulo/SP as the sole competent court to hear and resolve any doubts or disputes arising from the interpretation and execution of any of the clauses, conditions, rights and obligations set forth in this CONTRACT and in any documents related hereto, expressly waiving any other.

CLAUSE 15. FINAL PROVISIONS

15.1. Liability: The liability of each PARTY under this CONTRACT is limited to the penalties provided for herein and to the indemnity for direct damages, it being expressly stipulated that none of the PARTIES shall be liable, under any circumstances, for loss of profits or indirect damages, such as loss of income, loss of revenue and loss of contract, loss of production, except in the case of willful misconduct, serious fault, fraud and/or noncompliance with provisions of a socio-environmental and integrity nature.

15.2. Notices and Communications: All notices, communications, requests and other notices given from PARTY to PARTY under this CONTRACT shall be in writing and sent by e-mail or by registered or certified mail to the following addresses:

If for PDB:

[***]

If for AMAGGI:

[***]

15.3. All notification, requests, and other notices shall be deemed given upon actual receipt or delivery, evidenced by written acknowledgment of receipt, confirmation, or other proof of actual receipt or delivery to the addresses listed above and in care of the representatives referred to therein. Any PARTY may, from time to time, by written notice delivered in the foregoing manner, designate another address or a different or additional person to whom all such notices or notifications shall be sent in the future.

15.4. Specific Execution: The commitments and obligations assumed by each of the PARTIES in this CONTRACT allow for specific execution. To this purpose, the PARTIES recognize that this CONTRACT, duly signed by two witnesses, constitutes an extrajudicial execution instrument for all purposes and effects, in accordance with article 784, III, of the Brazilian Code of Civil Procedure.

15.5. Entire Agreement, Irrevocability and Irretractability: This CONTRACT constitutes the entire agreement between the PARTIES with respect to its subject matter, superseding any and all prior agreements and understandings between the PARTIES, oral or written. This CONTRACT and the obligations set forth herein are contracted on an irrevocable and irreversible basis, not allowing for any type of repentance, rescission or cancellation, except in the cases of rescission expressly established herein.

15.6. Excessive Burdens, Freedom of Consent: The PARTIES declare that the obligations assumed by this instrument (a) are fully equitable, as well as that they have and shall have, during the entire term of this CONTRACT, full capacity to fulfill these obligations, thus refraining from invoking, at any time, excessive burden in the performance of the same; and (b) were assumed by the PARTIES by full and unequivocal agreement, in existing in this contract any kind of defect of consent, duress, exercising the PARTIES' freedom to contract, including having been assisted this PARTIES by their lawyers, consultants, accountants and technicians in this present agreement.

15.7. Costs and Expenses: Each of the PARTIES shall be solely responsible for any and all costs and expenses it has incurred and may incur as a result of the contractual relationship established herein, including (but not limited to) taxes, expenses, costs with advisors, consultants and any others. not limited to) taxes, expenses, costs with advisors, consultants and any others, and there shall be no charge, request for reimbursement or sharing thereof, for any reason, unless expressly provided for in this CONTRACT.

15.8. Liberality: If either PARTY tolerates any breach of any provision of this CONTRACT (and/or of any other documents related hereto), or omits to require compliance with any term or condition hereof, it shall not mean that it has released the other PARTY from its obligations assumed, nor shall the breach be deemed to have been cancelled. This shall not constitute a novation of the terms of this CONTRACT, nor shall it affect your rights, which may be exercised at any time.

15.9. Amendments: Any amendment to this CONTRACT shall be valid only by means of a written instrument, duly executed by the PARTIES, which shall become an integral part of this CONTRACT for all purposes and effects.

15.10. Invalidity: Any unenforceability or invalidity of any clause, item, obligation, term, condition or provision established under this CONTRACT may only be declared in court, by final condemnatory and/or declaratory judgment which has become final and unappealable, and even then it shall not affect the enforceability or the expiration date of the other clauses, items and provisions, except if the combination of its provisions results in that the will of the PARTIES would not have been to contract without the unenforceable or invalid provisions.

15.11. Decoupling: It is not established under this CONTRACT, a bond of any nature, including, but not limited to, labor, environmental, regulatory and fiscal liability of AMAGGI to PDB, nor PDB's liability to AMAGGI (nor any commitments in this regard), other than the provision of services bond established herein. Each PARTY shall exclusively bear the responsibilities attributable to them by LAW, including labor responsibilities of their respective employees and their respective environmental, integrity, regulatory and tax responsibilities. No partnership, association, agency, consortium, mandate or joint and several liability is created by this CONTRACT between the PARTIES, and the PARTIES are expressly prohibited from entering into any legal transactions on behalf of the other PARTY.

15.12. Responsibility for Drafting the Clauses: The PARTIES have jointly participated in the negotiation and drafting of this CONTRACT, and the drafting and construction of the clauses provided for herein shall always be considered as a drafting jointly agreed upon by these PARTIES, in good faith, to express their mutual intent and purposes. In the event that an ambiguity or conflict in interpretation should arise, this CONTRACT shall be interpreted as such, i.e., as if drafted jointly by the PARTIES, and there shall be no presumption or burden of proof favoring or disfavoring any PARTY by virtue of the authorship of any provision contained herein.

15.13. Term: This CONTRACT and the obligations set forth herein shall be effective as of this date, and shall remain in full force and effect for a period of 15 (fifteen) years after the date of unequivocal commencement of commercial operations of the PROJECT with sale of the PRODUCT to third parties. The PARTIES further establish that, due to its irrevocable and irreversible character, this CONTRACT may not be rescinded before its final term, except as authorized by this CONTRACT.

15.14. Renewal Option: The PARTIES may jointly agree in writing, within 1 (one) year prior to the final term of this instrument, on the renewal of this CONTRACT for an additional period of 15 (fifteen) years from the end term date of this CONTRACT, established above.

15.15. Data Protection: The PARTIES warrant that they perform and have performed, since the commencement of Law 13.709/2018 (“LGPD”), the processing of personal data in accordance with the LGPD and declare that: (a) store personal data in a secure and appropriate manner, in accordance with the applicable LAW; (b) follow a privacy policy and security procedures compatible with the type of personal data processed; (c) have appointed a controller, as determined by the applicable LAW; (d) make a record of the operations of the personal data processing; (e) have the consent of the owners of the personal data to carry out the processing or base each processing on any legal hypothesis provided by LAW; (f) only use personal data in a manner compatible with the purposes for which they are received (g) allow the personal data subjects to exercise their rights as provided by LAW; (h) ensure that technical and organizational security measures are used to protect the personal data against unlawful and unauthorized processing and against accidental leakage, destruction or damage; and (i) ensure that any employees or external service providers acting in conjunction with them in the performance of their services and who may have access to personal data comply with applicable laws on personal data protection.

15.16. This CONTRACT is written in Portuguese, and its translation by a public translator has been authorized by the PARTIES. In case of any conflict, inconsistency, or divergence between these versions, the Portuguese language version will always prevail.

15.17. Socio-environmental Aspects of the Project: The PARTIES declare and warrant that, during the entire term of this CONTRACT, they shall observe and comply with all LAWS of a social and environmental nature, being obligated to adopt effective environmental and social programs aligned with the applicable legal provisions pertinent to the activities of this CONTRACT. If, during the entire term of this CONTRACT, any of the PARTIES have indigenous labor, it will only be admitted through labor, employment, and income programs provided for and accepted by LAW, and in strict compliance with the norms, LAWS, and conventions of any nature applicable to labor and human and social development. Likewise, PDB declares and guarantees that the construction and operation of the PROJECT will be carried out with strict respect for the environment, and that its facilities have been conceived so as to cause the least possible environmental and social impact, which will be compensated in accordance with the provisions of LAW. No aspect of the PROJECT should be conceived or operated with damage or harm (even if potential) to the environment and the populations living there, except for the impacts foreseen and approved in the environmental licenses, to be compensated according to their terms. It will be an unconditional obligation of PDB to attend to the realization of an Indigenous Component Study - ECI regarding the region where the PROJECT will be built and the indigenous people who live there. The development and operation of the PROJECT by PDB shall further comply, in all aspects, with any LAW related to (i) occupational health and safety; (ii) combating prostitution and child labor; and (iii) slave labor. AMAGGI represents and warrants that all of its activities during the term of this CONTRACT shall also comply, in all aspects, with any LAW relating to (i) occupational health and safety; (ii) combating prostitution and child labor; and (iii) slave labor.

15.18. Electronic Signatures: The PARTIES agree that this CONTRACT may be signed electronically, by the PARTIES and their respective witnesses, through any certified platform (such as the DocuSign platform) or using their personal electronic certificate, and that electronic signatures shall have the same expiration date as physical signatures. The PARTIES further acknowledge that the digital signature of this CONTRACT shall not prevent or in any way hinder its enforceability pursuant to Article 784, III of the Code of Civil Procedure, and they waive any right to claim otherwise. The PARTIES declare and acknowledge that the signatories are the legitimate representatives of the PARTIES and are empowered to enter into this Agreement.

And in witness whereof, the PARTIES sign this CONTRACT together with two witnesses for all legal purposes and effects.

Cuiabá/MT, September 29, 2022

By: /s/ Adriano Viana Espescht Date: September 29, 2022
POTÁSSIO DO BRASIL LTDA.

By: /s/ Gunnar Nebelung Date: September 29, 2022
AMAGGI EXPORTAÇÃO E IMPORTAÇÃO LTDA.

Witnesses:

1. /s/ Davidson Pereira Aquino Date: September 29, 2022

2. /s/ Amanda Salgado de Barros Date: September 29, 2022

KCL Commercialization Program PDB

1 – Introduction.

The COMMERCIALIZATION PROGRAM will be based on the calendar year, from January to December, considering the KCI Sales Trading Policy and the Commercial Purchase and Sales Agreement to be signed by PDB and clients with the coordination of AMAGGI, targeting sales of Potassium Chloride (KCl) from PDB's Mine in Autazes - AM, in accordance with the KCl product specifications described in Chemical and Granulometric Composition.

The KCL selling price will be determined monthly, according to PDB's Pricing Policy, so that they are competitive with the similar imported product, considering all the costs of internment in the consumption regions (clients and/or Final Customer's factory) in the established prices, according to this criterion, the due taxes will be included.

2 – Objective.

To provide the Commercialization of the KCl produced by PDB and Invoice the values corresponding to the volumes produced annually according to the ANNUAL PRODUCTION PROGRAM.

To this end, the PDB will define the annual volumes as well as the Pricing Policy to be practiced in the Commercialization for each year.

3 – Assumptions:

- a) - KCl production according to forecast:

Year	20XX	20XX	20XX	20XX	20XX
Annual Production Tonnes	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

- b) - Annual Sales Plan - List of Clients and expected volumes to be presented by AMAGGI;
- c) - Commercial Structure - to be presented by AMAGGI;
- d) - KCl Chemical and Granulometric Composition, to be presented by PDB;
- e) - Trading Policy (to be approved by the PDB Board of Directors);
- f) - KCl Commercial Purchase and Sales Agreement (to be Approved by the PDB Board);
- g) - KCl Purchasing and Withdrawal Program, to be prepared by AMAGGI;
- h) - Model of Purchase Order (Simplified Contract) to be prepared by PDB;
- i) - Price Policy / Price Table R\$/ ton, to be presented by PDB;
- j) - PDB Credit Policy to be developed by PDB;
- k) - Sales and Invoicing Control System - ERP (to be developed by PDB);
- l) - Electronic Sales System - via PDB's site (electronic sales module, to be developed by PDB).

4 – Sales Planning Macro Flow.

AMAGGI shall submit a Sales Planning Flow in accordance with the below.

4.1 – Volumes to be Commercialized.

At the end of each year, AMAGGI's Commercial Management receives from PDB's Production Management the annual production planning and the Marketing Strategy elaborated by PDB's Commercial Management, in order to attend the involved parts: PDB and clients.

With this information, AMAGGI requests from registered clients, via e-mail or other customers relationship system, the annual volumes to be purchased as well as the monthly purchase intentions and respective destinations for the following year. Based on this survey with the clients, AMAGGI elaborates the annual sales programming - Annual Sales Plan and the Purchasing and Withdrawal Program.

4.2 – Commercial Purchase and Sale Agreement.

With the consolidation of the annual / monthly volumes for each client and taking in consideration the PDB Credit Policy, AMAGGI collects signatures with the clients of the KCI Commercial Purchase and Sale Agreement and sends to the Commercial Management of PDB to register in the Electronic Sales System in the PDB site, electronic sales module (to be developed by PDB).

4.3 – Registration PDB Sales System.

Based on the Annual Sales Plan, and through the ERP system, the PDB's Commercial Management registers the Commercial Agreements in the PDB's Sales and Invoicing Control System - ERP, that must be developed to attend the PDB's Sales and Invoicing System. The Register will contain the CNPJ / client, item (product), commercial agreement, price list, and monthly agreed quantity, which are in the Purchasing and Withdrawal Schedule.

4.4 – Order Placement.

AMAGGI contacts the registered clients and executes the Commercialization Program agreed with PDB, requesting the placement of the Purchase Order (Simplified Contract), based on the KCI Commercial Purchase and Sale Agreement and the KCI Purchasing and Withdrawal Program, and sends to the Commercial Management of PDB for the register in the Electronic Sales System of PDB, electronic sales module (to be developed by PDB).

At this time, volume, product, form of payment (cash or installment), and the carrier for pickup are agreed upon. AMAGGI Commercial Management, together with the client, waits for the release of the Purchase Order (Simplified Contract) and, after approval, the Electronic Invoice and Shipment Schedule are issued.

Potassium Chloride PDB 20XX Trading Policy

1 – INTRODUCTION

The COMMERCIALIZATION PROGRAM will be practiced by AMAGGI for the period from January to December/20XX, for the sales of Potassium Chloride (KCl) from the PDB Mine in Autazes - AM, according to the specifications described in Chemical Composition and Granulometry, hereinafter called PRODUCT.

PRICING The PRODUCT will be priced based on the competitiveness with the average spot cost of the similar imported KCl, from the main international suppliers, internally at the product mixing locations and/or Final Consumer and this pricing will be included in the COMMERCIAL AGREEMENT to be signed between the parties.

PURCHASING AND WITHDRAWAL PROGRAM. In order to accomplish this Trading Policy, AMAGGI must, sixty (60) days before the beginning of the PRODUCT Commercialization year, prepare a survey of the volumes to be commercialized by clients and their respective delivery locations, so that PDB can accomplish the Annual Sales Plan and the Purchasing and Withdrawal Program.

KCL COMMERCIAL PURCHASE AND SALES AGREEMENT. After surveying the annual / monthly volumes to be purchased by the clients, AMAGGI will sign this KCl Commercial Purchase and Sales Agreement with the registered clients.

CREDIT - For the purpose of releasing Credit, AMAGGI must gather all the information and documentation of the potential Buyers and their Respective Volumes, so that PDB can analyze the Credit release in accordance with PDB's Credit Policy.

2 – SUPPLY

For the months of January to December/20XX, PDB will make available the monthly quantities agreed upon in the Purchasing and Withdrawal Program, prepared by AMAGGI with the potential clients it surveyed/researched, corresponding to each client. The released quantities will be agreed upon between the parties, through the KCl Commercial Purchase and Sales Agreement and operationalized through Monthly Purchase Orders (Simplified Contract).

PDB commits to ship the PRODUCT according to the schedule established in the Purchasing and Withdrawal Program, at its Mine in Autazes - AM, and/or Shipment Terminals to be informed by PDB.

The BUYER is obligated to purchase and withdrawal the PRODUCT on the dates, location and quantities established in the Purchasing and Withdrawal Program in accordance with the purchase orders issued monthly.

In the event that PDB determines a location other than the one contained in the previous paragraph for the Product's withdrawal, PDB shall inform the Buyer, 60 (sixty) days in advance, so that the Buyer can arrange for the withdrawal of the purchased Product.

AMAGGI / BUYER will issue and present to PDB, on a monthly basis, the orders for the monthly quantities for each Client, which will total the ones registered in the Purchasing and Withdrawal Program, prepared in the form established in the "Order Form", which is part of this Agreement.

After issuing the purchase order, the Buyer, with the follow up/control of AMAGGI will have a period of 30 (thirty) days to withdrawal the Product, at the place indicated by PDB.

This period, contained in the previous paragraph, will begin upon return of the request, duly signed by the legal representatives of the PDB. The return of the order must take place within 48 (forty-eight) hours from its activation.

The monthly quantities to be supplied may be reassessed, for more, under the terms of the agreement to be signed between the parties at PDB's discretion, considering PRODUCT availability.

2.1. SALES MODALITY

- “FOT” sales Shipping Terminal to be defined by PDB and AMAGGI, from released quotas;
- C+F” sales through specific negotiation;
- “FOT” Sales Spot (no agreement);
- “FOT” - Resourceful inside the truck at the Shipping Location; and
- “C+F” - Cost and Freight.

2.2. SALES CONDITIONS – According to PDB’s Credit Policy

2.2.1. Sales with cash payments (in advance)

After the order is issued, the client will deposit the corresponding amount in an account to be defined by PDB, without which the product will not be shipped.

2.2.1.2. Sales with short-term payment.

After the order is issued, the shipment will be released for loading, and the client must make payment within the month on a date to be agreed upon between the parties. This type of sale is conditioned to the commercial agreement to be signed between the parties, and upon credit approval by PDB’s Financial area.

2.2.2. Sales with installment payments

Payment terms of 30, 60, 90 and 120 days will be granted from the date the application is issued to clients who obtain approved credits by meeting the guarantees required by PDB.

3 – EVENTUAL SALES CONDITIONS - SPOT

The eventual sales - SPOT with payments in cash (in advance) and in installments, will be treated between the parts at the moment of the purchase and its negotiation will be defined considering this trading policy and the PDB product availability.

For the case of payment on credit, in the SPOT mode, it will be granted only when there is interest from PDB, with stipulated guarantees and the maximum payment term will be variable depending on the purchase quantity.

4 – GENERAL

The PDB can, jointly with AMAGGI / the clients, develop other alternatives that allow the outflow of the products.

Delivery of products, on a consignment basis, will be made available depending on the level of Potassium Chloride stock and PDB’s Criteria Policy.

The withdrawal of the products will obey the daily shipping schedule, considering the volumes committed between PDB and AMAGGI / the Clients.

Any complaint about the quality of the product must be sent in writing, with chemical and/or granulometric analysis carried out by a specialized laboratory, no later than 7 (seven) days after product’s withdrawal.

No complaint will be accepted after the 7 days of delivery of the PRODUCT.

Once the differences are proven, PDB will be responsible, in agreement with the Buyer, to define forms of composition about the difference found in the PRODUCT, within a maximum period of 30 (thirty) days, from the date of verification.

In case of the hiring of independent inspectors be necessary to resolve any divergence between the PARTIES, such costs shall be paid by the requesting PARTY and, in the event that a divergence in specifications is proven, the Party that caused the divergence shall bear the costs.

The initiation of the above procedures will not extend, interrupt, or in any way jeopardize payments for the inspected PRODUCT.

Annex 1.2(b)(i)-3

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [*], HAS BEEN OMITTED BECAUSE SUCH INFORMATION (I) IS NOT MATERIAL, (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED, AND (III) IS THE TYPE OF INFORMATION THAT THE COMPANY TREATS AS PRIVATE OR CONFIDENTIAL.**

**PRIVATE INSTRUMENT FOR THE PROVISION OF
WATERWAY TRANSPORTATION SERVICES, EXCLUSIVITY, RECIPROCAL ASSUMPTION OF OBLIGATIONS AND OTHER
AGREEMENTS**

By this instrument, the Parties:

POTÁSSIO DO BRASIL LTDA, a limited liability company, enrolled with the National Register of Legal Entities of the Ministry of Economy - CNPJ/ME under No. 10.971.768/0001-66, headquartered in the city of Manaus, State of Amazonas, at Rua Rio Iça, No. 310, 1st floor, room 105, Nossa Senhora das Graças, Zip Code 69.053-100, herein represented in the form of its Articles of Organization (“PDB”); and

HERMASA NAVEGAÇÃO DA AMAZÔNIA LTDA, a limited liability company registered in the National Register of Legal Entities of the Ministry of Economy - CNPJ/ME under No. 84.590.892/0001-18, headquartered in the city of Manaus, State of Amazonas, at Avenida Djalma Batista, No. 1661, rooms 1501 and 1502, Chapada, Zip Code 69.050-010, herein represented in the form of its Articles of Organization (“HERMASA”).

PDB and HERMASA when jointly designated, hereinafter “PARTIES” and, when individually and indistinctly designated, hereinafter “PARTY”.

WHEREAS:

- I. PDB is a company in the mining segment, being the holder of 05 (five) mining rights granted by the National Mining Agency - ANM, which, once the respective mining ordinance is published, will enable the Company to carry out mining activities, processing and commercialization of potassium chloride (“PRODUCT”), whose main characteristics are defined in ANNEX I, and, in this matter, PDB is developing a project for the exploration of a sylvinitic mine, located in the Municipality of Autazes, State of Amazonas (“PROJECT”);
- II. The PROJECT is an enterprise developed by PDB and, for the time being, is not operational, however PDB, after the accomplishment of studies, analyses and projections of technical character, all of them elaborated in accordance with the best techniques and market practices, concluded that the PROJECT has a reserve with production capacity presented in its PAE - Economic Utilization Plan of up to 2,400,000 (two million four hundred thousand) tons of PRODUCT per year, making up a total quantity of proven reserves in accordance with the Economic Utilization Plan submitted by the National Mining Agency on 12/18/2020 for process 880.407/2008 and on 12/14/2020 for the other processes numbers 880.094/2019, 880.095/2019, 880.096/2019 and 880.097/2019;
- III. The PROJECT under development by PDB contemplates the construction and operation, by PDB, of an industrial park with production capacity of, approximately, 2,400,000 (two million and four hundred thousand) tons of PRODUCT per year, as well as a port terminal, at the margins of Madeira River, in the Municipality of Autazes/AM, for the outflow of the referred production via the Madeira-Amazonas river corridor being certain that the PROJECT’s conception contemplates the best social and environmental practices, seeking to create benefits to the local communities, as well as foreseeing the development of its activities with observance of the highest environmental standards and norms;
- IV. PDB, in the course of the development and operation of the PROJECT, shall obtain and maintain in good standing all licenses and permits corresponding to and applicable to the PROJECT, pursuant to Clause 6a below;
- V. PDB has interest in contracting, since now, some of the necessary and strategic activities to the operation of the PROJECT and, in this matter, the PARTIES initiated negotiations aiming at the provision of certain logistics services (waterway transportation), to be performed by HERMASA to PDB;

- VI. The HERMASA is a Brazilian company of inland navigation, regularly authorized by the National Agency for Waterway Transport - ANTAQ, operating in the segment of logistics and river navigation, notably on waterways of the northern region of Brazil, providing services of logistical character, embodied in the transport of bulk solids, including agricultural commodities and inputs and in that sense agrees to provide such services to PDB (waterway transport), subject to verification of suspensive conditions established in this instrument and other conditions and rules agreed upon in this instrument; and
- VII. PDB also celebrates, on this date, with AMAGGI EXPORTAÇÃO E IMPORTAÇÃO LTDA. (“AMAGGI”), company that integrates the economic group of HERMASA, the Commercial Commitment of Acquisition of Product and Other Agreements, through which, among other agreements, PDB undertakes to sell to AMAGGI and AMAGGI undertakes to purchase from PDB, in a binding and irrevocable manner, certain annual volumes of PRODUCT, established therein (“ACQUISITION COMMITMENT”).

Have entered into this Private Instrument of Rendering of Services of Waterway Transport, Exclusivity, Reciprocal Assumption of Obligations and Other Agreements (“CONTRACT”), which shall be governed by the Clauses and conditions set forth below, according to:

CLAUSE 1. OBJECT

1.1. By this instrument the PARTIES agree, in the terms and conditions set forth herein, the provision of logistics services (waterway transport), by HERMASA to PDB, exclusively during the entire period of validity of this instrument, for (a) the river transport of all the PRODUCT extracted from the mining complex of PDB located in the municipality of Autazes/AM (“AUTAZES MINE”) and benefited in the PROJECT, subject to the provisions of Clause 1.1.2; and (b) the landing (or transshipment) of the PRODUCT from HERMASA’s vessels, at the port terminals of Porto Velho/RO and Miratituba/PA (the services set forth in items “a” and “b” of this Clause, hereafter jointly and severally, “SERVICES”), all at the prices set forth in Section 2 below, all in accordance with the clauses, obligations and conditions set forth in this CONTRACT.

1.1.1. Except in the case of spot sales pursuant to Clause 1.1.2, if PDB wants the delivery of the PRODUCT to occur in any other port terminals, including the port terminals of Vila do Conde/PA or Santarém/PA (“ADDITIONAL TERMINAL”), PDB shall send written notification to HERMASA, 18 (eighteen) months in advance of the date intended for delivery of the PRODUCT, informing (“ADDITIONAL TERMINAL DELIVERY NOTIFICATION”): (i) the port terminal at which it would like the PRODUCT to be delivered; and (ii) the volume of the PRODUCT it would like to be delivered at such port terminal (“FIRST OFFERING RIGHT”).

1.1.1.1. Within 6 (six) months from HERMASA’s receipt of the ADDITIONAL TERMINAL DELIVERY NOTIFICATION, HERMASA shall present to PDB: (a) (i) a logistical solution, if possible, for the delivery of the PRODUCT to the ADDITIONAL TERMINAL; (ii) the price for the delivery of the PRODUCT to the ADDITIONAL TERMINAL (“FIRST OFFERING PRICE”); and (iii) the term for starting the delivery of the PRODUCT at the ADDITIONAL TERMINAL; (b) without prejudice to the RIGHT OF PREFERENCE and the exclusivity in the SERVICES’ provision set forth in this CONTRACT, indicate to PDB that it does not have, at this time, interest in the transportation of the PRODUCT to the ADDITIONAL TERMINAL (“ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION”). In the event that HERMASA includes in its ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION the logistics solution with the information indicated in item “a” above, HERMASA’s proposal contained in the ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION will remain valid for a period of 30 (thirty) days from the receipt of the ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION, it being agreed that the silence or untimely exercise of the ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION, will be interpreted as a decision not to exercise the FIRST OFFERING RIGHT.

1.1.1.2. The ADDITIONAL TERMINAL DELIVERY NOTIFICATION and the ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION, if accepted, shall be considered, jointly, as valid and binding documents of the PARTIES.

1.1.1.3. If PDB does not accept HERMASA’s proposal contained in the ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION, PDB may seek a logistical solution for delivery of the PRODUCT to the ADDITIONAL TERMINAL from a third party, subject to HERMASA’S PREFERENCE RIGHT provided in Clause 1.1.2.

1.1.1.4. After the performance of the FIRST OFFERING RIGHT, if PDB obtains, from any third party, a logistic solution for delivery of the PRODUCT at an ADDITIONAL TERMINAL, HERMASA will have the right of first refusal to perform the delivery of the PRODUCT at an ADDITIONAL TERMINAL, provided that: (i) the price offered by the third party is no more than 30% (thirty percent) lower than the FIRST OFFERING PRICE; and (ii) under the same terms and conditions as the TERMS OF THE PROPOSAL (“PREFERENCE RIGHT”).

1.1.1.5. PDB shall send a written notification (“NOTIFICATION OF PREFERENCE”) to HERMASA, containing: (i) the name and full identification of the third party and the economic group to which it belongs; (ii) the main terms and conditions of the proposal; (iii) the price per ton charged by the third party for carrying out the transportation of the PRODUCT to the ADDITIONAL TERMINAL; (iv) the terms and conditions of payment; (v) the term for carrying out the transportation of the PRODUCT to the ADDITIONAL TERMINAL; (vi) conditions of the third party’s vessels that would transport the PRODUCT; and (vii) other conditions of the proposal, attaching a copy of the proposal (“PROPOSAL TERMS”) and expressing the PDB’s intention to accept the PROPOSAL TERMS.

1.1.1.6. Within 30 (thirty) days of receipt of the NOTICE OF PREFERENCE, HERMASA must send a notification (“NOTIFICATION OF PREFERENCE RESPONSE”) to PDB stating whether it wishes to exercise its RIGHT OF PREFERENCE to transport the PRODUCT to an ADDITIONAL TERMINAL in the same PROPOSAL TERMS.

1.1.1.7. If HERMASA (i) does not timely deliver the NOTICE OF PREFERENCE RESPONSE and/or (ii) delivers the NOTICE OF PREFERENCE RESPONSE communicating that it does not wish to provide the transportation services of the PRODUCT to an ADDITIONAL TERMINAL, PDB will be free to contract with the third party to provide such service under exactly the same terms and conditions informed in the NOTICE OF PREFERENCE.

1.1.1.8. In the event HERMASA provides the service of transporting the PRODUCT to an ADDITIONAL TERMINAL under the FIRST OFFERING RIGHT or under the PREFERENCE RIGHT, such service shall be considered as a “SERVICE” for purposes of this CONTRACT and all provisions of this CONTRACT shall apply to it.

1.1.2. If PDB makes any spot sales of PRODUCT to any location other than Porto Velho/RO and Miritituba/PA (i.e., spot sales of PRODUCT according to a specific demand and availability of PRODUCT to meet such buyer’s demand), PDB may seek logistical solution for delivery of the PRODUCT in question with a third party, subject to HERMASA’s preference right provided in Clause 1.1.2.1.

1.1.2.1. PDB must send a written notification to HERMASA, containing: (i) the name and full identification of the third party and the economic group to which it belongs; (ii) the main terms and conditions of the proposal; (iii) the price per ton charged by the third party for carrying out the transportation of the PRODUCT in question; (iv) the terms and conditions for payment; (v) the deadline for transportation of the PRODUCT; (vi) the conditions of the third party’s vessels that would transport the PRODUCT; and (vii) other conditions of the proposal, attaching a copy of the proposal and expressing the PDB’s intention to accept it.

1.1.2.2. Within the period of 30 (thirty) days from the receipt of the notification provided for in Clause 1.1.2.1, HERMASA shall send a notification to PDB stating whether it wishes to exercise the preference right to carry out the transportation of the PRODUCT in question, on the same terms as the proposal obtained from the third party by PDB or on more advantageous terms. If the transportation of the PRODUCT in question should be carried out to the port terminals of Porto Velho/RO or Miritituba/PA, the price per ton of PRODUCT offered by HERMASA for the transport cannot be higher than the PRICE provided in this CONTRACT.

1.1.2.3. If HERMASA (i) does not respond in a timely manner to the notification sent by the PDB in accordance with Clause 1.1.2.1 or (ii) responds to such notification by stating that it does not wish to transport the shipment of PRODUCT in question on terms equal to or more advantageous to PDB than those in the proposal obtained by PDB from the third party, PDB shall be free to engage the third party on the terms informed in the notification referred to in Clause 1.1.2.1 to provide such service, without being owed any amounts, for any purpose whatsoever, to HERMASA.

1.2. For the provision of services herein agreed, HERMASA should receive the totality of the PRODUCT properly loaded into their vessels armed and equipped in port terminal that will integrate the PROJECT since its beginning, to be built and operated by PDB (or by third parties that it indicates) in the municipality of Autazes/AM. Once the PRODUCT is loaded on the vessels presented by HERMASA, it will be transported to the port terminals of Porto Velho/RO and/or Miritituba/PA, observing the possibility of transportation to other port terminals in the form of Clauses 1.1.1.7 or 1.1.2.3. In this regard, HERMASA's custody and responsibility for the PRODUCT transported will begin when the PRODUCT is on board the vessels and will end at the time of its transshipment or unloading, as applicable, at any of the destination terminals referred to in this CONTRACT.

1.3. Considering that the PROJECT is in its initial phase, the quantities of PRODUCT to be benefited in the PROJECT and presented for HERMASA transportation will be those established in the table below (as amended or confirmed, pursuant to Clause 1.4 below), which was prepared based on the studies and technical, geological and other surveys conducted by PDB. For the purposes of the table below, "First Period" is understood to mean the period beginning on the first business day following the end of the TEST PERIOD, as provided in this CONTRACT, extending through December 31 of the year in which such date occurs. The other periods will correspond to the subsequent calendar years (each one, including the "First Period", a "PERIOD"):

PERIOD	PRODUCT QUANTITY (ton)
First Period	154,000

* Note: In the case of the First Period, the quantity provided here is a benchmark given on the assumption that the First Period would last the same as a calendar year. Thus, the quantity of PRODUCT foreseen for the First Period will be adjusted proportionally to the calendar year fraction included in the First Period.

Second Period	469,000
Third Period	1,196,000
Fourth Period	1,738,000
Fifth Period	2,017,000
Sixth Period	2,158,000
Seventh Period	2,199,000
Eighth Period	2,505,000
Ninth Period	2,652,000
Tenth Period	2,571,000
Eleventh Period	2,540,000
Twelfth Period	2,258,000
Thirteenth Period	2,305,000
Fourteenth Period	2,467,000
Fifteenth Period	2,548,000

1.3.1. Period of Product Quality Tests: The PARTIES acknowledge that, pursuant to the ACQUISITION AGREEMENT, the PRODUCT shall be subject to analysis and confirmation as to its conformity to the specifications set forth therein, for a maximum term of 6 (six) months from the COMMERCIAL OPERATION START-UP ("TEST PERIOD"), during which the "Take or Pay" obligations set forth in the ACQUISITION AGREEMENT shall not apply. The PARTIES agree that, likewise, the PERIODS set forth above and the obligations of the PARTIES to present and transport the volumes of PRODUCT stipulated in the table above will also begin with the end of the TEST PERIOD under the ACQUISITION COMMITMENT, which shall be immediately notified by PDB to HERMASA.

1.4. Confirmation of Product Quantities: The quantities of PRODUCT that will actually be benefited in the PROJECT and presented for transportation under this CONTRACT, each PERIOD, will be confirmed by PDB to HERMASA at least one year in advance of the date foreseen for COMMERCIAL OPERATION START-UP ("INITIAL CONFIRMATION"). For clarity purposes the totality of the PRODUCT benefited in the PROJECT will be transported by HERMASA, except as provided in Clauses 1.1.1.7 and 1.1.2.3. The following rules shall apply to said CONFIRMATION, which the PARTIES hereby accept and expressly agree to: (a) the INITIAL CONFIRMATION shall refer to the totality of PRODUCT to be benefited in the PROJECT in the corresponding period and, once the INITIAL CONFIRMATION is effected, PDB may reduce by up to 10% (ten percent) the quantities of PRODUCT indicated in the INITIAL CONFIRMATION through simple communication to HERMASA, at least 90 ninety days in advance, without becoming due any values to HERMASA due to this

decrease, in any way; (b) said INITIAL CONFIRMATION will be provided in writing, within the period established herein; (c) any reductions in percentages higher than 10% (ten percent) and / or increases in quantities indicated by PDB in the INITIAL CONFIRMATION will be made in writing with a minimum notice of 60 (sixty days) and with the affixation of the "agreement" of HERMASA, which will integrate this CONTRACT, for all purposes and effects; and (d) the quantities of PRODUCT so established, in the terms and conditions of this Clause, will be binding on the provision of services herein agreed upon, obligating HERMASA to provide the SERVICES in relation to such amounts and PDB to submit them to transportation, subject to the provisions of Clauses 1.1.1.1 .7 and 1.1.2.3 and the tolerance allowed under the terms of item "a" above, all under the conditions provided herein.

1.5. Without prejudice to the rules and formalities set forth above, PDB shall, in addition, confirm, also in writing, by October 1st of each year after the end of the TEST PERIOD, the monthly transportation schedule of the PRODUCT in the PERIOD, in order to enable HERMASA to schedule the fulfillment of the logistical schedules thus presented. Such schedule may be revised on a quarterly basis, by mutual agreement between the Parties, subject, however, to the total quantity of PRODUCT to be transported during the PERIOD provided for in the INITIAL CONFIRMATION, as eventually modified in the form of this CONTRACT.

1.6. Without prejudice to other Clauses and conditions, rights and obligations set forth in this CONTRACT, in providing the services agreed upon herein, HERMASA will assist exclusively to: (a) operate the vessels that it will present for the execution of the SERVICES, ensuring that such vessels comply with the rules of the respective port and port terminals in which the PRODUCT is loaded and/or unloaded; (b) choose, at its sole and exclusive discretion, vessels and their equipment (as well as spare parts) that will be presented for the provision of the SERVICES herein agreed, which must be adequate for the purpose of providing the SERVICES; (c) to choose the crew and command of the vessels, among its professionals duly qualified for such, and make the payment of their wages, additional, demands directly related to HERMASA and any other charges that may be due from time to time for such people, leaving the PDB exempt from any liability related to such professionals; (d) the determination of maintenance dates for the vessels and their equipment as may be reasonably required or by using best efforts to minimize disruption of services.

1.7. HERMASA should provide the SERVICES set forth herein with their own vessels or vessels from third parties that it will lease, hire or charter (including bareboat), and it is certain that this fact will not imply any change in prices of the SERVICES set forth herein, nor in the exoneration or decrease any responsibilities and duties now assumed by HERMASA.

1.8. HERMASA is responsible for the correct and timely execution of the SERVICES, being responsible for the PRODUCT placed in its vessels at the terminal of origin and presented for unloading at the terminal of destination. Without prejudice to such responsibility of HERMASA for the PRODUCT during the execution of the SERVICES, considering that the PRICE does not include the cost of hiring insurance, PDB is allowed to hire, at its sole expense, an insurance policy to cover any risks in relation to the PRODUCT transported.

1.9. The shipment of the PRODUCT will occur by conveyor belt with flow scales, aiming at the optimization of logistic operations and the most accurate control of the quantities of PRODUCT shipped, which will be considered for the purposes of issuing the MEASUREMENT REPORT foreseen in Clause 4. The PARTIES agree and admit that, during transportation and unloading operations of the PRODUCT, it is subject to a technical and operational loss of 0.7% (seven tenths percent) of the volume of the total cargo transported in each operation.

CLAUSE 2. PRICE

2.1. For providing the SERVICES set forth in this CONTRACT, HERMASA will receive from PDB the amount of R\$ [***] ([***] reais) per ton of PRODUCT ("PRICE"), delivered for transport properly loaded onto vessels of HERMASA, in the port terminal of the PROJECT in Autazes/AM and transported to the port terminals of Porto Velho/RO and/or Miritituba/PA, with its transshipment or unloading in these terminals, noting that if the SERVICES are provided for delivery of the PRODUCT in an ADDITIONAL TERMINAL, the PARTIES should observe the provisions in the ADDITIONAL TERMINAL DELIVERY COUNTER-NOTIFICATION, in the NOTICE OF RESPONSE TO PREFERENCE.

2.2. Referential Price: Considering that the provision of the SERVICES will occur as of a future date, the PARTIES agree that the PRICE presented in the preceding Clause 2.1 is referential, that means, it shall be adjusted/recomposed (a) as of March 31, 2022 ("BASIS DATE"), up to the moment of commencement of the SERVICES, by the criterion established in item 3.1.1 below; and (b) from the time of commencement of the

SERVICES and for the entire term of this CONTRACT, by the criteria and rules established in Section 3.1.2 below. The value obtained by applying such readjustments/composition will be the PRICE for all purposes and effects, always subject to the readjustment and recomposition rules, in the terms of the referred Clause 3.

2.3. The PRICE now established by HERMASA and accepted by PDB was negotiated by mutual agreement between the PARTIES and contemplated, on the BASE DATE, all the direct and indirect costs of HERMASA and any subcontractors and/or suppliers for the execution of the SERVICES, observing the readjustment and recomposition rules provided for in this CONTRACT.

2.4. On the present date, the PRICE of the SERVICES is made up as follows: (a) [***]% ([***) percent) of the PRICE corresponds to the costs of fuel proper for navigation at the site of supply of HERMASA's vessels ("FUEL AMOUNT"); and (b) [***]% ([***) percent) of the PRICE comprises all other costs and expenses, taxes and HERMASA's profit margin in the operation ("OPERATING AMOUNT").

CLAUSE 3. PRICE READJUSTMENT

3.1. During the entire term of this CONTRACT, the PRICE agreed upon in Clause 2 above will be readjusted/composed according to the criteria established in Clause 3.2 below, such adjustments/compositions being applied (a) as of the BASIS DATE and up to the time of commencement of the provision of the SERVICES ("PRECEDENT READJUSTMENT"), according to the rules and periodicity set forth in Clause 3.1.1 below; and (b) at the commencement of the provision of the SERVICES and during the entire remaining term of this CONTRACT ("PERMANENT READJUSTMENT"), by the rules and periodicity established in Section 3.1.2 below.

3.1.1. Rules and Incidence of the PRECEDENT READJUSTMENT: As of the BASE DATE and until the moment of commencement of the provision of the SERVICES, the PRICE will be readjusted/recomposed annually, it being certain that (a) the value corresponding to the FUEL AMOUNT will be readjusted, always on the anniversary date of the BASE DATE, by the variation of the price of fuel used by HERMASA's vessels at the supply site, as demonstrated by HERMASA; and, in addition b) the amount corresponding to the OPERATING AMOUNT will be readjusted always on the anniversary date of the BASE DATE, by the variation of the National Consumer Price Index - IBGE ("INPC"). The sum of the amounts obtained in items "a" and "b" above will be the "PRICE" in effect until the next readjustment/recomposition.

3.1.2. Rules and Incidence of the PERMANENT READJUSTMENT: From the beginning of the provision of the SERVICES and throughout the term of this CONTRACT, the PRICE (which must already be updated, as set forth in Clause 3.1.1 above) will be adjusted/recomposed annually, being certain that: (a) the value corresponding to the OPERATING AMOUNT will be adjusted, always on the anniversary date of the BASE DATE, by the variation of the National Consumer Price Index - IBGE ("INPC"); and, in addition, (b) observing the provisions of item 3.1.2.1. below, the value corresponding to the FUEL AMOUNT will be reset on a monthly basis, in order to capture any variations (for higher or lower) in the price of such input, demonstrated by HERMASA. Thus, always on the last day of each month from the date of commencement of provision of SERVICES, HERMASA will check the variations in price of fuel (as presented on the website of Petrobras - Petróleo Brasileiro S/A at the place of supply of their vessels, applying this variation to the FUEL AMOUNT. This recomposition will be effective on the first day of the month following the calculation and will remain so until the last day of the same month, at which time the recomposition calculation will be made the FUEL AMOUNT and its application to the PRICE in effect, and so on throughout the term of this CONTRACT. The sum of the values obtained in the previous items "a" and "b" will be the PRICE in effect until the next readjustment/recomposition.

3.1.2.1. In the event of a variation within the week of more than 2% (two percent) of the price of fuel for HERMASA's vessels at the place of supply, as demonstrated by HERMASA, said variation will be immediately applicable to the FUEL AMOUNT as of 0:00h of Wednesday, with retroactive effect to the date of publication of said increase, automatically integrating the PRICE for all purposes and effects.

3.2. Bearing in mind that Clause 3.1.1 above deals with the annual readjustment of the PRICE and that Clause 3.1.2 above deals with the rules of "readjustment" and "recomposition" of prices (respectively, annual readjustment by the INPC and recomposition of the variation of the fuel price), as well as bearing in mind that such institutes have different nature and periodicity of application different, the PARTIES hereby agree for the segregation of the adjustment portion and the readjustment portion, so that the updates are applicable to each one of such portions separately.

CLAUSE 4. PAYMENT

4.1. The PRICE of the SERVICES, duly adjusted as provided in this CONTRACT will be paid by PDB to HERMASA on a monthly basis, within 30 (thirty) days after the submission of the MEASUREMENT REPORT by credit to the bank account indicated by HERMASA in each billing document. The deposit will serve as proof of payment for the purposes of this instrument.

4.2. For the purposes of determining the SERVICES provided and the PRICE due in each billing period, HERMASA will proceed to the determination of the volumes of PRODUCT transported in the period and the corresponding amounts due, will issue the corresponding measurement report ("MEASUREMENT REPORT") along with the relevant tax and collection documents, under the terms of the applicable tax laws, for the approval of PDB, by the 10th (tenth) day of each month. If PDB disagrees with the amounts due or with the volume of the PRODUCT considered in the MEASUREMENT REPORT, measured pursuant to Clause 1.9, it shall proceed with the payment of the uncontroversial values, and the PARTIES are obligated to negotiate, in good faith, in order to solve the controversy within 7 (seven) days from the date of issuance of the collection documentation referred to above. If the dispute is not settled within such period, the dispute will be submitted to arbitration by an independent accounting expert, appointed by mutual agreement of the PARTIES, whose costs will be divided equally between the PARTIES. The independent expert's report must be submitted within 45 (forty-five) days from the appointment of the independent expert, and will replace the CALCULATION MEMORIAL. If the PARTIES cannot agree on the name of the independent expert within 15 (fifteen) days from the request of a PARTY to appoint the expert, the PARTIES may resort directly to the forum provided for in Clause 16.1. of this CONTRACT. Failure by PDB to pay uncontroversial amounts within the time limits set forth herein, if not solved within an additional period of 30 (thirty) days from the date of submission of the independent expert's report or decision obtained in the form of Clause 16.1 of this CONTRACT, as the case may be, will allow HERMASA to suspend the provision of SERVICES until the uncontroversial amount due is fully paid.

4.3. The price of the SERVICES includes any and all taxes directly applicable to the provision of the SERVICES. The taxes will be borne by the PARTY that is defined as the responsible taxpayer, under the terms of the current and applicable legislation. In the event that new taxes are created and become due that are levied on the SERVICES, if any taxes are extinguished, as well as if any change occurs in the rates currently in effect (positively or negatively), the PARTIES shall negotiate in good faith, seeking to promote any necessary adjustments to the PRICE (in addition to the readjustments provided for herein in Clause 3), in order to restore the contractual balance of the services relationship established herein. For the purposes of this Clause, the term "taxes" includes any taxes, taxes, contributions, fees, and any other taxes, under the terms of the applicable legislation.

CLAUSE 5. FIRM VOLUME OBLIGATION ("TAKE OR PAY")

5.1. The PARTIES hereby agree to guarantee, in a reciprocal manner, minimum annual quantities of PRODUCT to be submitted to the provision of SERVICES under this CONTRACT (usual market obligation, treated as take or pay), according to the rules and conditions established herein.

5.2. As of the FIRST PERIOD and throughout the term of this CONTRACT, PDB will be obligated, annually, to the presentation and shipment of the volumes of PRODUCT and HERMASA, in turn, to provide the SERVICES with effects on the quantities of PRODUCT presented in the INITIAL CONFIRMATION (as changed in the form of this CONTRACT and subject to the exceptions set forth in the Clauses 1.1.1. 1.7 and 1.1.2.3), subject to the minimum total quantity of PRODUCT resulting from the sum of the amounts set forth in the table in Clause 1.3. These PRODUCT amounts will obligate the PARTIES to their compliance, year by year, in the PERIODS comprised therein.

5.2.1. HERMASA will have the obligation to provide the SERVICES set forth in this CONTRACT with respect to the PRODUCT resulting from the TEST PERIOD, provided that PDB sends notification to HERMASA 6 (six) months in advance of the COMMERCIAL OPERATION START UP in order to confirm the quantity of PRODUCT to be transported in the TEST PERIOD.

5.3. Without prejudice to the other clauses, penalties and obligations set forth in this CONTRACT, if any of the PARTIES does not comply with the quantity established in the INITIAL CONFIRMATION, subject to the

exceptions set forth in clauses 1.1.1.7 and 1.1.1.2.3, for a specific PERIOD, according to what is established herein, as pointed out by the PARTY that is in compliance in relation to the quantity established in the CONFIRMATION, based on the measurements taken in the form of Clause 1.9, then the innocent PARTY will be entitled to receive a compensatory penalty in the amount corresponding to a percentage of the PRICE in effect in relation to the quantities of PRODUCT not transported or not presented for transportation, as the case may be, and nothing else will be owed, for any reason whatsoever, all in accordance with the conditions set forth in the table of volumes, below:

Amount of Product Not Presented to the Service Providing or Not Transported, As Established In This Contract:	Fine Due By The Defaulting Party (% of Price)
Up to twenty percent (20%) of the volume of the PRODUCT appearing on the INITIAL CONFIRMATION, minus any quantities carried by third parties, provided the provisions of Clauses 1.1.1.7 and 1.1.2.3 are complied with.	No penalty (tolerance) will apply.
Between 20% (twenty percent) and 50% (fifty percent) of the volume of the PRODUCT stated in the INITIAL CONFIRMATION, minus any quantities that may be transported by third parties, as long as the provisions of Clauses 1.1.1.7 and 1.1.2.3 are observed.	Fine in the amount of 30% (thirty percent) of the value of the PRICE readjusted in the form of this CONTRACT, multiplied by the volumes of PRODUCT not handled.
Above 50% (fifty percent) of the volume of the PRODUCT in the INITIAL CONFIRMATION, subtracting the quantities eventually transported by third parties, as long as the provisions of Clauses 1.1.1.7 and 1.1.2.3 are observed.	Fine in the amount of 50% (fifty percent) of the value of the PRICE readjusted in the form of this CONTRACT, multiplied by the volumes of PRODUCT not handled.

5.4. The amounts to be paid by the breaching PARTY as a result of the fine for the take or pay obligation agreed to herein shall be increased by all taxes, duties, fees and contributions levied on the payment due, so that the innocent PARTY receives such amounts net of any taxes and discounts of any nature.

5.5. The amounts due from PARTY to PARTY by virtue of the take or pay obligations set forth in this Clause shall be calculated by HERMASA at the beginning of the year following the year of provision of the SERVICES, until January 15th (fifteenth), at which time they will be presented in writing to PDB for verification, upon presentation, by HERMASA, of a calculation and statement memorial of amounts due ("CALCULATION MEMORIAL").

5.6. If PDB disagrees with the values presented in the CALCULATION MEMORIAL, it will have up to 15 (fifteen) days to contest them, provided that it also does so in writing, submitting documents proving the inapplicability or inaccuracy of the amounts charged or due, as the case may be, posted in the CALCULATION MEMORIAL. Once the notification of disagreement with the values in the CALCULATION MEMORIAL is received in due time, the PARTIES should negotiate by common agreement and in good faith the solution to the disagreement presented. If no solution is reached within 30 (thirty) days from the date of submission of the CALCULATION MEMORIAL, the dispute will be submitted to arbitration by an independent accounting expert, appointed by mutual agreement of the PARTIES, whose costs will be divided equally between the PARTIES. The independent expert's report must be submitted within 45 (forty-five) days from the appointment of the independent expert, and will replace the CALCULATION MEMORIAL. If the PARTIES cannot agree on the name of the independent expert within 15 (fifteen) days from the request of a PARTY to appoint the expert, the PARTIES may resort directly to the forum provided for in Clause 16.1. of this CONTRACT.

5.7. If there is no response from the PDB regarding the CALCULATION MEMORIAL within the period set forth in Clause 5.6, the amount of penalties or credits provided for therein shall be paid to the creditor PARTY up to the 30th (thirtieth) day after presentation of the CALCULATION MEMORIAL. In any case, that means, if there is a controversy regarding the amounts stated therein, the amounts stated in the CALCULATION MEMORIAL that are uncontroversial shall be paid by the debtor PARTY in favor of the creditor PARTY on the same date, that is, up to the 30th (thirtieth) day after the presentation of the CALCULATION MEMORIAL.

CLAUSE 6. EXCLUSIVITY

6.1. By this instrument, and also irrevocably and irreversibly, PDB gives HERMASA the exclusivity to provide the SERVICES with effects to the totality of the PRODUCT benefited in the PROJECT, except for the possibility of contracting third parties for the provision of SERVICES for the PRODUCT in the cases foreseen in Clauses 1.1.1.7 and 1.1.2.3 of this CONTRACT, subject to the FIRST OFFERING RIGHT and the PREFERENCE RIGHT. In this sense, and because of the exclusivity herein established, HERMASA will be the only and exclusive authorized to perform the SERVICES so that the PDB may not, throughout the term of this CONTRACT, directly perform such SERVICES or hire or associate in any way with any third party for the execution of all or part of these SERVICES, in Brazil and abroad, except upon prior authorization unequivocal and express provided by HERMASA in this sense, except for the possibility of hiring third parties for the provision of SERVICES under the terms of Clauses 1.1.1.7 and 1.1.2.3 provided in this CONTRACT, subject to the FIRST OFFERING RIGHT and the PREFERENCE RIGHT.

6.2. For good order, the PARTIES consign that the exclusivity herein established refers to the PRODUCT processed in the PROJECT, thus not reaching any other processing plant or mining facility in any other location.

6.3. PDB acknowledges and declares that (a) HERMASA will play a key role in the outflow of production from the AUTAZES Mine, thus having an important role in the logistical feasibility of the PROJECT in the implementation of the said; (b) during the term of this CONTRACT, HERMASA will allocate important assets to provide the SERVICES herein agreed, assets with economic relevance and ability to generate value to agribusiness, in order to perform the SERVICES to its satisfaction; and that (c) the exclusivity established by this CONTRACT consists of a premise negotiated in good faith and agreed to by the PARTIES since the beginning of their business relationship with respect to the PROJECT, regardless of the existence of any other conditions favorable to HERMASA and/or PDB.

CLAUSE 7. STATEMENTS AND WARRANTIES

7.1. PDB's Representations and Warranties: By this instrument PDB hereby represents and warrants to HERMASA as follows:

- (i) Power and Authorization: PDB is a limited liability company duly organized under the laws of the Brazil's Federative Republic, validly existing and in good standing under the said LAWS. PDB has the capacity, power, legitimacy and authority to (a) enter into this CONTRACT and all other documents and instruments related hereto, as set forth herein; (b) subject to obtaining the necessary licenses and authorizations to be issued by GOVERNMENTAL AUTHORITIES and the commencement of commercial operation of the PROJECT, to assume and comply in a timely manner with the obligations set forth in this CONTRACT and in the other documents and instruments related to the implementation of the operations contemplated herein, even if formalized after the present date, and (c) subject to obtaining the necessary licenses and authorizations to be issued by the GOVERNMENTAL AUTHORITIES and the commencement of commercial operation of the PROJECT, to consummate the operations herein established in the form, terms and conditions contemplated herein, having taken all necessary measures to authorize their execution. For the purposes of this CONTRACT, the term "LAW" means any law, statute, regulation, rule, ordinance, order, warrant, determination, decision, judgment, order (whether preliminary or interlocutory) or requirement made, promulgated, entered into or imposed by any GOVERNMENTAL AUTHORITY (as defined below), including any subsequent amendments thereto.
- (ii) Binding Effect: This CONTRACT and all other documents and instruments contemplated hereby, even if subsequently executed, constitute (or shall constitute as subsequently executed in the form required by this CONTRACT) legal, valid, enforceable and binding obligations of PDB, enforceable in accordance with its terms and conditions. Except as provided in Annex 7.1(ii), PDB has not been served with any process of a judicial nature or arbitration proceeding, or any investigation involving any GOVERNMENTAL AUTHORITY which, if decided adversely, could interfere with PDB's ability to perform its obligations under this CONTRACT. For the purposes of this CONTRACT, "GOVERNMENTAL AUTHORITIES" means any judicial, legislative or executive authority (federal, state or municipal) or any subdivision, agency, department, judge, court (judicial or arbitral), commission, board, secretariat, administrative body or other respective governmental administrative or regulatory authority in

Brazil, including, but not limited to, IBAMA, FUNAI, IPAAM, the National Mining Agency - ANM, the Ministry of Agriculture, Livestock and Supply - MAPA, the National Agency for Waterway Transport - ANTAQ, the Ministry of Infrastructure of Brazil, the Ministry of Infrastructure of Brazil, the Public Prosecutor's Office (Federal or State), the Public Prosecutor's Office of the Republic, States and Municipalities and the professional Councils that regulate professionals of any nature.

- (iii) No Violation and No Consent: The execution and performance of this CONTRACT and all other instruments contemplated hereby for the performance of PDB's obligations herein provided, and the performance of the acts for which PDB is responsible, shall not result in the violation of or conflict with: (a) any LAWS to which PDB is subject; (b) any provision of PDB's constitutional documents and/or any governance documents; (c) any decision rendered by any GOVERNMENTAL AUTHORITY to which PDB is subject; and (d) any obligations that the PDB has assumed to any third party, nor will they result in the imposition of any burdens, contingencies, administrative, judicial, arbitration proceedings and any obligations on the PDB. Except as provided in this CONTRACT (and assuming its effective receipt at the appropriate time), no authorization or order from or to any GOVERNMENT AUTHORITY is necessary or required, on this date and at the current stage of the implementation of the PROJECT, for the execution and full performance by PDB of this CONTRACT and the obligations hereunder. PDB declares that it will, in a timely manner, take all measures and perform all acts necessary to permit the full and timely performance of the obligations set forth in this CONTRACT and the obligations that are its responsibility in the development and operation of the PROJECT.
- (iv) Compliance with Laws: PDB complies and shall comply, in the implementation of the PROJECT and in its operation, with all applicable LAWS, rules and regulations stipulated by any GOVERNMENTAL AUTHORITIES (as updated, amended or replaced) in particular (but without limitation), it conducts its activities in full and unrestricted compliance with applicable LAWS, rules and regulations applicable to mining activities, industrial activities, port activities and any others, as well as in strict compliance with the LAWS, rules and regulations of protection of the environment and decent work, and the PROJECT was prepared (and will be developed, in its developed, in its implantation and subsequent operation) in accordance with the highest standards and technologies, with observance of social and environmental standards of the highest order.
- (v) Demands: Except for the provisions of Annex 7.1(iv), there are no demands of any kind (including, but not limited to, labor, tax, civil, criminal, environmental, competitive, criminal, administrative, regulatory or other claims) against PDB that (a) are intended to impeach or impede, alter, limit and/or significantly delay the transactions contemplated hereby; and/or (b) challenges or contests the validity of this CONTRACT or any action taken or to be taken by PDB hereunder; Similarly, PDB has not failed to comply with any agreement, decision, order, authorization, warrant, injunction or order of any GOVERNMENTAL AUTHORITY; c) There are no demands of any nature that may result in the revocation, annulment or any form of loss of licenses, especially those granted by the National Mining Agency - ANM.
- (vi) ESG Issues: PDB holds all the permits required at this current stage of the PROJECT, all under applicable law to develop its business in good standing. The PDB does not violate any human rights, does not use indigenous manpower (except in accordance with the applicable LAWS), child or slave labor, does not cause damage to the balance of the ecosystem, nor intervenes in areas with protected biome or ecosystem, in all cases without having obtained proper authorization from GOVERNMENTAL AUTHORITIES to exercise its activities in such location or provided that such intervention is in accordance with the terms of the LP - Preliminary License, the LI - Installation License and the LO - Operation License of the undertaking of AUTAZES MINE to be obtained by the PDB; PDB will not effect any intervention in inhabited areas (or in proximity that is in disagreement with the LAWS) for indigenous or traditional populations, without obtaining the due authorizations established in LAW to exert its activities in such places; PDB does not effect any intervention in areas by illegal deforestation. PDB does not conduct mining and industrial activities in disagreement with the respective permits issued by ANM, in relation to which it is in compliance with all regulatory and environmental obligations, except for the provisions of Annex 7.1(v).

- (vii) **Integrity and Best Practices:** PDB, including through any employee, director, manager, agent, consultant or any other third party acting on its behalf and interest, (a) is familiar with the legal provisions governing integrity good practices, notably with Law no. 12.846/2013 of the Federative Republic of Brazil, with the United Kingdom Bribery Act, with Canada's Corruption of Foreign Public Officials Act and with the United States Foreign Corrupt Practices Act - FCPA ("ANTICORRUPTION LAWS"); (b) has not violated or violates any ANTI-CORRUPTION LAWS; (c) is not aware of any criminal, civil or administrative investigations, indictments, inquiries, accusations or proceedings for alleged violations of the ANTI-CORRUPTION LAWS, whether or not such violations may in any way impede performance of the CONTRACT; (d) is not negotiating any type of agreement with GOVERNMENT AUTHORITIES regarding potential violations of the ANTI-CORRUPTION LAWS; (e) has adequate practices and policies to avoid non-compliance with ANTI-CORRUPTION LAWS by its employees, directors, managers, agents, consultants or any third party with whom it maintains any type of relationship; (f) it maintains and has maintained internal accounting controls in line with the best market practices; (g) it has not performed and does not perform any activity that can be or has been classified as clandestine mining or illegal mineral extraction.
- (viii) **Possession and Ownership of Assets:** PDB represents and warrants that, prior to the commencement of commercial operation of the PROJECT, it will have peaceful possession (through contractual instruments or otherwise, provided that in accordance with applicable LAWS) and/or ownership of all areas where the PROJECT will be implemented.
- (ix) **Accuracy of Representations:** PDB represents and warrants that none of the information contained in the representations, warranties, obligations or agreements made by it hereunder contains any statement that is inaccurate, incorrect or does not correspond to reality as of this date.

7.2. **HERMASA's Representations and Warranties:** by this instrument, HERMASA hereby represents and warrants to PDB as follows:

- (i) **Power and Authorization:** HERMASA is a limited liability company regularly incorporated under the Laws of the Federative Republic of Brazil, validly existing and in good standing in accordance with said LAWS. HERMASA is a Brazilian Navigation Company - EBN regularly authorized by the National Agency for Waterway Transport - ANTAQ and by the Ministry of Infrastructure of Brazil - MINFRA, and has the capacity, power, legitimacy and authority to (a) enter into this CONTRACT and all other documents and instruments related to it, as set forth herein in order to carry out the operations contemplated herein; (b) assume and timely comply with the obligations set forth in this CONTRACT and all other documents and instruments related to the implementation of the operations contemplated herein, even if formalized after this date, for which it declares and warrants that it also has sufficient experience and technical capacity, and (c) consummate the operations herein established in the form, terms and conditions contemplated herein, having taken all necessary measures to authorize their execution.
- (ii) **Binding Effect:** This CONTRACT and all other documents and instruments contemplated herein, even if executed in the future, constitute (or will constitute as they are further executed in the form required in this CONTRACT) legal, valid, enforceable and binding obligations of HERMASA, enforceable in accordance with its terms and conditions. HERMASA has not been served with any process of a judicial nature or arbitration proceeding, or any investigation involving any GOVERNMENTAL AUTHORITY which, if decided adversely, could interfere with HERMASA's ability to perform its obligations under this CONTRACT.
- (iii) **No Violation and Consents:** The execution and performance of this CONTRACT and all other instruments contemplated hereby for the performance of HERMASA's obligations hereunder, and the performance of the acts for which HERMASA is responsible, shall not result in the violation of or conflict with: (a) any LAWS to which HERMASA is subject; (b) any provision of HERMASA's constitutional documents and/or any governance documents; (c) any decision rendered by any GOVERNMENTAL AUTHORITY to which HERMASA is subject; and (d) any obligations that HERMASA has assumed before any third parties, nor will they result in the imposition of any burdens, contingencies, administrative, judicial, arbitration proceedings and

any obligations for HERMASA. HERMASA declares that the authorization of Brazilian Navigation Company that was granted by the National Agency of Waterway Transport - ANTAQ is valid and in force, not existing any circumstance by which it is expected to be suspended or revoked, being obliged to maintain that authorization for the entire term of this CONTRACT. No other authorization or order of or for any GOVERNMENTAL AUTHORITY is necessary or required for the execution and full performance by HERMASA of this CONTRACT and the obligations hereunder.

- (iv) Observance of Laws: HERMASA complies and shall comply, in its operations and throughout the term of this CONTRACT, with all LAWS, rules and regulations stipulated by any GOVERNMENTAL AUTHORITIES (as updated, amended or replaced), in particular (but without limitation), carries out its activities in full and unrestricted compliance with applicable LAWS, rules and regulations, including those relating to logistical activities, as well as in strict compliance with the LAWS, rules and regulations protecting the environment and decent work.
- (v) Claims: There is no claim, of any nature (including, but not limited to, labor, tax, civil, criminal, environmental, competition, criminal, administrative, regulatory or other nature) against HERMASA, that (a) seeks to impugn or impede, alter, limit and/or significantly delay the transactions herein provided for; and/or (b) impugns or challenges the validity of this CONTRACT or any act performed or practiced by HERMASA under this CONTRACT. In the same way, HERMASA has not breached any agreement, decision, order, authorization or other nature, warrant, injunction, or order from any GOVERNMENTAL AUTHORITY, as well as there are no demands of any nature that may impede the assumption of the obligations set forth herein.
- (vi) ESG Issues: In the performance of its operations, HERMASA holds all licenses and authorizations required under the applicable legislation to operate and develop its business, and meets all the necessary conditions for the maintenance of their respective licenses in a regular situation. HERMASA does not violate any human rights, does not use child or slave labor, and does not harm the balance of the ecosystem.
- (vii) Integrity and Good Practices: HERMASA, including through any employee, director, manager, agent, consultant or any other third party acting on its behalf and interest, (a) is familiar with the ANTI-CORRUPTION LAWS; (b) has not violated or violates any ANTI-CORRUPTION LAWS; (c) is not aware of any criminal, civil or administrative investigations, indictments, inquests, accusations or proceedings for alleged violations of the ANTI-CORRUPTION LAWS, whether or not such violations may in any way impede the performance of the CONTRACT; (d) is not negotiating any type of agreement with GOVERNMENTAL AUTHORITIES regarding potential violation of the ANTI-CORRUPTION LAWS; (e) has adequate practices and policies to avoid non-compliance with LAWS by its employees, directors, managers, agents, consultants or any third party with whom it maintains any type of relationship; and (f) it maintains and has maintained internal accounting controls in line with the best market practices.
- (viii) Accuracy of Statements: HERMASA represents and warrants that none of the information contained in the statements, warranties, obligations or agreements made by it herein contains any statement that is inaccurate, incorrect or does not correspond to reality as of this date.

CLAUSE 8. OBLIGATIONS OF THE PARTIES

8.1. Without prejudice to the other obligations established in this CONTRACT, the obligations of HERMASA are

- (i) Fully and timely comply with all obligations incumbent upon it under this CONTRACT.
- (ii) To keep the vessels and other assets that it will employ in the provision of the SERVICES in good order and appropriate state of conservation and operation, duly suitable for the provision of the SERVICES and equipped in order to fully comply with the standards of the Brazilian Navy and other requirements of the applicable LAW.

- (iii) Present vessels suitable for navigation and transportation of the PRODUCTS, as well as respect the norms of the origin and destination port terminals.
- (iv) Maintain in force the licenses, permits and authorizations necessary for navigation, except for licenses and authorizations relating specifically to the PRODUCT, which will be the responsibility of PDB. Without prejudice, HERMASA should maintain such licenses and permits always in force and the respective conditions always fulfilled, keeping the PDB exempt from any risk, contingency or liability of any nature arising from the absence, suspension or questioning of such licenses and permits.
- (v) Issue all documentation pertaining to the transportation of the PRODUCT, in accordance with applicable LAWS and shipping practices.
- (vi) Provide PDB with the clarifications and information that are necessary for the follow-up of the execution of the SERVICES, when requested.
- (vii) Inform PDB of any accidents that affect the provision of the SERVICES.
- (viii) Perform the calculation of the volumes of PRODUCT transported in the scope of the provision of the SERVICES, thus in compliance with the take-or-pay obligations set forth in Clause 5 above.
- (ix) Make the payment, in favor of PDB, of any amounts that may be assigned to it on account of the take or pay obligations set forth in Clause 5 above.
- (x) Issue the MEASUREMENT REPORT and the billing documentation relating to the provision of the SERVICES, under the terms and conditions contained in the applicable LAWS and this CONTRACT.
- (xi) Defend, indemnify and hold harmless the PDB, its directors, officers, employees, assets and its affiliates, as applicable, from and against any losses, disbursements, litigation, claims and contingencies, of any nature, suffered or incurred as a result of (a) any misrepresentation, insufficiency, omission, error or inaccuracy of any representation or warranty made by HERMASA in this CONTRACT; and/or (b) breach, partial or total, of any covenant or obligation assumed in this CONTRACT and / or provided by LAW.
- (xii) HERMASA should inform PDB about any material events that make the statements and assurances provided by HERMASA in Clause 7.1 of this instrument untrue or incorrect, as well as any information that may adversely and negatively affect the provision of the SERVICES, within 10 (ten) days from the date HERMASA became aware of such fact or event.

8.2. Without prejudice to the other obligations set forth in this CONTRACT, the obligations of PDB are:

- (i) Fully and timely comply with all obligations incumbent upon it under this CONTRACT.
- (ii) Make, on time and in full, all payments under this CONTRACT in favor of HERMASA.
- (iii) Send notification (“MOBILIZATION ORDER”), in writing, for HERMASA, 01 (one) year in advance of the expected start of commercial operation of the AUTAZES MINE, indicating the date on which it believes that the AUTAZES MINE will have the LO - Operation License, as well as all the necessary infrastructure for extraction of the PRODUCT from the AUTAZES MINE and its respective flow (“COMMERCIAL OPERATION START-UP” and “COMMERCIAL OPERATION START-UP DATE”). If the start of commercial operation of the AUTAZES MINE is not verified on the COMMERCIAL OPERATION START-UP DATE, HERMASA may charge PDB for direct damages.
- (iv) Ensure that all cargo placed on board the vessels are regularly supported by documents, licenses and permits provided for in the LAWS, indemnifying HERMASA prejudices, losses and damages eventually suffered because of what is established here and its responsibility.

- (v) Make payments, in favor of HERMASA, of the amounts eventually attributed to it on account of the take or pay obligations established in Clause 5 above.
- (vi) Defend, indemnify and hold harmless HERMASA, its directors, officers, employees, assets and its affiliates, as applicable, from and against any direct losses, damages suffered or incurred as a result of (a) any misrepresentation, inadequacy, omission, error or inaccuracy of any representation or warranty made by PDB in this CONTRACT; and/or (b) breach, in whole or in part, of any covenant or obligation undertaken in this CONTRACT and/or prescribed by LAW.
- (vii) Comply with all applicable LAWS.
- (viii) PDB should obtain all licenses and permits from any GOVERNMENT AUTHORITIES necessary for the construction and operation of the PROJECT (in all its aspects and in all its phases), as well as timely comply with all the conditions that are provided for in such licenses and authorizations, in order to provide HERMASA the regular and timely performance of the SERVICES. Without prejudice, PDB should maintain such licenses and permits always in force and the respective conditions always fulfilled, keeping HERMASA exempt from any risk, contingency or liability of any nature arising from the absence, suspension or questioning of such licenses and permits.
- (ix) PDB will not undertake any intervention in areas through illegal deforestation. PDB will not carry out mining and industrial activities in disagreement with the respective permits issued by ANM.
- (x) PDB shall inform HERMASA of any material events that make the statements and assurances provided by PDB in Clause 7.1 of this instrument untrue or incorrect, as well as any information that may adversely and negatively affect the PROJECT and its commercial operation, including, but not limited to, demands that may include PDB and that may lead to the loss or non-obtaining of licenses relative to the PROJECT, within 10 (ten) days from the date PDB became aware of such fact or event.
- (xi) Deliver the quantities of PRODUCT for transportation, under the terms and conditions set forth in this CONTRACT, admitting the technical operational loss foreseen in Clause 1.9 above.

8.3. The list of obligations of each of the PARTIES, presented above, does not diminish, exclude or modify any other obligations assumed by the PARTIES and from PARTY to PARTY, under the terms and conditions contained in this CONTRACT, which the PARTIES agree to fully and timely comply with, all under the terms and conditions agreed upon herein.

CLAUSE 9. DEFAULT AND ITS PENALTIES

9.1. In case of any of the PARTIES fail to fully and timely comply with any of the obligations set forth in this CONTRACT (for the purposes of this Clause, the "BREACHING PARTY") and/or in any other instruments linked hereto, even if entered into after the present date, said BREACHING PARTY shall be automatically subject to the penalties provided in this Clause 9, which shall automatically become due to the other PARTY (for purposes of this Section, the "NON-BREACHING PARTY"), regardless of any notice, communication or notification, judicial or extrajudicial, as hereinafter set forth.

9.2. Penalties for Late Payment of the PRICE: If PDB, as the contracting party of the SERVICES fails to pay any amount due to HERMASA, as the contractor, and once 2 (two) days have passed without payment having been made, then the following charges and penalties will apply to the amounts due and unpaid: (a) a default fine in the amount of 10% (ten percent) of the overdue and unpaid portion of the PRICE; (b) updating of the due and unpaid amounts by the positive variation of the INPC, calculated and incident from the date of default to the date of actual payment; and (c) default interest at the rate 1% (one percent) per month (or fraction of a month) calculated and applied according to the criterion pro rata, from the due date until the date of actual and full payment, without prejudice to the prerogatives of HERMASA, its sole discretion, to promote judicial or extrajudicial collection of amounts due. If the delay in payment continues for more than 30 (thirty) days, the execution of the SERVICES may be suspended, at the sole discretion of HERMASA.

9.3. Penalties for Breach of Obligation of Exclusivity: Without prejudice to the irrevocable and irreversible character of this CONTRACT and the prerogative of HERMASA to seek jurisdictional provision in this respect, if, at any time during the term of this CONTRACT, PDB is in breach of the exclusivity obligation agreed to in Clause 6 above, then PDB, in addition to being compelled to fulfill the defaulted obligation, will be automatically obligated to pay a non-compensatory fine in favor of HERMASA in the amount of 60% (sixty percent) of the total value of the current PRICE multiplied by the total quantity of PRODUCT already transported and to be transported established for the year in which the breach of the exclusivity obligation occurs, without prejudice to compensation for losses and additional damages for HERMASA.

9.4. All penalties set forth in this Clause 9 are cumulative and not exhaustive, that means, the incidence of more than one penalty at the same time is allowed in the event of distinct triggering events. In addition, these penalties can be applied more than once, whenever an event of default subject to such penalties is characterized.

9.5. The amounts of the penalty applied as per Clause 9.3 shall be corrected by the INPC from the date of occurrence of the default event until the date of the corresponding payment (inclusive). Late payment interest at the rate of 1% (one percent) per month (or fraction of a month) calculated from the date of default until the date of the corresponding and full payment, according to the pro rata criterion, will also be charged on such amounts.

CLAUSE 10. ASSIGNMENT, TRANSFER AND SUBCONTRACTING

10.1. The following rules of assignment, transfer and subcontracting fully apply to this CONTRACT and the rights and obligations hereunder:

- (i) Assignment or Transfer by HERMASA: HERMASA is hereby authorized by PDB to assign or transfer, totally or partially, by any form or modality, any of the rights and obligations arising from this CONTRACT to its affiliates, upon simple communication provided to PDB with prior notice of 10 (ten) calendar days from the date intended for the formalization of the assignment, remaining jointly responsible for the fulfillment of all obligations assumed in this CONTRACT.
- (ii) Assignment or Transfer by PDB: The PARTIES are hereby authorized to assign, transfer, grant in guarantee or pledge, totally or partially, this CONTRACT to (i) national or foreign financial institutions for the purpose of structuring financial operations necessary for the implementation of the PROJECT, or (ii) eventual third-party purchasers of the PROJECT, provided they notify the other PARTY 10 (ten) days in advance.
- (iii) Subcontracting Services: HERMASA, for operational reasons, may subcontract all or part of the SERVICES hereunder, and HERMASA will continue to be jointly liable with the subcontractor for the provision of the SERVICES that are the subject of subcontracting.
- (iv) Hiring Vessels: Even owning its own fleet of navigation, if HERMASA, for operational reasons, understand (at its sole discretion) appropriate to lease, rent or any other form of granting vessels to third parties for the provision of services herein agreed, this is now authorized to do so, responding for the operational condition of such vessels. No communication with or consent from the PDB will be necessary or required for the formalization of the hiring herein. Nothing in this Clause shall diminish HERMASA's responsibility to provide the SERVICES under this instrument.
- (v) Assignment or Guarantee of Rights to Obtain Financing: HERMASA may assign, pledge and/or grant in guarantee, at any title and in any way, the credit rights to which it may be entitled as a result of the provision of the SERVICES set forth in this CONTRACT. If HERMASA does so, it must notify the PDB, at least 10 (ten) calendar days in advance of the date intended for the granting of the guarantee. PDB is obligated to appear at any documents necessary to formalize the granting of said guarantee, if necessary.

10.2. Except by common and prior written agreement between the PARTIES, no other hypothesis of assignment, subcontracting or transfer of the rights and obligations agreed to in this CONTRACT will be admitted, except for the hypotheses expressly listed herein, and provided that the formalities foreseen herein are observed.

CLAUSE 11. CONFIDENTIALITY

11.1. The PARTIES agree to maintain confidentiality and not to disclose or make public the terms and conditions of this CONTRACT and any documents and agreements related hereto, for a period of 3 (three) years after termination of this CONTRACT, for any reason, without the prior consent of the other PARTY, except as expressly provided in this Clause 11. Furthermore, each of the PARTIES undertakes to treat as strictly confidential and not to disclose to any third party, and to cause its respective attorneys and consultants to treat as strictly confidential and not to disclose to any third party, any information related to the other PARTY which has come to their knowledge or knowledge as a result of the transactions contemplated by this CONTRACT, except any information which (a) is or becomes public knowledge without breach of the obligation of confidentiality under this Clause; (b) was already known to the receiving PARTY at the time of such disclosure by the other PARTY; or (c) was lawfully received by either PARTY from a third party not under any obligation of confidentiality to the other PARTY. For purposes of clarity, in any events of IPO, stock offerings, capital market operations, fund raising and any other similar events, where a PARTY intends to disclose any information of this COMMITMENT (including its existence) to any third party, including any governmental authorities, such PARTY shall not require the prior consent of the other PARTY with respect to such disclosure, but shall submit the material and information to be disclosed to the other PARTY at least ten (10) days prior to the date of disclosure.

11.2. The PARTIES are fully responsible for the confidentiality to be observed, under the terms provided for herein, by their managers, employees and/or any third party that, by their indication, has had access to information about: (a) the terms and conditions of this CONTRACT and other related documents and information; and (b) the operations contemplated in this CONTRACT.

11.3. The confidentiality obligation provided for herein shall not prevent the PARTIES from disclosing information to any GOVERNMENTAL AUTHORITY or any third party: (a) in the context of prior consent requests necessary for the execution of the SERVICES; and (b) in the terms and strict limits of any judicial or arbitral order given to them regarding this. In the event that either PARTY is required, as required by the relevant GOVERNMENT AUTHORITY or by applicable law, to disclose in full or in part any confidential information referred to in this Clause, such PARTY may do so without giving room for indemnification or liability. However, it shall in any event: (a) provide only that piece of information and documents that its advisors deem legally required, (b) make all necessary efforts to obtain assurances from those who requested such information/documents that confidential treatment will be given to them, and (c) notify the other PARTY promptly in writing of the need for a breach of confidentiality, enabling the other PARTY to take appropriate measures to protect the confidentiality of the information.

11.4. Notwithstanding the provisions of this Clause 11, the PARTIES agree that they may not make announcements or disclosures directed to the public in general and third parties, including clients and/or suppliers, with respect to the operations subject to this CONTRACT and to the CONTRACT itself, and they agree to request approval from the other PARTY for the content of the materials intended for disclosure herein.

CLAUSE 12. UNFORESEEABLE CIRCUMSTANCES AND FORCE MAJEURE

12.1. In the occurrence of any facts and/or events characterized and provided for in LAW, and according to Brazilian case law, as “unforeseeable circumstances” and/or “force majeure”, the PARTIES shall use their best efforts, by common agreement and in good faith, to minimize the consequences of such events on the provision of the SERVICES herein agreed.

12.2. The PARTY initially affected by any unforeseeable circumstances and/or force majeure shall immediately communicate the supervening of such event to the other PARTY, so that the PARTIES may adopt joint measures seeking to minimize the effects of such events, always in good faith.

12.3. In no event shall the occurrence of unforeseeable circumstances and/or force majeure events cause the termination of this CONTRACT, and the PARTIES shall suspend its execution until that the events at hand have been solved or, If this is not possible, they shall negotiate by mutual agreement and in good faith an alternative to the continuity of the contractual relationship established herein. In any case, the resumption of any operations (remobilization) at the end or minimization of the effects of unforeseeable events and/or force majeure shall occur in a scheduled and gradual manner, as agreed upon by common agreement between the PARTIES.

12.4. For good order, the PARTIES hereby acknowledge that the failure to obtain, loss or suspension of any licenses and/or authorizations applicable to each of the PARTIES for the performance of their obligations hereunder, by fault of the corresponding PARTIES, shall not be considered as an act of God or force majeure,

since the obtaining and maintenance of such licenses and authorizations is subject to procedures, requirements and formalities are clearly established in the corresponding LAWS and regulations, which are known to these PARTIES by virtue of the activities they perform, and these PARTIES declare that each one of them has the licenses and authorizations applicable to it, and that they are able to regularly and timely obtain and maintain such licenses and authorizations, pursuant to LAW. Thus, the PARTIES hereby waive the right to obtain judicial relief for the rescission or suspension of this CONTRACT for failure to obtain, lose or suspend the licenses and authorizations applicable to them hereunder.

CLAUSE 13. REASONED RESCISSION AND SUSPENSIVE CONDITION

13.1. Reasonable Rescission of the Contract: Even taking into account the irrevocable and irreversible character of this CONTRACT, the CONTRACT may be rescinded (a) by any of the PARTIES, in any event of material breach of the obligations of the opposing PARTY detailed in this CONTRACT, which, if subject to correction, is not solved within 15 (fifteen) days from receipt of notice from the non-breaching PARTY in this respect; (b) by any of the PARTIES, in the event of request for bankruptcy, judicial or extrajudicial recovery, or insolvency of a PARTY (not suspended within the period of time legal); c) unilaterally by HERMASA, in the event of corporate reorganization of PDB, with the change of its direct or indirect control, without prior and express consent of HERMASA, except in the case of IPO of PDB or its direct shareholder, Brazil Potash Corp., governed by the laws of Ontario, Canada; (d) by HERMASA, unilaterally, in case of non-compliance, by PDB (and/or by any third party acting on its behalf and interest) of any obligations set forth in items “viii”, “ix” and “x” of Clause 8.2, being certain that the rescission in this case will occur immediately, at the discretion of HERMASA, and without the need for any notice or notification, subject however to the provisions of items 13.1. 1 and 13.1.2 below; (e) by PDB, unilaterally, in the event of noncompliance, by HERMASA (and / or any third party acting on its behalf and interest) of any obligations set forth in items “iv” and “xii” of Clause 8.1, being certain that the rescission in this case will occur immediately, at the discretion of HERMASA, and without the need for any notice or notification, subject however to the provisions of items 13.1.3 and 13.1.4 below; (f) by any of the PARTIES, in case of noncompliance, by one of the PARTIES, of the integrity obligations set forth in Clause 14 below; or (g) unilaterally by HERMASA, if the MOBILIZATION ORDER is not issued within 15 (fifteen) years from the date of signature of this CONTRACT (“TERM LIMIT”). Given the irrevocable and irreversible nature of this CONTRACT, any other event of default other than those set forth in this Clause 13.1 shall not create a right for either of the PARTIES to rescind this CONTRACT.

13.1.1. The right to rescind this CONTRACT pursuant to item “d” of the Clause 13.1 above may not be exercised while (i) any challenge or appeal by the PDB against any decision or proceeding which impairs or may impair the performance and maintenance of any of the obligations referred to in items “viii”, “ix” and “x” of Clause 8.2 of this CONTRACT, or (ii) any legal term limit for the filing of such a challenge or appeal.

13.1.2. If HERMASA (either by itself and/or by any companies of its economic group) proves that there is a request made by any of its funding parties or strategic partners, demanding the rescission of this CONTRACT due to any fact related to the non-fulfillment by PDB of any obligations referred to in items “viii”, “ix” and “x” of Clause 8.2 of this CONTRACT, under penalty of early maturity of obligations held by HERMASA (and/or any companies of its economic group) with such lenders or strategic partners, then it will assist HERMASA the right to immediately rescind this COMMITMENT without observing the provisions of Clause 13.1.1 above. In this case, PDB will not be subject to the payment of any penalty or indemnity to HERMASA and HERMASA will not be subject to the payment of any penalty or indemnity to PDB as a result of the rescission of this CONTRACT.

13.1.3. The right to rescind this CONTRACT under the terms of item “e” of Clause 13.1 above may not be exercised while pending (i) any challenge or appeal by HERMASA against any decision or proceeding which impairs or may impair the performance and maintenance of any of the obligations referred to in items “iv” and “xii” of Clause 8.1 of this CONTRACT, or (ii) any legal term for the filing of such a challenge or such an appeal.

13.1.4. In case PDB (either by itself and/or by any companies of its economic group) proves that there is a request made by any of its funding parties or strategic partners, demanding the rescission of this CONTRACT due to any fact related to the non-fulfillment by HERMASA of any obligations referred to in items “iv” and “xii” of Clause 8.1 of this CONTRACT, under penalty of early maturity of obligations held by PDB (and/or any companies of its economic group) with such funding parties or strategic partners, then PDB will be entitled to immediately rescind this AGREEMENT without observing the provisions of Clause 13.1.3 above. In this case, HERMASA will not be subject to the payment of any penalty or indemnity to PDB and PDB will not be subject to the payment of any penalty or indemnity to HERMASA as a result of the rescission of this CONTRACT.

13.2. Vessels Sale Option. If the CONTRACT is unilaterally terminated by HERMASA pursuant to Clause 13.1, for any reason attributable to PDB in accordance with items (a) or (d) of the said Clause (except as provided in Clause 13.1.2), then HERMASA shall have the right (but not the obligation) to dispose of all (and not less than all) of HERMASA's Vessels employed in the provision of the SERVICES. This option that will assist HERMASA ("SELL OPTION") is irrevocable and irreversible, and will be governed by the terms and conditions set forth in this clause, upon exercise by HERMASA of the SELL OPTION, PDB will be automatically obligated to immediately acquire the vessels object of the SELL OPTION, for the SELL OPTION AMOUNT (as defined below) and for cash payment

13.2.1. For the purposes of this Clause 13.2, HERMASA must, upon verification of the SUSPENSIVE CONDITION, send a notification to PDB ("SELL OPTION NOTIFICATION") informing (a) the decision to exercise the option granted herein; (b) the number of owned vessels assigned to the provision of the SERVICES ("VESSELS FOR SALE"); (c) the technical characteristics of the VESSELS FOR SALE, their IMO number, copies of the registrations and other applicable documents and registrations; and (d) the price of the referred vessels, defined in the form of Clause 13.2.3.

13.2.2. The consummation of the purchase and sale object of the SELL OPTION will take place on the 5th (fifth) business day after the receipt of the SELL OPTION NOTIFICATION, through the transfer of the vessels by HERMASA to PDB against payment of the SELL OPTION AMOUNT, in Brazilian currency, by means of electronic transfer of the corresponding funds to the HERMASA's current account to be opportunely indicated in writing.

13.2.3. The amount to be paid by PDB to HERMASA for the VESSELS OBJECT OF THE SALE OPTION ("SALE OPTION AMOUNT") will correspond to the market amount indicated by an independent evaluator to be chosen by mutual agreement between the PARTIES within 30 (thirty) days from the receipt of the SELL OPTION NOTIFICATION ("INDEPENDENT EVALUATOR APPOINTMENT TERM"). If the PARTIES cannot agree on the appointment of an independent evaluator within the INDEPENDENT EVALUATOR APPOINTMENT TERM, each PARTY shall appoint an independent evaluator within 30 (thirty) days after the INDEPENDENT EVALUATOR APPOINTMENT TERM, and these two INDEPENDENT EVALUATORS shall select a third INDEPENDENT EVALUATOR ("INDEPENDENT EVALUATORS OF THE PARTIES"). Each of the PARTIES' INDEPENDENT EVALUATORS shall indicate the SELL OPTION AMOUNT within 60 (sixty) days from the date they are appointed to do so, and the SELL OPTION AMOUNT shall correspond to the sum of the average of the amount indicated by each of the PARTIES' INDEPENDENT EVALUATORS.

13.2.4. If the CONTRACT is rescinded pursuant to Clause 13.1 above by HERMASA unilaterally, for any reason attributable to PDB, and HERMASA seeks damages from PDB, after the exercise of the SELL OPTION and payment by PDB of the SELL OPTION AMOUNT, HERMASA shall deduct the SELL OPTION AMOUNT from the amount it seeks as indemnification for damages from PDB as a result of the rescission of the contract, provided that the SELL OPTION AMOUNT has actually been paid by PDB to HERMASA.

13.3. Suspensive Condition: The effectiveness of the obligations contained in this CONTRACT shall be subordinated, pursuant to article 125, of Law 10,406, of January 10, 2002, as amended ("Civil Code"), to the sending of the MOBILIZATION ORDER ("Suspensive Condition").

13.3.1. The PARTIES acknowledge and agree that this CONTRACT: (i) contains all the essential premises and elements to the consummation of the transactions provided for herein and, therefore, is subject to specific performance by any of the PARTIES under the terms provided for herein based on Articles 463 and 464 of the Civil Code; and (ii) is not subject to repentance by any of the PARTIES.

13.3.2. If the MOBILIZATION ORDER is not sent within the TERM LIMIT, the SUSPENSIVE CONDITION will not be verified and this CONTRACT will have no effect before either PARTY.

CLAUSE 14. INTEGRITY AND ANTI-CORRUPTION LAWS

14.1. The PARTIES declare to be aware that the ANTI-CORRUPTION LAWS make it illegal: (a) to offer, pay, promise or authorize the payment of any amount, gift or anything of value, including, but not limited to gifts, entertainment, advantages or any benefit, directly or indirectly, to a government agent, or third parties related to him/her; (b) to finance, fund, sponsor or in any way subsidize the practice of the aforementioned acts; (c) to use an interposed individual or legal entity to hide or dissimulate its real interests or the identity of the beneficiaries

of the aforementioned acts; and (d) hinder investigation or inspection activities by public agencies, entities or agents, or intervene in their activities, including in the scope of the regulatory agencies and the inspection bodies of the national financial system.

14.2. For purposes of accomplishing the subject matter of this CONTRACT, the PARTIES ensure that they will in no way violate or contribute to a violation of the ANTI-CORRUPTION LAWS.

14.3. The PARTIES, in particular, undertake not to promise, offer or give, directly or indirectly, any undue advantage or anything of value to a government agent, or to third parties related to him/her, regarding to the performance of the subject matter of this CONTRACT or any other relationship involving the PARTIES, for any purpose or effect.

14.4. Without prejudice to the other clauses, conditions, obligations and penalties set forth in this CONTRACT, in the event of an effective violation of the ANTI-CORRUPTION LAWS, the breaching PARTY shall be responsible for reimbursing all eventual losses and damages, direct and indirect (including, but not limited to, image damages) caused to the non-breaching PARTY and/or third parties.

14.5. If they become aware or suspect of: (a) any payment, offer, request or agreement to grant an undue advantage to a government agent, or its related third party, in order to obtain any benefit for one of the PARTIES, whether related to this CONTRACT or not; or (b) any event that may render inaccurate or incorrect the statements made by one of the PARTIES contained in this CONTRACT or made at any time during the term of this CONTRACT regarding to the ANTI-CORRUPTION LAWS, the PARTIES agree to inform each other immediately of the fact or suspicion to the best of their knowledge of the fact or suspicion.

14.6. Any breach of the ANTI-CORRUPTION LAWS, in any of its aspects, shall result in the immediate and motivated rescission of this instrument by the non-breaching PARTY, without prejudice to the penalties set forth in this CONTRACT and the compensation for losses and damages, direct and indirect, including emergent damages, as well as loss of profits and image damages that may be caused to said non-breaching PARTY and/or any third party.

14.7. The PARTIES are obliged to fully comply with the provisions contained in the Code of Ethics and Conduct of HERMASA and PDB in force on the date of signing this AGREEMENT, which the PARTIES declare to have accessed and understood in all its terms, obligations and provisions, and to respect the general principles contained in the Codes of Ethics and Conduct of HERMASA and PDB updated from time to time.

CLAUSE 15. APPLICABLE LAW

15.1. This CONTRACT shall be governed by and construed in accordance with the LAWS of the Brazil's Federal Republic.

CLAUSE 16. FORUM

16.1. The PARTIES by common and reciprocal agreement elect the Central Court of the Judicial District of São Paulo/SP as the sole competent court to hear and resolve any doubts or disputes arising from the interpretation and execution of any of the clauses, conditions, rights and obligations set forth in this CONTRACT and in any documents related hereto, expressly waiving any other.

CLAUSE 17. FINAL PROVISIONS

17.1. Liability: The liability of each of the PARTIES under this CONTRACT is limited to the penalties provided for herein and to the compensation for direct damages, it being expressly stipulated that none of the PARTIES shall be liable, in any event, for loss of profits or indirect damages, such as loss of income, loss of billing and loss of contract, loss of production, except in the case of willful misconduct, gross negligence or fraud.

17.2. Notices and Communications: All notices, communications, requests and other notices given from PARTY to PARTY under this CONTRACT shall be in writing and sent by e-mail or by registered or certified mail to the following addresses:

If for PDB:

[***]

If for HERMASA:

[***]

17.3. All notification, requests, and other notices shall be deemed given upon actual receipt or delivery, evidenced by written acknowledgment of receipt, confirmation, or other proof of actual receipt or delivery to the addresses listed above and in care of the representatives referred to therein. Any PARTY may, from time to time, by written notice delivered in the foregoing manner, designate another address or a different or additional person to whom all such notices or notifications shall be sent in the future.

17.4. Specific execution: The commitments and obligations assumed by each of the PARTIES in this CONTRACT allow for specific execution. To this purpose, the PARTIES recognize that this CONTRACT, duly signed by two witnesses, constitutes an extrajudicial execution instrument for all purposes and effects, in accordance with article 784, III, of the Brazilian Code of Civil Procedure.

17.5. Entire Agreement, Irrevocability and Irretractability: This CONTRACT constitutes the entire agreement between the PARTIES with respect to its subject matter, superseding any and all prior agreements and understandings between the PARTIES, oral or written. This CONTRACT and the obligations set forth herein are contracted on an irrevocable and irreversible basis, not allowing for any type of repentance, rescission or cancellation, except in the cases of rescission expressly established herein.

17.6. Excessive Burden, Freedom of Consent: The PARTIES declare that the obligations assumed by this instrument (a) are fully equitable, as well as that they have and shall have, during the entire term of this CONTRACT, full capacity to fulfill these obligations, thus refraining from invoking, at any time, excessive burden in the performance of the same; and (b) were assumed by the PARTIES by full and unequivocal agreement, in existing in this contract any kind of defect of consent, duress, exercising the PARTIES' freedom to contract, including having been assisted this PARTIES by their lawyers, consultants, accountants and technicians in this present agreement.

17.7. Costs and Expenses: Each of the PARTIES shall be solely responsible for any and all costs and expenses it has incurred and may incur as a result of the contractual relationship established herein, including (but not limited to) taxes, expenses, costs with advisors, consultants and any others. not limited to) taxes, expenses, costs with advisors, consultants and any others, and there shall be no charge, request for reimbursement or sharing thereof, for any reason, unless expressly provided for in this CONTRACT.

17.8. LIBERALITY: If either PARTY tolerates any breach of any provision of this CONTRACT (and/or of any other documents related hereto), or omits to require compliance with any term or condition hereof, it shall not mean that it has released the other PARTY from its obligations assumed, nor shall the breach be deemed to have been cancelled. This shall not constitute a novation of the terms of this CONTRACT, nor shall it affect your rights, which may be exercised at any time.

17.9. Amendments: Any amendment to this CONTRACT shall be valid only by means of a written instrument, duly executed by the PARTIES, which shall become an integral part of this CONTRACT for all purposes and effects.

17.10. Invalidity: Any unenforceability or invalidity of any clause, item, obligation, term, condition or provision established under this CONTRACT may only be declared in court, by final condemnatory and/or declaratory judgment which has become final and unappealable, and even then it shall not affect the enforceability or the expiration date of the other clauses, items and provisions, except if the combination of its provisions results in that the will of the PARTIES would not have been to contract without the unenforceable or invalid provisions.

17.11. Decoupling: It is not established under this CONTRACT, a bond of any nature, including, but not limited to, labor, environmental, regulatory and fiscal liability of HERMASA to PDB, nor PDB's liability to HERMASA (nor any commitments in this regard), other than the provision of services bond established herein. Each PARTY shall exclusively bear the responsibilities attributable to them by LAW, including labor responsibilities of their respective employees and their respective environmental, integrity, regulatory and tax responsibilities. No partnership, association, agency, consortium, mandate or joint liability is created by this CONTRACT between the PARTIES.

17.12. Responsibility for Drafting the Clauses: The PARTIES have jointly participated in the negotiation and drafting of this CONTRACT, and the drafting and construction of the Clauses provided for herein shall always be considered as a writing jointly agreed upon by these PARTIES, in good faith, to express their mutual intent and purposes. In the event that an ambiguity or conflict in interpretation should arise, this CONTRACT shall be interpreted as such, i.e., as if drafted jointly by the PARTIES, and there shall be no presumption or burden of proof favoring or disfavoring any PARTY by virtue of the authorship of any provision contained herein.

17.13. Term: This CONTRACT and the obligations set forth herein shall be effective as of the present date, and shall remain in full force and effect for a period of 15 (fifteen) years after the date of the first shipment of the PRODUCT for the provision of the SERVICES herein agreed upon. The PARTIES further establish that, due to its irrevocable and irreversible character, this CONTRACT may not be rescinded before its final term, except as authorized by this CONTRACT.

17.14. Renewal Option: The PARTIES may jointly agree in writing, within 1 (one) year prior to the final term of this instrument, on the renewal of this CONTRACT for an additional period of 15 (fifteen) years from the end term date of this CONTRACT, established above.

17.15. Data Treatment and Protection: The PARTIES warrant that they perform and have performed, since the commencement of Law 13.709/2018 (“LGPD”), the treatment of personal data in accordance with the LGPD and declare that: (a) they store personal data in a secure and appropriate manner, in accordance with the applicable LAW; (b) follow a privacy policy and security procedures compatible with the type of personal data processed; (c) have appointed a controller, as determined by the applicable LAW; (d) make the registration of the personal data processing operations; (e) have the consent of the owners of the personal data to carry out the processing or base each processing on any legal case provided by LAW; (f) only use personal data in a manner compatible with the purposes for which they are received; (g) allow the owners of the personal data to personally exercise their rights, as foreseen in LAW; (h) ensure that technical and organizational security measures are used to protect personal data against unlawful and unauthorized processing and against accidental leakage, destruction or damage; and (i) ensure that any employees or external service providers acting in conjunction with them in the performance of their services and who may have access to personal data comply with applicable laws on the protection of personal data.

17.16. Languages: This CONTRACT is written in two columns, one in the Portuguese language and one in the English language. In case of any conflict, incongruence, or divergence between these versions, the Portuguese language version will always prevail.

17.17. Socio-environmental Aspects of the Project: The PARTIES declare and warrant that, during the entire term of this CONTRACT, they shall observe and comply with all LAWS of a social and environmental nature, being obligated to adopt effective environmental and social programs aligned with the applicable legal provisions pertinent to the activities of this CONTRACT. If, during the entire term of this CONTRACT, any of the PARTIES have indigenous labor, it will only be admitted through labor, employment, and income programs provided for and accepted by LAW, and in strict compliance with the norms, LAWS, and conventions of any nature applicable to labor and human and social development. Likewise, PDB declares and guarantees that the construction and operation of the PROJECT will be carried out with strict respect for the environment, and that its facilities have been conceived so as to cause the least possible environmental and social impact, which will be compensated in accordance with the provisions of LAW. No aspect of the PROJECT should be conceived or operated with damage or harm (even if potential) to the environment and the populations living there, except for the impacts foreseen and approved in the environmental licenses, to be compensated according to their terms. It will be an unconditional obligation of PDB to attend to the realization of an Indigenous Component Study - ECI regarding the region where the PROJECT will be built and the indigenous people who live there. The development and operation of the PROJECT by PDB shall further comply, in all aspects, with any LAW related to (i) occupational health and safety; (ii) combating prostitution and child labor; and (iii) slave labor. HERMASA represents and warrants that all of its activities during the term of this CONTRACT will also comply, in all aspects, with any LAW related to (i) occupational health and safety; (ii) combating prostitution and child labor; and (iii) slave labor.

17.18. Electronic Signatures: The PARTIES agree that this CONTRACT may be signed electronically, by the PARTIES and their respective witnesses, through any certified platform (such as the DocuSign platform) or using their personal electronic certificate, and that electronic signatures shall have the same expiration date as physical

signatures. The PARTIES further acknowledge that the digital signature of this CONTRACT shall not prevent or in any way hinder its enforceability pursuant to Article 784, III of the Code of Civil Procedure, and they waive any right to claim otherwise. The PARTIES declare and acknowledge that the signatories are the legitimate representatives of the PARTIES and are entitled to enter into this CONTRACT.

And in witness whereof, the PARTIES sign this CONTRACT together with two witnesses for all legal purposes and effects.

Cuiabá, September 29, 2022

By: /s/ Adriano Viana Espescht Date: September 29, 2022
POTÁSSIO DO BRASIL LTDA.

By: /s/ Sergio Luiz Pizzatto Date: September 30, 2022
HERMASA NAVEGAÇÃO DA AMAZÔNIA LTDA.

Witnesses:

1. /s/ Davidson Pereira Aquino Date: September 29, 2022

2. /s/ Amanda Salgado de Barros Date: September 30, 2022

**FORM OF
PRIVATE CONTRACT FOR LEASE OF RURAL AREA**

By this particular Contract, on the one hand _____, (nationality) _____, (profession) _____, (marital status) _____, bearer of identity No. _____, registered in the CPF under No. _____, (name and qualification of spouse, if any), resident(s) and domiciled at Street _____, n° _____, City/Municipality _____, State of _____, hereinafter referred to simply as **OWNER/LESSOR**, and on the other hand, (name) POTASSIUM DO BRASIL LTDA., a private legal entity, headquartered in the City of Manaus, Rio Içá Street, Ed. Celebration Smart Offices, Conj. Vieiralves, Nossa Senhora das Graças, ZIP 69053-100 n° 310 Complement 1st Floor, room 105 State of Amazonas, Registered with CNPJ n° 10.971.768/0001-66, represented in accordance with the provisions of its Articles of Incorporation, hereinafter referred to simply as **LESSEE**, have fair and contracted the following, which they mutually accept and agree, in accordance with the following terms and conditions, which will be governed by Federal Law No. 4,504/64 and Decree No. 59,566/66:

CLAUSE ONE - OBJECT OF THE CONTRACT

- I. The object of this Contract is a plot of land with (AREA), located in _____, municipality of _____, _____, of the registration _____, of the Real Estate Registry Office of the city of __, registered with INCRA under the n __, owned by the LESSOR.
- II. The property described above exists in accordance with the attached photographic record and, in the case of the existence of any improvements, such improvements will also be utilized by the TENANT.
- III. The following are annexed to this Agreement: (i) a photographic report in which the property or leased land, in its state of conservation, are described in detail, at the time of its delivery to the TENANT; and (ii) a drawing of the leased area.
- IV. The parties may agree to replace the leased area with an equivalent leased area in the same rural property, or even to increase the leased area, provided that the parties do so expressly through an addendum, incorporating the same terms and conditions agreed upon in this Agreement.

CLAUSE TWO - PRICE

- I. The rental price of the land object of this Agreement will be R\$ XXX,XX (_____ reais) per MONTH, which must be paid by the 5th business day of each month subsequent to the current month, by bank transfer/deposit in an account held by the LESSOR or in accordance with the LESSOR's instructions, and LESSOR must record each lease payment in a receipt that will be delivered to the LESSEE.
- II. The LESSOR grants the LESSEE a grace period in relation to the initial months of the lease, provided that the monthly amounts will be paid starting on the 10th (tenth) month after the date of the operation known internationally as IPO (Initial Public Offering) of the LESSEE's parent company.
- III. Lease payments will follow the monthly schedule beginning on the 10th month from the TENANT's IPO.
- IV. The price will be readjusted every 12 months, regardless of a grace period, according to the INPC.

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- V. In case of delay of a scheduled lease payment of the lease within the stipulated period, a fine of 2% (two percent) will be automatically applied on the amount of the outstanding lease payment and a default interest of 1% (one percent) per month.

CLAUSE THREE - DESTINATION OF THE PROPERTY

- I. The LESSEE expressly declares that the leased area will be destined exclusively to facilities that are part of the Autazes Potash Project in accordance with the project presented and in the process of approval with IPAAM – Institute of Environmental Protection of Amazonas owned by the LESSEE, and LESSEE further declares that it will not carry out any mineral exploration in the surface, or agricultural or extractive activities in the leased area.
- II. The LESSOR expressly agrees with the improvements that the LESSEE will need to make in the leased area in connection with the construction of the facilities of the Autazes Potash Project, from the LESSEE.
- III. The LESSEE, at the end of this Agreement, will be responsible for the decommissioning of the leased area, carrying it out in accordance with the applicable laws and regulations, within a period of _____ (X) years.
- IV. The LESSEE may sublet, rent, lend, or assign the leased land object of this Agreement and change its purpose, provided that it has previously notified the LESSOR.
- V. The TENANT is required to observe environmental standards, preserving the natural resources of the leased property.
- VI. The LESSOR declares that there are no Permanent Preservation and Legal Reserve areas on the land subject to this Agreement.
- VII. With respect to any activity that requires prior environmental licensing, the LESSEE is responsible for obtaining such license, bearing any legal penalties resulting from a failure to obtain such license.
- VIII. The LESSOR shall cooperate with LESSEE and provide all the necessary assistance to obtain the licenses and permits required in connection with LESSOR's activity in the land subject to this Agreement, providing, for this purpose, documents, information and declarations.
- IX. The administration of the services to be performed in the leased property will be the sole responsibility of the LESSEE, including the hiring of personnel to assist LESSEE in the execution of the work, assuming, separately, with express exclusion of any joint liability of the LESSOR, the liabilities of a civil, labor, social security and tax nature arising from the hiring of personnel to carry out the work of any nature in the leased property. It is incumbent upon the LESSEE to pay the wages and other labor charges due to the employees, dismiss them, indemnify them, etc., as well as the compensation for material damages that may be caused by the action or omission of these personnel, during the performance of any work in the leased area.

CLAUSE FOUR - DEADLINES AND TERMINATION

- I. The lease term of the area subject to this Agreement is _____ (_____) years, starting on _____ of _____ of _____ .

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- II. In the absence of notice to the contrary from either Party, during the period from sixty (60) to thirty (30) days prior to the end of the contractual term, this Agreement shall be deemed automatically renewed.
 - III. Breach of contract may result in the termination of this Agreement, provided that the injured Party notifies the Violator in writing and grants a cure period of thirty (30) days for the obligations or contractual breach to be remediated, after which, without a response from the Violator, this Agreement will be considered terminated.
 - IV. In the event of termination by agreement between the parties, no amounts, contract balances or fines will be due to either party.
 - V. The LESSOR may not request termination before the term of this Agreement, under penalty of payment of a fine in an amount equal to 50% of the remaining balance in favor of the LESSEE.

CLAUSE FIVE - RIGHT OF FIRST REFUSAL

- I. In the event of sale of the leased property, the LESSEE shall have the right of first refusal to acquire only the leased land, on equal terms of other third parties, and the LESSOR shall publicly disclose the proposed sale by means of judicial, extrajudicial or other means of unequivocal knowledge, using digital means.
- II. The disclosure should contain the terms of the transaction and, in particular, the price and method of payment, as well as the place and time at which the relevant documentation may be examined.
- III. After the notification of proposed sale, the LESSEE will have a period of thirty (30) calendar days that are non-extendable to unequivocally express its acceptance of the sale proposal.
- IV. If the LESSEE is not notified of the sale, he/she may, by depositing the full sale price, acquire the leased land, if he/she requests it within a non-extendable period of 06 (six) months, from the publication of sale in the Property Registry.
- V. At any time, the Parties may, through free negotiation, change this AGREEMENT to a PURCHASE AND SALE, through a separate instrument, and may use the lease amounts paid up to the date of negotiation as a reduction in the sale price.

CLAUSE SIX - RIGHTS AND OBLIGATIONS

From the LESSOR:

- I. Deliver to the LESSEE the leased land described in Clause One, with its improvements, in a state of service for the use for which it is intended, and to maintain the leased land in such state, for the duration of this Agreement, unless otherwise expressly stipulated herein;
- II. Warrant to the LESSEE, during the term of this Agreement, the peaceful use of the leased land;
- III. Protect the TENANT from encumbrances and disturbance of third parties;
- IV. Be liable for issues existing prior to the lease;
- V. Provide the TENANT with a receipt detailing the amounts paid; and

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- VI. Allow the TENANT access to the leased land through an easement on its remaining property, if applicable.

From the TENANT:

- I. Use the property for the agreed purpose, according to its nature and circumstances, as well as treat it as if it were the owner;
- II. Pay the lease amount on the agreed date, without delay and by the agreed method, terms and location;
- III. Immediately bring to the attention of the LESSOR any damage or defect whose repair is incumbent upon LESSOR, as well as any act of third parties and all subpoenas or notices from public authorities received in the leased area;
- IV. To care for and maintain the land and to repair any damage to its facilities caused by it and its representatives;
- V. To make the necessary improvements to the leased land, during the term of the Contract, including for the preservation of natural resources; and
- VI. Comply with all stipulated deadlines, which will become due regardless of interpellation, notification or warning, judicial or extrajudicial.

CLAUSE SEVEN - WAIVER OF CONTRACTUAL PROVISIONS

- I. None of the provisions of this Agreement may be waived or amended unless specifically formalized by means of an Amendment.
- II. The fact that one of the parties waives any default or non-compliance with obligations by the other party does not imply a waiver of this Agreement and does not induce novation, and the right to demand from the noncompliant or defaulting party, at any time, the suspension of the default or the full fulfillment of such obligation is maintained.

CLAUSE EIGHT - PROTECTION OF PERSONAL DATA

- I. The Parties undertake to act in this Cooperation Agreement in accordance with the current legislation on Personal Data Protection and the regulations of regulatory/supervisory bodies on the matter, in particular Law No. 13,709/2018 – General Personal Data Protection Law (“LGPD”).
- II. It is agreed that the Parties shall adapt in the event of modification of the legal texts indicated in the clause above or any other herein, in such a way as to require modifications in the structure or the scope of this Agreement or in the performance of the activities related to this Agreement.
- III. The parties must inform their employees, directors, agents, customers, suppliers, and partners about the current legislation on Personal Data Protection and ensure that they have all the necessary consents and notices to allow the processing of personal data of the respective data subjects as necessary for the performance of this Agreement.

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- IV. The parties hereby mutually guarantee that all personal data collected, produced, received, classified, used, accessed, reproduced, transmitted, distributed, processed, archived, stored, eliminated, evaluated or controlled by information, modified, communicated, transferred, disseminated or extracted as a result of this Agreement, will be treated in accordance with the applicable legislation in force, and shall indemnify the party that did not cause the damages that it may incur due to any judicial or administrative claims, which are moral or material losses or losses and damages caused to the party, its employees, customers or suppliers and partners, including, but not limited to, expenses such as attorney's fees, court costs and administrative fees.
 - V. The parties undertake to carry out the correction, deletion, anonymization or blocking of data, when notified to do so, in cases of request by the holder of personal data to one of the signatories of this Agreement.
 - VI. The parties shall keep a record of the processing of personal data they carry out, as well as adopt best practices and implement any necessary technical and organizational procedures to protect the data against accidental or unlawful destruction, loss, alteration, disclosure, dissemination, unauthorized access, or any other form of inappropriate or unlawful processing, in addition to ensuring data security within the scope of the processing of personal data.

CLAUSE NINE - CONFIDENTIALITY

- I. During the course of this Agreement and for a period of three (3) years after its termination, both parties agree to keep strictly confidential all information, data, documents and technical or commercial know-how, of any nature, shared between them in connection with this Agreement ("Confidential Information"). The parties agree not to disclose, reproduce, transmit or use in any way the Confidential Information for any purpose that is not directly related to the performance of this Agreement, except as required by law. Both parties agree to take necessary and reasonable steps to protect the confidentiality of the Confidential Information and, upon termination of this Agreement, return or destroy all Confidential Information received, as requested by the disclosing party.
- II. By signing this Agreement, the parties acknowledge and agree that any breach of this Non-Disclosure Agreement (NDA) clause will result in irreparable harm to the aggrieved party, for which monetary compensation may not be adequate. The parties agree that the aggrieved party shall be entitled to seek appropriate injunctive and compensatory relief, in addition to any other remedy available at law, to remedy such breach. This NDA clause constitutes the entire agreement between the parties regarding the confidentiality of the Confidential Information and shall supersede any prior or contemporaneous agreements, written or oral, relating to the same subject matter.
- III. The party that fails to comply with the confidentiality imposed on this Agreement will be subject to the payment of a fine in the amount of 50% of the balance of this Agreement.
- IV. The LESSEE is expressly authorized to use and present this Agreement to public agencies and municipalities for the purpose of obtaining licensing, permits and authorizations related to the activities performed by the LESSEE, not constituting an offense to this clause.

GENERAL PROVISIONS

Situations not provided for in this Agreement shall be governed by the Land Statute (Law No. 4,504/64) and by Decree No. 59,566/66 (Agricultural Partnership and Rural Lease).

The parties elect the jurisdiction of the District of Manaus/AM to resolve any dispute arising from this Agreement.

And because they are thus fair and contracted, the parties sign this Agreement in two copies of equal content, in the presence of the witnesses below.

Place and Date:

LESSEE LESSOR

Witnesses:

1st) Ass. _____

Name:

Identity:

2nd) Ass. _____

Name:

Identity:

List of Subsidiaries of Brazil Potash Corp.

<u>Name of Subsidiary</u>	<u>Jurisdiction of Incorporation or Organization</u>
Potássio do Brasil Ltda.	Brazil

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the inclusion in this Registration Statement on Form F-1 of our auditor's report dated April 19, 2024, with respect to the consolidated financial statements of Brazil Potash Corp. and its subsidiary (the "Company") as at December 31, 2023 and 2022 and for each of the years in the two-year period ended December 31, 2023, and of our auditor's report dated April 28, 2023, with respect to the consolidated financial statements of the Company as at December 31, 2022 and 2021 and for each of the years in the two-year period ended December 31, 2022, as included in the Annual Reports on Form 1-K of the Company for the years ended December 31, 2023 and December 31, 2022, respectively, as filed with the United States Securities and Exchange Commission.

We also consent to the references to our firm under the headings "Interests of Experts and Counsel" and "Experts" in this Form F-1.

/s/ MNP LLP

Chartered Professional Accountants
Licensed Public Accountants

August 20, 2024
Mississauga, Canada

CONSENT

Brazil Potash Corp.
198 Davenport Road, Toronto
Ontario, Canada, M5R 1J2

Re: S-K 1300 Technical Report and the Registration Statement on Form F-1 of Brazil Potash Corp. (the “Company”)

ERCOSPLAN Ingenieurgesellschaft Geotechnik und Bergbau mbH (“ERCOSPLAN”) is the authoring firm of the report titled “*Technical Report, Update of the Autazes Potash Project – Pre-Feasibility Study*”, dated October 14, 2022 (the “Technical Report”), regarding the Company’s potash mining project known as the Autazes Project (the “Project”), which Technical Report was prepared in accordance with Item 601 and Subpart 1300 (“Subpart 1300”) under Title 17, Part 229 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission (the “Commission”) under the U.S. Securities Act of 1933, as amended.

ERCOSPLAN understands that the Company makes reference to ERCOSPLAN’s name and the Technical Report in the Company’s Registration Statement on Form F-1 (the “Registration Statement”) that has been prepared and filed with the Commission in connection with the Company’s initial public offering of its common shares. ERCOSPLAN further understands that the Company uses certain extracts of, and information from, the Technical Report to describe and provide information regarding the Project in the Registration Statement (collectively, the “Expert Information”).

Accordingly, with respect to the Registration Statement, ERCOSPLAN does hereby consent to:

- the use of, and references to, its name in the Registration Statement;
- the use of, and references to, the Technical Report in the Registration Statement; and
- the use of, in the Registration Statement, the Expert Information or any portions thereof.

ERCOSPLAN confirms that where its work involved a mineral resource or mineral reserve estimate, such estimates comply with the requirements for mineral resource and mineral reserve estimation set forth under Subpart 1300.

ERCOSPLAN further confirms that (i) it has been provided with a copy of the Registration Statement, (ii) its representatives have read the disclosure in the Registration Statement that relate to the Project, including the Expert Information, and (iii) such disclosure included in the Registration Statement does not contain a misrepresentation.

Dated: August 20, 2024

ERCOSPLAN INGENIEURGESELLSCHAFT GEOTECHNIK UND BERGBAU MBH

By: /s/ Henry Rauche

Name: Dr. Henry Rauche

Title: Managing Director and CEO

CONSENT

Brazil Potash Corp.
198 Davenport Road, Toronto
Ontario, Canada, M5R 1J2

Re: S-K 1300 Technical Report and the Registration Statement on Form F-1 of Brazil Potash Corp. (the “Company”)

L&M Assessoria (“L&M”) is the authoring firm of Section 17.6 titled “*Opinion of Qualified Person (QP)*” and Chapter 19 titled “*Economic Analysis*” of the report titled “*Technical Report, Update of the Autazes Potash Project – Pre-Feasibility Study*”, dated October 14, 2022 (the “Technical Report”), regarding the Company’s potash mining project known as the Autazes Project (the “Project”), which Technical Report was prepared in accordance with Item 601 and Subpart 1300 (“Subpart 1300”) under Title 17, Part 229 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission (the “Commission”) under the U.S. Securities Act of 1933, as amended.

L&M understands that the Company makes reference to L&M’s name and the Technical Report in the Company’s Registration Statement on Form F-1 (the “Registration Statement”) that has been prepared and filed with the Commission in connection with the Company’s initial public offering of its common shares. L&M further understands that the Company uses certain extracts of, and information from, the Technical Report to describe and provide information regarding the Project in the Registration Statement (collectively, the “Expert Information”).

Accordingly, with respect to the Registration Statement, L&M does hereby consent to:

- the use of, and references to, its name in the Registration Statement;
- the use of, and references to, the Technical Report in the Registration Statement; and
- the use of, in the Registration Statement, the Expert Information or any portions thereof.

L&M further confirms that (i) it has been provided with a copy of the Registration Statement, (ii) its representatives have read the disclosure in the Registration Statement that relate to the Project, including the Expert Information, and (iii) such disclosure included in the Registration Statement does not contain a misrepresentation.

Dated: August 20, 2024

L&M ASSESSORIA

By: /s/ João Augusto Hilário de Souza

Name: João Augusto Hilário de Souza

Title: Mining Engineer



**Technical Report Summary
of
S-K 1300 Technical Report,
Update of the Autazes Potash Project
Pre-Feasibility Study**

Client: **Brazil Potash Corp.**
198 Davenport Rd.
Toronto, Ontario
M5R 1J2
CANADA

Consultant: **ERCOSPLAN Ingenieurgesellschaft
Geotechnik und Bergbau mbH**
Arnstaedter Strasse 28
99096 Erfurt
GERMANY

Project Reference: 22-019

Date: **14 October 2022**

Signature: /s/ Henry Rauche
By: Dr. Henry Rauche
Title: Managing Director & CEO

LIST OF CONTENTS

1	Executive Summary	21
1.1	Introduction	21
1.2	Property Description	21
1.3	Accessibility and Climate	22
1.4	History and Exploration	22
1.5	Geological Setting	22
1.6	Sample Preparation, Analysis and Data Verification	23
1.7	Mineral Processing and Metallurgical Testing	23
1.8	Mineral Resource and Reserve Estimates	24
1.9	Mining Methods	24
1.10	Process and Recovery Methods	25
1.11	Infrastructure	25
1.12	Market Studies	26
1.13	Cost Estimate	26
1.14	Project Schedule	28
2	Introduction	29
2.1	Terms of Reference and Purpose of the Report	29
2.2	Sources of Information	29
2.3	Personal Inspection of Property by Qualified Person	29
3	Property Description	31
3.1	Property Location	31
3.2	Mineral Rights	31
3.3	Property Titles	33
3.4	Environmental Liabilities	34
3.5	Royalties	34
3.6	Permits	35
3.6.1	Mineral Permits	35
3.6.2	Environmental Permits	35
3.7	Other Significant Factors and Risks	36
4	Accessibility, Climate, Local Resources, Infrastructure and Physiography	38
4.1	Accessibility	38
4.2	Climate	39
4.3	Local Resources and Infrastructure	40
4.4	Physiography	41
5	History	42
5.1	1973-1987: First Studies in the Amazon	42
5.2	2007-2008: Site Investigations by Potássio do Brasil	43
5.3	2009: Exploration and Pilot Hole Drilling	43
5.4	2010-2014: Drilling Campaign for Preliminary Economic Assessment	43
5.5	2014-2015: Drilling Campaign	44
5.6	2015-2016: Pilot Shaft Hole Drilling	44
6	Geological Setting, Mineralization, and Deposit	46
6.1	Regional Geology	46
6.2	Local Stratigraphy of the Potash-Bearing Horizon	48
6.3	Deposit Type	49
6.4	Mineralization	50
6.5	Hydrogeology and Hydrogeological Barriers	52
7	Exploration	54
7.1	2D Seismic Survey of 2000	54
7.2	2D Seismic Survey of 2015	55
7.3	Historical Drill Holes	56

7.4	Drill Holes Drilled By Brazil Potash	56
7.5	Hydrogeological Test Work	58
8	Sample Preparation, Analyses, and Security	62
8.1	Introduction	62
8.2	Sample Preparation	62
8.3	Sample Analyses	62
8.4	Security	62
9	Data Verification	63
9.1	Blank Samples	63
9.2	Standard Samples	64
9.3	Cross-Check Samples	66
9.4	Consistency Check	67
9.5	Conclusion	68
10	Mineral Processing and Metallurgical Testing	69
10.1	Processing Test Work	69
10.1.1	Flotation Test Work	69
	10.1.1.1 Initial Flotation Test Work	69
	10.1.1.2 Additional Flotation Test Work	70
10.1.2	Hot Leaching/Crystallization Test Work	70
10.1.3	NaCl Processing Test Work	72
10.1.4	Opinion of the Qualified Person	75
10.2	Rock Mechanical Test Work	75
11	Mineral Resource Estimates	77
11.1	Introduction	77
11.2	Assumptions and Methodology	77
11.3	Estimation Method	78
11.4	Mineral Resource Classification	78
11.4.1	Inferred Mineral Resource	78
11.4.2	Indicated Mineral Resources	82
11.4.3	Measured Mineral Resources	84
12	Mineral Reserve Estimates	86
12.1	Introduction	86
12.2	Basic Data, Boundary Conditions and Methodology	86
12.2.1	Resource Block Model	86
12.2.2	Ore and Waste Grades and Densities	87
12.2.3	Model Recoveries	87
12.2.4	Cut-Off Grade	88
12.2.5	Waste Material Determination and Dilution	88
12.2.6	Mine Plan	90
12.3	Estimation Method	91
12.4	Mineral Reserve Classification and Estimate	91
13	Mining Methods	93
13.1	Mining Design Criteria	94
13.2	Rock Mechanics	94
13.2.1	Rock Mechanic Test Results	95
13.2.2	Factor of Safety	96
13.2.3	Impact of Clay Seams	98
13.2.4	Roof Support Design	98
13.2.5	Barrier Pillar Design	98
13.2.6	Integrity of Hydrogeological Protection Layers	99
13.2.7	Creep and Subsidence	100
13.2.8	Faults	101
13.2.9	Optimization of Mine Design Parameters	102
13.3	Mine Access	103

13.3.1	Main Shaft	103
13.3.2	Ventilation Shaft	103
13.3.3	Shafts Services	103
13.3.4	Shaft Sinking	104
13.4	Mine Design	104
13.4.1	Mine Development	104
13.4.2	Production Panels	105
13.5	Mine Operations and Production Scheduling	107
13.5.1	Operating Parameters	107
13.5.2	Productivity	108
13.5.3	Production Schedule	111
13.5.4	Grade Control	114
13.6	Mine Equipment and Infrastructure	114
13.6.1	Equipment Selection	114
13.6.2	Equipment Assembly, Maintenance and Repair	114
13.6.3	Mining Section Equipment	115
13.6.4	Auxiliary Equipment	115
13.6.5	Quarterly/Annual Equipment List	115
13.6.6	Ventilation Equipment	115
13.6.7	Conveyance	116
13.6.8	Dry Backfill	117
13.6.9	Safety Equipment	117
13.6.10	Underground Communication and Tracking	117
13.6.11	Electrical Infrastructure	118
13.6.12	Other Infrastructure	118
13.7	Personnel Requirement	118
13.7.1	Crew Schedule	118
13.7.2	Personnel List	119
13.8	Backfill	121
13.8.1	Overview of Backfill Methods	121
13.8.2	Technical Parameters for Backfill Operations	122
13.8.3	Backfill Design	123
	13.8.3.1 Productivity	124
	13.8.3.2 Layout and Construction	124
	13.8.3.3 Underground Process	125
	13.8.3.4 General Arrangement	125
13.8.4	Conclusions	126
13.9	Mine Ventilation	126
14	Processing and Recovery Methods	127
14.1	KCI Process Design	127
14.1.1	Design Base Parameters	127
	14.1.1.1 Process Design Criteria	129
	14.1.1.2 Product Mixing and Specification	129
	14.1.1.3 Surge Capacity and Loading	130
	14.1.1.4 Block Flow Diagram	130
14.1.2	Process Description	131
14.2	Area 3100 – Raw Material Handling and Primary Crushing	132
14.2.1	Run-Of-Mine Raw Material Handling	132
14.2.2	Processing Plant Raw Material Handling	133
	14.2.2.1 Area 3100 – Primary Crushing	134
	14.2.2.2 Area 3200 – Wet Processing	135
	14.2.2.3 Area 3300 – Dry Processing	136
14.3	Product Handling and Storage	140
14.3.1	Area 3400 – Product Load Out	140
	14.3.1.1 KCI Granular Product Storage	141
	14.3.1.2 Granular Product Conditioning	141
	14.3.1.3 Product Loadout	141
14.3.3	Area 7200 – Port	141
14.4	Area 3500 – Tailings Processing	142
14.5	General Processing Plant Utilities and Services	143
14.5.1	Area 3600 – Reagents	143

14.5.1.1	Reagents Mixing and Storage	144
14.5.1.2	Gland and Cooling Water	145
14.5.2	Dust and Emissions Control	145
14.5.2.1	Dust Collection System	145
14.5.3	Compressed Air	146
14.5.4	Plant Instrumentation and Process Control	146
14.5.5	Plant Instrumentation and Process Control	146
14.6	Future Test Work	147
14.6.1	Essential Metallurgical Test Work	147
14.6.2	Optional Metallurgical Test Work	147
14.7	Conclusions	148
14.8	Recommendations	148
15	Infrastructure	149
15.1	General Infrastructure	149
15.1.1	Mine, Processing Plant and Port Plot Plan	149
15.1.2	Geotechnical Data	149
15.1.3	Bathymetric Study	151
15.1.4	Earthworks, Roads, Parking and Site Drainage	151
15.1.4.1	Earthworks	151
15.1.4.2	Access Roads, Parking and Transportation	152
15.1.4.3	Site Drainage	152
15.1.5	Facilities, Buildings and Outdoor Areas	153
15.1.5.1	Substructure	155
15.1.5.2	Structures	156
15.1.5.3	Maintenance and Administrative Building Enclosures	156
15.1.5.4	Administrative Offices – Interior Partitions and Finishes	157
15.1.5.5	Mechanical	158
15.1.5.6	Electrical	158
15.2	Utilities and Service Distribution	159
15.2.1	Power Supply and Distribution	159
15.2.1.1	Power Supply	159
15.2.1.1.1	Synthesis of the Brazilian Grid	159
15.2.1.1.2	Energy Supply for Autazes Potash Project	160
15.2.1.2	Electrical Demand	162
15.2.1.3	Electrical Substations	163
15.2.1.4	Power Distribution	164
15.2.1.5	Emergency Power Plant	165
15.2.2	Water Supply and Distribution	165
15.2.2.1	Processing Plant	165
15.2.2.2	Port	166
15.2.2.3	Service Water	167
15.2.2.4	Potable Water	167
15.2.2.5	Sealing Water	167
15.2.2.6	Cooling and Chilled Water	167
15.2.2.7	Process Water	167
15.2.2.8	Deminerlized Water	167
15.2.3	Water Treatment Plant	168
15.2.4	Fire Protection	168
15.2.4.1	Introduction	168
15.2.4.2	Firewater	168
15.2.5	Communications	169
15.2.5.1	General	169
15.2.5.2	Construction Phase Communication	169
15.2.5.3	Permanent Communications Infrastructure	169
15.2.5.4	Telecommunication Technologies	170
15.2.5.5	Fiber Optic Backbone Cabling	170
15.2.5.6	Structure Cabling Infrastructure	170
15.2.5.7	Integrated Voice/Data Network System	170
15.2.5.8	Radio Systems	170
15.2.5.9	Public Address and General Alarm (PAGA) System	170

	15.2.5.10	Corporate Security System	171
	15.2.5.11	Process CCTV System	171
15.2.6		Compressed Air	171
15.2.7		Steam Plant	171
	15.2.7.1	High Voltage Steam Boiler – Main Data	172
15.3		Surface Water Management	173
15.3.1		Site Water Balance	173
15.3.2		Process Water Pond	174
15.3.3		Fire Water Pond and Tank	174
15.3.4		Site Runoff Pond	174
15.3.5		Upset Ponds	174
15.4		Waste Management	174
15.4.1		Sanitary Solid Waste	174
	15.4.1.1	Intermediate Waste Deposit – IWD	175
	15.4.1.2	Disposable Material Centre – DMC	175
15.4.2		Sewage Waste/Sewage Treatment Plant – STP	175
15.4.3		Industrial Waste Disposal	175
15.5		Tailings Management	175
15.5.1		Tailings Management Area	175
15.5.2		Brine Management	176
15.6		Mine Facilities	176
15.6.1		Refrigeration Plant	176
15.6.2		Main Fan Station	176
15.6.3		Backfill Plant	177
15.6.4		Material Yard	177
15.6.5		Other Mine Surface Facilities	177
15.7		Processing Plant Facilities	177
15.7.1		KCl Processing Building	177
	15.7.1.1	Area 3100 – Raw Ore Crushing	177
	15.7.1.2	Area 3100 – Building Structural Features	177
	15.7.1.3	Area 3200 – Wet Process	178
	15.7.1.4	Area 3200 – Building Structural Features	178
	15.7.1.5	Area 3300 – Drying/Compaction	178
	15.7.1.6	Area 3300 – Building Structural Features	179
	15.7.1.7	Area 3400 – Product Handling	179
	15.7.1.8	Area 3400 – Building Structural Features	179
	15.7.1.9	Area 3600 – Reagents Building	179
	15.7.1.10	Area 3600 – Building Structural Features	179
15.7.2		Control Room Building	179
15.7.3		Auxiliary Buildings and Facilities	180
15.7.4		Administration and Dry Area	180
15.7.5		Gate House	180
15.7.6		First Aid Station and Fire Station	180
15.7.7		Cafeteria and Kitchen	180
15.7.8		Industrial Warehouse	180
15.7.9		Mechanical Shop	181
15.7.10		Truck Shop	181
15.7.11		Fuel Station	181
15.8		Port Site Facilities	181
15.8.1		Cargo Movement and Flow Estimation	181
15.8.2		General Description of the Terminal	182
15.8.3		Loading and Handling Facilities	182
15.8.4		Logistic and Administrative Support Facilities	183
15.8.5		Pier/Floating Dock	184
15.9		Truck Transportation	185
15.9.1		Unloading Trucks	185
15.9.2		Supply and Storage Facilities	185
15.10		Marine Transportation	186
15.10.1		Dry Cargo and Construction Port	186
15.10.2		Bulk Barges	186
15.10.3		River Pusher and Convoy	187

16	Market Studies	188
16.1	Global Potash Market	188
16.2	Brazilian Potash Market	188
16.3	MOP Price Development	189
16.4	Logistics	193
17	Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups	195
17.1	Environmental Legislation and Permitting	195
17.1.1	Environmental Licensing Process	195
17.1.2	Completed Environmental Licensing	196
17.1.3	Permits and Authorizations	196
17.1.4	Current Status of Environmental Work	197
17.1.5	Corporate Policy and Management Resources	203
17.2	Environmental and Social Setting	204
17.2.1	Soil	205
17.2.2	Water	205
17.2.2.1	Groundwater	206
17.2.3	Air	207
17.2.4	Noise and Vibrations	207
17.2.5	Ecology and Biodiversity	208
17.2.5.1	Flora	208
17.2.5.2	Fauna	209
17.2.6	Socio-Economic and Cultural Settings	210
17.2.6.1	Economic Activity	210
17.2.6.2	Socio-Economic Environment of Autazes	212
17.2.6.3	Traditional Communities and Indigenous Component	212
17.2.6.4	Archaeology	213
17.2.7	Infrastructure	214
17.3	Potential Impacts/Risks	215
17.3.1	Soil	215
17.3.2	Water	215
17.3.2.1	Surface Water Quality	215
17.3.2.2	Groundwater	215
17.3.3	Air	217
17.3.4	Noise and Vibrations	217
17.3.5	Ecology and Biodiversity	217
17.3.5.1	Flora	217
17.3.5.2	Fauna	218
17.3.6	Socio-Economic and Cultural Settings	220
17.3.6.1	Traditional Communities and Indigenous Component	220
17.3.6.2	Archaeology	221
17.3.7	Infrastructure	221
17.4	Monitoring and Reporting Plans	224
17.4.1	Stakeholder Engagement	227
17.4.2	Tailings and Brine Management Plan	228
17.4.3	Solid and Hazardous Waste Management Plan	232
17.4.4	Surface Water and Sediments Control Plans	233
17.4.5	Emergency Response Plans	234
17.4.5.1	Emergency Preparedness	234
17.4.5.2	Underground Mine Evacuation Plan	236
17.5	Closure and Reclamation Plan	237
17.5.1	Introduction	237
17.5.2	Legal and Other Requirements	237
17.5.2.1	Brazil Legal Requirements	237
17.5.3	Project Closure Strategy	238
17.5.3.1	Mine Site	238
17.5.3.2	KCl Processing Plants and Associated Infrastructure	238
17.5.3.3	Port Facilities	239
17.5.3.4	Build Infrastructure, Concrete Foundation and Roads	239
17.5.3.5	Off-Site Road	239

17.5.4	17.5.3.6	Work Force	239
		Closure and Post-Closure Impacts	239
17.5.5		Closure Principles and Objectives	240
	17.5.5.1	Closure Objectives	240
17.5.6		Closure Management Plan	241
	17.5.6.1	Planning Resources for Closure	241
	17.5.6.2	Methodology	241
	17.5.6.3	Scope of Closure Management Plan	241
	17.5.6.4	Technical Studies	241
	17.5.6.5	Ongoing Development of the Closure Management Plan	241
	17.5.6.6	Closure Monitoring	242
17.5.7		Closure Costs	242
17.6		Opinion of Qualified Person (QP)	242
18		Capital and Operating Costs	243
18.1		Basis of iCAPEX and sCAPEX Update	243
18.1.1		Key Feasibility Study Documents	245
18.1.2		Procurement	246
18.1.3		Estimate of Inflationary Costs in the Supplies Originating from Other Countries	247
18.1.4		Design Allowances	249
18.1.5		Direct Field Labor Costs	250
18.1.6		Contractors' Distributables	250
18.1.7		Labor Productivity	250
18.1.8		Freight Costs	252
18.1.9		Customs Duties, Taxes	252
18.1.10		Project Indirect Costs	252
	18.1.10.1	EPCM Services Costs	252
	18.1.10.2	Spare Parts	252
	18.1.10.3	Vendor Representatives on Site	253
	18.1.10.4	Pre-Commissioning and Commissioning Handover	253
	18.1.10.5	Closure Costs	253
18.1.11		Owner Costs	253
18.1.12		Contingency Estimate	254
	18.1.12.1	Estimated Brazil Cost Inflation – Indexes Composition to Obtain iCAPEX's Inflation Factors	254
18.1.13		Estimate of Inflationary Costs in Supplies Originating from Other Countries	255
18.1.14		Estimate Assumptions	256
18.1.15		NaCl By-Product Cost Estimate	256
18.1.16		Update Exclusions	256
18.2		Initial CAPEX Cost Summaries (iCAPEX)	257
18.3		Owner's Capital Expenditures, EPCM and Contingency	258
18.4		Sustaining Cost Summary (sCAPEX)	258
18.5		Summary of Operating Costs (OPEX)	260
18.5.1		Shaft Operating Costs	261
18.5.2		Mine Operating Costs	261
18.5.3		Process Plant Operating Costs	261
18.6		Basis of OPEX Costs Update	261
18.6.1		Project Schedule	262
18.6.2		Operating Cost Development	262
18.6.3		Labor	262
	18.6.3.1	Shaft Labor	262
	18.6.3.2	Mining Labor	264
	18.6.3.3	Surface Operations Labor	264
18.6.4		Energy	265
	18.6.4.1	Shaft Energy	265
	18.6.4.2	Mining Energy	266
	18.6.4.3	Process Energy	266
	18.6.4.3.1	Process Electrical Energy	266
	18.6.4.3.2	Process Natural Gas and Diesel Fuel	267
18.6.5		Water	267
18.6.6		Mobile Equipment	268
	18.6.6.1	Mine Mobile Equipment	268

18.6.7	18.6.6.2 Plant Mobile Equipment	268
18.6.8	Transportation	268
	Equipment Repair, Maintenance and Replacement	268
	18.6.8.1 Mine Equipment Repair and Maintenance	268
	18.6.8.2 Shaft Equipment Repair and Maintenance	269
	18.6.8.3 Process Plant Repair and Maintenance	270
18.6.9	Port Costs	270
18.6.10	General and Administrative Costs	270
18.6.11	Travel-In/Travel-Out, Messing and Accommodation Costs	270
19	Economic Analysis	271
19.1	Introduction	271
19.2	Main Assumptions and Parameters	271
19.2.1	Production	271
19.2.2	Initial CAPEX	271
19.2.3	Sustaining Capital and Mine Closure	271
19.2.4	Operating Costs	273
19.2.5	Revenue	273
19.2.6	Taxation	274
	19.2.6.1 List of Taxes	274
	19.2.6.2 Taxes on MOP Sales	274
	19.2.6.3 CFEM Royalty	275
	19.2.6.4 Taxes on CAPEX and OPEX	275
	19.2.6.5 Taxes on Profits	275
	19.2.6.6 SUDAM Incentives	275
	19.2.6.7 ICMS: Tax Credits Assumptions	275
19.2.7	Exchange Rate	276
19.2.8	Discount Rate	276
19.2.9	Evaluation Base Date- and Others	276
19.3	Cash Flow Analysis	276
19.4	Sensitivity Analysis	276
19.4.1	Sensitivity Analysis to Key Input Variables – After Tax, Unlevered NPV and IRR	277
19.4.2	Sensitivity Analysis – NPV x Discount Rate	278
19.5	Financial Projections	278
20	Adjacent Properties	286
20.1	Immediate Adjacent Properties on the Surface	286
21	Other Relevant Data and Information	287
21.1	Preliminary Project Implementation Plan	287
21.2	Strategy for Implementation	287
21.3	Project Drivers	287
21.4	Estimated Construction Quantities	288
21.5	Location Factors	288
21.6	Construction Pre-Qualification Visit	288
21.7	Engineering	289
21.7.1	General Execution Approach	289
21.7.2	Critical Engineering Schedule Activities	289
21.8	Procurement Strategy	290
21.8.1	Inspection and Expediting	290
21.9	Freight and Logistics	290
21.10	Materials Management	291
21.10.1	Materials Planning	291
21.10.2	Material Control System Implementation	291
21.10.3	Bulk Materials Strategy – General	292
21.10.4	Bulk Piping	292
21.10.5	Bulk Steel Strategy	292
21.10.6	Bulk Electrical Material	293
21.10.7	Tagged Equipment Strategy	293
21.10.8	Master Storage Plan	293
21.10.9	Field Material Management	293
	21.10.9.1 Receipt of Materials and Equipment	294
	21.10.9.2 Issue/Transfer of Materials and Equipment	294
	21.10.9.3 Preservation	294
21.10.10	Warehouse/Laydown Safety and Security	295

	21.10.10.1	Safety	295
	21.10.10.2	Security	295
21.11		Contracting Strategy	295
21.11.1		Overview	295
21.11.2		Contracting Options	295
	21.11.2.1	Horizontal Contracting Approach	295
	21.11.2.1.1	Availability of Horizontal Contractors	296
	21.11.2.2	Vertical Contracting Approach	296
	21.11.2.3	Availability of Vertical Contractors	297
21.11.3		Role of Local Contractors	297
21.11.4		Key Contracting Strategy Selection Considerations	297
	21.11.4.1	Safety	297
	21.11.4.2	Difficulties Which May Be Encountered	297
	21.11.4.3	Base Wage Rate and Unit Price Issues	297
	21.11.4.4	Splitting the Packages Between at Least Two Contractors	297
	21.11.4.5	Use of Local Labor	297
	21.11.4.6	Contractor Transparency	298
21.11.5		Contracting Approach – Conclusion	298
21.11.6		Contract Register	298
21.12		Construction Management	300
21.12.1		Overview	300
21.12.2		Objectives	302
21.12.3		Temporary Construction Facilities	302
21.12.4		Temporary Facilities and Services Provided by the Project	302
21.12.5		Temporary Facilities and Services Provided by the Contractors	303
21.12.6		Permanent Facilities for Use During Construction	303
21.13		Construction Program	303
21.13.1		General Site Preparation and Development	303
21.13.2		Civil – Piling	304
21.13.3		Civil – Foundations	304
21.13.4		Structural Steel	305
21.13.5		Mechanical – Equipment Installations	305
21.13.6		Mechanical – Field Fabricated Tanks	305
21.13.7		Piping – On-Site Fabrication and Installation	305
21.13.8		Piping – Off-Site Pre-Fabrication	305
21.13.9		Electrical Works	305
21.13.10		Instrument Works	305
21.13.11		Non-Process Buildings	305
21.14		Contractor Interface Management	305
21.15		Construction Work Roster	306
21.16		Construction Camp	306
21.16.1		Recreational Facilities	306
21.16.2		Catering	306
21.17		Pre-Commissioning, Commissioning and Handover	306
21.17.1		Overview	306
21.17.2		Completions Management Tool (CMT)	307
21.18		Project Schedule	307
21.18.1		Milestones	307
21.18.2		Schedule Basis	308
	21.18.2.1	General	308
	21.18.2.2	Critical Path	308
21.19		Project Staffing	308
21.19.1		General	308
21.19.2		Site Office	309
21.20		Risk Assessment and Management	310
21.20.1		Introduction	310
21.20.2		Risk Assessment Process	310
21.20.3		Risk Assessment Workshop	310
	21.20.3.1	Risk Evaluations Scales	310
	21.20.3.2	Risk Treatment	312
	21.20.3.3	Workshops	312

	21.20.3.4	Risk Assessment Summary	313
	21.20.3.5	Opportunities Assessment Summary	317
21.20.4		Conclusions and Recommendations	318
22		Interpretations and Conclusions	319
22.1		Exploration, Geology and Resources and Reserve Estimate	319
22.2		Mining	320
22.3		Metallurgy and Processing	320
22.4		Infrastructure and Tailings Management	321
22.5		Land Acquisition	321
22.6		Environmental	322
22.7		Marketing and Economics	323
22.8		Final Conclusion	324
23		Recommendations	325
23.1		Mineral Reserves and Mining	325
23.2		Mineral Processing and Metallurgical Testwork	326
23.3		Project Infrastructure	326
23.4		Land Acquisitions	327
23.5		Bridging Phase	327
23.6		Environmental and Permitting	327
24		References	328
25		Reliance on Information Provided by the Registrant	330

LIST OF FIGURES

Figure 1	Location of the Autazes Potash Project site in Northern Brazil	31
Figure 2	Process of obtaining a mining concession decree (PdB, 2022, /42/)	32
Figure 3	Original claims (mineral rights) Northeast of Autazes	32
Figure 4	Mineral rights areas (in blue) and fraction areas of the original mineral rights areas (in orange) according to the dismemberment after its approval in December 2019, overlaid by the preliminary demarcation of the Jaury Indigenous Land (in red)	33
Figure 5	Land acquisition plan for the Autazes Potash Project (PdB, 2022, /42/)	34
Figure 6	Process for obtaining a mining license (PdB, 2022, /42/)	35
Figure 7	Location of the Autazes Potash Project site, the city of Manaus and the municipality of Autazes together with roadways BR-319 and AM-254, boat routes (dashed blue lines) as well as the location of the Urucurituba village with the road towards the project site (small map section)	38
Figure 8	Location of planned port, access roads, processing plant, tailing piles and brine injection wells as well as the location of the Urucurituba village (PdB, 2022, /42/)	38
Figure 9	Diagram of average monthly precipitation and temperatures for the periods 1961-1990 and 1992-2021, provided by the meteorological station of Itacoatiara (INMET, 2022, /36/)	39
Figure 10	Typical houses in the Soares Lake area (PdB, 2022, /42/)	40
Figure 11	Urucurituba village on the banks of the Madeira River, looking north (PdB, 2022, /42/)	41
Figure 12	Typical vegetation at mine shaft and processing plant sites (PdB, 2022, /42/)	41
Figure 13	Ombrophylous forest and adjacent de-forested area with pasture, adjacent to processing plant site (PdB, 2022, /42/)	41
Figure 14	Map showing the outlines of the Autazes, Fazendinha and Arari areas in 2015 (ERCOSPLAN, 2015, /18/)	42
Figure 15	Geographic location of the Amazon Potash Basin (PdB, 2014, /41/)	43
Figure 16	View of drill site location for the drill holes PBAT 15-43 and PBAT 15-43 A (SRK, 2016, /50/)	45
Figure 17	General lithostratigraphy of the Central Amazon Basin (Mohriak, 2008, /39/)	47
Figure 18	Simplified geological column for the Autazes area (minimum thickness only from drill holes that have completely penetrated the potash-bearing horizon) (ERCOSPLAN, 2015, /18/)	48
Figure 19	Map showing mineral rights areas, locations of holes drilled by BPC and seismic lines of surveys conducted in 2000 and 2015	54
Figure 20	Reinterpreted seismic profile 003 by ERCOSPLAN (white lines; colored lines = interpretation by Geohub) (ERCOSPLAN, 2015, /18/)	56
Figure 21	Selected results of the SRC blank sample analyses (line = mean value)	64
Figure 22	Results of the SRC low grade standard analyses (line = mean value)	65
Figure 23	Results of the medium grade standard analyses (line = mean value)	66
Figure 24	Correlation of the assaying results of the SRC and the independent laboratories for anions and cations. Central black line is 1:1 correlation, red lines represent 10% discrepancy (batches: 1st – dark blue, 2nd – light blue)	67
Figure 25	Flow sheet for production of high quality NaCl product	75
Figure 26	Geological cross-section (SW-NE) through the Autazes area	76
Figure 27	Panel OSD where the seam thickness is greater or equal to the minimum mining height	88
Figure 28	Panel OSD where the seam thickness is less than the minimum mining height	89
Figure 29	Main or panel development OSD where the seam thickness is greater or equal to the minimum mining height	89
Figure 30	Panel and mains development OSD where the seam thickness is less than the minimum mining height	89
Figure 31	Updated mine plan according to the dismembered mineral rights	90
Figure 32	Lithological column with horizons considered for test work framed in red	95
Figure 33	Long pillar length effect on factor of safety	96
Figure 34	Bolting pattern	98
Figure 35	PBAT 10-05	99
Figure 36	Geological profile	100
Figure 37	Long pillar system $\alpha = 1.14$ (chosen system $\alpha = 2.0$ will provide even greater support)	100

Figure 38	Simulated subsidence rate for $\alpha=2.0$	101
Figure 39	Creep curves	101
Figure 40	Fault zones	101
Figure 41	Fault crossing	102
Figure 42	Mains overview	104
Figure 43	Left: Typical single CM main development section setup; Right: Typical supersection main development section setup	105
Figure 44	Production panel naming convention	106
Figure 45	Panel cutting sequence	106
Figure 46	Production section schedule	106
Figure 47	Long-term rooms	107
Figure 48	Long-term rooms mining sequence	107
Figure 49	Six month ramp-up: main development	110
Figure 50	Six month ramp-up: production panels	110
Figure 51	Four month ramp-up: production panels	111
Figure 52	Mine ramp-up period (production years 1 to 3)	112
Figure 53	Nominal production, depletion of first Panel 21 available for slurry backfill	112
Figure 54	5 years pause in mains development	112
Figure 55	Completion of main development	113
Figure 56	Start of mains on retreat with ramp down of panel productions	113
Figure 57	Wind down and completion of retreat mining, end of LOM	113
Figure 58	Annual life of mine schedule tonnages	113
Figure 59	Annual life of mine average KCl% grade	114
Figure 60	Crew schedule	119
Figure 61	LOM backfill schedule	124
Figure 62	Annual MOP production over life of mine	129
Figure 63	Block flow diagram of MOP production process	131
Figure 64	Plant layout overview	132
Figure 65	Raw material feed crushing bins 1 and 2	133
Figure 66	Emergency ROM stockpile	133
Figure 67	Primary and secondary crushers	134
Figure 68	Crushed material stockpile	134
Figure 69	Future potential centrifuged KCl storage pile	137
Figure 70	KCl product rotary dryer	137
Figure 71	Rotary dryer cyclone	138
Figure 72	Compactors	139
Figure 73	Primary and secondary crushers	139
Figure 74	Fluid bed dryer cooler	140
Figure 75	Glazing screen oversize crusher	140
Figure 76	KCl product storage and loadout	141
Figure 77	Boreholes locations for processing plant site and mine shaft site geotechnical investigations	150
Figure 78	General master plan of the Autazes Potash Project – permanent installations (WorleyParsons and PdB, 2018, /58/)	152
Figure 79	Single line diagram, 500 kV interconnection SE Silves to SE Autazes (FIGENER and PdB, 2022, /21/)	159
Figure 80	Geoelectrical map – Brazilian interconnected national grid (Source: Dalben Consultoria (WorleyParsons, 2016, /57/)	160
Figure 81	Schedule for power supply to Autazes Potash Project	161
Figure 82	Project area and overview of the routings alternatives / Alternative 3 selected (FIGENER and PdB, 2022, /21/)	162
Figure 83	Power demand in MW per year (PP)	163
Figure 84	SE Silves (satellite image) (FIGENER and PdB, 2022, /21/)	163
Figure 85	Modular electrical substation – transport and assembly	164
Figure 86	Communications schematic diagram for the construction phase	169

Figure 87	Communication schematic diagram for permanent phase	170
Figure 88	Processing plant water system	173
Figure 89	Port water system	173
Figure 90	General terminal plan – facilities and floating pier (WorleyParsons and PdB, 2022, /59/)	182
Figure 91	Graphic representation of the future port facilities without the metallic cover for better visualization (1) (WorleyParsons and PdB, 2022, /59/)	184
Figure 92	Graphic representation of the future port facilities without the metallic cover for better visualization (2) (WorleyParsons and PdB, 2022, /59/)	184
Figure 93	Schematic section of the port facilities (WorleyParsons and PdB, 2022, /59/)	185
Figure 94	Indication of the facilities of the port site facilities (WorleyParsons and PdB, 2022, /59/)	185
Figure 95	General cargo ferry (WorleyParsons and PdB, 2022, /59/)	186
Figure 96	General cargo raft and concrete ramp with adjustable metallic ramp (WorleyParsons and PdB, 2022, /59/)	186
Figure 97	Racket raft (WorleyParsons and PdB, 2022, /59/)	186
Figure 98	Box raft (WorleyParsons and PdB, 2022, /59/)	187
Figure 99	River pusher (WorleyParsons and PdB, 2022, /59/)	187
Figure 100	Drawing of a bulk train (WorleyParsons and PdB, 2022, /59/)	187
Figure 101	Bulk train in operation (WorleyParsons and PdB, 2022, /59/)	187
Figure 102	MOP capacity [million t/a] by country and producer (CRU, 2022, /12/)	188
Figure 103	Brazilian MOP imports and domestic production [million tonnes], 2007-2026 (CRU, 2022, /12/)	189
Figure 104	Historical MOP prices from 2010 to 2022 (s=standard, g=granular)	190
Figure 105	Comparison of the CFR costs [USD/tonne] to Mato Grosso (Brasnorste) (CRU, 2022, /12/)	193
Figure 106	Aerial view of Urucurituba village	204
Figure 107	Satellite view of Soares village and project area	204
Figure 108	Surface and groundwater sampling points	205
Figure 109	Regional flooding highlighted inside the local study area	206
Figure 110	Surface water (Golder Associates, 2015, /24/)	206
Figure 111	Dug well in the study area (Golder Associates, 2015, /24/)	207
Figure 112	Location of air quality and noise monitoring within the Autazes Project Area (Golder Associates, 2015, /24/)	208
Figure 113	Noise levels for the Project after litigation measures (Golder Associates, 2015, /24/), Golder Associates (2015)	208
Figure 114	Characterization of area macrozoning (Instituto Piatam, 2019, /37/)	209
Figure 115	Pasture with Babaçu palm trees on industrial plant area	209
Figure 116	Aerial view of Manaus	210
Figure 117	Aerial view of industrial district in Manaus	211
Figure 118	Aerial view of Autazes on the Autaz Açu River	212
Figure 119	Partners to the Autazes Sustainability Program	213
Figure 120	Satellite image with detail of the future port area (in green) and estimated area of Urucurituba archaeological site (63 ha) (in red)	213
Figure 121	Satellite image with detail of the future port area (in green) and estimated area of Urucurituba archaeological site (150 ha) (Arqueologica, 2018, /4/)	214
Figure 122	Satellite image with detail of the prospection of the directly affected area (ADA) of the plant	214
Figure 123	BPC presentation with community participation in Autazes	227
Figure 124	General layout of tailings piles 1 and 2	229
Figure 125	Dimensional cut sections of Tailings piles 1 and 2	229
Figure 126	General plan of the tailings piles with details and paths of the deep drainage channels	230
Figure 127	Details of waterproofing layers and typical section of bottom drains	230
Figure 128	Photos of views with typical dry stacking installation planned for the formation of the tailings piles (Emerson, 2021, /13/)	230
Figure 129	Illustrative layout of the brine Injection well locations (yellow points)	231
Figure 130	Typical schematic arrangement of the necessary facilities for the brine injection wells	231
Figure 131	Typical section of the brine injection wells planned for the Autazes Potash Project	232
Figure 132	Storage for composting area	233
Figure 133	Underground evacuation plan	236

Figure 134	Equipment/material/services pricing basis	249
Figure 135	Estimated sCAPEX	259
Figure 136	Exchange rate BRL/USD	276
Figure 137	Sensitivity for post-tax, unlevered NPV@8.1%	277
Figure 138	Sensitivity post-tax, unlevered IRR	278
Figure 139	Sensitivity post-tax, unlevered NPV x Discount Rate	278
Figure 140	Adjacent properties (SIGMINE ANM, 2021, /47/)	286
Figure 141	Procurement and materials management	291
Figure 142	Risk matrix (WorleyParsons, 2016, /57/)	312
Figure 143	Risk maps – before and after treatment	313
Figure 144	Identified risk status	313

LIST OF TABLES

Table 1	Unlevered financial results summary	27
Table 2	Initial capital cost summary	27
Table 3	Operational cost summary	27
Table 4	Coordinates of the planned production shaft of the underground mine, processing plant and port (PdB, 2022, /42/)	31
Table 5	Original claims (mineral rights) and exploration permits held by BPC (PdB, 2022, /42/)	32
Table 6	Surface areas of mineral rights and fraction of the original mineral rights according to the dismemberment (PdB, 2022, /42/)	33
Table 7	Status of the mineral rights for underground resources exploration permit after dismemberment (PdB, 2022, /42/)	35
Table 8	Averaged monthly values for temperature, precipitation and evaporation (INMET, 2022, /36/)	39
Table 9	Resource estimate for the Autazes Potash Project, based on drill hole information available until 2014 (ERCOSPLAN, 2014, /15/)	44
Table 10	Averaged grades of components of the mineralized section, based on based on drill hole information available until 2014 (ERCOSPLAN, 2014, /15/)	44
Table 11	Overview of the mineralization of the potash-bearing horizon in the drill holes in the Autazes area (green – drill holes that fulfil the abovementioned cut-off criteria; supplemented by drill holes of 2015/2016; based on (ERCOSPLAN, 2015, /18/)	50
Table 12	Interpreted hydrogeological domains for the Autazes area (SRK, 2016, /51/)	52
Table 13	Lithostratigraphical formations encountered in hole PBAT-15-43 (SRK, 2016, /50/)	57
Table 14	List of calcarenite samples for laboratory hydrogeological testing conducted by IFG (IFG, 2014, /32/)	58
Table 15	Phase 1 hydrogeological test results in hole PBAT-15-43A (SRK, 2016, /50/)	59
Table 16	Main parameter values of groundwater sampled in hole PBAT-15-43A (SRK, 2016, /50/)	60
Table 17	Phase 2 hydrogeological test results in hole PBAT-15-43 (SRK, 2016, /50/)	61
Table 18	Composition of wet KCl product	71
Table 19	Development of brine from cycle to cycle	71
Table 20	Grain size analyses of coarse hot leaching tailings	73
Table 21	Washing test results	74
Table 22	Brine composition before/after brine purification	74
Table 23	NaCl product compositions	75
Table 24	Mineral resources including mineral reserves at the Autazes Project outside the Jauary Indigenous Land	78
Table 25	Mineral resources excluding mineral reserves at the Autazes Project outside the Jauary Indigenous Land	78
Table 26	Inferred mineral resources (amount and grade) categorized for each individual BPC drill hole located within mineral rights outside the Jauary Indigenous Land	80
Table 27	Inferred mineral resources (amount and grade) categorized for each individual BPC drill hole located within the mineral rights inside the Jauary Indigenous Land	81
Table 28	Indicated mineral resources (amount and grade) categorized for each individual BPC drill hole located within mineral rights outside the Jauary Indigenous Land	83
Table 29	Measured mineral resources (amount and grade) categorized for each individual BPC drill hole located within mineral rights outside the Jauary Indigenous Land	85
Table 30	Resource block model dimensions	86
Table 31	Block model parameters	87
Table 32	Ore and waste grades and densities	87
Table 33	Dilution estimate	89
Table 34	Mineral reserve estimate	92
Table 35	Mining method option analysis summary	93
Table 36	Strength parameter sets	95
Table 37	Direct shear test results	96
Table 38	Production panel factor of safety	96
Table 39	Factor of safety inputs	97
Table 40	Factor of safety for long-term rooms	97
Table 41	Bolting parameters	98
Table 42	Barrier pillar summary	98
Table 43	Hydraulic barrier strata	100

Table 44	Mine design parameters	102
Table 45	Main development parameters	105
Table 46	Prediction panel parameters	106
Table 47	Annual operating parameters	107
Table 48	Model inputs: main development	108
Table 49	Model inputs: production panel	108
Table 50	Production baseline	109
Table 51	Panel production productivities	109
Table 52	Perimeter mining and mains on retreat production productivities	110
Table 53	Six month ramp-up: factors	110
Table 54	Four month ramp-up: factors	111
Table 55	Ore feed to process with average KCl grade for each year of production including ram-up and ramp-down phase	111
Table 56	Annual amounts of extracted ore during the pre-production phase	111
Table 57	Equipment quantities for panel production and main development	115
Table 58	Surface refrigeration plant and BAC	115
Table 59	Surface cooling tanks	116
Table 60	Underground BAC and recirculation station	116
Table 61	Section fans	116
Table 62	Main pump station	116
Table 63	Conveyor Parameters	117
Table 64	Manpower list maximum	119
Table 65	Slurry and paste backfilling comparison	121
Table 66	Chemical composition of the slurry	122
Table 67	Mass balance of backfilling surface plant for preparation of slurry material (after year 14)	122
Table 68	Summary of available underground volumes	123
Table 69	Productivity of the backfilling system	124
Table 70	Summarized ventilation and cooling requirements	126
Table 71	Work breakdown structure – processing plant	127
Table 72	Amount and composition of main inputs and outputs of MOP production process	127
Table 73	Design factors	128
Table 74	Design criteria	129
Table 75	Granular product specification (WorleyParsons, 2016, /57/)	129
Table 76	ROM and loadout surge capacity	130
Table 77	MOP product amount and tailings amount over mine of life	131
Table 78	Reagent holding tank residence time	143
Table 79	Estimated reagent consumptions	144
Table 80	Raw water consumption	145
Table 81	Estimated nominal dust control air flow rates	146
Table 82	Preliminary soil parameters for processing plant foundation design (1)(2)	150
Table 83	List of buildings and areas	153
Table 84	List of substations and power demand	162
Table 85	Steam consumption summary	172
Table 86	Raw ore crushing plant building and storage areas descriptions	177
Table 87	Wet processing plant buildings and ponds description	178
Table 88	Drying and compaction plant building and storage facility descriptions	178
Table 89	KCl final product conditioning, truck loading and KCl storage buildings description	179
Table 90	Estimation for handling of solid material and general cargo (WorleyParsons and PdB, 2022, /59/)	181
Table 91	Brazilian supply and demand balance from 2017 to 2026 [million tonnes]	189
Table 92	Mediun term potash price forecast up to 2026, [USD/tonne, nominal] (CRU, 2022, /12/)	190
Table 93	Estimation of the LRMCM	191
Table 94	Escalation of the LRMCM	192
Table 95	Long term potash price forecast from 2029-2051 [USD/tonne of granular product]	193
Table 96	Comparison of shipment times [days]	194
Table 97	Permits and authorizations necessary for Autazes Project	196

Table 98	Restrictions and/or conditions for the validity of LP N° 054/2015 1st Amendment (Golder Associates, 2015, /24/; 2018, /30/)	197
Table 99	Persons employed in economic activity in Manaus (2006) (Golder Associates, 2015, /24/)	211
Table 100	Indigenous lands in Autazes (Comtexto, 2019, /11/)	212
Table 101	Communities and families close to the project area	213
Table 102	Plans and program objectives	225
Table 103	Parameters to be analyzed for monitoring the quality of surface water and groundwater	234
Table 104	Cost estimate classification	243
Table 105	Project work breakdown structure	243
Table 106	Project iCAPEX summary	244
Table 107	Project sCAPEX Summary	245
Table 108	Key documents level of development	245
Table 109	Equipment/material/services pricing basis	247
Table 110	Design development allowances	249
Table 111	Direct field labor crew rates	250
Table 112	Productivity factors	251
Table 113	Direct Field labor rates for major commodities/equipment	251
Table 114	EPCM % per project area	252
Table 115	Spares (Comm, Startup, 2yr)	252
Table 116	Discipline indexing label	254
Table 117	Inflation of currency supply origin	255
Table 118	Production and ventilation shafts iCAPEX costs	257
Table 119	Mine iCAPEX Costs	257
Table 120	Processing plant and infrastructure iCAPEX costs	258
Table 121	Owner's costs, EPCM and contingency	258
Table 122	Mine sCAPEX cost	259
Table 123	Processing plant and infrastructure sCAPEX costs	259
Table 124	Summary of projected life of mine and Unit OPEX costs	260
Table 125	Shafts labor	263
Table 126	Surface operations labor requirement	265
Table 127	Shafts power demand	265
Table 128	Summary of process electrical loads	266
Table 129	Process natural gas and diesel requirement	267
Table 130	Summary of process reagent usage and cost	267
Table 131	Summary of process plant mobile equipment	268
Table 132	Shaft equipment maintenance and replacement assumptions	269
Table 133	Initial CAPEX	271
Table 134	Sustaining capital	272
Table 135	MOP sale price (FOB Urucurituba) (CRU, 2022, /12/)	273
Table 136	ICMS credit on sales	275
Table 137	Unlevered beta for BPC	276
Table 138	Financial results summary	276
Table 139	Sensitivity for post-tax, unlevered NPV@8.1%	277
Table 140	Sensitivity post-tax, unlevered IRR	278
Table 141	Sensitivity post-tax, unlevered NPV x discount	278
Table 142	Production flow	278
Table 143	Operating costs by activity	279
Table 144	Operating costs by Commodity	280
Table 145	Project Cash Flow	282
Table 146	Estimated construction quantities	288
Table 147	Contract register	298
Table 148	Split of responsibilities between Owner and Contractor for services	301
Table 149	Key milestones	307
Table 150	Scale of risk consequences (WorleyParsons, 2016, /57/)	311
Table 151	Likelihood scale for workshops	312
Table 152	Community risks	314
Table 153	Construction risks	314
Table 154	Engineering risks	314
Table 155	Environmental risks	315

Table 156	Financial risks	316
Table 157	Government risks	316
Table 158	Legal/contractual risks	316
Table 159	Operations risks	317
Table 160	Procurement risks	317
Table 161	Safety and health risks	317
Table 162	Opportunities (WorleyParsons, 2016, /57/)	318
Table 163	Mineral resources (amount and grade) of the Autazes Potash Project	319
Table 164	Mineral reserves (amount and grade) of the Autazes Potash Project	320
Table 165	Unlevered financial results summary	323
Table 166	Initial capital cost summary	323
Table 167	Operational cost summary	324

LIST OF APPENDICES

APPENDIX 1	Drill Hole Locations, Depths and Final Lithologies
APPENDIX 2	Isopach Map for the Sylvinite Horizon
APPENDIX 3	Isobath Map for the Sylvinite Horizon
APPENDIX 4	KCl Isograde Map for the Sylvinite Horizon
APPENDIX 5	CaSO ₄ Isograde Map for the Sylvinite Horizon
APPENDIX 6	MgSO ₄ Isograde Map for the Sylvinite Horizon
APPENDIX 7	NaCl Isograde Map for the Sylvinite Horizon
APPENDIX 8	Insoluble Material (RI) Isograde Map for the Sylvinite Horizon
APPENDIX 9	Geological Cross-Section (SW-NE) through the Autazes Area
APPENDIX 10	Map showing the Distribution of the Inferred, Indicated and Measured Mineral Resource Areas within the Mineral Rights of the Autazes Potash Project
APPENDIX 11	Chemical Assay and XRD Analyses Data
APPENDIX 12	Interpreted Distance-Velocity-Profiles of the recent Seismic Lines of 2015
APPENDIX 13	Results of the QA/QC Programme
APPENDIX 14	Results of the Consistency Check
APPENDIX 15	Estimated Mineral Composition
APPENDIX 16	Mining Equipment, Manpower and Electrical Load List (Update APPENDIX F)
APPENDIX 17	Mine Plan – Update
APPENDIX 18	Shaft Infrastructure
APPENDIX 19	Technical Design of the Backfilling System for the Bankable Feasibility Study of the Autazes Potash Project
APPENDIX 20	Process Flow Diagrams
APPENDIX 21	Piping and Instrumentation Diagrams
APPENDIX 22	Arrangement Drawings
APPENDIX 23	General Layout Port – Update
APPENDIX 24	Electrical Diagram
APPENDIX 25	CRU Potash Marketing Report (14.09.2022)
APPENDIX 26	iCAPEX / sCAPEX
APPENDIX 27	Taxation
APPENDIX 28	EPC Level 3 Schedule

1 Executive Summary

An Executive Summary of the different sections of this Technical Report is provided in this chapter.

1.1 Introduction

This Technical Report presents the results of the Pre-Feasibility Study (PFS) for the Autazes Potash Project, owned by Brazil Potash Corp. (BPC). This Technical Report is an update of the required sections of the 2016 Autazes Potash Project Bankable Feasibility Study Report, which was prepared by Worley Parsons Canada Services Ltd. This update of the Technical Report is compliant with S-K 1300 as a PFS for the Autazes Potash Project considering an accuracy of $\pm 25\%$. The Autazes Potash Project is located within the Central Amazon Basin, between the Amazon River and the Madeira River, approximately 120 km southeast of the city of Manaus, in the eastern part of Amazonas State, Brazil. BPC holds claims, with a cumulative area of approximately 1,769.47 km² (176,947.04 ha), in the Amazon Potash Basin within which the city of Autazes is located.

BPC is a private mineral exploration and development company with its base of technical operations located in Belo Horizonte, Brazil and a corporate office in Toronto, Canada. All mineral rights for the Autazes Potash Project as registered with the Agência Nacional de Mineração (ANM) in Brazil are held by BPC's 100% owned local subsidiary Potássio do Brasil (PdB). To date, 43 exploration drill holes have been completed in the Autazes project area, excluding holes PBAT-10-03A, PBAT-10-03B and PBAT-15-43A, which have not reached the potash-bearing horizon. The results from these drill holes form the basis of this S-K 1300 compliant PFS. The mineral resource and mineral reserves estimates are updated in this Technical Report.

Based on the plan to mine up to 8.5 MTPA of run-of-mine (ROM) ore, once fully ramped up, using conventional room and pillar methods, the hot leach processing plant is designed to have a capacity to produce up to 2.44 MTPA of granular Muriate of Potash (MOP) for 23 years, including the ramp-up and ramp-down periods. Brazil is currently the second largest global consumer of MOP, at approximately 12.5 million tonnes in 2021 and imports approximately 95% of its MOP needs. The plan is to sell all of this potash domestically using the Madeira River, located only 8 km from the site, as the main means to transport product to customers by barge.

1.2 Property Description

The Autazes Potash Project is located within the Amazon Potash Basin, between the Amazon River and the Madeira River, approximately 120 km southeast of the city of Manaus, in the municipality of Autazes. Autazes is located in the eastern part of the Amazonas State, Brazil.

BPC holds claims with a cumulative area of approximately 1,769.47 km² (176,947.04 ha), in the Amazon Potash Basin.

The project permit area, encompassing approximately 350 ha, includes areas for access to the planned underground mine, processing plant, tailings piles and port locations. All of these components are located about 20 km northeast of the Autazes city center in a rural area close to the village of Lago Soares. The port is located 8 km southeast of the processing plant site and is accessed by a 12 km long road, in the Urucurituba village on the banks of the Madeira River.

The terrain at the underground mine and processing plant sites is rather flat with elevations ranging from 8 to 50 m above sea-level. During the flood season the river water levels reach maximum (1 in 100 year) heights of approximately 21 and 23 m above sea-level in the Madeirinha and Madeira Rivers, respectively. Seasonal variations are around 5 m during the low rain season. The proposed surface infrastructure for the Project including the mine shafts, processing plant and tailings storage facility are all located in areas of higher elevation than the 1 in 100 year water level and are not predicted to be affected by seasonal flooding. However, these floodings are capable of modifying the transport logistics (refer to Section 17.2.2).

The highest topographic elevations are located in the southern portion of the site. Towards the northeast, at the junction of the Amazon and Madeira Rivers, the elevation decreases and the relief becomes fairly uniform.

The general site area is characterized by dense ombrophilous forest as the main habitat for local animal populations. However, the mine shafts, processing plant, tailings and port locations were all selected in areas that were largely deforested decades ago by prior land owners.

The municipality of Autazes, which belongs to the micro-region of Manaus, covers an area of 7,652 km² and was inhabited by a population of around 41,000 people in 2021. The city of Autazes had a population of 17,800 according to estimates from 2021. The Urucurituba village is a small urban center with a population of approximately 1,780 people in 2015. In the Soares village about 500 indigenous people live in partnership with the families of non-Indigenous, who reside there.

The mentioned communities have underdeveloped urban structures, with poor basic infrastructure, basic health care and a limited education system. In the municipality of Autazes, the workforce is mostly unskilled and is divided between the agricultural sector and the trade and services sector, each accounting for approximately 45% of the jobs in the municipality. These industries employ 9% of the economically active population.

The city of Autazes along with the port site at the Urucurituba village and the sites for the planned shafts, tailings piles and processing plant were inspected by ERCOSPLAN's Qualified Persons (QPs) most recently in August 2022.

1.3 Accessibility and Climate

The project site is accessible from Manaus by crossing the Amazon River (Negro and So-limões) by boat or ferry between the port of Ceasa in Manaus and the port of Careiro da Várzea on the other bank of the river. The journey then follows highways BR-319 (26 km) and AM-254 (94 km) to the Madeira River, which is crossed by boat in order to reach the municipality of Autazes. From the city of Autazes, highway AM-254 extends 13 km south to the western bank of the Madeira River. From there, a boat is taken 25 km downstream on the Madeira River (northeast direction) to the boat mooring location at the Urucurituba village, which is the proposed location of the port facilities for the Project. From the Urucurituba village access to the mine (surface area) and processing plant is via 12 km of unpaved road, part of which has not yet been constructed.

Alternatively, the project site can be accessed by boat travelling the Amazon River down-stream to the confluence with the Madeira River and from here travelling upstream the Madeira River to the boat mooring of Urucurituba village (about 170 km).

During the rainy season the Project site can be accessed by boat from Autazes via the seasonal connected Madeira River and Lake Soares (Lago Soares; 35-40 km distance).

The climate of the municipality of Autazes is tropical monsoon (zone "Am" after Koeppen-Geiger classification) with a short, dry season. Climate data are reported for two periods – 1961 to 1990 and 1992 to 2021. The wettest months were January through April with up to 413 mm of monthly precipitation. Total annual precipitation was around 2,550 mm on average. The warmest months were September and October with a monthly average of 27.2°C, while January and February were the coolest with a monthly average of 25.8 to 26.7°C. Hence, the annual temperature is quite constant. Relative humidity was high throughout the years with monthly highs of 88% to 90% in March and April, and monthly lows of about 80% from September to November. Annual evaporation was about 933 mm during the first period and about 1,024 mm during the second period. Months with the highest evaporation of 102 to 109 mm were September and October.

Accessibility from Manaus to the Project site via road (BR-319 and AM-254) and waterways (Manaus and Autazes to Urucurituba village) was inspected by ERCOSPLAN's QPs most recently in August 2022.

1.4 History and Exploration

The history of potash exploration in the Amazon Potash Basin began in 1973 and lasted until 1987 for the first exploration phase. One of the two holes drilled by Grupo de Trabalho do Potássio (GTP) from Petrobrás – Petróleo Brasileiro S.A. encountered a 3 m thick potash-bearing horizon (mineralized section).

Between 1979 and 1983, Petrobras Mineração S.A. (PETROMISA) drilled 29 holes in the Fazendinha potash deposit, out of which 12 intersected the mineralized section. Within that same time, PETROMISA drilled 25 additional holes in the Arari potash deposit, out of which 16 holes intersected the mineralized section. Both potash deposits are located close to the Autazes area.

In 2000, a 2D seismic survey was conducted by PETROBRAS in the Autazes area.

Site investigation was conducted by PdB between 2007 and 2008 in the Autazes area, based on available data. The first hole in this area was drilled by PdB in 2009. Drilling activities continued in the Autazes area intermittently until early 2016. During that time, 43 drill holes were completed, excluding holes PBAT-10-03A, PBAT-10-03B and PBAT-15-43A, which did not reach the potash-bearing horizon. After 2016 no further drilling activities were conducted in the Autazes area.

Another 2D seismic survey was conducted and evaluated between 2014 and 2015 in the Autazes area for better definition of the resource.

Information obtained from all drilling activities conducted by BPC and the seismic survey of 2014/2015 was reviewed and interpreted by ERCOSPLAN's QP. The quantity and quality of this information is classified by ERCOSPLAN's QP as being sufficient to justify a mineral resource and a mineral reserve estimate for the Project, for the latter one in conjunction with the updated mine plan and modifying factors for the Project. The execution of work to obtain this information is classified as being state of the art according to ERCOSPLAN's QP.

1.5 Geological Setting

The Autazes Potash Project is located in the Amazon Potash Basin as part of the Central Amazon Basin, a large Paleozoic basin in northern Brazil. Within this basin, a sequence of marine to fluvial-lacustrine sediments of the Tapajos Group has developed, which are of Upper Carboniferous to Permian age. These rocks unconformably overlay rocks of the Upper Devonian to Lower Carboniferous Curua Group and are unconformably overlain by the rocks of the Javari Group of Cretaceous to Palaeogene age and intruded by sill-forming magmatic rocks, geochemically classified as basalts and basaltic andesites rocks related to Penatecaua magmatism.

Within the Autazes area, a sylvinitic deposit has developed, which is Lower Permian in age.

The top of the sylvinitic deposit (potash-bearing horizon) was determined to be at a depth between 685 m to 863 m. The total thickness in the explored area of the Autazes Potash Project ranges between 0.7 m and 4.0 m, with an average KCl grade of 25.0%. This data is confirmed by ERCOSPLAN's QP.

1.6 Sample Preparation, Analysis and Data Verification

The chemical and mineralogical composition of core material obtained from holes drilled by PdB in the Autazes area was determined by Saskatchewan Research Council's (SRC) laboratory in Canada as primary laboratory and K-UTECH Salt Technology (K-UTECH) laboratory in Germany as secondary laboratory. Both laboratories are certified according to the corresponding national standards.

Core sampling was supervised by PdB. Cored material from holes drilled by PdB was inspected by ERCOSPLAN's QP and classified as being of such quality that it allows to obtain samples for chemical and mineralogical assaying that would further allow to obtain a representative composition of the deposit at the location of the corresponding drill hole from which such samples were obtained.

After sampling, the remaining cores were packed with foil and sealed in plastic poly-tubing and the core boxes were secured in an air-conditioned core storage in the city of Autazes. The double-bagged samples were also stored at the base camp until they were carefully packed into boxes and shipped via parcel service to SRC in Saskatoon and the German laboratory, respectively. In the opinion of ERCOSPLAN's QP this is state of the art for transporting samples to a laboratory for test work and storing remaining cored material obtained from a potash deposit.

Samples were prepared by crushing and milling to the required grain sizes, and diluted afterwards for analyses. SRC used inductively coupled plasma optical emission spectrometry (ICP-OES) and inductively coupled plasma mass spectrometry (ICP-MS), K-UTECH flame emission spectrometry, atomic emission spectrometry and ion chromatography for as analytical techniques.

For the X-ray diffractometry (XRD) powdered samples were used.

Prepared samples were analyzed for cations (K^+ , Na^+ , Mg^{2+} , Ca^{2+}) and anions (Cl^- , SO_4^{2-} and Br^-) as well as insoluble material.

Regarding data verification, three types of control samples were included in the QA/QC program – blank samples (110 samples in total), standard samples (115 samples in total) and cross-check samples (129 samples in total).

According to ERCOSPLAN's QP, it can be generally stated that the results do not indicate any peculiarities for blank and standard samples. Regarding the cross-check samples, results suggest that there is sufficient correlation between the analyses carried out by both laboratories with regard to the K^+ , Na^+ and the Cl^- content of the samples. Distinctive discrepancies occur with regard to the Ca^{2+} , SO_4^{2-} and insoluble content, which may result from different sample preparation procedures.

In conclusion, the results of the QA/QC program show according to ERCOSPLAN's QP that:

- For the main components such as K^+ and Cl^- , no grade corrections in the data from the chemical assaying were required;
- The discrepancies for Ca^{2+} , SO_4^{2-} and insoluble content do not affect the mineral resource and reserve estimate. They influence neither the tonnage of mineralized material nor the KCl tonnage;
- The above-mentioned discrepancies do not affect the proposed processing options, as it does not matter whether the residue consists of sulphates or insolubles.

The QA/QC measures of the exploration results were carried out according to international standards and also document the reliability of the submitted exploration results. Results of the chemical assaying are considered by ERCOSPLAN's QP as being adequate for the purpose of this Report.

1.7 Mineral Processing and Metallurgical Testing

For selection of the optimal processing method, comprehensive processing test work has been carried out. Initially Sylvite flotation, which is the mostly applied process method for sylvinitic type ores was considered. However, in two different flotation tests a suitable purity of the concentrated product could not be reached at an acceptable and proven recovery rate. Beside the typical main components NaCl and KCl of sylvinitic, the ore in the Autazes Potash Project contains increased amounts of Anhydrite and insoluble material which impedes concentration of KCl via flotation with sufficient performance. Thus, another proven processing method was tested, hot leaching followed by cooling crystallization. The test work for this method has proven the ability to reach the required product purity as well as an acceptable recovery rate. Therefore, the method of hot leaching/crystallization was chosen for process design. The Qualified Person (QP) confirms that the hot leaching test work has been carried out with samples which are representative to sufficient extent of the various types and styles of mineralization and the mineral deposit as a whole. To the QP's opinion the data collected in the test work are adequate for the purposes used in the technical report summary. After completion of the review of mineral processing and metallurgical testing by ERCOSPLAN, it is the opinion of the QP that the testing procedures, results interpretations and reporting met standard industry practices.

Besides processing test work for KCl production, test work for production of NaCl as a by-product has been carried out. The technical potential for production of a NaCl by-product with common marketable purity was proven by these tests. However, the production of such by-product was not further considered given it was deemed uneconomic from marketing studies.

Rock mechanical test work on 68 selected drill core samples from the potash horizon, the hanging and the underlying wall, as well as subsequent modelling, was completed in November 2014 by the Institute for Geomechanics Leipzig GmbH (IfG, 2014, /32/) with the main emphasis on dimensioning analysis while preserving the integrity of the protective barrier under mining conditions, under the assumption that:

- The protective barrier comprises the rock salt-Anhydrite interbedding in the immediate roof with an average thickness of 22 m;
- The claystone/argillite group A* (Figure 26 for nomenclature) has an average thickness of 25 m;
- The siltstone group A has a thickness of 90 m

and

- As a hydrological boundary condition, an aquifer was assumed 130 m above the mining horizon at a depth of about 570 m. Four mining methods were analyzed: longwall mining and long pillar mining, with varying panel heights and chamber and pillar widths. The simulations employed a discontinuous modelling approach, particularly suited to a polycrystalline rock such as Saliferous Strata.

The results provided the following conclusions:

- For longwall mining, fractures developed far into the roof. The integrity of the barrier could be maintained only for low panel heights of 1 m, and under the assumption of a tensile strength in the hanging wall of at least 1.5 MPa to satisfy the minimal stress criterion. In conclusion, given the currently available geological data, longwall mining is excluded as a safe mining method.

As a result of the simulations, a high-extraction long pillar mining layout is recommended. The suggested mining parameters are as follows:

Chamber width:	12 m;
Pillar width:	8 m;
Panel height:	4 m;
Pillar width-to-height ratio:	2;
Extraction rate :	60%.

1.8 Mineral Resource and Reserve Estimates

As part of this Technical Report, an updated mineral resource and reserve estimate was completed by ERCOSPLAN. As the original mineral rights of the Project intersect with the so called Jauary Indigenous Land, these mineral rights were dismembered resulting in mineral rights located inside the indigenous land and mineral rights located outside of it.

The mineral resource estimate was conducted for all mineral rights, but for those mineral rights located inside the indigenous land, only inferred mineral resources are reported by ERCOSPLAN's QP, which amount to 220 million tonnes at an average KCl grade of 27.6%. For mineral rights located outside the indigenous land inferred mineral resources including mineral reserves of 107 million tonnes at an average KCl grade of 31.0%, indicated mineral resources including mineral reserves of 189 million tonnes at an average KCl grade of 32.4% and measured mineral resources including mineral reserves of 107 million tonnes at an average KCl grade of 32.8% are reported by ERCOSPLAN's QP. Furthermore, for mineral rights located outside the indigenous land inferred mineral resources of 97 million tonnes at an average KCl grade of 30.3%, indicated mineral resources excluding mineral reserves¹ of 44 million tonnes at an average KCl grade of 25.9% and measured mineral resources excluding mineral reserves¹ of 17 million tonnes at an average KCl grade of 22.5% are reported by ERCOSPLAN's QP. No mineral resources excluding mineral reserves are reported for those resources located inside the indigenous land, as there is currently no mining activity planned. All reported mineral resources are mineral resources in place (in situ).¹

As per information from BPC's subsidiary PdB (PdB, 2022, /42/) the mineral rights located inside the Jauary Indigenous Land will be considered in the future, after production year 15 according to the updated mine plan presented in this Report. Hence, mineral reserves are only reported by ERCOSPLAN's QP for the mineral rights located outside the Jauary Indigenous Land, which amount to probable mineral reserves of 111 million tonnes at an average KCl grade of 27.5% and to proven mineral reserves of 62 million tonnes at an average KCl grade of 28.9%.²

1.9 Mining Methods

The mining method proposed for the Autazes Potash Project is conventional room and pillar (long pillars 1,500 m) mining with two vertical shafts. One shaft is used to hoist ore and for manpower access and the other is primarily for ventilation. Main development provides access to production panels, room for infrastructure and conveyors, and consists of several intake and return airways. Production panels were designed to maximize the extraction of ore and productivity, while maintaining a safe working environment. The design was primarily influenced by geotechnical mod-

(1) For the mineral resource estimate a product price of 420 USD/tonne MOP and a process (metallurgical) recovery of 90.8% was used. Regarding cut-off a minimum thickness of 1 m and a minimum KCl grade of 10% for the sylvinitic horizon was applied for the estimate (for details see Section 11.3).

(2) For the mineral reserve estimate a product price of 420 USD/tonne MOP and a process (metallurgical) recovery of 90.8% was used. Regarding cut-off a minimum KCl grade of 10% for the sylvinitic horizon was applied. Other modifying factors like the mining height are mentioned in Section 12.4.

elling results and analysis. Extraction of the potash ore will be done using continuous miners feeding a conveyor system to the skips at the hoist shaft. ERCOSPLAN's QP confirmed this method as the method of potash extraction with an established and well developed technology for ore extraction, hauling and hoisting to the surface.

The mine schedule consists of 1.5 year pre-production, followed by a three year ramp-up to a target production rate of 8.5 MTPA run-of-mine (ROM) for 17 years, ramping down over a three year period due to reserve/workplace limitations. Over the 17 years full run rate production period the mine will supply the mill with an average annual tonnage of 8.32 million tonnes at a grade of 27.3% KCl. Refrigeration, as well as an elevated ventilation system, is required to provide a compliant atmosphere for operations. Main fans will be located on the surface and will exhaust via the ventilation shaft (upcast shaft). There will be three fan-motor sets installed with all three operating and no standby units.

The design for the backfill plant and technical design of the backfill system for the Autazes Potash Project were developed by ERCOSPLAN and the QP agrees the selected method is still valid, effective and economically acceptable. The backfill plan developed for this study needs to be further detailed at the EPCM phase to reflect the most recent mine plan.

1.10 Process and Recovery Methods

For production of KCl with 95% purity from the sylvinite type potash raw material, the recovery method of hot leaching followed by cooling crystallization has been selected. This recovery method ensures production of KCl with the desired quality and suitable efficiency considering the specific properties of the raw material to be processed. With this selected recovery method, the separation of significant side components besides NaCl such as Anhydrite and insolubles can be reliably realized at a comparably high KCl recovery rate of 90.8%. In the process, the raw material is crushed and mixed with hot process brine and due to the temperature-dependent solubility of KCl, the KCl component is dissolved for the most part and most other components are mainly not dissolved and mechanically separated. The resulting hot KCl brine is cooled by vacuum cooling whereupon KCl recrystallizes upon which it is separated and dried. The plant has a design capacity of 2.44 MTPA of KCl; however, on average, over the years with full production, 8.32 MTPA of ore is fed to the processing plant and 2.16 MTPA of KCl with a purity of 95% is produced. The entire product will be compacted to granular KCl for sale. For this process, typical consumables are required such as water, heating steam, reagents e.g. flocculant and anti-caking agent and natural gas for drying procedures.

The processing plant contains two identical stand-alone trains. Each train is fed ROM ore at a rate of 546 t/h through one double stage four roll crusher for primary crushing and then through two cage mill secondary crushers, which crush the ore to less than 4 mm. Crushed ore is conveyed to the hot leach circuit, which utilizes a two-stage arrangement of cascaded agitated leaching tanks. Potassium and sodium chloride dissolve from the ROM ore into approximately 90°C leaching brine. Discharge from each leach stage is classified in a bank of cyclones. Primary cyclone overflow is clarified and then pumped to the crystallizer circuit. Discharge from the secondary cyclones is filtered and forwarded to the tailings management area (TMA). A portion of the tailings are sent underground as backfill with the objective to reduce the tailings stockpile size and, as a side benefit, minimize underground subsidence. The remaining tailings are deposited in open piles and converted to brine by natural dissolution caused by high precipitation. The brine is collected in the storage ponds and later injected into an aquifer using brine injection wells, to depths between 310 m to 400 m to maintain the water balance.

The clarified hot brine received from the hot leach circuit is cooled down in a seven stage crystallizer circuit to approximately 45°C, causing the KCl to crystallize as a solid salt. The KCl is recovered from the cooled brine using cyclones and centrifuges. The brine (mother liquor) is heated up to approximately 115°C and then sent back to the hot leach circuit as leaching brine. Centrifuge cake is fed to a rotary dryer, dried and then conveyed to a compaction circuit consisting of compactors, flake breakers, primary sizing screens, primary crushers, secondary screens and secondary crushers. Screened product is annealed or "glazed" in a fluid bed dryer/cooler. Annealed product is screened and then stored before dispatch to port via transport truck. Pertinent ancillary facilities have been included to provide reagent makeup, plant and instrument air, steam production and cooling water. The processing plant is equipped with a central control room containing operator and engineering workstations to optimize operation of the plant.

1.11 Infrastructure

The project infrastructure facilities include mine site, processing plant site, port site and general facilities. The results of a geotechnical drilling program to evaluate surface and subsurface soil conditions at the mine headframe, processing plant and tailings management were used to establish the soil parameters for the design of the processing plant foundations and the tailings management facilities. A bathymetric study was conducted to define the contours of the riverbed close to the proposed location of the floating marine facility. Several earthworks have to be carried out to construct the project as designed. For example, the areas that encompass the mine site, processing plant site, tailing management area, road access, construction camp site, port and all service facilities will be cleared and grubbed of trees, shrubs, and large boulders then rough graded and ditched prior to construction. A network of existing and new roads is designed to provide access to all project sites by avoiding touching land, which is not owned by PdB. A site drainage system handles uncontaminated and contaminated water of the project. The design was developed considering the hydrological data, as well as the technical and safety criteria provided by the ANA – Agência Nacional de Águas e Saneamento Básico. The site drainage system is designed according to engineering good practices, with an

emphasis on environmental protection. The Project consists of 80 processing and auxiliary buildings and outdoor areas of varying construction and sizes with required services. The port site facilities comprise a private use terminal in an area owned by the company, located outside the public port area, on the left bank of the Madeira River, in the municipality of Autazes to commercially handle potash, by waterway, as well as fuels and general cargo.

The Project will be supplied by electrical energy. The designed 500 kV transmission line is considered to be the interconnection between the substations SE Silves and the new SE Autazes. The substation SE Silves belongs to the Brazilian Basic Network and is located in Silves region which is approximately 120 km from the future location of the PdB plant in a straight line. The connection point to the Brazilian grid has to be approved by Brazilian authorities. SE Autazes will be connected to SE Silves using an overhead transmission line crossing the Amazonas River. The estimated demand for the construction phase is 20 MW and the maximum power required for the operation of the mine, processing plant, port and other facilities is estimated at 294 MW. Standby power for critical process and safety electrical loads is supplied by diesel generators.

The water supply system is divided in two sub-systems. At the processing plant site, the industrial and process water supply system is designed for ten deep wells and the potable and make-up steam plant water supply system is designed to be supplied from two deep wells. The Madeira River has also been identified as an alternative source of water for the processing plant and mine site. The alternative water intake system could be located at the port location; water from the river would be distributed to the processing plant and mine site via a 12 km water pipeline.

The infrastructure includes general communication, which describes the strategy for providing telecommunication facilities to support the construction and permanent operation phases of the Project. A combination of communications technologies (fiber optic backbone cabling, structure cabling infrastructure, integrated voice or data network system, radio system, public address and general alarm system, corporate security system and process CCTV system) is utilized to support all aspects of operations and project engineering requirements.

The waste management comprises the sanitary solid waste, e.g. recyclable materials, domestic waste, waste produced in the processing and hazardous waste. Therefore, the infrastructure, e.g. waste collection stations, disposable material center, sewage treatment plant, industrial waste disposal, sanitary landfill, is given.

The tailings management area consists of two tailings deposit sites, with usable battery volume of 24.1 million m³ each. Each pile has two brine ponds for collected surface water. The complete area under the tailings site is lined to manage surface water collection and prevent contamination of the surrounding soil and ground water.

The Autazes Potash Project requires on average the transportation of 2.16 MTPA with a design capacity of up to 2.44 MTPA of granular KCl from the processing plant to the port. This transportation will be done by trucks. River access will be provided by the Madeira River, which will be used for further potash transportation through waterways on barges.

1.12 Market Studies

For the market analysis and product price forecast, CRU's research and its report commissioned for BPC's Autazes Potash Project has been used (CRU, 2022, /12/). For a global outlook, this study includes information about the demand and supply for the Brazilian market in the present and in the future.

Today, Brazil is the second largest consumer of potash in the world. The preferred product in the Brazilian market is granular MOP, which will be produced by the Autazes Potash Project. For the purpose of the PFS, 100% of the MOP production is considered to be sold in the domestic market.

The current and projected consumption of potash in Brazil is sufficient to absorb the entire production of the Autazes Potash Project, which will largely displace current imports.

The biggest advantage of the Autazes Potash Project over its competitors will lie in logistics. As a domestic producer, BPC will be able to deliver to mega farmers, cooperatives and the blending companies in Brazil's Mato Grosso region in less than 3 days ex-works.

On the basis of the data of the CRU report, a mid-term and long-term price forecast have been provided, which are used in the development of discounted cash flow model.

1.13 Cost Estimate

The Pre-Feasibility (PFS) cost estimate update was completed by ERCOSPLAN and L&M with consideration of the cost structure developed in 2016 for the:

- Mine, vertical shafts, processing plant, tailings management area, on site infrastructure and off-site infrastructure, including the port and power transmission line.

Table 1 summarizes the key elements of the PFS cost estimate and financial analysis for the Project. The capital cost estimate has a predicted accuracy of AACE Level 3, except for the tailings and brine management areas, steam generation plant and power transmission line, which have been completed to AACE Level 4. ERCOSPLAN's QP consent that the updated estimated CAPEX and OPEX with accuracy of ±25% are at the Pre-Feasibility Study (PFS) level of accuracy. An exchange rate of BRL 5.25 : USD 1.00 for the US dollar (USD) to the Brazil Real (BRL) was used. No

escalation was included in the economic analysis, as the discounted cash flow model was developed using a real dollar basis. The IRR on the total investment was calculated on the basis of 100% equity financing.

Table 1 Unlevered financial results summary

Financial Analysis	Unit	Post-Tax
NPV@8.1%	(USD million)	2,497.6
IRR	(%)	15.8%
Profitability Ratio	(%)	127.1%
EBITDA (*)	(USD million)	972.8
Total Cash Flow	(USD million)	13,879.4
Payback (**)	(Years)	5.6
<i>(*) Average year 4-20, full run rate production period</i>		
<i>(**) Undiscounted, after start-up</i>		

A summary of the initial capital cost estimate (iCAPEX) as per cost centers breakdown, including taxes, is presented in Table 2.

Table 2 Initial capital cost summary

WBS	Description	Cost in Million USD
1000	Mine	268.0
1100	Shafts	433.4
2000	Site general	68.3
3000	Process plant	608.7
4000	Tailings management area	72.1
5000	Utilities	69.9
6000	Ancillary services	28.3
7000	Off-site facilities	221.7
	Total direct costs	1770.5
8000	Indirect costs	135.2
9000	Owner's costs	165.8
-	Contingency	200.2
-	Taxes, duties, fees	219.3
	Total indirect costs	720.5
	TOTAL	2,491.0

The total operating costs for the Autazes Potash Project is estimated to be between USD 78.03 to USD 105.01 per tonne of MOP over the Project's life after ramp-up is completed and during years when production is at least 75% of the designed 2.44 MTPA.

The weighted average life of mine total operating cost, post ramp-up is estimated at USD 86.76 per tonne of potash, as per cost centers breakdown, excluding taxes, as summarized in Table 3.

Table 3 Operational cost summary

Description	Cost USD/tonne of MOP
Mine	19.20
Shaft	7.83

Description	Cost USD/tonne of MOP
Processing	49.80
Tailings management and brine disposal	1.33
Logistics	4.76
Employee transportation and housing	1.03
General and administration	2.81
TOTAL	86.76

1.14 Project Schedule

During the PFS, a preliminary project execution plan and EPCM schedule were developed. Construction activities are scheduled to commence in January of year -5, with the critical path, shaft sinking, slated to be completed by November year -1. The mine will start production of first ore in year -1. The processing plant will start commissioning of the first train (Train A) in April year -1. The second production train (Train B) will start commissioning in January year 1 and full production capacity is to be reached by the end of year 4.

2 Introduction

In this chapter information are provided on the terms of reference and purpose of the report, sources of information and statements regarding the personal inspection of the property by Qualified Persons (QPs).

2.1 Terms of Reference and Purpose of the Report

Brazil Potash Corp. (BPC) has engaged ERCOSPLAN (Consultant) to update the 2016 Autazes Potash Project Bankable Feasibility Study Report (WorleyParsons, 2016, /57/), which was prepared by WorleyParsons Canada Services Ltd., to reflect the 2022 economic situation, taking into account information about the permits to mine and other information that have become available since 2016.

This Technical Report titled "Update of Autazes Potash Project – Pre-Feasibility Study" was prepared using the 2016 Autazes Potash Project Bankable Feasibility Study Report as the baseline and main source of information. This 2016 report has been reviewed by ERCOSPLAN and the ERCOSPLAN QPs are of the opinion that this study represents an adequate basis for the update of the PFS presented in this report. Changes have been made to the contents of the original Technical Report where required because of the new information and the project economics. Considering the studies carried out since 2016 and the updated project economics, the input data for the update of the PFS carried out has been supplemented or specified as necessary. The technical solutions were examined against the background of the updated input data. Technical solutions that were still suitable and report sections/chapters relating to them were adopted unchanged. Necessary changes to technical solutions were made and explained in the relevant report sections/chapters.

The technical solutions explained in the PFS update represent the state of the art with the input data available at that time and are suitable as a basis for an economic assessment. Nevertheless, it is necessary to further develop the project in the coming project phases and to adapt the technical solutions to the updated state of knowledge of the input data and the state of the art, thus enabling an optimization of the overall project economics.

This update of the Technical Report is compliant with S-K 1300 as a Pre-Feasibility Study (PFS) of the Autazes Potash Project considering an accuracy of $\pm 25\%$, located in the Amazon Potash Basin, in the eastern part of the Amazonas State of Brazil. BPC is a private mineral exploration and development company with its base of technical operations in Belo Horizonte, Brazil. BPC holds mineral rights to the Autazes Potash Project via its 100% owned local subsidiary PdB.

This Technical Report provides an update on the Mineral Resource and Mineral Reserve estimates and a classification of the resources and reserves in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standing Committee Definition Standards for Mineral Resources and Mineral Reserves, May, 2014 (CIM, 2014, /10/). This Report was prepared under supervision of Qualified Persons, following the Rules and Policies set out in the S-K 1300 in compliance with the United States Securities and Exchange Commission's (SEC).

2.2 Sources of Information

For updating the required sections of the 2016 Autazes Potash Project Bankable Feasibility Study Report, ERCOSPLAN reviewed and used information provided in WorleyParsons report of 2016 as a base and updated the required sections presented in this Report. For the update, additional sources of information were used as follows:

- Information provided by PdB;
- Microsoft Excel file "2015-08-04_AT-BLK_3D.xlsx" containing the parameters and values of the resource blocks modelled by BPC for the Autazes Potash Project, based on ERCOSPLAN's mineral resource estimate of 2015 (ERCOSPLAN, 2014, /15/);
- Mine plan, created by WorleyParsons for the WorleyParsons 2016 Autazes Potash Project Bankable Feasibility Study Report and provided by BPC as ESRI shapefiles;
- Polygons of the mineral rights after their dismemberment, provided by BPC as ESRI shapefiles;
- New location and design, as well updated cost estimate of the port facility in Urucurituba prepared by WorleyParsons resources & energy (WorleyParsons and PdB, 2022, /59/);
- New route and updated cost estimate for the transmission line, provided in the corresponding report of FIGENER (FIGENER and PdB, 2022, /21/);
- Information provided by PdB regarding time schedule for implementation of power supply;
- Port update was provided as a descriptive memorandum containing general project details, description of project areas and facilities and several drawings including master plan, general plans and structural dimensioning (WorleyParsons and PdB, 2018, /58/);
- Information provided by PdB regarding updated time schedule for project implementation plan;
- Information provided by PdB and L&M regarding updated project costs and project economics;
- Information provided by CRU regarding an updated marketing study and price forecast;
- Information provided by PdB regarding the status of licences;
- Information provided by PdB regarding adjacent properties.

2.3 Personal Inspection of Property by Qualified Person

The following Qualified Persons visited the Autazes Potash Project site on the dates indicated:

- Dr Henry Rauche undertook a site visit of the permit lands/properties on November 23-25, 2012.

-
- Mr. Andreas Jockel undertook a site visit of the permit lands/properties on November 23-25, 2012, February 23-27, 2015 and August 21-24, 2022.
 - Dr Eike Kaps undertook a site visit of the permit lands/properties on August 21-24, 2022.
 - Mr. João Augusto Hilário de Souza "MAIG", Mining Engineer from L&M, who is responsible for development of the Cash Flow Model, Taxation and Economic Analysis, and Environmental Sections of the PFS report, did not complete a personal inspection of the project site.

3 Property Description

This chapter encompasses information about the location of the property, mineral rights, environmental liabilities and royalties as well as mineral and environmental permits.

3.1 Property Location

The Autazes Potash Project area is located approximately 120 km southeast of the city of Manaus in the Municipality of Autazes. Autazes is located in the eastern part of the Amazonas State, Brazil (Figure 1). The Project site is situated between the Amazon River, located about 25 km north of the site, and the Madeira River, a tributary of the Amazon River.



Figure 1 Location of the Autazes Potash Project site in Northern Brazil

The Project permit area, encompassing approximately 350 ha, includes areas for access to the planned underground mine, processing plant, tailings piles and port locations. All of these components are located about 20 km northeast of the Autazes city center in a rural area close to the village of Lago Soares. The port is located 12 km southeast of the processing plant site by road, in the Urucurituba village on the banks of the Madeira River (Figure 7). The coordinates for each location are presented in Table 4.

Table 4 Coordinates of the planned production shaft of the underground mine, processing plant and port (PdB, 2022, /42/)

Location	Longitude	Latitude
Production shaft	58° 58' 25.983" W	3° 29' 38.230" S
Processing plant (product loading point)	58° 58' 22.475" W	3° 29' 59.686" S
Port (product loading point)	58° 55' 16.845" W	3° 32' 43.915" S

3.2 Mineral Rights

The Brazilian National Mining Agency (Agência Nacional de Mineração – ANM), which is a specialized agency of the Brazilian Ministry of Mines and Energy, grants the authorization to an interested party to perform exploration activities by the means of a specific title named "Alvará de Pesquisa", also known as the exploration permit. This license allows the performance of exploration work in the mineral rights areas which includes drilling. Exploitation work requires a separate proper and specific permit.

The process for obtaining a mining concession decree is shown in Figure 2.

At the end of the exploration work, and before the mining concession is received, the applicant must submit a final exploration report attesting to the existence of the mineral reserve.

All registered ANM mineral rights (Table 5) for the Autazes Potash Project are held by BPC's local subsidiary PdB.

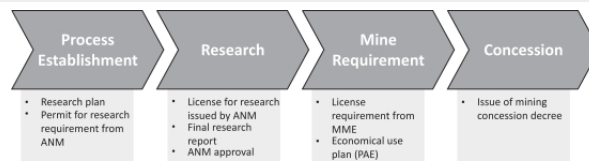


Figure 2 Process of obtaining a mining concession decree (PdB, 2022, /42/)

The results of the mineral exploration work carried out by BPC for the Autazes Potash Project were presented to ANM in the Final Exploration Report on September 10, 2014 for the five claims (original mineral rights) 880.407/2008, 880.423/2008, 880.504/2008, 880.505/2008 and 880.506/2008 (Figure 3). The report was approved by the agency on April 30, 2015 as presented in Table 5. These approvals enable BPC to request the mining concession.

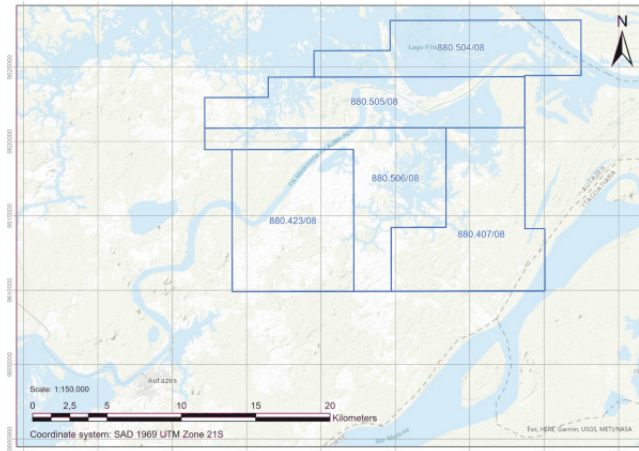


Figure 3 Original claims (mineral rights) Northeast of Autazes

Table 5 Original claims (mineral rights) and exploration permits held by BPC (PdB, 2022, /42/)

Process ID	Exploration Permit No.	Exploration Permit Issued	Total Area	City
			[ha]	
880.407/2008	4.242/2010	May 18, 2010	7.981.06	Autazes and Itacoatiara/AM
880.423/2008	7.802/2009	July 14, 2009	7.808.54	Autazes/AM
880.504/2008	13.914 /2011	September 12, 2011	5.750.33	Autazes and Itacoatiara/AM
880.505/2008	13.915/2011	September 12, 2011	6.780.52	Autazes/AM
880.506/2008	8.077/2009	July 27, 2009	6.683.34	Autazes/AM

In 2015, the environmental agency of the Amazonas State, Brazil, issued the Preliminary Environmental License (LP) to carry out environmental feasibility studies under the Autazes Potash Project.

Since then, a decree by the National Indian Foundation in Brazil (FUNAI) recognized identification studies done on nearby indigenous land ("Jauary Indigenous Land"). It was found that the proposed limits for the delimitation of this indigenous land partially coincide with the outlines of the original mineral rights for the Autazes Potash Project. Therefore, although the administrative procedure for the demarcation of the Jauary Indigenous Land (Terra Indigena Jauary) is, in itself, preliminary, the Federal Public Ministry (referred to as the "Brazilian MPF"), which is Brazil's federal prosecution office, opened a civil investigation in 2016 that questioned the validity of the license. This was based on a motion from a non-governmental organization that suggested BPC's consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169 (also known as the Indigenous and Tribal Peoples Convention [1989]).

Due to the aforementioned issues, on June 28, 2019 BPC filed the "Dismemberment Requests" of its original mineral rights related to the Autazes Potash Project. These requests were approved on December 17, 2019, and the dismemberment of the original mineral rights of the Autazes Potash Project resulted in:

- Mineral rights under the codes 880.094/2019, 880.095/2019, 880.096/2019 and 880.097/2019, located outside the proposed limits for the delimitation of the Jaury Indigenous Land;
- And the fractions of the dismembered original mineral rights areas under the original codes 880.423/2008, 880.504/2008, 880.505/2008 and 880.506/2008, located inside the proposed limits for the delimitation of the Jaury Indigenous Land.

The original mineral rights area with the ID 880.407/2008 was not affected by the dismemberment as it does not coincide with the proposed demarcation of the Jaury Indigenous Land (Figure 4).

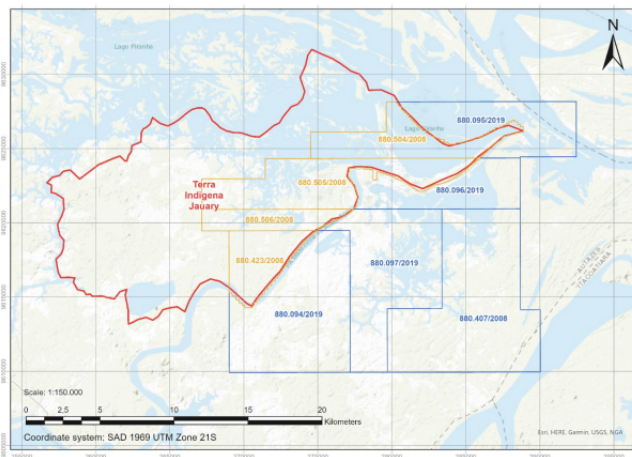


Figure 4 Mineral rights areas (in blue) and fraction areas of the original mineral rights areas (in orange) according to the dismemberment after its approval in December 2019, overlaid by the preliminary demarcation of the Jaury Indigenous Land (in red)

The surface areas of the mineral rights shown in Figure 4 are presented in Table 6.

Table 6 Surface areas of mineral rights and fraction of the original mineral rights according to the dismemberment³ (PdB, 2022, /42/)

Process ID	Jaury Indigenous Land	Surface Area [ha]
880.094/2019	outside	5,990.92
880.095/2019	outside	3,333.34
880.096/2019	outside	2,759.46
880.097/2019	outside	5,377.40
880.407/2008	outside	7,981.06
880.423/2008	inside	1,817.66
880.504/2008	inside	2,416.91
880.505/2008	inside	4,020.64
880.506/2008	inside	1,306.13

Following the dismemberment, BPC has focused the Autazes Potash Project in its five mineral rights (Table 6) located outside the proposed demarcation of the Jaury Indigenous Land. These five mineral rights were issued by the ANM through the "Economic Assessment Plan – Autazes Project (PAE)" and to the Environmental Agency in Amazonas (Instituto de Proteção Ambiental do Amazonas, IPAAM) as the main project to be licensed. The other four mineral rights (Table 6), located within the proposed demarcation of the indigenous land, are not considered by BPC at this stage of the project and are, hence, not taken into consideration in this report. BPC currently holds all mineral rights presented in Table 6 via its local subsidiary PdB.

3.3 Property Titles

For the development of the Autazes Potash Project 42 properties are required. At the time of writing this report, PdB has acquired 24 properties corresponding to a total area of 1,523.31 ha. Regarding the purchase of the remaining 18

³ Groups were assigned to distinct mineral rights according to their location (inside/outside Jaury land).

properties, negotiations with the property owners are ongoing and purchases are planned for 2022/2023. Figure 5 presents the land acquisition plan for the Autazes Potash Project.

The properties that will be affected by rural road improvements will not be acquired by PdB. However, authorization for these improvements will be obtained from the local government. BPC has acquired 11 properties (861.84 ha²), which will be used as a legal reserve for environmental compensation.

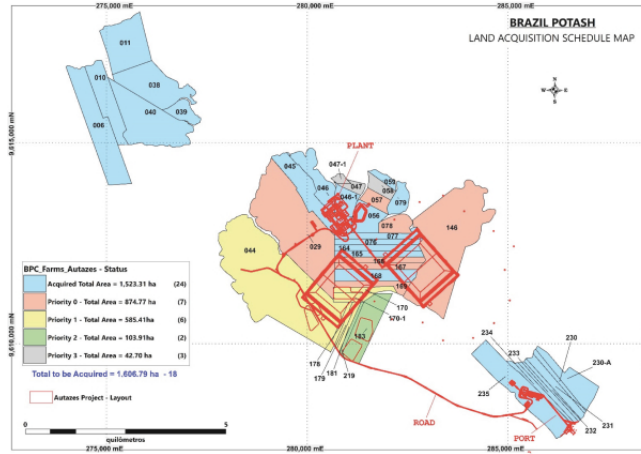


Figure 5 Land acquisition plan for the Autazes Potash Project (PdB, 2022, /42/)

3.4 Environmental Liabilities

Properties required for the development of the underground mine, processing plant, tailings piles and port terminal are in the process of being acquired by BPC's subsidiary PdB.

BPC is not aware of any environmental liabilities or any royalties attached to the properties already acquired and those identified for purchase.

Current environmental liabilities are limited to cut lines for drilling and seismic access, drill pad clearings, mud sumps and various temporary infrastructures.

The project will comply with the environmental provisions of the Mining Code, including the:

- Rehabilitation of the surface soil or other areas adjacent to the mine or deposit in accordance with a rehabilitation plan or land use, concurrently or with other work required in case of closure or cessation of work;
- Reinstatement of forests or other areas whose integrity has been impaired as a result of mining activities.

The work will be in compliance with the exploration or exploitation work of a mine or quarry with the obligations relating to:

- Safety and health of personnel and the population;
- Protection of the environment;
- Preservation of the mine;
- Conservation of buildings, ground safety and soundness of dwellings;
- Conditions of environmental permit license.

3.5 Royalties

The economic use of the mineral resources during the operations phase will result in the payment of financial compensation (royalties) for the exploitation of mineral resources (CFEM). The royalties will be payable as 3% of the gross revenue obtained from the sale of the potash product. The tax basis will consider the gross revenue, excluding only taxes over the selling (PdB, 2022, /42/). The royalties of 3% are split into royalties at a rate of 2% of the gross revenue to the Federal Government of Brazil and royalties at a rate of 1% of the gross revenue to owners of surface rights of any land not owned by BPC.

3.6 Permits

3.6.1 Mineral Permits

As mentioned in Section 3.2, BPC as holder of the mineral rights of the Autazes Potash Project (Table 6; Table 7) via its subsidiary PdB currently concentrates its work on the main project comprising of the mineral rights areas 880.094/2019, 880.095/2019, 880.096/2019, 880.097/2019 and 880.407/2008. These mineral rights areas are located outside the proposed demarcation of the Jaury Indigenous Land.

The respective status of all mineral rights of the Autazes Potash Project held by BPC is presented in Table 7.

Table 7 Status of the mineral rights for underground resources exploration permit after dismemberment (PdB, 2022, /42/)

ID	Jaury Indigenous Land		Remark
880.094/2019	outside	transition from exploration to mining	PAE approved – *Declaration issued by ANM, the PAE was analyzed and judged satisfactory by ANM on December 14, 2020
880.095/2019	outside	transition from exploration to mining	PAE approved – *Declaration issued by ANM, the PAE was analyzed and judged satisfactory by ANM on December 14, 2020
880.096/2019	outside	transition from exploration to mining	PAE approved – *Declaration issued by ANM, the PAE was analyzed and judged satisfactory by ANM on December 14, 2020
880.097/2019	outside	transition from exploration to mining	PAE approved – *Declaration issued by ANM, the PAE was analyzed and judged satisfactory by ANM on December 14, 2020
880.407/2008	outside	transition from exploration to mining	PAE approved – *Declaration issued by ANM, the PAE was analyzed and judged satisfactory by ANM on December 18, 2020
880.423/2008	inside	transition from exploration to mining	Deadline for mining request or extension of exploration permit is August 12, 2023
880.504/2008	inside	transition from exploration to mining	Deadline for mining request or extension of exploration permit is August 12, 2023
880.505/2008	inside	transition from exploration to mining	Deadline for mining request or extension of exploration permit is August 12, 2023
880.506/2008	inside	transition from exploration to mining	Deadline for mining request or extension of exploration permit is August 12, 2023

3.6.2 Environmental Permits

The environmental license is an administrative procedure to legalize projects and activities that use natural resources. The environmental agency licenses the project location, expansion and operation. Figure 6 shows the process for obtaining an operation license.

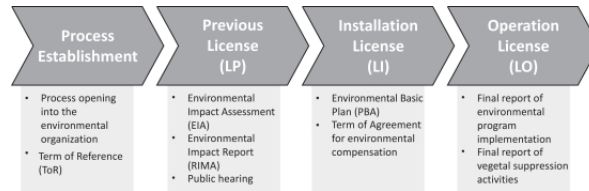


Figure 6 Process for obtaining a mining license (PdB, 2022, /42/)

On July 23, 2015, BPC obtained the Previous License (LP) N° 054/2015 for the Autazes Potash Project that comprises the mine, processing plant, port terminal, and the road between port and mine.

Since the issuance of LP N° 054/2015 in July 2015, a new location has been selected for the processing plant and shaft area. A report indicating the advantages of the new location, which included a revised plot plan, was submitted for approval to IPAAM on September 8, 2015. IPAAM requested supplementary information on October 26, 2015, which BPC provided on December 23, 2015. IPAAM has approved all supplementary information and the LP N° 054/2015.

However, after receiving the Preliminary Environmental License, the Ministerio Publico Federal (the "Brazilian MPF"), which is Brazil's federal prosecution office, opened a civil investigation in December 2016 that questioned the validity of the license based on a motion from a non-governmental organization that the consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169 (also known as the Indigenous and Tribal Peoples Convention [1989]). Brazil is a signatory to International Labour Organization Convention 169, which is the major binding international convention concerning indigenous and tribal peoples, and sets standards for national governments regarding indigenous peoples' economic, socio-cultural and political rights. As a result of the December 2016 Civil Investigation, in March 2017, BPC agreed with the court overseeing the December 2016 Civil Investigation, the Brazilian MPF, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mineral Agency, FUNAI, and representatives of the Mura indigenous people (who make up the over 40 indigenous communities and tribes near the Autazes Potash Project) to suspend the Preliminary Environmental License, and to conduct additional consultations with the local Mura indigenous communities near the Autazes Potash Project in accordance with International Labour Organization Convention 169.

The Company's current near-term goals are to have the Preliminary Environmental License reinstated and obtain the Installation License, both of which are required prior to starting construction of the Autazes Potash Project. The reinstatement of the Preliminary Environmental License is subject to the initiation of additional consultations with the indigenous communities near the Autazes Potash Project in accordance with International Labour Organization Convention 169, as per the March 2017 Suspension Agreement. There are two major steps that need to be followed in connection with these consultations. The first step is that the indigenous communities need to determine the means of, and who within their tribes will be involved in, the consultations. The first step has been completed. The second step is the actual consultation process, which initially started in November 2019 but was suspended due to the outbreak of COVID-19. In April 2022, following the lifting of COVID-19 related restrictions, consultations resumed with the Mura indigenous people.

Additionally, the reinstatement of the Preliminary Environmental License and the issuance of the Installation License are subject to submission to, and the review and approval by, FUNAI of the Company's Indigenous Component Study. Following FUNAI's approval, the Indigenous Component Study and FUNAI's decision will be submitted to (i) the court overseeing the December 2016 Civil Investigation to decide whether the suspension of BPC's Preliminary Environmental License will be lifted, and (ii) the Brazilian Amazonas Environmental Protection Institute for its review. At such point following the completion of these steps, the Company would have also satisfied the two remaining items to be completed in order to obtain the Installation License. It is possible, however, that the court overseeing the December 2016 Civil Investigation and/or the Brazilian Amazonas Environmental Protection Institute may interpret the March 2017 Suspension Agreement as requiring the completion of BPC's consultations with the Mura indigenous communities near the Autazes Potash Project in accordance with International Labour Organization Convention 169 prior to the reinstatement of BPC's Preliminary Environmental License and/or the issuance of the Installation License, respectively.

3.7 Other Significant Factors and Risks

The following risks may affect access, title or right or ability to perform work at the Autazes Potash Project:

- BPC has diligently investigated and believes it has taken reasonable measures to ensure that all titles to its properties are in good standing. Investigations included obtaining a legal title opinion with respect to the validity of the relevant Autazes Potash Project licenses and agreements. There is no guarantee that the titles to the properties will not be challenged or impaired by third parties, or that such rights and title interests will not be revoked or significantly altered to the detriment of BPC;
- Land for the tailings management area has not been acquired yet and there is a small potential for delay or not having rights to the land. BPC is providing the "Servidão Minerária" that consists of a guarantee of the surface rights for mining activities;
- Opposition from international or locally based non-governmental organizations (NGOs) or other bodies may impact the ability of BPC to secure the environmental permits necessary for construction and operation. To date, public hearings on the project have been held with attendance of NGOs and all questions have been answered to their satisfaction, as evidenced by granting of the previous license;
- The assumptions used to support brine injection into the lower Alter do Chão formation, modeled by (SRK, 2016, /51/), were revised from the construction of an updated model by (SRK, 2019, /52/), which considered and evaluated different scenarios for the brine injection system. These scenarios comprised of covered and

uncovered tailings piles, quantity of injection wells, injection loads per well and for the total system, brine concentration etc. The purpose of this updated study was to present the concept for the brine injection system to IPAAM, in compliance with the condition N° 15 of License LP No. 054/2015. This study was considered satisfactory in order to present the conditions for the viability of the brine injection system, according to opinion N° 133/2020 issued by the IPAAM, with the reservation that the system must be completely monitored during the operation phase of the Autazes Potash Project;

- Opposition from the Mura indigenous people during the process of consultation based on the consultations with 44 communities. The consultation procedure, which initially started in November 2019, was suspended in March 2020 due to the COVID-19 pandemic and BPC was only recently allowed to resume such consultations in April 2022 following the lifting of COVID-19 related restrictions. In parallel to the completion of these consultations, BPC will be able to submit an indigenous impact study (referred to as BPC's "Indigenous Component Study") for review and approval by FUNAI and the impacted indigenous communities to comply with the last two conditions of the preliminary environmental license. BPC will be allowed to request the Installation License and will try to fulfill the pending conditions.

BPC has a risk management process in place to address these items (Chapter 21).

4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

This chapter provides, amongst others, information on the accessibility of the project, climate, local resources and infrastructure.

4.1 Accessibility

The project site is accessible from Manaus by crossing the Amazon River (Negro and Solimões) by boat or ferry between the port of Ceasa in Manaus and the port of Careiro da Várzea on the other bank of the river. The journey then follows highways BR-319 (26 km) and AM-254 (94 km) to the Madeira River, which is crossed by boat in order to reach the municipality of Autazes (Figure 7). From the city of Autazes, highway AM-254 extends 13 km south to the western bank of the Madeira River. From there, a boat is taken 25 km downstream on the Madeira River (northeast direction) to the boat mooring location at the Urucurituba village, which is the proposed location of the port facilities for the Project. From the Urucurituba village access to the mine (surface area) and processing plant is via 12 km of unpaved road, part of which has not yet been constructed (WorleyParsons, 2016, /57/, PdB, 2022, /42/).



Figure 7 Location of the Autazes Potash Project site, the city of Manaus and the municipality of Autazes together with roadways BR-319 and AM-254, boat routes (dashed blue lines) as well as the location of the Urucurituba village with the road towards the project site (small map section)

Alternatively, the project site can be accessed by boat travelling the Amazon River downstream to the confluence with the Madeira River and from here travelling upstream the Madeira River to the boat mooring of Urucurituba village (about 170 km).

During the rainy season the project site can be accessed by boat from Autazes via the seasonal connected Madeira River and Lake Soares (Lago Soares; 35-40 km distance).

Figure 8 shows the location of the main project facilities south of Lake Soares together with the Urucurituba village and port on the western bank of the Madeira River.

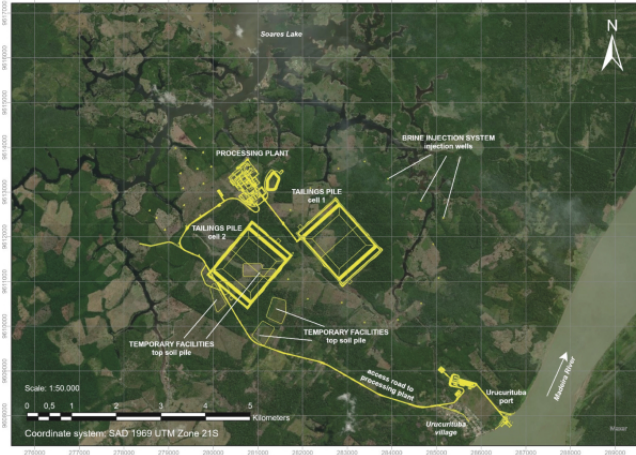


Figure 8 Location of planned port, access roads, processing plant, tailing piles and brine injection wells as well as the location of the Urucurituba village (PdB, 2022, /42/)

4.2 Climate

The climate of the municipality of Autazes is tropical monsoon (zone "Am" after Koeppen-Geiger classification) with a short, dry season. Climatic data, representative of the area, originated from the meteorological station of Itacoatiara (Latitude: 3.13° S, Longitude: 58.48° W), which is located 72 km northeast of the project site.

For the two reported periods 1961-1990 (first period) and 1992-2021 (second period) the distribution of the average monthly precipitation and temperatures are shown in Figure 9. The average monthly values for temperature (min./max./avg.), precipitation and evaporation of the mentioned periods are presented in Table 8.

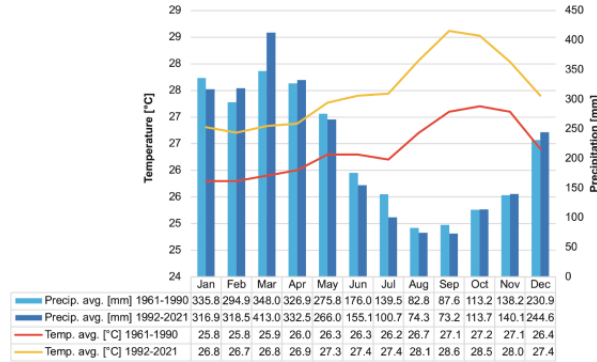


Figure 9 Diagram of average monthly precipitation and temperatures for the periods 1961-1990 and 1992-2021, provided by the meteorological station of Itacoatiara (INMET, 2022, /36/)

Table 8 Averaged monthly values for temperature, precipitation and evaporation (INMET, 2022, /36/)

Climate Characteristics	1961 - 1990 and 1992 - 2021												Total	Annual Average
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Average Temperature (°C) 1961 a 1990	25.8	25.8	25.9	26	26.3	26.3	26.2	26.7	27.1	27.2	27.1	26.4	316.8	26.40
Average Temperature (°C) 1992 a 2021	26.81	26.71	26.83	26.88	27.27	27.40	27.44	28.06	28.62	28.53	28.04	27.40	329.99	27.50
Maximum Temperature (°C) 1961 a 1990	30.2	30.5	30.1	30.2	30.6	30.9	31.10	32.00	32.4	32.5	32.8	31.3	374.4	31.20
Maximum Temperature (°C) 1992-2021	31.33	31.02	31.09	31.24	31.58	32.10	32.55	33.44	33.97	33.97	33.14	32.13	387.55	32.30
Minimum Temperature (°C) 1961 a 1990	22.00	22.00	22.30	22.10	22.10	22.10	21.80	21.90	22.10	22.20	22.40	22.20	265.2	22.10
Minimum Temperature (°C) 1992 a 2021	23.27	23.30	23.29	23.53	23.74	23.61	23.40	23.63	23.98	24.01	23.98	23.65	283.40	23.62
Evaporation (mm) - 1961 a 1990	72.5	63.5	64.4	56.3	63.1	65.6	75.4	95.5	102.3	101.7	95.2	77.3	932.8	77.73
Evaporation (mm) - 1993 a 2014	82.07	80.54	75.17	67.55	73.32	71.44	80.05	87.84	99.33	108.71	100.07	98.48	1024.57	85.38
Rainfall (mm) 1961 a 1990	335.8	294.9	348	326.9	275.8	176	139.5	82.8	87.6	113.2	138.2	230.9	2549.60	212.47
Rainfall (mm) 1992 a 2021	316.90	318.51	413.01	332.56	266.08	155.13	100.76	74.32	73.15	113.77	140.14	244.61	2548.94	212.41
Station Altitude (m)	40.0													
Climate Characteristics	Hot, Dry, Winter, Wet and Hot Summer													
Predominate Vegetation	Forest													
Source: Instituto Nacional de Meteorologia (2022): https://bdmep.inmet.gov.br/														

Annual averages from 1961 to 1990: The total annual average rainfall in this region was 2,540 mm, based on records (INMET, 2022, /36/) with the wettest quarter represented in the months of January (maximum 336 mm), February (295 mm) and March (348 mm). The average annual temperature was 26.4°C. The warmest month, October, had an average temperature of 27.2°C and the coolest months, January and February, had an average temperature of 25.8°C. The relative humidity was consistently high throughout the year. This is a feature of the entire region of the Amazon rainforest, which reached average monthly values of 88% relative humidity in March and April. September to November had the lowest average monthly values of relative humidity at 80%.

Annual averages from 1992 to 2021: The total annual average rainfall in this region was 2,548.94 mm, based on records with the wettest quarters represented in the months of February (318.51 mm), March (413.01 mm) and April (332.56 mm) (INMET, 2022, /36/). The average annual temperature was 27.5°C. The warmest month, September, had an average temperature of 27.2°C and the coolest month, February, had an average temperature of 26.71°C. The relative humidity was consistently high throughout the years. Again, this is a feature of the entire region of the Amazon rainforest, which reached an average monthly value of 89.69% relative humidity in March. September had the lowest average monthly value of relative humidity at 80.46%.

The total average annual evaporation was 932.8 mm in the period 1961-1990 and 1,024.6 mm in the period 1992-2021 with peaks in the driest months of September (1961-1990), which had an average index of 102.3 mm, and 108.7 mm in October (1992-2021).

The annual average rainfall for the two observation periods (1961-1990 and 1992-2021) remained almost unchanged. On the other hand, there was a trend of rising temperatures in the second period.

4.3 Local Resources and Infrastructure

The Autazes Project site is located in a rural area of the municipality of Autazes (refer to Chapter 3), between the Urucurituba village (port area) and the Soares village at the bank of the Soares Lake (close to the mine and the processing plant, Figure 8). These communities have underdeveloped urban structures, with poor basic infrastructure, basic health care and a limited education system.

The municipality of Autazes, which belongs to the micro-region of Manaus, covers an area of 7,652 km², inhabited by a population of around 41,000 people in 2021 (IBGE, 2022, /31/). The city of Autazes with a population of 17,800 according to the estimate of 2021 was established in 1956 by State Law No 96, which recognized the old Ambrósio Ayres district. It had been included in the municipalities of Itacoatiara and Borba up to that point.

The Urucurituba village is a small urban center with a population of approximately 1,780 people in 2015 (Golder Associates, 2015, /25/). The population has remained relatively stable in recent years with the arrival of new families to work on the yucca and livestock plantations. There are approximately 205 houses in the village. Some residents are engaged in commercial and service activities from their homes.

The Soares Lake, close to the Soares village, is connected to the Urucurituba village by a dirt road. The Soares village was installed about 150 years ago. Here, about 500 indigenous people live peacefully and in partnership with the families of non-Indigenous, who reside there (Contexto, 2019, /11/).

In the municipality of Autazes, the workforce is mostly unskilled and is divided between the agricultural sector and the trade and services sector, each accounting for approximately 45% of the jobs in the municipality. These industries employ 9% of the economically active population.

The existing infrastructure in the municipality of Autazes consists of

- Small farms and sites with some natural vegetation.
- A basic overland road system that is designed for the low and high tide cycles as a characteristic of the area. The tide cycles define the ways and means of transport to be used in a given period. There is a 8.5 km unpaved road that connects the Urucurituba village (port area) with the Soares Lake (2 km north of the planned location of the processing plant);
- An electrical power grid, which is available in urban areas and some rural settlements. In the area of the planned processing plant and underground mine, no electrical power is currently available;
- 21 health care units, including a hospital with 31 beds. There are 0.96 beds per 1,000 inhabitants, which is below the 3 to 5 beds per 1,000 inhabitants recommendation of the World Health Organization (WHO) ;
- Homes mostly made of wood walls and floors and tin roofs (Figure 10). Currently, there is no access road from the city of Autazes to the project site in existence;
- Limited infrastructure, with a small number of hotels, supermarkets and pharmacies.



Figure 10 Typical houses in the Soares Lake area (PdB, 2022, /42/)

Regarding the Urucurituba village, the existing infrastructure consists of

- A local diesel power plant for electricity generation;
- A mooring for boats and barges on the riverbank of the Madeira River. Figure 11 shows the Urucurituba village and the bank of the Madeira River with capacity to moor small boats and barges.

There are no water and wastewater treatment facilities available at Urucurituba village although some residences are connected to a non-treated water supply. Further information about the availability of water in the project area is presented in Section 17.2.2. The telecommunication service available at the village is very poor.



Figure 11 Urucurituba village on the banks of the Madeira River, looking north (PdB, 2022, /42/)

4.4 Physiography

The terrain at the underground mine and processing plant sites is rather flat with elevations ranging from 8 to 50 meters above sea level. During the flood season the river water levels reach maximum (1 in 100 year) heights of approx. 21 and 23 meters above sea level in the Madeirinha and Madeira Rivers, respectively. Seasonal variations are around 5 m during the low rain season. The proposed surface infrastructure for the Project including the mine shafts, processing plant and tailings storage facility are all located in an area of higher elevation than the 1 in 100 year of water level and are not predicted to be affected by seasonal flooding. However, these floodings are capable of modifying the transport logistics (refer to Section 17.2.2).

The highest topographic elevations are located in the southern portion of the site. Towards the northeast, at the junction of the Amazon and Madeira Rivers, the elevation decreases and the relief becomes fairly uniform.

Two main types of ground features are found in the area: the Amazon Plain and the Lower Amazon Plateau. The Amazon Plain corresponds to the areas that are most subject to flooding and is usually associated with the soil types of gleysols and fluvisols. The Lower Amazon Plateau is characterized by soft hills, in which the soil types of acrisols and latosols are present.

Part of the Autazes area is prone to seasonal flooding caused by high water in the nearby rivers (Amazon River, Madeira River).

The area of the Autazes Potash Project is part of the Amazon biome, a region of dense ombrophilous forest and pasture for livestock development. The dense ombrophilous forest is the main habitat for local animal populations. It can be subdivided into alluvial dense ombrophilous forest and montane dense ombrophilous forest.

Figure 12 and Figure 13 show the typical vegetation found at the mine shaft and processing plant sites.



Figure 12 Typical vegetation at mine shaft and processing plant sites (PdB, 2022, /42/)



Figure 13 Ombrophylous forest and adjacent de-forested area with pasture, adjacent to processing plant site (PdB, 2022, /42/)

5 History

Information presented in this chapter, pertaining to the exploration history of the project site and its vicinity was provided by BPC. ERCOSPLAN's QP has reviewed this information to ensure consistency in the format of the Technical Report, but the information and opinions contained within this chapter and sections are those of BPC; ERCOSPLAN expresses no opinion in respect thereof.

In the following sections the historical work completed to date for BPC's Autazes Potash Project is summarized emphasizing the single phases during which the project work advanced. The actual project-related work begun in 2007 while in the previous phase the project area was covered by an exploration campaign of larger spatial framework.

A map showing locations of all holes drilled by BPC for the Autazes Potash Project to date is presented in Chapter 7. Over 58,500 meters were drilled since 2009 for the Project.

BPC's geological team provided drill hole data for the resource modelling, which was validated by ERCOSPLAN. A historic compilation of ERCOSPLAN's (ERCOSPLAN, 2015, /18/) mineral resource estimate is presented in this Report. WorleyParsons has not completed an audit of the historical estimates, but notes they are classified according to NI 43-101 standards and definitions. A first mineral reserve estimate was conducted by WorleyParsons (WorleyParsons, 2016, /57/). This estimate covered the original mineral rights before their dismemberment (refer to Section 3.2). The updated mineral reserve estimate after the dismemberment, which only covers the mineral rights located outside the Jauary Indigenous Land, was made in frame of this Technical Report (Chapter 12).

The main milestones for the work completed for the Autazes Project are as follows:

- 2007-2008: Potássio do Brasil conducts site investigations;
- 2009: exploration and pilot hole drilling;
- 2010-2014: drilling campaign for preliminary economic assessment (PEA);
- 2014-2015: complementary drilling campaign;
- 2015-2016: drilling of pilot shaft hole with purpose to provide feasibility level input for shaft sinking designs.

5.1 1973-1987: First Studies in the Amazon

In 1973, the first exploration work was performed in the Amazon basin by Grupo de Trabalho do Potássio (GTP) from Petrobras – Petróleo Brasileiro S.A. One of two holes drilled during this initial exploration encountered 3 m of the potash horizon (mineralized section).

Between 1979 and 1983, Petrobras Mineracao S.A. (PETROMISA) drilled 29 holes in the Fazendinha potash deposit (Figure 14), out of which 12 intersected the mineralized section. Within that same time, PETROMISA drilled 25 additional holes in the Arari potash deposit (Figure 14), out of which 16 holes intersected the mineralized section.

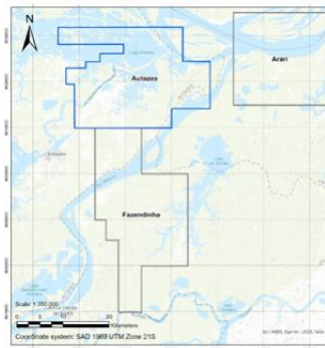


Figure 14 Map showing the outlines of the Autazes, Fazendinha and Arari areas in 2015 (ERCOSPLAN, 2015, /18/)

The cores from the above mentioned drilling activities are stored in the central core archive of PETROBRAS in Belém, state of Pará, Brazil.

In 1984, Companhia de Pesquisa de Recursos Minerais (CPRM) transferred the mineral rights to PETROMISA. Although PETROMISA performed their exploration drilling, they requested a postponement (from the Brazilian Department of Mines) in 1989 for the production start date, as there was a lack of electrical power to the region.

In 1992, PETROMISA was dissolved and the mineral rights were transferred to Petrobras.

5.2 2007-2008: Site Investigations by Potássio do Brasil

Between 1989 and 2008 no drilling for potash was performed. During that time Falcon Metais Ltda. acquired mineral rights for portions of the Fazendinha and Arari property.

In 2000 PETROBRAS carried out a 2D seismic survey for the Autazes area. Details about this survey are presented in Section 7.1.

Between 2007 and 2008, Falcon Metais Ltda. reviewed the historical drill hole results including the available petroleum drill hole database, geophysical logs, geological reports etc. (Agapito Associates, 2008, /1/).

The historical drill holes in the Amazon Potash Basin (Figure 15) that were reported for the Arari and Fazendinha deposits, are located outside the mineral rights areas of the Autazes Potash Project and are therefore not considered for this Technical Report.

The basis of information that justified the Potássio Amazonas Project by PdB started with the acquisition, in early 2008, of data from the Exploration and Production Database (BDEP) of the Petroleum, Natural Gas and Biofuels National Agency (ANP). The acquired public data included seismic profiles, well profiles and composite profiles. Integration and interpretation of the data was developed by a team of geologists and geophysicists of PdB.

Products generated from this interpretation allowed an initial definition and analysis of the deposition of the evaporitic sequences model as well as the identification of potential research targets favoring the occurrence of Sylvite and/or carnallite in the project areas as a whole. Based on this data, well drilling and coring works were planned, aiming at a further consolidation of surveys and the evaluation of reserves in the most promising areas. The first mineral exploration applications were filed with DNPM-AM in 2008.



Figure 15 Geographic location of the Amazon Potash Basin (PdB, 2014, /41/)

5.3 2009: Exploration and Pilot Hole Drilling

Exploratory drilling began between December 2009 and January 2010, near the city of Autazes. The selected area that housed the first research undertaken by PdB in the Amazonas Basin, drill hole PBAT-10-01, corresponds to the vicinity of drill hole 1-BRSA-112-AM, which was completed by PETROBRAS for hydrocarbons in 2001. It presented evidence of potash mineralization at a depth of 770 m according to the positive anomalous data indicated in the gamma profiling.

5.4 2010-2014: Drilling Campaign for Preliminary Economic Assessment

Exploration drilling for BPC's Autazes Potash Project, having started with hole PBAT-10-01 in early 2010, continued until 2014 with completion of 34 drill holes (PBAT-10-01 to PBAT-13-35) during that time. 21 of these drill holes were sunken for a geophysical downhole logging campaign.

Out of the 34 holes drilled, three drill holes did not reach the original planned depth due to either technical or operator errors. 16 of the drill holes intersected mineralized sections ranging from average grades of 15.26% to 43.41% KCl. Three holes intersected lower grade sections ranging from 4.42% to 10.75% KCl.

All 34 drill holes were cored with good recovery. Obtained core samples were sent for chemical and mineralogical analyses to be used in the preliminary economic assessment (PEA). The analytical results are documented in the PEA (ERCOSPLAN, 2014, /16/).

Coordinates of these holes are presented in APPENDIX 1.

BPC commissioned ERCOSPLAN to complete a PEA in 2014. Prior to this, ERCOSPLAN prepared a NI 43-101 Technical Report (effective date: April 3, 2013), which included a mineral resource estimate for the Autazes area based on the exploration results that were available at that time. The Technical Report was finalized on April 22, 2013 and updated on July 27, 2013 (the 2013 report results are not presented herein).

An updated mineral resource, compiled by (ERCOSPLAN, 2014, /15/) and presented in Table 9, shows the average measured, indicated and inferred resources of all drill holes classified as "mineralized". ERCOSPLAN also compiled average composition data based on the same mineralized drill holes.

Table 9 Resource estimate for the Autazes Potash Project, based on drill hole information available until 2014 (ERCOSPLAN, 2014, /15/)

Resource class	Area [m ²]	Thickness [m]	Volume [m ³]	Density [t/m ³]	Mass [t]	KCl Grade [%]	KCl Mass [t]
Measured	27,083,341	2.18	59,050,969	2.17	127,854,794	32.51	41,561,037
Indicated	59,934,237	2.29	137,386,833	2.17	297,529,921	31.79	94,576,880
Inferred	61,173,713	2.27	138,679,708	2.17	300,560,991	30.60	91,958,452

Table 10 Averaged grades of components of the mineralized section, based on based on drill hole information available until 2014 (ERCOSPLAN, 2014, /15/)

Component	Grade
	[%]
KCl	31.5
NaCl	55.4
MgSO ₄	1.0
K ₂ SO ₄	1.5
CaSO ₄	6.8
Insoluble material	3.5
Moisture	0.3

ERCOSPLAN did not prepare a mineral reserve estimate for their PEA, as it was not applicable to that stage of the Project.

5.5 2014-2015: Drilling Campaign

In addition to the 34 holes used for the 2014 PEA by ERCOSPLAN, BPC's 2014-2015 drilling campaign incorporated an additional seven drill holes (DH 14-36 to DH 14-42) for a total of 41 drilled holes for the Autazes Potash Project since 2009. Out of these drill holes, only two showed a higher grade of the mineralized section, two a low grade and the remaining drill holes were barren. A 2D seismic survey was also completed for better definition of the resource (refer to Section 7.2).

Coordinates of these holes are presented in APPENDIX 1.

A mineral resource estimate was performed by BPC's technical team using statistical comparisons of composites and block grade distributions. Statistical comparisons of ID2 (ID=Inverse Distance) and polygonal resources as well as visual checks were done to validate the model.

5.6 2015-2016: Pilot Shaft Hole Drilling

Within the second half of 2015 continuing until early 2016 BPC drilled two more holes – PBAT-15-43 (950.25 m), drilled between July 12, 2015 and December 6, 2015, and PBAT-15-43A (407.00 m), drilled between December 7, 2015 and January 9, 2016. Both holes are located midway between the planned locations of the production and service shaft (Figure 16) with the purpose to provide feasibility-level input to the shaft sinking designs. The drill collars are located approximately 7 km north-northwest of the Madeira River. Both holes were planned as vertical holes (azimuth: 0°; inclination: -90°).



Figure 16 View of drill site location for the drill holes PBAT 15-43 and PBAT 15-43 A (SRK, 2016, /50/)

Coordinates of both holes are presented in APPENDIX 1.

In hole PBAT-15-43 geophysical well logging was performed. Hydraulic testing was planned with two phases in different depth intervals. Due to technical difficulties in the upper planned test interval no hydraulic testwork could be performed leading to the decision to re-drill the upper test interval section with an adjacent hole – PBAT-15-43A about 5 m northeast of hole PBAT-15-43 – to successfully conduct the failed hydraulic testwork in the original hole.

Hole PBAT-15-43 was found barren regarding potash mineralization, while hole PBAT-15-43A was terminated above the mineralized section as its purpose was already achieved. Geotechnical samples were only taken from hole PBAT-15-43, but no samples for chemical or mineralogical testwork. No rock samples were taken from hole PBAT-15-43A.

Detailed information on both holes (well development, drilling issues etc.) are presented in Section 7.4.

6 Geological Setting, Mineralization, and Deposit

This chapter encompasses information about the regional geology, the local stratigraphy of the potash-bearing horizon (mineralized section), the mineralization of the potash-bearing horizon including the distribution of thickness and KCl grade, and the hydrogeology of the project area.

ERCOSPLAN was engaged by BPC to develop the geological setting, deposit type and mineralization of the Autazes Potash Project.

Information about the hydrogeological conditions of the Project site and conducted hydrogeological test work was provided by BPC. ERCOSPLAN's QP has not independently verified this information, but has no reason to doubt the validity of this information.

6.1 Regional Geology

Geologically, the project site is located within the Amazon Basin (Figure 15). The Amazon Basin is a large Paleozoic basin that covers 515,000 km². The sedimentary rocks of the Amazon Basin overlap the Pre-Cambrian rocks of the Guiana Shield to the north and the Central Brazil Shield to the south. The basin contains rocks ranging in age from Proterozoic to Permian age, which are overlain by rocks of the Cretaceous, Palaeogene and Quaternary age (Figure 17). Within the rocks of the basin, several periods of non-deposition/erosion can be distinguished. The thickness of the strata above the Pre-Cambrian rocks is up to 6,000 m.

The Amazon Basin is divided into three sub-basins, Upper (Solimões), Central and Lower Amazonian Basins by the Purus and Monte Alegre uplifts. The age of these uplifts is not known.

The Autazes Area is situated in the Central Amazon Basin. The rocks of the deposit belong to the Tapajós Group, which are of Upper Carboniferous to Permian age. These rocks unconformably overlay rocks of the Upper Devonian-Lower Carboniferous Curuá Group and are unconformably overlain by the rocks of the Javari Group of Cretaceous to Palaeogene age.

The Tapajós Group is divided into four formations, from bottom to top:

- Monte Alegre Formation consisting of sandstones;
- Itaituba Formation consisting of limestone with anhydrite rocks and intercalations of shales and siltstones;
- Nova Olinda Formation consisting of shale and/or siltstone, marl and/or fine grained (dolomitic) limestone, anhydrite, rock salt with intercalated layers of anhydrite, shale and some sylvinite;
- Andira Formation comprising thick layers of siltstone intercalated with thin anhydrite horizons.

The Nova Olinda Formation is divided into 11 evaporite cycles (Cycle I to Cycle XI, compare Figure 17). The evaporite cycle typically starts with the deposition of shale and/or siltstone, followed by the deposition of marl and/or fine grained (dolomitic) limestone. Upon further evaporation, gypsum/anhydrite will precipitate, followed by Halite and, during a later stage, potassium- and magnesium-bearing salts. The presence of potassium salt minerals shows that this degree of concentration was reached in Cycle VII in the Nova Olinda Formation.

Cycle VII of the Nova Olinda Formation has a thickness ranging from 150 to 200 m and can be divided into 14 sub-cycles (SC 1 to SC 14, compare Figure 17) according to the same principle as above. The potash-bearing horizon occurs in the top of SC 12 and ranges in thickness between 0.7 and 4.0 m in the explored area.

The composition of the potash-bearing horizon (Section 6.2) is described as sylvinite with layers of Halite, Anhydrite and/or Kieserite and/or Polyhalite or others (e.g. Langbeinite, Kainite). The horizon is subdivided into three zones (Figure 17), from top to bottom (Mohriak, 2008, /39/):

- **Upper Sylvinite** with an interlayering of red Sylvite and Halite with minor amounts of sulphate minerals; sometimes minor amounts of Carnallite were also detected;
- **Middle Sulphate** consisting of various sulphates (Anhydrite, Kieserite, Polyhalite and others) interlayered with Sylvite and Halite and Carnallite distinguished;
- **Lower Sylvinite** with an interlayering of white Sylvite and Halite with minor layers of sulphates, mainly Anhydrite.

Figure 17 shows a general column of the lithology and stratigraphy of the Central Amazon Basin. A comparison of the lithological description and the chemical analyses of the drill holes within the Autazes Area show the same subdivision in general. It also indicates, however, that besides Anhydrite, Kieserite and Polyhalite, other potassium and probably also sodium-bearing sulphate minerals might occur in small amounts.

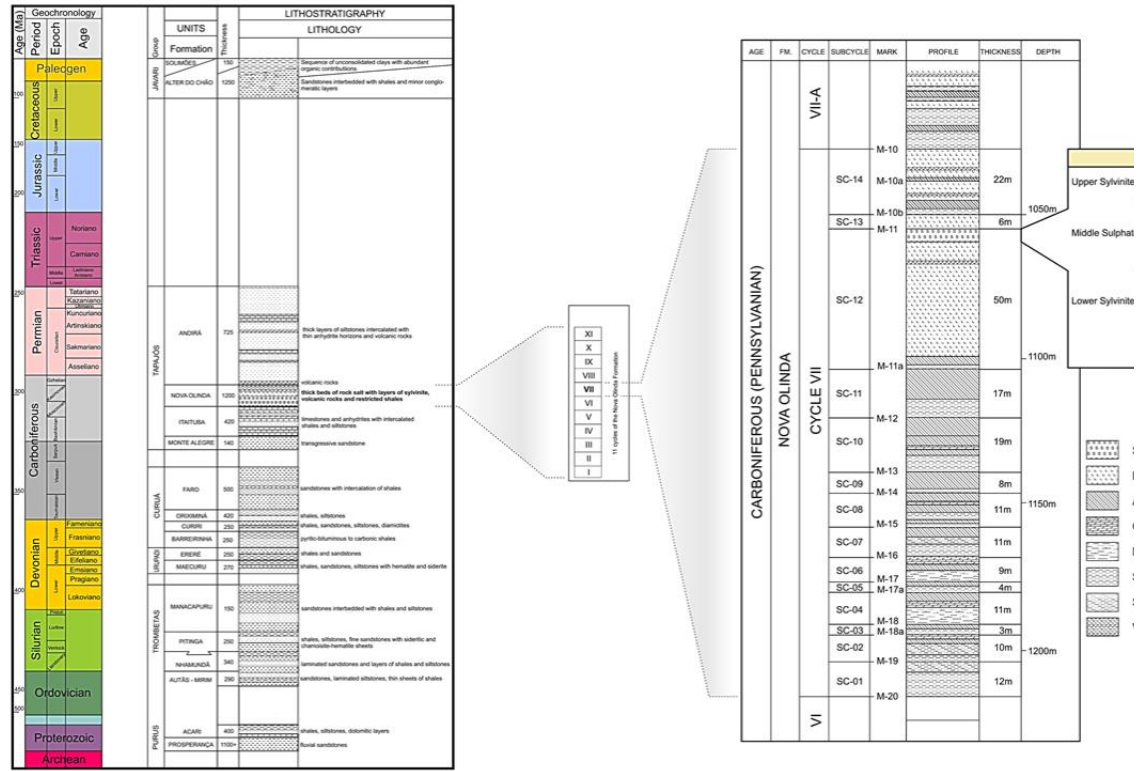


Figure 17 General lithostratigraphy of the Central Amazon Basin (Mohriak, 2008, /39/)

6.2 Local Stratigraphy of the Potash-Bearing Horizon

Based on the completed exploration drill holes within the Autazes Area, the potash-bearing horizon always occurs within Cycle VII between the Markers (Marco) 10B and 11A of the Nova Olinda Formation (compare Figure 17).

When present, the potash-bearing horizon was derived based on the lithological logging of the core material and/or high readings in the gamma log that was usually located about 5 to 15 m below Marco 10B.

The potash-bearing horizon can be divided into two sylvinite zones, which overlie light grey and fine-grained rock salt (lower part of SC 12) and are overlain by pinkish fine-grained, sometimes recrystallized rock salt (SC 13). Sometimes, the sylvinite zones are separated by a sulphate-bearing zone with low thickness. Based on the lithological description of the core material, the following characterizations of the strata above, within and below the potash horizon can be summarized as follows:

Sub-cycle	Marker Bed	Lithological Description
SC14	10/10A	Massive anhydrite and dark grey rock salt
		Nodular anhydrite and dark grey rock salt
SC13	10B	Anhydrite and dark grey shale, laminated with salts
		Grey to dark grey rock salt, hyaline, coarse, with lenses of insoluble (mud)
SC12		Pinkish rock salt, fine-grained, locally recrystallized
		Upper Sylvinite, composed of red, pink to orange Sylvite with discontinuous lenses of Anhydrite and Halite
		Middle Sulphate, composed by a complex mixture of Kieserite, Anhydrite, Polyhalite, Langbeinite and chlorides
		Lower Sylvinite composed of milky white sylvinite, laminated, medium- to coarse-grained, presenting fine laminations of grey rock salt and few sulfates
		Light grey rock salt, fine-grained, laminated with disseminations of white sylvinite towards the top
	11A	White to grey massive anhydrite

A general profile of the Autazes area is shown in Figure 18.

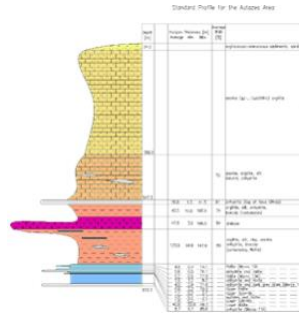


Figure 18 Simplified geological column for the Autazes area (minimum thickness only from drill holes that have completely penetrated the potash-bearing horizon) (ERCOSPLAN, 2015, /18/)

There are also magmatic rocks, described as diabase, which occur as meter- to decameter- thick layers in the overburden of the Nova Olinda Formation as well as in the evaporite rocks. These are associated with Penatacaua magmatism, related to the sill-forming magmatic rocks, geochemically classified as basalts and basaltic andesites, related to the Central Atlantic Magmatic Province (CAMP).

A geological cross-section through part of the deposit is presented in Section 10.2.

6.3 Deposit Type

Evaporitic basins develop in constrained marine environments where the influx of seawater is smaller than the evaporation rate in the basin. As the basin waters become more saline, the saturation of salts is reached in the brines and precipitation occurs in the following order: (a) limestone (CaCO_3); (b) Dolomites (CaCO_3 , MgCO_3); (c) Gypsum (CaSO_4); (d) Halite (NaCl); (e) Sylvite (KCl) and Carnallite ($\text{KCl} \cdot \text{MgCl}_2 \cdot 6\text{H}_2\text{O}$). In some cases, the specific mineralization of the brines and the temperature of the precipitation lead to the crystallization of sulphates (e.g. Kainite) instead of Carnallite.

The majority of the evaporitic basin is composed of limestone and Anhydrite (Gypsum) and, depending on water circulation and brine concentration, the precipitation of Halite occurs and can be followed by the precipitation of Sylvite and Carnallite in restricted portions of the evaporite basin. This is a cyclical process controlled by the rate of evaporation, influx of seawaters (less saline) and water circulation within the basin.

Potash deposits tend to form when the highest level of salinity is achieved in the brine in shallow sub-basins inside of the main basin.

This depositional model occurs in the Amazon Basin (Figure 15). The division of this gulf into multiple basins by basement highs such as Iquitos, Carauari, Purus and Gurupa, permits the formation of brines with high concentration of salts from west to east, and the precipitation of potassium-rich salts. This basin is similar to the Permian evaporite basins of Zechstein in Europe and the Devonian Muskeg-Prairie Basin in Canada (Amazon Potash, 2009, /2/).

The exploration results from the Autazes area generally confirm this genetic model. It is assumed that in a first phase of potash deposition, the crystallization of Sylvite together with Halite occurred, which is present as the mostly homogeneous, fine- to medium-grained mixture of Halite and Sylvite and low contents of sulphates (Anhydrite) in the Lower Sylvinitic. In a next phase of evaporation, a mixture of Halite, Kainite, Sylvite and Anhydrite has possibly been deposited. Further evaporation was stopped by a next transgressive phase with high water levels, represented by the horizon of Marker 10B (Anhydrite and dark grey clay). During early diagenesis, after sedimentation on top of the evaporite rocks, the Kainite horizon was probably transformed, while a separation of the sulphatic components in the lower part (Middle Sulphates) and a mixture of Sylvite and Halite with small amounts of Anhydrite in the upper part occurred. The upper part of the transformation horizon is characterized by less homogeneous, slightly coarser crystalline formation of the Upper Sylvinitic. The Upper Sylvinitic is overlain by coarse-grained, secondary Halite that is mixed with Anhydrite and clay.

The Autazes potash deposit is, therefore, subdivided into a lower primary and an upper secondary generated section. Spatially limited differences in the transformation phase led to different stages in the transformation. Due to this fact, not all of the described parts of the transformation sequence are encountered in each part of the deposit.

Based on the data from the 43 holes drilled by BPC (including re-drilling of PBAT-13-22 as PBAT-13-35 as well as drill holes PBAT-13-29 and PBAT-13-31 located outside of BPC's mineral rights areas) within and in vicinity to the Autazes area, a geological model based on the available data has been developed.

The geological model based on drill hole data, as shown in APPENDIX 2, APPENDIX 3 and APPENDIX 9, indicates that the deposit extends towards the northwest, southwest and southeast. In the southern and central part of the Autazes area, there are larger variations in terms of the distribution of the Sylvite mineralization of the horizon below Marker 10B. In the northeastern part of the Autazes area, the grades and thicknesses are more homogeneous, as indicated by the model. However, discrepancies between the geological interpolation model and the results from the resource estimate for average grade and thickness values as well as estimated mineralization in place occur. It is interpreted that these discrepancies result from the simplification of the geological interpolation model, which does not consider any limitation by fault zone and barren zone limitation.

Due to the characteristics of the thickness distribution of the potash-bearing horizon (sylvinitic horizon), it is currently assumed that

- (1) The potash distribution in the Autazes area is divided into two sub-basins:
 - In the western part, stretching mainly North – South and with a currently unknown border in the West;
 - The northeastern part with currently unknown borders in the East and South.These are separated by a barren zone stretching from the southeastern part to the center of the drilled area around drill holes PBAT-13-32, PBAT-14-39 and PBAT-11-07.
- (2) The extension of the barren zone stretching from Southwest of the drilled area towards the area in the center is limited to the North of drill holes PBAT 13-27 and PBAT-12-14.

The available results from the 2D seismic survey of 2015 in the southern half of the drilled area show the occurrence of normal and thrust faults involving vertical displacement. These occurrences can be recognized in the seismic sections although the interpretations of the seismic sections done by the company Geohub were not completely taken over. For the purpose of the geological model interpretation and subsequent resource estimate the following procedure was applied by the authors for interpretation of the seismic results:

- (1) The provided interpreted and not interpreted seismic sections were compared. Solely fault structures that displayed a discontinuity in the sylvinitic horizon over- and underlying horizons were considered. Discontinuities

within the sylvinite horizon interpreted by Geohub were not considered as the seismic survey does not reflect the density and wave velocity contrast between the sylvinite (density between 2.13 t/m³ and 2.21 t/m³) and the under- and overlying rock salt (density approximately 2.27 t/m³).

- (2) The traces of the recognized faults (APPENDIX 10) were projected to the surface along the seismic lines and marked by points. Together with fault zone interpretations provided by BPC the fault traces were interpreted in a way that:
- Narrow spaced occurrence of fault structures and geological evidence from drill cores were combined to a fault zone that is limiting for the resource extent.
 - Fault occurrences that show up in more than one neighboring seismic line or are open for interpretation (e.g. no further seismic line available) are interpreted as a primary structure that is limiting for the resource extent.
 - No buffer zones around the interpreted faults and fault zones have been applied, however these have to be considered at a later stage.

The best results in terms of thickness and grades are distributed over an area about 18 km long and 13 km wide.

6.4 Mineralization

Except for hole PBAT-15-43A, which was completely destructively drilled, the other 42 holes (including the re-drilling of PBAT-13-22 as PBAT-13-35) drilled by BPC were cored with good recovery in the evaporites and samples have been taken from the potash-bearing horizon of the holes (except for hole PBAT-15-43) for chemical and mineralogical analyses. The results of the chemical analyses are presented in APPENDIX 11.

In the opinion of the authors, besides the chemical analysis of salt samples for the components Na⁺, K⁺, Mg²⁺, Ca²⁺, Cl⁻, SO₄²⁻ and H₂O, information about the mineralogy is required to ensure that all reported K occurs in potash minerals. The analysis techniques used during the exploration program are described in Section 8.3 and these requirements have been fulfilled.

As described in the previous section, the potash-bearing horizon can consist of up to three layers. Due to the mostly low thicknesses of the single sylvinite layers as well as the distinction of the sulphate-rich horizon not being possible in each case, the whole potash-bearing section has been summarized as the sylvinite horizon for the current mineral resource estimate. The main potash-bearing mineral for the sylvinite horizon is Sylvite (refer to Chapter 11). The sylvinite is considered to be a part of the inferred, indicated and measured mineral resource if the following conditions are fulfilled:

- Thickness of the potash horizon exceeds 1 m;
- Minimum KCl grade of the potash-bearing horizon exceeds 10%.

Based on the chemical assay data, the thickness and grade have been determined and all holes fulfilling the cut-off criteria of 1 m@10% have been included in the mineral resource estimate. Lower grade intervals with sufficient thickness to meet the 1 m@10% criteria have also been included in the estimate.

An overview of the drill hole mineralization and the drill holes that can be considered part of the inferred, indicated and measured mineral resources according to the abovementioned criteria is given in Table 11. Hole PBAT-15-43A is not presented in this table as it was terminated above the mineralized section and only destructively drilled.

Table 11 Overview of the mineralization of the potash-bearing horizon in the drill holes in the Autazes area (green – drill holes that fulfil the abovementioned cut-off criteria; supplemented by drill holes of 2015/2016; based on (ERCOSPLAN, 2015, /18/))

Drill Hole	Depth [m]		Thickness of the Sylvinite Horizon [m]	KCl Grade of the Sylvinite Horizon [wt%]	Remarks	Calculated Density [t/m ³]
	From	To				
Cut-off			1.0 m	10%		
PBAT-10-01	767.74	769.50	1.76	0.12	low grade	
PBAT-10-02	841.78	843.24	1.46	39.15	mineralized	2.19
PBAT-11-03	863.32	864.69	1.37	25.78	mineralized	2.17
PBAT-10-04			-	-	barren	
PBAT-10-05	849.23	849.92	0.69	4.42	low thickness/ low grade	2.19
PBAT-11-06			-	-	barren	
PBAT-11-07			-	-	barren	

Drill Hole	Depth [m]		Thickness of the Sylvinite Horizon [m]	KCl Grade of the Sylvinite Horizon [wt%]	Remarks	Calculated Density [t/m ³]
	From	To				
PBAT-11-08			-	-	barren	
PBAT-11-09	843.08	844.90	1.82	38.33	mineralized	2.16
PBAT-11-10	808.90	809.70	0.80	10.75	low thickness	2.16
PBAT-11-11	827.54	827.54	-	-	barren	
PBAT-11-12	823.59	825.66	2.07	38.61	mineralized	2.13
PBAT-12-13			-	-	barren	
PBAT-12-14			-	-	barren	
PBAT-12-15	771.21	773.07	1.86	32.77	mineralized	2.17
PBAT-12-16	723.44	725.47	2.03	28.46	mineralized	2.19
PBAT-12-17	719.64	722.45	2.73	36.45	mineralized	2.15
PBAT-12-18			-	-	barren	
PBAT-12-19	738.72	740.62	1.90	25.40	mineralized	2.18
PBAT-12-20	685.45	687.59	2.14	31.87	mineralized	2.16
PBAT-12-21	695.00	696.12	2.03	15.26	mineralized	2.19
PBAT-13-22	767.79	771.17	3.38	30.20	mineralized	2.21
PBAT-13-23	843.44	845.95	2.51	43.41	mineralized	2.14
PBAT-13-25			-	-	barren	
PBAT-13-26	753.04	756.56	4.03	32.53	mineralized	2.16
PBAT-13-27			-	-	barren	
PBAT-13-28	847.89	849.97	1.75	39.64	mineralized	2.14
PBAT-13-29			-	-	barren	
PBAT-13-30			-	-	barren	
PBAT-13-31			-	-	barren	
PBAT-13-32			-	-	barren	
PBAT-13-33	732.92	735.64	2.72	33.03	mineralized	2.16
PBAT-13-34	790.51	791.55	1.04	10.34	mineralized	2.19
PBAT-13-35	768.27	771.67	3.40	34.45	mineralized	2.17
PBAT-14-36	755.05	756.20	1.15	10.08	mineralized	2.18
PBAT-14-37	807.72	808.27	0.55	11.47	low thickness	2.19
PBAT-14-38			-	-	barren	
PBAT-14-39			-	-	barren	
PBAT-14-40	752.06	755.79	3.73	25.01	mineralized	2.20
PBAT-14-41			-	-	barren	
PBAT-14-42	705.37	707.42	2.05	35.28	mineralized	2.14
PBAT-15-43			-	-	barren	

Based on available drill hole data, the thickness distribution of the sylvinite horizon within the Autazes area has been modelled and is shown in APPENDIX 2. The thickness ranges from 1.0 to 4.0 m. The isopach map shows that the largest thicknesses occur in the central part of the Autazes area. The maximum thickness of 4.0 m is explored in the north-western center (drill hole PBAT-13-26), while the thickness of the sylvinite horizon decreases towards the north, the south-west and south-east. The average thickness for the whole area is 1.89 m.

The depth of the sylvinite horizon (top of the horizon) ranges from 685 to 863 m (refer to APPENDIX 3. In general, the deposit dips from the northwest (685 to 700 m) to the southeast (about 860 m).

Based on available drill hole data, the distribution of the KCl grade within the Autazes area has been modelled for the potash-bearing horizon and is shown in APPENDIX 4. The KCl grade ranges from 10.08% (PBAT-14-36) to 43.41% (PBAT-13-23). The average KCl grade is 25%. The isoline map shows that the highest KCl grades (higher than 40% KCl) occur in the eastern part of the Autazes area, while values over 30% occur in the whole central part of the explored Autazes area, interrupted by a suspected northwest-southeast directed low grade zone. A comparison to the data obtained from the estimate of mineral resources is made in Section 11.3.

6.5 Hydrogeology and Hydrogeological Barriers

As outlined in ERCOSPLAN's previous technical report, dated September, 1 2015 (ERCOSPLAN, 2015, /18/), knowledge about the hydrogeological conditions of the project area was very limited. To overcome this deficit, based on the recommendations given in this report, BPC engaged Golder Associates Ltd. (GAL) and SRK Consulting (SRK) to carry out hydrogeological test work in the Autazes area, which was done after completion of holes drilled by BPC during the two drilling campaigns between 2010 and 2014 (in frame of the preliminary economic assessment, holes PBAT-10-01 to PBAT-13-35) and between 2014 and 2015 (holes PBAT-15-36 to PBAT-15-42). Additionally, such test work was carried out in the shaft pilot holes PBAT-15-43 and PBAT-15-43A, drilled between end of 2015 and early 2016 (Section 7.5). GAL was also engaged to provide geotechnical data collected from the pilot shaft drilling investigation.

Subsequently, a conclusion of the data obtained during the hydrogeological test work, detailed in Section 7.5, is presented.

Based on available hydrogeological and geological information, SRK (SRK, 2016, /51/) divided the groundwater system in the project area down to the base of the Halite horizon of the Nova Olinda formation into eight hydrogeological domains (Table 12). Top and bottom elevations in Table 12 were estimated based on average depths from drill hole data provided by BPC to SRK.

Table 12 Interpreted hydrogeological domains for the Autazes area (SRK, 2016, /51/)

Elevation Range from [m] to [m]	Formation	Principal Lithologies	Unit Type
+26 to +3	Solimões	saprolite	aquitard
+3 to -30	Alter do Chão	weathered laterite	secondary aquifer ⁴
-30 to -145	Alter do Chão	upper sandstone, sand	layered aquitard (secondary ⁵)
-145 to -157	Alter do Chão	central siltstone/ sandstone	layered aquitard (secondary ⁵)
-157 to -372	Alter do Chão	lower sand/sandstone	layered primary aquifer (locally)
-372 to -606	Andirá	siltstone, limestone, breccia, sandstone	aquitard
-606 to -795	Nova Olinda	siltstone, breccia, anhydrite, diabase, sandstone	aquitard
-795 to -890	Nova Olinda	halite, anhydrite, sylvinite	aquitard

Hydrogeological test work results from drill holes showed a moderate horizontal hydraulic conductivity (for freshwater) between $1.7 \cdot 10^{-5}$ and $1.5 \cdot 10^{-6} \text{ m s}^{-1}$ within the sediments of the Alter do Chão Formation (SRK, 2016, /50/). The results further showed that the hydraulic conductivity increases downhole consistent with the increase in grain size. This is especially true for the section below 300 m to 399 m, where the sediments of this formation have their base in hole PBAT-15-43.

Hydrogeological test work results in the underlying sediments of both the Andirá and Nova Olinda Formation revealed in above mentioned holes only low to very low horizontal hydraulic conductivities (for freshwater) between $8.8 \cdot 10^{-9}$ to $2.2 \cdot 10^{-11} \text{ m s}^{-1}$ (SRK, 2016, /50/). However, according to (WorleyParsons, 2016, /57/) the limestone and rocks consisting of clastic sediments as well as the diabase may be fractured elsewhere. Hence, groundwater movement cannot be

⁴ The laterite section of the Alter do Chão formation is expected to be recharged both from surface and laterally from the Rio Madeira and Lago Soares during the wet season, and behaves somewhat independently from the flow regime of the deeper sections of the Alter do Chão Formation.

⁵ Secondary means that groundwater movement is provided by connected joints (fissures, fractures).

excluded here. The sections of the Nova Olinda formation consisting mainly of Anhydrite, Halite and Sylvite are not considered to form productive aquifers (WorleyParsons, 2016, /57/).

The presence of aquifers is also assumed below the production horizon of the planned potash mine, with the limestone of the Itaituba and sandstone of the Monte Alegre formation. Presence of groundwater would here be mainly restricted to joints (secondary aquifers) while the rocks themselves are assumed to have a low primary permeability (WorleyParsons, 2016, /57/). However, no further information regarding hydrogeological conditions in both formations were available to the authors of this Report.

Groundwater samples in hole PBAT-15-43A were obtained from sediments of the Alter do Chão formation. Their composition is presented in Section 7.5. Due to their low hydraulic conductivity no such samples could be obtained from the Andirá or the Nova Olinda formation (SRK, 2016, /50/).

In conclusion, the groundwater samples show with increasing depth an increase in temperature and total dissolved solid content. Remarkable is the sharp increase in the total sodium and chloride content when comparing the samples taken between 316.6-348.7 m and between 360.6–393.0 m. Based on their redox potential (Eh) the groundwater samples are reducing.

The strata above the mineralized horizon (SC 13 and 14, average thickness 32 m) form the lower part of the hydrogeological barriers (refer to Section 6.5) against the main groundwater-bearing rocks of the overburden (Andira Formation). The upper part mostly consists of argillite, silt and clay of Cycles VII to XI. The average thickness is more than 150 m. These strata have effectively protected the evaporites of Cycle VII throughout geological history. Investigations on the characteristics (rock mechanics, permeability etc.) of these rocks for a statement about the possible influences on the barrier by mining activities are summarized in Section 13.2. Results show the general possibility of safe mining activities within the Autazes area.

The rock salt of the lower part of Sub-Cycle 12 forms the hydrogeological barrier underlying the potash-bearing horizon. The thickness of this layer is more than 30 m.

7 Exploration

The exploration program was developed by BPC, who was also responsible for the drilling work. ERCOSPLAN received information derived from exploration drilling and 2D seismic campaigns from BPC and ERCOSPLAN's QP has verified this information for ERCOSPLAN's report of 2015 (ERCOSPLAN, 2015, /18/).

Additional information about exploration work conducted for the Project that became available after completion of ERCOSPLAN's report of 2015 (see Section 5.6) was provided by BPC to ERCOSPLAN as well. The updated information is incorporated in the updated mineral resource and reserve estimates (see Chapter 11 and 12). ERCOSPLAN has reviewed the information about the drilling work conducted after completion of the previous report and ERCOSPLAN's QP has inspected the available core material of this work at its current storage location in Brazil. However, ERCOSPLAN did not validate information about results of geophysical well logging, well development and other test work conducted within the corresponding drill holes (see Section 6.5 and 7.5).

For the Autazes area exploration data are available from holes drilled by BPC (Section 7.4) and from seismic surveys (Section 7.1 and 7.2). A map showing the seismic survey lines of the campaigns of 2000 and 2015 as well as the locations of the exploration holes drilled by BPC to date together with the mineral rights areas is presented as Figure 19. Coordinates of the exploration holes are presented in APPENDIX 1.

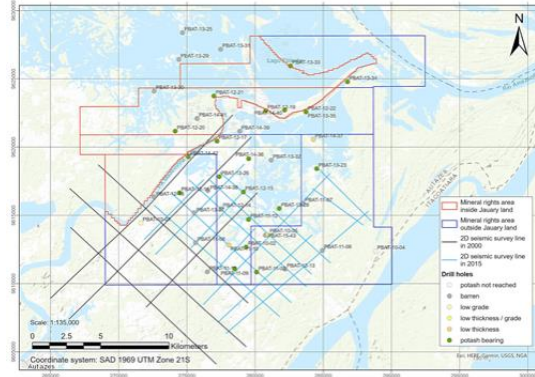


Figure 19 Map showing mineral rights areas, locations of holes drilled by BPC and seismic lines of surveys conducted in 2000 and 2015

The drill core descriptions for holes drilled by BPC have been provided by BPC to ERCOSPLAN's QP. Drill cores of these mentioned holes have been checked during repeated site visits undertaken by ERCOSPLAN's QPs, the most recent in August 2022. Cored material obtained from these drill holes was used to determine the chemical and mineralogical composition of the deposit at the location of the corresponding individual drill hole. The drill core descriptions, sampling procedures as well as drill hole documentation have been confirmed and found to be of high quality according to international standards. The samples obtained from the cored material are considered to be representative for the deposit and, hence, allow to determine the representative chemical and mineralogical composition of the deposit at the location of each sampled drill hole.

Synoptic information about the hydrogeology of the Autazes area is presented in Section 6.5 and 17.2.2. Information about geotechnical data, testing and analysis conducted on drilled material obtained until completion of drill hole PBAT-14-42 is presented in Section 13.2. Results of such test work conducted on drilled material obtained from drill hole PBAT-15-43 is presented in Appendix C⁶ of (WorleyParsons, 2016, /57/).

7.1 2D Seismic Survey of 2000

In addition to the seismic survey completed in 2015 as sub-contracted by BPC, historical seismic data are available from an exploration campaign completed by PETROBRAS in 2000, which was carried out in the Autazes area. A short summary of this historical seismic survey will be given herein, whereas the recent survey results of 2015 were used solely for a thorough check of the interpretations and implications on the geological model and applied resource estimate (refer to Chapter 11).

During an exploration campaign for oil and gas in 2000, PETROBRAS conducted a 2D seismic survey consisting of three profiles each in NW-SE and SW-NE directions. The total length of the profiles is 35 km. The distance between the parallel profiles is between 2,000 m and 3,300 m. The area covered by overlapped profiles is only 5x5 km (approx. 25 km²).

The seismic interpretation for the evaporite basin was prepared by BPC geologists (BPC, 2012, /7/). The seismic interpretation assumes that the contrast in acoustic impedance represented by subsurface seismic images has its origin in the changes in the compositions of different rock layers. Thus, the identification and monitoring of these changes throughout the different seismic images formed, whether they are 2D or 3D, illustrate the behavior of the geological

⁶ Dok.Nr.: C00367-11-GE-REP-0001: Bankable Feasibility Study Shaft Infrastructure

subsurface. It has to be kept in mind that in evaporite basins, 2D and 3D seismic surveying allows only the characterization of the structural framework and the presence of zones with anomalies. Thus, seismic response offers an insight into the structure of the layers within the context of the mineralized salt basin, but lacks vertical resolution to identify the mineralization of individual layers (BPC, 2012, /7/).

For each profile, the base of the Andira Formation, the Marker 10 (top of the rock salt) and the Marker 11A (base of the rock salt) have been interpreted. Based on the latter, which has been identified in all profiles, an extensive distribution of the rock salt (Sub-Cycle 12 to 14) has been determined. However, within a profile, the thickness of the rock salt can vary by up to 50%.

Furthermore, fault structures within the Nova Olinda Formation were identified. However, a correlation of these recorded fault indications between the profiles is not possible in every case.

Based on the specific rock mechanical properties of the rock salt and the sylvinite, it can be assumed that such fault zones in the highly saline section of the sequence (Sub-Cycle 12 to 14) are not present as fractures, contrary to the representations in the profiles, but rather as folding and/or thickening or thinning of the rock salt sequence. Due to the not completely plausible interpretation of the fault zones, these were initially excluded from the geological model. An additional 2D seismic survey has therefore turned out to be necessary and was completed as described in Section 7.2.

7.2 2D Seismic Survey of 2015

In January and February 2015, a 2D seismic survey was executed on the Autazes area by a company called Georadar (Georadar, 2015, /23/) with the total length of 15 seismic lines of about 125 km covering an area of approximately 120 km², including a topographic survey to stack out and measure in a 15 m spacing. Furthermore, vertical seismic profiling has been carried out in two drill holes.

The survey was executed by using explosives as the energy source with the following specifications of the shot points:

- 30 m between the shot points;
- 1 hole per shot point;
- 1.0 kg of explosive per hole;
- 3 m depth in each borehole.

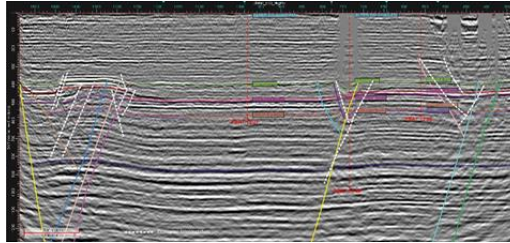
The scattering parameters used for the geophones for recording of the signals were:

- Arrangements of 6 coils per station;
- 2.50 m between the coils;
- 15 m of distance between the receiving stations

whereas in-line or radial arrangement was used depending on the encountered slopes or obstacles. The geophone model used in this program was the SM-24 manufactured by IO Sensor Technology with a sensitivity of 28.8 V/m/s. The signals from the geophones were transferred and recorded by a seismograph with the following parameters:

- Split-spread geometry; using 1 active RL and 300 channels (maximum value) connected by RL;
- Minimum offset of 7.5 m and maximum offset of 2,235 m;
- Low cut filter was not applied, and the high cut filter of 200 Hz was used (anti-aliasing filter) 0.8 N);
- 5 seconds recording and sampling rate of 1 ms.

According to Georadar the analysis of the acquired data regarding their frequency spectrum, amplitude and signal/noise ratio information were carried out following the acquisition. The results of the seismic recording went through a quality check and were subsequently interpreted by a company called Geohub.



The interpreted vertical seismic sections were provided by Geohub as distance-velocity profiles as shown in APPENDIX 12. The independent verification of the uninterpreted profiles by ERCOSPLAN and verification with the interpretation completed by Geohub lead to the following conclusions:

- The seismic survey of 2015 confirms partly the results of the historical seismic survey of 2000 (compare Section 7.1 to the extent that fault structures are present that cross-cut the overburden of the evaporate sequence and partly continue into the evaporates and their footwall;
- The separate delineation of the sylvinite horizon and occurrence/non-occurrence within the rock salt sequence is suspected to be overinterpreted as the low density contrast between the rock salt and the sylvinite is usually too small to provide sufficient contrast for delineation;
- The re-interpretation of the profiles by ERCOSPLAN (compare Figure 20) reduced the interpreted faults by Geohub slightly to structures that can be clearly identified throughout several layers and are relevant for the potash-bearing horizon. It has to be kept in mind that the dip direction of the faults cannot be delineated with certainty, which affects the interpretation of relative movements in case of occurring vertical displacement;
- Due to the resolution of the seismic survey as well as the lack of seismic sections converted to vertical distance, the vertical offset along fault lines could not be quantified.

These conclusions were relevant for the present geological model of the Autazes potash deposit as well as the current estimate of mineral resources. Further details on the procedure of the re-interpretation completed by ERCOSPLAN is discussed in the Chapter 11.

7.3 Historical Drill Holes

Historical drill holes in the Amazon Potash Basin (Figure 15) have been reported for the Arari and Fazendinha areas (Figure 15) by PETROBRAS/PETROMISA (ERCOSPLAN, 2007, /14/), showing that the deposit extends further to the north and south (ERCOSPLAN, 2015, /18/). However, as these drill holes are not within the mineral rights areas of the Autazes Potash Project, these holes will not be considered in further detail in this report.

7.4 Drill Holes Drilled By Brazil Potash

In order to carry out exploration drilling in the Amazon Potash Basin, BPC engaged the Boart Longyear company, an international diamond drilling contractor, in December 2009. The exploration campaign carried out by BPC started in 2010 with the drilling of hole PBAT-10-01 as a pilot hole close to historical hydrocarbon exploration hole 1-BRSA-112-AM, which was completed by Petrobras in 2001 (refer to Section 5.3). During the initial phase of drilling, numerous problems with core recovery and achieving hole completion were encountered as this was the first attempt to drill potash in the Amazon Basin in decades, and contractors lacked expertise in coring salt initially.

As a result of these challenges, BPC engaged other diamond drilling contractors (Rede and Geosol using imported CS-4002 rigs), fluid/mud engineers, as well as drilling consultants were brought in to define a standard operating procedure to ensure efficient operation with a high probability of completing diamond drill holes and penetrating the potash-bearing horizon with good core recovery. In order to increase core recovery for the salt interval, paraffin-based mud was used for coring within this interval instead of salt-saturated mud.

The revised drilling process simplified the drilling in the upper part of the holes and reduced the occurrence of material falling or getting washed into the hole from shallow aquifers. This procedure resulted in a more secure drilling operation and provided good quality cores for further description, analysis and test work.

To date, a total of 43 drill holes have been drilled, excluding holes PBAT-10-03A, PBAT-10-03B and PBAT-15-43A, with good core recovery within and in the vicinity of the assessed Autazes area, including geophysical well-logging in 29 drill holes, and sampling and chemical/ mineralogical assaying of obtained drill cores (APPENDIX 11). Two holes (PBAT-10-03A, PBAT-10-03B) were not drilled to the planned depth due to technical reasons. Seventeen holes intersected the top of Sub-Cycle 12 without any potash mineralization. PBAT-10-04 is suspected to not have been drilled deep enough. PBAT-13-24 was planned and drilled as a scouting hole approximately 15 km southwest of the Autazes area. PBAT-13-35 was re-drilled at the same location as the former hole PBAT-13-22 and both were evaluated as one drill hole. Furthermore, one deviation drill hole, PBAT-13-33A, was drilled as side track within hole PBAT-13-33 to gain additional core material for processing and rock mechanical test work. The drill holes PBAT-14-36 through PBAT-14-42 have been drilled to obtain more information for a higher detail of the geological model in areas with larger drill hole spacing according to the recommendations made in the Technical Report dated July 2014 (ERCOSPLAN, 2014, /16/). Two barren drill holes (PBAT-13-29 and PBAT-13-31) are now located in the vicinity, but outside of the mineral rights areas, due to required mineral rights area reduction in April 2015.

Detailed information about drill holes PBAT-10-01 through PBAT-14-42 are presented in (ERCOSPLAN, 2015, /18/).

Hole PBAT-15-43 was drilled between July 12 and December 6, 2015 with the purpose to provide feasibility-level input for shaft sinking designs. The work comprised of obtaining core material for geotechnical test work and performing in-hole hydrogeological test work. The hole was cored over its entire length. As expected from its location planning, it

was found barren regarding the potash mineralization. The core material obtained from the interval corresponding to the depths, where the potash-bearing horizon was expected, from 846.9 m to 848.2 m, does not show any evidence of potash mineralization like any other core material obtained from the hole.

Hole PBAT-15-43 was advanced with PQ diameter to 409 m and reamed afterwards to a hole diameter of 311.2 mm (12 1/4") down to 410 m before installation of a 152 mm (6") casing with multiple wire-wound well screen intervals down to 408 mbgl for hydrogeological test work (Phase 1 hydrogeological test work). During backfill of the annular space approximately 213 m of the used BQ rods fell into the annular space. As attempts to fish the rods remained unsuccessful, it was finally decided to further advance the hole to complete coring including the evaporates with the potash-bearing horizon. Also the decision was taken to drill another hole nearby (PBAT-15-43A) to install the said casing and conduct the Phase 1 hydrogeological test work (SRK, 2016, /50/).

After the attempt to backfill the 152 mm (6") casing, hole PBAT-15-43 was advanced as a PQ core hole. A PW casing was installed at 434 m and a cement seal emplaced around this casing between an approximate depth of 408 m to 434 m. However, difficulties were encountered in the emplacement of this seal, hence, there is doubt about its hydraulic integrity. The PQ core hole was subsequently advanced from 434 to 811.85 m reaching its target depth on September 24, 2015. The same suite of downhole geophysical logs as undertaken in the Phase 1 hole were then run on the Phase 2 hole (SRK, 2016, /50/).

After reaching 811.85 m another phase of hydrogeological test work was planned (Phase 2). However, due to testing equipment being stuck at customs in Manaus, drilling work was suspended for 63 days and the hole circulated regularly to maintain drill hole stability, while drilling rods were tripped. The drill hole caved according to the caliper log between about 670 m and 692 m (to a 222 mm hole diameter) and the drilling rods got stuck (Golder Associates, 2016, /28/). Since a part of the rods could not be pulled they had to be cut (SRK, 2016, /50/) blocking the drill hole. After the new drilling rods were run back into the hole the cut rods that remained downhole were pushed back into the drill hole deflecting the drilling assemblage and leading to drilling of a second branch below 692 m (Golder Associates, 2016, /28/).

After reaching 811.85 m again in the second branch, Phase 2 hydrogeological test work was conducted, subsequently a HW casing installed and cemented at the mentioned depth, the mud replaced and the hole advanced to its final depth of 950.25 m also penetrating the expected depth interval of the potash-bearing horizon. According to the provided information the hole has in total two branches – a primary drill hole branch between 0.00 and 812.00 m and a secondary drill hole branch between 692.00 and 950.25 m.

Both branches of hole PBAT-15-43 were drilled with polymer based mud down to 811.85 m. Prior to hydrogeological test work in the second branch this mud was exchanged with brine, which was changed after completion of test work and HW casing installation with paraffin-based mud, which was used to drill until the hole's final depth.

Based on the provided information by BPC, a geophysical logging campaign was carried out for hole PBAT-15-43 in August, September and December 2015. A wireline log was executed over the complete section, recording natural gamma, caliper, borehole deviation, temperature, salinity, spontaneous potential, resistivity and velocity.

Table 13 shows the amalgamated lithological log of hole PBAT-15-43.

Table 13 Lithostratigraphical formations encountered in hole PBAT-15-43 (SRK, 2016, /50/)

Lithostratigraphical Horizon	Drill Hole Depth from	Drill Hole Depth to	
	[m]	[m]	
Solimões Formation	0.0	13.3	
Alter Do Chão Formation	13.3	399.0	
Andirá Formation	399.0	631.7	
Nova Olinda Formation	631.7	701.1	
	Volcanic intrusive (diabase sill)	701.1	709.8
		709.8	950.3

After completion of hole PBAT-15-43, hole PBAT-15-43A was drilled between December 6, 2015 and January 10, 2016 down to its final depth of 407.00 m as a replacement hole for Phase 1 hydrogeological test work. The hole is located about 5 m northeast of the location of hole PBAT-15-43. The hole was reamed to a final diameter of 311.2 mm (12 1/4") down to its final depth and a 152 mm (6") casing with wire-wound stainless steel screens was installed at the same depth with the corresponding annular backfill for hydrogeological test work. The well casing consists of 0.5 mm aperture wire-wound stainless steel screened sections, from 31.8 m to 42.1 m long, with surrounding and intervening 6.35 mm (1/4") wall thickness mild steel solid casing lengths ranging from 7.9 m to 23.7 m long. The well was backfilled from surface with 6 mm diameter silica gravel, with intervening volumes of bentonite pellets. While the well construction specifications called for tremieing these materials in place, it was found that the tremie pipe brought to site had pipe unions of a diameter thought to be too large for the annular space. Hence, materials were backfilled by dumping volumetrically determined volumes from surface. Bentonite seals were designed with 4 m thickness. As the backfill materials reached depths where it was possible to measure emplaced depths, it became apparent that the

level of material backfilling did not match expected levels, hence, there was concern that bridging had occurred at depth. The well was subsequently airlifted, and backfilled materials closest to surface dropped an estimated 32 m downhole. Backfilling continued and the well was subsequently developed by airlifting from within the individual screened sections of the well, while pumping from the bottom. The well was developed using combined airlift and water pumping methods until largely sand-free and relatively clear (SRK, 2016, /50/).

Hole PBAT-15-43A was drilled destructively over its entire length. It was terminated above the potash-bearing horizon (Golder Associates, 2016, /28/). For drilling, a barite and calcite-bentonite based mud was used with added polymers, bactericides, xanthan gum, clay inhibitors and mud cake reducer.

Holes PBAT-15-43 and PBAT-15-43A were drilled by the Geosol drilling company (Geologia e Sondagens S.A.). Drilling supervision, logging of drilled material, geophysical logging supervision and monitoring of well casing installation was undertaken by Golder Associates. Hydrogeological test work was conducted by SRK Consulting (Canada).

APPENDIX 1 provides an overview of all holes drilled to date by BPC in the Autazes area with their respective coordinates, final depths and final lithostratigraphical formations.

7.5 Hydrogeological Test Work

The first hydrogeological test work in the vicinity of the Autazes area was executed by Petrobras Mineração S.A.'s subsidiary PETROMISA in a 1,103 m deep exploration hole, where 82 packer-based hydraulic tests were conducted in the Alter do Chão, Andira and Nova Olinda Formation (SRK, 2016, /50/). Only 38 of these tests were successful, while the remaining number of tests were unsuccessful due to failure to properly seat the packers. In poorly consolidated sediments the best results were obtained using inflatable packers. For the remaining tests it is assumed that mechanical packers were used. Slug tests were largely unsuccessful in intervals with a higher permeability (Alter do Chão Formation), where packers were seated successfully. This was caused by the hydraulic response of these intervals, which was too rapid to record it during a slug test. The packer tests indicated an elevated hydraulic conductivity at least locally in the Alter do Chão Formation. In the Andira Formation five tests were successful.

Hydrogeological test work in the Autazes area was carried out after completion of holes drilled by BPC during the two drilling campaigns between 2010 and 2014 (in frame of the preliminary economic assessment, holes PBAT-10-01 to PBAT-13-35) and between 2014 and 2015 (holes PBAT-15-36 to PBAT-15-42). Additionally, such test work was carried out in the shaft pilot holes PBAT-15-43 and PBAT-15-43A, drilled between end of 2015 and early 2016.

The hydrogeological test work was planned as follows:

- In situ packer tests within rocks of the Nova Olinda Formation in drill holes PBAT-14-38 and PBAT-14-40-B (Golder Associates, 2015, /27/):
 - Calcarenite section above the evaporates;
 - Rock section below the calcarenite section.
- Open drill hole tests without packers during drilling in hole PBAT-14-42 (each test below cemented 6 1/2" casing) (Golder Associates, 2015, /27/):
 - Section 450.0-458.0 m (base of Andira Formation/top of Nova Olinda Formation);
 - Section 450.0-508.0 m (base of Andira Formation/Nova Olinda Formation);
 - Section 450.0-570.0 m (base of Andira Formation/Nova Olinda Formation).
- Laboratory testing program on rocks obtained from the Nova Olinda Formation (IfG, 2014, /32/, Golder Associates, 2015, /27/):
 - Tests on 8 calcarenite samples⁷ taken from drill holes (Table 14) under different load regimes.

Table 14 List of calcarenite samples for laboratory hydrogeological testing conducted by IfG (IfG, 2014, /32/)

Hole	From [m]	To [m]
PBAT-11-11	786.19	786.36
PBAT-12-18	722.10	722.25
PBAT-12-19	699.48	699.72
PBAT-13-31	666.06	666.30
PBAT-13-32	743.59	743.74
PBAT-13-32	745.28	745.50

⁷ The calcarenite samples had a diameter of around 6 cm and were enveloped in several layers of plastic foil to prevent humidity access.

Hole	From [m]	To [m]
PBAT-14-38	1,106.40	1,106.69
PBAT-14-40	714.45	714.67

- Hydrochemical characterization of groundwater samples from the Alter do Chão Formation, Andira Formation and Nova Olinda Formation, obtained from hole PBAT-15-43 (Golder Associates, 2016, /29/).
- In situ hydrogeological testing in hole PBAT-15-43 (Golder Associates, 2016, /28/, SRK, 2016, /50/, 2016, /51/):
 - 8 tests (Phase 2 test work (SRK, 2016, /50/) in interval 441.2-812.0 m (Andira Formation and section of the Nova Olinda Formation above Marker beds (Marco) 10 and 10A) to derive the horizontal hydraulic conductivity;
 - groundwater sampling in intervals 178.6-217.3 m, 272.9-304.8 m, 316.0-348.7 m and 360.6-393.0 m.
- In situ hydrogeological testing in hole PBAT-15-43A (Golder Associates, 2016, /28/, SRK, 2016, /50/, 2016, /51/):
 - 16 tests (Phase 1 test work (SRK, 2016, /50/) in interval 19.0-393.0 m (Alter do Chão Formation) to derive the horizontal hydraulic conductivity;
 - Grain size analyses;
 - Water content measurements in interval 36.45-36.69 m (laterite within the Alter do Chão Formation) and 99.19-99.44 m (Alter do Chão Formation).

The results of the test work is presented as follows.

Due to various technical problems the packer tests in hole PBAT-14-38 could not be conducted. Instead, a slug and constant rate injection tests were carried out. For the rock section between 650.0 and 730.5 m (section above the Marker Bed (Marco) 10B) the derived transmissivity is calculated with $2 \cdot 10^{-6} \text{ m}^2 \cdot \text{s}^{-1}$, the corresponding bulk hydraulic conductivity with $3 \cdot 10^{-8} \text{ m s}^{-1}$ (Golder Associates, 2015, /27/).

None of the tests attempted in hole PBAT-14-40-B yielded analyzable data due to various technical problems (Golder Associates, 2015, /27/).

The transmissivity in hole PBAT-14-42 between 450.0 and 508.0 m is calculated with $1 \cdot 10^{-6} \text{ m}^2 \cdot \text{s}^{-1}$, the corresponding bulk hydraulic conductivity with $2 \cdot 10^{-8} \text{ m s}^{-1}$. For the other two test intervals calculations were not possible due to equipment malfunction (Golder Associates, 2015, /27/).

Hydrostatic conditions were not achieved during any of the in situ test phases in the above mentioned drill holes due to the tight test schedule. Definite conclusions of hydraulic heads corresponding to the tested intervals could not be made (Golder Associates, 2015, /27/).

Six out of eight calcarenite samples were usable for test work. The remaining two samples already showed fractures before commencement of test work. Five out of the six samples were assumed to be disturbed. Hence, only for one tested sample (Sample 1 of hole PBAT-12-19), assumed to be not disturbed, the hydraulic conductivity is given ranging between $2.45 \cdot 10^{-12} \text{ m s}^{-1}$ and $4.45 \cdot 10^{-12} \text{ m s}^{-1}$ (Golder Associates, 2015, /27/), meaning a very low hydraulic conductivity.

Due to low hydraulic conductivity of the rocks of the Andira Formation and Nova Olinda Formation in hole PBAT-15-43 no groundwater samples were obtained from both formations. Instead, only such samples from rocks of the Alter do Chão Formation were obtained with a packer system and a submersible pump (Phase 1 test work (SRK, 2016, /50/).

Hydrogeological test work in drill hole PBAT-15-43 and PBAT-15-43A as well as on sampled material obtained from these holes showed the following (SRK, 2016, /50/, WorleyParsons, 2016, /57/):

- Alter do Chão Formation:
 - Hydrogeological in situ tests (Phase 1) in sections shown in Table 15;

Table 15 Phase 1 hydrogeological test results in hole PBAT-15-43A (SRK, 2016, /50/)

Test	Depth		Horizontal Hydraulic Conductivity (Fresh-water) [m·s ⁻¹]	Classification
	from [m]	to [m]		
Packer (CH)	19.0	393.0	$4.5 \cdot 10^{-6}$	moderate conductive
Packer (CH, CI, CIR, CD, CDR)	360.6	393.0	$1.7 \cdot 10^{-5}$	moderate conductive
Packer (CH, CI)	316.6	393.0	$9.5 \cdot 10^{-6}$	moderate conductive

Test	Depth		Horizontal Hydraulic Conductivity (Freshwater) [m·s ⁻¹]	Classification
	from [m]	to [m]		
Packer (CH, CI, CIR)	272.9	393.0	7.3·10 ⁻⁶	moderate conductive
Packer (<i>test failed</i>)	229.2	393.0	-	-
Packer (<i>test failed</i>)	19.0	393.0	-	-
Packer (CH, CI)	178.6	393.0	6.5·10 ⁻⁶	moderate conductive
Packer (CH, CI)	127.0	393.0	6.1·10 ⁻⁶	moderate conductive
Packer (CH, CI, CIR)	22.5	64.6	1.5·10 ⁻⁶	moderate conductive
Packer (CD, CDR, CI, CIR)	76.4	115.0	4.3·10 ⁻⁷	moderate conductive
Packer (FH, CH)	127.0	166.8	1.9·10 ⁻⁶	moderate conductive
Packer (CD, CDR, CH)	178.6	217.3	7.4·10 ⁻⁶	moderate conductive
Packer (CH)	19.0	393.0	4.6·10 ⁻⁶	moderate conductive
Packer (CH, CI)	229.2	261.0	4.5·10 ⁻⁶	moderate conductive
Packer (CD, CDR, CI, CH, CIR)	272.9	304.8	7.9·10 ⁻⁶	moderate conductive
Packer (CI, CH)	316.6	348.7	1.3·10 ⁻⁵	moderate conductive

- Overall increasing horizontal hydraulic conductivity with increasing depth consistent with increasing grain size;
- Grain size analyses: ratio of horizontal to vertical hydraulic conductivity of 100 to 1,000; vertical features like fractures might, however, reduce this ratio;
- Specific storage was based on published literature with a value ranging between 1·10⁻⁴ and 1·10⁻³ m⁻¹;
- Water content measurements indicated a water content of 30.4% (11.82-11.97 m) within the topmost part, of 16.4% within the laterite section (36.45-36.69 m), and of 21.9% (99.19-99.44 m) as well as of 18.5% (383.00-383.30 m) below; hydraulic conductivity estimates, based on particle size analyses of samples obtained from these four intervals gave values between 3.0·10⁻⁴ (383.00-383.30 m) and 8.0·10⁻¹² m·s⁻¹ (11.82-11.97 m);
- Groundwater composition (Table 16).

Table 16 Main parameter values of groundwater sampled in hole PBAT-15-43A (SRK, 2016, /50/)

Sample ID	058-16	060-16	061-16	032-16
Sample depth [m]	178.6–217.3	272.9–304.8	316.6–348.7	360.6–393.0
Temperature [°C]	31.5	31.6	32.3	32.7
pH	7.02	7.22	6.5	7.26
EC [µS/cm]	1,154	638	677	1,455
Eh [mV]	-155	-87	-133	-145
Diss. O ₂ [mg/l]	0.1	1.2	1.1	0.1
TDS [µg/l]	49,400	28,700	237,000	931,000
Calcium [µg/l]	79,100	42,100	45,700	149,000
Magnesium [µg/l]	12,600	7,740	6,040	22,100
Potassium [µg/l]	17,000	18,200	16,800	20,800
Total sodium [µg/l]	46,300	23,700	22,500	92,300
Chloride [µg/l]	150,550	148,900	50,730	399,380

Sample ID	058-16	060-16	061-16	032-16
Sulphate [$\mu\text{g/l}$]	73,580	59,050	77,220	98,690
Groundwater type	chlorinated-calcic	mixed calcic	mixed calcic	chlorinated-calcic

- Elevated chloride concentrations are attributed to using the PQ rods for packer tests before using them for sampling;
- Andirá Formation and Nova Olinda Formation:
 - Hydrogeological in situ tests (Phase 2) in sections in Table 17;

Table 17 Phase 2 hydrogeological test results in hole PBAT-15-43 (SRK, 2016, /50/)

Test	Depth		Horizontal Hydraulic Conductivity (Freshwater) [m·s ⁻¹]	Classification
	from [m]	to [m]		
Packer (FH)	441.2	812.0	9.9·10 ⁻¹⁰	Very low conductive
Packer (CH)	441.2	812.0	9.8·10 ⁻¹⁰	Very low conductive
Packer (CH)	761.2	812.0	5.7·10 ⁻⁹	Low conductive
Packer (CH)	711.2	812.0	4.0·10 ⁻⁹	Low conductive
Packer (CH)	641.2	812.0	1.0·10 ⁻⁹	Low conductive
Packer (CH)	566.2	812.0	1.5·10 ⁻⁹	Low conductive
Packer (CH)	511.2	812.0	1.1·10 ⁻⁹	Low conductive
Packer (CH)	511.2	796.0	2.2·10 ⁻¹¹	Very low conductive
Packer (RH)	441.2	812.0	8.8·10 ⁻⁹	Low conductive

- No hydrogeological test work conducted below 812.0 m to the end depth of 950.25 m of hole PBAT-15-43;
- Vertical hydraulic conductivity is assumed to be one or two orders of magnitude lower than horizontal hydraulic conductivity;
- Specific storage value estimated between 10⁻⁷ and 10⁻⁴ m⁻¹;
- Effective porosity value estimated at about 5%;
- No groundwater basic parameters determined due to low hydraulic conductivity;
- Hydraulic head measurements on groundwater suggested potential for an upward gradient between the upper Alter do Chão Formation sandstone and the overlying laterite, and a downwards gradient within the middle and lower sections of the Alter do Chão Formation; uncertainty regarding these statements is high due to low accuracy of water level measurements during active drilling/testing;
- No reliable piezometric head values obtained in rocks of the Andirá Formation and Nova Olinda Formation due to their low hydraulic conductivity; hence, there are no statements possible about hydraulic gradients;
- Based on expected recharge of 55% of the water budget surplus in the project area an average annual recharge of about 585 mm/a is expected;
- The laterite section of the Alter do Chão Formation is expected to be recharged both from surface and laterally from the Madeira River and Soares Lake during the wet season, and behaves somewhat independently from the flow regime of the deeper sections of the Alter do Chão Formation;
- The average deep hydraulic flow gradient is estimated at about 0.001%.

8 Sample Preparation, Analyses, and Security

Information about analytical results of chemical and mineralogical assays conducted on rock samples obtained from exploration drilling (see Chapter 7) were provided by BPC and verified by ERCOSPLAN's QP for ERCOSPLAN's report of 2015 (ERCOSPLAN, 2015, /18/). However, ERCOSPLAN was not responsible for the corresponding sample preparation and execution of the assays, but the laboratories engaged by BPC and subcontracted by ERCOSPLAN, respectively. As no further chemical and mineralogical test work was conducted since the provision of ERCOSPLAN's report (ERCOSPLAN, 2015, /18/) to BPC, the statements in the mentioned report are still valid for the present report.

With regards to the samples for chemical and mineralogical assaying the following sections of this chapter describe the sample preparation procedure (Section 8.2), how sample analyses have been carried out (Section 8.3) and security measures that have been taken (Section 8.4).

Information about quality control and quality assurance measures are presented in Chapter 9.

8.1 Introduction

In the opinion of ERCOSPLAN's QP the subsequently presented sample preparation and analytical methods are commonly used in the potash industry and allow to obtain a representative chemical and mineralogical composition of the deposit at each sampling location to, further, justify the incorporation of this information into the mineral resource and mineral reserve estimate.

8.2 Sample Preparation

BPC has utilized the Saskatchewan Research Council's (SRC) potash inductively coupled plasma (ICP) analysis package, which is designed for the multi-element analysis of potash samples. SRC's geoanalytical laboratories have been certified by the Standards Council of Canada (SCC) to conform to the requirements of ISO/IEC 17025:2005 (CAN-P-4E).

Rock samples were jaw crushed to 60% @ -2 mm and a 100 g sub-sample was split from the sample using a riffler and transferred to a vial. The sub-sample was pulverized to 90% @ -106 microns using a puck and ring grinding mill. The grinding mills were cleaned between groups using Quintus quartz. The pulp was then transferred to a labelled plastic snap top vial.

An aliquot of pulp was placed in a test tube with 15 ml of 30°C distilled water. The sample was shaken. The soluble solution was then analyzed using inductively coupled plasma optical emission spectrometry (ICP-OES). This method is suitable for the soluble analysis of potash samples. The analysis is not suitable for the determination of insoluble salt minerals that may be present (e.g. Anhydrite, Kieserite). The solution was then analyzed using inductively coupled plasma mass spectrometry (ICP-MS).

With respect to the mineralogical test work, the samples from drill holes PBAT-13-33 and PBAT-13-34 have been analyzed by K-UTECH AG Salt Technologies, a German laboratory, which is certified according to DIN EN ISO/IEC 17025 by the Deutsche Akkreditierungssystem Prüfwesen GmbH. The samples were first crushed with a hammer or a hammer mill to a grain size of smaller than 1 cm. An aliquot of the sample (about one third) was then milled to a grain size of smaller than 5 mm and again homogenized. About 100 g of the sample was then milled to the required analysis grain size by a disk-swing-mill with a milling time of 120 s. After that, an aliquot of about 3 g of the sample was manually milled with an agate mortar for the XRD analysis. After preparation, the milled samples were put in closed vessels. For the chemical analyses, an aliquot of 5 g was filled with 500 ml of distilled water and the single parameters were determined by flame emission spectrometry, atomic emission spectrometry and ion chromatography.

8.3 Sample Analyses

Prepared samples were analyzed for cations (K^+ , Na^+ , Mg^{2+} , Ca^{2+}) and anions (Cl^- , SO_4^{2-} and Br^-) using mass spectrometry (MS), plus insoluble material.

Furthermore, at SRC and the German laboratory, the mineralogy of some samples has been determined using X-ray powder diffraction (XRD) from drill hole PBAT-12-15, onwards. XRD is an analytical technique used to identify and characterize unknown crystalline materials. Monochromatic X-rays are used to determine the interplanar spacings of the unknown materials. Samples are analyzed as powders with grains in random orientations to ensure that all crystallographic directions are "sampled" by the X-ray beam. When the Bragg conditions for constructive interference are obtained, a "reflection" is produced. The relative position of these reflections provides information about the materials in the sample. The analysis is qualitative only, as there has been no calibration to determine the relative amounts of each salt mineral in the sample. In normal operation mode, minerals which occur with <3 volume % in the sample cannot be unequivocally identified (SRC, 2010, /48/).

8.4 Security

Core sampling was supervised by BPC. After sampling, the remaining cores were packed with foil and sealed in plastic poly-tubing and the core boxes were secured in an air-conditioned core storage in the city of Autazes. The double-bagged samples were also stored at the base camp until they were carefully packed into boxes and shipped via parcel service to SRC in Saskatoon and the German laboratory, respectively.

9 Data Verification

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1305 (SEC, 2022, /46/) it is required to describe the internal controls "that the registrant⁸ uses in its exploration and mineral resource and reserve estimation efforts. This disclosure should include quality control and quality assurance (QC/QA) programs, verification of analytical procedures, and a discussion of comprehensive risk inherent in the estimation".

The data verification measures, which were in the responsibility of ERCOSPLAN's QP, are described in this Chapter. The source of this data is explained in Chapter 8.

This chapter only relates to samples for chemical and mineralogical assaying.

For the QA/QC program three types of control samples were included, which are defined below:

- a) Blank samples consist mainly of Halite (fine blank) or insoluble material (coarse blank) to ascertain that the laboratory equipment has no bias to values of the important components that are too high (compare Section 9.1);
- b) Standard samples mainly consist of Halite and have a low or medium content of Sylvite (compare Section 9.2). These samples are used to check the reliability of sample analysis;
- c) Cross-check samples are equivalents of the pulp duplicates sent to SRC/German laboratory and cross-check samples are sent to an external certified and reputed laboratory (secondary laboratory) (compare Section 9.3). These samples are used to check the accuracy of the laboratory.

9.1 Blank Samples

About every tenth sample sent to the SRC laboratory was a blank sample. The following blank types have been used:

- Fine blank – number of samples: 55⁹, average NaCl grade: 99.5%;
- Coarse blank – number of samples: 55, average SiO₂ grade: 98.8%.

In total, 110 blank samples have been analyzed. An overview of the results of the blank sample analyses is shown in Figure 21. The complete results of the blank sample analyses are shown in APPENDIX 13.

The examination of the blank samples shows the following results:

- Fine blanks

NaCl	average NaCl grade:	99.54%
	average deviation from the average grade:	0.43%
	standard deviation:	0.54
- Coarse blanks

Insolubles	average insoluble content (SiO ₂):	98.79%
	average deviation from the average content:	0.29%
	standard deviation:	0.41

Generally, it can be stated that the results do not indicate any peculiarities.

⁸ According to the Code of Federal Regulations Title 17, Chapter II, Part 232, §232.11 the term registrant means "an issuer of securities for which a Securities Act registration statement is required to be filed and/or an issuer of securities with respect to which an Exchange Act registration statement or report is required to be filed and/or an investment company required to file an Investment Company Act registration statement or report".

⁹ Sample Number 154159 described as a fine blank has a different composition (45.6% KCl, 32.4% NaCl, 14.6% CaSO₄) and was deleted from the dataset

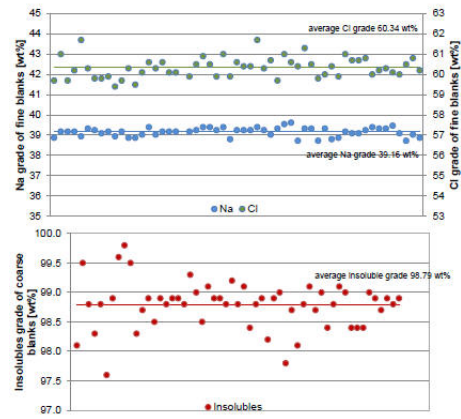


Figure 21 Selected results of the SRC blank sample analyses (line = mean value)

9.2 Standard Samples

About every tenth sample sent to the SRC laboratory was a standard sample. The following standard types have been used:

- Low grade standard – number of samples: 60, average KCl grade: 11.5%, average NaCl grade: 83.8%, average CaSO₄ grade: 3.7%, average insoluble content: 1.2%;
- Medium grade standard – number of samples: 55, average KCl grade: 31.9%, average NaCl grade: 63.2%, average CaSO₄ grade: 3.7%, average insoluble content: 1.2%;

In total, 115 standard samples have been analyzed. An overview of the results of the standard sample analyses is shown in Figure 22 and Figure 23. The complete results of the standard sample analyses are shown in APPENDIX 13.

The examination of the standards samples shows the following results:

- Low grade standard

KCl	average KCl grade	11.48%
	average deviation from the average grade	0.30%
	standard deviation	0.41
NaCl	average NaCl grade	83.77%
	average deviation from the average grade	0.45%
	standard deviation	0.61
CaSO ₄	average CaSO ₄ grade	3.72%
	average deviation from the average grade	0.08%
	standard deviation	0.12

Insolubles	average insoluble content	1.15%
	average deviation from the average content	0.11%
	standard deviation	0.13
• Medium grade standard		
KCl	average KCl grade	31.90%
	average deviation from the average grade	0.40%
	standard deviation	0.53
NaCl	average NaCl grade	63.19%
	average deviation from the average grade	0.52%
	standard deviation	0.73
CaSO ₄	average CaSO ₄ grade	3.73%
	average deviation from the average grade	0.09%
	standard deviation	0.13
Insolubles	average insoluble content	1.18%
	average deviation from the average content	0.12%
	standard deviation	0.16

Generally, it can be stated that the results do not indicate any peculiarities.

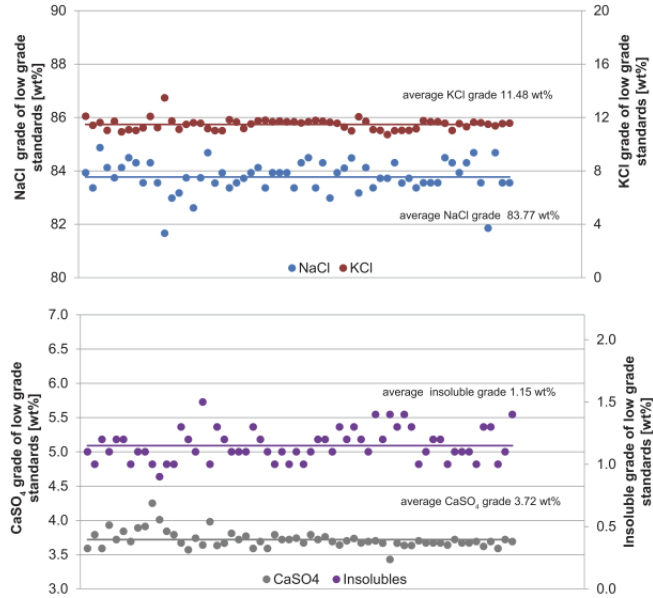


Figure 22 Results of the SRC low grade standard analyses (line = mean value)

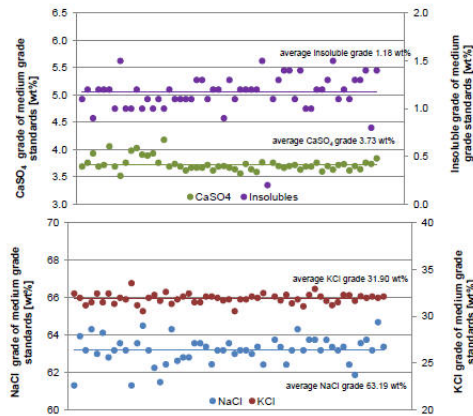


Figure 23 Results of the medium grade standard analyses (line = mean value)

9.3 Cross-Check Samples

In total, 129 cross-check samples have been taken for internal duplicate analyses by SRC and for independent analyses.

70 cross-check samples were sent to SRC. The results for these samples are shown in APPENDIX 13. A comparison between the results of the first and second analyses mostly shows sufficient correlation between both analyses.

Furthermore, 52 cross-check samples have been taken and were sent for analysis to K-UTEC AG Salt Technologies, a laboratory in Germany, which is specialized in mineral salt analyses. This laboratory, which has been subcontracted by ERCOSPLAN, has extensive experience in the analysis of polymineralic and sulphatic evaporite rocks as well as brine samples, and is certified according to DIN EN ISO/IEC 17025 by the Deutsche Akkreditierungssystem Prüfwesen GmbH (DAR).

In order to perform a quality check on the German laboratory, an additional seven cross-check samples were included in a batch of samples that have been analyzed for the mineralogical test work (refer to APPENDIX 13). The chemical composition of those seven samples had already been analyzed by the German laboratory together with another sample batch. Earlier and recent repetition results of those samples correlate well. Furthermore, seven cross-check samples have been taken from the mineralogical test work batch and have been included for re-analyses.

The following parameters were determined at the laboratory:

- K⁺, DIN ISO 9964-3 1996-08 (flame emission spectrometry)
- Na⁺, DIN ISO 9964-3 1996-08 (flame emission spectrometry)
- Mg²⁺, DIN 38406-E3 2003-03 (atomic absorption spectroscopy)
- Ca²⁺, DIN 38406-E3 2003-03 (atomic absorption spectroscopy)
- Cl⁻, DIN 38405-D 1-2 1985-12 (ion chromatography)
- SO₄²⁻, DIN 38405-D 1-2 1985-01 (ion chromatography)
- Insoluble content
- H₂O content.

Furthermore, the mineralogical composition was investigated using XRD analyses.

The results for the independent cross-check samples are shown in APPENDIX 13.

The parameters provide the main components for evaporite rocks and the re-calculated mineralogy as described in Section 9.4 should add up to a total of close to 100%, as all analyses did in this case. All analyses were checked using the ionic balance method and none had to be discarded.

The examination of the results shown in Figure 24 suggests that there is sufficient correlation between the analyses carried out by both laboratories with regard to the K^+ , Na^+ and the Cl^- content of the samples. Distinctive discrepancies occur with regard to the Ca^{2+} , SO_4^{2-} and insoluble content, which may result from different sample preparation procedures.

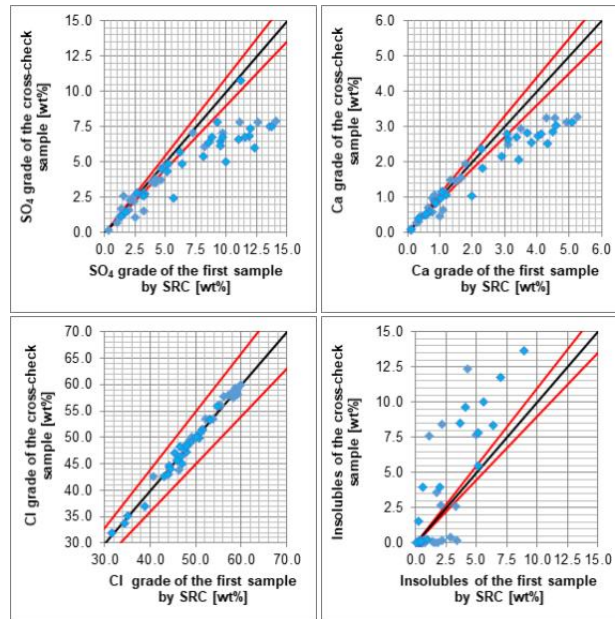


Figure 24 Correlation of the assaying results of the SRC and the independent laboratories for anions and cations. Central black line is 1:1 correlation, red lines represent 10% discrepancy (batches: 1st – dark blue, 2nd – light blue)

9.4 Consistency Check

After receiving the analyses, the charge balance between positive ions (Mg^{2+} , Ca^{2+} , Na^+ , K^+) and negative ions (Cl^- , SO_4^{2-}) is determined for each analysis. If the absolute difference $2 \cdot (\text{cations} - \text{anions}) / (\text{cations} + \text{anions}) \cdot 100\%$ is larger than 5.0%, the analysis is classified as an outlier and should be considered suspect. The results of the consistency check are presented in APPENDIX 14. All samples fulfill the requirement for the exactness of the charge balance.

With the chemical analysis, the mineralogical composition of a sample was calculated after recalculating the elements from weight% to mol and combining them to obtain the basic salt compounds:

Combine cations and anions to simple salts according to the following scheme:

- a) All Ca is $CaSO_4$, the remaining sulphate is equal to the difference between $CaSO_4$ and SO_4 ;

- b) The remaining sulphate is combined with Mg to MgSO₄. The difference between MgSO₄ and the remaining sulphate is the sulphate figure for c). If Mg is not available, skip b) and proceed directly to c). If Mg > SO₄, the remaining Mg will be used for g);
- c) The remaining sulphate from b) is combined with K to K₂SO₄;
- d) If there is sulphate available after c), the remaining sulphate is combined with Na to Na₂SO₄;
- e) The remaining Na from d) is combined with chloride to NaCl;
- f) The remaining K from c) is combined with chloride to KCl;
- g) The remaining Mg from b) is combined with chloride to MgCl₂.

The results are shown in APPENDIX 15. A small part of the total K content is bound as K₂SO₄. The XRD analyses confirm this, whereby the K₂SO₄ is bound in the minerals Polyhalite, Langbeinite and secondarily in Kainite. For the determination of the average KCl grade of the sample, the K content bound in the K₂SO₄ should be subtracted from the total K content. The KCl grades in Table 11 already take this correction into consideration.

For the mineral resource estimate, the following additional assumptions were made for the estimation of the Sylvite content (APPENDIX 15):

- a) All NaCl is Halite;
- b) KCl is Sylvite;
- c) SO₄²⁻ with Ca, Mg or K is combined to Anhydrite, Kieserite and Polyhalite.

9.5 Conclusion

As a result of the QA/QC program, the ERCOSPLAN's QP concludes that:

- For the main components such as K⁺ and Cl⁻, no grade corrections in the data from the chemical assaying were required;
- The discrepancies for Ca²⁺, SO₄²⁻ and insoluble content do not affect the mineral resource and reserve estimate. Adding up these contents shows the same results (compare Table 24, Table 25 and Figure 24). Therefore, they influence neither the tonnage of mineralized material nor the KCl tonnage;
- Furthermore, the above-mentioned discrepancies do not affect the proposed processing options (compare Chapter 14), as it does not matter whether the residue consists of sulphates or insolubles.

It is the opinion of ERCOSPLAN's QP that the chemical assaying data are adequate for the purposes of this Report. In summary, the QA/QC measures of the exploration results were carried out according to international standards and also document the reliability of the submitted exploration results.

10 Mineral Processing and Metallurgical Testing

This chapter encompasses information about the processing test works such as flotation, hot leaching and NaCl test works and the rock mechanical test works performed for the project.

ERCOSPLAN developed the mineral processing and metallurgical testing for ERCOSPLAN's report of 2015 (ERCOSPLAN, 2015, /18/). This information is still valid for the present report.

10.1 Processing Test Work

Three types of processing test work were carried out on material taken from the Autazes potash deposit: flotation test work, hot leaching/crystallization test work and test work for production of potential NaCl by-product. The test work and results are summarized briefly in the following sections.

10.1.1 Flotation Test Work

10.1.1.1 Initial Flotation Test Work

In principle, there are two main options to process sylvinite potash material into a MOP product. These options are flotation and hot leaching/crystallization. For completion of the Preliminary Economic Assessment (PEA) (ERCOSPLAN, 2014, /16/), floatability on material obtained during BPC's exploration drilling program was tested by pilot-scale flotation test work. The test work program included:

- Chemical, physical and mineralogical characterization of the mineralized material;
 - Determination of crystal intergrowth;
 - Determination of the grain size for optimal flotation results;
 - Determination of the optimal flotation sequence;
 - Determination of the flotation reagent regime
- and
- Temperature dependency of the flotation process.

The QP confirms that these flotation test work has been carried out with samples which are representative to sufficient extent of the various types and styles of mineralization and the mineral deposit as a whole. The test work was executed under direction of ERCOSPLAN in suitable laboratory facilities (Germany). ERCOSPLAN is certified after DIN EN ISO 9001 and the laboratory for analyzing all salt and salt brine samples is certified after DIN EN ISO/IEC 17025 by the "Deutsche Akkreditierungsstelle (DAkKS)". All parties participating on execution of the tests are independent to the project owner beside the contracts for carrying out the test work and Technical Report. To the QP's opinion the data collected in the test work are adequate for the purposes used in the Technical Report summary.

A detailed description of the processing test work that has been carried out on sylvinite samples from the Autazes potash deposit is given in the Technical Report (ERCOSPLAN, 2015, /18/). The results of the flotation test work program can be summarized as follows:

- After flotation of the delivered potash material, with or without slime flotation prior to sylvite flotation, the results (recovery of KCl, losses of KCl in slime) were not satisfactory;
- In the flotation tests (feed material <0.5 mm) with slime flotation, the concentrate after sylvite flotation has a high KCl content of 82%. The KCl losses in the tailings are low (KCl content <1%), but the KCl losses in the slime are unexpectedly high (between 18.8%-19.75% KCl in slime and 24.3% to 29.5% recovery of KCl in the slime respectively). This behavior is mainly induced by the intergrowth of the fine Anhydrite with the Sylvite;
- Without sulphate/slime flotation, low KCl contents are obtained, but there is a higher KCl recovery (80%-85%) in the sylvite flotation concentrate. Unfortunately, high anhydrite/insoluble material contents (16.4%-7.4%) are also observed in the sylvite flotation concentrate; therefore, both options, with or without sulphate/slime flotation, do not lead to the envisaged MOP product;
- The best flotation feed grain size was determined to be <0.5 mm;
- The change of flotation reagents and amounts of flotation reagents does not appear to have any advantages for both cases; therefore, sylvite flotation with the addition of a depressant was tested;
- Flotation with a depressant opens up the possibility of obtaining an acceptable KCl content and higher KCl recovery in the concentrate or intermediate product, which could be purified to a product with the required quality of 95% KCl. Concentrate 1 and Tailings 1, after the first sylvite flotation step (rougher flotation), with a depressant, have to be floated again in the same manner (cleaner and scavenger flotation). It is expected that Concentrate 2 (concentrate from cleaner flotation), after purification flotation, will not have the required final quality; therefore, Concentrate 2 must be cold leached with water or NaCl-unsaturated brine to possibly obtain a marketable fertilizer product;
- The flotation of Tailings 1 in the scavenger flotation resulted in tailings (Tailings 2) with a low KCl content;

- The flotation of Concentrate 1, via the cleaner flotation, provides a concentrate with only 66.7% KCl and a high anhydrite/insoluble material content of 18.1%. Even with a subsequent cold leaching of this cleaner flotation concentrate, it was not possible to achieve a product quality of 95% KCl.

The leached concentrate has the following composition:

KCl	75.95%
NaCl	2.16%
MgSO ₄	0.66%
H ₂ O total	0.56%
CaSO ₄	6.25%
H ₂ O insoluble	13.45%
CaSO ₄ + H ₂ O insoluble	19.70%

The flotation tests, with or without sulphate/slime flotation, and with a depressant, including cleaner flotation, scavenger flotation and cold leaching, did not achieve satisfying results in terms of the KCl content of the product, recovery of masses and KCl recovery. With all these flotation options, it was not possible to process the delivered potash material to an MOP (KCl 95) product with an acceptable KCl recovery rate; therefore, flotation is not the preferred option for processing this potash material to an MOP product; hot leaching/crystallization, as alternative method of processing, has been chosen.

10.1.1.2 Additional Flotation Test Work

Beside ERCOSPLAN's flotation tests another short flotation test was done by SRC, Saskatoon, Canada (SRC, 2015, /49/) with 2 kg sample material at similar composition as in ERCOSPLAN's test. In a limited description of execution of the tests SRC obtained KCl flotation concentrate with 91%-92%. However, achievement of the purity of envisaged MOP product could not be proven, too, due to still significant amounts of insoluble material in the flotation concentrate. Furthermore a good recovery of KCl to the final product was also not proven so that as a result these tests are not considered as a potential basis for process design.

10.1.2 Hot Leaching/Crystallization Test Work

In 2015, a test work program on the processing of the raw material to obtain a MOP product via hot leaching/crystallization was performed by ERCOSPLAN for the Autazes Potash Project in order to confirm the reliability of this process option for the potash material taken from the Autazes potash deposit. This program included:

- Crushing of the material to <4 mm;
- Complete characterization of the potash material used for the test work;
- Leaching of the potash material with an appropriate leaching brine at about 90°C;
- Experiments for clarifying the obtained hot KCl-rich brine;
- KCl crystallization from the hot brine; and
- Chemical analyses of the leaching residues, the crystallized KCl material as well as the used process brines.

The QP confirms that these hot leaching test work has been carried out with samples which are representative to sufficient extent of the various types and styles of mineralization and the mineral deposit as a whole. The test work was executed under direction of ERCOSPLAN in suitable laboratory facilities (Germany). ERCOSPLAN is certified after DIN EN ISO 9001 and the laboratory for analyzing all salt and salt brine samples is certified after DIN EN ISO/IEC 17025 by the "Deutsche Akkreditierungsstelle (DAkKS)". All parties participating on execution of the tests are independent to the project owner beside the contracts for carrying out the test work and Technical Report. To the QP's opinion the data collected in the test work are adequate for the purposes used in the Technical Report summary.

A detailed description of the hot leaching/crystallization test work that has been carried out on sylvinitic drill core samples of the Autazes potash deposit is given in the 'Hot Leaching/Cooling Crystallization Test Work Report' prepared by ERCOSPLAN (ERCOSPLAN, 2015, /17/) and submitted to BPC on June 26, 2015. The results of the test work program can be summarized as follows:

- The chemical and mineralogical analyses of the potash material used for the test work showed that the present potash material is best described as "anhydritic hard salt", which consists of significant amounts of Anhydrite and Halite. Most of the KCl is present as Sylvite but along with the MgSO₄, a minor portion of KCl is present as kainite. The chemical composition of the material is given below:

KCl	26.06%
NaCl	52.67%
MgCl ₂	0.30%
MgSO ₄	1.78%
CaSO ₄	7.83%
H ₂ O insoluble	9.86%
H ₂ O	1.33%

- The potash material can be leached out by hot leaching brine (heated mother liquor) with an appropriate composition. Thereupon, an almost KCl- and NaCl-saturated hot brine with some leaching residues, which mainly consist of NaCl, Anhydrite and insolubles, is obtained;
- The KCl content of the hot brine is higher than it is in the cold mother liquor, as expected. On the contrary, more NaCl is dissolved in the cold mother liquor than in the hot brine after leaching, indicating the crystallization of only a small amount of NaCl during the hot leaching process;
- The hot brine is still accompanied by fine solid material (fine leaching residues), which have almost the same chemical constitution as the coarse tailings. This fine material can be separated off by a clarifying process by using flocculation reagents;
- Upon cooling the hot brine, wet solid material with approximately 93.4% KCl content is then dried to meet the required specification of at least 95% KCl content. The KCl grade of the product can be further improved up to over 99% by washing it with brine of an appropriate composition. The wet KCl material has a composition as shown in Table 18.

Table 18 Composition of wet KCl product

Component	Without Washing	With Washing
KCl	93.43%	99.44%
NaCl	3.84%	0.51%
MgCl ₂	0.17%	0.00%
MgSO ₄	0.00%	0.06%
CaSO ₄	1.50%	0.07%
H ₂ O insoluble	0.04%	0.04%
H ₂ O	1.62%	0.35%

- Several hot leaching experiments were run with a defined amount of potash material and mother liquor. The mother liquor, obtained after KCl crystallization from one experiment was heated again to about 90°C and re-used as leaching brine for the next experiment. The chemical analyses of the brines before and after the leaching experiments revealed that the MgSO₄ content successively increased from run to run (from 0 g/l up to 20 g/l within four runs). The complete development of the brine from cycle to cycle is presented in Table 19.

Table 19 Development of brine from cycle to cycle

Component	Cycle			
	1	2	3	4
Hot Leaching Brine				
KCl	201.0 g/l	206.0 g/l	205.0 g/l	207.0 g/l

Component	Cycle			
	1	2	3	4
NaCl	244.0 g/l	240.0 g/l	239.0 g/l	235.0 g/l
MgCl ₂	-	-	0.76 g/l	1.93 g/l
MgSO ₄	7.16 g/l	12.50 g/l	17.10 g/l	20.40 g/l
CaSO ₄	1.43 g/l	1.84 g/l	1.50 g/l	0.82 g/l
Na ₂ SO ₄	0.53 g/l	0.06 g/l	-	-
Mother Liquor after KCl Crystallization				
KCl	122.0 g/l	123.0 g/l	124.0 g/l	122.0 g/l
NaCl	262.0 g/l	258.0 g/l	256.0 g/l	256.0 g/l
MgCl ₂	-	0.33 g/l	1.61 g/l	2.45 g/l
MgSO ₄	7.04 g/l	13.20 g/l	17.90 g/l	21.80 g/l
CaSO ₄	1.91 g/l	1.36 g/l	0.61 g/l	0.68 g/l
Na ₂ SO ₄	0.99 g/l	-	-	-

- A comparison of the analyses of the brines from the hot leaching/crystallization cycles with suitable solubility diagrams showed that the brine composition moves towards a supersaturation level in terms of sulphatic salts of more or less low solubility (e.g. Glaserite, Syngenite and Polyhalite) upon MgSO₄ accumulation in the brine. When this level is reached by further utilization of the brine for subsequent leaching cycles, different salts of low solubility will begin to precipitate, depending on the CaSO₄ content of the brine. This can cause serious problems during potential plant operations and contaminate the final KCl product.

The MgSO₄ of the potash material tested is present as kainite and hence readily soluble. This will lead to the accumulation of MgSO₄ in the circulating brine and, consequently, the spontaneous formation of hardly soluble sulphatic double salts will take place at a certain MgSO₄ level of the brine. As this spontaneous crystallization can lead to serious process disruptions, a separate agitation step for Glaserite/Syngenite will be included in order to keep the MgSO₄ at a reasonable level and to minimize the risk of formation of these double salts within the process brine. This additional process step is deemed to be mandatory when a potash material of the described quality is processed using a hot leaching/crystallization method.

A process concept including flow sheet had been developed by ERCOSPLAN to process the mother liquor bleed stream and produce Glaserite. Implementation of such circuit is optional in later years of the Project (after presently considered production time of 23 years) when materials with increased amounts of soluble magnesium would be processed.

10.1.3 NaCl Processing Test Work

Since the main component of the tailings from hot leaching/crystallization is NaCl, a further lab-scale test work program was conducted in order to investigate the ability for producing a saleable product with 99% NaCl content from these tailings. The objective of this test work was to investigate the possibility of a selective separation of the NaCl from the other components, such as other soluble salts, Anhydrite and clay.

The performed test work program included:

- Mixing and homogenization of the test work feed material (tailings from the hot leaching/ crystallization tests) and a subsequent characterization via chemical, mineralogical and grain size analyses;
- Washing tests of the feed material;
- NaCl dissolution tests with cold water and a subsequent brine purification;
- NaCl crystallization via brine evaporation; and
- Chemical analysis of the resulting NaCl material as well as the brine after evaporation.

The QP confirms that these NaCl process test work has been carried out with feed material which is representative to sufficient extent for the purpose in this report. The test work was executed under direction of ERCOSPLAN in suitable laboratory facilities (Germany). ERCOSPLAN is certified after DIN EN ISO 9001 and the laboratory for analyzing all salt and salt brine samples is certified after DIN EN ISO/IEC 17025 by the "Deutsche Akkreditierungsstelle (DAkkS)". All parties participating on execution of the tests are independent to the project owner beside the contracts for carrying out the test work and Technical Report. To the QP's opinion the data collected in the test work are adequate for the purposes used in the Technical Report summary.

A detailed description of the NaCl processing test work that has been carried out on the tailings from the hot leaching/crystallization tests is given in the 'NaCl (Hot Leaching Tailings) Processing Test Work Report' prepared by ERCOSPLAN (ERCOSPLAN, 2015, /19/) and submitted to BPC on September 2, 2015. The results of the test work program can be summarized as follows:

- Since the coarse and fine tailings from the hot leaching test work have almost the same chemical composition and the coarse tailings represent the major part, only the coarse material was used as feed material for the NaCl leaching test work. The tailings were washed with NaCl-saturated brine in order to remove some soluble material. The average chemical composition of the washed feed material is listed below:

KCl	0.56%
NaCl	72.96%
MgCl ₂	0.05%
MgSO ₄	0.00%
CaSO ₄	8.73%
H ₂ O insoluble	15.36%
H ₂ O	1.96%

- A sieve analysis of the coarse tailings was performed. It was determined that the NaCl content is not significantly increased in any grain size fraction, and that the fine fraction (<0.25mm) is enriched in terms of insolubles (about 75%). The results of the grain size analysis are presented in Table 20.

Table 20 Grain size analyses of coarse hot leaching tailings

Sample Fraction	Mixed Sample 0-4 mm	> 4 mm	2-4 mm	1-2 mm	0.5-1 mm	0.25-0.5 mm	< 0.25 mm	Average 0-4 mm
Mass%		3.79%	44.31%	26.44%	15.12%	6.49%	3.84%	100.00%
CaSO ₄	8.50%	13.08%	9.60%	9.13%	8.06%	8.71%	5.83%	9.17%
CaCl ₂	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MgSO ₄	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MgCl ₂	0.02%	0.05%	0.07%	0.00%	0.00%	0.00%	0.00%	0.03%
KCl	0.72%	0.25%	0.29%	0.21%	0.21%	0.21%	0.07%	0.24%
K ₂ SO ₄	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NaCl	77.75%	56.56%	67.92%	74.16%	71.48%	67.26%	13.77%	67.56%
Na ₂ SO ₄	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
H ₂ O total	0.22%	0.23%	0.28%	0.15%	2.54%	0.43%	0.95%	0.62%
H ₂ O insoluble	12.47%	29.20%	21.11%	16.39%	17.32%	23.66%	74.61%	21.81%

- The feed material was subjected to a washing test in which it was checked whether fine impurities attached to the surface of the NaCl crystals could be removed by intensive washing in NaCl-saturated brine and what

NaCl quality is achievable using this method. It was determined that the NaCl content can be only slightly increased up to about 75% (CaSO₄ content of 22%), which is due to the fact that most of the impurities are enclosed in the NaCl grains. The results of the washing tests are summarized Table 21.

Table 21 Washing test results

Component	Feed Material (Average)	Coarse Residues After Washing	Fine Residues After Washing (Sludge)
Mass%	100.00%	96.53%	3.47%
CaSO ₄	8.73%	8.89%	4.26%
CaCl ₂	0.00%	0.00%	0.00%
MgSO ₄	0.00%	0.00%	0.00%
MgCl ₂	0.05%	0.05%	0.00%
KCl	0.56%	0.58%	0.09%
K ₂ SO ₄	0.00%	0.00%	0.00%
NaCl	72.96%	75.04%	14.92%
Na ₂ SO ₄	0.00%	0.00%	0.00%
H ₂ O total	1.96%	1.98%	1.40%
H ₂ O insoluble	15.36%	13.16%	76.68%
CaSO ₄ + H ₂ O insoluble	24.10%	22.05%	80.94%

- A leaching test of the coarse tailings from hot leaching was performed using water at ambient temperature. The settling behavior of the solid material was investigated. It turned out that the settling velocity can be enhanced by the addition of a flocculant reagent. The separated brine was chemically analyzed (Table 22). The tailings from NaCl leaching were determined to comprise more than 97% Anhydrite and other insoluble material;
- Since the brine still contained some calcium and magnesium, brine purification via addition of lime milk and soda was carried out. Thereupon, the respective ions are removed from the brine as Mg(OH)₂ and CaCO₃ precipitate. After clarifying, the brine was analyzed. The brine composition is stated in Table 22.

Table 22 Brine composition before/after brine purification

Component	Feed Brine	Purified Brine
Density	1.1378 g/l	1.1360 g/l
Temperature	23.9°C	25.4°C
KCl	2.17 g/l	2.08 g/l
NaCl	206.0 g/l	204.43 g/l
Na ₂ SO ₄	0.47 g/l	6.00 g/l
MgSO ₄	0.44 g/l	0.22 g/l
CaSO ₄	4.79 g/l	0.18 g/l

- The brine (both feed and purified) was heated in order to evaporate the water. Potential vapor was not recycled as condensates during the test works. After cooling to about 30°C the solids were separated from the brine and both were analyzed. It could be shown that evaporation of the raw brine yields a NaCl product with 95.7% NaCl whereas the purity of the product can be enhanced to about 99% when the purified brine was evaporated. The product quality can be further increased to about 99.5% if the NaCl is washed with NaCl-saturated brine after evaporation in order to remove the soluble impurities. A compilation of the different achieved product qualities is given in Table 23.

Table 23 NaCl product compositions

Component	NaCl Crystals from Feed Brine	NaCl Crystals from Purified Brine	NaCl Crystals from Purified Brine after Washing
CaSO ₄	2.45%	0.00%	0.00%
CaCl ₂	0.00%	0.00%	0.00%
MgSO ₄	0.20%	0.00%	0.00%
MgCl ₂	0.16%	0.00%	0.00%
KCl	0.36%	0.23%	0.05%
K ₂ SO ₄	0.22%	0.00%	0.00%
NaCl	95.74%	99.14%	99.57%
Na ₂ SO ₄	0.00%	0.00%	0.00%
H ₂ O total	0.98%	0.46%	0.07%
H ₂ O insoluble	0.10%	0.04%	0.01%

In summary, the NaCl test work revealed that it is possible to process the tailings from hot leaching using a process that comprises NaCl leaching, brine purification and evaporation, to obtain a NaCl product with 99% purity. However, sufficient purification of the tailings via screening or washing procedures was not successful. Thus, the following flow sheet (Figure 25) was developed for production of a high quality NaCl product from the hot leaching tailings material.

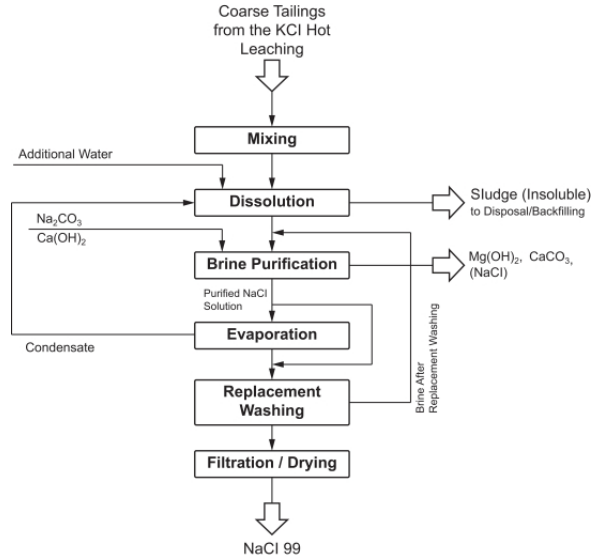


Figure 25 Flow sheet for production of high quality NaCl product

10.1.4 Opinion of the Qualified Person

After completion of the review of mineral processing and metallurgical testing by ERCOSPLAN, it is the opinion of the QP that the testing procedures, results interpretations and reporting met standard industry practices.

10.2 Rock Mechanical Test Work

Rock mechanical test work on 68 selected drill core samples from the potash horizon, the hanging and the underlying wall, as well as subsequent modelling, was completed in November 2014 by the Institute for Geomechanics Leipzig GmbH (IG, 2014, /32/) with the main emphasis on dimensioning analysis while preserving the integrity of the protective barrier under mining conditions, under the assumption that:

- The protective barrier comprises the rock salt-Anhydrite interbedding in the immediate roof with an average thickness of 22 m;
- The claystone/argillite group A* (Figure 26) with average thickness of 25 m;
- The siltstone group A with thickness of 90 m; and

- As hydrological boundary condition, an aquifer was assumed 130 m above the mining horizon at a depth of about 570 m. Four mining methods were analyzed: longwall mining and long pillar mining, with varying panel heights and chamber and pillar widths. The simulations employed a discontinuous modelling approach, particularly suited to a polycrystalline rock such as Saliferous Strata.

The results provided the following conclusions:

- For longwall mining, fractures developed far into the roof. The integrity of the barrier could be maintained only for low panel heights of 1 m, and under the assumption of a tensile strength in the hanging wall of at least 1.5 MPa to satisfy the minimal stress criterion. In conclusion, given the currently available geological data, longwall is excluded as a safe mining method.

As a result of the simulations, a high-extraction long pillar mining layout is recommended. The suggested mining parameters are as follows:

Chamber width:	12 m;
Pillar width:	8 m;
Panel height:	4 m;
Pillar width-to-height ratio:	2;
Extraction rate :	60%.

This dimensioning results in a pillar system of limited stability. Due to time-dependent progressive pillar softening, mine convergence will temporarily accelerate and reach up to several decameters per year, as is common for mining with high extraction rates. System stability is maintained at all times and convergence rates will decrease in the long term due to auto-backfill. With the given width-to-height ratio, brittle failures caused by pillar softening can be excluded.

Since the pillar system is not stable in the long-term, all long-lived drifts need to be excavated in the rock salt floor.

If chambers are backfilled, a further optimization of the mining system is possible. To allow relaxation of conservative assumptions and to improve reliability, coupled hydro-mechanical simulations with emphasis on pressure-driven percolation, are suggested.

It was furthermore, recommended to verify the test work parameters used for the modelling through additional test work on samples from different locations and on additional samples from the hanging wall rocks within the Autazes area in order to get a representative parameter set and verify the results obtained so far.

This additional test work was realized on 17 samples in 2015 (IFG, 2015, /34/); whereas, the input parameters for the former rock mechanical modelling could be confirmed by the additional rock mechanical test work results.

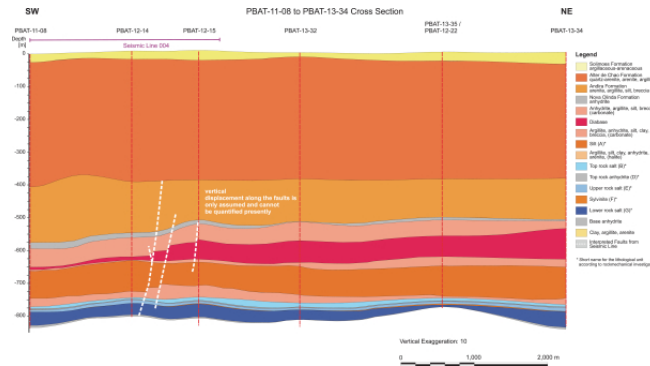


Figure 26 Geological cross-section (SW-NE) through the Autazes area

11 Mineral Resource Estimates

This chapter presents the assumptions and methodology regarding the mineral resource estimates and the procedures that were carried out as well as the results of the mineral resource estimate according to their assignment to the single mineral resource categories.

The mineral resources stated in this report are mineral resources in place (in situ) under consideration of the assumptions and estimation method described in the following sections.

11.1 Introduction

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/) a "mineral resource"¹⁰ is

"a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled".

Furthermore, in order to classify a deposit as a resource according to the Code of Federal Regulations (SEC, 2019, /44/), a "qualified person must establish that there are reasonable prospects of economic extraction by estimating or interpreting key geological characteristics from specific geological evidence". Also the term "material of economic interest", when used in the context of mineral resource determination, includes mineralization, including dumps and tailings, mineral brines, and other resources extracted on or within the earth's crust".

However, geothermal energy is not included in the definition of mineral resources according to the Code of Federal Regulations (SEC, 2019, /44/) "due to the lack of consensus regarding how to regulate the disclosure of geothermal energy resources". According to the mentioned document oil and gas resources resulting from oil and gas producing activities, as defined in Rule 4-10(a)(16)(i) of Regulation S-X (SEC, 2022, /45/), and gases (e. g. helium and carbon dioxide), and water are excluded from that definition. Exclusion of mentioned oil and gas resources is consistent with industry practice, which is the same for gases and water "because the scientific and engineering principles used to estimate these resources are substantially different from those used to estimate mineral resources" (SEC, 2019, /44/).

This chapter begins with the general assumptions and methodology of the mineral resource estimate (Section 11.2) followed by the estimation method (Section 11.3) and the actual mineral resource estimate (Section 11.4).

11.2 Assumptions and Methodology

In determining the potential extent, quality, and volume of the mineral resource within the Autazes area, the authors were guided by principles for exploration and sampling techniques commonly used in the international potash industry for exploration as well as by the Code of Federal Regulations (SEC, 2022, /46/) for reporting mineral resources.

- The primary tool employed to determine the thickness and concentration of the potash mineralization is drilling, with coring of the potash-bearing horizon (sylvinite horizon) and wireline logging of the whole salt sequence;
- The potash concentration along the length of the potash-bearing horizon is determined by the assaying of samples;
- The extent of the potash mineralization and the continuity between drill holes can be determined by subsurface mapping, 2D seismic surveys and correlation between drill holes;
- In this Report, inferred, indicated and measured mineral resources¹⁰ have been estimated based on results obtained from drilling conducted by BPC since 2009 and interpretation of 2D seismic survey results in the southern part of the BPC claims (mineral rights areas) (refer to Chapter 7);
- For the estimation of mineral resources, from higher to lower confidence levels such as "Measured", "Indicated" and "Inferred", the areal extent around the drill holes for which it is reasonable to infer the geological conditions depends on the continuity of the deposit and the radius for the confidence interval may vary from several hundred meters to up to several kilometers.

Taking these principles and the distribution of the holes drilled by BPC into account, a mineral resource estimate has been prepared for about 69% of the mineral rights area located outside the Jauary Indigenous Land and for about 67% of the mineral rights area located inside the Jauary Indigenous Land (refer to Section 3.2).

The above presented statements and those presented in Section 6.4 regarding the geological model of the deposit were considered during the process for the mineral resource estimate.

¹⁰ The definition can be found in Section 11.4.

11.3 Estimation Method

In estimating the mineral resource tonnages, the following procedures were carried out (mineral resources are considered mineralization in-situ):

- (1) Around each drill hole with assay data for the potash-bearing horizon, an area of influence was defined, which could not extend beyond boundaries previously determined for the deposit (e.g. fault zone, assumed potash distribution limit) or beyond the boundaries of the BPC mineral rights;
- (2) The volume of the potash-bearing horizon was estimated by multiplying the area by thickness (defined by the available assaying data) of the potash-bearing horizon for each drill hole meeting the cut-off criteria of minimum 1 m thickness and minimum KCl grade of 10% for the sylvinitic horizon. The 1 m thickness cut-off is based on the minimum height of mining equipment. For this 1 m a 0.5 m additional barren cut was taken into account resulting in 1.5 m of total mining height for low profile cutting equipment. The 10% KCl cut-off is based on experience in comparable underground potash mines under assumption of the product price stated and explained in Section 12.4. Drill holes PBAT-11-10 and PBAT-14-37 are classified as low thickness drill holes. However, they cannot be included into the resource calculation as they show both low thickness and a KCl grade that is just above the cut-off grade of 10%. Together with all other drill holes not meeting these cut-off criteria these holes were considered to be barren;
- (3) The volume estimated for the potash-bearing horizon was multiplied with a tonnage factor depending on mineralization (density), which was determined individually for each drill hole. This average density may vary from 2.13 t/m³ to 2.21 t/m³;
- (4) The tonnages of KCl were obtained by multiplying the tonnage of mineralized material with the corresponding KCl grade for each drill hole area.

For the mineral resource estimate all holes drilled by BPC that are located within the mineral rights held by BPC and that contain complete assaying data from the potash-bearing horizon have been used.

Furthermore, a product price of 420 USD/tonne MOP (for details see Section 12.4) and a process (metallurgical) recovery of 90.8% (see Section 14.1.1.1) have been used for the mineral resource estimate, which are the parameter values as used for the mineral reserve estimate (see Chapter 12).

ERCOSPLAN's QP confirms that the application of the above mentioned cut-off criteria is technically and economically viable, based on the results of the processing test work (Chapter 1) and considering investment and operation costs explained in Chapter 1.

This Report classifies the potash mineralization in terms of measured, indicated and inferred mineral resources as defined by the Code of Federal Regulations (SEC, 2022, /46/). This reflects the level of confidence in the extent and grade of the identified potash mineralization.

The sylvinitic mineralization can be correlated between drill holes and, except for the areas near the described barren zones (compare Section 6.3), thickness and grade are relatively homogeneous across the deposit. It is the opinion of the authors that based on the data density and the accuracy of the geological model:

- Measured mineral resources occur within a radius of 750 m around an investigated drill hole;
- Indicated mineral resources occur within a radius of 1,500 m around an investigated drill hole;
- Inferred mineral resources occur within a radius of 2,000 m around an investigated drill hole in the southern part of the Autazes area, and within a radius of 2,500 m around an investigated drill hole in the northern part of the Autazes area as the drill holes show a more continuous and homogenous distribution of the deposit in the northern part (except for PBAT-13-28, due to its proximity to the barren zones in the Southeast).

The created circles of the same category (representing the radius of influence – ROI) are intersected by creating a straight line where points of overlap occur. All overlapping areas between the drill holes are cropped. For the estimate of the mineral resource, the thickness and grade derived from the results of each drill hole (compare Table 11) were used.

11.4 Mineral Resource Classification

The results of the mineral resource estimate are reported below according to their assignment to the single mineral resource categories. The mineral resources are reported as in-situ mineralization without application of an extraction ratio. The corresponding calculation of sylvinitic horizon chemical composition is shown in APPENDIX 15 and the delineation of the resources in APPENDIX 10.

Table 24 contains the figures of inferred, indicated and measured mineral resources including mineral reserves outside the Jauary Indigenous Land. These figures are the total in situ mineral resources of the project outside said indigenous land.

Table 24 Mineral resources including mineral reserves at the Autazes Project outside the Jauary Indigenous Land¹¹

Resource Category	Tonnage [metric tonnes]	KCl Grade [%]
Measured	106,665,436	32.77
Indicated	189,087,044	32.36
Inferred	106,834,508	30.97

All in situ mineral resources located inside the Jauary Indigenous Land are classified as in situ inferred resources. These resources amount to a total of 219.83 million tonnes with a KCl grade of 27.63% (see Section 11.4.1).

Table 25 contains the figures of inferred, indicated and measured mineral resources excluding mineral reserves outside the Jauary Indigenous Land. These are all in situ resources, which are located outside the boundaries of panels (including development drifts), panel extensions, perimeter mining, barrier pillars and main (development) drifts (for details see Section 12.2.6 and Figure 31). Resources located within pillars inside of above mentioned boundaries are not considered in Table 25. These pillars and, hence, the corresponding resources, are not mineable with the set of parameters for the underground mine (e. g. mining method) presented in this Report, but retain their potential for mining, if further investigations allow to adjust the said parameters accordingly.

Table 25 Mineral resources excluding mineral reserves at the Autazes Project outside the Jauary Indigenous Land¹¹

Resource Category	Tonnage [metric tonnes]	KCl Grade [%]
Measured	16,600,167	22.53
Indicated	43,612,132	25.88
Inferred	97,330,802	30.29

Inferred mineral resources excluding mineral reserves outside the indigenous land are reported since parts of these resources have to be mined in parts of some panels, barrier pillars and main drifts due to construction of necessary connections in the underground mine.

11.4.1 Inferred Mineral Resource

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/) an "inferred mineral resource" is

"that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a mineral reserve."

¹¹ For the mineral resource estimate a product price of 420 USD/tonne MOP and a process (metallurgical) recovery of 90.8% was used. Regarding cut-off a minimum thickness of 1 m and a minimum KCl grade of 10% for the sylvinitic horizon was applied for the estimate (for details see Section 11.3).

According to Code of Federal Regulations (SEC, 2019, /44/) "the level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors¹² likely to influence prospects of economic extraction in a manner useful for evaluation of economic viability". This is due to the fact that "inferred mineral resources are estimates of quantity and grade or quality based on limited geological evidence and sampling", and leads also to the statement that an inferred mineral resource "may not be converted to a mineral reserve. [...] Rather, inferred resources will first have to meet the definitional requirements of, and be converted into, measured or indicated mineral resources, before they will be eligible to be considered as potential mineral reserves under the final rules". Regarding the conversion "the qualified person must have a reasonable expectation that the majority of inferred mineral resources could be upgraded to indicated or measured mineral resources with continued exploration".

In the opinion of the authors, that inferred mineral resources are located within a 2,000 m radius around an assayed hole drilled by BPC in the southern Autazes area and within a 2,500 m radius around an assayed hole drilled by BPC in the northern Autazes area. It is assumed that the grade and thickness of the potash-bearing horizon are relatively uniform within the extrapolated drill hole area. Inferred mineral resources exclude areas that are attributed to measured and indicated mineral resources and parts of the area of influence extending beyond an inferred fault or the mineral rights boundaries.

In the vicinity of the barren zones described in Section 6.3 the respective ROIs of the drill holes were cut along the assumed barren zone limitation line around the drill holes PBAT-13-32, PBAT-14-39, PBAT-14-41, PBAT-13-29 and PBAT-13-30.

This procedure was also applied for the indicated and measured mineral resource categories and will not be repeated in those chapters.

Experience from most potash deposits shows that besides the larger-scale zones without mineralization, small-scale barren or only slightly mineralized areas are also present. These areas can mostly only be detected by detailed underground exploration. Based on this knowledge, it is the opinion of the authors that a reduction of the amount of the mineral resources by a specific factor is necessary, depending on the degree of geological exploration and experience from similar deposits. Taking into account the present level of geological exploration and also the differences between homogeneity in the southern and the northern parts of the explored area, a value of 8% was chosen for the necessary reduction.

As BPC holds mineral rights that are located inside and outside the Jaury Indigenous Land (refer to Section 3.2), the mineral resource estimate was conducted accordingly (refer also to Section 11.4.2 and 11.4.3). Mineral resources located in mineral rights outside the Jaury Indigenous Land are permitted for mining and are, hence, assigned to the corresponding categories of inferred, indicated and measured mineral resources. Mineral resources located in mineral rights inside the Jaury Indigenous Land are currently not permitted for mining and are, hence, completely assigned to the inferred mineral resource category. The authors of this Technical Report took this approach because as per information from BPC's subsidiary PdB (PdB, 2022, /42/) the mineral rights located inside the Jaury Indigenous Land will be considered in the future, after year 15 according to the updated mine plan presented in this Report, being subject to further indigenous consultations and appropriate permitting.

The total estimated amounts and KCl grade of inferred mineral resources calculated for mineral rights located outside the Jaury Indigenous Land (compare Table 26) are 107 million metric tonnes with an average KCl grade of 31.0%, totaling to 33 million tonnes of KCl.

The total estimated amounts and KCl grade of inferred mineral resources calculated for mineral rights located inside the Jaury Indigenous Land (compare Table 27) are 220 million metric tonnes with an average KCl grade of 27.6%, totaling to 61 million tonnes of KCl.

¹² It is stated in (SEC, 2019, /44/) that "the final rules use the term 'relevant technical and economic factors' instead of 'modifying factors', as proposed, in order to more closely align the definition of inferred resources with that under the CRIRSCO-based codes".

Table 26 Inferred mineral resources (amount and grade) categorized for each individual BPC drill hole located within the mineral rights inside the Jauary Indigenous Land*

Drill Hole Number	Mineral Resource Area based on Confidence Interval [m ²]	Thickness of the Potash-bearing Horizon [m]	Average KCl Grade of the Potash-bearing Horizon [%]	Mineral Resource Area reduced fo Anomalies (8%) [m ²]	Estimated Volume [m ³]	Estimated Average Density [t/m ³]	Estimated Tonnage [t]	KCl Mass [t]
PBAT-10-01	-	1.76	0.12	-	-	-	-	-
PBAT-10-02	-	1.46	39.15	-	-	2.19	-	-
PBAT-11-03	1,026	1.37	25.78	944	1,293	2.17	2,806	724
PBAT-10-04	-	barren	-	-	-	-	-	-
PBAT-10-05	-	0.69	4.42	-	-	-	-	-
PBAT-11-06	-	barren	-	-	-	-	-	-
PBAT-11-07	-	barren	-	-	-	-	-	-
PBAT-11-08	-	barren	-	-	-	-	-	-
PBAT-11-09	352,758	1.82	38.33	324,537	590,657	2.16	1,278,392	490,023
PBAT-11-10	-	0.80	10.75	-	-	2.16	-	-
PBAT-11-11	-	barren	-	-	-	-	-	-
PBAT-11-12	-	2.07	38.61	-	-	2.13	-	-
PBAT-12-13	-	barren	-	-	-	-	-	-
PBAT-12-14	-	barren	-	-	-	-	-	-
PBAT-12-15	473,272	1.86	32.77	435,410	809,863	2.17	1,758,294	576,163
PBAT-12-16	339,543	2.03	28.46	312,380	634,131	2.19	1,390,984	395,908
PBAT-12-17	236,544	2.73	36.45	217,621	594,105	2.15	1,276,235	465,240
PBAT-12-18	-	barren	-	-	-	-	-	-
PBAT-12-19	1,414,398	1.90	25.40	1,301,246	2,472,367	2.18	5,378,594	1,366,392
PBAT-12-20	-	2.14	31.87	-	-	2.16	-	-
PBAT-12-21	855,733	2.03	15.26	787,275	1,598,167	2.19	3,504,979	534,718
PBAT-13-22	-	3.38	30.20	-	-	-	-	-
PBAT-13-23	5,181,074	2.51	43.41	4,766,588	11,964,136	2.14	25,655,685	11,135,911
PBAT-13-25	-	barren	-	-	-	-	-	-
PBAT-13-26	18,230	4.03	32.53	16,772	67,590	2.16	146,048	47,512
PBAT-13-27	-	barren	-	-	-	-	-	-
PBAT-13-28	2,386,408	1.75	39.64	2,195,495	3,842,117	2.14	8,230,116	3,262,453
PBAT-13-29	-	barren	-	-	-	-	-	-
PBAT-13-30	-	barren	-	-	-	-	-	-
PBAT-13-31	-	barren	-	-	-	-	-	-
PBAT-13-32	-	barren	-	-	-	-	-	-
PBAT-13-33	4,724,595	2.72	33.03	4,346,628	11,822,827	2.16	25,571,003	8,446,896
PBAT-13-34	8,260,626	1.04	10.34	7,599,776	7,903,767	2.19	17,326,204	1,792,013
PBAT-13-35	1,173,422	3.40	34.45	1,079,548	3,670,464	2.17	7,975,748	2,747,311
PBAT-14-36	258,189	1.15	10.08	237,534	273,164	2.18	596,614	60,148
PBAT-14-37	-	0.55	11.47	-	-	2.19	-	-
PBAT-14-38	-	barren	-	-	-	-	-	-
PBAT-14-39	-	barren	-	-	-	-	-	-
PBAT-14-40	788,893	3.73	25.01	725,782	2,707,165	2.20	5,963,127	1,491,328
PBAT-14-41	-	barren	-	-	-	-	-	-
PBAT-14-42	193,002	2.05	35.28	177,562	364,001	2.14	779,680	275,095
PBAT-15-43	-	barren	-	-	-	-	-	-
TOTAL	26,657,713			24,525,096	49,315,815		106,834,508	33,087,834
Average		2.01	30.97			2.17		

* For the mineral resource estimate a product price of 420 USD/tonne MOP and a process (metallurgical) recovery of 90.8% was used. Regarding cut-off a minimum thickness of 1 m and a minimum KCl grade of 10% for the sylvinitic horizon was applied for the estimate (for details see Section 11.3).

Table 27 Inferred mineral resources (amount and grade) categorized for each individual BPC drill hole located within the mineral rights inside the Jaury Indigenous Land*

Drill Hole Number	Mineral Resource Area based on Confidence Interval [m ²]	Thickness of the Potash-bearing Horizon [m]	Average KCl Grade of the Potash-bearing Horizon [%]	Mineral Resource Area reduced for Anomalies (8%) [m ²]	Estimated Volume [m ³]	Estimated Average Density [t/m ³]	Estimated Tonnage [t]	KCl Mass [t]
PBAT-10-01	-	1.76	0.12	-	-	-	-	-
PBAT-10-02	-	1.46	39.15	-	-	2.19	-	-
PBAT-11-03	-	1.37	25.78	-	-	2.17	-	-
PBAT-10-04	-	barren	-	-	-	-	-	-
PBAT-10-05	-	0.69	4.42	-	-	-	-	-
PBAT-11-06	-	barren	-	-	-	-	-	-
PBAT-11-07	-	barren	-	-	-	-	-	-
PBAT-11-08	-	barren	-	-	-	-	-	-
PBAT-11-09	-	1.82	38.33	-	-	2.16	-	-
PBAT-11-10	-	0.80	10.75	-	-	2.16	-	-
PBAT-11-11	-	barren	-	-	-	-	-	-
PBAT-11-12	-	2.07	38.61	-	-	2.13	-	-
PBAT-12-13	-	barren	-	-	-	-	-	-
PBAT-12-14	-	barren	-	-	-	-	-	-
PBAT-12-15	-	1.86	32.77	-	-	2.17	-	-
PBAT-12-16	446,969	2.03	28.46	411,212	834,760	2.19	1,831,067	521,167
PBAT-12-17	2,263,339	2.73	36.45	2,082,272	5,684,603	2.15	12,211,460	4,451,582
PBAT-12-18	-	barren	-	-	-	-	-	-
PBAT-12-19	4,385,632	1.90	25.40	4,034,781	7,666,084	2.18	16,677,438	4,236,779
PBAT-12-20	9,327,378	2.14	31.87	8,581,188	18,363,742	2.16	39,721,451	12,658,120
PBAT-12-21	9,569,874	2.03	15.26	8,804,284	17,872,696	2.19	39,197,034	5,979,878
PBAT-13-22	-	3.38	30.20	-	-	-	-	-
PBAT-13-23	-	2.51	43.41	-	-	2.14	-	-
PBAT-13-25	-	barren	-	-	-	-	-	-
PBAT-13-26	-	4.03	32.53	-	-	2.16	-	-
PBAT-13-27	-	barren	-	-	-	-	-	-
PBAT-13-28	-	1.75	39.64	-	-	2.14	-	-
PBAT-13-29	-	barren	-	-	-	-	-	-
PBAT-13-30	-	barren	-	-	-	-	-	-
PBAT-13-31	-	barren	-	-	-	-	-	-
PBAT-13-32	-	barren	-	-	-	-	-	-
PBAT-13-33	7,594,936	2.72	33.03	6,987,341	19,005,567	2.16	41,106,194	13,578,653
PBAT-13-34	4,551,806	1.04	10.34	4,187,661	4,355,168	2.19	9,547,160	987,443
PBAT-13-35	2,984,874	3.40	34.45	2,746,084	9,336,685	2.17	20,288,187	6,988,430
PBAT-14-36	-	1.15	10.08	-	-	2.18	-	-
PBAT-14-37	-	0.55	11.47	-	-	2.19	-	-
PBAT-14-38	-	barren	-	-	-	-	-	-
PBAT-14-39	-	barren	-	-	-	-	-	-
PBAT-14-40	3,244,028	3.73	25.01	2,984,506	11,132,207	2.20	24,521,134	6,132,529
PBAT-14-41	-	barren	-	-	-	-	-	-
PBAT-14-42	3,645,613	2.05	35.28	3,353,964	6,875,625	2.14	14,727,393	5,196,276
PBAT-15-43	-	barren	-	-	-	-	-	-
TOTAL	48,014,448			44,173,292	101,127,137		219,828,519	60,730,858
Average		2.29	27.63			2.17		

* For the mineral resource estimate a product price of 420 USD/tonne MOP and a process (metallurgical) recovery of 90.8% was used. Regarding cut-off a minimum thickness of 1 m and a minimum KCl grade of 10% for the sylvinitic horizon was applied for the estimate (for details see Section 11.3).

11.4.2 Indicated Mineral Resources

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/) an "indicated mineral resource" is

"that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors¹³ in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve".

According to the Code of Federal Regulations (SEC, 2019, /44/) "'adequate geological evidence' means evidence that is sufficient to establish geological and grade or quality continuity with reasonable certainty. This means that the level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit".

In the opinion of the authors, indicated mineral resources are located within a 1,500 m radius around an assayed hole drilled by BPC in the Autazes area. It is assumed that the grade and thickness of the potash-bearing horizon is relatively uniform within the extrapolated drill hole area.

Indicated mineral resources exclude areas that are attributed to measured mineral resources and parts of the area of influence extending beyond an identified fault or the mineral rights boundaries.

Experience from most of the potash deposits shows that besides the larger-scale zones without mineralization, small-scale barren or only slightly mineralized areas are also present. These areas can mostly only be detected by detailed underground exploration. Based on this knowledge, it is the opinion of the authors that a reduction of the amount of the mineral resources by a specific factor is necessary. This factor depends on the degree of geological exploration and experience from similar deposits. Taking into account the present level of geological exploration and also the differences between homogeneity in the southern and the northern parts of the explored area, a value of 6% was chosen for the necessary reduction.

The total estimated amounts and KCl grade of indicated mineral resources including mineral reserves calculated for mineral rights located outside the Jauary Indigenous Land (compare Table 28) are 189 million metric tonnes with an average KCl grade of 32.4%, totaling to 61 million tonnes of KCl.

¹³ (SEC, 2022, /46) defines modifying factors as "the factors that a qualified person must apply to indicated and measured mineral resources and then evaluate in order to establish the economic viability of mineral reserves. A qualified person must apply and evaluate modifying factors to convert measured and indicated mineral resources to proven and probable mineral reserves. These factors include, but are not restricted to: Mining; processing; metallurgical; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project".

Table 28 Indicated mineral resources (amount and grade) categorized for each individual BPC drill hole located within mineral rights outside the Jauary Indigenous Land*

Drill Hole Number	Mineral Resource Area based on Confidence Interval [m ²]	Thickness of the Potash-bearing Horizon [m]	Average KCl Grade of the Potash-bearing Horizon [%]	Mineral Resource Area reduced for Anomalies (6%) [m ²]	Estimated Volume [m ³]	Estimated Average Density [t/m ³]	Estimated Tonnage [t]	KCl Mass [t]
PBAT-10-01	-	1.76	0.12	-	-	-	-	-
PBAT-10-02	1,085,628	1.46	39.15	1,020,490	1,489,915	2.19	3,262,187	1,277,275
PBAT-11-03	1,990,059	1.37	25.78	1,870,655	2,562,797	2.17	5,560,699	1,433,604
PBAT-10-04	-	barren	-	-	-	-	-	-
PBAT-10-05	-	0.69	4.42	-	-	-	-	-
PBAT-11-06	-	barren	-	-	-	-	-	-
PBAT-11-07	-	barren	-	-	-	-	-	-
PBAT-11-08	-	barren	-	-	-	-	-	-
PBAT-11-09	2,309,499	1.82	38.33	2,170,929	3,951,090	2.16	8,551,558	3,277,916
PBAT-11-10	-	0.80	10.75	-	-	2.16	-	-
PBAT-11-11	-	barren	-	-	-	-	-	-
PBAT-11-12	1,075,575	2.07	38.61	1,011,041	2,092,854	2.13	4,459,250	1,721,925
PBAT-12-13	-	barren	-	-	-	-	-	-
PBAT-12-14	-	barren	-	-	-	-	-	-
PBAT-12-15	3,016,121	1.86	32.77	2,835,154	5,273,387	2.17	11,449,047	3,751,655
PBAT-12-16	2,551,896	2.03	28.46	2,398,782	4,869,527	2.19	10,681,436	3,040,201
PBAT-12-17	2,083,065	2.73	36.45	1,958,081	5,345,560	2.15	11,483,141	4,186,080
PBAT-12-18	-	barren	-	-	-	-	-	-
PBAT-12-19	2,225,004	1.90	25.40	2,091,503	3,973,856	2.18	8,645,059	2,196,213
PBAT-12-20	-	2.14	31.87	-	-	2.16	-	-
PBAT-12-21	1,014,663	2.03	15.26	953,784	1,936,181	2.19	4,246,284	647,811
PBAT-13-22	-	3.38	30.20	-	-	-	-	-
PBAT-13-23	4,586,147	2.51	43.41	4,310,978	10,820,555	2.14	23,203,411	10,071,496
PBAT-13-25	-	barren	-	-	-	-	-	-
PBAT-13-26	3,208,325	4.03	32.53	3,015,826	12,153,778	2.16	26,261,690	8,543,391
PBAT-13-27	-	barren	-	-	-	-	-	-
PBAT-13-28	3,434,951	1.75	39.64	3,228,854	5,650,494	2.14	12,103,802	4,797,998
PBAT-13-29	-	barren	-	-	-	-	-	-
PBAT-13-30	-	barren	-	-	-	-	-	-
PBAT-13-31	-	barren	-	-	-	-	-	-
PBAT-13-32	-	barren	-	-	-	-	-	-
PBAT-13-33	2,491,330	2.72	33.03	2,341,850	6,369,833	2.16	13,776,993	4,550,969
PBAT-13-34	3,267,975	1.04	10.34	3,071,896	3,194,772	2.19	7,003,404	724,347
PBAT-13-35	1,973,628	3.40	34.45	1,855,210	6,307,714	2.17	13,706,371	4,721,271
PBAT-14-36	2,625,192	1.15	10.08	2,467,681	2,837,833	2.18	6,198,079	624,861
PBAT-14-37	-	0.55	11.47	-	-	2.19	-	-
PBAT-14-38	-	barren	-	-	-	-	-	-
PBAT-14-39	-	barren	-	-	-	-	-	-
PBAT-14-40	1,144,377	3.73	25.01	1,075,715	4,012,416	2.20	8,838,229	2,210,367
PBAT-14-41	-	barren	-	-	-	-	-	-
PBAT-14-42	2,339,484	2.05	35.28	2,199,115	4,508,185	2.14	9,656,404	3,407,075
PBAT-15-43	-	barren	-	-	-	-	-	-
TOTAL	42,422,918			39,877,543	87,350,748		189,087,044	61,184,454
Average		2.19	32.36			2.16		

* For the mineral resource estimate a product price of 420 USD/tonne MOP and a process (metallurgical) recovery of 90.8% was used. Regarding cut-off a minimum thickness of 1 m and a minimum KCl grade of 10% for the sylvinitic horizon was applied for the estimate (for details see Section 11.3).

11.4.3 Measured Mineral Resources

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/) an "measured mineral resource" is

"that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors¹⁰ [...] in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve".

According to the Code of Federal Regulations (SEC, 2019, /44/) "conclusive geological evidence" means evidence that is sufficient to test and confirm geological and grade or quality continuity. This means that the level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit".

In the opinion of the authors, measured mineral resources are located within a 750 m radius around an assayed hole drilled by BPC in the Autazes area. It is assumed that the grade and thickness of the potash-bearing horizon are relatively uniform within the extrapolated drill hole area.

Measured mineral resources exclude parts of the area of influence extending beyond an identified fault or the mineral rights boundaries.

Experience from most of the potash deposits shows that besides the larger-scale zones without mineralization, small-scale barren or only slightly mineralized areas are also present. These areas can mostly only be detected by detailed underground exploration. Based on this knowledge, it is the opinion of the authors that a reduction of the amount of the mineral resources by a specific factor is necessary. This factor depends on the degree of geological exploration and experience from similar deposits. Taking into account the present level of geological exploration and also the differences between homogeneity in the southern and the northern parts of the explored area, a value of 4% was chosen for the necessary reduction.

The total estimated amounts and KCl grade of measured mineral resources including mineral reserves calculated for mineral rights located outside the Jaury Indigenous Land (compare Table 29) are 107 million metric tonnes with an average KCl grade of 32.8%, totaling to 35 million tonnes of KCl.

Table 29 Measured mineral resources (amount and grade) categorized for each individual BPC drill hole located within mineral rights outside the Jaury Indigenous Land*

Drill Hole Number	Mineral Resource Area based on Confidence Interval [m ²]	Thickness of the Potash-bearing Horizon [m]	Average KCl Grade of the Potash-bearing Horizon [%]	Mineral Resource Area reduced for Anomalies (4%) [m ²]	Estimated Volume [m ³]	Estimated Average Density [t/m ³]	Estimated Tonnage [t]	KCl Mass [t]
PBAT-10-01	-	1.76	0.12	-	-	-	-	-
PBAT-10-02	1,704,626	1.46	39.15	1,636,441	2,389,204	2.19	5,231,188	2,048,216
PBAT-11-03	1,767,146	1.37	25.78	1,696,460	2,324,150	2.17	5,042,888	1,300,107
PBAT-10-04	-	barren	-	-	-	-	-	-
PBAT-10-05	-	0.69	4.42	-	-	-	-	-
PBAT-11-06	-	barren	-	-	-	-	-	-
PBAT-11-07	-	barren	-	-	-	-	-	-
PBAT-11-08	-	barren	-	-	-	-	-	-
PBAT-11-09	1,767,146	1.82	38.33	1,696,460	3,087,557	2.16	6,682,567	2,561,509
PBAT-11-10	-	0.80	10.75	-	-	2.16	-	-
PBAT-11-11	-	barren	-	-	-	-	-	-
PBAT-11-12	1,223,376	2.07	38.61	1,174,441	2,431,092	2.13	5,179,934	2,000,215
PBAT-12-13	-	barren	-	-	-	-	-	-
PBAT-12-14	-	barren	-	-	-	-	-	-
PBAT-12-15	1,767,146	1.86	32.77	1,696,460	3,155,416	2.17	6,850,721	2,244,863
PBAT-12-16	1,753,502	2.03	28.46	1,683,362	3,417,225	2.19	7,495,774	2,133,483
PBAT-12-17	1,258,826	2.73	36.45	1,208,473	3,299,131	2.15	7,087,076	2,583,532
PBAT-12-18	-	barren	-	-	-	-	-	-
PBAT-12-19	1,008,968	1.90	25.40	968,610	1,840,358	2.18	4,003,669	1,017,102
PBAT-12-20	-	2.14	31.87	-	-	2.16	-	-
PBAT-12-21	318,094	2.03	15.26	305,370	619,902	2.19	1,359,522	207,408
PBAT-13-22	-	3.38	30.20	-	-	-	-	-
PBAT-13-23	1,767,146	2.51	43.41	1,696,460	4,258,115	2.14	9,131,027	3,963,344
PBAT-13-25	-	barren	-	-	-	-	-	-
PBAT-13-26	1,767,146	4.03	32.53	1,696,460	6,836,734	2.16	14,772,707	4,805,822
PBAT-13-27	-	barren	-	-	-	-	-	-
PBAT-13-28	1,767,146	1.75	39.64	1,696,460	2,968,805	2.14	6,359,414	2,520,898
PBAT-13-29	-	barren	-	-	-	-	-	-
PBAT-13-30	-	barren	-	-	-	-	-	-
PBAT-13-31	-	barren	-	-	-	-	-	-
PBAT-13-32	-	barren	-	-	-	-	-	-
PBAT-13-33	867,494	2.72	33.03	832,794	2,265,201	2.16	4,899,289	1,618,387
PBAT-13-34	1,242,405	1.04	10.34	1,192,708	1,240,417	2.19	2,719,174	281,238
PBAT-13-35	1,198,537	3.40	34.45	1,150,595	3,912,025	2.17	8,500,649	2,928,118
PBAT-14-36	1,767,146	1.15	10.08	1,696,460	1,950,929	2.18	4,261,002	429,574
PBAT-14-37	-	0.55	11.47	-	-	2.19	-	-
PBAT-14-38	-	barren	-	-	-	-	-	-
PBAT-14-39	-	barren	-	-	-	-	-	-
PBAT-14-40	235,474	3.73	25.01	226,055	843,184	2.20	1,857,298	464,495
PBAT-14-41	-	barren	-	-	-	-	-	-
PBAT-14-42	1,241,054	2.05	35.28	1,191,412	2,442,395	2.14	5,231,539	1,845,847
PBAT-15-43	-	barren	-	-	-	-	-	-
TOTAL	24,422,377			23,445,482	49,281,838		106,665,436	34,954,160
Average		2.10	32.77			2.16		

* For the mineral resource estimate a product price of 420 USD/tonne MOP and a process (metallurgical) recovery of 90.8% was used. Regarding cut-off a minimum thickness of 1 m and a minimum KCl grade of 10% for the sylvinitic horizon was applied for the estimate (for details see Section 11.3).

12 Mineral Reserve Estimates

This chapter encompasses information on the update of the mineral reserve estimate such as basic data, boundary conditions and methodology, the estimation method and the actual mineral reserve estimate.

The mineral reserves stated in Section 12.4 are mineral reserves of total production, but not mineral reserves of total production going to mill. The mineral reserves considered for the capital and operating costs (Chapter 18) and the economic analysis (Chapter 19) are only the mineral reserves of total production going to mill. For further explanation see Section 13.5.3.

12.1 Introduction

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/) a "mineral reserve" is

"an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted".

The definition of a mineral reserve requires "that a qualified person must apply and evaluate modifying factors to convert measured and indicated mineral resources to proven and probable mineral reserves". The modifying factors "include mining method, which is the source of dilution and mining losses, and mineral processing methods, which determine recovery factors" according to the Code of Federal Regulations (SEC, 2019, /44/). Additionally, modifying factors include, but are not restricted to "infrastructure, economic, marketing, legal, environmental compliance, plans, negotiations, or agreements with local individuals or groups, and governmental factors". Also the definition of a mineral reserve "provides that a mineral reserve includes diluting materials and allowances for losses that may occur when the material is mined or extracted". The term mineral reserves "does not necessarily require that extraction facilities are in place or operational, that the company has obtained all necessary permits or that the company has entered into sales contracts for the sale of mined products. It does require, however, that the qualified person has, after reasonable investigation, not identified any obstacles to obtaining permits and entering into the necessary sales contracts, and reasonably believes that the chances of obtaining such approvals and contracts in a timely manner are highly likely".

This chapter begins with the basic data, boundary conditions and methodology of the mineral reserve estimate (Section 12.2) followed by the estimation method (Section 12.3) and the actual mineral reserve estimate (Section 12.4). The modifying factors are mentioned in Section 12.4, details about them are presented in Chapter 1.

The update of the mineral reserve estimate was necessary, as the original mineral rights of BPC had to be dismembered for the reasons presented in Section 3.2. The updated mineral reserve estimate presented in this Report was conducted only for the mineral rights located outside the Jaury Indigenous Land (Section 3.2).

12.2 Basic Data, Boundary Conditions and Methodology

The mineral reserves were estimated using following information as a base:

- Parameters and values of resource blocks stored in Microsoft Excel file "2015-08-04_AT-BLK_3D.xlsx" (= resource block model). This model was generated by BPC in 2015 based on the geological model of the deposit generated by BPC in the same year and ERCOSPLAN's mineral resource estimate of 2015 presented in (ERCOSPLAN, 2015, /18/);
- Rooms and pillars of the version of the mine plan of 2016 before dismemberment of the original mineral rights, provided by BPC as ESRI shapefiles, but updated by ERCOSPLAN in 2022 as described in Section 12.2.6 and Chapter 13. The updated mine plan (Revision 7, Section 13.5.3) is available as AutoCAD files;
- Polygons of mineral rights for the Autazes Potash Project, provided by BPC as ESRI shapefiles in 2022;
- Polygon of the Jaury Indigenous Land, provided by BPC as ESRI shapefile in 2022.

Regarding the update of the mineral reserve estimate it was agreed with BPC to apply the same boundary conditions as for the mineral reserve estimate conducted for the mineral rights before their dismemberment and to use the resource block model generated by BPC.

ERCOSPLAN's QP did not validate the information provided by BPC. BPC has warranted to the authors that the information provided for the preparation of this Technical Report correctly represents all material information relevant to the Project.

The block model was not updated by BPC with data of the latest mineral resource estimate presented in this Report (Chapter 11) since the changes compared to previous mineral resource estimate (ERCOSPLAN, 2015, /18/) are negligible as it relates to mineral rights located outside the Jaury Indigenous Land, for which the mineral reserve estimate, presented in this Report, was prepared.

12.2.1 Resource Block Model

The parameters and values of the resource block model are stored in Microsoft Excel file "2015-08-04_AT-BLK_3D.xlsx". Data from this file was used for the updated mineral reserve estimate presented in this Report. The block model has the dimensions presented in Table 30 and the parameters presented in Table 31.

Table 30 Resource block model dimensions

Coordinate	Origin	Block Size	Number of Blocks
X	270,00	250 m	80
Y	9,609,000	250 m	80
Z	-674	seam thickness	1

The coordinates of the resource block model are given in the coordinate system South American 1969 UTM Zone 21S (SAD69)¹⁴.

¹⁴ EPSG code: 4618

Table 31 Block model parameters

Parameter	Description
X	centroid point
Y	centroid point
Z	centroid point
Rock Type	rock code: 100 (sylvinite)
Density	in situ density
Percent	percentage of ore inside block
Thickness	thickness of seam
Res_Class	resource classification code: 1 – measured mineral resources 2 – indicated mineral resources 3 – inferred mineral resources
KCl%	KCl grade item
NaCl%	NaCl grade item
MgCl ₂ %	MgCl ₂ grade item
CaSO ₄ %	CaSO ₄ grade item
MgSO ₄ %	MgSO ₄ grade item
K ₂ SO ₄ %	K ₂ SO ₄ grade item
RI%	insoluble grade item
MOI%	moisture grade item
BLK-VOL	calculated volume
BLK-TON	calculated tonnage

12.2.2 Ore and Waste Grades and Densities

The grades and densities for ore and waste presented in Table 32 were applied for the updated mineral reserve estimate.

Table 32 Ore and waste grades and densities

	Measured and Indicated Ore	Measured and Indicated Waste	Inferred Material	Upper Halite	Lower Halite	Barren Waste
KCl%	<i>variable</i>	0.89	variable	0.00	0.00	0.00
NaCl%	<i>variable</i>	95.68	variable	88.10	95.68	95.68
MgSO ₄ %	<i>variable</i>	0.15	variable	0.27	0.15	0.15
K ₂ SO ₄ %	<i>variable</i>	0.26	variable	0.32	0.26	0.26
CaSO ₄ %	<i>variable</i>	2.42	variable	6.43	2.42	2.42
MgCl ₂ %	<i>variable</i>	0.04	variable	0.09	0.04	0.04
RI%	<i>variable</i>	0.46	variable	3.88	0.46	0.46
MOI%	<i>variable</i>	0.17	variable	0.50	0.17	0.17
Density t/m ³	<i>variable</i>	2.18	variable	2.18	2.18	2.18

12.2.3 Model Recoveries

An average overall process recovery of 90.8% was used, with a concentrate grade of 95% KCl.

12.2.4 Cut-Off Grade

The cut-off grade of 10% KCl, embedded in the resource block model, was used for the update of the mineral reserve estimate. Furthermore, the model has an embedded 1 m thickness cut-off, which was also used for the estimate. The base for these cut-offs is explained in Section 11.3. Regarding the cut-off grade, the modifying factors, presented in Section 12.4, were taken into account. As stated there, in Section 11.3, ERCOSPLAN's QP confirms that the application of the above mentioned cut-off criteria is technically and economically viable, based on the results of the processing test work (Chapter 1) and considering investment and operation costs explained in Chapter 1.

12.2.5 Waste Material Determination and Dilution

For the update of the mineral reserve estimate waste material was determined as follows:

- Upper Halite waste, located inside resource blocks right above the sylvinite seam in its hanging wall;
- Lower Halite waste, located inside resource blocks right below the sylvinite seam in its footwall;
- Barren waste, located inside and outside resource blocks.

As no seam model for the barren waste was available, it could not be distinguished from the lower halite inside the resource blocks. Hence, both were assigned as waste below the sylvinite seam. However, as the grades and densities of the lower halite and barren waste are equal (Table 30) this approach is viable. Dilution was determined as outlined below.

The quantity of dilution is dependent on the following design considerations:

1. The proportion of upper and lower Halite being excavated alongside the sylvinite, which is dependent on the minimum required mining thickness, is greatly influenced by the capabilities of the selected mining equipment, and the adequate cross sections to provide ventilation.
2. The proportion of "barren" waste that is excavated alongside the sylvinite, in addition to the Halite.
3. The schedule, how the waste (Inferred, Halite, Barren) is fed to the mill with the ore as ROM, or whether it is possible to segregate it from the ore.

The theory behind the minimum thicknesses assumed for mining both the upper and lower Halite waste is explained below (design cases).

The modeled dilution (Table 31) is dependent on the seam thickness in order to accommodate the mine equipment, and to meet the ventilation, infrastructure and geotechnical requirements. The minimum mining height is 1.5 m for the production panel rooms and 3.5 m for the mains development and panel development. There is a layer of competent material below the clay seams in the roof. This will be kept intact as much as possible. Therefore, the over-cut will occur in the floor.

The assumed out-of-seam dilution (OSD) is 75 mm in the floor and 75 mm in the roof. These assumptions are based on benchmark data at other projects using similar equipment.

The dilution is input into the model and is dependent on the reference thickness of the sylvinite seam being mined and what kind of development is taking place.

Case 1:

If a panel room is being mined in an area where the thickness of the sylvinite seam is greater than or equal to 1.5 m, only the upper and lower OSD of 75 mm is applied as Halite dilution, as shown in Figure 27.

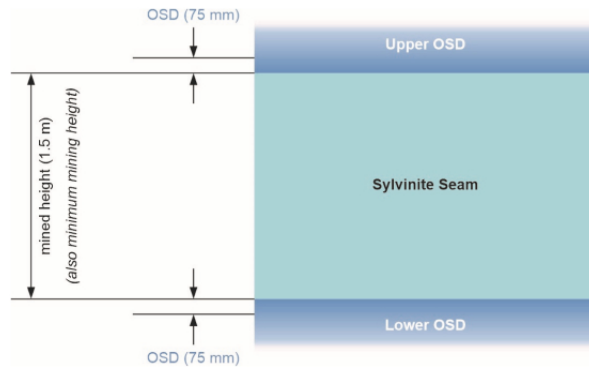


Figure 27 Panel OSD where the seam thickness is greater or equal to the minimum mining height

Case 2:

If a panel room is mined in an area where the thickness of the sylvinite seam is greater than 1 m, but less than 1.5 m, an over-cut equivalent to 1.5 m (mined height) of sylvinite seam thickness is incorporated as bottom dilution. The upper OSD of 75 mm is applied as upper Halite dilution in addition, as shown in Figure 28.

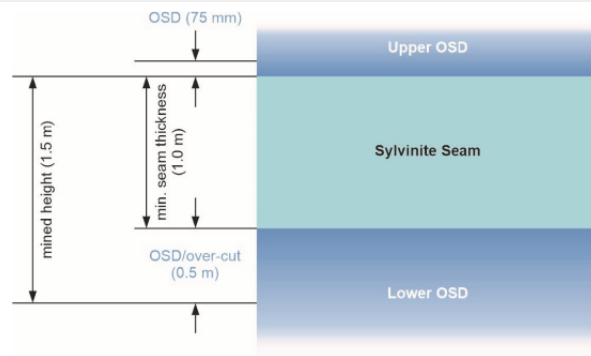


Figure 28 Panel OSD where the seam thickness is less than the minimum mining height

Case 3:

Where the main development or panel development is mined, the same logic applies as for case 1, but for a mined height of 3.5 m. Where one of these developments is greater than or equal to 3.5 m, only the upper and lower OSD of 75 mm is applied as Halite dilution, as shown in Figure 29.

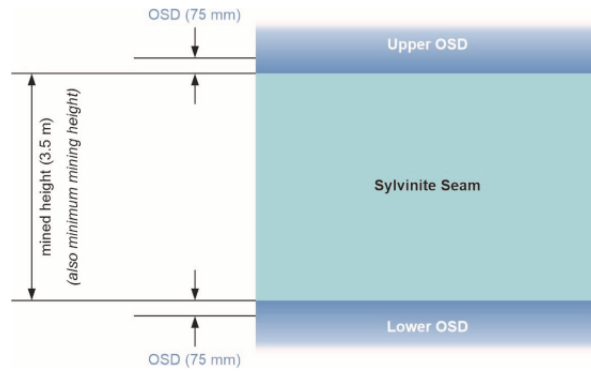


Figure 29 Main or panel development OSD where the seam thickness is greater or equal to the minimum mining height

Case 4:

When a development is mined in an area where the thickness of the sylvinite seam is less than 3.5 m, an over-cut equivalent to 3.5 m (mined height) sylvinite seam thickness is incorporated as bottom dilution. The upper OSD of 75 mm is applied as upper Halite dilution, as shown in Figure 30.

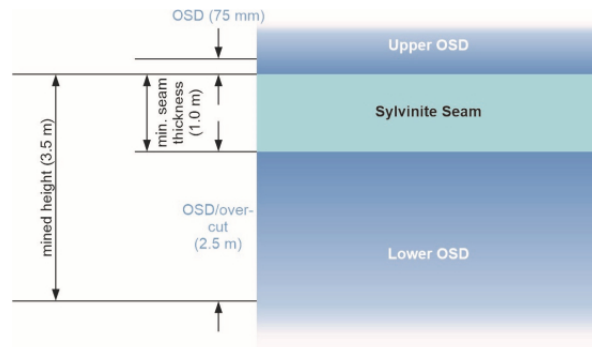


Figure 30 Panel and mains development OSD where the seam thickness is less than the minimum mining height

For the update of the mineral reserve estimate, the minimum mining heights in the panels and developments were used.

The calculated dilution, based on the statements presented above, is given in Table 33.

Table 33 Dilution estimate

Layout Category	Dilution Percentage
Panel	13.3%
Main	74.8%
Total ROM dilution	21.7%

12.2.6 Mine Plan

Regarding the basis of the mine design no changes were made (Chapter 1). Due to the dismemberment of the original mineral rights (refer to Section 3.2) the mine plan had to be updated to Revision 7 (Section 13.6.3) according to the boundaries of the dismembered mineral rights as follows:

- Complete removal of Panels 9, 10, 17, 17A and 18 along with the perimeter mining and main developments 14, 15 and 26 from the mining schedule as they are located in mineral rights inside the Jauary Indigenous Land.
- Reduction of area and, hence, volume of Panels 7, 8, 15, 16, 19 and 20 along with main development 25 and barrier pillars of Area02 and Area03 as they are partly located in mineral rights inside the Jauary Indigenous Land.
- Rerouting of main developments 20, 21, 27 and 28 from north of Panels 15, 16, 19 and 20 to south of these panels as, firstly, Panels 17, 17A and 18 along with their perimeter mining had to be removed (see first bullet point) and, secondly, these main developments were completely located in mineral rights inside the Jauary Indigenous Land, but would be required to connect Panels 15, 16, 19 and 20 to the rest of the mine.
- Rerouting of panel development drifts and single entries of Panels 15, 16, 19 and 20 to connect to the rerouted main drifts 20, 21, 27 and 28 in the south of these panels.
- Rerouting of panel development drifts of Panels 6 and 8 due to intersection of the development drift of Panel 8 with the boundary of mineral right ID 880.097/2019, which made part of the panel development being located in a mineral right inside the Jauary Indigenous Land. Hence, Panel 8's development drift was rerouted towards the boundary with Panel 6 and Panel 6's development drift was rerouted to the southeastern boundary of Panel 6.
- Re-arrangement of drifts and pillars in main drifts 12 and 13, where the rerouted development drifts of Panels 6 and 8 connect.
- Re-arrangement of drifts and pillars in main drift 24, where rerouted main drifts 21 and 27 connect.

The southeasternmost part of Panel 9's perimeter mining is located in a mineral right outside the Jauary Indigenous Land. However, since the westernmost part of main drift 13 connecting to Panel 9 and, hence, to its perimeter mining is located in a mineral right inside the indigenous land, the perimeter mining of Panel 9 is not accessible that way. Furthermore, the mentioned part of Panel 9's perimeter mining is too small in area and, hence, in volume to justify additional efforts to connect it to the rest of the mine via another drift located in a mineral right inside the indigenous land. Based on these statements this perimeter mining was not considered in the mineral reserve estimate.

Other panels, main developments and barrier pillars remained unchanged to the version of the mine plan before dismemberment of the original mineral rights and updating it to Revision 7. The updated mine plan is presented in Figure 31. Details on it are provided in Chapter 1.



Figure 31 Updated mine plan according to the dismembered mineral rights

12.3 Estimation Method

Data of the resource block model and the updated mine plan as well as the polygons of the mineral rights and Jauary Indigenous Land (see Section 12.2) were imported into ArcGISPro 3.0.

As a mine plan for the barrier pillars was not available, an extraction ratio of 60% was assumed for these pillars being in line with the corresponding statement in Section 13.5.

The imported data was intersected in ArcGIS Pro using the appropriate workflow. Values of the shapefiles, stored in the corresponding attribute tables and created using this workflow, were exported for further calculation. The exported values comprise of areas of pillars and rooms assigned to panels, panel developments and main development according to the updated mine plan Revision 7 (Section 13.6.3). When located inside resource blocks, grades and densities are also given for these areas in the corresponding attribute tables.

For the barrier pillars, no development drifts were incorporated into the calculations as it was assumed that the panel development drifts and main drifts planned adjacent to the barrier pillars can serve that purpose.

For parts of panels located outside resource blocks, the average mean of the seam thickness of the adjacent resource blocks was incorporated into the calculations. For main drifts, a fixed mining thickness of 3.5 m was incorporated into the calculations. None of the barrier pillars, for which the reserve numbers had to be updated, are located outside of any of the resource blocks.

Grades and density of barren waste (Table 30) were assigned to areas located outside resource blocks, whether panels or main drifts.

12.4 Mineral Reserve Classification and Estimate

The estimate of the mineral reserves, which are contained in the updated mine design and layout (Revision 7, Section 13.6.3), follow the definitions outlined in the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/). By these definitions, the modifying factor that enables the conversion of the mineral resources to mineral reserves is the final mine design and layout, which augment these measured and indicated mineral resources to proven and probable reserves. These reserves are deemed "economic".

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/) a "probable mineral reserve" is

"the economically mineable part of an indicated and, in some cases, a measured mineral resource".

According to (SEC, 2019, /44/) for a probable mineral reserve, "the qualified person's confidence in the results obtained from the application of the modifying factors and in the estimates of tonnage and grade or quality is lower than what is sufficient for a classification as a proven mineral reserve, but is still sufficient to demonstrate that, at the time of reporting, extraction of the mineral reserve is economically viable under reasonable investment and market assumptions. [...] a qualified person must classify a measured mineral resource as a probable mineral reserve when his or her confidence in the results obtained from the application of the modifying factors to the measured mineral resource is lower than what is sufficient for a proven mineral reserve".

According to the Code of Federal Regulations Title 17, Chapter II, Part 229 (Regulation S-K), §229.1300 (SEC, 2022, /46/) a "proven mineral reserve" is

"the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource".

According to (SEC, 2019, /44/) for a proven mineral reserve, "the qualified person must have a high degree of confidence in the results obtained from the application of the modifying factors and in the estimates of tonnage and grade or quality. Moreover, a proven mineral reserve can only result from conversion of a measured mineral resource".

Inferred mineral resources do not bear any economic value and are therefore not considered as mineral reserves. These resources are considered waste with a KCl grade of 0% and if processed, dilute the ore grade.

With exception of the mine design and layout, the other modifying factors presented below remained unchanged. Further details on modifying factors (including extraction ratio and mains recovery), design and schedule decisions are summarized in Chapter 1.

The updated mineral reserve estimate is presented in Table 34.

Table 34 Mineral reserve estimate

Mineral Reserve Category	Unit	Total
Proven	Mt	62.42
	KCl (%)	28.87
Probable	Mt	110.97
	KCl (%)	27.45
Proven & Probable	Mt	173.39
	KCl (%)	27.96

The modifying factors include minimum mining heights in panel development drifts and main drifts of 3.5 m and in panel rooms of 1.5 m, extraction ratios of 50 to 59% for main drifts and panels based on geotechnical factors, a process recovery averaging 90.8%, a product price of 420 USD/metric tonne MOP, royalties of 3% and operating costs associated to the mine plan. Details on these modifying factors are presented in Chapter 13.

Regarding the assumed product price of 420 USD/metric tonne MOP the average of the product price ("FOB Autazes Project (granular) \$/tonne real \$2021") for the individual years of the long term price forecast for the years 2028 to 2046, presented in CRU's Potash Marketing Report (APPENDIX 25, Table 6), was used. Two time periods were assumed - one for the first 10 years (year 2028 to and including year 2037), which results in an average product price of 417 USD/metric tonne MOP, and one until the end of the forecast (year 2028 to and including year 2046), which results in an average product price of 486 USD/metric tonne MOP. A time period of 10 years was chosen as historical prices for MOP show that after the 2007-2008 financial crisis, the comparably high MOP prices in 2012 and the dissolution of the Belarusian Potash Corporation in 2013 MOP prices declined and remained in the following years on a low, relatively even price until end of 2021 while being mostly unaffected by major worldwide developments. As recently experienced, singular events (Russian invasion of Ukraine) have a considerable impact on the potash market (by sanctions on Russia and Belarus) and, hence, the potash price. Therefore, it was decided to apply the lower average of 417 USD/metric tonne MOP for the first 10 years, rounded to 420 USD/metric tonne MOP as a conservative approach, since comparable events and accompanying effects on the potash market cannot be excluded in the future.

The origin of minimum mining heights in panel development drifts and main drifts is explained in Section 12.2.5. The process recovery is explained in Section 14.1.1.1. The royalties were specified by BPC (see Section 3.5).

13 Mining Methods

The mining method chosen for design, production and sequencing of the underground mine is the long pillar (1,500 m) mining method. Perimeter mining will also include "herringbone" or "modified chevron" methods, where the opportunity presents itself. Six mining methods were compared and analyzed to determine the best method for the conditions of this mine. The methods analyzed included:

- Drill and blast;
- Square pillar;
- Long pillar (240 m);
- Long pillar (1,500 m);
- Herringbone;
- Longwall.

The various mining methods were ranked and evaluated in respect to productivity, ground conditions, labor, flexibility, extraction ratio, ventilation, dilution, backfilling and blending.

Both square pillar and drill and blast were eliminated first. Drill and blast was ruled out due to ventilation requirements and lower productivity. Mechanical cutting methods have a significant production rate advantage over drilling and blasting. There are also operational constraints when using explosives for mining underground. This method was eliminated because it is unfeasible for a large-scale operation. Square pillar mining had low productivity as well, considering the increased requirement for direction change underground.

The long pillar (240 m) mining method was eliminated due to it being similar to the long pillar (1,500 m) mining method; however, it would have a reduced production rate. The 1,500 m long pillar mining method option requires less development and there is less time loss due to equipment relocation.

The longwall mining method had the highest ranking for productivity; however, due to the lack of data and knowledge surrounding the aquifer and ground water conditions, this option was eliminated. Subsidence will occur quickly after mining with the long wall method. The risk of subsiding bodies of water is high. A water inflow due to caving would potentially damage equipment and infrastructure underground.

IFG (IFG, 2014, /33/) modeled two scenarios for the longwall method. The first was at a 1 m seam thickness and a panel width of 100 m. This system model did not breach the hydraulic barrier; however, the 1 m seam thickness is not possible with longwall equipment and the panel width of 100 m is very small. This "successful" model is, therefore, not practical. The second scenario was for a 3.5 m seam thickness and a panel width of 100 m. The shear cracks from the cave could potentially breach the hydraulic barrier if the lengths reach 600 m. A length of 600 m is significantly less than industry standard and would result in frequent moves and lost production. Every longwall move results in substantial production lost, as the time it takes to move the machinery to a new start room is significant (3-8 weeks). Both scenarios are not feasible. Longwall could be considered an opportunity in future stages if data proves that ground water conditions do not present a risk.

The herringbone method is a variation of the long pillar method and was not considered in the ERCOSPLAN PEA (ERCOSPLAN, 2014, /16/). It offers proven stress relief in the form of a yielding system. Wings are mined in advance of the central entries. Yield pillars are thereby formed and abutment pillars, between the systems, bear the force of the stress in the roof. Stress relief mining methods might be used in the presence of consistent clay lenses in the roof to prevent a separation of the clay layer and avoid subsequent collapsing of the mine openings. The herringbone method is a proven stress relief method in Saskatchewan potash mines. One downside is the lost time backing equipment out of the wings; however, in the case of good ground, the wings may be cut two or three passes wide. The herringbone method is being considered alongside the long pillar (1,500 m) method for perimeter mining areas where the opportunity exists.

The long pillar (1,500 m) method was chosen as the primary mining method as it ranked the best out of the six methods. Although productivity falls slightly below the longwall ranking, the continuous miners can still achieve high productivity in areas where no roof bolting is required. It has been determined that a combination of roof bolting and stress relief systems will be used in the underground mine (WorleyParsons, 2015, /55/).

The long pillar (1,500 m) method also ranks highest for favorable backfilling conditions and ventilation requirements. Table 35 summarizes the eliminated mining methods.

Table 35 Mining method option analysis summary

Method	Status	Validation
Square pillar	Eliminated	Production constraint
Long pillar 240 m	Eliminated	Production constraint
Drill and blast	Eliminated	Production constraint. Significant operational restraints (explosives)

Longwall	Eliminated	Risk of water inflow
Long pillar 1,500 m*	Current option	
Herringbone	Current option	
* Note: Mining method Long pillar (1,500 m) was also recommended by ERCOSPLAN in the PEA (ERCOSPLAN, 2014, /16/).		

13.1 Mining Design Criteria

The mine needs to be designed to recover ore at a high extraction ratio, while still providing a safe working environment. Consideration must be given to geological and hydrogeological characteristics, as well as to rock mechanics testing and modelling. The regulations, inclusions/exclusions, and assumptions used for ventilation and cooling design are included in BBE Consulting's Ventilation and Refrigeration Basis of Design report (BBE, 2015, /6/), which is detailed in Section 13.10.

The geology of a deposit is one of the main factors in selecting a mine design. The design should maximize ore extraction, while minimizing the excavation of waste. The Autazes deposit is planar and flat lying, lending itself to some form of room and pillar mining. The deposit is not, however, completely homogenous or continuous, which necessitates a design plan that will accommodate unmineable areas of low grade, low thickness or other geological anomalies. The mine plan presented reflects these factors.

The rock mechanical design is responsible for providing a safe working environment to access the ore body over the 23 year life of mine (LOM). It must also attempt to maximize recovery of the resource and protect surface infrastructure from excessive subsidence; otherwise, excessive subsidence could allow saturated layers above to intersect with ore workings and flood the mine. For the Autazes mine, the mining design keeps the risk of encountering water in the workings to a minimum. The extraction ratio has been kept to a percentage that would be considered normal in the industry and the utilization of stress relief methods controls subsidence so minimal fracturing of overlying strata will occur, allowing good mining conditions for crews. As an additional safety measure, backfilling of mined out workings is planned. The objectives of safety and maximum ore recovery are contradictory in that each increase in ore recovery reduces the overall safety and stability of the mine workings. The chosen design is therefore a compromise, incorporating available geologic and geomechanical data and the knowledge and experience of the designers to satisfy these requirements. Future operators through a combination of geotechnical monitoring and their experience will make adjustments to the mining method which may result in slight changes to overall mining recovery.

The design has been benchmarked with North American underground operations, following similar design factors for geotechnical stability, as well as atmospheric, geological and hydrogeological conditions underground. In terms of mining method/rock mechanics, the long pillar method has been successfully used at the following mines:

- PCS Rocanville: depth of 900 m–950 m; 1,500 m long rooms; 20 m wide x 2.4 m high;
- PCS Lanigan: depth of 1,000 m–1,050 m; 1,000 m–1,500 m rooms; 15 m wide x 5 m high;
- Mosaic Esterhazy: approximate depth of 950 m; 1,000 m long rooms; up to 20 m wide x 2.4 m high; extraction rates up to 65% and
- Agrium: depth of 1,050 m, 1,000 m long rooms; 10m wide x 3.5 m high; extraction rate in the panels is thought to be around 50%.

For benchmarked studies, lessons learned have shown that in order to avoid specific hydrogeological failures, good 3D seismic data should be sought out and used for risk mitigation in design.

The Autazes Potash Project requires cooling and elevated ventilation due to the inherent heat of the in-situ rock (45°C average). A primary ventilation and cooling system was designed based on the criteria included in this section and was considered in this mine plan.

The ventilation and cooling design was completed by BBE Consulting. Detailed calculations are presented in their Basis of Design report (BBE, 2015, /6/).

13.2 Rock Mechanics

The primary concerns for rock mechanics are the integrity of the hydrogeological barrier and the stability of mined openings. Several tests were conducted to obtain and analyze the characteristics of the rock. Numerical modelling was performed by IFG (IFG, 2014, /33/) and using test results, general mine parameters were determined. Additional mitigation measures were taken to offset items not reflected in the geomechanical model, such as localized clay seams in the roof and localized faults detected by surface geophysics.

13.2.1 Rock Mechanic Test Results

IFG was contracted to conduct a series of rock mechanics test work on core samples taken from the Autazes Potash Project and the results were summarized in multiple reports (IFG, 2014, /33; 2014, /32; 2015, /35). Nonlinear modelling was also performed by IFG to confirm stability of potential mining methods, as well as the selected long pillar method.

IFG have several decades of experience modelling salt rock behavior and they have been able to verify model predictions in the field. IFG concluded that a series of 12 m rooms separated by 8 m pillars remain stable at a seam thickness of 4 m, up to a depth of 810 m (IFG, 2014, /33). Testing was conducted for Specific Rock Horizons as shown in Figure 32.

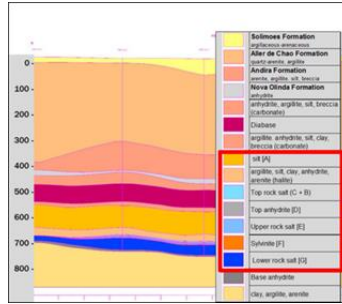


Figure 32 Lithological column with horizons considered for test work framed in red. Strength parameters for the different rock types are listed in Table 36.

Table 36 Strength parameter sets

Group	Material	Max. Strength			Dilatancy			Residual			Mohr-Coulomb	
		SD [MPa]	Sr [MPa]	Smax [MPa]	SD [MPa]	Sr [MPa]	Smax [MPa]	SD [MPa]	Sr [MPa]	Smax [MPa]	Cohesion, c [MPa]	Angle of friction, φ [°]
A	Siltstone	60	4	180							18.2	47
A*	Claystone	2	7	55							1.7	35
B	Rock salt	22	2.1	60	18	7	50	0	3.5	60	8.7	28
C	Rock salt with anhydrite	38	5	70	30	8	55	0	5	70	16.6	11
D	Upper strength (i.e. anhydrite)	65	4	155							18.3	43
D	Lower strength (i.e. shale/claystone)	47	8	100							14.4	33
E	Rock salt	20	7	70	18	7	55	0	6	70	10.1	15
F	Sylvinite	42	3.5	85	18	5	55	0	4	85		
G	Rock salt	30	3.5	80	20	5	63	0	3	80	16.6	14

Direct Shear Tests

Direct shear tests were conducted with cap rock samples to define the shear strength of the bedding planes. Although the rock is compact, the gained cohesion is very low due to the lamination and bedding within the cap rock strata. The results are based on a few tests; therefore, additional tests are recommended in the future. Direct shear test results are presented in Table 37.

Table 37 Direct shear test results

Lithology/Interface Description		Shear Displacement	Normal Stress	Shear Stress	Shear Dilatancy
		mm	σ _n (MPa)	τ (MPa)	mm
Group A – SV1	Fine-laminated claystone	6.98	0.70	0.70	-0.09
		12.94	5.00	1.86	-3.10
Group A – SV1	Fine-laminated claystone	0.99	3.00	7.04	0.01
		6.92	3.00	1.62	-0.40
		12.88	7.00	3.00	-1.08
Group A*—SV3	Fine-laminated claystone	0.59	0.70	1.89	0.19
		6.99	0.70	0.76	1.61
		12.67	5.00	2.57	-1.30
Group A*—SV4	Strongly bedded claystone	1.19	3.00	6.07	0.26
		6.96	3.00	2.54	0.13
		12.96	7.00	4.25	-1.58

13.2.2 Factor of Safety

Theoretical factor of safety calculations were performed using equations provided by IfG. Inputs, presented in Table 36, were adjusted to accommodate equipment dimensions. Factor of safety parameters for the production panel are presented in Table 38.

Table 38 Production panel factor of safety

Production Panel Design		
	IfG Model	Parameter Chosen
W	8 m	9 m
α	2.0	2.25
m	0	0
Ar	12 m	13 m
Asys	20 m	22 m
h	0.60	0.59
Sp	44 MPa	43 MPa
Sp,max	77 MPa	83 MPa
S	1.75	1.93

Factor of safety is not affected by long pillar length when greater than 100 m, as shown in Figure 33.

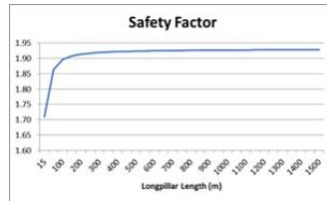


Figure 33 Long pillar length effect on factor of safety

Nonlinear modelling confirmed the integrity for high-extraction long pillar mining in the sylvinite with panel heights up to 4 m and an extraction ratio of 60%. The seam height of the ore varies from 1 m (note minimum mining height of 1.5 m) to 4 m with stability increasing as the seam height decreases. The lower room heights should have a bit less convergence than higher rooms simply because the pillars are more constrained from lateral expansion. The long term openings must have a factor of safety greater than 2.0. A factor of safety was calculated for the long-term rooms and is presented in Table 40. The assumptions related to the calculated factor of safety are shown in Table 39.

Table 39 Factor of safety inputs

Inputs	
a	Width to height ratio
A_p	Pillar width
A_r	Room width
A_{sys}	System width
g	Gravitational acceleration, $9.81 \frac{m}{s^2}$
H	Opening height, 4.0m
L	Pillar length
h	Extraction ratio
s_p	Theoretical pillar load
$s_{p,max}$	Maximum pillar strength
r	Density, $2.55 \frac{tonne}{m^3}$ (Used by IFG)
S	Safety factor
m	Width/length ratio
z	Depth, 710 m (used by IFG)

Width/height ratio calculation:

$$\alpha = \frac{W}{H}, \text{ Requirement: } \alpha > 0.6$$

Width/length ratio calculation:

$$m = \frac{W}{L}$$

System width calculation:

$$A_{sys} = A_p + A_r$$

Extraction ratio calculation:

$$h = 1 - \frac{A_p}{A_{sys}}$$

Theoretical pillar load calculation:

$$s_p = \frac{1}{1-h} * grz$$

Maximum pillar strength:

$$s_{p,max} = 25MPa * (1 + 0.75\alpha) * (1 + \frac{1-m}{4.25})$$

Safety factor calculation:

$$S = \frac{s_{p,max}}{s_p}, \text{ Requirement: } S > 2.0 \text{ (Long Term Openings)}$$

Table 40 Factor of safety for long-term rooms

Long-Term Openings		
	Mains	Long-Term Rooms
Factor of safety	3.47	2.05

13.2.3 Impact of Clay Seams

The roof strata above the ore zone consists of Halite with varying amounts of insoluble material ("clay"), often in thin seams or lenses. These clay seams form planes of weakness, which can lead to roof falls unless mitigated by some means. In production rooms, this is not expected to pose serious difficulties due to the relatively short time period during which the room will be accessed. An option analysis was performed to determine which method should be used out of either stress relief, ground support and mains development in lower Halite. Mains development in lower halite is not ideal due to the excess dilution that would be extracted; however, this method is required when crossing the fault system north of the shaft location.

Panel development will be mined with a 'stress relief' cutting sequence and yield pillar design to provide greater stability for longer life openings. As well, it will allow for a higher extraction ratio for the panels. Main development entries will be roof bolted and will be mined in a sequence, which will minimize re-loading stress for improved roof conditions. For this reason and due to the mains having a consistent height and longer life, roof bolting will be used in the mains. As well, roof bolting in the mains will minimize the amount of additional dilution that would have to be mined.

Allowances have been made for both personnel and equipment to bolt in panels, when required. These have been considered in the costs as "extra ground support allowance". Larger pillars (15 m) will provide the required stability. Additionally, mains will be isolated from mining panels by 200 m barrier pillars.

13.2.4 Roof Support Design

Primary roof support will be required in main development systems. A pattern of fully grouted rockbolts (Figure 34) will create a 2.4 m 'beam' in the roof to withstand the expected conditions to satisfy the long life requirement. Table 41 presents the bolting parameters.

Table 41 Bolting parameters

Bolt Length	2.40 m
Bolt diameter	20 mm
Bolt spacing	2.25 m
Row spacing	2.44 m

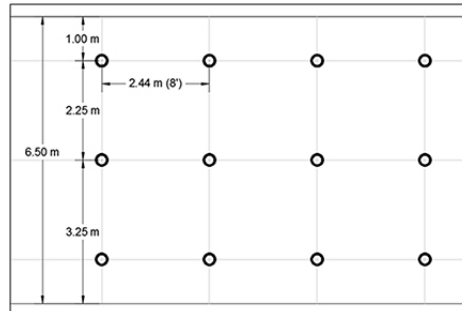


Figure 34 Bolting pattern

Primary roof support will not be required in the production panels. Spot bolting and secondary roof support, such as rocprops, will be used depending on local conditions in the production panels; particular care will be taken at intersections.

13.2.5 Barrier Pillar Design

Barrier pillars must be included for stability, limiting subsidence for critical areas, and to mitigate risk of water inflow. Four types of barrier pillars have been included as presented in Table 42.

Table 42 Barrier pillar summary

Pillar Type	Length
Shaft/infrastructure barrier pillar*	850 m

Mains to panel barrier pillar	200 m
Panel development to panel development barrier pillar	100 m
Drillholes barrier pillar	50 m
*The shaft barrier pillar was taken as an 850 m offset from the main shaft and the vent shaft. Those two circles were then merged to form the complete "barrier pillar".	

The shaft barrier pillar maintains the stability of the shaft and protects critical surface infrastructure. Production panels were excluded from the shaft barrier, but not main entries. The 850 m barrier is based on a 45° angle of draw to the main and ventilation shaft diameters.

Barrier pillars between mains and panels were included to provide more support to long-term openings.

Panels were designed as yielding systems, but the panel development must remain open for the life of the panel. Pillars were included adjacent to panel development to improve the stability of the development entries. The pillars separating the mains from the panels will be mined on retreat at the end of mine life to recover more ore.

Due to the possibility of water inflow, 50 m barrier pillars were included for drill holes. The 50 m is referenced from the intersection of the surveyed drill hole to the ore seam. One exception is drill hole 10-05, as shown in Figure 35. The drill hole was cemented 437 m to the bottom of the hole and has a 37 m barrier pillar. All grouting records for exploration drill holes were reviewed.

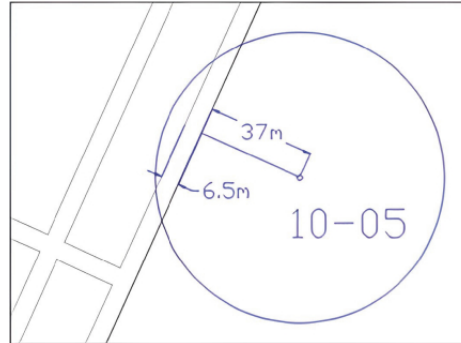


Figure 35 PBAT 10-05

13.2.6 Integrity of Hydrogeological Protection Layers

The characteristics of a potential aquifer overlying the mine are not completely defined. The mere potential presence of an aquifer dictates an approach to mining that ensures the integrity of the intervening strata is not compromised to the point where water ingress is possible. To do this, several studies were undertaken. Golder (Golder Associates, 2015, /26/) undertook an in-situ hydrogeological testing program of exploration wells to determine the potential aquifer's characteristics. While tests regarding the hydrostatic head were inconclusive, both low transmissivity and a low hydraulic conductivity were confirmed. Additionally, water inflow to claystones results in swelling, which will seal existing fluid pathways. As a result, the claystones acts as a natural geological barrier and could prevent water inflow into the mine.

Following completion of the 2016 Feasibility Study design, WorleyParsons received SRK's March 2016 report titled 'Project Shaft Pilot Hole Hydraulic Testing' (SRK, 2016, /50/). This report validated the very low (to low) permeability of the formations at greater depths (Andira and Nova Olinda), with hydraulic conductivities that fall within the order of magnitude specified by Golder (Golder Associates, 2015, /26/).

In order to confirm that the mine design maintained hydrogeological barrier integrity, IFG modelled four mining methods: Two variances of longwall mining methods and two variances of long pillar mining. The longwall mining model, at the seam height of the reserve, concluded that fractures would breach the hydrogeological barrier. The long pillar model, with a height-to-pillar-width ratio of 2.0, maintained the integrity of the barrier and became the mining method chosen for further analysis.

The hydraulic protection barrier consisted of the upper Halite/Anhydrite interbedding in the immediate roof, as well as a Claystone group and Siltstone group of strata. The total average thickness is approximately 130 m. The barrier is shown in Figure 36 and outlined in Table 43.

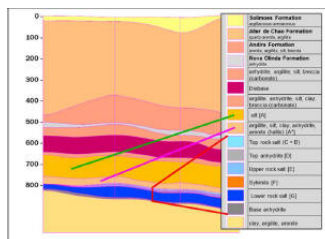


Figure 36 Geological profile

Table 43 Hydraulic barrier strata

Hydraulic Protection Barrier Strata	Average Thickness (m)
Rock salt & Anhydrite interbedding in the immediate roof (red line indicated in Figure 39)	22
Claystone, Argillite Group A* (pink line indicated in Figure 39)	25
Siltstone Group A (green line indicated in Figure 39)	90

IfG also conducted numerous tests on rock samples to determine their strength and permeability characteristics. These tests provided essential values used in the modelling process and were useful in assessing their ability to act as a seal to water ingress. The report "Realization of Rock Mechanical Laboratory Tests (Index Tests) on Core Material from New Boreholes" (IfG, 2015, /35/) includes the observation "from a geomechanical point of view the claystones could act as a natural geological barrier and may prevent water inflow to the mining horizon".

Due to the yield pillar design, long pillar mining results in the roof strata subside reasonably evenly over a larger area with a low fracture rate. Two long pillar systems were analyzed with a pillar width-to-height ratio (α) of 1.14 and 2.0, respectively. The (α) = 1.14 system simulation resulted in shear and tensile fractures only extending into the immediate roof and reaching about 5 m upwards as shown in Figure 37. The (α) = 2.0 system has greater pillar width and therefore implies even better support. Backfilling production rooms will help to remove the remaining risk of a violation of hydraulic barrier integrity. Future mine plan updates should consider further detailed modelling considering the amount of subsidence versus mined thickness and backfill if presented. It will be important to conduct extensive geotechnical monitoring during initial mining to calibrate actual observations versus theoretical estimates.

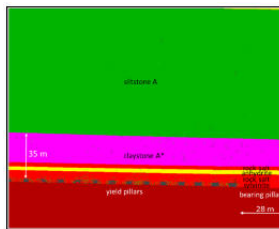


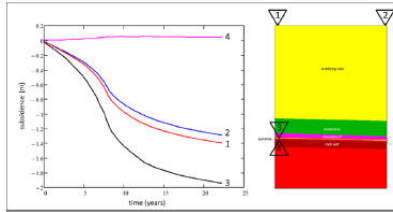
Figure 37 Long pillar system (α) = 1.14 (chosen system (α) = 2.0 will provide even greater support)

The mains are designed to be more stable due to their narrower entry widths, wider pillars and lower extraction ratios. The impact from main development on the hydraulic barrier will be less than the impact from the production panels.

13.2.7 Creep and Subsidence

Continuous visco-plastic deformation of a salt formation is termed "salt creep". There are three stages of creep: primary, secondary and tertiary. The primary stage consists of a period where the creep rate is rapid and then slows with time. The secondary stage consists of a period of relatively uniform creep rate. The tertiary stage has an accelerating

creep rate ending in failure of the material. Tests were performed to determine the magnitude of the creep rate. Testing included the primary stage as well as part of the secondary stage.



Reference	
1 & 2	Surface Subsidence
3	Roof Closure/Subsidence (Creep)
4	Floor Heave

Figure 38 Simulated subsidence rate for (a) =2.0

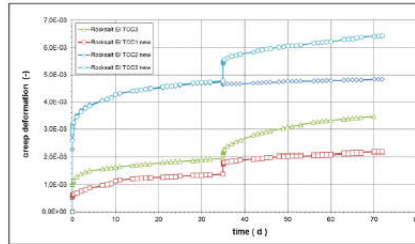


Figure 39 Creep curves

The subsidence simulated by IFG is shown in Figure 38. The creep impacts of the chosen production method and mine design parameters, simulated by IFG are shown in Figure 39. The softening of the yield pillars was also simulated. After 20 years, maximum convergence in the panel center is about 2 m, while the surface subsidence reaches up to 1.4 m based on an average ore thickness of 2.25 m and average depth of 784 m.

13.2.8 Faults

Fault zones were identified in the potash deposit from seismic surveys (Fontes, 2015, /22/). Surveys were completed for the southern portion of the mine. Two major faults were identified and zones were excluded from the ore resource. Those fault zones were also taken into consideration in the mine planning; avoiding them with production panels and only crossing a fault perpendicular with the mains where necessary.

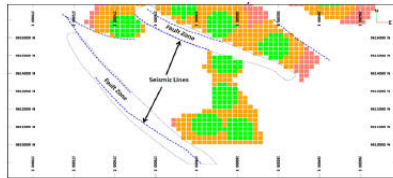


Figure 40 Fault zones

Fault zones present in the deposit are shown in Figure 40. Seismic lines, representing structural variances, are shown by red lines. Major faults are outlined in gray.

Access across the fault is required north of the shaft area as shown in Figure 41. The main development will be mined in the Halite beneath the ore seam for the length of this fault zone plus a 100 m buffer. Hydrological characteristics of the fault area are unknown. Probe holes will be drilled into the cut face to determine immediate conditions ahead of mining as a standard practice to probe for potential water intersections. At this point in time it is unknown if any displacement of the strata occurs along the faults.

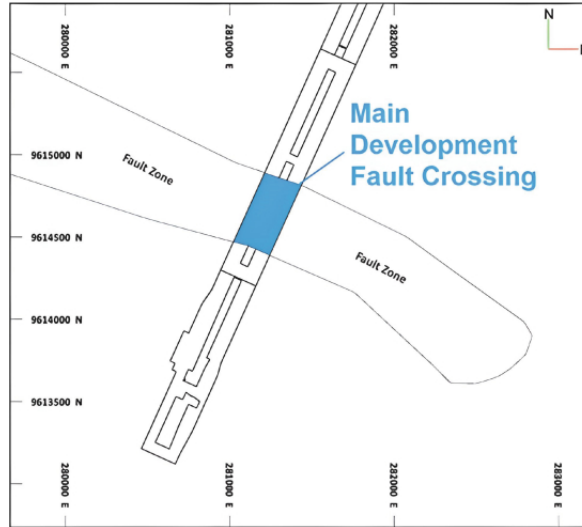


Figure 41 Fault crossing

13.2.9 Optimization of Mine Design Parameters

The mine opening and pillar parameters chosen optimize the extraction of ore while also maintaining geotechnical stability. The parameters presented in Table 44 are a result of the analysis and modelling outlined in the preceding sections of this chapter.

Table 44 Mine design parameters

Main Development	
Entry width	6.5 m
Pillar width	15 m
Crosscut spacing, centerline to centerline	65 m
Support	Primary roof support, (Section 13.2.4)
Cut sequence	Cut sequence to minimize reloading
Production panel	
Panel development	
Entry width	6.5 m
Pillar width	8 m
Cut sequence	Stress relief cutting sequence
Long pillar/rooms	
Room width	13 m
Pillar width	9 m
Barrier pillar	
Shaft/infrastructure barrier pillar	850 m
Mains to panel barrier pillar	200 m

Main Development	
Barrier pillar between panel developments	100 m
Drillhole barrier pillar	50 m
Fault crossing	Mains located in Halite for crossing the fault zone including a 100 m buffer zone
Creep and subsidence	Include a creep allowance in minimum mining height

13.3 Mine Access

The mine is accessed by means of two vertical shafts: main shaft (#1) and ventilation shaft (#2) and related infrastructure. The shafts have been designed to service a mine production rate of 8.5 MTPA at steady state.

13.3.1 Main Shaft

The main shaft will serve as the down cast ventilation conduit with a finished diameter of 7.8 m and a depth of 920 m. The shaft will be equipped with two double drum mineral winders, each in separate winder buildings, providing a maximum hoisting capacity of 9.3 MTPA with 24 t skips. An identical double drum personnel/material winder will be installed in the same building with one of the mineral winders. Details about the installation can be found within the BFS Shaft Infrastructure report prepared by WorleyParsons (WorleyParsons, 2016, /56/).

The conveyances will operate on fixed steel top hat guides. The shaft will be concrete lined and equipped with a steel fabricated headgear.

Conveyors will feed mineral on the loading level, from a 3,000 t surge silo to the skip measuring flasks for hoisting to surface and discharging into circular conical designed receiving bins in the headgear.

Access to the shaft bottom will be by means of a decline. Spillage will be removed using a load haul dump (LHD) machine.

Cross sections and layout of the shaft development area are presented in APPENDIX 18 (WorleyParsons, 2016, /57/).

13.3.2 Ventilation Shaft

The ventilation shaft will serve as the up cast exhaust ventilation conduit and a second means of egress with a finished diameter of 6.9 m and a depth of 868 m. The shaft will be equipped with a single drum stage winder (after sinking) which will be used for hoisting and lowering of large and heavy equipment. The conveyance will operate on rope guides.

An additional single drum winder operating on fixed steel guides will serve as an emergency egress winder in the event that the Main Shaft personnel winder is not available. The shaft will be concrete lined and equipped with a steel fabricated headgear.

Cross sections and layout of the ventilation shaft development area are presented in APPENDIX 18.

All large and heavy mining equipment will be lowered and hoisted in the ventilation shaft on non-production days, which will allow very quick equipment assembly times.

13.3.3 Shafts Services

Chilled water, service water and potable water pipe columns will be installed in the production shaft, as will power, control and communication/instrumentation cables.

Backfill feed and brine return pipes will be installed in the ventilation shaft, as will power, control and communication/instrumentation cables.

A dewatering pump station will pump potential fissure water and mine service water to a water treatment plant on surface.

Power will be distributed on surface at 13 kV from the shaft consumer substation. Diesel driven generators, installed to provide power for the sinking operation, will be used as permanent emergency power supply at steady state.

Emergency power will be available for the personnel/material winders in the main and ventilation shafts, dewatering pumps, as well as for the emergency egress winder. Emergency power will be available for a surface main ventilation fan and bulk air cooler. Once personnel have been evacuated in the event of a power outage, the emergency power load will be substantially reduced.

Power will be distributed underground in the main and ventilation shafts at 34 kV, providing power for underground mining operations where there will be a step-down voltage for equipment, pumping and ancillary facilities.

The cost estimate includes all capital costs, including shaft surface infrastructure and temporary site establishment, and operating costs associated with the shaft portion of the Project.

13.3.4 Shaft Sinking

Shaft sinking will be completed by means of conventional drilling and blasting with mechanical mineral loading into the kibles. The main and ventilation shafts will be sunk concurrently and equipped from the bottom up.

Permanent headgears will be erected for the shaft sinking and two double drum winders will be installed and used as kibble winders in both shafts. On completion of shaft sinking the Ventilation Shaft double drum kibble winder will be decommissioned and moved to the main shaft for permanent installation and commissioning as the second mineral winder.

Shaft sinking, equipping and commissioning will take approximately 3.5 years.

Ground stabilization will be required for incompetent ground for the first 420 m below surface and will be completed by means of freezing and grouting. Grouting will continue until the shaft sinking and lining are complete.

The total capital cost to sink and commission the main shaft, ventilation shaft and infrastructure is detailed in Chapter 1.

13.4 Mine Design

The mine is divided into main development and production panels. Main development consists of a variety of split intake and return mains as well as single system mains. The production panels are a long pillar design with an extraction ratio slightly less than 60%. The study considers the following extraction opportunities, in addition to the long pillar method:

- Reduced shaft barrier pillar;
- Mining mains on retreat;
- Perimeter mining (using herringbone, modified chevron, or extended rooms);
- Panel extensions in general;
- Evaluation of uneconomic panels and mains.

13.4.1 Mine Development

Main development provides access to production panels, room for infrastructure and conveyors, and consists of several intake and return airways. Main development will begin once shaft construction has been completed using continuous miners and batch haulage. Entries surrounding the shaft will be completed first and will provide room for construction of workshops, main intake/return access, underground storage, pump stations and a significant amount of infrastructure. The main development will continue towards the north and south to reach the extents of the reserve, while also minimizing dilution.

The design of the main development layout was heavily influenced by the ventilation requirements. As a result, there are three different types of mains, five intake/five return split main, four intake/four return split main, and six entry single main (three intake/three return), as shown on Figure 42.



Figure 42 Mains overview

The pillar and entry design were based primarily on geotechnical analysis and ventilation with consideration of equipment operating constraints. Entries will be mined on 21.5 m centers and crosscuts on 65 m centers. The resulting pillar size is sufficient for a fully supported (roof bolted) entry system while also allowing for ease of operation and good productivity. Barrier pillars on either side of all main systems will be 200 m. A 50 m barrier pillar will exist between split mains to provide support and ventilation separation between the two sets of entries. Crossover entries from intake to

return mains will be spaced every 1,500 m for access at main belt drives. Allowances have been made for overcasts and undercasts so that exhaust and fresh air can cross main development parameters are presented in Table 45.

Table 45 Main development parameters

Parameter	
Entry width	6.5 m
Minimum mining height	3.5 m
Pillar width	15.0 m
Crosscut spacing, center-to-center	65.0 m
Barrier pillar, mains to panels	200.0 m
Inter-split main barrier pillar, intake to return mains	50.0 m

Entries and crosscuts will be cut with two advance passes with a 3.5 m continuous miner (CM) cutter head. The CM will alternate 11 m advance passes to cut a 6.5 m wide entry the entire length or width of the pillar. The mining height was maximized to increase air quantity and includes a 0.5 m allowance for creep. The entries will be mined with a stress relief cutting sequence where the outer entries are mined first to minimize the effects of stress on the beltline entry. Allowances have been included in the costs to mine the floor in the mains when required to maintain the required cross sectional area and clearances due to creep.

Roof bolting will occur after a cut has been completed and production equipment has moved to the next entry.

Two types of development will be used. A single CM unit will consist of a single CM and set of batch haulage. Super-section units will consist of two CMs and two sets of batch haulage. Typical section setups and cutting sequences were developed and are shown in Figure 43.

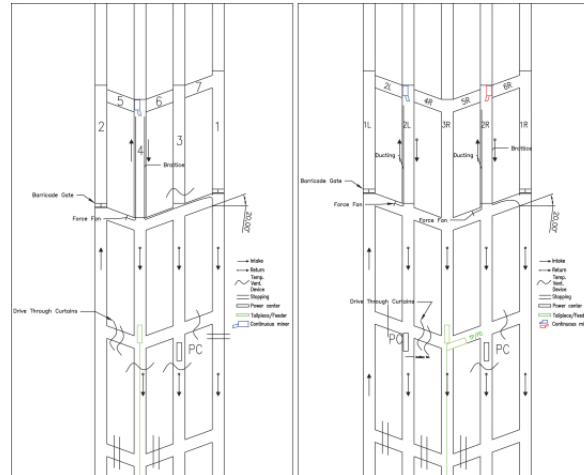


Figure 43 Left: Typical single CM main development section setup; Right: Typical supersection main development section setup

13.4.2 Production Panels

Production panels were designed to maximize the extraction of ore and productivity, while maintaining a safe working environment. The design was primarily influenced by geotechnical modelling results and analysis. Refer to Section 13.2 for additional details.

The production panels are a long pillar design as shown in Figure 44. Panel development entries are mined first to access the main panel across the 200 m barrier pillar. The panel development design considers a stress relief cutting sequence. The outer two entries are mined first followed by the beltline entry and finally the travel way. The two outer entries provide stress relief and are deemed unusable. The panel development entries will have a minimum mining height of 3.5 m, whereas panels are mined at seam height (minimum 1.5 m).

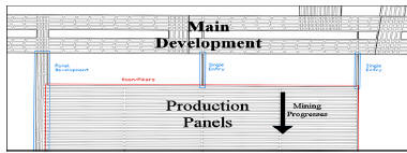


Figure 44 Production panel naming convention

Single entries will also provide access to the panels from the mains and will be mined with main development sequence. The single entries will serve as temporary return airways during production of the panel.

Rooms are mined perpendicular to and with, the sequence of panel development. Mining will progress from the mains side of the panel to the extent of the panel. The lengths of the rooms vary from 950 m to 1,700 m. In general, the rooms do not extend beyond 1,500 m. The perimeter mining areas/ panel extensions cause the length to go beyond 1,500 m. Room to room breakthroughs were included to assist ventilation and will be mined during room advancement. The panel cutting sequence is shown in Figure 45.

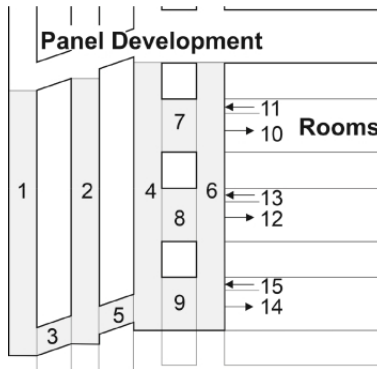


Figure 45 Panel cutting sequence

The minimum mining height in the production rooms will be 1.5 m. This is to allow sufficient area for equipment. The room width is based on a CM cutter head width of 3.5 m. A typical section setup is shown in Figure 46. Table 46 presents the panel design parameters.

Table 46 Prediction panel parameters

Panel Development	Parameter	Panel Rooms	Parameter
Entry	6.5 m	Advance passes	9.5 m
Crosscut	6.5 m	Retreat pass	3.5 m
Single entry breakthrough to mains	6.5 m	Final room width	13.0 m
Entry height	3.5 m (minimum)	Pillar width	9.0 m
Pillar width	9.0 m	Room height	1.5 m (minimum)
		Panel length	approx. 1,500.0 m

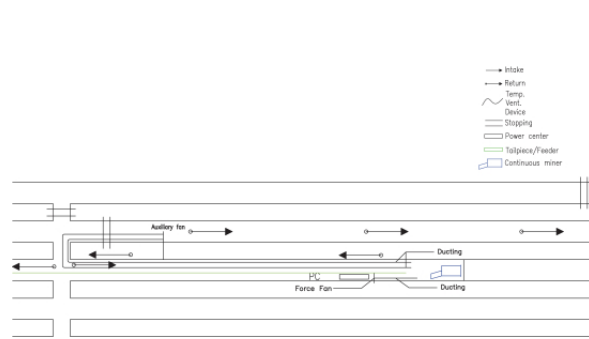


Figure 46 Production section schedule

The production rooms were designed for stability during the time required for mining and backfilling the panels. Roof bolting will not be required except for spot bolting for localized conditions. A set of long-term rooms were designed for P02, P03, P04, P05 and P07, as shown in Figure 47.



Figure 47 Long-term rooms

These rooms will be mined in a stress relief cutting sequence at the beginning of the panel to serve as intake airways for the western part of the mine. The system will consist of three 13 m stress relief rooms and ten 6.5 m long-term rooms as shown in Figure 48. The long-term room will consist of 6.5 m wide and 1.5 m height entries with a pillar width of 8 m.

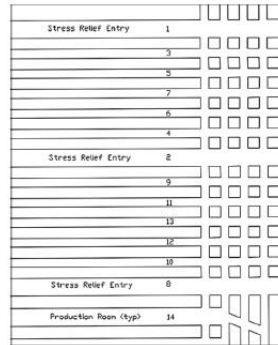


Figure 48 Long-term rooms mining sequence

13.5 Mine Operations and Production Scheduling

13.5.1 Operating Parameters

The annual operating parameters used for the underground operations of the Autazes potash mine, are listed in Table 47. Maintenance and crew assumptions are described in more detail within Section 13.8 'Personnel Requirements'.

The total shift length is eight hours; however, under Brazil regulations, workers are only allowed to be underground for six consecutive hours. The two hours of non-productive time are spent on the surface for lunch breaks (typically done at the start or end of shift), shift changes and travel time.

Table 47 Annual operating parameters

Operating Parameters	Unit	Quantity
Total days per year	d/a	365
Lost days per year	d/a	21
Mine production days	d/a	344

Mine production crew shifts per year	shifts/year	1,258
Mine production crew hours per year	h/a	7,548
Unproductive hours per year	h/a	1,258
Effective mine production hours per year	h/a	6,290

13.5.2 Productivity

A productivity model was created that included the cut sequence, mine dimensions, and fixed delay times for planned activities and also additional unplanned delays. Main development via a single continuous miner (CM), a super-section and a production panel were all modelled. The productivities were benchmarked by Joy Global representatives.

The results of the productivity model were then compared to manufacturer guidelines and confirmed by individuals with experience in this field.

The inputs to the model are listed in Table 48 and Table 49.

Table 48 Model inputs: main development

CM loading rate	17 t/min
Shuttle car capacity	20 t
Effective loading rate (based on SC cycle time)	10 t/min
Distance between belt transfers	1,500 m
Initial mains setup	105 h
Belt & utility advance	6 h
Place change	1 h
Unplanned equipment breakdown	5% of planned production time
Unplanned belt breakdown	5% of planned production time
Additional utilization delays	50% of planned production time
Job efficiency	83.33%

Table 49 Model inputs: production panel

CM loading rate	17 t/min
Panel development	
Initial panel development setup	48 h
Belt & utility advance	6 h
Place change	1 h
Rooms	
Initial room setup	35 h
Belt advance length	100 m
Belt & utility advance	3 h
Add belt to take-up	3 h
Turnaround & breakthrough	24 h
Unplanned equipment breakdown	5% of planned production time
Unplanned belt breakdown	5% of planned production time
Additional utilization delays	25% of planned production time
Job efficiency	83.33%

The results from the model support the baseline production presented in Table 50 and a detailed breakdown in Table 51 and Table 52. A thin seam results in more schedule delays per tonne of ore mined. The annual production of each panel was adjusted based on the average seam thickness (e.g. lower seam thickness = lower annual production). The

productions for panel and panel extensions was further adjusted for the northern panels, based on the travel time, resulting in annual productions of 800,000 tonnes, 1,000,000 tonnes or 1,200,000 tonnes. Production rates for perimeter mining were based on 80% productivity of the parent panel.

Productivities for main entries remain constant as they do not vary significantly in height and were not adjusted according to seam thickness. A constant annual rate of 550,000 tonnes was assumed for re-treat mining of the mains.

Specific productivities are applied to panels, panel extensions, perimeter mining of panels and retreat mining of mains. Productivities for panels were determined from seam thickness (Table 39 and Table 40), note that panels denoted with an 'a' represent panel extensions that have been added in Revision 6 from an existing panel development.

Table 50 Production baseline

	Main – Single CM	Main – Super Section	Panel
Annual production (metric tonnes)	550,000	750,000	800,000-1,200,000*
Availability (%)	79	79	79
Utilization (%)	48	47	49

* Note: Panel production varies based on seam thickness and travel time factors.

Table 51 Panel production productivities

Panel Production		
Panel	Factor	Resulting Production (TPA)
Baseline		
Unit production	1	1,000,000
P01 Panel factor	1	1,000,000
P02 Panel factor	1	1,000,000
P03 Panel factor	1	1,000,000
P04 Panel factor	1.2	1,200,000
P05 Panel factor	1.2	1,200,000
P06 Panel factor	1.2	1,200,000
P07 Panel factor	1	1,000,000
P08 Panel factor	1.2	1,200,000
P13 Panel factor	1.2	1,200,000
P14 Panel factor	1.2	1,200,000
P15 Panel factor	1.2	1,200,000
P16 Panel factor	1.2	1,200,000
P16a Panel factor	1.2	1,200,000
P19 Panel factor	1.2	1,200,000
P20 Panel factor	1	1,000,000
P20a Panel factor	1	1,000,000
P21 Panel factor	1	1,000,000
P21a Panel factor	0.8	800,000
P22 Panel factor	0.8	800,000
P23 Panel factor	0.8	800,000
P23a Panel factor	0.8	800,000
P24 Panel factor	1	1,000,000

Table 52 Perimeter mining and mains on retreat production productivities

Perimeter Mining & Mains on Retreat		
Panel	Factor	Resulting Production [TPA]
Baseline	1	1,000,000
Unit production		
Mains on retreat (barrier pillars)	0.55	550,000
P01 Perimeter panel factor	0.8	800,000
P07 Perimeter panel factor	0.8	800,000
P20 Perimeter panel factor	0.8	800,000
P23 Perimeter panel factor	0.64	640,000
P24 Perimeter panel factor	0.8	800,000

A six-month exponential ramp-up curve was used for start-up of the main development and production panel sections. This ramp-up, as presented, was based on benchmark data from a similar size mine with similar equipment. The ramp-up timeline was extended from four months (used for the benchmark mine) to six months. This is to account for the lack of experienced operators in Autazes initially. Ramp-up also assumes training of new employees via simulators and shadowing experienced operators.

The ramp-up factors listed in Table 53 were applied to the baseline production of affected development and production sections, as shown in Figure 49 and Figure 50. The resulting annual production was used to schedule units.

Table 53 Six month ramp-up: factors

	Factor
Ramp-up Month 1	0.150
Ramp-up Month 2	0.219
Ramp-up Month 3	0.320
Ramp-up Month 4	0.468
Ramp-up Month 5	0.684
Ramp-up Month 6	1.000

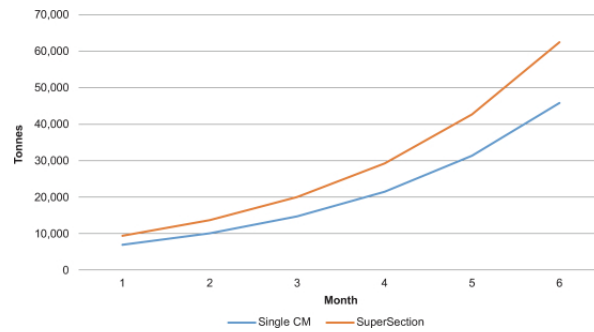


Figure 49 Six month ramp-up: main development

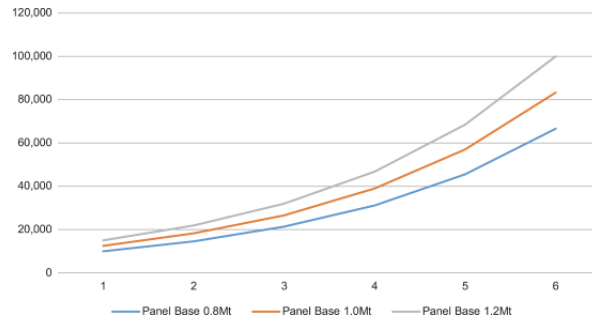


Figure 50 Six month ramp-up: production panels

After the first set of production units begin, the remaining units are scheduled using a four month ramp-up as shown in Figure 51. There will be a pool of operators trained from the first five production units. The shadowing opportunity and redistribution of experienced personnel will shorten the timeframe from six months to four months. The number of main development units does not increase beyond main M01, negating the need to apply a four month ramp-up application to development units. The ramp-up factors applied for the four months are presented in Table 54.

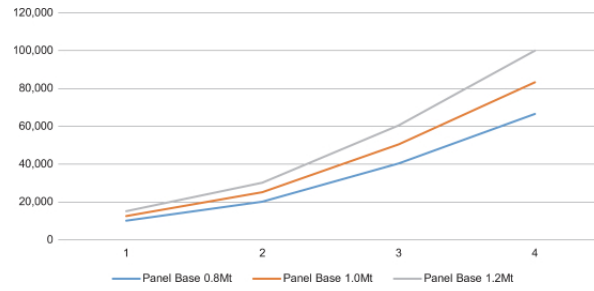


Figure 51 Four month ramp-up: production panels

Table 54 Four month ramp-up: factors

	Factor
Ramp-up Month 1	0.152
Ramp-up Month 2	0.303
Ramp-up Month 3	0.606
Ramp-up Month 4	1.000

There will be one fault crossing in the mine. Main M02 will be mined in the Halite during the course of the fault crossing. A factor of 0.75 is applied to the baseline production to account for slower production, extra ground support and potential dewatering/grouting.

For the basis of this study a constant equipment availability factor was applied to develop productivities of equipment. It is recommended for further studies to apply a variable availability equipment schedule for more accurate representation.

13.5.3 Production Schedule

The mine schedule consists of 1.5 year pre-production, followed by a three-year ramp-up to a target production rate of average 8.5 MTPA run-of-mine (ROM) for 17 years, ramping down over a three-year period due to reserve/workplace limitations. Over the 17 year full run rate production period the mine will supply the mill with an average annual tonnage of 8.32 million tonnes ROM per year. The total amount of ore fed to the process amounts to 171.25 million tonnes with an average KCl grade of 27.26% (Table 55). These numbers are those which are referred to as "mineral reserves of total production going to mill" in Chapter 12. Furthermore, these numbers are those considered for the capital and operating costs (Chapter 18) and the economic analysis (Chapter 19).

Table 55 Ore feed to process with average KCl grade for each year of production including ram-up and ramp-down phase

Phase	Year	Ore Feed to Process	KCI Grade
		[metric tonnes]	[%]
Pre-production	-4	0	0.00
Pre-production	-3	0	00.00
Pre-production into ramp-up	-2	3,212,593	22.63
Ramp-up	-1	5,644,853	23.26
Ramp-up	0	7,925,250	24.09
Full production	1	8,429,940	25.55
Full production	2	8,035,112	28.10
Full production	3	8,797,466	26.15
Full production	4	8,204,595	29.92
Full production	5	8,294,057	28.48
Full production	6	8,264,115	31.31
Full production	7	8,392,039	30.62
Full production	8	8,355,239	28.03
Full production	9	8,719,362	28.60
Full production	10	8,505,886	30.52
Full production	11	7,948,240	32.09
Full production	12	7,950,130	31.94
Full production	13	8,024,118	30.11
Full production	14	8,498,925	24.30
Full production	15	8,492,387	25.41
Full production	16	8,386,884	21.52
Full production	17	8,570,231	22.98
Ramp-down	18	5,862,009	25.84
Ramp-down	19	4,889,738	25.16
Ramp-down	20	1,851,666	20.09
Total tonnes/ average KCI grade		171,254,835	27.26

During the pre-production phase starting in year -4 and ending in year -2 all extracted ore is transferred straight to the tailings piles and not fed to the mill or the process, respectively. The mined ore per year is presented in Table 56.

Table 56 Annual amounts of extracted ore during the pre-production phase

Year	Pre-Production Extraction from Main Drifts and Panels
	[metric tonnes]
-4	72,418
-3	1,366,576
-2	632,027
Total metric tonnes	2,071,021

Adding the ore extracted during the pre-production phase (2.07 million tonnes) and the ore extracted during the production phase (171.25 million tonnes) results in a total of 173.32 million tonnes of extracted ore with an average KCI grade of 27.3%. This total amount of ore of 173.32 million tonnes with its stated average KCI grade is referred to as "total amount of ore of total production" in this Report and was calculated based on complete removal of the panels P9, P10, P17 and P18 along with the corresponding perimeter mining as well as the main developments M14, M15, and M26 from the production schedule.

Furthermore, the reduction of areas of subsequently mentioned panels, barrier pillars and main developments on a percentage basis was incorporated into the calculations for the production schedule¹⁵:

- Panels: P7 (6%), P8 (55%), P15 (53%), P16 (25%), P19 (60 %), P20 (36%);
- Barrier pillars: BP02 (23%) and BP03 (63%);
- Main developments: M13 (15%) and M25 (25%).

The approach to calculate the tonnages and, hence, the average KCI grade of the ROM for the production schedule is more conservative compared to the approach used for the mineral reserve estimate (Section 12.2, 12.3 and 12.4). Therefore, the total amount of ore of total production with 173.32 million tonnes and an average KCI grade of 27.3% is taken into account for the production schedule, but is **not** considered for the capital and operating costs (Chapter 18) and the economic analysis (Chapter 19).

¹⁵ Percentages stated in brackets refer to the percentage amount by which the parts of the panels, barrier pillars and main development drifts were reduced based on the updated mineral reserve estimation compared to the amounts calculated by Worley Parsons in BFS 2016.

The pre-production period consists of mains development and account for scheduled equipment ramp-up of continuous miner (CM) units.

By Q2 of production year 1, adequate main development will be completed to provide CM units access to production panels to start-up the mill. During the ramp-up period between year 1 to year 3 (Figure 52) material mined from mains development and panel production will be blended and sent to the mill.

The current mine plan Revision 7 was completed concurrently to the final backfill schedule completion.

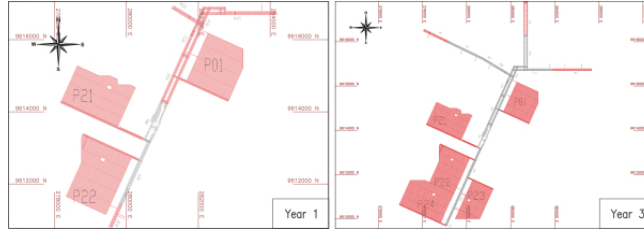


Figure 52 Mine ramp-up period (production years 1 to 3)

The start of Q1 of production year 4 marks the end of the ramp-up period and achieves the nominal production of 8.5 MTPA. Depletion of the first panel, P21, will occur during Q1 of production year 4 making it available to accept backfill.



Figure 53 Nominal production, depletion of first Panel 21 available for slurry backfill

All materials from main development and panel production will be sent to the mill up until the end of production year 9. Mains development will be paused during the start of year 10, recommencing in year 14 when access to additional production panels in the north and west of the mine are required. Main development from the north will have material sent to Panel 13 as dry backfill. Material from development in the west will be sent to Panel 05. Main development will be completed by production year 19.

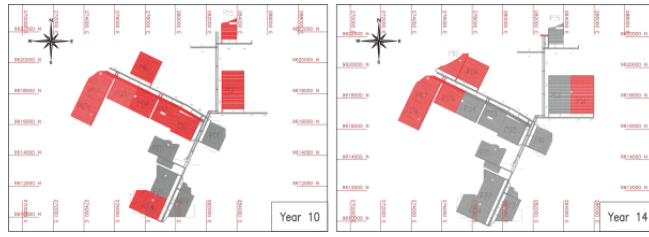


Figure 54 5 years pause in mains development

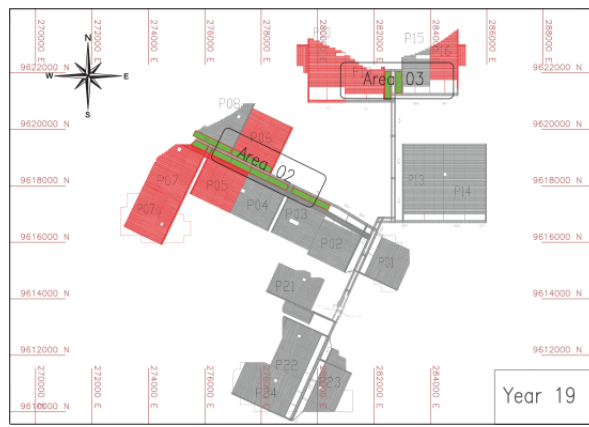


Figure 55 Completion of main development

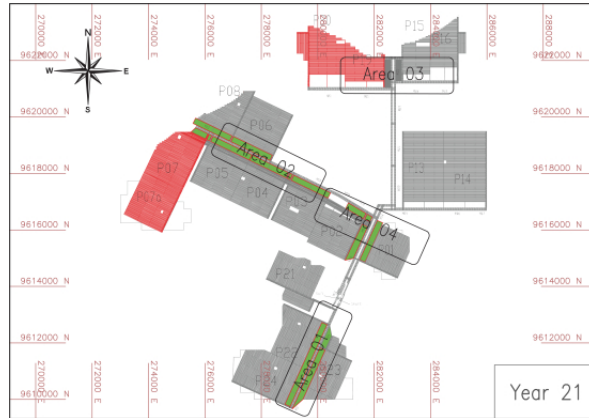


Figure 56 Start of mains on retreat with ramp-down of panel productions

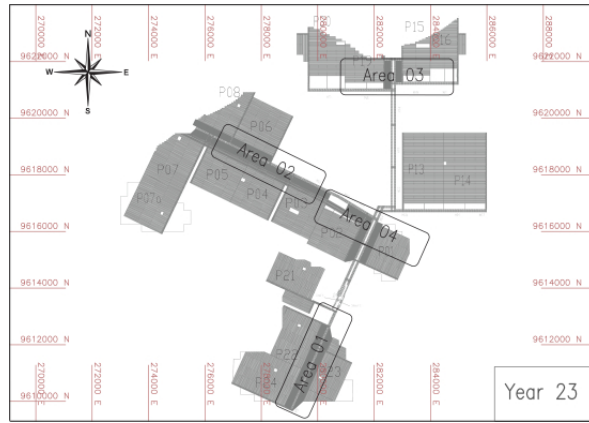


Figure 57 Wind down and completion of retreat mining, end of LOM

Figure 58 and Figure 59 show the schedules for the annual LOM plan scheduled tonnage and annual LOM average KC1% grade.

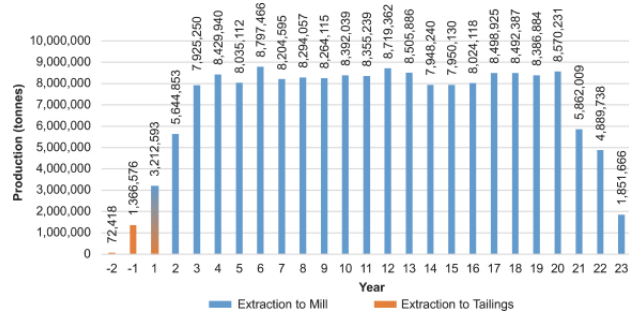


Figure 58 Annual life of mine schedule tonnages

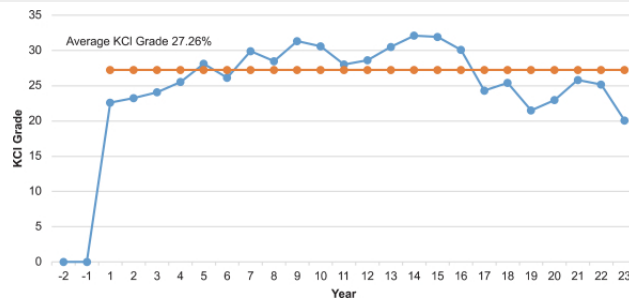


Figure 59 Annual life of mine average KCI% grade

13.5.4 Grade Control

The sylvinite ore color is similar to the upper and lower Halite color. Operators will not be able to differentiate ore and waste visually. The clay horizon is widely distributed throughout the deposit and classified as impure dark halite. In most of the mineralized holes the contact that this horizon has with the potassium layer is sharp. In certain exceptions, the sylvinite seam comes into contact with a white to brown halite containing high sulfate content. Due to the variability, it is recommended that K40 sensors be installed on the cutter head of the continuous miner, which will supply information to a readout alerting the operator to the contact between ore and waste. This will cause some out of seam dilution (OSD). The lower halite will also be mined to obtain the minimum mining height causing more dilution. OSD is explained further in Section 12.

A potential factor for increased dilution and thus reduced grade quality is the clay seams in the roof. The intermittent clay seams provide a weaker layer which might cause slabbing from the roof. Various methods have been included to reduce this risk. Section 13.2 includes additional information on the clay seams and methods for mitigation.

Material will be sampled from the mainline belt underground. Samples will be analyzed by a laboratory to ensure compliance to mill feed requirements.

13.6 Mine Equipment and Infrastructure

Equipment and infrastructure were chosen based primarily on mine characteristics and ventilation requirements.

13.6.1 Equipment Selection

The primary piece of production equipment recommended for the underground panels is a continuous miner (CM). The CM cuts the material and loads it into a haulage unit or conveyor belt. The sylvinite seam thickness varies significantly throughout the mine; a drum-type continuous miner provides the required flexibility, while maintaining a high production rate. A CM with the required flexibility of a cutting height ranging from 1.3 m to 3.4 m is recommended for the panels. For the mains development a heavier and higher powered model is recommended to achieve the average cutting height of 3.5 m.

Batch haulage is used in the development of mains due to the number of entries. Due to the layout of the mains and the congestion of equipment, shuttle cars were considered. The 20 tonne Joy 10SC32C shuttle car is sized appropriately to match the 14 HM 27 continuous miner, or equivalent. Continuous haulage is used in the panels.

A roof bolter recommended for main development is the Fletcher HDDR or equivalent. The HDDR is equipped with a platform that can reach the required 3.5 m height and has a twin boom, which is necessary for the bolting pattern. A smaller single boom roof bolter is recommended for spot bolting in the production panels. It is a single boom model that will fit into the minimum height rooms.

13.6.2 Equipment Assembly, Maintenance and Repair

All mine equipment will be subject to a preventative maintenance schedule to achieve required equipment availability targets. A dedicated maintenance team will perform all scheduled work for one hour per operating shift and during maintenance downtimes for two to three shifts per week. The maintenance team will also be responsible to diagnose any unscheduled equipment breakdowns.

The equipment will be Owner operated and leased to own. Details associated to cost assumptions can be found in Chapter 18. The rebuilds for the equipment will be done on-site and underground by the maintenance staff.

13.6.3 Mining Section Equipment

The development and production equipment required for each section is listed in Table 57. The three section setups utilize the equipment selected as described in Section 13.6.1.

Continuous miners (CMs) will be used at the production face to cut the ore. They will also load the material into a haulage unit – shuttle cars in the mains or continuous haulage in the panels.

Feeder breakers have been included for main development to crush the ore into 150 mm minus material prior to transfer to the belt; however, continuous haulage includes a breaker car and negates the need for feeder breakers in the panels.

Skid mounted section power centers will provide power at the necessary voltage. One will be required for a single CM section and two required for a super-section.

Miscellaneous fans will be used to control intake and return air in the working section.

Section 13.4.1 'Main Development' (Figure 42, Figure 43) and Section 13.4.2 'Production Panels' (Figure 44, Figure 45, Figure 46, Figure 47 and Figure 48) provide diagrams of a typical section set-up.

Table 57 Equipment quantities for panel production and main development

Type	Panel Production	Main Development (Single CM)	Main Development (Supersection)
Drum-type continuous miner (CM)	1	1	2
Shuttle cars	0	2	4
Continuous haulage	1	0	0
Feeder breaker	0	1	2
Roof bolter	0	1	2
Scoop	1	1	1
Power center	1	1	2
Auxiliary fan	2	2	3
Force fan	1	1	2

13.6.4 Auxiliary Equipment

Auxiliary equipment includes machines such as scoops, personnel carriers, trailers, and miscellaneous small utility equipment. Diesel equipment was not considered for this mine, at the request of BPC. The ventilation design considers the use of recirculated air, making the design less complicated and thus reducing ventilation costs. All equipment is electric/battery powered.

13.6.5 Quarterly/Annual Equipment List

A quarterly and annual sequenced equipment list is provided in.

13.6.6 Ventilation Equipment

Cooling, as well as an elevated ventilation system, is required to provide a compliant atmosphere for operations. This requires a surface refrigeration plant to cool water, which is then piped to both a surface and underground bulk air cooling stations (BAC). These underground BAC positions also serve as recirculation stations to a surface bulk air cooler or underground to bulk air coolers. A surface BAC station is required with a series of fans located on the surface and underground to move the cold air through the mine. Table 58, Table 59, Table 60, Figure 57 and Table 62 present the required ventilation equipment.

Table 58 Surface refrigeration plant and BAC

Surface Refrigeration Plant and BAC			
Category	Quantity		
	Room No. 1 and BAC	Room No. 2	Room No. 3
Surface bulk air cooler (BAC)	1		

Surface Refrigeration Plant and BAC			
Category	Quantity		
	Room No. 1 and BAC	Room No. 2	Room No. 3
Surface BAC fans	4		
Refrigeration machines	4	4	4
Condenser cooling tower	4	4	4
Evaporator pumps	3	2	2
Respray pumps	2		
Condenser pumps	5	5	5

Table 59 Surface cooling tanks

Surface Cooling Tanks	Quantity
Warm water return	1
Chilled water feed	1
Warm water holding	2

Table 60 Underground BAC and recirculation station

Underground BAC and Recirculation Stations	Quantity per Station
Respray pumps	4
BAC fans	4
Pressure reducing station	1
Return pumps	2
Spillage sump pumps	1

Table 61 Section fans

Section Fans	Type	Quantity per Section	
UG auxiliary fans	Panel: First room	Dual 75kW exhaust fan	2
	Panel: Remaining rooms	Dual 45kW exhaust fan	2
	Main: Single CM	Single 45kW exhaust fan	2
	Main: Super-section	Single 75kW exhaust fan	1
	Backfill	Dual 45kW exhaust fan	2
UG force fans	Single 22kW blower fan	1	

Table 62 Main pump station

Main Pump Station	Type	Quantity
High pressure warm water pump	VSD	2
	DOL	4
Sump pumps		2
Warm water return tanks		2

13.6.7 Conveyance

The ore will be conveyed to the shaft storage silo via a series of room, panel, and mainline belts.

Transfer points between mainline belts will be spaced approximately every 1,500 m. The drive assembly chosen could be used as a "tripper" or "booster" drive but has been assumed as an individual drive for conveyor transfers. Table 63 presents the conveyor parameters.

Table 63 Conveyor Parameters

Parameter	Mainline Belt	Panel Belt	Room Belt
Belt width, mm	1,600	1,000	1,000
Belt speed, m/s	2.9	2.5	2.5
Percent loaded, % (per CEMA)	86	81	81
Power, kW	300, 400, 600, 800	300, 400	300, 400
Belt storage unit, m of belt	NA	317	317
	Alan Bradley PLC Control System		
	VFD, Specialized for Potash		
	Electric Winch Take-up		

Due to the use of air recirculation for ventilation, the requirements for fire prevention and detection are enhanced. Several parameters will be measured along the length of the belt. These include, but are not limited, to the following:

- Belt slip detection;
- Belt alignment devices;
- Belt arrestors;
- Pulley bearing temperature;
- General fire and smoke detection.

Mainline and panel beltlines will be located in return airways. The temperature of the return airways limits personnel access; therefore, remote monitoring of conveyors will be required. Temporary air changes will be required for extensive work personnel access.

13.6.8 Dry Backfill

To minimize dilution, some mains waste material will be dry backfilled into panels. This will be done via a temporary conveyor belt from the mains to the panel. A belt storage unit will be used for belt take-up and the belt will retreat as the backfilled room becomes full. An underground stacker will distribute the material to obtain a fill factor of at least 50% of each room.

13.6.9 Safety Equipment

Portable refuge chambers will be stationed at all working sections. These units are fitted with an air filtration system and backup air supply.

Self-contained self-rescuers (SCSR) will be issued to all personnel. Additional SCSR caches will be stored underground.

Atmospheric monitoring will be included in travelways and beltlines, as well as strategically placed in intake and return airways.

13.6.10 Underground Communication and Tracking

Fiber optic cable will be installed throughout the mine. Wi-Fi access points will be located throughout main travelways and in active mining or backfilling sections. These access points will read personnel and equipment Radio-frequency identification (RFID) tags and provide real-time tracking of people and machines.

Hand-held mobile phones will utilize the same Wi-Fi access points, creating a network of communication underground.

Traditional phone lines and strategically placed telephones will also be installed as a secondary communication network.

13.6.11 Electrical Infrastructure

Electrical power cables will be installed during mining advancement. A system of power centers, switches, and distribution boxes will provide power to equipment at the correct voltage.

The underground electrical distribution system is designed to distribute up to 60 MVA to underground loads. Loads are located a maximum drift length from the shaft of 19.5 km. The underground utilization voltages are 4.16 and 0.48 KV. A distribution voltage of 34.5kV was selected for the following reasons:

- 13.8 kV is not practical given forecasted power requirement and distance to distant underground substations;
- It results in a significantly reduced number of power distribution cables as compared to 13.8 kV which improves system stability;
- The small physical space occupied by modern 34.5 kV GIS switchgear compared to non-GIS switchgear makes it feasible to use 34.5 kV GIS equipment underground;
- 34.5 kV matches the 34.5 kV power distribution used on the surface;
- 34.5 kV is more commonly distributed in Brazil.

A full load list for underground mining, ventilation and backfill items can be found in APPENDIX 16, alongside the equipment and manpower lists.

13.6.12 Other Infrastructure

Wet salt and potash can become electrically conductive; therefore, the mining equipment and conveyor transfer points will use dry chemical fire suppression systems. Water use for mining operations will be minimal. A water tank will be located near the shaft and will supply water for workshop and construction needs. Potable water will be piped down the shaft and stored in a tank near the shaft.

The quantity of water in the sylvinitic and halite seams is unknown. Potash mines are typically dry and minimal dewatering has been assumed; although, an allowance has been included for a dewatering pump station in the event significant water is encountered.

Insulated chilled water pipelines will be installed during mine advancement from the shaft area to the underground BAC stations. Return lines for BAC warm water will also be installed during mine advancement.

Slurry pipe and brine return pipes for backfill operations will be installed throughout the mine.

Compressed air lines will not be required. Any requirement for compressed air will be supplied by local electric air compressors.

A high resistance grounding system (HRG) will be used underground with a dedicated neutral-grounding resistor (NGR) continuity monitor. This will allow for the underground operations to be safe and reliable. The ground fault voltage will be limited dependent on the length of the cabling used throughout the mine.

13.7 Personnel Requirement

BPC's mining operation management philosophy will be to initially recruit Vale Taquari-Vassouras experienced operators and managers to develop the local labor force, as this potash mine is slated to close around 2026. If necessary, expats could be recruited for training. There will, however, be a learning curve at the beginning of mining due to the project being the first of its kind in the region.

It is anticipated that all operators and maintenance personnel will require training from a third party for this initial learning curve. Details on the training allocations and the effect on productivities can be found in Section 13.5.2.

Due to the Brazil mining regulations limiting underground hours per day to 6 hours, personnel requirements for the mine are based on a three to four shift underground mining system. Five production crews will be used, and one additional crew solely for maintenance. Salaried personnel, such as senior management and engineering staff, will work five days a week.

Production crew manpower requirements are directly linked to the number of miners operating at one point in time and can change considerably over the life of the mine.

13.7.1 Crew Schedule

Figure 60 presents the production and maintenance crew schedules for a four week time frame.

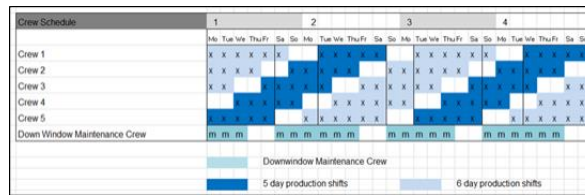


Figure 60 Crew schedule

The production crew schedule considers the following assumptions:

- Staggered five and six day work weeks per crew;
 - Five production crews;
 - Three to four shifts per day;
 - Scheduled maintenance one hour per production shift
- and
- Personnel days off change every two weeks by one day.

The maintenance crew consists of mechanics and electricians, who perform maintenance and repairs on major production equipment and fill the downtime window on three shift production days as a fourth shift. Major repairs will be performed during the production down windows.

13.7.2 Personnel List

Table 64 presents the maximum underground mining personnel requirements in a certain year. APPENDIX 16 shows more detail for the yearly underground mining manpower requirements.

Training personnel have been considered at the start of mining operations.

Table 64 Manpower list maximum

Manpower List and Salaries	Per CM Section	Per Shift	Max per Period
Management and Supervision			
Mine Superintendent			1
Mine admin Assistant/Clerk			1
Mine Production Foreman			1
Shift Boss		2	10
Section Foreman	0.33	4	20
Maintenance General Foreman			1
Electrical Foreman			1
Mechanical Foreman			1
Maintenance Shift Supervisor			5
Maintenance Planner/Clerk			2
Mine Safety Coordinator			1
Mine Training Coordinator			2
Mine Trainers			8
Control Room Operator		1	5
Engineering			
Chief Mining Engineer			1
Mine Planning Engineer			1
Mine Production Engineer			1

Manpower List and Salaries	Per CM Section	Per Shift	Max per Period
Rock Mechanics Engineer			1
Ventilation Engineer			1
Mechanical Engineer			1
Electrical Engineer			1
Mine Surveyor			2
Surveyor Assistant			2
Mine Technician			4
Geologist			1
Grade Geologist			1
Panel Production			
CM Operator	1	8	40
Haulage Operator	2	16	80
Support/Utility	2	16	80
Development Production			
CM Operator	1	6	30
Miner Helper	1	6	30
Haulage Operator	2	12	60
Roof Bolt Operator	2	8	60
Mine Maintenance			
Shift Mechanic (Production)		3	15
Shift Electrician (Production)		1	5
Maintenance Crew Mechanic (Production)		4	20
Maintenance Crew Electrician (Production)		2	10
Shift Mechanic (Auxiliary)		2	10
Shift Electrician (Vent and Hoist)			2
Construction Electrician			4
Construction Electrician Helper			4
Machinist/ Millright			3
Welder			6
Mechanic (workshop)			10
Electrician (workshop)			6
Mine Auxiliary			
Auxiliary Equipment Operator		3	15
Backfill			
Backfill Crew		3	15
Conveyance			
Utility Worker		4	20
Construction Worker			116

13.8 Backfill

Backfilling is advisable for tailings management to decrease or to avoid solid process residues remaining on the surface after mine closure. In addition, backfilling ensures more favorable conditions in terms of geomechanical stability and allows mining subsidence to be decreased and/or the extraction ratio of mined panels to be increased significantly. ERCOSPLAN's backfill concept for the Autazes Potash Project was adapted to suit the mine plan developed.

13.8.1 Overview of Backfill Methods

Backfilling can be conducted using a dry, slurry or paste method.

For slurry backfill, the solid residues from processing (mainly rock salt, minor amounts of insolubles) will first be mixed at the surface with transportation brine in an agitated tank and then hydraulically transported via pipelines through the mine shaft and horizontal drifts to the backfill areas.

The slurry backfill mixture streams into the cavity, where the solid residues separate from the transportation brine. Meanwhile, the solid residues settle in the cavity and the brine flows through permeable dams to the brine collection pond. The brine will be transported back to the shafts via pipelines (brine riser) to the main pumping station and then to the surface, where it will be cyclically used in the slurry process. Part of the brine remains in the deposited residues; therefore, a certain volume of extra brine should be permanently involved in the cycle.

For the dry backfill method, the residues are transported from the surface down to the mine in a closed pipeline (vertical pipes in shafts). Afterwards, material can be delivered under a certain pressure to the cavity where it will be stowed or transported by conveyers, which is more common for flat deposits. Using different types of loaders, the residues will be packed in the respective cavities. The current state of backfilling technology confirms that dry backfilling has very high transportation expenditures and low density of backfilled mass; hence, this method is not considered optimal and has been eliminated.

In paste backfill, a special preparation plant should be installed to enable viscosity and density control as well as minimize the amount of brine placed underground during backfilling. Once tailings have been prepared, material flows through a vertical pipeline underground. Depending on the rate of flow and required transportation distance, an underground pumping station may be required to ensure sufficient pressure through the horizontal piping system that distributes the paste backfill to excavated panels where the residues are.

Dams are used to contain the residues in the excavated panels. There is no significant volume of brine that needs to be pumped back to surface for reuse.

An evaluation has been completed for the slurry and paste techniques, where they have been ranked by technical complexity and expenditures for various stages involved in the backfilling method. A higher ranking means that it is more ideal, whereas a lower ranking is less ideal. Table 65 presents a comparison of slurry backfilling and paste backfilling.

Table 65 Slurry and paste backfilling comparison

Item	Slurry Backfilling		Paste Backfilling	
	Expenditures	Technical Complexity	Expenditures	Technical Complexity
Preparation of backfill material	Medium (3)	Low (4)	High (2)	Medium (3)
Backfill material transportation system (vertical and horizontal)	Low (4)	Low (4)	High (2)	Very high (1)
Room filling technique	High (2)	Low (4)	Very high (1)	Low (4)
Dewatering and brine collection/transportation	Very high (1)	Low (4)	Low (4)	Low (4)
Achievement of higher density to enable disposal of a bigger amount of residues	Medium (3)	Low (4)	Medium (3)	High (2)
Rock mechanical stabilization/secondary extraction	Low (4)	Medium (3)	Low (4)	Medium (3)
Subtotal	17	23	16	17
TOTAL	40		33	

The results of the preliminary comparison demonstrate that expenditures and technical complexity/risks are lower for slurry backfilling than for the paste backfilling technology.

Based on the provided comparison, the slurry backfilling technology has been selected for engineering work by ERCOSPLAN, because it is a proven technology for the large capacity required by the Autazes Potash Project (more than 3 MTPA) and can ensure project development with lower technical and economic risks.

13.8.2 Technical Parameters for Backfill Operations

The purpose of the backfill system is to dispose of solid residues from the processing plant and for this, certain input parameters are required. According to these design factors, the dimensioning of the system is carried out.

The most important design criteria, which were developed based on the input data, are provided in this chapter. The full set of design criteria can be found in APPENDIX 19.

The operating schedule for the backfill system (processing plant and mine) has the following parameters:

- Operating days per year: 365;
- Operating days per week: 7;
- Operating shifts per day: 4;
- Production hours per shift: 6;
- Production hours per day: 24;
- Production hours per year: 7,620 (the remaining time is planned for maintenance and repairs).

The chemical composition of the slurry is shown in Table 66.

Table 66 Chemical composition of the slurry

Component	KCl	NaCl	Na ₂ SO ₄	MgCl ₂	MgSO ₄	CaSO ₄	K ₂ SO ₄	Insol.	H ₂ O	Total
Solids (Mass %)	2.31	79.89	0.00	0.00	1.23	9.22	1.79	5.19	0.37	100.00
Brine (Mass %)	13.35	15.13	0.01	0.00	0.60	0.07	0.00	0.00	70.85	100.00
Suspension (Mass %)	8.14	45.69	0.00	0.00	0.90	4.39	0.84	2.45	37.59	100.00
Density brine (t/m ³)					1.2					
Density solids (t/m ³)					2.2					
Density slurry (t/m ³)					1.5					
Temperature (°C)					30-50°C					

The backfill schedule follows the mine plan Revision 7. It has to be stated that only a certain amount of process residues can be handled.

Solid residues dry base (excluding 10% of residual moisture/adherent brine):

- Approximately 260 t/h solid material (first 13 years of processing plant operation);
- Approximately 520 t/h solid material (from year 14 of processing plant operation).

Brine for mixing unit:

- Approximately 209 m³/h brine (first 13 years of processing plant operation);
- Approximately 418 m³/h brine (after year 14 of processing plant operation).

Slurry for backfill:

- 348 m³/h slurry (first 13 years of processing plant operation);
- Approximately 696 m³/h slurry (after year 14 of processing plant operation).

The mass balance of the backfilling surface plant for preparation of slurry material is presented in Table 67.

Table 67 Mass balance of backfilling surface plant for preparation of slurry material (after year 14)

	Mass	Volume	Density
--	------	--------	---------

	Solid Waste (Dry)	Brine	Subtotal	Solid Waste (Dry/Particles)	Brine	Subtotal	
	[t/h]			[m ³ /h]			[t/m ³]
Solid residues	520	58	578	232	46	278	2.24
Liquid residues	0	524	524	0	418	418	1.20
Total in slurry	520	582	1,102	240	479	696	1.54

The backfilling operation follows the mine plan as closely as possible. In general, backfilling in a panel starts in the year following the completion of extraction operations in that panel.

Table 68 presents a summary of the available underground volumes.

Table 68 Summary of available underground volumes

Panel ID (According Mine Plan Revision 7)	Available Underground Volume [m ³]
P01	1,811,925
P02	2,007,169
P03	2,023,122
P04	3,503,687
P05	3,569,108
P06	2,567,703
P07	2,040,869
P08	1,822,239
P13	4,038,682
P14	5,163,294
P15	1,854,131
P16	2,646,885
P19	2,142,139
P20	2,179,686
P21	1,412,366
P22	1,455,892
P23	1,246,722
P24	1,523,180
Drifts (P02,P03,P04,P05,P07)	990,818
TOTAL	43,107,881

13.8.3 Backfill Design

The chosen backfilling method requires a technical design that includes a backfill plant on the surface and several facilities in the underground. The general technological concept for the backfilling system is illustrated in the process flow diagram, which is presented in APPENDIX 19. The solid tailings are transported from the processing plant to the backfilling plant with a belt conveyor. At the initial stage, for the preparation of slurry material, solid residues are mixed with residual brine from the processing plant. At a later stage, the brine sent to the mixing unit is supplied from the underground main brine pump station. The slurry material is prepared from the solids and brine in the mixing unit. Afterwards, slurry material will be transported through shaft slurry pipes and then flow in the horizontal main and panel slurry pipes to backfill operating zones in rooms mined out panels.

During the period of full production of the backfilling system, backfilling operations are carried out in four panels, but backfilling itself is carried out simultaneously in two panels. At this time, the other two panels are in preparation. Such an approach ensures a continuous backfilling operation, taking into account time required for the construction of dams, pipe flushing and the dewatering of backfill mass. In the rooms, solid particles settle down and form a backfilling

mass. Brine then flows out due to gravity into the brine collection drift and dewatering channels, and then into the panel brine reservoir. From the panel reservoir, brine will be pumped using the panel pumps to the main pump station close to the shafts and then to the surface backfilling plant to be recirculated. After the completion of each backfilling cycle, the entire slurry pipeline should be flushed.

13.8.3.1 Productivity

Following the underground extraction schedule and availability of the underground panels, the backfilling system will be implemented in two phases, with values provided in Table 69.

Table 69 Productivity of the backfilling system

Project	Years	Slurry Productivity		Solid Tailings (Dry Basis)
		[t/h]	[m ³ /h]	[t/h]
Phase I	1-13	551	348	260
Phase II	14-23	1,102	696	520

13.8.3.2 Layout and Construction

Backfilling operations follow available/extracted panels in accordance with the mining schedule. Technical details of the backfill plant are presented in APPENDIX 19.

The solid residues from the process plant that shall be utilized for the backfilling of underground mine cavities are transported continuously to agitated mixing vessels R01 and R02 of the surface backfill plant. These details of the backfill plant are presented in APPENDIX 19. Here, the tailings are mixed at an approximate ratio of 1:1 by weight with brine that is sent by pumps P04 and P05 (P06 – redundant) from brine vessels B01 and B02, where brine from the processing plant, recirculated brine and rinsing liquid from backfilling underground are buffered. Since the brine is expected to be almost free of solids, brine vessels B01 and B02 are not equipped with agitators.

Afterwards, the suspension is transported from agitated mixing vessels with slurry pumps P01 and P02 (P03 – redundancy) via the redundantly designed underground backfill pipeline, as conveyable slurry for backfilling, to the prepared panel rooms where it is distributed. After dewatering of the slurry in the rooms, the collected brine is sent back to the surface (refer to Drawing A002 in APPENDIX 19) and re-used for the preparation of slurry.

During the backfill process, surplus brine occasionally accrues and must be disposed of intermittently from the backfill process using pump P07 (P08 – reserve) or pump P08 (P07 – reserve).

During the first 13 years of backfill operation, the capacity is reduced; therefore, only certain equipment is required. The backfill system is designed for future years of full production, starting mid-life due to the limited number of mined out panels available for starting the backfilling operation during the first half of the mine life. During the backfill period, besides the agitated mixing vessels R01 and R02, brine vessels B01 and B02, as well as P01 and P02 are also operated continuously in parallel.

Due to process-related reconstruction/modification of the pipeline system in the mine, pumps P004 and P005 are operated intermittently.

Since surplus brine accrues occasionally from backfilling, pumps P07 and P08 are also operated intermittently.

The backfill system is designed for full capacity of 696 m³/h (cf. Section 13.8.2). This is also applied for the construction of the backfill plant building.

The LOM backfill schedule is presented in Figure 61.

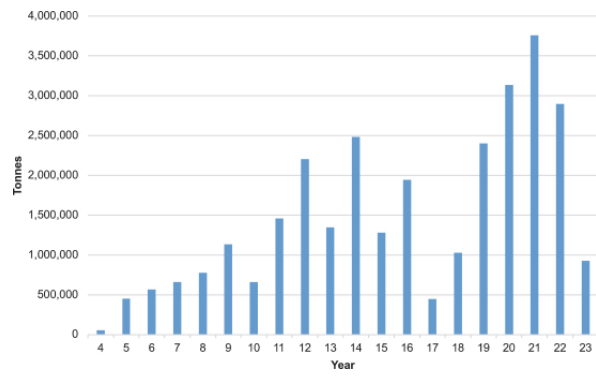


Figure 61 LOM backfill schedule

13.8.3.3 Underground Process

The main operations for the panel backfill technology are depicted in Drawing B003 and Drawing B004 in and can be summarized as follows:

- Preparation of the panels and panel pump station;
- Installation of piping equipment and dams in the rooms;
- Slurry supply into rooms and advance of filtration; and
- Dewatering of backfill and brine pumping.

Operation for panel preparation can be summarized as follows:

- Panel safety works (scaling, bolting, etc.);
- Pipes support installation;
- Drilling of backfilling holes; and
- Preparation of dewatering system.

To maximize the filling ratio, the following measures have been considered:

- Reduction of the distance between stoppage/filtration dams to the minimum feasible distance:
 - 30 m in rooms with heights lower than 1.8 m;
 - 50 m in rooms higher than 1.8 m.
- Backfilling operations will be performed simultaneously in two operating zones with three parallel drifts in each zone. The central drift in each operating zone will be equipped with slurry pipes and two adjacent drifts will be filled through the holes, which should be drilled through pillars to the top of the two adjacent rooms (refer to Drawing B003 in APPENDIX 19). Such an approach also enables sustainable operation due the longer availability of backfilling time from one backfilling point and decreases the time for pipe installation.
- Direction of the backfilling operations is started from the side of the room with lower elevation in order to make use of the inclination of drifts to maximize the backfilling ratio.

As soon as backfilling starts in two operating zones, the preparation of the next operating zones in the panel should be started with following works:

- Installation of pipe support;
- Drilling of holes to next rooms;
- Construction of filtration dams at the beginning of each room; and
- Reassembly of slurry pipes.

Together with backfilling operations, the stoppage dam should be constructed (retreat direction) and pipeline shortened. Required materials for dam construction and the pipe support system are shown in Drawing B003 in APPENDIX 19. The backfilling process in one operating zone can be alternated between three rooms to enable continuous backfilling in case of problematic dewatering.

The main requirement of the backfilling process for the Autazes Potash Project is to reach the highest possible filling ratio in order to store as much solid residues in the underground voids as possible. More detail on the filling ratios can be found in the full backfill report prepared by ERCOSPLAN, which is presented in APPENDIX 19.

13.8.3.4 General Arrangement

The general arrangement of underground backfilling system is provided in APPENDIX 19, Drawing B002 (WorleyParsons, 2016, /57/).

The main components of the underground slurry backfilling systems are as follows:

- Slurry transportation system;
- Panel pump station;
- Return brine transportation;
- Main pump station; and
- Pumping of return brine to the surface.

13.8.4 Conclusions

Based on the input data regarding mine planning and processing residues, ERCOSPLAN has developed a backfilling system for the Autazes Potash Project using slurry backfill technology. Backfilling technology in potash mining has several specific requirements and general conditions that make backfilling in potash mines completely different from the backfilling technology in the mining industry of other commodities. One of the most significant of these specific requirements and general conditions is that no drilling of backfill holes from the surface down to the potash horizon is possible due to the high flooding risk. Another is that potash is mostly mined in thin or moderately thin layers with complicated geotechnical conditions.

In general, from the technical point of view, slurry backfilling technology can be applied to the Autazes Potash Project and significant amounts of solid residues from the processing plant can be backfilled into the underground voids.

Further iterations of the mine plan in the future should consider the potential re-orientation of some of the panels to assist in optimizing the void filling ratio. Additional recommendations and details are found within ERCOSPLAN's backfilling report (2016), which is presented in APPENDIX 19 (WorleyParsons, 2016, /57/).

13.9 Mine Ventilation

The ventilation and cooling requirements for the Autazes potash deposit in the Amazon Potash Basin have been examined. Bluhm Burton Engineering Pty (BBE) was contracted by BPC to carry out a detailed feasibility level study on the ventilation and cooling requirements of the project over the life of mine (LOM) (BBE, 2015, /6/).

The mine will include a main production shaft and a ventilation/services shaft. The shafts will be required to hoist approximately 8.5 million tonnes of potash annually from the production level 827.75 m below surface (BS) to the surface. The current anticipated life of mine is 23 years.

The full primary ventilation design was modelled in detail with the latest VUMA3D-network software. VUMA3D-network provides an interactive computer simulation of the heat flow and the ventilation system. The objective was to determine the level of ventilation and cooling required to not exceed the design temperature of 30°C wet bulb globe temperature (WBGT) when the CM is cutting (continuous light work) and 26.7°C WBGT when the CM is not cutting (continuous moderate work). The overall ventilation quantity is dictated by the need for dilution of heat from broken and surrounding rock.

The ventilation and cooling requirements are summarized in Table 70.

Table 70 Summarized ventilation and cooling requirements

Total Primary Airflow	1,415 kg/s
Primary air flow from surface	650 kg/s
Underground recirculation flow	815 kg/s
Surface refrigeration machines (installed process duty)	75 MWR
Surface bulk air cooler	25 MWR
Underground recirculation bulk air coolers (6 off)	30 MWR
Main fans 3 off	6 kPa
Main fan station installed power	5.1 MW
Auxiliary fans motor rating	3.7 MW
Chilled water sent underground	600 L/S
Underground cooling water pumps motor rating	11.0 MW

Main fans will be located on the surface and will exhaust via the ventilation shaft (upcast shaft). There will be three fan-motor sets installed with all three operating and no standby units.

Mine development and initial production can take place in the early years with only surface refrigeration and air cooling. The surface air cooling will be by means of a horizontal two-stage spray chamber type bulk air cooler with a nominal cooling duty of 25.0 MW; however, as production panels extend further from the shaft bottom, and the number of CM panels increases, underground air cooling will need to be introduced to maintain acceptable workplace temperatures. Later in the LOM, it will eventually be necessary to include controlled ventilation recirculation as part of the air ventilation and cooling systems. The underground air coolers will be in the form of horizontal three-stage spray chambers with nominal design duties of 5.0 MWR (total 30 MWR), but this may vary between the different locations.

The peak power profile indicates that some 40 MW of power will be required from about year 8. The peak make-up water demand is 56 l/s with a maximum system volume of 9,557 m³.

A more detailed ventilation report has been provided by BBE (BBE, 2015, /6/).

14 Processing and Recovery Methods

The requirements for ROM, mineralized material handling, KCl processing, and product storage and loadout are presented in this section. Table 71 presents the work breakdown structure (WBS) of each of the processing plant areas.

Table 71 Work breakdown structure – processing plant

Area	Description
3100	Raw material handling and crushing
3200	Wet process
3300	Dry process
3400	Product loadout
3500	Tailings processing
3600	Reagents
5000	Utilities
7200	Port

The metallurgical test work, and the results of the test work on the recovery of KCl, using the hot leaching and crystallization processing methods, is discussed in Chapter 10 'Mineral Processing and Metallurgical Testing'. In the following sections, the methodology for KCl recovery from the Autazes potash deposit is described including process flow diagrams (PFDs), presented in APPENDIX 20, as well piping and instrumentation diagrams in APPENDIX 21. This information, in conjunction with the processing plant general arrangement (GA) drawings and processing plant 3D models, plans and sections, presented in APPENDIX 22 establishes the basis of the Capital Cost Estimate (CAPEX) and Operating Cost Estimate (OPEX) defined in Chapter 18.

The diagrams, drawings and layouts presented in APPENDIX 20, APPENDIX 21, and APPENDIX 22 were mostly developed by Worley Parsons (WorleyParsons, 2016, /57/), (WorleyParsons and PdB, 2022, /59/) and after required adjustments executed by ERCOSPLAN verified for applying in current report.

14.1 KCl Process Design

14.1.1 Design Base Parameters

The Autazes potash processing plant has a nominal capacity to produce 2,160,000 t/a of granular potash product from the Autazes potash deposit. The nominal capacity is based on a mineralization grade of 27% KCl and 7,620 operating hours per year, with an average mining rate of 8,320,000 t/a. The nominal milling rate is 1,092 t/h through two production trains (e.g. 546 t/h per train). The mill operates 24 hours per day.

The main parameters for the process feed material and process output material are shown in following Table 72. The amount and composition for the feed and outputs is given as well as the balance of masses is proven.

Table 72 Amount and composition of main inputs and outputs of MOP production process

	KCl	NaCl	MgCl ₂	MgSO ₄	CaSO ₄	K ₂ SO ₄	Insol.	H ₂ O	Sum	[MTPA]
Ore feed to process										
[%]	27.26	61.17	0.01	0.63	6.35	1.24	3.18	0.15	100.00	
[t/h]	297.7	668.0	0.1	6.9	69.3	13.6	34.8	1.6	1,092.1	8.32
Net water input (theoretical)										
[%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	
[t/h]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.3	57.3	
MOP product										
[%]	95.40	4.10	0.00	0.03	0.00	0.00	0.16	0.31	100.00	
[t/h]	270.4	11.6	0.0	0.1	0.0	0.0	0.4	0.9	283.4	2.16
Wet solid process tailings										
[%]	3.16	75.80	0.02	0.78	8.01	1.57	3.96	6.70	100.00	
[t/h]	27.4	656.4	0.1	6.8	69.3	13.6	34.3	58.0	866.0	6.60

	KCl	NaCl	MgCl ₂	MgSO ₄	CaSO ₄	K ₂ SO ₄	Insol.	H ₂ O	Sum	[MTPA]
Mass balance										
[t/h]	0	0	0	0	0	0	0	0	0	

The processing plant design criteria for the Autazes potash processing plant is based on the following parameters:

- The process design is engineered as inherently safe and compliant with standard industry practices and legal, regulatory, health and safety requirements established by local authorities to maintain a sustainable operation and minimize the risk to the environment, employees, health and safety and the community;
- Safety features in the processing plant design include:
 - Sump pumps;
 - Dust control system;
 - Fire protection system;
 - Safety shower and eyewash stations permanently connected to a source of potable water;
- The design is based on a 23 year processing plant life at the nominated operating conditions;
- The ROM material is processed by crushing, hot leaching, crystallization and compaction to produce a high-quality granular potash product;
- The design factors for each area are presented in Table 73;
- The hot leach and crystallization circuits are based on proven experience with widely accepted potash processing methods and proven equipment selection;
- The processing plant operating schedule is based on 93.9% equipment utilization operating for 7,620 h/a;
- Equipment selection is based on achieving nominal processing plant capacity, consistent product quality (granular KCl) and low capital and operating costs;
- The KCl processing circuit, from crushing to product loadout, will be comprised of two operating trains (Trains A and B) to maximize plant utilization;
- Test work for hot leaching, crystallization and hot leach residues has been completed; test results described in Chapter 10;
- Installed spare pumps are available for critical applications;
- Sufficient buffer capacity between the mine and the processing plant has been provided by utilizing emergency ROM and crushed material stockpiles, with provisions for future increases in ROM material storage capacity;
- Standardized equipment selections have been made, where possible, to minimize the spare parts inventory;
- Equipment selection, plant layout and design is based on "fit for purpose" approach with low CAPEX and OPEX.

The tailings management area and deep well brine injection in Area 4000 have been designed and estimated to an AACE Class 4 estimate.

Table 73 Design factors

Area	Description	Design Factor
3100	Raw material and crushing	115%
3200	Wet process	115%
3300	Dry process (excluding dryers)	100%
3300	Dry process (dryers and dryer/cooler only) ¹⁶	120%
3400	Product loadout	100%
3500	Tailings processing	115%
3600	Reagents	115%
5000	Utilities	115%

Annual potash production for each of the 23 years of mine life is presented in Figure 62.

¹⁶ 20% design factor added for dryers based on recommendation from dryers' vendor.

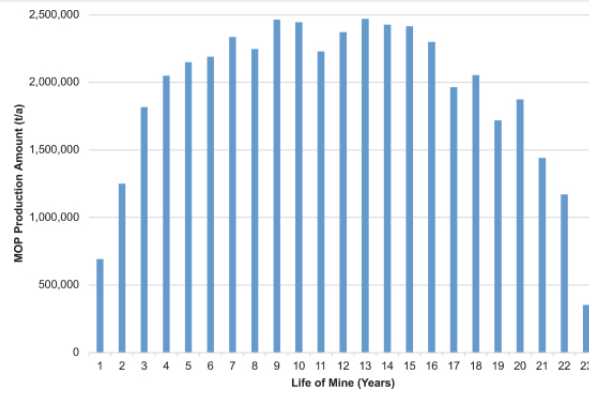


Figure 62 Annual MOP production over life of mine

14.1.1.1 Process Design Criteria

The Autazes potash processing plant design and equipment selection is based on the parameters summarized in Table 74.

Table 74 Design criteria

	Units	Value	Source
Available annual operating days	d/a	365	
Downtime			
Summer shutdown	d/a	21	(WorleyParsons, 2016, /57/)
Unscheduled shutdown	d/a	6	
Available operating days	d/a	338	
Operating availability	%	93.9	
Plant utilization			
	d/a	317.4	(WorleyParsons, 2016, /57/)
	%	87.0	
Process losses			
Loss to tailings	%	9.2	(WorleyParsons, 2016, /57/)
Total wet process losses	%	9.2	(WorleyParsons, 2016, /57/)
KCl recovery to process dry side	%	90.8	Calculated
Average run-of-mine head grade	% KCl	27	Calculated
	% K ₂ O	17	Calculated
Potash product grade	% KCl	95	(WorleyParsons, 2016, /57/)
	% K ₂ O	60	Calculated
Processing plant feed	t/a (dry)	8,320,000	Calculated
	% KCl	27	
Processing plant production	t/a	2,160,000	Calculated
	% KCl	95	(WorleyParsons, 2016, /57/)

14.1.1.2 Product Mixing and Specification

The process design is based on producing 2,160,000 t/a granular product. The specification for the granular product size is presented in Table 75.

Table 75 Granular product specification (WorleyParsons, 2016, /57/)

Tyler Mesh	Opening	Value	Range
+3.7	6.0 mm	%	0-5

Tyler Mesh	Opening	Value	Range
+5	4.0 mm	%	20-40
+6	2.8 mm	%	40-70
+7	2.36 mm	%	65-85
+8	2.0 mm	%	85-98
+9	1.7 mm	%	95-100

The granular size distribution is equivalent to a product size guide number (SGN) of 262. Alternate size specifications can be produced through changes to the compaction screen cloth.

14.1.1.3 Surge Capacity and Loading

The storage and loading criteria established for the Autazes Potash Project are summarized in Table 76. Two surge piles are provided between the mine and the processing plant to account for mine maintenance downtime, causing pauses in hoisting. The emergency ROM stockpile is sized to accommodate three hours of production and the crushed material stockpile is sized to provide 24 hours of crushed material storage. Space has been provided in the layout to install a future ROM stockpile with five days of storage capacity, equivalent to 161,489 t (124,223 m³). The KCI loading facility has three days storage capacity, equivalent to 21,970 t (19,104 m³).

Table 76 ROM and loadout surge capacity

Storage	Units	Value	Source
Emergency ROM stockpile	Hoisting hours	3	(WorleyParsons, 2016, /57/)
	t	4,038	
	m ³	3,106	
Angle of repose	Degree	35	(WorleyParsons, 2016, /57/)
Moisture content	%	0.33	(WorleyParsons, 2016, /57/)
Bulk density	t/m ³	1.1-1.3	(WorleyParsons, 2016, /57/)
Crushed material stockpile	H	24	(WorleyParsons, 2016, /57/)
	t	30,884	
	m ³	23,757	
Angle of repose	degree	35	(WorleyParsons, 2016, /57/)
Moisture content	%	0.33	(WorleyParsons, 2016, /57/)
Bulk density	t/m ³	1.3	(WorleyParsons, 2016, /57/)
Potash product storage	day	3	(WorleyParsons, 2016, /57/)
	t	21,970	
	m ³	19,104	
Angle of repose	degree	32	(WorleyParsons, 2016, /57/)
Moisture content	%	0.30	(WorleyParsons, 2016, /57/)
Bulk density	t/m ³	1.04-1.2	(WorleyParsons, 2016, /57/)

14.1.1.4 Block Flow Diagram

A simplified block flow diagram of the process unit operations is shown in Figure 63.



Figure 63 Block flow diagram of MOP production process

14.1.2 Process Description

The following description outlines the major unit operations to produce 95% KCl granular product, based on the results of the mineralogical test work, design criteria and the assumptions presented in this report.

The six main unit operations for the production of 95% KCl granular product are as follows:

1. Area 3100 Primary Crushing
2. Area 3200 Wet Processing:
 - Hot leaching;
 - Loaded brine clarification;
 - Crystallization;
 - Product centrifuging;
3. Area 3300 Dry Processing:
 - Product drying;
 - Product compaction and glazing;
 - Screening;
 - Storage;
4. Area 3400 Product Handling and Storage:
 - Product storage;
 - Product conditioning;
 - Product loadout;
5. Area 3500 Tailing Management;
6. Area 3600 Reagents.

The processing plant is described in detail in the subsequent sections. Each unit operation is described along with corresponding process flow diagrams, which show each stage of process treatment and major equipment.

An overview of the plant layout is shown in Figure 64.

The project potash production schedule, including the volume of waste salt tailings, is presented in following Table 77.

Table 77 MOP product amount and tailings amount over mine of life

Life of Mine [year]	MOP Product [t]	Process Tailings [t]	Process Tailings [m ³]
1	691,865	2,709,821	1,693,638
2	1,249,935	4,722,192	2,951,370

3	1,817,281	6,558,381	4,098,988
4	2,049,725	6,842,339	4,276,462
5	2,149,151	6,298,026	3,936,266
6	2,189,693	7,082,687	4,426,679
7	2,336,418	6,268,295	3,917,684
8	2,248,605	6,466,405	4,041,503
9	2,463,119	6,188,058	3,867,536
10	2,445,622	6,347,559	3,967,224
11	2,229,296	6,555,220	4,097,013
12	2,373,792	6,786,671	4,241,670
13	2,471,084	6,442,508	4,026,567
14	2,427,788	5,884,167	3,677,605
15	2,416,721	5,898,904	3,686,815
16	2,299,865	6,113,412	3,820,883
17	1,965,686	7,013,804	4,383,627
18	2,053,699	6,905,866	4,316,166
19	1,718,230	7,175,096	4,484,435
20	1,874,608	7,195,860	4,497,413
21	1,441,610	4,739,384	2,962,115
22	1,170,986	3,989,414	2,493,384
23	354,126	1,613,021	1,008,138

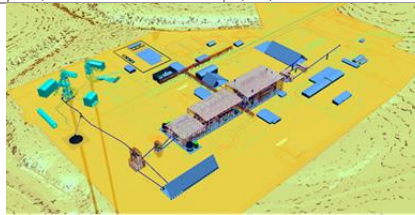


Figure 64 Plant layout overview

14.2 Area 3100 – Raw Material Handling and Primary Crushing

14.2.1 Run-Of-Mine Raw Material Handling

This area consists of:

- Headframe;
- Raw material storage bin.

The ROM material is hoisted from the underground mine to the surface using two double drum mineral winders. The skip operates at a nominal rate of 1,092 t/h and typically operates 20 h/d to allow for winder maintenance. When it reaches the surface, the production skip discharges the raw material into two 120 m³ surge bins. From here, a conveyor transports the raw material to a raw material belt conveyor chute, from where it is distributed either to the emergency ROM stockpile, or the raw material crushing facility.

As per BPC's instruction, a space has been allocated for the future development of five days of emergency ROM storage adjacent to the crushed material storage building with a capacity to hold 161,489 t (124,223 m³) of raw material.

14.2.2 Processing Plant Raw Material Handling

This area consists of:

- Feeders;
- Chutes;
- Metal extractor and metal detector;
- Belt conveyors;
- Emergency ROM stockpile;
- ROM stockpile bins;
- Front end loaders.

Raw material from the raw material belt conveyor chute drops through a diverter gate that diverts the raw material onto a conveyor that conveys it to the raw material crushing feed bins 1 and 2, each with a capacity to hold 172 m³ of raw material. Figure 65 shows the configuration of the raw material feed crushing bins 1 and 2.

A metal extractor is installed in the raw material diverter gate chute to remove magnetic debris that may contaminate the material and a metal detector is installed on the raw material storage conveyor to detect metallic materials missed by the metal extractor. The conveyor can be stopped for manual retrieval of metallic materials.

Alternatively, raw material may be routed to an uncovered 3,105 m³ conical emergency ROM stockpile, located southeast of the mine head frame. Figure 66 shows the configuration of the emergency ROM stockpile. The uncovered emergency ROM stockpile provides a three-hour buffer between the mine and the processing plant in the event that both of the mine hoists are down for maintenance.

The ROM material is recovered from the emergency ROM stockpile using two front end loaders, each with buckets capable of holding 24.5 m³ of material, and dumped into ROM stockpile bins 1 and 2 at a rate of 546 t/h, each. Each ROM stockpile bin has a capacity of 1,035 m³. Two feeders, in parallel, feed the ROM material to the raw material storage conveyor (tipper conveyor), which conveys the raw material to raw material crushing feed bins 1 and 2.

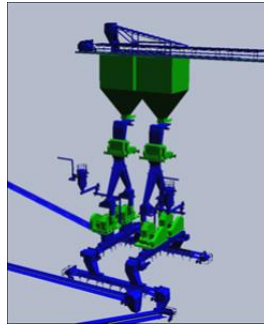


Figure 65 Raw material feed crushing bins 1 and 2

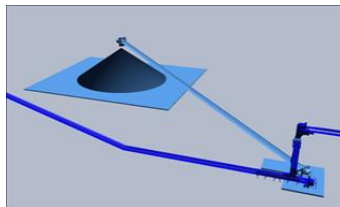


Figure 66 Emergency ROM stockpile

14.2.2.1 Area 3100 – Primary Crushing

The primary crushing area consists of:

- Raw material crushing feed bins;
- Feeders;
- Chutes;
- Belt conveyors;
- Raw material primary crushers;
- Diverter gates;
- Secondary crushers;
- Crushed material stockpile;
- Crushed ore reclaimer;
- Crushed material bins;
- Metal extractor and metal detector;
- Crushed material sample.

The raw material crushing feed bins 1 and 2 each have 172 m³ holding capacity. The raw material from crushing feed bins 1 and 2 discharges onto vibrating raw material feeders into a two-train (Train A and Train B) crushing circuit, each comprised of a primary crusher and two secondary crushers. The four roll primary crushers have 0.61 m diameter x 2.54 m width rolls and they reduce the material to a P80 of 45 mm from 200 mm at a nominal rate of 694 t/h. The crushed material from each primary crusher is conveyed to feeders that discharge into two 1.9 m diameter secondary crushers (cage mill crushers). The secondary crushers further reduce the material to 4 mm at a nominal rate of 347 t/h each.

An overview of the primary and secondary crushers is shown in Figure 67. The crushed material from each train is transported on a single conveyor to two crushed material bins (crushed material bins 2 and 3) that have a volume of 495 m³, which is equivalent to a one hour retention time, or to the crushed material stockpile, which offers up to 24 hours of crushed material storage in the event that the crushers are undergoing maintenance or to support process plant operation during shaft downtime or to smooth out mine throughput.

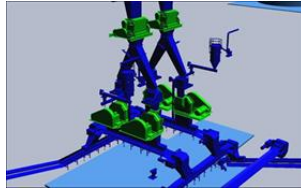


Figure 67 Primary and secondary crushers

Material from the crushed material stockpile is recovered using a portal frame reclaimer and crushed ore reclaim conveyor. The reclaim conveyor is also outfitted with a hopper which can be used in an emergency situation to reclaim material at reduced capacity from the crushed ore stockpile using a front-end loader. The material is dumped into a crushed material bin (crushed material bin 1) with 165 m³ of storage capacity. An overview of the crushed material stockpile is shown in Figure 68.

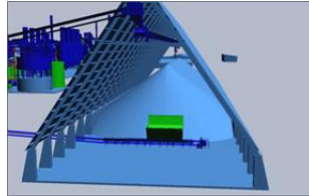


Figure 68 Crushed material stockpile

From here, the crushed material is conveyed to the hot leach circuit on belt conveyors. The conveyor belts feeding the hot leach circuit are equipped with a weightometer, a K40 analyzer, a metal detector and a crushed material sampler.

14.2.2.2 Area 3200 – Wet Processing

Hot Leaching

In the hot leaching facility, ROM material is combined with hot leaching brine to dissolve the contained KCl in a two-stage arrangement of cascaded agitated leaching tanks. The primary leach stage contains four leaching tanks connected in series, while the secondary leach stage contains two leaching tanks, also arranged in series.

The hot leach circuit consists of two identical trains, Train A and Train B. The description below applies to both trains.

Reheated mother liquor from KCl crystallization, which is undersaturated in terms of KCl, is used as leaching brine. After pre-warming in the mother liquor recycle heat exchangers (surface condensers and barometric condenser) using waste heat from the crystallization circuit, the brine is heated with steam to approximately 115°C in mother liquor heat exchangers.

While the solubility of KCl increases with increasing the temperature of the leaching brine, the solubility of NaCl only increases slightly as the leaching brine temperature is increased; therefore, the majority of the NaCl in the leaching tanks remains in the solid state. Since the Anhydrite (CaSO_4) and Polyhalite ($\text{K}_2\text{MgCa}_2[\text{SO}_4]_4\cdot 2\text{H}_2\text{O}$) contained in the material have very low solubility, the majority of these components also remain in the solid state. Other insoluble materials contained in the material remain in the solid residues.

ROM material is fed from the crushing circuit via belt conveyors to the first agitated leaching tank in the primary leach circuit. Hot leaching brine, at approximately 115°C, is also added into the first leach tank. The resulting slurry overflows the first leach tank and flows by gravity to the second, third and fourth agitated leach tanks. The majority of the KCl dissolves from the ROM material in the primary leach circuit.

Slurry discharged from the fourth primary leach tank overflows into a pump box and is pumped to a bank of primary hot leach cyclones. Cyclone overflow contains brine saturated with KCl and NaCl, along with soluble CaSO_4 and MgSO_4 and small amounts of undissolved solids. The cyclone overflow gravitates to a slime thickener (lamella type thickener) to remove the solids from the brine.

Primary hot leach cyclone underflow proceeds to the first leaching tank in the secondary leach circuit, where it is combined with cold mother liquor and fresh water. Since the KCl concentration in the mother liquor is below saturation, additional dissolution of the KCl solids occurs in the two secondary leach tanks, thereby increasing recovery.

Slurry discharged from the second secondary leach tank overflows into a pump box and is pumped to a bank of secondary hot leach cyclones. Secondary cyclone overflow is combined with mother liquor from crystallization, and filtrate from the tailings belt filter, and is heated to approximately 115°C in the mother liquor heat exchanger. The hot mother liquor is then added to the first leaching tank in the primary leach circuit as leaching brine.

Secondary hot leach cyclone underflow proceeds to, and is deposited onto, the tailings belt filter.

Filtered secondary leach solids (e.g. tailings) are conveyed to the tailings management area, which is described in Section 14.4.

Clarifying

The primary hot cyclone overflow from hot leaching is saturated with KCl and NaCl and also contains a certain amount of solid material, predominantly fine Anhydrite and water insoluble material. In order to feed clear brine to the crystallization circuit, these solids are separated from the primary hot cyclone overflow.

Solids are removed from the saturated brine solution in a lamella style slimes thickener. The thickener feed is flocculated and the solids settle to the bottom of the thickener and are removed in the thickener underflow stream. The thickener underflow stream is pumped to the tailings belt filter, where it is combined with the secondary hot leach cyclone underflow stream. The mixed tailings slurry is debrined and washed with water to displace KCl-laden brine on a belt filter with two stages of counter-current washing. Filtrate and washings recovered from the tailings belt filter are captured in the filtrate receiver and are pumped to a brine storage tank for distribution to the plant. Filtered solids from the tailings belt filter are transferred to the tailings management area by a series of conveyor belts and stackers.

The purpose of brine clarification is to prevent insoluble and hardly soluble material (e.g. Anhydrite) from entering the KCl crystallization circuit; because, these impurities cannot be removed by the addition of water and they could impair the quality of the final KCl product.

KCl Crystallization

The crystallization feed consists of the clarified brine from hot leaching and the underflow from the crystallization plant thickener. The underflow from the crystallization plant thickener contains very fine KCl crystals, which should be returned to the crystallization plant to grow to a recoverable size.

The hot crystallization feed brine is gradually cooled down to a final temperature of about 45°C using a seven-effect crystallizer cascade. Cooling is accomplished using low pressure evaporation. Water is evaporated by applying a vacuum and as a consequence, the brine cools down.

KCl crystallizes from the brine as a solid when the brine is cooled down in the crystallizer cascade, because the solubility of KCl is lower at lower temperatures. Since the solubility of NaCl is only slightly temperature-dependent, NaCl will not precipitate as the temperature is reduced; however, fresh water and the condensed vapors must be fed back to each respective crystallization stage to prevent NaCl precipitation due to reduced water volume.

The underflow of the seventh crystallizer stage is sent for de-brining in cyclones and centrifuges to reduce the amount of adherent brine from the solid KCl before it is fed into a rotary dryer.

The generated vapors from the fifth, sixth and seventh stages of crystallization are condensed by means of cooling water within mixing condensers. The vapors from the second and third stages are condensed within surface condensers. Here, cold mother liquor is used as cooling medium. The fourth stage of crystallization requires both surface and mixing condensers. The second crystallizer additionally requires cooling water for an auxiliary surface condenser, since the amount of vapor is too large to be condensed by mother liquor in surface condensers only. The vapor from the first stage of crystallization is condensed within a mixing condenser using the pre-warmed mother liquor from the second crystallization stage.

This configuration uses energy from the vapors to preheat the mother liquor and thereby reduce the quantity of steam required to heat the mother liquor to the final hot leaching temperature.

After KCl crystallization, the cooled brine, which is also called mother liquor, is re-used as circulating brine within the process, e.g. for the washing of solids or reheated as hot leaching brine.

KCl Debrining

Crystallized KCl is withdrawn at the seventh stage of crystallization via the seventh stage underflow.

The crystal slurry is pre-thickened in a hydrocyclone and the obtained underflow is further debrined via product centrifuges. The product centrifuges are used to obtain residual moisture that is as low as possible to economize on natural gas consumption in KCl drying.

The collected overflow from the hydrocyclone and centrate from the product centrifuges are sent to a thickening step in order to remove residual solid particles as efficiently as possible. The overflow from the seventh stage of crystallization also proceeds to this thickener. The purpose of this step is to remove as much solid material as possible from the resulting brine after KCl crystallization before this mother liquor is re-utilized within the process. The solid rich thickener underflow, which contains a large amount of fine solid KCl material, is sent back to the KCl crystallizer where the crystals will grow to a recoverable size.

The overflow from the thickener is transferred to the mother liquor tank. From here, it can be distributed to all envisaged points of consumption.

In principle certain areas of the deposit contain mineralized material with increased soluble magnesium content (as magnesium sulphate). These areas are currently not considered in the mine plan. Magnesium sulphate is a deleterious material to the operation of the crystallizer circuit because it promotes scaling and plugging of the process equipment. Some magnesium species are readily soluble in the hot leach solution. The magnesium concentration will increase as mother liquor from the crystallizer circuit is re-cycled back to the hot leach circuit as leaching solution. In case of high mg contents mother liquor will be bled from the crystallizer circuit to prevent the accumulation of magnesium from increasing to a level that will affect process performance. This bleed stream can be processed to form a sulphate salt called Glaserite ($K_3Na(SO_4)_2$), which may be sold as a by-product fertilizer, in order to maintain a high potash recovery. Other salts, such as Syngenite or Polyhalite may also form, depending on the specific brine composition.

A process concept including flow sheet had been developed by ERCOSPLAN to process the mother liquor bleed stream and produce Glaserite. Implementation of such circuit is optional in later years of the Project (after presently considered production time of 23 years) if materials with increased amounts of soluble magnesium would be processed.

14.2.2.3 Area 3300 – Dry Processing

KCl Drying

The KCl drying system is used to drive residual moisture from the centrifuged product to produce a dry product for compaction and shipping. KCl drying includes all equipment necessary to burn natural gas, contact KCl with the combustion gasses, separate KCl dust from the dryer off-gasses, and treat the off-gasses to be compliant with Brazilian environmental laws.

The KCl drying area consists of the following equipment:

- Centrifuged KCl bin;
- Belt conveyors;
- Chutes;
- Feeders;
- Diverters;

- KCl product rotary dryers;
- Rotary dryer cyclones;
- Dust collection system;
- Dryer lump reclaim system.

The KCl compaction circuit consists of two identical trains, Train A and Train B. The description below applies to both trains.

Centrifuge cake from both KCl centrifuges, within a train, is combined on the rotary dryer feed drag conveyor with potash dust discharged from the granular dust and emission control baghouse. Dust from the granular conditioning baghouse contains a large amount of anti-cake amine and de-dust oil due to the proportionally high surface area of fine particles. Anti-cake amine and de-dust oil will reduce the quality of the compacted product; therefore, these reagents must be evaporated from the recycled product using the KCl product rotary dryer. As directed by BPC (WorleyParsons, 2016, /57/), space has been reserved only for KCl filtered storage. Provisions have been also made in equipment stackup for feed and reclaim conveyors for KCl filtered storage. Actual equipment and storage facilities have not been included in initial nor sustaining capital. Operations people can decide to build these facilities if they deem necessary, but their cost has not been capitalized as they are not considered as essential. Provision is made to add reclaimed material from the centrifuged KCl storage pile to the drag conveyor. The rotary dryer feed drag conveyor discharges to a diverter gate from which the centrifuge cake is directed either to the rotary dryer feed screw conveyor or it is transported by the centrifuged KCl drag conveyor to the centrifuged KCl storage pile. When the rotary dryer is off-line, the centrifuge cake will be stockpiled in the centrifuged KCl storage pile to allow the preceding circuits to continue operation while the rotary dryer is repaired. One common centrifuged KCl storage pile will service both Train A and Train B rotary dryer circuits. The centrifuged KCl storage pile has the capacity to hold 3,301 m³ of centrifuged KCl. Figure 69 shows the potential future centrifuged KCl storage pile.

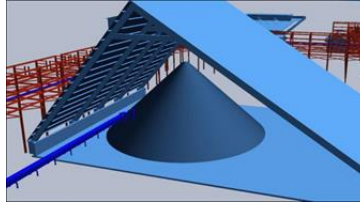


Figure 69 Future potential centrifuged KCl storage pile

The centrifuge cake, containing 4% moisture, is heated to approximately 160°C in a natural gas fired rotary dryer. The rotary dryer is fitted with external hammers to continuously dislodge cemented KCl from the sides of the rotary dryer. Potash is discharged from the rotary dryer through a trommel screen with lifter bars. The lifter bars will raise and drop large potash lumps onto the bottom of the screen in order to reduce the lumps to a size amenable to compaction; however, very large lumps will be raised out of the trommel into a portable storage bin that will be emptied by fork lift. KCl granular product is discharged from the dryer at 0.33% moisture onto the rotary dryer product drag conveyor and is conveyed to the product screening and compaction circuit. Figure 70 shows the rotary dryer.

Rotary dryer off gas may contain fine potash particles, Hydrochloric Acid (HCl), Nitrogen Oxide (NO_x) and Sulphur Oxide (SO_x). The solid particles are recovered to the underflow of the two rotary dryer cyclones which discharge to the rotary dryer product drag conveyor. Fine KCl dust from the rotary dryer cyclone overflow is captured in the dryer exhaust wet scrubber, which maintains emissions to the environment below the government regulations. Scrubber effluent is directed to the hot leach circuit. Figure 71 shows the rotary dryer cyclones.

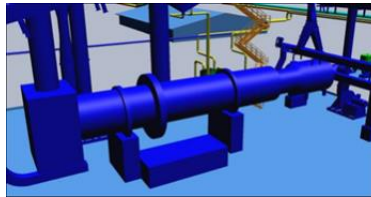


Figure 70 KCl product rotary dryer

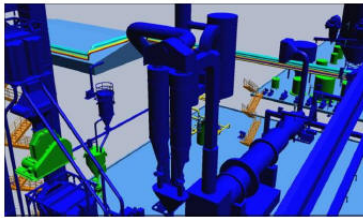


Figure 71 Rotary dryer cyclone

A basic substance (e.g. lime, caustic soda, ammonium, etc.) must be added to the scrubber liquid to neutralize the HCl generated by thermal decomposition of $MgCl_2$ in the rotary dryer. A low NO_x burner has been selected to control the emissions of that pollutant. SO_x is generated by the combustion of sulphur within the natural gas. The emission rate of SO_x is limited by the installation of a specialized SO_x treatment system.

This area is designed to dry the centrifuged KCl at a nominal rate of 163 t/h (dry basis) per train during the years of high product capacity (approximately 2,440,000 t/a granular product).

KCl Compaction

The KCl compaction circuit agglomerates the fine crystallizer product into a saleable size. Compactors are used to produce coarse potash flakes, which are crushed and screened to produce a -6 mm /+1 mm product. The screened product is glazed with water and treated with de-dusting oil and anti-caking amine to improve handling and storage characteristics.

The KCl compaction area consists of the following equipment:

- Surge bins;
- Metal extractors and metal detectors;
- Screw feeders;
- Drag conveyors;
- Belt conveyors;
- Product coloring mixers;
- Compactors;
- Feed bucket elevators;
- Double stage four-roll flake breakers;
- Primary crushers;
- Secondary crushers;
- Primary screens;
- Secondary screens;
- Exhaust wet scrubbers;
- Scrubber recycle tanks;
- Scrubber recycle pumps;
- Dryer exhaust fans;
- Product drying stacks;
- Fluid bed dryer air filters;
- Fluid bed dryer cooler burners;
- Fluid bed dryer coolers;
- Hot cyclones;
- Cold cyclones;
- Sump pump;
- Glazing screens;

- Gazing screen over size crushers;
- Granular product samplers;
- Dust and emission control baghouse;
- Dust and emission control fans;
- Dust and emission control stacks.

The KCI compaction circuit consists of two identical trains, Train A and Train B. The description below applies to both trains.

Dried potash from the rotary dryer product drag conveyor is received in the product coloring mixer. Iron oxide powder is added into the product coloring mixer to give a distinct pink color to the potash particles. Potash discharged from the product coloring mixer is discharged to the feed drag conveyor, which supplies the feed bucket elevator. From the feed bucket elevator, dried potash is directed to the feed drag conveyor and distributed to four compactors. A 212 m³ surge bin is provided to accumulate excess product when one of the compactors is taken off line for maintenance and to provide storage capacity for fluctuations in crystallizer production. Figure 72 shows the compactors.

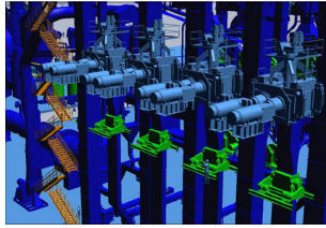


Figure 72 Compactors

From the surge bin, the colored potash is transported by the feed drag conveyor and distributed to four compactors. Fine material from the feed drag conveyor is compacted into potash sheets in one of four 1,150 mm wide roller press compactors. Potash sheets from each compactor are discharged into a dedicated double stage four-roll flake breaker, which breaks the sheets into approximately 15 cm flakes. Each flake stream feeds to a bucket elevator, which discharges onto a vibrating double deck primary screen. Three products are discharged from the primary screen as product oversize, product size and product undersize.

The fines fraction from the primary screen (product undersize) is returned to the feed bucket elevator and re-compacted. The middle fraction (product size) is transferred to the glazing screw conveyor and fluid bed dryer cooler. The product oversize is fed to the primary crusher. Crushed material from the primary crusher is fed to the secondary screen. Three products are discharged from the secondary screen as product oversize, product size and product undersize.

The fines fraction from the secondary screen (product undersize) is sent back to the feed bucket elevator and re-compacted. The middle fraction (product size) is transferred to the glazing screw conveyor and fluid bed dryer cooler. The product oversize is fed to the secondary crusher. Crushed material from the secondary crusher is transferred to the primary screen via the crusher discharge drag conveyor and bucket elevator. Figure 73 shows the primary and secondary crushers.

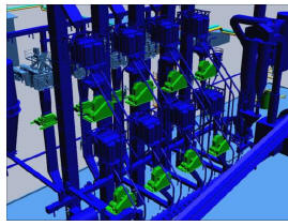


Figure 73 Primary and secondary crushers

Product size material, from the primary and secondary screens, is transported to the glazing screw conveyor via the granular belt conveyor and granular product post treatment bucket elevator. Water is sprayed onto the potash in the glazing screw conveyor to anneal the potash particles to produce a harder, more competent product. The annealed potash discharges into the fluid bed dryer cooler. The temperature of the annealed potash is reduced by evaporative cooling in the fluid bed dryer cooler; evaporative cooling is sufficient to reduce the moisture content of the granular potash to 0.3%. Dust is recovered from the granular product fluid bed dryer cooler off-gas in cyclones in the baghouse. The fluid bed dryer cooler off gas is vented to the atmosphere. Dust recovered by the fluid bed dryer cooler cyclones is added to the advancing flow of granular potash; however, dust recovered in the baghouse is returned to the compaction feed stream. Figure 74 shows the fluid bed dryer cooler.



Figure 74 Fluid bed dryer cooler

Cooled potash discharged from the granular product fluid bed dryer cooler is transferred to the granular product bucket elevator and feeds the granular product glazing screen. Three products are discharged from the granular product glazing screen as product oversize, product size and product undersize.

The fines fraction from the granular product glazing screen (product undersize) are sent back to the feed bucket elevator and re-compacted. The middle fraction (product size) is sampled and reagentized with anti-cake amine and de-dust oil before being transferred on the granular product belt conveyor to the granular product storage pile. The screen oversize is fed to the granular product glazing screen oversize crusher. Crushed material from the crusher is sent back to the feed bucket elevator and re-compacted. Figure 75 shows the glazing screen oversize crusher.

Dust pick-up points are located at all material transfer points. The gas is treated in dynamic wet scrubbers. Scrubber effluent is directed to the hot leach circuit.

This area is designed to compact and glaze the granular KCl product at a nominal rate of 160 t/h (dry basis) per train during the years of high product capacity (approximately 2,440,000 t/a granular product).

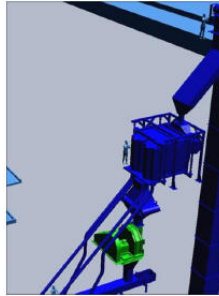


Figure 75 Glazing screen oversize crusher

14.3 Product Handling and Storage

14.3.1 Area 3400 – Product Load Out

This area consists of:

- Granular product storage;
- Granular product conditioning;
- Granular product loadout.

14.3.1.1 KCI Granular Product Storage

KCI granular product storage is located in a covered building. Figure 76 shows the product storage and loadout.

The compacted KCI granular product is conveyed to the covered granular product storage building on a belt conveyor, where the granular product storage pile is formed by a stacking tripper car and cascading chute, located at the top of the building. The KCI granular product storage building has the capacity to store the KCI product for three days, with the provision of extending it to five days. The capacity of the KCI granular product storage area is 19,104 m³.

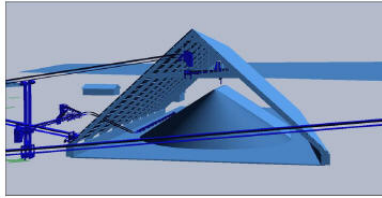


Figure 76 KCI product storage and loadout

14.3.1.2 Granular Product Conditioning

Prior to conveyance of the granular product to the product loadout area, the granular product is picked up by two front end loaders, each with the capacity to hold 24.5 m³ of granular product in their buckets. In the future, depending on the operational needs, a reclaimers can be installed. The granular product is put into two reclaim hoppers, from which they are conveyed through a belt conveyor chute and deposited on a transfer conveyor, which takes the granular product to the screening area. The granular product is diverted onto one vibrating conditioning screen. The output from the conditioning screens goes to either the granular product loadout or the final granular product rejects chute. The rejected granular product is conveyed back to both Trains A and B in the KCI drying circuit.

14.3.1.3 Product Loadout

The product loadout area is a covered building consisting of:

- Granular product loadout.

The KCI granular product is brought to the product loading silo by conveyor. The silo has a total storage capacity of 60 m³. The silo is equipped with a sampler and a weighing system, which regulates the amount of product entering the transport trucks.

The granular product is transported by covered trucks to the port. Prior to leaving the processing plant site, the loaded trucks go to a weigh scale, located close to the gatehouse, to be weighed. The trucks are in operation 24 h/d and travel a distance of approximately 12 km to the port. The transportation will be done by electric powered trucks with a total capacity of 30 m³ (15 m³ capacity for each semi-trailer) and equipped with an automated covering system, controlled from the driver's cabin. Up to 10 trucks will be loaded each hour.

This operation is planned to be outsourced to a third company which will be in charge of transportation, maintenance, electrical recharge station, lubricants and includes road maintenance and infrastructure such as workshops, lubricant storage house, warehouse, offices, carwash, etc.

14.3.3 Area 7200 – Port

This area consists of:

- Unloading system;
- Product storage;
- Ship loading.

When the trucks arrive at the port, which is located adjacent to the Madeira River, they discharge the product into an unloading system, which has a dust emission control system and is located in a covered building to avoid the rain.

The trucks dump the product into the designated granular product storage bin. The storage bins each have the capacity to hold up to 105 m³ of product. From the storage bin, the product is fed to a stacking tripper car by a belt conveyor and discharged through a cascading chute into the product storage pile. The stacking tripper car has a telescopic chute, which is designed to reduce dust emissions and fall speed.

The KCl product storage piles are located in separate covered storage buildings. The KCl storage pile has a capacity of 85,000 m³ (100,000 t), which is equivalent to approximately 14 days of granular potash production.

A portal frame reclaiming and shift conveyor are installed in the storage building. The KCl product, reclaimed from the storage pile is transported on belt conveyors to the ship loading system. The ship loading system consists of a series of belt conveyors and chutes that transport the product to a cascading chute, which discharges the product into the barge. The rate for loading the barges is 2,000 t/h.

14.4 Area 3500 – Tailings Processing

After two stages of hot leaching and cycloning, the leached solids, referred to as tailings, are filtered on a horizontal vacuum belt filter. Another waste stream, the slimes thickener underflow, is also filtered on the horizontal belt filter along with the hot leach residue. The filtered solids will undergo two stages of counter-current washing with fresh water to recover soluble potash entrained in the tailings; thereby increasing recovery. The solids discharged from the horizontal belt filter will be conveyed to the tailings management area. Some of the tailings are sent underground and used as backfill in mined out panel rooms while the rest of the tailings are stored permanently on surface.

A filtrate receiver collects filtrate from the horizontal vacuum belt filter. The filtrate receiver drains to a filtrate tank, from where the filtrate is pumped to the brine storage tank for reuse within the processing plant.

Filter cake discharged from the horizontal belt filter is transferred by a belt conveyor to a transfer station, to be conveyed to the tailings management area by the main tailings supply conveyor. A bypass conveyor is provided at the transfer station to re-direct the tailings to the backfill plant, where the tailings are mixed with brine and a binder before being pumped underground and used as backfill. Once the tailings are deposited underground in empty panel rooms, the solids settle and the runoff brine is collected and pumped back to the surface and re-used in the backfill plant. Excess brine which is not required to slurry the tailings from in the backfill plant are pumped to the deep well brine injection circuit to maintain water balance. Details on operation of the backfill plant are presented in Section 13.8.

The main tailings supply conveyor runs to the tailings management area where the salt tailings are deposited, using movable conveyors and stacking equipment, onto a tailings deposit system (tailings pile). There are a total of two tailings piles built over the life of mine. Both piles are built on top of a plastic and clay base liner.

Both tailings piles will be constructed within a short distance from the processing plant. The maximum amount of tailings in storage at any time is 33.8 million m³, which occurs approx. after 20 years of production, after which time, the volume of stored tailings decreases to 1.5 million m³ (approximately 768,000 m³ per pile) of mostly insoluble tails. The tailings management area consists of two tailings deposit sites with a usable battery volume of 24.1 million m³ each.

At start, pre-production waste is brought to the surface and will be deposited onto the first tailings pile. After approx. 13 years when the first tailings pile has reached its design height of 20 m, the stacking equipment is transferred to the second tailings pile and construction will begin on the second pile, where tailings will be deposited for the remainder of the mine life. Each tailings pile will be designed for the following dimensions:

Length:	1,200 m (at the base);
Width:	1,200 m (at the base);
Height:	20 m;
Pile end slopes:	11°;
Usable pile volume:	24.1 million m ³ ;
Tailings density:	1.6 m ³ /t.

Precipitation falling naturally on the tailings pile will dissolve the stored salts, leaving behind a small quantity of water insoluble material. Bull dozers and tracked loaders, equipped with rippers, will shape the tailings pile to allow the rain to contact and dissolve the salt in the pile. At the end of the tailings pile life after all of the salt has been dissolved, the remaining water insoluble material will be covered first by high density polyethylene (HDPE), followed by an earth fill levelling course and the pile will be revegetated.

The nearly saturated brine draining from the tailings pile will be collected in a 1.2 million m³ combination settling pond/brine collection pond. Suspended solids settle out in the first settling pond and clear brine flows to the inter-connected brine pond. Both tailings systems will have a dedicated 1.2 million m³ settling pond/brine collection pond. The ponds have been sized to accommodate a one in one hundred year rain event.

The runoff brine from the tailings pile will contain approximately 300 g/l of dissolved solids. Due to dilution of the brine with rain water falling on the storage pond and collection channels, the brine injected underground will have an average concentration of 260.5 g/l of dissolved solids.

An AACE Class 4 estimate has been obtained for a Zero Liquid Discharge deep well brine injection system, which pumps the brine collected from the tailings pile, underground from 320 m to 400 m into the Alter do Chão Formation aquifer.

Vertical centrifugal pumps will transfer the nearly saturated brine from the brine pond to a brine disposal tank. There will be two brine disposal tanks, one dedicated to each tailings pile. The brine disposal tank feeds three brine disposal pumps (two operating and one standby) and two brine recycle pumps (both operating). The brine recycle pumps have been included to allow for the capability to recycle brine collected from the brine pond back to the tailings pile to further saturate the brine with salt. These pumps will operate on a continuous basis to minimize the environmental impact of tailings storage after the conclusion of mining activities.

The three brine disposal pumps are connected to a piping network constructed from HDPE that connects to seven well pads (injection wells), with five operating and two wells in standby mode. There will be a total of fourteen well pads on site, seven for each tailings pile. The well pads will be located a minimum of 750 m from each other. The brine is injected underground from each operating well pad into the aquifer. The brine disposal pumps will be capable of delivering a design pressure of 483 kPa to each operating injection well. The nominal brine injection volume from each tailings pile is 600 m³/h, or 120 m³/h per operating pump. The design injection rate from each tailings pile is 700 m³/h, or 140 m³/h per operating pump. When both sets of tailings piles are in operation, the total nominal injection rate is 1,200 m³/h. Further details describing the operation of the injection wells are described by SRK Consulting (Canada) (WorleyParsons, 2016, /57).

It is assumed that the tailings from the processing plant will be suitable for backfilling without any pre-treatment or size-separation. If, after the processing plant is operational it is determined that the tailings contain too much fine material to be acceptable for backfilling, a suitable treatment method will be employed to remove the fines fraction from the tailings before they are used for backfilling.

14.5 General Processing Plant Utilities and Services

14.5.1 Area 3600 – Reagents

The reagents required in the process include HCl, lime, anti-caking amine, dedusting oil, flocculant and product colorant (iron oxide). A vendor supplied flocculant make-up system, complete with flocculant storage tank, will be supplied to service the thickeners.

Reagents will be transported to site by barge or truck in either bulk bags or liquid form. A local haulage company will be employed to haul all reagents according to Brazilian transportation laws and carry necessary tools to contain the reagents in the event of a spill. The bulk bags are stacked in their respective storage areas while the liquid reagents must be unloaded into their respective reagent storage tanks. Reagents received in bags are metered through a metering screw and aspirated with warm water or process brine. Reagent inventories of two to four week supply will be stored on site.

Reagent solutions will be mixed daily for use in the processing plant. The mixed reagent solutions will be stored and distributed to the processing plant from the holding tanks. The design retention time of each holding tank is presented in Table 78.

Table 78 Reagent holding tank residence time

Description	Units	Residence Time	Tank Capacity [m ³] each
1 x Liquid amine tank	day	4	269.3
1 x Granular product anti-caking mix tank	hour	1	13.3
1 x Dedusting oil storage tank	day	7	471.2
1 x HCl acid wash tank	minute	30	35.0
2 x Iron oxide tanks	hour (each)	32.6	1.5
1 x Flocculant distribution tank	hour (each)	12	4.0
1 x Calcium oxide (quick lime) tank	hour	19	150.0
1 x Calcium hydroxide (slaked lime) tank	hour	8.4	35.0

The estimated design reagent consumption rate is shown in Table 79.

Table 79 Estimated reagent consumptions

Reagent	Units	Estimated Consumption
Flocculant	g/t product	20
Anti-caking amine	g/t product	250
Dedusting oil	g/t product	1,400
HCl acid	l/month	per manufacture recommendation
Iron oxide	g/t product	230
Calcium hydroxide (slaked lime)	g/t product	2.7

14.5.1.1 Reagents Mixing and Storage

Flocculant

A flocculant solution (process water and brine) is used to improve settling in the slimes thickeners by gathering insoluble particles into clusters. Dry flocculant powder is metered into an eductor and made to 1.5% strength solution using process water. Positive displacement pumps are used to pump the solution through an in-line mixer where process brine is added to further dilute the concentration to 0.1% concentration before being added to the hot clarifiers.

Anti-Caking Amine

Anti-caking amine is combined with de-dusting oil and is added to the granular potash product to prevent it from caking (agglomerating) prior to being stored on site. Solid amine flake is received on site and dissolved in a vendor supplied make-up unit. Amine solution is mixed into the granular product anti-caking mix tank where de-dusting oil is added. A steam coil maintains the temperature of the granular product anti-caking mix tank at 65°C. The amine/dedusting oil mixture is pumped into the granular product glazing screen discharge chute where it is intimately mixed with the product. A second application is added into the final granular product screen discharge chute before the granular product is dispatched to port.

Dedusting Oil

Dedusting oil is combined with anti-caking amine and is added to the granular potash product to prevent product degradation during on site storage. The dedusting oil is added at full strength and helps suppress dust in the final product. The dedusting/amine mixture is added into the granular product glazing screen discharge chute where it is intimately mixed with the product. A second application is added into the final granular product screen discharge chute before the granular product is dispatched to the port.

HCl Acid

HCl, at 29% concentration, is used for the cleaning process. HCl is delivered to site in 1,000 l capacity totes and is pumped as needed into a fiberglass acid wash tank. Acid is added to the process water until the acid concentration is 4%. The diluted acid is used to remove scaling from crystallization area heat exchangers.

Iron Oxide

Iron oxide is used as a colorant and adds a pink color to the white potash particles discharged from the rotary dryer. Iron oxide is received in bulk bags and manually emptied into the iron oxide weigh bin. A screw conveyor meters the iron oxide to the product coloring mixer, where it is intimately combined with dried potash discharged from the rotary dryer. The combined potash and iron oxide are then transported to the compaction circuit via the feed drag conveyor, to be compacted into granular product.

Lime

Hydrated lime is used for neutralizing dryer scrubber effluent. Off-gas from the potash rotary dryers is routed to wet scrubbers. HCl, at an approximate pH value of 2, is generated in the rotary dryers due to the thermal decomposition of $MgCl_2$. Transfer of this acidic effluent to the hot leach section is detrimental to the hot clarifiers. Hydrated lime is used to neutralize the HCl generated in the scrubbers.

Lime is received on site as calcium oxide (CaO , also referred to as quick lime) by tanker truck and unloaded into a storage bin. The quick lime is withdrawn from the bin and slaked to hydrated lime ($Ca(OH)_2$) with a concentration of 22.9 wt% solids. The hydrated lime is stored in an agitated tank from where it is pumped to the scrubber circuit to neutralize the HCl.

Plant Water Distribution

At the processing site, the industrial and process water is designed to be supplied by ten deep wells (eight operating and two standby). Water for the processing plant use is supplied by three submersible deep well water pumps. Water discharged from the deep well water pumps is routed to two 8,130 m³ raw water ponds. The raw water ponds supply water to the processing plant site and distribution can be classified into three general systems:

1. Fire water;

2. General service water, including raw water, mine cooling water and process water;
3. Sealing (gland) water.

The following pumps draw water from the two raw water ponds:

- One centrifugal fire water pump (electrical motor);
- One centrifugal fire water pump (diesel engine);
- One centrifugal fire water jockey pump (electrical motor);
- Two centrifugal raw water distribution pumps;
- Two centrifugal process cooling water make-up pumps;
- Two centrifugal process water pumps;
- Two centrifugal mine cooling water make-up pumps;
- Two centrifugal sealing water distribution pumps.

The pump suction lines for the pumps listed above, with the exception of the fire water pumps, are situated approximately 0.4 m above the bottom of the raw water ponds. The pump suction for the three fire water pumps is located near the bottom of the raw water ponds. In this manner, the volume of water below the service water pump suction lines is allocated for fire protection. The combined volume of the two raw water ponds is 15,600 m³, of which 1,200 m³ is reserved only for fire service.

An estimate of the raw water consumption is presented in Table 80.

Table 80 Raw water consumption

Usage	Units	Continuous Flow	Continuous and Intermittent Flow
Sealing water	m ³ /h	20	20
Process cooling water make-up	m ³ /h	188	177
Process water	m ³ /h	617	115
Mine cooling water make-up	m ³ /h	138	180
Other	m ³ /h	83	100
Total deep well raw water	m³/h	1,046	1,204

14.5.1.2 Gland and Cooling Water

Gland water serves as coolant and lubricant for the shaft packing seals on various pumps. Gland water is distributed by two multi-stage centrifugal pumps (one operating and one standby). An average gland water consumption of 20 m³/h is assumed. The process cooling water make-up pumps supply water to replenish evaporation losses from cooling towers and water that is bled from the circuit to remove contaminant build-up. An average cooling water consumption of 177 m³/h is assumed.

14.5.2 Dust and Emissions Control

Potash and salt dust is generated in the crushing, drying and product handling sections; it is necessary to limit dust emissions to achieve an acceptable working environment and to meet the Brazilian government regulations. The processing plant will utilize wet scrubbers and bag houses to prevent dust from being discharged to the environment.

14.5.2.1 Dust Collection System

Dust collection is achieved by including dust pickup points at all material transfer points in the crushing and product handling areas, including conveyors, bucket elevators, drag conveyors and screens. Material free-fall transfer points are designed with the lowest possible vertical drop to prevent product breakage. Dust containment is achieved by ensuring the material handling equipment and material transfer points are sealed or enclosed. Bag-houses, utilizing pulse jet dust collectors, are used to capture the dust and the cleaned air is exhausted to the atmosphere through emission control stacks. Dust captured in the bag-houses is recycled back into the processing plant, utilizing screw conveyors. The specified level of the dust discharged from the dry bag type dust collectors is 0.015 g/standard m³ air.

Dry dust cyclones and Venturi-type wet scrubbers are used to remove dust discharged from the rotary dryers. Dry dust cyclones and dry bag type dust collectors are used to remove dust discharged from the granular product fluid bed dryer cooler. Dust collected by these cyclones discharge through a rotary valve and are then recycled back into the processing plant, utilizing screw conveyors. The specified level of the dust discharged from the Venturi-type wet scrubbers is 0.15 g/standard m³ air.

The estimated air flow discharged from the dust control systems is summarized in Table 81.

Table 81 Estimated nominal dust control air flow rates

Reagent	Units	Air Flow Rate
Area 3100 train A baghouse	Am ³ /h	107,042
Area 3100 train B baghouse	Am ³ /h	107,042
Area 3300 train A baghouse	Am ³ /h	46,881
Area 3300 Train B baghouse	Am ³ /h	46,881
Area 3400 baghouse	Am ³ /h	46,881
Area 3300 train A Venturi scrubber	Am ³ /h	124,744
Area 3300 train B Venturi scrubber	Am ³ /h	124,744
Area 3300 train A fluid bed bag house	Am ³ /h	96,216
Area 3300 train B fluid bed bag house	Am ³ /h	96,216

14.5.3 Compressed Air

Compressed air, for use in the processing plant, is supplied via a compressed-air distribution network by two 55 kW air compressors (one operating and one standby). All compressors are located in a utility room with outside air drawn through filters. Compressed air from the air compressors is discharged into a single 2 m³ air receiver. The wet air from the receiver is distributed as plant air. Two refrigerant air dryers are provided for the instrument air. Dried air instrument air is stored in one dedicated instrument air accumulator. There are no compressors supplying compressed air to the underground mine.

14.5.4 Plant Instrumentation and Process Control

The process control system (PCS) is located in the central control room, adjacent to the dry end of the process in the plant. An operator room is located within the central control room and is comprised of three operator workstations, each with 40 inch monitors and an engineering workstation with a dual 24 inch monitor. Facing the operator workstations, are three 50 inch flat screen monitors; one displays process alarms and two are dedicated for closed-circuit television (CCTV). Within the central control room is an engineering room, containing a dual 24 inch monitor and a process historian. The central control room contains an equipment room, two PCS cabinets and one network cabinet. In addition, there are two CCTV cabinets and one Information Technology (IT) cabinet in the equipment room.

The fiber network is star topology, which connects the PCS controller to the field input/output (I/O) cabinets within the mine and processing plant. Each IP 66 rated field I/O cabinet contains suitable input/output cards and redundant processors. Field devices are hardwired to the field I/O cabinets and communicate via the fiber network to the PCS. Analog field devices use 4-20 mA protocol with HART communication protocol and convert to digital signal in the field I/O cabinets.

Stop/start and emergency stop stations are hardwired to the motor control centers. The balance of the low voltage motor I/O are hardwired to the PCS. Each motor control center has individually dedicated smart relays, communicating via digital Profibus to the PCS over fiber optic cables. Profibus protocol is used for belt scales and may potentially expand to reduce field I/O on similar vendor packages. The processing plant and mine I/O are comprised of 10,000 I/O, split between analog and digital. The system selected, operating on a high speed network, delivers the necessary automation performance both now and in the future. Lock outs are available at each motor for maintenance purposes.

14.5.5 Plant Instrumentation and Process Control

The process control system (PCS) is located in the central control room, adjacent to the dry end of the process in the plant. An operator room is located within the central control room and is comprised of three operator workstations, each with 40 inch monitors and an engineering workstation with dual 24 inch monitors. Facing the operator workstations, are three 50 inch flat screen monitors; one displays process alarms and two are dedicated for closed-circuit television (CCTV). Within the central control room is an engineering room, containing dual 24 inch monitors and a process historian. The central control room contains an equipment room, two PCS cabinets and one network cabinet. In addition, there are two CCTV cabinets and one Information Technology (IT) cabinet in the equipment room.

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14.6 Future Test Work

A certain level of metallurgical test work has been conducted to date on borehole samples from the Autazes potash deposit. Hot leach test work results were issued in a report titled "Hot Leaching/Cooling Crystallization Test Work Report" on June 26, 2015 done by ERCOSPLAN (WorleyParsons, 2016, /57/). The material used for the test-work contained considerable soluble magnesium (1.77% MgSO₄), which will not be encountered during the 23 years of life of mine. Further metallurgical test work on representative drill cores of the ore body that will be mined, is required to allow for the confirmation of equipment sizing and performance characteristics. Two types of future test work are recommended before the detailed engineering phase of the Project commences; test work that is essential to have and test work that is optional. While the optional test work, if not done, will not put the Project in jeopardy, it may represent a lost opportunity to utilize smaller equipment, as more robust engineering factors are required in the absence of this test work.

14.6.1 Essential Metallurgical Test Work

- Hot leaching, brine clarification and crystallization test work on representative low grade and normal grade low magnesium material samples from the Autazes potash deposit that will be processed, is required. Crystallizer vendors have to determine vessel size and verify brine chemistry. This testing is required to determine the metallurgical response during the years that have the greatest effect on Net Present Value and to prove that an acceptable product can be produced regardless of ore grade;
- Thickening test work to size the lamella thickeners that will be used to remove solids from the hot leach brine. This work is required to ensure that the crystallizers will be fed with solids free brine, otherwise the carried over solids could reduce KCl content the product crystals resulting in low grade product.

14.6.2 Optional Metallurgical Test Work

- Hot leach test work to determine the optimum particle size for hot leaching. Currently, the P100 particle size for hot leaching is 4 mm. A larger particle size may be possible, which would reduce crushing requirements. If this test work is not done, an opportunity may be lost to reduce both CAPEX and OPEX in the crushing circuit;
- Particle size analysis of the tailings that will be fed to the tailings plant, in order to size the backfill equipment. Because backfilling is not scheduled until the fifth year of plant operation, operating data can be obtained during the first four years of process plant operation to determine whether a de-slime cyclone is required prior to the back fill plant to remove unwanted fines from the backfill;
- Crushing test work to size the primary double roll crushers and the secondary cage-mill crushers. This test work will be done to ensure the crushing circuit will be able to process the design ore throughput and not be a production bottle neck. If it is not done, then the design factor for the crushing equipment will be increased from 115% to 125% to account for assumptions that were made on equipment selection size during the BFS stage;
- Pilot plant filtration testing to size the horizontal belt filters. This test work will be done to complement the existing batch filtration tests and verify that the fine hot leach residue can be processed on belt filters and that the adherent brine be recovered. If it is not done, then the design factor for the filtration equipment will be increased from 115% to 125% to account for assumptions that were made on equipment selection size during the BFS stage. Also, appropriate high pressure washing equipment will be specified during the design phase to wash the filter cloth in the event that it plugs with clay;
- Compaction plant testing to confirm size and number of compactors, crushing and screening equipment. This test work has to verify the current compaction flowsheet is sized correct;
- Tailings characterization and stackability test work. This test work will confirm that high tailings piles can be produced that will not slump;
- Drying plant test work to confirm dryer size and determine dedusting equipment. If the test work is not done, there is potential of a missed opportunity for a smaller dryer size;

- Material flow characteristics for material and product handling will ensure there will be no product build up in chutes.

14.7 Conclusions

- Hot Leaching and crystallization are a proven methods for recovering KCl from potash material for the Autazes Potash Project. Different flotation test works could not prove an acceptable recovery rate and product purity;
- Design factors put into equipment sizing will allow a nominal production capacity of 2.16 MTPA and a design capacity of up to 2.44 MTPA;
- There is a potential for recovery loss on the tailings belt filters through solution losses, caused by insoluble material blinding the filter. Proper filtration testing is required to determine if blinding will be a problem and to determine the wash ratio required to minimize soluble losses;
- The crushing, drying and compaction circuits are of robust design based on proven design but could be optimized during further design stages;
- No crystallization testing has been conducted to verify the predicted brine chemistry. Crystallizer pilot plant testing will bring positive impact for the next project phase.

14.8 Recommendations

- Metallurgical test work, as described in Section 14.6, should be conducted. It is of paramount importance to obtain a sufficient amount of representative sample so the required testing listed can be conducted;
- Metallurgical test work must be completed to determine the process response to the various different types of feed material that may be encountered over the life of the mine;
- Horizontal belt filter pilot plant testing of the combined secondary hot leach cyclone underflow and slimes thickener underflow is required to confirm that high recovery of soluble potash can be achieved;
- Confirm hot leach recovery for lower grade material that will be mined for the first three years so that potash production can be accurately forecast for these years;
- A Reliability and Maintenance (RAM) analysis is recommended to be completed for the next phase of this project for all single pieces of equipment upstream of a multiple of parallel processing units. The upstream single piece of equipment represents a point of failure that can prevent plant availability targets from being reached;
- A HAZOP analysis is required to be completed for the next phase of this project to determine whether metal detectors and extractors are required at the feed to the crushers to prevent pieces of broken processing equipment from causing damage to the crushers;
- A trade-off study comparing the cost of including power factor correction equipment in the main substation versus the net savings that result in power and equipment cost is recommended, given the reliance on electrical power as the primary energy source for the system. Power factor correction equipment such as Static VAR Compensators (SVC) reduces current levels and associated losses. They also reduce current levels on the electrical utilities incoming power line and are sometimes mandated by the utility;
- A trade-off study optimizing the processing stages reducing the equipment cost and rising the reliability is recommended during further design stages.

15 Infrastructure

The Project infrastructure facilities include the following areas:

- Mine site facilities;
- Processing plant site facilities;
- Port site facilities; and
- General infrastructure.

This section describes the scope of the various buildings, infrastructure and facilities.

15.1 General Infrastructure

15.1.1 Mine, Processing Plant and Port Plot Plan

The mine (surface), processing plant and port plot plan is presented in APPENDIX 23.

The diagrams, drawings and layouts presented in APPENDIX 23 were mostly developed by Worley Parsons (WorleyParsons, 2016, /57/, WorleyParsons and PdB, 2022, /59/) and after required adjustments verified for applying in current report.

15.1.2 Geotechnical Data

In 2016, BPC contracted Prosonda Fundações (Prosonda Fundações, 2015, /43/) to undertake a geotechnical drilling program to evaluate surface and subsurface soil conditions at the mine headframe, processing plant and tailings management. Due to a relocation of the port site in August 2016, to avoid impacting a potentially sensitive archeological site, it is recommended to undertake a further geotechnical drilling program at the new determined area.

The drilling program was comprised of percussion drilling, which was capable of Standard Penetration Tests (SPT), as well as collecting representative soil samples from different soil layers. Borehole depths ranged from 10 m to 35 m at the mine headframe and processing plant sites. The locations of the boreholes are provided in Figure 77. Percussion drilling techniques were used to undertake SPT at 1 m intervals, which provides an in-situ indication of the relative density of the soil deposits. The results of the SPT correlated with the soil parameters obtained from the Shelby tube sampling program.

Shelby tubes were pushed at 1 m intervals in undisturbed soil, using a percussion drilling auger. The soil captured in the Shelby tubes was submitted to a laboratory for analysis. The laboratory analytical results were used to establish the soil parameters for the design of the processing plant foundations and the tailings management facilities.

Table 82 presents the allowable bearing capacity, end bearing and shaft friction values for the design of shallow foundations and precast concrete piles for the processing plant and mine (surface) respectively.

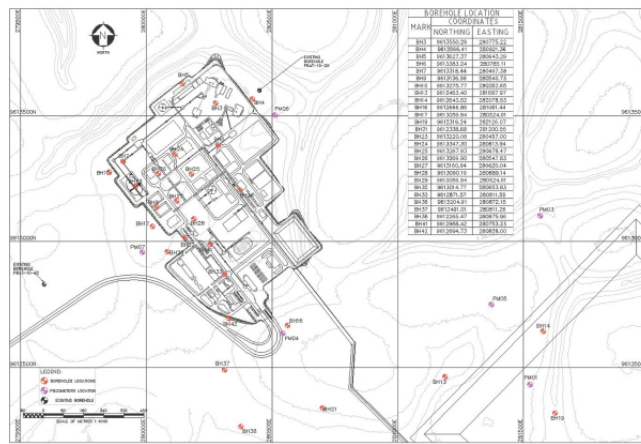


Figure 77 Boreholes locations for processing plant site and mine shaft site geotechnical investigations

Table 82 Preliminary soil parameters for processing plant foundation design (1)(2)

Elevation (m)	Main Soil Type	Soil Unit Weight [kN/m ³]	Short Term Parameters			Cohesion [kPa]	Shallow Foundations	Deep Foundations (Precast Concrete Piles)	
			Undrained Shear Strength [kPa]	Angle Of Internal Friction [Degrees]	Allowable Bearing Capacity ⁽³⁾ [kPa]		Allowable Skin Friction ⁽³⁾⁽⁴⁾⁽⁶⁾ [kPa]	Allowable End Bearing ⁽³⁾⁽⁵⁾⁽⁷⁾ [kPa]	
>37 to 35	Sandy clay with silt	18	25	0	0.2	60	10	0	
35 to 32			45	15		115	18	0	
32 to 25	Clayey silt, sandy silt with clay, clayey sand with silt	19	50	15	0.2	180	20	225	
25 to 16			60	15		N/A	24	265	
16 to 8		19	40	15	0.2	N/A	16	175	
8 to 3			135	15		0.2	N/A	54	600

- (1) Consider the groundwater level at ground surface.
- (2) Assumes organic soils have been removed.
- (3) A factor of safety of 2 has been applied to these values.
- (4) For compression and tension.
- (5) Neglect for tension.
- (6) Consider an allowable skin friction of zero for the upper 2 m soil thickness (example: Pile head at elevation 32 m, then allowable skin friction is zero from 32 m—30 m).
- (7) In order to include allowable end bearing in the design of piles, the minimum embedment depth should be 5 m.

Based on the boreholes logged by Prosonda Fundações (Prosonda Fundações, 2015, /43/, WorleyParsons, 2016, /57/), the generalized stratigraphy consists of organic soils overlying residual clay soils overlying highly weathered lateritic soils to the depths investigated. Approximately 1 m of organic soil is present across the site extending from the ground surface. The organic material will be removed during the early stages of construction.

Two distinct geological formations underlie the organic soils. The Solimoes Formation underlies the organic soils and generally comprises greyish to reddish residual clay soil. The clay is generally high plastic with trace fine grained sand, some silt, has a firm consistency and is damp to wet. The Solimoes Formation is up to about 10 m thick and overlies the Alter do Chao Formation.

The Alter do Chao Formation comprises a sequence of sandstones and mudstones with a conglomeritic fraction. The weathering and leaching action has created a thick altered (lateritic profile) layer that extends below the depths investigated (approximately 30 m below ground surface). This layer exists across the site. In general, these soils are red, low to high plastic clays with fine grained sand, some fine to coarse grained gravel, trace silt, with a firm to very stiff consistency and moist condition.

Water levels measured ranged from 14.9 m to 21.7 m below surface.

15.1.3 Bathymetric Study

A bathymetric study was conducted by MI Engenharia (M.I. Engenharia, n/d., /38/) to define the contours of the river bed close to the proposed location of the floating marine facility. The results of this study indicated the depths of the river at different locations and allowed the selection of the best location and loading positions for the barges.

The location of the floating marine facility was defined based on the following criteria:

- Bathymetry of the riverbed and topography of the land – specifically the elevation above flood levels;
- Annual maximum and minimum water levels due to dry and wet season variations;
- Predicted flow rate data at various river locations;
- Meander and geography of the river.

The location of the floating marine facility is based upon the mine location and access, land usage, environmental considerations and the bathymetry in that location. The upland and offshore mooring point locations are based on the bathymetric study for the water depths and the geological and geotechnical information. The design criteria for the marine facility are described in Section 15.8 of this Technical Report.

15.1.4 Earthworks, Roads, Parking and Site Drainage

15.1.4.1 Earthworks

The areas that encompass the mine site, processing plant site, tailing management area, road access, construction camp site, port and all service facilities will be cleared and grubbed of trees, shrubs, and large boulders then rough graded and ditched prior to construction.

Topsoil, root mat, peat and organics in areas where buildings, roads, yards and services are to be constructed will be removed and where practical, the top soil is stockpiled.

The finish grade elevation is generally 1 m below the existing ground level to account for the low bearing capacity of the upper soil layer. Yard finish grading is maintained at a minimum of 200 mm below adjacent floor slabs, with local ramps provided at doorways, as required.

Yard grading has a minimum finish grade slope of 2% away from structures. The side slope for permanent earth works is 2H:1V and 3H:1V for the ponds.

All earthwork designs for the ponds and the tank farm are designed to balance cut and fill. The main source of granular material is located approximately 5 km south of the processing plant site. The inventory of granular material at this location is adequate to satisfy the requirements of the Project.

For development of the earthworks design for this Project, the database topography, Universal Transverse Mercator SAD/69 UTM 21S system was used. The database topography, in Universal Transverse Mercator SAD/69 UTM 21S system, was provided by BPC (WorleyParsons, 2016, /57/) and shows 1 m x 1 m distance contours line.

The earthworks design is composed of:

- Terraces in which the industrial support and administrative facilities will be implemented for the mine shaft, processing plant and port sites;
- Secondary roads to interconnect the facilities areas;
- Main road access to interconnect the port and the processing plant; and
- Cut and fill slopes.

15.1.4.2 Access Roads, Parking and Transportation

Access to the processing plant site is via the existing access road that connects the plant to the port and avoids land not owned by BPC. This asphalt concrete paved road needs to be upgraded and expanded. It is designed to accommodate traffic for truck transportation of product from the processing plant to the port and light vehicles and trucks during the construction and operating phases. Prior to the installation of tailings pile Cell 2, the existing road will be reconfigured to detour around the future location of Cell 2, a distance of approximately 1.9 km. Figure 78 shows the route, highlighted by a green line, for the access road from the processing plant and mine to the port.

A network of new paved roads connects the port to the storage area in the port, the plant site, tailings area management, mine shafts terrace, deep well sites, construction camp site and others areas of the Project. The new access paved road from the existing road to the gatehouse at the processing plant is approximately 2.6 km.



Figure 78 General master plan of the Autazes Potash Project – permanent installations (WorleyParsons and PdB, 2018, /58/)

Generally, the base of all roads is constructed from locally borrowed material with a thickness varying from 200 mm to 300 mm and with a granular surface of 150 mm or 100 mm for main access and processing plant access roads, respectively.

Roads are designed with a maximum grade of 10% and a maximum cross slope of 2%.

The upgraded gravel road between the processing plant and the port has a total length of approximately 10.6 km (8 m of existing road and 2.6 km of new access), with a 7 m travel width, 1.5 m of coasting and 1.2 m of drainage width gutters on each side. The overhead power distribution line, that supplies power to the port site, runs parallel to the road.

Other access paved roads are double lane with a 7 m travel width. The processing plant roads are generally constructed of gravel.

The estimated traffic on the road from the port to the processing plant is 500 vehicles daily. The road will be built as per the National Department for Infrastructure and Transportation (DNIT-Brazil) Class II Standard (WorleyParsons, 2016, /57/) The basic characteristics of the designed road are as follows:

- Total length: 10.6 km (from the port gatehouse to the processing plant gatehouse);
- Truck capacity for product transportation: 35 t;
- Paving in concrete asphalt: primary coating. Parking lots have been allocated adjacent to the administrative offices, control room, laboratories at the processing plant site, mine headframe and at the port entrance gate and are sized according to the anticipated number of employees at each site. Parking has also been allocated for buses near the bus stop and for transport trucks at the port.

15.1.4.3 Site Drainage

Cut off ditches divert storm water runoff upstream of the mine headframe and processing plant site area and convey the uncontaminated water to natural streams.

A drainage system collects contaminated surface runoff at the processing plant site and conveys the water to a storm water pond. This water is recycled to the processing plant.

The site drainage design incorporates regional frequency and intensity duration rainfall data, to determine peak storm runoff flows and volumes.

The processing plant site ditches are designed to handle flow of 197.5 mm/h from a 30 minute, one in fifty year storm event. The storm water ponds and evaporation pond are capable of storing runoff from a one in 100 year, 24 hour storm event.

A subsurface drainage system collects water from the base of foundations and leakage from trenches, by means of perforated pipes. The water is directed to manholes provided for this purpose. The subsurface drainage network collects and conveys uncontaminated flow to the storm water pond.

The same concept has been used in the port site with two run-off ponds located on each side of the storage building area.

The drainage design of the access road considers the area of the drainage basin, to determine the size of culverts and amount of discharge. The drainage design has 0.5% slope that directs water flow into concrete channels. The entire volume of water is forwarded to the run-off ponds in order to ensure an environmentally friendly discharge.

The run-off pond is clarified by natural sedimentation and restricts the deposition of solid particles to the environment by reducing the velocity of the flow. The collected water runs through the system and flows to the natural drainage in the region, thus ensuring that environmental quality parameters are not exceeded.

The water in the run-off pond is monitored and clean water is discharged into the adjacent creek. If the water salinity exceeds allowable levels, it can be pumped back into a central collection tank to go through dilution until the permitted levels are reached before being discharged to the natural drainage system.

The design was developed considering the hydrological data, as well as the technical and safety criteria provided by the National Water Agency (ANA) (WorleyParsons, 2016, /57/). It is designed according to engineering good practices, with an emphasis on environmental protection.

15.1.5 Facilities, Buildings and Outdoor Areas

The Project consists of 80 buildings and outdoor areas of varying construction and sizes. The major building structures are made of steel with pre-fabricated roof and in some cases, wall panels. The building foundations consist of concrete spread footings (for light loads) and precast concrete piles. Some buildings are pre-engineered or pre-fabricated, when applicable. The required services for each building depend on the operation requirements.

Buildings with permanent staff and operators have climate control systems (HVAC) and the electrical rooms have HVAC systems for equipment protection. Fire protection, lightning protection and smoke detection have been considered for various buildings.

Table 83 presents a list of the buildings and facilities, showing preliminary dimensions and building materials types.

Table 83 List of buildings and areas

No	Building/Area Description	WBS	Length [m]	Width [m]	Footprint [m ²]	Building Material
	MINE – SURFACE FACILITIES	1000				
1	Main shaft	1100	13.5	13.5	182.3	Concrete/ Steel
2	Ventilation shaft	1100	13.5	13.5	182.3	Concrete/ Steel
3	Main shaft mineral and service winder house	1100	50.3	24.8	1,247.4	Concrete/ Steel
4	Main shaft mineral winder house	1100	30.0	30.9	927.0	Concrete/ Steel
5	Vent shaft winder house	1100	44.9	28.3	1,270.7	Concrete/ Steel
6	Substation – Mine	1000	25.0	15.0	375.0	Concrete/ Steel
7	Air cooling – Mine	1000	35.6	33.1	1,178.4	Concrete/ Steel
8	Fan station	1000	71.0	29.3	2,080.3	Concrete/ Steel
9	Material yard	1000	94.1	82.0	7,716.2	Common native soil/ compacted
10	Refrigeration plant	1000	71.2	14.0	996.8	Concrete/ Steel
	SITE GENERAL	2000				
11	Site run-off pond	2400	154.0	104.0	16,016.0	Common fill/lined
12	Parking area (trucks)	2200	118.5	89.9	10593.9	Common native soil / compacted
13	Parking area general	2200	-	-	2,780.0	Common native soil / compacted
	PROCESSING PLANT	3000				

No	Building/Area Description	WBS	Length [m]	Width [m]	Footprint [m ²]	Building Material
14	Emergency ROM storage	3100	51.0	46.0	2,346.0	Future
15	ROM bin building	3100	39.0	13.0	156.0	Steel
16	ROM (future space allocation)	3100	140.0	65.0	9,100.0	Future
17	Ore crushing	3100	24.0	24.0	576.0	Steel
18	Transfer station	3100	15.0	15.0	225.0	Steel
19	Substation – Ore crushing	3100	20.0	10.0	200.0	Concrete/ Steel
20	Crushed ore storage	3100	108.0	62.5	6,696.0	Concrete/ Steel
21	Hot leaching	3200	66.0	66.0	43,560.0	Concrete/ Steel
22	Crystallization	3200	126.0	66.0	83,16.0	Concrete/ Steel
23	Drying/Compaction	3300	132.0	78.0	10,296.0	Concrete/ Steel
24	Control room	3700	30.0	19.0	228.0	Modular
25	Parking area (control room)	3700	57.0	20.0	1,140.0	Common native soil/ compacted
26	Upset pond – Train A	3200	60.0	40.0	2,400.0	Common fill/ lined
27	Upset pond – Train B	3200	60.0	40.0	2,400.0	Common fill/ lined
28	Reagents	3600	58.0	32.0	1,856.0	Steel
29	Filtered KCl storage	3300	61.0	44.0	2,684.0	Future
30	KCl final product conditioning	3400	21.0	24.5	514.5	Steel
31	Product handling sub-station	3400	18.0	12.0	216.0	Steel modular
32	KCl storage	3400	108.0	61.7	6,666.8	Pre-engineered
33	KCl storage future expansion	3400	44.0	61.7	2,716.1	Pre-engineered
34	Truck loading	3400	46.0	11.0	506.0	Steel
35	Backfill plant	3500	18.0	30.0	540.0	Concrete/ Steel
36	Thickener – Train A	3200	34.0	24.0	816.0	Concrete/ Steel
37	Thickener – Train B	3200	34.0	24.0	816.0	Concrete/ Steel
	TAILINGS MANAGEMENT AREA	4000				
42	Tailings management (2 piles)	4000	1500.0	1300.0	1,950,000.0	Ground lined
	UTILITIES	5000				
43	Sub-station – Train A	5100	51.3	32.0	1,641.3	Steel modular
44	Sub-station – Train B	5100	51.3	32.0	1,641.3	Steel modular
45	Sub-station – Main	5200	150.0	100.0	15,000.0	Steel modular
46	Process water pond	5200	67.0	47.0	3,149.0	Outdoor ground
47	Fire water pond	5200	67.0	47.0	3,149.0	Outdoor ground
48	Sewage treatment	5300	26.3	18.1	476.4	Pre-engineered
49	Cooling towers	5200	53.1	11.2	598.3	Pre-engineered
50	Water treatment	5200	25.0	15.0	375.0	Pre-engineered
51	Water chiller	5200	36.0	24.0	864.0	Steel
52	Compressed air	5500	14.5	9.7	140.7	Steel

No	Building/Area Description	WBS	Length [m]	Width [m]	Footprint [m ²]	Building Material
53	Sub-station – Utilities	5200	50.0	30.0	1,500.0	Steel Modular
54	Fuel station	5400	30.0	50.0	1,500.0	Modular
	ANCILLARY FACILITIES	6000				
55	Steam plant	6200	38.0	17.0	646.0	Steel
56	Fire department	6100	16.6	12.0	199.2	Modular
57	Truck shop	6100	58.0	18.2	1,055.6	Modular
58	Mechanical shop	6100	94.6	24.0	2,271.1	Modular
59	Warehouse	6100	24.0	54.7	1,314.0	Modular
60	Cafeteria	6100	49.4	14.8	731.1	Modular
61	Change room	6100	29.0	12.0	348.0	Modular
62	First aid station	6100	25.0	12.0	300.0	Modular
63	Laboratory	6100	34.5	12.0	414.0	Modular
64	Administration	6100	43.4	11.8	512.1	Modular
65	Parking area (administration)	6100	63.0	22.00	1,386.0	Outdoor ground
66	Gatehouse	6100	12.1	9.05	110.0	Modular
67	Mine change house (change room and lockers, lamp room, proto room, etc.)	6100	60.0	12.0	720.0	Modular
68	Mine office (offices, meetings, training room, etc.)	6100	40.0	12.0	480.0	Modular
69	Parking area (Shaft)	6100	40.0	20.0	800.0	Outdoor Ground
	PORT	7000				
70	Gatehouse	7200	10.4	8.15	85.2	Modular
71	Truck parking	7200	95.0	45.0	4,275.0	Outdoor ground
72	Hopper for truck unloading	7200	37.0	24.3	899.1	Concrete/ Steel
73	Electrical substation	7200	25.0	12.5	312.5	Steel modular
74	KCI storage	7200	336.0	62.3	20,933.0	Pre-engineered
75	Maintenance/Warehouse	7200	11.3	10.1	114.7	Modular
76	Offices and multi-purpose building	7200	35.0	15.0	525.0	Modular
77	Pumping station	7200	15.5	11.4	176.7	Steel
78	Sewage treatment station	7200	15.4	10.3	158.6	Pre-engineered
79	Storage tank fuel	7200	48.0	40.8	1,958.4	Steel
80	Floating pier	7270	140.0	30.0	4,200.0	Steel
81	Services port ramp	7210	50.0	18.0	900.0	Outdoor ground

15.1.5.1 Substructure

Foundations

The types of foundation are defined according to acting loads and the soil characteristics in which the foundation will be constructed: deep foundation and shallow foundation.

Deep foundations are used in the shaft headframes, port storage buildings, transfer houses for storage buildings and port access ramp to the site; other structures adopt shallow foundations.

The lightly-loaded, less settlement-sensitive structures and those in which the soil can support the current acting loads have shallow spread footings, rafts, or slab-on-grade, for an allowable bearing capacity of 150 kPa at a founding depth of 1.5 m below grade.

Piles

Deep foundation pre-cast piles, which can be vertical or diagonal, depending on the required efforts, are used for heavily-loaded, settlement-sensitive structures where the soil cannot support the acting loads. Suppliers must provide high quality precast piles, manufactured, stored and transported according to industry standards.

Pile caps are constructed for all pile groups of two or more piles that support piers, pedestals, grade beams, or concrete walls. The tops of all pile caps are terminated below grade.

Concrete

All concrete structures are at or below grade and in areas of extreme corrosion, are made of sulphate-resistant cement. Regular Portland cement is used for structures above grade.

Grade Beams

Grade beams are used to form the perimeter of buildings to interconnect piles or pile groups for shear force transfer due to wind, vertical load centering and support walls or partitions.

Pedestals, Piers and Pilasters

Concrete pedestals, piers and pilasters are dowelled to the piles. Pile caps or foundations are located partially below grade and generally accommodate anchor rods and embedded parts. Concrete protection is provided based upon the corrosiveness of the area in which the pedestals, piers or pilasters are located.

15.1.5.2 Structures

The buildings structures are generally conventional rigid frame in one direction and braced in the other direction and supported on a concrete pedestal foundation with a pinned or rigid connection.

Structural steel structures use standard rolled-steel sections as much as possible. Cross-sections formed by angles are used for vertical bracing in exterior walls, wherever possible. The structures have galvanized sheet steel roof panels and in some cases are enclosed with galvanized wall panels.

The structures are designed to perform their intended functions, such as supporting the acting loads and providing shelter for people and equipment during their lifetime.

The storage buildings are pre-engineered, with a span of approximately 60 m. Sheds are A-shape, self-supporting arch structures.

The design of steel structures shall take into account that all project areas are subject to a highly corrosive environment that contains high levels of salts and relative moisture. Steel structures will be exposed to rain and salt fog, which is an accelerator of corrosion.

Dust containing small particles of potassium chloride, will also contribute to the acceleration of corrosion. A special kind of paint is specified to resist these conditions. Thin-walled materials are not used in areas of severe and extreme corrosion.

15.1.5.3 Maintenance and Administrative Building Enclosures

The maintenance shop buildings and administrative buildings enclosures are modular type construction with concrete block walls, siding and roofing. The roofs and siding are either insulated or non-insulated depending on the building and its function.

The hot leach/filtering building is constructed of structural steel with roof trusses spanning the width of the building. The trusses and floor beams are supported by columns.

The crystallization building is a shell type structure with roof trusses supported from columns. Interior platforms and stairs around the vessels provide access for maintenance and operation.

Structural steel beam and column components support the various interior FRP gated floors and platforms. Vertical bracing for the building is located on the exterior of the building in a north-south and east-west direction. Horizontal bracing of the building is within the roof and heavy loaded floors and platforms.

The reinforced concrete building foundation consists of precast concrete piles, pile caps, piers and grade beams. Concrete slab-on-grade serves as the building floor and minor equipment support base. Individual foundations and bases are provided for support of equipment on the grade floor elevation.

Roof cover is provided for both buildings. No siding has been provided.

The containment areas have concrete pads with perimeter walls. Slimes thickeners are supported by a concrete ring and tie beams on precast concrete piles. Feed tanks and pumps are supported by concrete bases.

There are four sets of heavy crystallization vessels in the crystallization building, which are supported by concrete raft foundations with containment walls.

A set of stairwells and stairs between the platforms, within the building, is provided for movement of personnel and minor materials.

There is a minimum of two access points provided for each level of each building.

Roofing

All building roofs are sloped to allow for the run-off of precipitation and are either insulated or non-insulated.

An insulated roofing system is constructed of pre-finished sheet steel, standing seam profile galvanized steel with a factory applied paint finish and roof cover.

Sealing

Metal siding on containers is either insulated or non-insulated and consists of profiled galvanized steel. All exposed cut edges need to be protected prior to installation.

The modular construction system uses prefabricated modular panels or dry wall panels.

Flashings

All exposed metal flashings are constructed of galvanized steel.

Doors for vehicle Access

Doors with vertical lifts sized to accommodate vehicle requirements, are provided for vehicle passage in specified buildings. The doors are finished with an epoxy paint, motor operated (where required) and are insulated only if the building in which the doors are located is also insulated.

Doors for Personnel

Doors to allow the movement of personnel in and out of buildings are designed based on metal walls and prefabricated modular panels.

Doors located in buildings constructed of concrete blocks have hollow metal frames and hollow metal doors with epoxy finish and are insulated as required.

Doors located in buildings constructed of metal walls have hollow metal doors in a structural steel channel, are epoxy painted and insulated as required.

Windows

Windows are constructed of hollow metal frames with an epoxy paint finish. Glazing is fixed to suit the particular application (e.g. sealed double glazed units for separation of heated/unheated spaces, or tempered in areas where impact resistance is considered necessary).

Hardware

Architectural hardware (e.g. door knobs, hinges, etc.) are uniform, heavy duty quality and corrosion resistant. Special keying requirements are provided.

15.1.5.4 Administrative Offices – Interior Partitions and Finishes

Interior partitions are constructed of either prefabricated modular panels or metal siding (internal metal walls).

Container (sea can) walls consist of profiled galvanized steel siding with a factory applied paint. These walls are only used where masonry walls are not practical and where separation between processes is required. The walls for modular pre-engineered buildings are constructed using wood.

Suspended Ceilings

Suspended Ceilings will have a PVC panel lining. If necessary, a rock wool layer must be used over the headliner to provide greater acoustic comfort.

Floor Finishes

A number of floor finishes are used throughout the Project, based primarily on traffic use of the specific area.

Exposed concrete floors in electrical rooms, mechanical rooms and storage rooms are treated with non-dusting hardener. Where necessary, non-slip paint finishes are applied to exposed floors for cleaning or for appearance purposes.

Vinyl composite floor tiles or ceramic Porcelain Enamel Institute (PEI) 5 (strongest tiles that can withstand heavy traffic) are provided in offices, lunchrooms, first aid and other areas requiring a level of finish higher than exposed concrete floors. A rubber covered base is used for vinyl composite tiles or concrete floors with a paint finish.

Steel plated modular elevated floors with vinyl coated flexible plates are used in the control room.

Ceramic PEI 5 is used in lockers, showers and washrooms with a non-slip finish.

Toilet Partitions

Metal toilet partitions are floor mounted, head rail braced and complete with accessories and a factory applied baked-on enamel paint finish.

Washroom Accessories

All washroom accessories are stainless steel and include, but are not limited to, toilet paper dispenser, paper towel dispenser and disposal, soap dispensers, mirrors and tampon/ napkin vendors and disposals.

Millwork

A combination of two tier and four tier expanded metal lockers, complete with all accessories and enamel paint finish, are provided as storage facilities for soiled clothing. The facilities are designed to allow for the daily laundering of all personnel towels and clothing.

Lockers

The single compartment lockers for clean clothes are constructed of expanded metal with enamel paint finish and include all accessories.

A combination of two tier and four tier expanded metal lockers, complete with all accessories and enamel paint finish, are provided as storage facilities for soiled clothing. The facilities are designed to allow for the daily laundering of all personnel towels and clothing.

A locker facility for mine personnel is located in a separate building adjacent to the mine headframe. The locker room has lockers, washrooms, showers, mine dry, hanging baskets for boots and belts, mine gear and clothing and a laundry facility.

Locker Benches

Locker bench seats are constructed of milled wood planks supported by two pipe posts fastened to the floor.

15.1.5.5 Mechanical

The following mechanical facilities are included in the processing plant, port and administrative buildings:

- Air conditioning units are provided for the electrical substations, control rooms and administrative offices and utilize split air cooled condensers;
- The ventilating systems in all enclosed processing buildings are designed to provide fresh air exchange and remove the internal heat gains from equipment contained in the building;
- Potable water is provided from the water treatment plant and is distributed throughout the site;
- Sanitary sewage is collected in buried sewers and conveyed by gravity to the sewage treatment plant;
- Oil and mud interceptors are provided in the truck shops and truck wash;
- Storm drainage systems are provided for flat roof buildings. Rain water collected by roof hoppers is drained by storm pipe and open gutters and is discharged into the site runoff pond;
- Maintenance equipment such as electrical hoists, are located in areas that are difficult for a crane hoist to access. Most of the maintenance services will be performed using mobile cranes, with access to hoists from the building roof;
- Fall protection within the buildings is designed for, but is not limited to, ramps, runways and other walkways, excavations, hoist areas, holes, formwork and reinforced steel, leading edge work, unprotected sides and edges, overhand bricklaying and related roofing work;
- Emergency shower/eyewash stations are provided in areas where workers may be exposed to corrosive, irritating or toxic liquids. Each emergency shower and eyewash station is complete with local audible and visual alarms. Potable water is used to serve each emergency shower and eyewash station.

15.1.5.6 Electrical

All industrial and administrative buildings in the processing plant and port are provided with electrical facilities, such as: lighting and emergency system, grounding, protection system against lightning and lighting distribution panels.

All outside areas in the processing plant and port are illuminated by a combination of pole-mounted and wall-mounted high pressure sodium fixtures. Office buildings, control rooms and electrical substations utilize fluorescent lighting.

External lighting will be not provided along the main road access between the processing plant and port.

15.2 Utilities and Service Distribution

15.2.1 Power Supply and Distribution

15.2.1.1 Power Supply

BPC contracted Figener Consultores de Engenharia Ltda. to identify the optimal energy solution for the Autazes Potash Project, taking into consideration the energy demand from the Preliminary Economic Assessment (ERCOSPLAN, 2014, /16/), (WorleyParsons, 2016, /57/) and local availability of energy sources, including: electrical energy, natural gas and coal.

Electrical energy is the best option for energy supply to the Project. Thus, BPC contracted Dalben Consultoria em Energia Elétrica e Treinamento Ltda. to develop the necessary engineering studies and conduct negotiations on its behalf with both private and public energy suppliers to the national grid.

Dalben developed a Brazilian electrical market report explaining how the Brazilian market works for energy supply and issued the report 'Activities Guideline for the Connection of Energy Consumers to the Brazilian Grid' (2016) (WorleyParsons, 2016, /57/).

BPC contracted Figener Consultores de Engenharia Ltda. to study alternatives for choosing the possible routes of the transmission line and the most viable, as well as the proposition of the voltage level, 230 or 500 kV and substations with availability, within the basic network of the electric system of Brazil. The best option defined and the one that was developed will be the use of the Silves SE at 500kV and the alternative route called "Alternative 3".

SE Silves, via "do Risco" (or "Serpa") Island, using 500 kV, single circuit (CS) transmission line, 4x636 MCM ASCR Grosbeak optimal conductor and expansion of SE Silves and new SE Autazes which better accomplished costs, technical and social aspects of the Autazes Potash Project.

Figure 79 shows a simplified single line diagram of the 500 kV interconnection between SE Silves and the new SE Autazes.

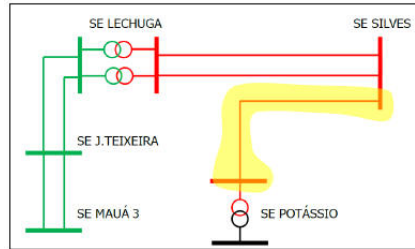


Figure 79 Single line diagram, 500 kV interconnection SE Silves to SE Autazes (FIGENER and PdB, 2022, /21/)

The plant substation SE Autazes will be a new substation that will be located next to the coordinates 58 ° 58 ' 24.80 "O/3 ° 29 ' 39.24" S.

This substation will be responsible for lowering the voltage level from 500 kV to 34.5 kV, distribution voltage level of the plant, consisting of 3 three-phase transformers of 130/160/190 MVA, ONAN/ONAF/ONAFII each according to the information up to date.

Regarding the ONS requirements, according to sub-module 2.3, if the transmission voltage level is set to 500 kV, the busbar must have a double-busbar arrangement with one and a half circuit breaker (FIGENER and PdB, 2022, /21/).

15.2.1.1.1 Synthesis of the Brazilian Grid

The Brazilian Grid – SIN, with nominal transmission voltages 230, 345, 440, 500 and 750 kV AC, as well as ±600 and ±700 kV DC, interconnects all Brazilian regions from north to south, via 125,000 km of transmission lines (OHTLs). This infrastructure allows the transfer of massive energy blocks between generation plants, optimizing the management of energy resources across the country and minimizing the probability of energy rationing due to a potential crises in one region. The majority of electricity generated in Brazil is hydroelectric with other sources including coal and gas fired plants plus wind power to a lesser extent.

In the region of Manaus, where the Autazes Potash Project is located, the Tucuruí-Manaus 500 kV – double circuit interconnection plays a vital role in the energy supply providing hydroelectric energy through Tucuruí HPP – 8,340

MW and in the future also through Belo Monte HPP – 11,233 MW. Additionally, Manaus has natural gas thermoelectric power plants capable of providing 2,900 MW utilizing the Urucu-Coari-Manaus gas pipeline with an availability of 6,000,000 Nm³/d.

A summary of the Brazilian grid capabilities is presented in Figure 80.

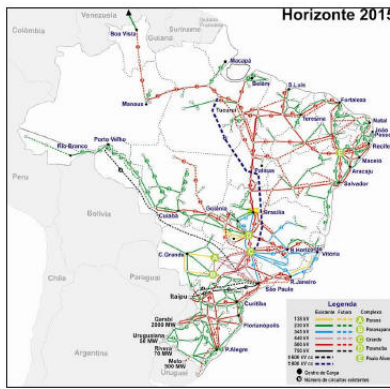


Figure 80 Geoelectrical map – Brazilian interconnected national grid (Source: Dalben Consultoria (WorleyParsons, 2016, /57/)

The Brazilian energy market allows consumers to purchase and sell energy through the following:

- I) Regulated Energy Market: Energy supplied by dealers and distributors regulated by the Energy Ministry. This energy is typically acquired by bidding (e.g. the Power Purchase Auctions, Energy Reservation, etc.). According to current regulations, consumers that purchase electricity in this manner become captive to the distributor by accessing public transmission lines and purchasing power via the distribution agent. For BPC, regulated energy could be purchased from Eletrobras or Eletronorte.
- II) Free Energy Market: Energy supplied by public service distribution, transmission and generating agents (self-producers, independent producers, traders, importers and exporters of energy). Electricity in the free market is secured by negotiating a contract with the supplier and this contract must be registered with Comercializadora Chamber (CCEE), which is the institution responsible for coordinating settlement of payments.

Connection Point

To connect to the Brazilian grid, every new consumer is subject to analysis to determine the best connection point based on their demand levels, cost to the consumer and Brazilian society.

After the connection point is approved, the consumer must design the connection plan. The studies must demonstrate that the recommended design minimizes the impact on the grid and that it is in compliance with Brazilian standards. Once approval is granted, construction may begin.

15.2.1.1.2 Energy Supply for Autazes Potash Project

A letter to PdB from the Ministério de Minas e Energia (March 2016) (WorleyParsons, 2016, /57/) advises BPC of the two methods of obtaining an energy supply: (i) through regulated contracts, achieved in a public bidding process and (ii) through a free contracting environment. The letter also states that the regulated contract process may guarantee an energy supply; however, if BPC decides to obtain an energy supply in the free market, an energy supply may be agreed upon through a power purchase agreement. The Ministério de Minas e Energia recommended that PdB contact CCEE to obtain information about entry into the free market. This should be done in accordance with the project schedule, which is presented in Figure 81.

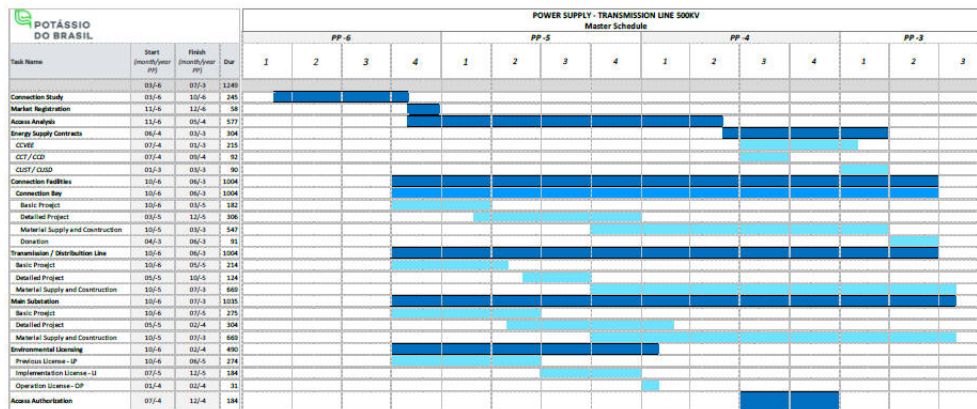


Figure 81 Schedule for power supply to Autazes Potash Project

BPC would benefit from the lower prices of energy traded in the free market by negotiating directly with the energy generator and/or trading agents, as compared to buying energy from the local concessionaries, namely Eletronorte or Amazonas Energia.

Additionally, given the objective to reduce the risks associated with construction and licensing, BPC has decided to construct the necessary transmission infrastructure to supply energy to its Autazes Potash Project and donate this infrastructure to the energy distributor in the future, in exchange for ongoing maintenance instead of outsourcing this cost. The distributor will benefit from owning this transmission infrastructure, as it can be used to put several communities on the much more reliable and lower cost national grid.

Preliminary studies indicate two probable points of connection to the Brazilian Grid, Mauá III SS and Silves SS. Considering the estimated energy demand.

SE Silves is the best option depending on the power block required for the Project and at a voltage of 500 KV.

One of the most important factors in this Project is the Amazon River crossing, since the connection options (substations) are located on the left side of the river while the Autazes Potash Project is located on the right side. Thus, SE Autazes will be connected to SE Silves using an overhead transmission line crossing the Amazonas River through Ilha do Risco/Serpa. The project area is located in the Amazonas state and consists of corridors defined by the studied routes alternatives. The corridor area is defined by a 10 km width, 5 km for each side from the center line of the route. BPC retained the services of FIGENER (FIGENER and PdB, 2022, /22/) to perform an update on the cost estimate for the transmission line, which is provided in the corresponding report. ERCOSPLAN reviewed the provided information and provided confirmation.

Figure 82 shows an overview of the project area and the defined corridors related to alternative routings.



Figure 82 Project area and overview of the routings alternatives / Alternative 3 selected (FIGENER and PdB, 2022, /21/)

15.2.1.2 Electrical Demand

Primary electrical power supply is required during construction and operations. Electricity requirements during construction of the surface and underground facilities are provided by temporary diesel powered generators. The demand estimated for the construction phase is 20 MW (WorleyParsons, 2016, /57/).

The maximum power required for the operation of the mine, processing plant, port and other facilities (e.g. camp, offices, workshop, etc.) is estimated at 294 MW. Table 84 presents a list of substations and associated power demands.

Table 84 List of substations and power demand

Substation	Description	Power Demand		
		MW	MVA	MVA
1000-SE-00XX	Mining u/g substations – years 16 – end	48.5	30.4	57.3
1100-SE-0001	Mining/shafts surface substation – years 16 – end	46.9	33.1	57.4
3000-SE-0001	Processing plant substation #1	15.6	10.4	18.8
3000-SE-0002	Processing plant substation #2	14.8	9.0	17.3
3100-SE-0001	Raw ore handling and primary crushing substation	4.8	3.0	5.6
3400-SE-0001	KCl product handling and storage substation	0.4	0.2	0.5
3500-SE-0001	Tailings substation	2.1	1.3	2.5
4000-SE-0001	Brine disposal substation	2.6	1.5	3.0
5000-SE-0001	Utilities substation	6.2	3.9	7.3
6100-SE-0001	Ancillary facilities substation	2.0	1.1	2.3

7000-SE-0001	Port substation	1.3	0.7	1.4
	Glaserite plant substation	2.0	0.4	2.0
Diversity factor:				0.9
TOTAL 1		132.7	85.6	158.0
6200-SE-0001	Steam generation substation	161.0	32.7	164.3
Diversity factor		1.0		
TOTAL 2		161.0	32.7	164.3
GRAND TOTAL		293.7	118.3	316.6

During the construction phase, the electrical demand will be approximately 20 MW, which will be provided by temporary diesel powered generators.

Five years following the start of construction (PP -6), approximately 60 MW will be supplied from the primary substation to meet the load demands of the mine and tailings/brine injection. In year 6, the demand will increase to 178 MW for the KCl processing plant (Train A), mine and port.

In year 7 of the processing plant operation, the load demand will increase to 294 MW, staying at this value for the remainder of the LOM. Figure 83 shows the power demand over time.

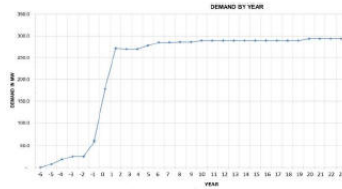


Figure 83 Power demand in MW per year (PP)

The power supply for the construction of the shaft and mine early works will be provided by diesel generator sets at 13.8 kV (WorleyParsons, 2016, /57/).

15.2.1.3 Electrical Substations

Main Substation

The substation Silves (Figure 84) is located in the Silves region which is approximately 120 km distant from the future location of the PdB plant in a straight line. This substation operates at 500 kV and belongs to the Brazilian basic network (FIGENER and PdB, 2022, /21/).



Figure 84 SE Silves (satellite image) (FIGENER and PdB, 2022, /21/)

The 500 kV substation, consisting of an external yard and electrical room, is to be located adjacent to the shaft facilities in the northeast portion of the processing plant area. The 500 kV gantries busbars, switchgears, circuit breakers, surge arresters, current transformers and voltage transformers, power transformers and grounding resistors are installed on the exterior of the two-story structure. The cable room is located on the first floor and the electric panel room and control room are located on the second floor.

The main substation does not have a local control and is managed remotely. A specific supervisory system is provided for the substation equipment. The operating station is installed in the electrical room of the substation.

The design for the Ethernet protocol is based on IEC-61850, which is a digital system with distributed processing to obtain high reliability and speed of operation as well as a human/ machine friendly interface.

The substation has three transformers (500-34.5 kV 130/160/190 MVA) and three busbars interconnected in normal operation with open switches. The design has considered that the substation can operate with two transformers to support the full load in the processing plant. This will be used in emergency situations when one of the transformers is in maintenance.

The main substation is a double bar type with bypass (4 switches) and is located within the limits of the processing plant. Feeds to the secondary substations are made via a cable rack or overhead distribution line at 34.5 kV.

The main substation design considers all Brazilian standards for safety of operations. Codes and standards has been considered and included in the Electrical Design Criteria (WorleyParsons, 2016, /57/).

Secondary Substation

The surface electrical substations are a modular construction (Electro Center or E-House) type, e.g. substations in a steel structure type container and are provided at strategic locations within the processing plant. Figure 85 shows typical arrangement for modular substations.

The substations are provided with the following equipment and systems:

- Equipment: medium voltage (MV) and low voltage (LV) switchgear, power transformer, lighting transformer, grounding resistor, voltage direct current (V DC) system, emergency power generator, variable frequency drives, motor control center (MCC);
- Auxiliary equipment: fire detection and extinguishing, air conditioning, overpressure, internal and external lighting, access ladders, metal platforms, guard rails, metal pillar to support the substation, screen to close the cable room.



Figure 85 Modular electrical substation – transport and assembly

Underground substations will be portable skid mounted. Equipment line-ups are provided as skids suitable for lowering down the mine shaft and for being transported into substation cut-outs by equipment. The typical arrangement of substations contains MV and LV switchgear and MCCs; Transformers (100 kVA) are located separately from switchgear skids. Switchgears skids are equipped with protective relaying and communications capabilities. All enclosures are dust tight (equivalent to NEMA 12G).

15.2.1.4 Power Distribution

Cable routes and line diagrams are presented in.

The diagrams and drawings presented in were mostly developed by Worley Parsons (WorleyParsons, 2016, /57/, WorleyParsons and PdB, 2022, /59/) and after required adjustments verified for applying in current report.

Primary Overhead Distribution Lines (34.5 kV)

Power distribution is through overhead distribution lines in a simple radial configuration or through insulated conductors, underground networks or cable-racks.

The primary overhead distribution lines in the processing plant area use insulated conductors with a rated voltage of 34.5 kV, aluminum cable and are 35 kV voltage class. Power to the port is supplied from the main substation, which is located at the processing plant area and is distributed via an overhead line that uses a bare aluminum conductor (ACSR) for the section of the line where potash dust is not present.

Secondary Overhead Distribution Lines 380/220V

Power for the administrative/ancillary buildings and street lighting is through a secondary overhead distribution line. The primary overhead distribution lines are insulated with a rated voltage of 380/220 V, copper cable, 0.6/1 kV voltage class, multiplexed and messenger in copper-clad steel (Copperweld). Cables are multiplexed, with layers around the neutral conductor that are also used as support phases (messenger cable).

Cable Tray

Cable trays are installed in corrosive areas and consist of hot dipped galvanized steel. Cable trays installed in non-corrosive areas are aluminum.

15.2.1.5 Emergency Power Plant

Standby power for critical process and safety electrical loads is supplied by diesel generators located in a dedicated area adjacent to the mine headframe.

The generators can provide a 380 V, 480 V or 4.16 kV, 3-phase, 60 Hz power supply.

Loss of power to the site is detected by special protection relays installed in the main substation. Loss of signal from the protection relays initiates a power transfer to the emergency diesel generators. The diesel generators automatically start, accelerate up to speed to deliver constant frequency and voltage. At the same time, the 4.16 kV circuit breaker in the diesel generators switchgears automatically close and feed power to the main switchgear systems. An interlocking system trips the electrical loads that are not classified as standby and ensures only standby loads receive power.

The fuel supply tank for the generators is dimensioned to support at least six hours of full-load operation.

The standby loads include the following:

- Shaft winders (only for service hoist and Maryanne for evacuating personnel);
- Main fans in the surface and in the underground;
- Chiller's water pumps;
- Underground pumps;
- Agitators;
- Dryers;
- Fans in the Processing Plant;
- Fire water jockey pump;
- Cooling water pump;
- Distributed control system;
- Uninterruptible power supplies for control systems;
- Lighting (20% of total);
- Plant life safety systems;
- Instrument air compressor
 - Surface cooled crystallizers recirculation pumps;
 - Centrifuge surge tank agitators;
 - Compactors lubrication systems;
 - Gland seal water pump;
 - Elevators.

15.2.2 Water Supply and Distribution

The water supply system is divided in two sub-systems; one system at the processing plant site and another system at the port site. Both are operated independently.

15.2.2.1 Processing Plant

At the processing plant site, the industrial and process water supply system is designed for ten deep wells (eight operating and two stand-by). These wells will fulfill all processing plant and mine water requirements and are located inside the site boundaries.

The potable and make-up steam plant water supply system is designed to be supplied from two deep wells (one operating and one stand-by). These wells provide full potable water and steam plant requirements and are located inside the site boundaries.

The following assumptions have been made for the design of the deep wells which will supply water to the processing plant:

1. Intake flowrate for each deep well:

- No production tests have been made in the aquifer for the purpose of being used for intake water; instead, reference data from tests made in the Manaus Region are used with the data obtained from pilot hole samples;
- For Industrial and process demands, the intake water flow rate is assumed to be 146.4 m³/h for each deep well;
- For potable water and make-up steam plant demands, the intake water flowrate is assumed to be 32.4 m³/h for each deep well;
- Based on production tests made in the Manaus region, the wells shows an average depth of 200 m and required diameter of 8" (SIAGAS 2016 (WorleyParsons, 2016, /57/)). The flowrate ranges between 60 m³/h to 160 m³/h (average flowrate is 103 m³/h);
- Industrial and process water requirements is supplied by 250 m deep wells, with 50 m deep wells supplying the potable and make-up steam plant requirements. These assumptions are based on intake water sizing requirements, which are based on the pilot hole data presented in the Golder (2016) and SRK (2016b) reports (WorleyParsons, 2016, /57/);
- For the next project phase, specific production tests will be required at the Autazes site to guarantee the deep well flowrate capacity.

2. Sizing and Deep Well Location

- The number of wells was determined by the maximum flow rate required, which is 150 m³/h for each well;
- On this basis, eight operating wells and two stand-by wells are required for industrial and process water demands;
- On this basis, one operating well and one stand-by well is required for potable and make-up steam plant water demands;
- In order to not compromise the capacity of each well, the wells are located 500 m apart;
- Deep wells are not located near the salt stock piles; most of the wells are located on the west side of the processing plant site.

3. Water Quality

The following were considered for the evaluation of the required shaft pilot hole samples and tests:

- Water quality samples were collected from different depths of the deep well (Golder 2016 (WorleyParsons, 2016, /57/));
- Groundwater hydrochemical characterization is provided in Golder's groundwater hydrochemical characterization report (2016) (WorleyParsons, 2016, /57/);
- Water testing by a competent water treatment vendor is mandatory to confirm that potable water can be produced from the deep well;
- Tests will be conducted in the next phase of the Project to identify the optimum depth for collecting potable water. As an alternative source of potable water, raw water could be collected from Soares Lake and undergo treatment in a water treatment plant;
- For process water demands, the deep wells will be designed to take water from a depth of 250 m below ground surface;
- For potable and make-up steam plant demands, the deep wells will be designed to draw water from a depth of 50 m.

The Madeira River has also been identified as an alternative source of water for the processing plant and mine site. The water intake system would be located at the port location; water from the river would be distributed to the processing plant and mine site via a 12 km water pipeline.

15.2.2.2 Port

At the port site, the water supply system is designed for two deep wells (one operating and one standby). They provide full port requirements and are located inside the site boundaries.

The water management system covers the following services:

- Service water;
- Potable water;
- Sealing water;
- Cooling and chilled water;
- Process water;

- Demineralized water.

The Madeira River has also been identified as an alternative source of water for the port.

15.2.2.3 Service Water

Raw water is used for general services and to supply the water treatment plant.

At the processing plant site, a portion of the raw water from the two storage ponds (8,130 m³ each) is pumped to the service water distribution system. The service water is distributed to the consumers using two single-stage centrifugal pumps (one operating and one standby). The assumed average service water consumption is 87 m³/h and is distributed through a 150 mm nominal diameter carbon steel pipeline.

At the port site, a portion of the raw water from the 400 m³ storage tank is pumped to the service water distribution system. The service water is distributed using two single-stage centrifugal pumps (one operating and one standby). The assumed average consumption is 10 m³/h. Raw water is distributed through a 50 mm nominal diameter carbon steel pipeline.

15.2.2.4 Potable Water

Potable water is used for human consumption, to supply the demineralized water system and for emergency shower/eyewash stations.

At the processing plant site, potable water is provided from the water treatment plant. A 480 m³ storage tank (5200-T0113) is used as a potable water reservoir with a storage capacity of 24 hours. Water is distributed throughout the site using two single-stage centrifugal pumps (one operating and one standby). The average consumption is estimated to be 15 m³/h. Treated water is distributed through a 60 mm nominal diameter galvanized carbon steel pipeline.

At the port site, potable water is provided from the water treatment plant. A 10 m³ tank (7200-T-0405) is used as a potable water reservoir. Treated water is distributed throughout the port site using two single-stage centrifugal pumps (one operating and one standby). The average consumption is estimated to be 10 m³/h. Treated water is distributed through a 25 mm nominal diameter galvanized carbon steel pipeline.

15.2.2.5 Sealing Water

Sealing water serves as a cooler and lubricant for pump shaft packing. A portion of the raw water from the two storage ponds is pumped to the gland water tank. The gland water is distributed to users by two multi-stage centrifugal pumps (one operating and one standby). The average consumption is estimated to be 20 m³/h. Sealing water is distributed through a 150 mm nominal diameter carbon steel pipeline.

15.2.2.6 Cooling and Chilled Water

Cooling water is used in the chillers and is provided for cooling the crushers and crystallization equipment. The cooling water system is a closed loop circuit with the hot water cooled at the cooling towers units. The cooling water is distributed by two single-stage centrifugal pumps (one operations and one standby). The average consumption is estimated to be 188 m³/h. Cooling water is distributed through a nominal 250 mm diameter carbon steel pipeline.

Chilled water is used in the crystallization chillers. The chilled water system is a closed cycle, with the hot water returning to the chillers units where it is chilled. The chilled water is distributed by three single-stage centrifugal pumps (two operating and one standby). The average consumption is estimated to be 5,139.2 m³/h. Chilled water is distributed through a 1,000 mm nominal diameter carbon steel pipeline.

High quality water is used as make-up water in the closed cycle chilled water system when required; raw water is used as make-up water in the evaporator open cycle cooling and chilled mine water system. The make-up water is distributed to users by two single-stage centrifugal pumps (one operating and one standby). The average make-up water consumption is 216.4 m³/h. Make-up water is distributed through a 200 mm nominal carbon steel pipeline.

15.2.2.7 Process Water

Raw water is pumped into the process brine storage tank from the two storage ponds when required to maintain the level in the tank. The raw water is distributed to users by two single-stage centrifugal pumps (one operating and one standby). The average consumption is estimated to be 710 m³/h. Raw water is distributed through a 400 mm nominal diameter galvanized carbon steel pipeline.

15.2.2.8 Demineralized Water

Demineralized water is used as make-up water for the steam generation system. Potable water is processed through a reverse osmosis filter to be processed into demineralized water. A 96 m³ tank serves as a demineralized water reservoir in the processing plant. It is estimated that the average demineralized water consumption at the steam generation plant will be 17 m³/h.

Demineralized water is sent to the steam generation plant by two single-stage centrifugal pumps (one operating and one standby). Demineralized water is distributed through a 32 mm nominal diameter galvanized carbon steel pipeline.

15.2.3 Water Treatment Plant

The water treatment plant has the capacity to treat 32 m³/h of raw water and deliver potable water in accordance with the quality standards set by the Brazilian Health Ministry (No. 2914 Decree, December 12, 2011 (WorleyParsons, 2016, /57)).

The water treatment plant will include the following process stages:

- Aeration;
- Raise pH;
- Oxidant addition (potassium permanganate) and detention;
- Alum addition;
- Rapid mixing;
- Flocculation;
- Oxidant addition;
- Filter aid addition;
- Filtration;
- Disinfection;
- pH adjustment.

15.2.4 Fire Protection

15.2.4.1 Introduction

The processing plant site is provided with a dedicated fire system, designed to deliver 300 m³/h of water at an operating pressure of 860 kPa. The fire protection system is designed to meet the requirements of the National Fire Protection Association (NFPA) (WorleyParsons, 2016, /57).

An automatic fire detection and alarm system is provided for electrical rooms, control rooms, administration offices and laboratory. All manual pull stations, ionization detectors, heat sensors and sprinkler systems are sensed and alarmed from a "smart" fire alarm panel in a central control room, which is monitored 24 h/d. All buildings have automatic fire systems with separate audible and sight alarms.

A fire truck, equipped with a water reservoir, water pump, hose, ladder, protective gear and other basic firefighting equipment, is available at the processing plant and at the port.

A fire department facility is located close to the first aid building at the processing plant site. The fire department has rooms equipped with secured equipment storage.

The interior of the processing plant and mine facilities buildings will be supplied with fire extinguishers, as per local regulations.

15.2.4.2 Firewater

A plant-wide pressurized fire-water protection system, especially important in high risk areas, is included in the project design. A description of the fire water pond is provided in Section 15.3.3.

Firewater for the processing plant site is stored in the processing plant site reservoir to provide a reserve firewater storage volume equivalent to four hours firewater supply.

Firewater is supplied to the processing plant site, with system pressure maintained by three centrifugal horizontal pumps; one electric, one diesel and one jockey pump. All pumps have pressure controllers that are designed to start the pump when a drop in pressure in the system occurs. The port area has a similar facility.

The pumps supply raw water to the main fire loop, which serves the fire hydrant system. Firewater is distributed to every building and hydrant throughout the processing plant site by buried (1 m minimum cover) HDPE firewater distribution piping. Hydrants are strategically located around the site to permit operation with a 60 m long fire hose.

This fire-protection system is in compliance with local regulations.

15.2.5 Communications

15.2.5.1 General

This section describes the strategy for providing telecommunication facilities to support the construction and permanent operation phases of the Project.

A combination of communications technologies is utilized to support all aspects of operations and project engineering requirements for the following facilities:

- Mine operations (surface and underground);
- Processing plant;
- Port facilities.

Equipment redundancy is used in critical and main components to ensure maximum reliability, with minimum down time. Detailed communications requirements ensure that the systems design is optimized to support peak communications throughput and to allow for expansion through open and flexible solutions.

The mine telecommunication system used in this Project is detailed in Section 13.6.10 'Underground Communication and Tracking'. A main telecommunications equipment room (TER) is housed in the administrative office at the processing plant site. The core system components, including servers, routers and switches, are located at the TER, with interconnection links to ancillary buildings in the mine, processing plant and port facilities, as required.

Voice data communications between the processing plant and port locations are supported over a radio link system or other wireless solution; these are more cost efficient and recommended due to the topography of the area.

15.2.5.2 Construction Phase Communication

The public infrastructure for voice and data in Autazes is very weak and does not support a high level of corporate demand. Under these conditions, BPC should invest in its own communications system such as: optical fiber, radio link or satellite leasing services which would interconnect the project site to the major cities, such as Manaus or Itacoatiara.

An existing fiber optic cable link, attached to the electrical lines supplying power to the processing plant site, is provided and may be utilized for permanent backbone links to the Internet and public switched telephone network (PSTN); however, the telecommunication equipment installed in temporary locations during the construction phase will be relocated to permanent infrastructure locations, once the ancillary buildings have been completed.

The construction communications system forms the core of the permanent telecommunications systems proposed for the Project. This methodology provides a cost-effective solution for providing communications facilities to support the requirements of both the project construction and permanent operation phases. Figure 86 shows the communication schematic diagram for the construction phase.

Modularization will be utilized as much as possible for the implementation of telecommunications infrastructure for both construction and permanent communications infrastructure.

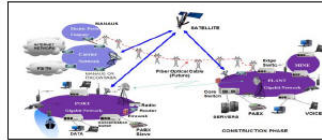


Figure 86 Communications schematic diagram for the construction phase

15.2.5.3 Permanent Communications Infrastructure

Once final construction of the shaft, roads, permanent buildings and main power infrastructure is completed, the telecommunications systems can then be relocated to permanent locations.

A transition plan will be developed in order to minimize any disruption to the communications systems. After the transition phase of relocating the core telecommunications components to the permanent infrastructure locations, communications services will continue to be provided to the construction offices and camp until they are dismantled.

A variety of communications media is incorporated in to the overall design for the full operation of the mine, processing plant site and port. Figure 87 shows the communication schematic diagram for the permanent phase.

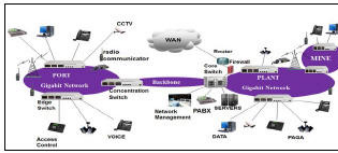


Figure 87 Communication schematic diagram for permanent phase

15.2.5.4 Telecommunication Technologies

The technologies, systems and services incorporated in the Project are listed in the following subsections.

The telecommunication network consists of local standard Fast Ethernet (IEEE802.3u) subnets, according to EIA/TIA568B recommendations, interconnected to a hierarchical star topology. They are composed of router, firewall, switches, metallic cables UTP CAT6 and single-mode optical fiber media.

15.2.5.5 Fiber Optic Backbone Cabling

Fiber-optic cabling infrastructure for voice, data and radio services consists of aerial cables installed on the power and lighting distribution line pole system. Where aerial mounting is not possible, the cable conduit is buried. The fiber optic cables are a combination of multi-mode, single-mode and hybrid type in order to provide connectivity throughout the site.

The corporate data network and automation network is physically separated, each one with its own switch and independent rack.

A fiber-optic cable is provided at the interface point between the processing plant site and the underground mine facility located at the surface room. To allow the exchange of information, such as voice systems, data and images from the surface and allow access to the servers of the data network, CCTV, access control, public address and general alarm systems to the underground mine systems. This cable provides the link between the underground mine systems and the core switch of the corporate data network system above ground.

15.2.5.6 Structure Cabling Infrastructure

The structured cabling infrastructure is the medium for data, voice and video service distribution within each supporting and administrative office. Category 6 cables are utilized to achieve the technical advantages of an integrated voice and data network. The infrastructure cable runs to each selected outlet location, with modular patch panels and outlets utilizing RJ-45 connector plug-ins.

15.2.5.7 Integrated Voice/Data Network System

Integrated voice/data network systems are proposed for the processing plant site and port location. The voice network provides analog/digital voice services for telephone and fax connections through the PSTN. The telephone system has a voice over internet protocol (VoIP) based system.

The data network provides data, internet and intranet services to the processing plant site and port location. The improvement of mobile phone service in the area of the processing plant site and port facilities will be negotiated between BPC and the telecommunications operators in the region.

15.2.5.8 Radio Systems

A trunked radio system is proposed for the processing plant site and port facilities. The radio systems provide wireless, two-way voice communication between personnel at each of the site locations. The radio systems include PSTN access for portable and mobile radios users at each location.

The system is set up with independent functional call groups so that users can utilize the same radios at each of the site locations, adjusting the radios to the correct call group/channel assignment when arriving to the individual sites.

Radio towers, antennas and shelters, where applicable, are placed at each location to provide adequate radio coverage area for the user base. The location of radio towers is to be determined during the next phase of engineering.

15.2.5.9 Public Address and General Alarm (PAGA) System

The public address and general alarm system (PAGA) is a 'safety-critical' electronic system that is used to alert personnel of dangerous and hazardous situations during any site incident and/or emergency. The system allows for the broadcast of a general alarm and associated voice messages from microphones/access points in the control room and property security room.

The PAGA System uses microphones, sound amplifiers and alarm tone generators for the manual and automatic distribution of voice announcements and audible /visual alarms to loudspeakers and flashing lamp beacons. The PAGA system distributes alarm tones, emergency and routine voice messages to all areas of the facility where personnel might be present or have access to the PAGA system.

15.2.5.10 Corporate Security System

A security system is proposed for the processing plant site and port facility for the monitoring of day-to-day operating activities. The integrated security systems provide operators with real time alarms, status and video monitoring. Cameras are installed both inside and outside of buildings and facilities and in the underground mine.

The system is supervised and operated through the central corporate security control room, equipped with appropriate operation stations and monitors.

Redundant servers are responsible for treating video signals and images and for making them available on the corporate security control stations. The specified video server provides installation, administration and operation of a video monitoring system using data compression technology by means of a local network.

The following areas are considered critical with respect to corporate security:

- Central control room;
- Telecommunication equipment rooms;
- Warehouse;
- Electric substation (E-houses);
- Mine, processing plant and port boundaries;
- Entrance gates.

15.2.5.11 Process CCTV System

The process monitoring CCTV assists online real-time process operations in the processing plant area, increasing the safety level of monitored points, controlling the operation of equipment and processes, as well as monitoring the activities of collaborators.

The CCTV system is internet protocol (IP) digital technology with adequate image resolution quality.

Cameras are dedicated to individual processing plant areas and key equipment. These areas are viewed from the port control room (PCR). In addition, cameras in all processing plant areas can be selectively viewed from the central control room (CCR), where images from individual cameras can be recorded.

In locations where cabling installation is difficult, the use of cameras with wireless technology, in accordance with standard IEEE 802.11 and power supplied by means of photovoltaic system, should be studied in the next phase of the Project.

15.2.6 Compressed Air

In the processing plant area, compressed air is supplied via a distribution piping system and by two compressors, (one operating and one standby).

Two different qualities of air are supplied to different consumers:

- Service air (process operation and maintenance/cleaning operation) – 2,042 Nm³/h;
- Instrument air – 1,332 Nm³/h.

The air supply system includes the appropriate number of dryers and filters in order to supply the specified air quality. Dry compressed air is required for the instrument air requirements.

The compressors are rotary screw type and are located in a separate building. Pressure vessels are included in the compressed air building.

In the port area, there is a separate compressed air system with two positive displacement type compressors that operate separately.

15.2.7 Steam Plant

Steam is required for the hot leaching and crystallization circuits and reagents heating. The total design steam requirement is 263.7 t/h and is distributed throughout the process plant as shown in Table 85.

Table 85 Steam consumption summary

Description	Nominal	Design	Unit
Steam consumption – Hot leaching	208.0	239.3	t/h
Steam consumption – KCl crystallization	9.0	10.4	t/h
Reagent heating	1.8	2.0	t/h
Steam loss – blowdown	10.4	12.0	t/h
Steam consumption – total	229.7	263.7	t/h
Boiler efficiency	95	95	%
Boiler heat demand	135.9	156.3	MW
Total electrical demand	143.0	164.6	MW

Steam is distributed from the boilers for use in the crystallizer steam ejectors. Other pressure-reducing stations regulate the steam pressure for use in the two hot leach trains and for reagent heating.

Steam condensate from the hot leach heat exchangers and other steam circuits is pumped to a condensate storage tank located near the power plant. Treated makeup water is added to the condensate tank to offset steam losses in the crystallizer steam ejectors as well as other system losses.

The processing plant requires 263.7 t/h (metric) of steam at 150 PSIG (saturated).

The total steam boiler capacity is 143.0 MW – at 95% efficiency. The connected load is 164.6 MW.

Four high voltage steam electrode boilers will generate steam for the processing plant. The steam plant will include the following equipment:

- HV steam electrode boiler;
- Circulation pumps;
- Feed water pumps;
- Water treatment and feed water tank/line;
- Common pump skid, piping and equipment;
- Frequency controller and panels;
- Related infrastructure (structural building, electrical material, piping, etc.).

Steam is generated by circulating the boiler water through the upper chamber where the electrodes are suspended. Steam is produced in the upper chamber and released at the upper side of the boiler.

The boiler regulates on constant pressure up to its maximum power setting. The output is controlled by a throttle valve that regulates the level in the upper boiler chamber.

The boiler is a cylindrical, vertical design. The high voltage electrodes are located on flanges, which are suspended vertically in the upper boiler chamber.

15.2.7.1 High Voltage Steam Boiler – Main Data

- Design: cylindrical, vertical;
- Capacity: 52.27 MW (4 units will be installed) ;
- Working pressure: 150 psi;
- Design pressure: 200 psi;
- Operating temperature: 220°F;
- Power supply: 34.5 kV / 60Hz;
- Diameter (approximate): 3.0 m;
- Height (approximate): 6.8 m;
- Approximate weight, dry: 16.0 kg;
- Approximate weight, operating: 25.0 kg;
- Reliability/availability: 99.5%;
- Efficiency: 99.9%.

15.3 Surface Water Management

The surface water management system covers the following areas:

- Mine headframe area;
- Processing plant area;
- Tailings management area (TMA);
- Port area.

15.3.1 Site Water Balance

The site water balance flow diagram for the processing plant is presented in Figure 88. The site water balance is comprised of the following:

- Service water;
- Potable water;
- Cooling tower make-up water;
- Process water;
- Steam.

The demands indicated below are not represented in the water balance because they are not consumed continuously and are therefore deducted from the process water consumption.

- Fire water;
- Sealing water.

The port water plant flow chart is presented in Figure 89. The port water is comprised of the following:

- Service water;
- Potable water.

The fire water demand is not included, as it is not consumed continuously.



Figure 88 Processing plant water system

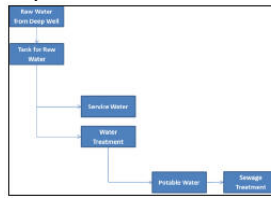


Figure 89 Port water system

15.3.2 Process Water Pond

The deep well that supplies raw water is connected to a pipe and pump on the surface. The well/pipe interface is grouted with concrete to provide a seal that prevents the infiltration of surface water in the well. At the processing plant, water from the deep well is pumped to two ponds that have capacity to store 8,130 m³ of raw water, each. Should one pond require maintenance, the second pond is available to supply water to the processing plant.

The ponds are lined with a high-density polyethylene (HDPE) liner to prevent seepage to the environment.

At the port site, water is obtained from a deep well that is connected to a pipe and pump on the surface. The well/pipe interface is grouted with cement to prevent surface water infiltration. The water from the well is pumped to a 400 m³ above ground steel tank. Water from this tank (50 m³) is used to supply the water treatment station and fire service water.

The ponds at the processing plant site each have the required volume of water to serve half of the process water required for the processing plant and the full volume of water required for the fire water system.

The Madeira River has also been identified as an alternative source of water for the processing plant and mine site. The water intake system would be located at the port location.

15.3.3 Fire Water Pond and Tank

The fire water for the processing plant area is obtained from the process water ponds. Each pond has two valves, one for the fire water and one for process water.

The valve for the process water is positioned so that it is higher than the maximum water level for the fire water reserve. The volume for the fire water storage is 1,200 m³, which is equivalent to four hours of fire water supply.

The positioning of the valve in the steel tank for the water treatment station at the port is higher than the maximum water level for the fire water reserve. The volume of the fire water storage is 350 m³, which is equivalent to two hours of fire water supply.

15.3.4 Site Runoff Pond

A drainage channel is strategically placed to direct the course of rain water (surface runoff) to the site runoff ponds, where it is retained for a period of time prior to release to the environment. The ponds are sized to allow the necessary time to retain the decanted material.

The site runoff ponds design considers the following assumptions:

- The peak rate of runoff (Q) at any point is a direct function of the average rainfall intensity (I) for the time of concentration (T_c) to that point;
- The recurrence interval (50 years) of the peak discharge is the same as the recurrence interval of the average rainfall intensity;
- The time of concentration (15 minutes) is the time required for the runoff to become established and flow the decantation;
- The rainfall rate adopted for sizing the pond is 50 years and 90 minutes – 197.25 mm/h.

The processing plant has one surface run-off pond measuring 154 m x 104 m (16,000 m²). The volume of the pond is 39,500 m³.

The port has two surface run-off ponds, each measuring each 33 m x 73 m (2,400 m²). The volume of each pond is 7,200 m³.

All of the ponds have a HPDE liner to prevent leakage for waterproofing.

15.3.5 Upset Ponds

Upset ponds for Trains A and B are provided west of the hot leach and crystallization circuits to accommodate the emptying of large process vessels during maintenance activities.

15.4 Waste Management

15.4.1 Sanitary Solid Waste

All recyclable materials (paper and cardboard, plastics and metals, etc.) are collected separately at an intermediate waste deposit (IWD) area and sent to a disposable material center (DMC). There is an operation to press the waste into bales, which are then hauled by truck to their respective external recycling locations.

The environmental control area receives all waste generated by the Project from domestic waste to the waste produced in the processing plant area (scraps, packages, tires and belts, etc.).

Section 17.4.3 'Solid and Hazardous Waste Management Plan' describes the functionality for these areas in detail.

During the construction and operation phases, the facilities described below will be implemented.

15.4.1.1 Intermediate Waste Deposit – IWD

Waste collection stations (IWD) are located at the processing plant, port and administrative areas.

The building that houses the IWD is composed of bays. The waste is packaged in drums or dumpsters according to the applicable technical standards. The waste is sent to the DMC and then to the sanitary landfill.

15.4.1.2 Disposable Material Centre – DMC

The DMC structure is composed of storage yards, a covered shed for Class I and II waste and a composting area. The storage yards are fenced and the floors have primary coating. The composting building, that receives the organic waste, has drainage channels throughout its entire perimeter in order to collect water coming from washing and the slurry generated from waste decomposition.

15.4.2 Sewage Waste/Sewage Treatment Plant – STP

Separate wastewater treatment systems collect, treat and dispose of domestic sewage at the processing plant and port areas. The systems consists of a package sewage treatment plant (STP) and gravity collection HDPE pipe network with pre-cast manholes, that are located at changes in alignment, junctions and pipe size or grade. A series of sewer laterals collect and convey wastewater from all buildings to the package STPs. The STPs are located downwind of the processing plant and port. The STPs are sized to treat average flows of 13 m³/h from the processing plant site and 1 m³/h from the port site.

The treated effluent from the STPs is disinfected using ultra-violet (UV) sterilization, or similar technology. The UV-treated effluent is then released, to the environment through an infiltration field or used as irrigation water.

The STPs will treat raw sewage to a 95% efficiency level. At the end of the treatment the effluent shall comply with the conditions and standards established by Normative Instruction COPAM / CERH – MG N^o. 1, dated May 05, 2008.

15.4.3 Industrial Waste Disposal

The Solid Waste Management Plan (Section 17.4.3) promotes the proper management of waste generated in the construction, operation and closure of the Project, including collection, classification, storage, recycling and final disposal.

Industrial waste management is segregated by sources with selective collection, intermediate disposal and allocation in the sanitary landfill. Approximately 80% of the waste produced at the mine, processing plant and port sites are handled by recycling and by the composting of organic matter. The remaining 20% is sent to the sanitary landfill.

Recyclable material is transported in containers to recycling centers or industries in the region of Autazes and Manaus.

The sanitary landfill is fenced and has a gate to control access.

15.5 Tailings Management

15.5.1 Tailings Management Area

Tailings from the processing plant exit the hot leach building via a belt conveyor that runs in a west to east direction. The tailings are conveyed to the tailings management area via a series of overland conveyors. The tailings management area consists of two tailings deposit sites, with usable battery volume of 24.1 million m³ each (piles are physically sized at lower total volume of approximately 48 million m³ to account for tailings dissolution during overall stockpiling operation). (WorleyParsons and PdB, 2018, /58/)

Each site accommodates the following:

- Each tailings pile will be designed with the following dimensions (WorleyParsons and PdB, 2018, /58/):
 - Length: 1,247 m (at the base);
 - Width: 1,147 m (at the base);
 - Height: 25 m;
 - Usable battery volume: 24.1 million m³ each;
 - Tailings density: 1.6 t/m³.

- Each pile has two brine ponds with the following dimensions (WorleyParsons and PdB, 2018, /58/):
 - Length: 1,147 m (at the top);
 - Width: 125 m (at the top);
 - Depth: 3 m;
 - Volume of each pond: 504,000 m³.
- Perimeter collection ditches;
- An allowance for a 6 m wide road passage around the pile and pond; and
- A 6 m corridor for an overland tripper conveyor that assists in the tailings stacking operation.

The complete area under the tailings site is lined to manage surface water collection and prevent contamination of the surrounding soil and ground water. The lining system consists of a 500 mm clay stabilized with bentonite layer under piles (300 mm under roads, ditches and pond), 80 mil thick HDPE liner and a 300 mm stabilized clay layer intended for a HDPE liner ballast and protection from stacking equipment tracks (this last 300 mm layer is only present under piles).

For more information see the following reference of Worley Parson (WorleyParsons and PdB, 2018, /58/).

15.5.2 Brine Management

Surface water in each tailings site is collected and directed to the brine pond. The brine pond has the following purposes:

- Settle any insoluble solids prior to sending brine to the brine injection circuit;
- Provide some capacity to smooth out peaks in brine volume that need to be injected from periods when there is high rainfall, to periods when there is lower rainfall and
- Provide capacity to accommodate rain collected from the tailings site area during an one hundred year rainfall event.

Overflow from the brine pond is pumped to the brine injection circuit which consists of the following:

- Brine tank and injection pumps located adjacent to the brine pond: one set of tanks and pumps is provided for each tailings site;
- Brine injection wells: five operating and two stand-by wells are provided for each tailings site. Wells are spaced around each tailings site to allow access from roads already provided for the tailings piles and pond. Next to roads, corridors are provided for HDPE brine lines running on the surface from the injection pumps to the injection wells;
- Brine recirculation pumps and lines: to achieve appropriate brine saturation, some of the brine is recirculated back to the stockpile.

15.6 Mine Facilities

15.6.1 Refrigeration Plant

The surface refrigeration plant includes three refrigeration plant rooms, which supply chilled water to the surface and underground bulk air coolers. Chilled water is distributed through pipelines down the mine shaft to the underground cooling stations.

Refrigeration plant room No.1 comprises a surface bulk air cooler, refrigeration modules, plant building, condenser cooling towers, water pump systems and electrical and control systems (cold air is supplied to the main shaft). The total surface area is approximately 50 m x 60 m, including 40 m x 10 m for the cooling towers, 35 m x 15 m for the refrigeration units and 50 m x 20 m for the bulk air coolers. The refrigeration plant is located next to the main shaft winder house and is connected to the main shaft via an underground decline.

Refrigeration plant rooms No.2 and No.3 are comprised of refrigeration modules, plant building, condenser cooling towers, water pump systems, electrical and control system.

The total surface area for both refrigeration rooms is 70 m x 15 m. The dimensions for the cooling tower are 80 m x 10 m.

Two warm water holding tanks, (20 m x 20 m) are located next to the headframe and plant rooms N° 2 and N° 3, which are fed by the shaft return columns and transfer water to the refrigeration plants.

15.6.2 Main Fan Station

The furthest corner of the main fan buildings are approximately 70 m from the ventilation shaft. The individual fan buildings are located in an angled position from the main ventilation shaft connection and have a span of 30 m in total.

The main fan station, consisting of three main exhaust fans, has an approximate 5 m diameter subsurface connection to the ventilation shaft. The fan station equipment includes inlet duct work, instrumentation, centrifugal fan sets, fan casing, fan impeller, fan shaft, fan holding brake, electric motor and VSD.

15.6.3 Backfill Plant

The backfill plant, located next to the main substation is a 42 m x 30 m sized building that connects to the processing plant via a belt conveyor system. The total height of the building is approximately 23 m.

The building holds two slurry mixing tanks, two brine tanks, brine and suspension pumps and piping structure. Slurry is fed to the ventilation shaft via a pipeline.

The brine tanks are located on the ground floor; whereas, the slurry mixing tanks, which receive the solids residues from the processing plant, are positioned above on a platform.

15.6.4 Material Yard

The material yard comprises an area of approximately 7,700 m² and is fully fenced. It is located next to the main fan station and is used for delivery and storage (short-term and long-term) of mining equipment and materials. The yard includes sheltered storage facilities, where smaller sized materials are stored until they have been disbursed to the job.

15.6.5 Other Mine Surface Facilities

Additional surface mine facilities include offices, dry house, lamp room, training room and mine rescue room. The mine control room is integrated in the overall surface control room facilities.

The ancillary surface facilities, to support underground operations, are located adjacent to the mine headframe.

15.7 Processing Plant Facilities

15.7.1 KCI Processing Building

15.7.1.1 Area 3100 – Raw Ore Crushing

The raw ore crushing plant consists of three buildings and two storage areas: Table 86 presents a description of each building and storage area:

Table 86 Raw ore crushing plant building and storage areas descriptions

Building Description	Length [m]	Width [m]	Height [m]	No. of Levels
ROM transfer station	12	9	15	3
Ore crushing building	15	15	25	4
Hot leach feed transfer station	15	15	25	4
Crushed ore storage	12	9	15	3

An area for the emergency ROM storage has been set aside for future development. It will consist of a concrete pad with perimeter.

The equipment located within the building structures includes belt conveyors, feeders, crushers, bins, hoppers, maintenance monorails and dust collection equipment. No allowance is provided for overhead travelling cranes.

15.7.1.2 Area 3100 – Building Structural Features

All three ore crushing buildings are constructed of structural steel with roof and floor beams supported by columns.

The various interior fiber-reinforced plastic (FRP) grated floors and platforms are supported by structural steel beam and column components. Vertical bracing for each building is located on the exterior of the buildings in a north-south and east-west direction. Horizontal bracing is within the roof and heavy loaded floors and platforms.

The reinforced concrete building foundation consists of precast concrete piles, pile caps, piers and grade beams.

Stairwells and stairs between platforms, within buildings, are provided for the movement of personnel. A minimum of two access points are provided for each level of the buildings.

Each building has a roof, but no siding, which allows access to equipment by mobile cranes.

15.7.1.3 Area 3200 – Wet Process

The wet processing plant consists of two buildings, two containment areas with thickeners, tanks and pumps and two ponds. Table 87 presents a description of the buildings and upset ponds.

Table 87 Wet processing plant buildings and ponds description

Building Description	Length [m]	Width [m]	Height [m]	No. of Levels
Hot leach/filtering	66	66	30	3
Crystallization	126	66	44	5
Upset pond for Train A	60	40	—	—
Upset pond for Train B	60	40	—	—

The thickener for Train A includes a containment area that measures 34 m long x 24 m wide, a 15 m diameter slimes thickener, a feed tank and a feed pump.

The thickener for Train B includes a containment area that measures 34 m long x 24 m wide, a 5 m diameter slimes thickener, a feed tank and a feed pump.

The equipment located within the building includes tanks, agitators, pump boxes, pumps, screens, filters, thickeners, heat exchangers, conveyors, crystallization vessels, hydrocyclones and maintenance monorails. Mobile cranes will be used as required to perform maintenance.

15.7.1.4 Area 3200 – Building Structural Features

The hot leach/filtering building is constructed of structural steel with roof trusses spanning the width of the building. The trusses and floor beams are supported by columns.

The crystallization building is a shell type structure with roof trusses supported from columns. Interior platforms and stairs around the vessels provide access for maintenance and operation.

Structural steel beam and column components support the various interior FRP gated floors and platforms. Vertical bracing for the building is located on the exterior of the building in a north-south and east-west direction. Horizontal bracing of the building is within the roof and heavy loaded floors and platforms.

The reinforced concrete building foundation consists of precast concrete piles, pile caps, piers and grade beams. Concrete slab-on-grade serves as the building floor and minor equipment support base. Individual foundations and bases are provided for support of equipment on the grade floor elevation.

Roof cover is provided for both buildings. No siding has been provided.

The containment areas have concrete pads with perimeter walls. Slimes thickeners are supported by a concrete ring and tie beams on precast concrete piles. Feed tanks and pumps are supported by concrete bases.

There are four sets of heavy crystallization vessels in the crystallization building, which are supported by concrete raft foundations with containment walls.

A set of stairwells and stairs between the platforms, within the building, is provided for movement of personnel and minor materials.

There is a minimum of two access points provided for each level of each building.

15.7.1.5 Area 3300 – Drying/Compaction

The drying and compaction plant consists of one building and one storage facility. Table 88 presents a description of the buildings and storage facility.

Table 88 Drying and compaction plant building and storage facility descriptions

Building Description	Length [m]	Width [m]	Height [m]	No. of Levels
Drying and compaction building	132	78	48	7
Filtered KCl storage – future development	61	44	25	3

Space has been allocated for future development of the filtered KCl storage facility.

The equipment located within the drying and compaction building includes rotary dryers, cyclones, scrubbers, tanks, pumps, fans, conveyors, bucket elevators, screens, crushers, compactors, flake breakers, coolers, bins, hoppers, maintenance monorails and dust collection equipment.

Mobile cranes will be used for maintenance, when required, with access via the side of the uncladded building. There is no need for cladding with the seasonally warm temperatures.

15.7.1.6 Area 3300 – Building Structural Features

The drying/compaction building is constructed of structural steel with roof trusses spanning the width of the building. The trusses and floor beams are supported by columns. Structural steel beam and column components support the various interior FRP gated floors and platforms.

Only roof cover is provided for the building. No siding has been provided, given that it is not necessary in this warm climate and it allows for easier maintenance access.

The reinforced concrete building foundation consists of precast concrete piles, pile caps, piers and grade beams.

A set of stairwells and stairs between platforms are provided for movement of personnel and minor materials.

A minimum of two access points is provided for each level of the building.

15.7.1.7 Area 3400 – Product Handling

The product handling portion of the processing plant consists of two buildings and one storage area. Table 89 presents a description of the KCI final product conditioning building, truck loading building and KCI storage building.

Table 89 KCI final product conditioning, truck loading and KCI storage buildings description

Building Description	Length [m]	Width [m]	Height [m]	No. of Levels
KCI final product conditioning	34	24	31	5
Truck loading	46.0	11.0	26	6
KCI storage	108.0	61.7	28.5	2

The equipment located within the buildings includes conveyors, screens, maintenance monorails and dust collection equipment.

15.7.1.8 Area 3400 – Building Structural Features

The KCI final product conditioning building is constructed of structural steel with roof and floor beams supported by columns. Structural steel beam and column components support the various interior FRP grated floors and platforms. The vertical bracing for the building is located on the exterior in a north-south and east-west direction. The horizontal bracing of the building is within the roof and heavy loaded floors and platforms.

The reinforced concrete buildings foundations consist of precast piles, pile caps, piers and grade beams. A concrete slab-on-grade serves as the building floor and minor equipment support base.

15.7.1.9 Area 3600 – Reagents Building

The reagents building is a pre-engineered enclosed structure, measuring 58 m x 32 m.

The equipment located within the building structure includes tanks, agitators, pumps, feeders, bag breaking stations, bins, conveyors and maintenance monorails.

15.7.1.10 Area 3600 – Building Structural Features

The pre-engineered building steel structure is supported by a reinforced concrete building foundation consisting of precast concrete piles, pile caps, piers and grade beams.

15.7.2 Control Room Building

The control room building is located adjacent to the Area 3300 'Drying and compaction building'. It has an area of 222 m² and is a one-level building.

The control room, along with the automation/server room, process/production room, supervision and engineering rooms are located within a modular construction type that has either a structural steel frame with exterior cladding modules or pre-cast concrete structure with masonry elements. The building has split type air conditioning.

The control room with monitoring stations has glazed window panels so that it can be viewed from outside by staff and visitors. This building also includes an equipment room, pantry and toilets.

15.7.3 Auxiliary Buildings and Facilities

The services complex facilities, including most of the auxiliary buildings, are located close to the processing plant. Service facilities are also located close to the mine headframe to support mine operations.

There are two classifications of buildings. The following is a description of each building:

- Offices and associated buildings (gatehouse, first aid, restaurant and kitchen, administrative office, laboratory, change house, control room): modular construction and shipping containers; and
- Services and maintenance buildings (mechanical shop, truck shop and warehouse): modular steel structure containers; some roofs are made of vinyl.

The total floor area of the auxiliary facilities is estimated at approximately 8,000 m². Each building is provided with services that are consistent with the functional nature of the building.

The services complex is primarily a "pre-engineered" building with reinforced concrete spread footing foundations supported by piers and grade beams. The ground floor is a reinforced slab-on-grade with a vapor barrier and granular subbase.

Ventilation, air conditioning and make-up air is provided by air conditioning units with distribution ducting in multi-office areas. Office areas are maintained under a positive pressure relative to their surrounding areas.

Separate ventilating and air conditioning systems are provided for the shops, warehouse, laboratory, administration offices and change house areas. Ventilation for the workshops and warehouses is provided by exhaust fans.

15.7.4 Administration and Dry Area

The administrative building includes offices for managers, as well as operations, maintenance and administrative personnel. The building has meeting rooms, archive storage, IT room, security room, pantry and men's and women's washrooms.

The change room building serves the processing plant employees. The showers and toilets area are of sufficient size to accommodate the largest shift of workers. The locker room is sized to accommodate the total number of workers.

15.7.5 Gate House

The gate house building includes an area for identification, access control and badge issuing, reception, pantry, cleaning material storage room, IT room, road scale control room and men's and women's washrooms.

Access for light vehicles and buses is separated from the access for trucks used to transport the product, equipment or consumable material.

15.7.6 First Aid Station and Fire Station

The emergency complex, which serves the processing plant, mine and port sites, includes a fire department and first aid station.

The first aid station has areas for reception, medical office, treatment room, observation room, nurse station, cleaning material storage room, sterilization, IT room and men's and women's washrooms and change room, including provisions for persons with disabilities and special needs. An ambulance parking lot is located adjacent to the building.

15.7.7 Cafeteria and Kitchen

The cafeteria and kitchen are located in the middle of the administrative complex. This facility contains a fully equipped industrial kitchen with employee toilets, storage room, cleaning material storage room and bottle gas area.

The cafeteria is provided with men's and women's washrooms, is wheel chair accessible and can accommodate up to 110 persons at the same time. Parking lots are provided for loading/unloading trucks.

A leisure area with bank and convenience facilities is located close to the cafeteria complex.

15.7.8 Industrial Warehouse

The warehouse is located close to the workshop in the service complex building and is designed with a high PVC vinyl ceiling to accommodate high storage shelving. Offices for warehouse personnel and a tool shop are included in this building. The administrative support area (tool shops, offices, pantry and washrooms) is attached to the warehouse and is constructed from shipping containers.

15.7.9 Mechanical Shop

The mechanical shop is located near the warehouse in the service complex building and is designed with a high ceiling to accommodate equipment.

The facilities included in this building are: offices for mechanical shop personnel, tool room, lubrication room, wash room, boiler shop, machine shop, electrical instrumentation shop. The administrative support area is attached to the mechanical shop and is constructed from shipping containers. It includes tool shops, offices, pantry and washrooms.

Lubricants and chemical products will be stored in the warehouse in a separate area located beside the mechanical workshop.

15.7.10 Truck Shop

The truck shop is located close to the warehouse and mechanical shop in the service complex building and is designed with a high ceiling to accommodate equipment and vehicles

The facilities included in this building are: offices for truck shop personnel, tool room, lubrication and tire repair shop. The administrative support area is attached to the mechanical shop is constructed from shipping containers.

These buildings include tool shops, offices, pantry and men's and women's toilets. The truck wash is uncovered and is located beside the truck shop.

The truck shop is designed to permit the maintenance of mobile equipment and front end loaders.

It is not designed for the maintenance of trucks used for product transportation.

15.7.11 Fuel Station

At the processing plant, fuel is unloaded at the following locations:

- Fuel station: Serves the mobile equipment. Comprised of two tanks (60 m³ each), two single-stage centrifugal pumps (one operating and one standby);
- Emergency power generators: Comprised of one tank and dedicated pump to feed the generator engine.

15.8 Port Site Facilities

PdB has obtained authorization to build and operate a Private Use Terminal (TUP) in an area owned by the company, located outside the public port area, on the left bank of the Madeira River, in the Municipality of Autazes. The coordinates for the ports position are LAT 03° 32' 45,3" S and LONG 058° 55' 18,2" W. This port has been permitted to handle the loading of mineral bulk solids (potash) for waterway transportation and the unloading of liquid bulk (fuels) and general cargo from waterway transportation, exclusively, to meet the logistic needs of the company in the region. BPC retained the services of WorleyParsons resources & energy to design and update the cost estimate for the port location in Urucurituba (WorleyParsons and PdB, 2022, /59/).

15.8.1 Cargo Movement and Flow Estimation

The TUP should commercially handle solid mineral bulk (potash), by waterway, as well as fuels and general cargo to meet the routine logistics needs of the mining enterprise, according to the following estimates shown in Table 90.

Table 90 Estimation for handling of solid material and general cargo (WorleyParsons and PdB, 2022, /59/)

Movement	Charging Profile	Main Loads	OBS
2,160,000 t/a	SOLID GRANEL	Granular potassium chloride	Marketing
Approximately 11,000 t/a	GENERAL CHARGES	Construction material/ maintenance equipment and parts/ foodstuffs/ miscellaneous materials	Own consumption

The potash cargoes shipped in bulk barges will be transported in river convoys belonging to Brazilian shipping companies authorized to operate in cargo transport, in inland waterways of interstate longitudinal course, with the purpose of supplying the needs of the domestic market of agricultural fertilizers. The company will not carry out the transportation of the cargo. The most probable cargo flows will be up and down the Madeira River, between the terminal and port facilities located in Porto Velho/RO, to supply the markets of the states of Rondônia/RO and Mato Grosso down the Amazon – Tapajós Rivers, between the terminal and the District of Miritituba – Itaituba/PA, to the fertilizer market in the north-central region of Mato Grosso and to other terminals operating on the Amazon River that operate with cabotage shipping, so as to supply the fertilizer needs of other regions in Brazil (WorleyParsons and PdB, 2022, /59/).

15.8.2 General Description of the Terminal

Figure 90 shows the layout of the terminal facilities and the floating jetty.

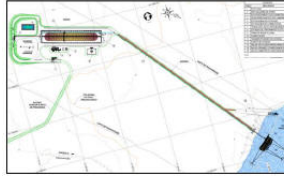


Figure 90 General terminal plan – facilities and floating pier (WorleyParsons and PdB, 2022, /59/)

15.8.3 Loading and Handling Facilities

The onshore port area comprises the following loading, handling and storage structures (WorleyParsons and PdB, 2022, /59/):

- KCI storage shed;
- Interconnection platform; and
- Access ramp/supplies.

These facilities and structures will be described in the following.

KCI Storage Shed

The potash storage shed is located in the port, at elevation El. 25000, approximately 1 km from the floating dock and has a capacity of 100,000 t. This shed occupies an area of 20,933 m² and has the following dimensions: 336 m long x 62.3 m wide x 34 m high. It is a structure made of steel, fully covered, with a side covering, tiled floor, surrounded by drainage channels and a frontal main access to the storage shed.

The product is stacked in the shed by a 7200-MC-0106 tripper type belt conveyor, which forms a longitudinal stack of approximately 76 m, which is reclaimed by a 7200-MC-0109 portal type scraper reclaimer. The portal type scraper feeds the 7200-MC-0110 belt conveyor with a width of 800 mm, which has a hopper fed by a loader in eventual conditions (WorleyParsons and PdB, 2022, /59/).

Interconnection platform

An interconnection platform of approximately 930 m long and 15 m wide was planned between the storage shed and the floating dock, where the 7200-MC-0110 conveyor, with a width of 800 mm, will feed the barge loading system.

This interconnection platform will also include a 7 m wide road with drainage channels, which will be located next to the belt conveyor and will be used for maintenance and access to the floating dock. The platform also includes an area for utilities piping and a pole for the electricity grid.

The nominal loading (export) capacity of the facility is 2.16 MTPA of KCI, while it can increase up to 2.44 MTPA during some years of production, which will enable a movement (or warping) of the bulk ferry/barge during loading, based on a 50% utilization rate. This is considered acceptable based on the following assumptions:

- Maximum size of convoy: 20 barges (2,000 t each) with a total weight of 40,000 t;
- Average time to load the train (including all the movement of the barges): 3 days;
- Belt conveyor capacity: 2,000 t/h;
- Annual nominal loading capacity: 2.16 MTPA of KCI;
- Total number of trains per year: ±55; and
- Days in operation to load barges/trains: 161 d/a.

The use of the berth less than 50% of the time (considering the weekly operation for 7 days, 24 h/d) allows accommodating delays arising from weather conditions and equipment maintenance. Vessels are loaded using warping techniques and a fixed conveyor, which are assisted by winches located at pontoons. This operation is significantly longer, allowing higher handling capacity of mobile materials, requiring more operators, which is acceptable, given the low use of the berth for product loading.

The final product KCI in the storage shed will be conveyed by belt conveyors to the floating port and shipped by barge convoy. In the dry season, when the river level is low, the capacity of the barges will be 24,000 t (train with 12 barges)

and in the flood season the capacity will be up to 40,000 t (train with 20 barges). The barges will be loaded by belt conveyors and unloading hoppers with an estimated loading capacity of 2,000 t/h.

To prevent dust generation and product loss, "cascade" model hoppers (or similar) will be used as they have been chosen as the most appropriate system for handling Potash.

The production from Urucurituba port will be carried out by companies qualified and authorized to carry out this type of activity (WorleyParsons and PdB, 2022, /59/).

15.8.4 Logistic and Administrative Support Facilities

The port area comprises the following onshore structures (WorleyParsons and PdB, 2022, /59/):

- Ordinance;
- Support facilities;
- Water tank (service/fire);
- Septic tanks;
- Storm water reservoir (pond); and
- Substation.

These on shore structures will be described in the following.

Ordinance

The Gatehouse will be located at the entrance to the area to control access to the port and support structures, containing space to accommodate the security team, as well as a bathroom and parking area. Soon after the entrance through the gate there is an area for parking with capacity for about 20 trucks (WorleyParsons and PdB, 2022, /59/).

Support Facilities

The support facilities occupy an area of around 400 m² with general and task lighting, electrical outlets and water and sanitary sewer connections, vehicle parking and a bus stop.

The support facilities are grouped into three blocks. The first contains a control and engineering room, an IT/AT room, billing control, storage and male and female changing rooms. The second consists of a canteen with sectors for collection and distribution, cleaning and sanitation, waste and stock deposits and restrooms. The third block has space allocated for a maintenance area for small and quick services, tooling area, battery warehouse, Class I waste warehouse, stock of cleaning materials and pantry. Besides these the support infrastructure will have a water castle, septic tank-filter system, water-oil separator system (SAO) and intermediate waste deposits (containers for temporary disposal of Class II waste) (WorleyParsons and PdB, 2022, /59/).

Water Supply and Distribution

In the port area the raw water supply for all facilities will be provided by two artesian tube wells (one in operation and the other as a reserve). The water tank will have a total capacity of 400 m³ of which 350 m³ will be for fire water and 50 m³ for service water. The tank will be located at elevation El. 25000 within a containment basin with a volume higher than the tank. The entire area will be surrounded by gutters.

The Madeira River has also been identified as an alternative source of water for the port site. The water intake system would be located at the port location.

For the firefighting system a pump with diesel engine, a pump with electric engine and a Jockey pump were considered. All pumps are located in a pump house with roof and drainage channels situated next to the water tank.

For the service water system 2 electric pumps were considered.

A part of the raw water from the tank will be pumped to the service/fire water distribution system by means of two single stage centrifugal pumps (one operational and one standby). The average consumption will be 10m³/h. The raw water will be distributed through carbon steel pipes with 50 mm diameter.

Drinking water will be supplied from water trucks that will collect water from the water treatment plant (WTP/ETA) located in the process plant. A tank will be used as drinking water reservoir. The treated water will be similarly distributed to the raw water by two centrifugal pumps through a 25 mm diameter galvanized carbon steel pipe. The average consumption is estimated at 10 m³/h (WorleyParsons and PdB, 2022, /59/).

Rainwater Pond

The construction of a reservoir for rainwater collection located next to the storage facilities and infrastructure of the retro port area is planned.

The implementation phase of the port will take place in the sequence of installation of a temporary work site for the construction of the port-industrial area road. This site will consist of the following structures (WorleyParsons and PdB, 2022, /59/).

- Temporary accommodation for a workforce of around 50 people;

- Interim power supply system;
- Water collection and distribution system;
- Environmental control system;
- Installation of a construction site for the construction of the port facilities;
- Power substation;
- Environmental control system;
- Ordinance;
- Workshops; and
- Structures for receiving inputs.

Substation

A 1.3 MW substation will be installed at the port to meet the consumption of the facilities during the operational phase. The electrical energy for the port will be supplied from the main substation, which will be located in the processing plant and will be distributed by an approximately 15 km long high voltage line.

In case of emergency a diesel generator with a power output of 100 kW will be installed to supply electricity to provide security lighting, as well as the barge loading and unloading systems that may be in progress at the time of emergency (WorleyParsons and PdB, 2022, /59/).

15.8.5 Pier/Floating Dock

The port facilities will consist of a floating dock formed by two pontoons. The ferries to be loaded with ore will be positioned between the two floating pontoons and will be loaded by conveyor belts coming from the material stockpiling area. The ferries will be sheltered by a metal structure that will connect those two pontoons, as shown in Figure 91 and Figure 92 below.

There will also be a third float which will support the structure of the conveyor belts, being solidary to one of the floats mentioned above. This conveyor belt structure will also serve as an access route for operators to the river facilities.

Taking the river bank as a reference the external pontoon should be equipped with all the necessary facilities for unloading fuel ferries, i.e. connections, piping, filters, etc. The fuel will be pumped into the terminal tank exclusively by the ferry's own pump.

The berth will have a construction licence issued as a "vessel without propulsion for use as a floating berth" and will qualify as a "Class 1 Certified Ship" (EC1). The vessel must be certified and built in accordance with the standards of the American Bureau of Shipping (ABS) classification society. The floating docks will be dimensioned to support the entire metallic structure of the cover and equipment for loading ore barges, one barge at a time. The bulk ferries will have a capacity of up to 4,000 ton per barge (TPB) (WorleyParsons and PdB, 2022, /59/).

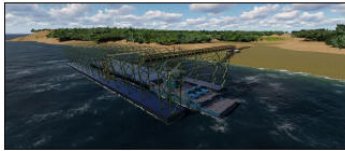


Figure 91 Graphic representation of the future port facilities without the metallic cover for better visualization (1) (WorleyParsons and PdB, 2022, /59/)

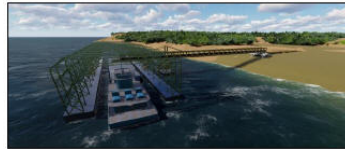


Figure 92 Graphic representation of the future port facilities without the metallic cover for better visualization (2) (WorleyParsons and PdB, 2022, /59/)

River access will be provided by the Madeira River. The facilities will be built on the left bank of the river. The river is about 800 m wide at the quay location. As shown in Figure 93, historically the lowest level ever recorded for the Madeira River in the region is 5.00 m and the maximum level is 21.50 m. A difference of about 16.50 m is consequently expected between the flood and ebb.

As shown in Figure 94 all floating platforms will be equipped with mooring systems using mooring chains, electric winches, shore bollards and anchor pools, which will allow the constant adjustment of the wharf's position, according to the variation in the Madeira River level. The moorings will always have to be adjusted according to the river level in order to obtain a rigid mooring pier. Considering the greatest flood and the greatest ebb as presented above the whole structure is dimensioned to support the largest ferries that can dock there (WorleyParsons and PdB, 2022, /59/).

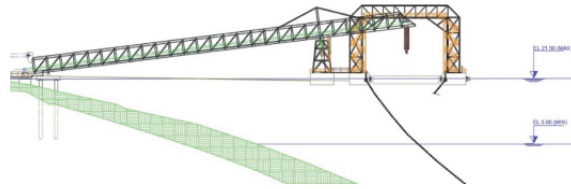


Figure 93 Schematic section of the port facilities (WorleyParsons and PdB, 2022, /59/)

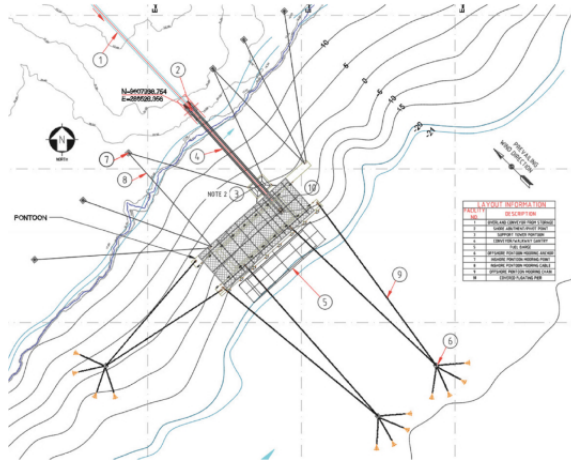


Figure 94 Indication of the facilities of the port site facilities (WorleyParsons and PdB, 2022, /59/)

15.9 Truck Transportation

15.9.1 Unloading Trucks

The transport of KCl to the port (truck unloading system from the port) is carried out by Bitrem trucks, with a capacity of 35 t, and the unloading is done by bilateral tipping of the trucks' cargo boxes. The unloading of the KCl is done inside the silo 1200-TB-0100, with capacity for 105 t, equivalent to the volume of three trucks. The operation is carried out safely inside the vehicle cabin on the EL. 35200, so that there is no contamination of the product on the ground. The product is extracted from the silo by the 7200-MF-0101 belt feeder (belt width 1,200 mm), which discharges into the 7200-MC-0103 belt conveyor (belt width 1,000 mm), which takes the product from the silo to the storage shed in elevation El. 25000. To eliminate particles suspended in the air during tipping, an exhaust system with a bag filter will be installed (WorleyParsons and PdB, 2022, /59/).

15.9.2 Supply and Storage Facilities

The Autazes Potash Project requires the transportation of up to 2.44 MTPA of final product (granular KCl) from the processing plant to the port. This transportation will be done by trucks through the access paved road between the port of Urucurituba and the industrial area.

The paved road connecting these two facilities is approximately 12 km long. The paved road will be built to DNIT Class II standard and traffic has been estimated at over 700 vehicles per day, destined for the flow of production and the receipt of equipment, parts and materials.

The transportation will be done by Bitrem trucks with a total capacity of 30 m³ (15 m³ capacity for each semi-trailer) and equipped with an automated covering system, controlled from the driver's cabin.

The empty trucks will be weighed on scales at the process plant, loaded with the product stored in the silos and weighed again at the gate before heading to the port. The product will be transported between the processing plant and the port 24 hours a day.

At the port, trucks will unload the KCl product into the unloading system and it will be transported by conveyor belts to the storage shed, with a capacity of 100,000 t (WorleyParsons and PdB, 2022, /59/).

15.10 Marine Transportation

15.10.1 Dry Cargo and Construction Port

For the beginning of work a shore ramp has to be excavated on the shore so that the general cargo ferry can be loaded and unloaded allowing access of heavy vehicles. The ramp should overcome the difference in water level in such a way to allow the berthing of ferries at any time of the year.

Currently, general cargo ferries with LOA¹⁷ 82.0 m x Boca 22.0 m x Pontal of 3.2 m with a cargo capacity of 3,400 t (the largest ones) and other smaller ones, which will be able to moor with the bow, equipped with a frontal lifting ramp or with an adjustable metallic ramp, installed on site, operate in the region.

Figure 95 and Figure 96 below show operating general cargo ferries in the region and how they dock at a ramp (WorleyParsons and PdB, 2022, /59/).



Figure 95 General cargo ferry (WorleyParsons and PdB, 2022, /59/)



Figure 96 General cargo raft and concrete ramp with adjustable metallic ramp (WorleyParsons and PdB, 2022, /59/)

15.10.2 Bulk Barges

Bulk barges (vessels) will be used to transport products from the mining of the potash mine. They have all watertight compartments and can transport more than one material per leg. They do not have an own propulsion, so that push boats are used for navigation. Two types of large size ferries are operating in the port (WorleyParsons and PdB, 2022, /59/):

- Racket Bulk Carrier Type 2,750 t (LOA – 77 m; Boca – 12 m; Pontal 4.90 m; Draft – 3.65 m / see Figure 97 and
- Box Bulk Carrier Type 2,900 t (LOA – 76 m; Boca – 12 m; Pontal – 4.90 m; Draft – 3.65 m) / see Figure 98.



Figure 97 Racket raft (WorleyParsons and PdB, 2022, /59/)

¹⁷ LOA = length overall



Figure 98 Box raft (WorleyParsons and PdB, 2022, /59/)

15.10.3 River Pusher and Convoy

A convoy or bulk train is a combination of a barge type and a pusher boat. It is planned to use the following pushers for operation with ferries (WorleyParsons and PdB, 2022, /59/):

- Fluvial Pusher of 6000 HP at 1,800 rpm (LOA – 37 m; Mouth – 12.50 m; Pontal – 4.30 m; Draft – 3.50 m) – currently operated only by HERMASA and
- Fluvial Pusher of 4000 HP at 1,800 rpm (LOA – 30 m; Mouth – 10.60 m; Pontal – 3.40 m; Draft – 3.07 m).

Figure 99 presents an image of typical pushers in the region.



Figure 99 River pusher (WorleyParsons and PdB, 2022, /59/)

The maximum size of the convoys that will operate at the terminal is established by the Brazilian Navy. The maximum convoy is the Tapajós River convoy consisting of a pusher tugboat and 16 barges is permitted by the NPCF-2015 of the Santarém Port Authority.

Figure 100 and Figure 101 show typical convoys (WorleyParsons and PdB, 2022, /59/).



Figure 100 Drawing of a bulk train (WorleyParsons and PdB, 2022, /59/)



Figure 101 Bulk train in operation (WorleyParsons and PdB, 2022, /59/)

16 Market Studies

This chapter of the updated FS was prepared using CRU's 2022 Potash Marketing Report commissioned for BPC (CRU, 2022, /12/) as the main source of information, and, in addition, resource materials, reports and documents noted in the text and in the chapter "References". The CRU Potash Marketing Report is attached as APPENDIX 25 to this updated PFS.

Firstly, the global potash markets and the changes in them since February 2022 are described briefly. The next section gives a short overview of the Brazilian potash market. Finally, the development of the MOP prices for the Autazes Potash Project is analyzed.

16.1 Global Potash Market

The majority of potash fertilizers are applied as potassium chloride (KCl) and traded as MOP with a standard grade of 95% KCl, which is equivalent to 60% K₂O. Smaller amounts are supplied as potassium sulphate, traded as SOP, or mixed with other nutrients to obtain NPK, KMG and other fertilizer cocktails. Both product lines, MOP and SOP, are traded as standard material, which is a crystal-grained product, or granular, which is a compacted and crushed or granulated coarser product. Besides this agricultural application, there are many industrial applications for KCl.

The global effective MOP capacity amounted to 76 million metric tonnes in 2021.

Global potash production is highly concentrated among a handful of companies and geographic regions.

The major producing countries are located in the Northern Hemisphere, especially in Canada, Russia and Belarus, which together account for nearly 70% of global MOP capacity in 2021 (see Figure 102).

The major producers are NUTRIEN (formed by the merger of PotashCorp and Agrium in 2018) and the Mosaic Company (MOSAIC) all located and operating in Canada and the US; BELARUSKALI and URALKALI, both located and operating in the Former Soviet Union (the former in Belarus and the latter in Russia); the ICL Group, located in Israel and operating in Israel, Spain and UK; the Arab Potash Company (APC), located and operating in Jordan, and K+S KALI GmbH (K+S), located and presently operating in Germany and Canada. Over the past 15 years, China's KCl production has tripled, and this growth was generated by numerous producers. Three more minor producers of KCl, including two in South America, account for most of the rest.

The main consequence of the spatial distribution of the major potash production units is the imbalance between production and demand by regions, which leads to relatively long shipping routes from the suppliers to the consumers:

Only six countries export large quantities to the international market. Many of the areas of high potash demand are located far away from the production areas. The consequences of this fact are long-distance ocean trade routes and, secondarily, rail-only routes (Canada to USA and Russia to China).



Figure 102 MOP capacity [million t/a] by country and producer (CRU, 2022, /12/)

The largest MOP consumers are located geographically far away from the major producers; long-distance MOP trade, along with the time and cost associated with such movement characterises the potash market.

The forecast for MOP supply by CRU (CRU, 2022, /12/) considered the recent political situation regarding the EU and US-led sanctions for Belarussian and Russian MOP exports. The amount of exports from both countries will reduce in 2022 dramatically. In the short term, these deficits can only be partly compensated by the other producers.

16.2 Brazilian Potash Market

Brazil is the world largest MOP consumer outside of China and consumed 85-95% of MOP as granular grade material, most for bulk blending.

In 2021 Brazil had a demand of 7.8 million metric tonnes of K₂O, of which 7.2 million metric tonnes were imported as MOP (= eq. 12.5 million metric tonnes of MOP product) and only 0.6 million metric tonnes of K₂O were other K fertilisers.

In 2021, the domestic production amounted to 0.36 million metric tonnes of MOP.

In 2021, Brazil imported 12.6 million metric tonnes of MOP from:

- CANPOTEX¹⁸ 33%
- Russian exporters 28%
- BPC¹⁹ 19%
- Others (ICL, APC, K+S, SQM) <20%.

The only potash producer in Brazil is the Taquari Mine, in the state of Sergipe, owned by MOSAIC Fertilizantes. In 2021, this operation produced only 0.36 million metric tonnes of MOP, which was completely sold in Brazil.

Figure 103 shows the comparison between MOP imports and MOP domestic production in Brazil.

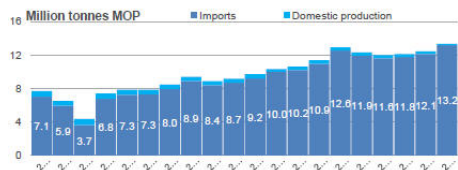


Figure 103 Brazilian MOP imports and domestic production [million tonnes], 2007-2026 (CRU, 2022, /12/)

CRU forecasts a long-term growth prospect for the K₂O demand in South America, which doubles in the next 20 years (CRU, 2022, /12/), Figure 12).

The Autazes Potash Project is located close to the largest MOP consuming state in Brazil, Mato Grosso, with a demand of approx. 2.5 million metric tonnes per year of MOP. This will be a large competitive advantage of the Autazes Potash Project.

Other large-scale MOP consuming states of Brazil are in the vicinity of Autazes Potash Project. Further agricultural developments in Brazil's northern states are planned.

Table 91 Brazilian supply and demand balance from 2017 to 2026 [million tonnes]

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Deliveries	9.72	10.33	10.53	11.25	12.80	12.31	12.00	12.12	12.46	13.35
Effective Capacity	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.21
Production	0.48	0.34	0.43	0.44	0.37	0.38	0.37	0.35	0.32	0.17
Imports	9.23	10.01	10.20	10.95	12.56	11.93	11.63	11.76	12.14	13.18
Exports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 91 shows that in the medium term, Brazilian MOP deliveries will grow to over 13 million tonnes of product until 2026.

It can be confirmed that there are no mature greenfield projects in the country. There were plenty of activities in the past for potash exploration in the Sergipe Region and in the Amazon Basin. However, there is no mature project that could be a competitor to the Autazes Potash Project.

Finally, it is clear that there will be a continuously high demand for MOP imports in the long term as well.

16.3 MOP Price Development

CRU (CRU, 2022, /12/) also delivered a price forecast for the regional market of Brazil.

It starts with a historical approach (Figure 104). The history to date shows a strong increase at the end of 2021 following a long period of relatively low potash prices. For example, the spot price for MOP granular products reached a peak of more than 1,200 USD/metric tonne of MOP granular in April 2022.

¹⁸ CANPOTEX was founded in 1970 as a sales organisation to carry out the offshore exports of the Saskatchewan producers and it owns loading facilities at each mine. CANPOTEX handles all subsequent transportation and marketing. Its members are NUTRIEN and MOSAIC.

¹⁹ Belarusian Potash Company (BPC) handle the overseas markets of the producers in Russia and Belarus.

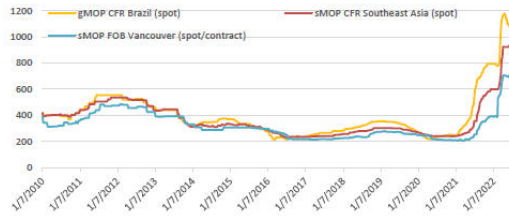


Figure104 Historical MOP prices from 2010 to 2022 (s=standard, g=granular)

CRU gives several reasons in their report regarding this price increase and these are as follows:

“Global demand remained very strong in 2021, particularly in spot markets such as Brazil, the US and Southeast Asia as escalating crop prices meant that fertilizer affordability remained exceptionally favourable.

However, key to 2021 was tight global supply, with effective capacity utilisation in 2021 at 93.5%, just marginally higher than in 2020 and at parity with 2007 levels. The principal supply-side driver pushing spot prices to twelve-year highs was sanctions imposed initially by the EU, then subsequently by Canada, the UK and the US, against Belarus’ potash sector.”

CRU’s potash price forecast covering the FOB Vancouver and CFR Brazil benchmarks over the medium term is shown in Table 92.

Table 92 Medium term potash price forecast up to 2026, [USD/tonne, nominal] (CRU, 2022, /12/)

	Weighted FOB Vancouver (all grades)	CFR Brazil (all grades)
2019	266	330
2020	217	238
2021	257	534
2022	594	955
2023	664	776
2024	522	545
2025	305	350
2026	268	346

In the long term (beyond 2027), CRU uses the concept of long run marginal cost (LRMC), to provide a long run trend price. The LRMC is the economic cost associated with the last plant required to meet forecast demand or the “marginal producer”.

During the long term, CRU recognizes that actual prices will continue to be determined by a complex interaction of driving factors. However, over this period, it becomes increasingly unreliable to attempt to forecast the price cycles and instead CRU focus on the structural elements that determine the underlying trend of prices, based on the understanding that in practice, prices are expected to oscillate about this trend. In an oversupplied market, prices can be expected to fall, lowering prices to the point where the marginal producer cannot generate cash flow and thus reducing supply. In an undersupplied market, prices will rise to encourage further investment in production capacity. High prices also encourage customers to be more efficient in their use of the commodity and/or cutting their consumption. While the consolidated structure of the potash industry may slow down the response to these price signals, we still believe that these drivers will govern prices over the long-term.

In the long term, we forecast MOP demand to increase from 70 million metric tonnes in 2021 to 106 million metric tonnes by 2046. This is based on CRU's analysis of the key drivers of fertilizer demand that will persist over the long term, specifically food consumption (driven by population growth and changes in income) and changes in productivity. These are the main factors we incorporate into our fertilizer demand methodology.

To calculate the LRM, CRU makes an estimation of the LRM for a base year (2021) for representative projects that we believe will determine the LRM. In calculating and forecasting the LRM for the representative projects, we take account of three main elements:

- Operating costs of the marginal producer, assuming long-term utilisation of 85% (of maximum achievable capacity);
- Capital costs of the new plant (including an investor return on capital and risk adjustment based upon the geographic location of the asset);
- The forecast changes in the key variables that affect these costs.

To calculate the LRM, we examine the costs associated with investing in new capacity, and therefore the LRM incorporates a capital charge for each representative project. The capital charge covers the cost of the repayment of capital expenditure of the mine and associated infrastructure.

The capital charge calculation is based on a weighted average cost of capital (WACC). CRU's estimate for the WACC in the mining sector is 9.25% for the base metals and fertilizer sectors, with most countries attracting a premium to reflect their economic and political risk. We have assumed construction periods of 3-6 years and ramp-up times of 2-4 years, depending on mine type and scale, during which time interest is capitalised; capital expenditure including interest is depreciated over 25 years. In most cases, this results in capital servicing charges of around USD 150-400 per annual tonne for most greenfield projects, which should be considered in addition to operating costs (see Table 93).

Table 93 Estimation of the LRM

Location	Canada	Canada	Russia	Morocco	E. Africa	Brazil	Thailand	Congo
Mine type	UG	Sol.	UG	UG	Sol.	UG	UG	UG
Average capacity (Mt/a)	4	3	1	3	2	1	2	1
Site costs (USD/t)	80	165	130	75	85	185	120	110
Costs to CFR point (USD/t)	100	100	120	75	-45	-20	50	60
Other costs (USD/t)	8	8	8	8	8	8	8	8
CAPEX budget (USD/t)	1,970	1,067	700	833	950	800	1,050	500
Effective CAPEX (USD/t)*	4,335	2,089	1,282	1,667	1,900	1,535	2,101	935
Capital charge (USD/t)	501	242	258	264	351	231	478	150
Economic cost (USD/t)	689	515	516	422	399	404	656	328
Weighted average cost (USD/t CFR)					USD 509/tonne			

Includes 20% CAPEX over-run, cost of capital during construction period and 80% operating rate.

Calculating the LRM for these representative projects resulting in full economic costs in the range of 325-700 USD/tonne CFR. CRU takes a capacity weighted-average of these costs as a base LRM; the estimated LRM for 2021 is **USD 509** per annual tonne (nominal basis).

Escalation of the LRM:

The LRM represents the equilibrium or trend price around which actual cyclically driven prices will fluctuate. The LRM is not a fixed quantity but a variable that changes over time, because its components evolve over time. CRU forecasts the long run price by escalating the 2021 LRM according to forecasts of relevant indices (see Table 94).

Table 94 Escalation of the LRM

Macroeconomic variable	Units	2020	2026	2046	CAGR (20-46)
\$GDP deflator	Index (2005 = 100)	135.4	154.4	229.7	2.1%
Capital cost inflation	Index (2005 = 100)	177.6	192.5	286.3	1.9%
Brent crude oil price	USD/bbl	70.7	76.0	162.1	3.4%
Supplies index*	Index (2005 =100)	135.7	154.9	251.7	2.5%
Ocean freight index	Index (2005 = 100)	99.7	110.7	190.2	2.6%
Labour inflation index*	Index (2005 = 100)	141.5	177.5	381.0	4.0%
LRMC escalator	Index (2020 = 100)	100.0	111.0	183.3	2.5%

* Composite of CRU's Canada, Brazil and Less-Developed Country rates.

CRU's quantitative model considers factors that influence the long run cost of production, such as technical productivity gains, operating and capital cost inflation, and exchange rate impacts. The potash inflation index used is composed of the following:

- 60% capital cost inflation;
- 10% ocean freight index;
- 12% supplies index;
- 10% labor inflation;
- 8% crude oil price (as a proxy for energy costs).

The indices reflect the main cost drivers of the potash markets and hence capital cost inflation features heavily in the inflation index, given the capital-intensive nature of potash mining. In addition to the LRM escalator, we have assumed that incremental improvements in productivity will reduce the LRM in real terms by -0.1%/a.

The following table shows the FOB Project netback MOP price based on the LRM methodology and using the weighted average sales to the key target markets for the Project, shown on a real \$2021 level. The netbacks are derived using the CFR Brazil price benchmark plus port costs, expenses and inland freight to the target market, minus the cost of freight from the target market to the Project site (based on use of truck freight only), for the year 2024. The purpose of which is to demonstrate the price that the Project would, in theory, be able to sell at to compete with international players. In order to calculate the weighted average netback, CRU assumes sales to Rondonopolis and Brasnorte, both of which are in Mato Grosso and are allocated a 50:50 split. It should be noted that the freight assumptions used in calculation of the netback for the Project are comprised of truck freight. This reflects a more conservative netback and, should the Project use barge rates for the majority of the journey to the target market, the cost of transportation would be reduced and result in a higher netback. Additionally, the most competitive market is for the Project is Brasnorte, which is the biggest soybean producing center in the state. The Project would be the most competitive producer to sell product there given its in country positioning in proximity to the state and considering that the freight from Paranaguá to Brasnorte is far greater.

To reflect the purchasing power of the USD for 2022, L&M made an adjustment for the variation of the American PPI between July 2021 and July 2022 (Producer Price Index for final demand less foods, energy and services), which was 5.8%.

This price forecast is used for calculating the financial model (cf. Chapter 19).

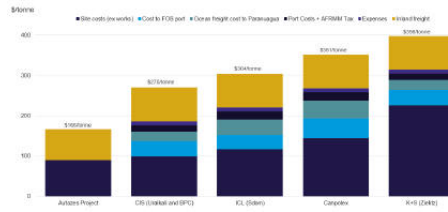
Table 95 Long-term potash price forecast from 2029-2051 [USD/tonne of granular product]

Calendar Year	Production Year	CFR Brazil Nominal USD 2021	CFR Brazil Real USD 2021	FOB Autazes Real USD 2021	FOB Autazes Real USD 2022
2029	1	342.0	282.0	312.0	330.1
2030	2	384.0	311.0	342.0	361.8
2031	3	428.0	339.0	371.0	392.5
2032	4	473.0	368.0	400.0	423.2
2033	5	521.0	397.0	430.0	454.9
2034	6	571.0	427.0	460.0	486.7
2035	7	623.0	457.0	490.0	518.4
2036	8	677.0	487.0	521.0	551.2
2037	9	734.0	517.0	551.0	583.0
2038	10	752.0	519.0	554.0	586.1
2039	11	770.0	521.0	556.0	588.2
2040	12	778.0	523.0	558.0	590.4
2041	13	807.0	525.0	560.0	592.5
2042	14	826.0	527.0	563.0	595.7
2043	15	846.0	529.0	565.0	597.8
2044	16	867.0	532.0	567.0	599.9
2045	17	888.0	534.0	570.0	603.1
2046	18	909.0	536.0	572.0	605.2
2047	19	909.0	536.0	572.0	605.2
2048	20	909.0	536.0	572.0	605.2
2049	21	909.0	536.0	572.0	605.2
2050	22	909.0	536.0	572.0	605.2
2050	22	909.0	536.0	572.0	605.2
2051	23	909.0	536.0	572.0	605.2

16.4 Logistics

One of Autazes Potash Project's major competitive advantages over imports will lie in logistics.

The target market will be located in the Mato Grosso Region. The location of the Autazes Potash Project near to the Region of Mato Grosso will have a substantial logistical cost advantage in comparison to the big suppliers like CANPOTEX, CIS countries, ICL located at the Dead Sea and K+S in central Germany (Figure 105).



SOURCE: CRU, BPC

Figure 105 Comparison of the CFR costs [USD/tonne] to Mato Grosso (Brasnorte) (CRU, 2022, /12)

When compared to the costs for other major exporters to Brazil for 2024 that sit at varying points along the potash cost curve, the Autazes Potash Project appears to have an advantage over imported tonnes.

As a domestic producer, BPC will be able to deliver to mega farmer or blending companies in less than three days EXW as compared to 55 to 107 days typically for imported MOP. Table 94 shows a comparison of the shipment times between the Autazes Potash Project and the biggest players.

Spot markets can operate wherever the infrastructure exists for conducting the transaction. The logistical structure, together with the proximity to the consumers, provides BPC with advantages on the spot market in terms of the

- Quick handling of immediate needs;

- High level of flexibility in terms of the quantity delivered.

The sale of the products on the spot market can facilitate BPC's entry into the potash market, but this is also subject to large fluctuations which is why BPC plans to enter into longer term contracts for the majority of its MOP production.

Table 96 Comparison of shipment times [days]

	Time to Port	Ocea Freight to Paranaguá	Demurrage	Inland freight to Rondonopolis*	Total days, range**
Autazes Project				2.5	2.5
K+S	0.5	28	55	2.0	35-87
ICL	1.0	37	55	2.0	44-96
CIS	1.5	34	55	2.0	42-97
CANPOTEX	2.5	47	55	2.0	55-107

NOTE:

*This figure is representative of a theoretical number of days in terms of journey time excluding time spent at port and could also realistically be impacted by strikes, availability of transport, congestion/ traffic on route and other external factors.

** This range represents the range showing no demurrage and up to 55 days inclusive.

17 Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups

This chapter encompasses information about environmental studies, permitting and negotiations or agreements with local groups including:

- Environmental land permitting;
- Environmental and social setting;
- Potential impacts/risks;
- Monitoring and reporting plans;
- Closure and reclamation plan.

17.1 Environmental Legislation and Permitting

17.1.1 Environmental Licensing Process

Under the Brazilian Constitution, all mineral resources are initially the property of the Federal Government of Brazil until applicable permits, licenses, concessions, and mineral rights are granted to qualified and approved mining applicants. The right to explore and exploit Mineral Resources in Brazil are regulated by the Brazilian National Mineral Agency under Brazilian Decree-Law No. 227/1967 (which we refer to as the "Brazilian Mining Code"), regulated by Brazilian Decree No. 9.406/2018, and applicable policies of the Brazilian Ministry of Mines and Energy. Only Brazilian citizens, or legal entities incorporated in Brazil under Brazilian law, may be entitled to conduct mining activities, including commercially exploiting Mineral Resources, in Brazil.

The environmental licensing process is a legal obligation in Brazil that must be met prior to the installation of any project that could have an impact on the environment. One of most important characteristics of the licensing process is community participation through public hearings in the decision making process. This obligation is set by State Environment Agencies, which are integral parts of The Brazilian National Environmental System (SISNAMA).

The main requirements for environmental licensing are stated in Law N° 6938/1981 and in CONAMA Resolutions 01/1986 and 237/1997. Resolution 01/1986 establishes the obligation for an environmental assessment of specific projects and a minimum scope for the Environmental Impact Study – EIA (in Portuguese, Estudo de Impacto Ambiental). Resolution 237-1997 establishes the legal requirement for environmental licensing prior to the development of a project. In addition to these, the Complementary Law N° 140/2011 discusses the state and federal jurisdiction requirements for licensing, based upon the location of the Project.

Under the jurisdiction of the State of Amazonas there is the following legal framework related to environmental licensing: (i) State Law 1.532/82, which is on the State System of Licensing Activities with Potential Impact on the Environment; (ii) State Decree 10.028/87, which regulates State Law No. 1.532 (07/06/82); Law No. 3.219/2007, which regulates environmental licensing within the State of Amazonas; and State Law 3.785/2012, which establishes licensing fees, according to the activity and type of license required (LP, LI, LO, LAU, among others).

In accordance with Brazilian Legislation, there are four milestone environmental licenses that companies must obtain during the course of the project development to be granted full authorization to run a mine being (refer also to Section 3.6.2):

1. Term of Reference – TR (Termo de Referência) contains the minimum aspects to be studied during development of the project as determined by the environmental agency;
2. Previous License – LP (Licença Prévia) is obtained during the planning phase of the project. A comprehensive Environmental Impact Assessment (EIA) is submitted to the environmental authority that evaluates the project's location, concepts, environmental baseline studies, impacts, and mitigation to certify the project's socio-environmental feasibility. On granting the LP, the environmental authority set forth the requirements to be complied with in the following phases;
3. Installation License – LI (Licença de Instalação) must be obtained prior to construction of the project. In this phase of the licensing process the Basic Environmental Plan (PBA) is submitted to the regulator for review and approval. The PBA outlines compensatory measures and pollution control plans, which contain details for each of the programs outlined in the EIA;
4. Operation License – LO (Licença de Operação) is the last phase of the environmental licensing process and grants authorization to run the Project and sell products. The LO confirms the fulfillment of programs and conditions outlined in the LP and LI. LO will have a maximum validity period of up to 60 months.

Other permits and authorizations, with specific requirements, will be required during the implementation of the PBA programs. Permits shall be issued for research on physical, biotic and socio-cultural resources, such as authorization

for the removal of vegetation and water catchment grant and collection. Project specific permits and authorizations are detailed in the sections below.

17.1.2 Completed Environmental Licensing

Due to the magnitude of the Project and its associated impacts, the licensing process for the Project is administered by the Amazon Environmental Protection Institute (IPAAM).

The Term of Reference, TR N° 008/2014 was issued on July 22, 2014 by IPAAM through the Special Projects and Infrastructure Manager office (Gerência de Projetos Especiais e Infraestrutura – GEPE). The GEPE determines whether or not to grant an environmental license and prepares the Terms of Reference. This information is archived in IPAAM process N° 1962/14/V2. It was determined that there should be an EIA, followed by a RIMA (Environmental Impact Report, or Relatório de Impacto Ambiental in Portuguese) report which is a summary version of the EIA simplified for public consumption.

The EIA/RIMA process has some similarities to an Environment, Social and Health Impact Assessment (ESHIA), as undertaken in other countries. Some of the EIA component studies are submitted to specific entities that review a particular aspect and issue the respective reports and approvals. For example, indigenous studies are submitted to Fundação Nacional do Índio (FUNAI) and archaeological studies are submitted to Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN).

The EIA/RIMA for the Autazes Potash Project, which considers the underground mine, shafts, process plant, road and port, was prepared by Golder Associates (Golder Associates, 2015, /25/; 2015, /24/) in compliance with Brazilian legislation and executed between the second quarter (Q2) of 2013 and January 2015. This consisted of a social and environmental impact assessment of the Project area, high level baseline and reconnaissance surveys by key specialist disciplines and scoping consultations with stakeholders.

Based on 18 months of field data collection and analysis, the EIA was submitted to IPAAM in January 2015. In March 2015, public stakeholder consultations were conducted in Autazes and Urucurituba village by IPAAM and participation of BPC. On July 23, 2015, the EIA/RIMA was approved by IPAAM with 41 socio-environmental preconditions for the issuance of the Environmental Preliminary License – LP N° 054/2015.

However, after receiving the Preliminary Environmental License, the Ministerio Publico Federal (which we refer to as the “Brazilian MPF”), which is Brazil’s federal prosecution office, opened a civil investigation in December 2016 that questioned the validity of the license based on a motion from a non-governmental organization that the consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169 (also known as the Indigenous and Tribal Peoples Convention [1989]). Brazil is a signatory to International Labour Organization Convention 169, which is the major binding international convention concerning indigenous and tribal peoples, and sets standards for national governments regarding indigenous peoples’ economic, socio-cultural and political rights. As a result of the December 2016 Civil Investigation, in March 2017, BPC agreed with the court overseeing the December 2016 Civil Investigation, the Brazilian MPF, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mineral Agency, FUNAI, and representatives of the Mura indigenous people (who make up the over 40 indigenous communities and tribes near the Autazes Project) to suspend the Preliminary Environmental License, and to conduct additional consultations with the local Mura indigenous communities near the Autazes Project in accordance with International Labour Organization Convention 169. Such additional consultations with indigenous communities, which initially started in November 2019, were suspended in March 2020 due to the COVID-19 pandemic, and only allowed to resume in April 2022 following the lifting of COVID-19 related restrictions.

As a result of later changes in the BFS, BPC initiated discussions with IPAAM regarding validation of the License. Details of the re-validation process are outlined in Section 17.1.3.

17.1.3 Permits and Authorizations

Due to the magnitude of the Project and its associated impacts, the licensing process is complemented by other permits and authorizations. The consulting company ARCADIS (Arcadis, 2016, /3/) was contracted to identify all permits and authorizations necessary to implement the Autazes Project. As a result of this survey, the following permits and authorizations were identified as required:

Table 97 Permits and authorizations necessary for Autazes Project

Structure/Activity	Institution Responsible
1 – Explosives	Brazilian Army
2 – Temporary offices, lodging, warehouses	Autazes City Hall
3 – Kitchen/Restaurant	Autazes City Hall – Health Department
4 – Water treatment station, sewage treatment station, waste deposits	IPAAM / Autazes City Hall

Structure/Activity	Institution Responsible
5 – Batching plant, asphalt plant and artesian wells	IPAAM
6 – Fuel storages	IPAAM (Amazonas Environmental Agency) / ANP (National Agency of Petrol) / Autazes City Hall
7 – Port construction	ANTAQ (Brazilian Navy/River Port Authorities in West Amazon) / CFAOC (Water Agency of Occidental Amazon) / SPE / ANP
8 – Energy supply	ANEEL (National Agency of Electrical Energy) / Eletrobras
9 – Water supply/effluent (Madeira River)	ANA (National Agency of Water)
10 – Road	SEINFRA (Amazonas State Infrastructure Agency) / Autazes City Hall
11 – Communication tower	ANATEL (National Agency of Telecommunication)
12 – Heliport	ANAC (National Agency of Civil Aviation) / CINDACTA (Integrated Center of Aerial Defense and Aerial Control)
13 – Customs and importation authorization	Receita Federal / DECEX (Department for Foreigner Commerce Operations)

17.1.4 Current Status of Environmental Work

The Company's current near-term goals are to have the Preliminary Environmental License reinstated and obtain the Installation License, both of which are required prior to starting construction of the Autazes Potash Project. The reinstatement of the Preliminary Environmental License is subject to the initiation of additional consultations with the indigenous communities near the Autazes Potash Project in accordance with International Labour Organization Convention 169, as per the March 2017 Suspension Agreement. There are two major steps that need to be followed in connection with these consultations. The first step is that the indigenous communities need to determine the means of, and who within their tribes will be involved in, the consultations. The first step has been completed. The second step is the actual consultation process, which initially started in November 2019 but was suspended due to the outbreak of COVID-19. In April 2022, following the lifting of COVID-19 related restrictions, consultations resumed with the Mura indigenous people. Such consultations are being conducted in accordance with International Labour Organization Convention 169 and are currently ongoing.

Additionally, the reinstatement of the Preliminary Environmental License and the issuance of the Installation License are subject to submission to, and the review and approval by, FUNAI of the Company's Indigenous Component Study. Following FUNAI's approval, the Indigenous Component Study and FUNAI's decision will be submitted to (i) the court overseeing the December 2016 Civil Investigation to decide whether the suspension of BPC's Preliminary Environmental License will be lifted, and (ii) the Brazilian Amazonas Environmental Protection Institute for its review. At such point following the completion of these steps, the Company would have also satisfied the two remaining items to be completed in order to obtain the Installation License. It is possible, however, that the court overseeing the December 2016 Civil Investigation and/or the Brazilian Amazonas Environmental Protection Institute may interpret the March 2017 Suspension Agreement as requiring the completion of our consultations with the Mura indigenous communities near the Autazes Potash Project in accordance with International Labour Organization Convention 169 prior to the reinstatement of our Preliminary Environmental License and/or the issuance of the Installation License respectively.

Table 98 shows the status of the LP N° 054/2015 preconditions, including the PBA, which details the implementation of programs defined in the EIA. The information presented in Table 98 is valid as of July 31, 2022.

Table 98 Restrictions and/or conditions for the validity of LP N° 054/2015 1st Amendment (Golder Associates, 2015, /24/, 2018, /30/)

Restrictions/Condition	Completion Status	Responsible/ Co-Responsible	Date	Comments
1 - The licensing application and its granting will only be valid after publication in DOE-AM.	COMPLETED	BPC	July 24, 2015	Published in DOE-AM on July 24, 2015
2 - The request for the renewal of the LP N° 054/15 must be requested 120 days in advance.	INFORMATIONAL	BPC	March 24, 2017 (120 days before the deadline for previous license).	Milestone
3 - LP N° 054/15 was granted based on information on process N° 1962/14 / V2.	INFORMATIONAL	BPC for studies and IPAAM for approval	-	Legal process.

Restrictions/Condition	Completion Status	Responsible/ Co-Responsible	Date	Comments
4 - Each and every modification in the project after the issuance of the LP N° 054/15 nullifies it.	INFORMATIONAL	BPC	-	Legal process.
5 - LP N° 054/15 is valid only for the location, activity and purpose contained therein and the party concerned should request IPAAM for a new license if there is any change in these items.	INFORMATIONAL	BPC	-	A report was sent to IPAAM providing information about the processing plant's site change. Approved the change of location.
6 - This license does not exempt or replace any document required by law (Federal, State and Municipal).	INFORMATIONAL	BPC	-	Legal process.
7 - Submit the Engineering design and Specifications of the Potash Project – Amazonas – Autazes and the physical schedule for the execution of works with their respective ARTs (technical term of Responsibility).	COMPLETED	BPC	Must be sent along with the Installation License application. Engineering projects was filed with IPAAM on July 11, 2018.	The Project Description Report and Key Engineering Documents have been submitted and approved by IPAAM and correspond to what should really be implemented. The Basic Environmental Project (PBA) on preconditions compliance was also presented.
8 - Submit the CAR – Environmental Rural Register of the property (ies) directly affected by the Potash Project – Amazonas – Autazes	COMPLETED	BPC	Filed on April 2, 2019.	Updated CAR of the 24 properties already purchased.
9 - Submit supporting ownership documentation of the areas directly affected by the Project	IN PROGRESS	BPC	Filed on September 14, 2016.	Supporting documentation owned by 24 areas were submitted to IPAAM. Another 11 required areas are under negotiation and 7 areas will be negotiated. Schedule to be set.
10 - Submit copy of ANM notice considering the Economic Mining Plan satisfactory.	COMPLETED	BPC	Filed on December 21, 2020.	Document certifying the approval of the Mining Plan by the ANM was filed with IPAAM.
11 - Re-submit the Floristic Inventory considering the different forest types existing in the ADA (Directly Affected Area) in order to meet ToR N° 01/13 – GEPE, aiming at obtaining the LAU for vegetal suppression.	COMPLETED	BPC	Filed on May 30, 2019.	This condition was met for the new ADA area, considering the changes in the processing plant and the new location of the support infrastructure. The document was approved by IPAAM.

Restrictions/Condition	Completion Status	Responsible/ Co-Responsible	Date	Comments
12 - Submit technical studies aiming at the maintenance and realization of forest connectivity.	COMPLETED	BPC	Filed on July 3, 2018.	The IPAAM considered the studies satisfactory for the new directly affected areas (ADA).
13 - Submit the wood utilization plan in its different forms (e.g.: timber, logs, firewood), including the use in the construction process in the project.	COMPLETED	BPC	Filed on April 2, 2019.	This study for the inventoried areas was approved by IPAAM and includes the guidelines for the use of wood.
14 - Submit supplementary studies on the effect of salt on the land aquatic biota, with the execution of toxicity tests with specific organisms (animals, plants and microorganisms) under standardized conditions that allow the assessment of the adverse effects of the sample under analysis.	COMPLETED	BPC	Filed on July 5, 2018.	Toxicity tests were completed and approved by IPAAM with specific organisms under standardized conditions.
15 - Submit the hydrogeological study showing the effects of brine injection on the layer below the mineralized area, regarding the aquifer quality compared to the adjacent, overlying and underlying layers.	COMPLETED	BPC	Filed on April 2, 2019.	SRK performed the brine injection simulation and the study was considered satisfactory by IPAAM.
16 - Submit study related to the possibility of contamination for shallow aquifers by a saline solution comprising: lithological characterization of the area subject to possible contamination sources, soil permeability, dispersion mechanism, vertical and horizontal propagation speed, persistence, chemical decomposition and biological degradation.	COMPLETED	BPC	Filed on February 1, 2019.	Lithological characterization of the area, soil permeability, dispersion mechanism, horizontal and vertical propagation speed, persistence, chemical decomposition and biological degradation, was completed and approved by IPAAM.
17 - Submit studies on the Indigenous Component as per Normative Instruction N° 02/2015, based on the reference Term issued by FUNAI, as per process N° 08620.045481/2013-10.	IN PROGRESS	BPC	Planned for December 2022.	The Indigenous Component Study (ECI) was completed in February 2017 and updated in September 2019. At the moment BPC awaits authorization from the Federal Court to present the ECI to FUNAI.
18 - Submit FUNAI's declaration with the formal approval of the Indigenous Communities Support Program, Social Communication Program and Environmental Education Subprogram.	IN PROGRESS	BPC	Planned for December 2022.	The aforementioned programs will be prepared and submitted to FUNAI for analysis after the approval of the ECI.
19 - Submit IPHAN's declaration with the formal approval of the Archaeological Prospecting, Saving and Monitoring Program, and the Heritage Education Subprogram, meeting what is established in Normative Instruction IPHAN N° 01/2015 and Decree IPHAN N° 230/02.	COMPLETED	BPC	Filed on April 2, 2019.	The program was developed in accordance with Instruction No. 01/2015 and Decree No. 230/02 of IPHAN.

Restrictions/Condition	Completion Status	Responsible/ Co-Responsible	Date	Comments
				The program of archaeological rescue and environmental education was approved by IPHAN and filed with IPAAM.
20 - Submit, in 180 days' time, conventions and/or cooperation agreements with preferably public institutions aiming at the qualification and/or training of professionals required for the project implementation and/or operation.	COMPLETED	BPC	Filed on February 6, 2018.	With a view to training and/or qualifying professionals for the construction and/or operation of the project, the Work Qualification Program was prepared and approved by IPAAM. Partnerships will be signed with approximately 15 public entities to execute this Program upon receipt of the Installation License.
21 - Submit, in 365 days' time, the results of qualification and/or training as well as the view to the recruitment of labor, primarily from the municipalities of Autazes and Carreiro da Varzea.	COMPLETED	BPC	Filed on July 22, 2016.	The Labor Training Program was approved by IPAAM. However, the training sessions were not initiated due to the suspension of environmental licensing activities due to the Judicial Agreement signed with the Federal Court.
22 - The labor contracting should prioritize the municipalities of Autazes and Carreiro da Varzea, with at least 50% of jobs created.	INFORMATIONAL	BPC	(Ongoing)	Recommendation to be followed during the implementation of programs in the Installation License phase. Local labor is based on the outcome from items 20 and 21.
23 - Submit the SPU – (Union Patrimony Service's) declaration for the use and occupation of marginal land in the port area.	COMPLETED	BPC	Filed on August 8, 2018.	The documentation issued by the SPU was considered satisfactory by the IPAAM.
24 - Submit the "No Objection" issued by the Brazilian Navy/River Port Authorities in West Amazon.	COMPLETED	BPC	Filed on April 9, 2021.	The agency responsible for port operations in the region was formalized (CFAOC) issued the document 'Nada a Opor' and IPAAM considered the document satisfactory.

Restrictions/Condition	Completion Status	Responsible/ Co-Responsible	Date	Comments
25 - Submit the revision of Project classification regarding risks, from the definition of chemical substances to be handled/used and their storage conditions, based on the technical standard CETESB P4.261/2011. If necessary, upon classification, submit Risk Assessment Study – EAR and the Risk Management Plan – PGR.	COMPLETED	BPC	Filed on July 3, 2018.	The report was prepared by Golder & Associates and approved by IPAAM.
26 - List, based on studies, which Conservation Units (Municipal, State or Federal), even those outside the area limits of the Physical, Biotic and Social Environments Regional Study, may suffer pressure on their natural resources (like fish and wood products), coming from nearby urban centers and the project itself, increasing demand due to its installation and operation.	COMPLETED	BPC	Filed on July 3, 2018.	The report was prepared by Golder & Associates and approved by IPAAM.
27 - Submit a program containing the measures to reduce risk of wild fauna being run over.	COMPLETED	BPC	Filed on July 3, 2018.	The report was prepared by Golder & Associates and approved by IPAAM.
28 - Submit a program containing the measures for the monitoring of target fauna groups that were listed in the study as bio- indicators, highlighting the importance of monitoring chelonians and fish species consumed by local population.	COMPLETED	BPC	Filed on July 3, 2018.	The report was prepared by Golder & Associates and approved by IPAAM.
29 - Submit the program for the control of endemic diseases, meeting CONAMA Resolution N° 286/2001 and Decree N° 1 of January 13 th , 2014 by the Ministry of Health, approved by the secretary of Health / Health Surveillance Agency.	COMPLETED	BPC	The report was prepared by Golder & Associates and approved by IPAAM.	The report was prepared by Golder & Associates and approved by IPAAM.
30 - Submit program containing the measures for monitoring and control of insects that may act as vectors of diseases.	COMPLETED	BPC	Filed on July 3, 2018.	The report was prepared by Golder & Associates and approved by IPAAM.
31 - Submit geotechnical studies to determine the strength of rocks or sedimentary packages in the future mine and port industrial area.	COMPLETED	BPC	Filed on January 23, 2017.	The studies was prepared by Golder & Associates and approved by IPAAM.
32 - Based on article 36 of Federal law N° 9985/2000 (SNUC) and Federal Decree N° 6848/2009, when requiring the Installation License, the project must submit the Reference Value (VR) adopting 0.5% as the project impact rate (GI), as per article 15 in CONAMA Resolution No 371/2006.	COMPLETED	BPC	Filed July 3, 2018.	Document filed with IPAAM and considered satisfactory.

Restrictions/Condition	Completion Status	Responsible/ Co-Responsible	Date	Comments
33 - Indicate the government and non-government agents that will act on the socio-environmental programs' execution.	COMPLETED	BPC	Filed on June 20, 2018.	Proposal submitted to IPAAM and considered satisfactory.
34 - It is expressly forbidden to execute any incursions or operations on indigenous lands unless previously authorized by FUNAI.	INFORMATIONAL	BPC	-	Legal process.
35 - Encourage the ordering of fisheries resources in IDA (biotic medium) through the establishment of a Fisheries Agreement according to Normative Instruction No. 03, May 2011-SDS.	INFORMATIONAL	BPC	Filed on June 20, 2018.	The report was prepared by PIATAM Institute and approved by IPAAM (Instituto Piatam, 2019, /37/)
36 - Submit the Environmental Education Program, comprising at least: Target audience: 1 – surrounding communities (Soares, Vila de Urucurituba and Rosarinho, T.I, Jaury and T.I Paracuruba, including actions in the Autazes headquarters); pastoralists; small farmers, users of the Soares/ Urucurituba road and all others in the Directly Affected Area. 2 – Suggested topics: Shaft drilling process; industrial plant operation and risks of water and soil salinization; pond management; water resources management and solid waste treatment; use of septic tanks; indigenous culture and local communities valuation and respect; control and reduction of deforestation, intensive livestock farming and improvement of pasture and herds; environmental licensing.	COMPLETED	BPC	Filed on June 20, 2018.	The report was prepared by Golder & Associates and approved by IPAAM.
37 - The support activities inherent to the project, located outside the ADA, must obtain the competent environmental license.	INFORMATIONAL	BPC	-	Map the other facilities and provide licensing, including borrow area, waste dump etc.
38 - Increase the participation of Local Committee representatives, including representatives of the Government of Autazes, environmental agencies, indigenous representation, rural workers and community leaders.	IN PROGRESS	BPC / Government of Autazes, environmental agencies, indigenous representation, rural workers and community leaders.		The Committee of Local Representatives will be expanded and new representations will be included.
39 - Submit quarterly, the negotiations with power suppliers according to the economic feasibility study.	IN PROGRESS	BPC	Filed on October 23, 2015, January 21, 2016, April 25, 2016, July 22, 2016 and January 23, 2017.	It refers to the frequency of reporting to the environmental agency. The submission of the reports is suspended due to the legal action.

Restrictions/Condition	Completion Status	Responsible/ Co-Responsible	Date	Comments
40 - All programs listed in the EIA and requested by IPAAM should be delivered in print and digital format according to the structure defined by IPAAM.	INFORMATIONAL	BPC		Formal instruction in the presentation format of the material to IPAAM. To be done for each report as required.
41 - Submit the Environmental Basic Plan (PBA) comprising the detail of all Environmental Programs, with the mandatory input of the specific considerations named for each program.	INFORMATIONAL	BPC	Filed on July 3, 2018.	The report was prepared by Golder & Associates and approved by IPAAM

Communication of Late Changes to LP

The License No LP 054/2015 1st Amendment was issued by IPAAM to BPC for the Autazes Potash Project on July 23, 2015, specifying 41 restrictions and conditions for its validity. Key conditions identified in the License include:

- Point 4 "Each and every modification included in the project after issuance of this license shall imply its automatic invalidation, and a new license must be requested with the cost to interested party";
- Point 5 "This license is valid only for location, activity and purpose listed herein. The interested party must require a new license to IPAAM when there is any change to any of these items".

During the design phase of the Project changes were made to the proposed project location and operating parameters. Based on the proposed changes and the conditions of the License, BPC initiated discussions with IPAAM regarding re-validation of the License. A report, indicating the advantages and benefits of the new location and including a revised plot plan, was submitted to the IPAAM in September 8, 2015. (On October 26, 2015, IPAAM requested amendment of the EIA/RIMA to account for the changes. The amended EIA/RIMA was provided by BPC on December 23, 2015).

The report outlining the location and plot plan changes is currently in the IPAAM review process. The purpose of the submittal is to provide a description of the effects of the proposed Project changes such that IPAAM can either confirm if the current LP is valid and only requires an update, or if the licensing process must be re-initiated.

A further update will be required to reflect recent changes in the Project that have occurred as part of this feasibility study, such as the volume of tailings to be stored in the tailings management area during operation of the plant and the methodology for construction of the mine shaft.

Installation License Status Update

Substantial work has been completed to obtain the Installation License. There are 78 plans and conditions that are required to be completed and satisfied in order to obtain the Installation License, and, as of the date of this technical report, BPC have completed and submitted 76 of these items, which have been approved by the various applicable Brazilian federal, state and municipal agencies. The two remaining items to be completed relate to the review and approval by FUNAI of an Indigenous Component Study, followed by presentation to the Brazilian Amazonas Environmental Protection Institute of the formal approval by FUNAI of the Indigenous Component Study, including the following three indigenous support programs included therein: (i) Program of Support to Indigenous Communities, (ii) Program of Social Communication, and (iii) Subprogram of Environmental Education (which we refer to collectively as the "Indigenous Support Programs"). Such review by the Brazilian Amazonas Environmental Protection Institute could result in the imposition of conditions to the Installation License. Once BPC obtains the Installation License, the Company will be permitted to start construction of the Autazes Potash Project.

17.1.5 Corporate Policy and Management Resources

Social and environmental studies have been and continue to be undertaken in accordance with Brazilian legislation and international best practice (SG) in order to meet BPC's corporate safety, health and environmental management system objective.

BPC is responsible for managing the environmental permitting, social and communication processes, including compliance with the preconditions established for the licenses. The environmental studies were developed by Golder Associates and other specialized companies.

At site, BPC has several people allocated for planning, monitoring and enforcement of environmental protection measures. This team is also in charge of implementing a management system to ensure the efficacy of environmental requirements for the construction and operational phase.

17.2 Environmental and Social Setting

This section summarizes the social and environmental studies completed for BPC's Environmental Impact Assessment (EIA/RIMA) (Golder Associates, 2015, /25/; 2015, /24/) and supplementary information provided by BPC.

The State of Amazonas (the State) is known for the Amazon rainforest, which is the largest rainforest in the world. It has one of the largest freshwater springs and 97% of its forest cover has been preserved.

The State has one of the lowest population densities in the country, with 2.23 inhabitants per km², according to data from the Brazilian Institute of Geography and Statistics – IBGE (Golder Associates, 2015, /25/). This is due primarily to the fact that the region is predominantly occupied by forest.

The Autazes Potash Project is located in the Amazon River Basin, in the mid-course of the Amazon River on a piece of land between the Autaz Açu and Madeira River, just over 30 km upstream of the confluence with the Amazon River. This region is the transition between topographic relief units – the Amazon Lower Plateau and the Amazon Plain. The terrain is generally flat with elevations ranging from 0 m to 50 m.

The Project will be located in the municipality of Autazes in a rural area that was largely deforested several decades ago by prior owners primarily to allow for low density cattle farming, in close proximity to the Urucurituba village and Soares village, which are characterized by farms (property size ranges from 50 ha to 100 ha) and low population density.

The municipality of Autazes, which is roughly 20 km from the future mine shafts and processing plant, occupies an area of 7,599,282 km² and its population, estimated by the Brazilian Institute of Geography and Statistics (IBGE) in 2021, was 41,005 inhabitants, thus making it the sixteenth most populous municipality in the state of Amazonas (IBGE, 2022, /31/).

The Urucurituba village, which is located in close proximity to the future envisaged barge port, is a small urban center with a population of approximately 1,800 people, according to the EIA completed by Golder Associates (Golder Associates, 2015, /25/). The village has remained relatively stable in recent years with an influx of new families to work on the yucca and livestock plantations. There are approximately 205 houses in the village. Some residents carry out commercial and service activities from their homes. Figure 106 provides an aerial view of the Urucurituba village, which is located on the banks of the Madeira River.

The Soares village and the Soares Lake are connected to the Urucurituba village by a dirt road. The Soares village has been in this location for more than 100 year and has 30 families living in 36 homes. There are over 300 homes scattered around Soares Lake. The central urban core of the Soares village is very small and is composed mainly of residential buildings.



Figure 106 Aerial view of Urucurituba village

Figure 107 shows the location of the processing plant in relation to the Soares village.

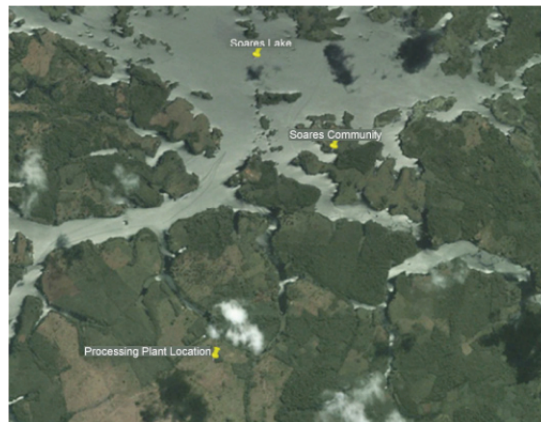


Figure 107 Satellite view of Soares village and project area

17.2.1 Soil

The area is dominated by three main soil types: Latosol, Fluvic Neosol, and Ultisol. The project area is dominated by a weathered Latosol. Fluvic Neosol and Gleysol are found in flooded areas. Fluvic Neosols predominate in sand ridges and dikes, while Gleysols occur in floodplains.

The yellow Latosols occur in a large portion of area between the Urucurituba village and the processing plant. Latosols are well weathered and less vulnerable to erosion and show good resilience through the use of mechanical and vegetation restoration practices.

The paedogenesis processes predominantly lead to the formation of thick, well-drained soils in the Cretaceous sedimentary substrate of the Alter do Chão Formation. The terrain is characterized by hills with flat, restricted tops and gentle slopes. Overall, the most evolved soils are Acrisols and yellow Latosols. Red-yellow Acrisols usually have the Alter do Chão Formation as their source material and occur in plain reliefs in the vicinity of the Soares and Jaury Lake; they have good mechanical stability and in the Project area exhibit no significant erosive features.

The terrain of the upland project area shows no significant processes of erosion or mass movements. The project area is situated in an environment where sediment accumulation processes generally do not promote laminar flow and concentrated erosion. There are limited natural slopes and no significant topographic gradients. Human activities in the area do not appear to have resulted in significant changes to watershed processes or excessive exposure of the soils, maintaining the integrity of the terrain.

Fluvial waters represent the most significant source of erosion in the study area, mainly on the Madeira River, through the transportation and accumulation of sediments by erosion of riverbanks in all waterways. The erosion is a natural phenomenon and is less pronounced on river banks with structured ground cover.

Underground natural cavities are protected under federal law. The EIA indicated that the project area has low to improbable speleological (cave) potential, since the terrain is relatively flat with low hydraulic gradient. Field studies in the project area suggested that there is limited likelihood of caverns or associated geological features that would support caves. The closest caves are more than 170 km away from the project area, in the region of the Presidente Figueiredo municipality. The field survey of the project area did not identify caves or karst formations that would be affected by the project development.

17.2.2 Water

The region surrounding the Autazes Potash Project area has important rivers (Amazon, Madeira, and Autaz Açu), in addition to a number of lakes (Soares, Piranha, Jaury, Munguba, Murutinga, Iguapenu and Iguapenuzinho).

The region has two distinct seasonal periods during the year, as shown in the climate data presented in Chapter 4. However, the impacts of seasonality differ on the rivers. While the Amazon River discharge is associated with snow melt in its headwaters, with peaks in June, the flows of the Madeira and Autaz Açu River are affected mainly by the rainy season, with peaks in April. The Amazon River impacts the region near the mouths of the Madeira and Autaz Açu Rivers, where the Project is located. This influence is called backwater effect, which is caused by a significant volume of water from the Amazon River overflowing into the surrounding water bodies. Figure 108 shows the main rivers and lakes in the project area.

Water availability is not a concern in the region. The high flow rates of the waterways crossing the area assure that the surface water can be utilized without any impact on water resources.

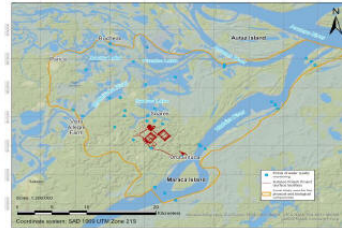


Figure 108 Surface and groundwater sampling points

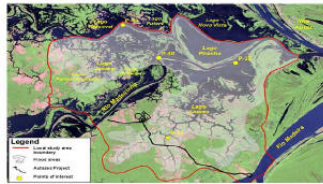


Figure 109 Regional flooding highlighted inside the local study area

During the rainy season, the water level in the rivers is less than 25 m above sea level, with seasonal variations of approximately 10 m for the low-flow season. There are low elevation areas bordering the Amazon River, with fairly smooth morphology, as in the area of the Soares and Jaury Lake. These areas may flood, depending on the season. Seasonal flooding is capable of changing the dynamics of the plains by modifying transport logistics and affecting the water level of the highlands, either by flooding some watercourses or by raising the water table. The proposed project floor plan is located in an area of higher elevation and is not predicted to be affected by seasonal flooding.

Golder (Golder Associates, 2015, /24/) conducted surface and groundwater quality surveys in two seasonal sampling campaigns: low-water (October 2013) and high-water (May 2014). The results of the survey were as follows:

- The surface water of the region is essentially classified as average, according to the water quality indexes (IQA);
- Some parameters can be identified that cause a decrease in the quality index: pH with slightly acid values, BOD (Biochemical Oxygen Demand) with values above 5 mg/l or even turbidity above 100 NTU, which may be considered natural in the region due to the abundant presence of organic matter;
- High concentrations of aluminum, iron and zinc were reported in both campaigns.



Figure 110 Surface water (Golder Associates, 2015, /24/)

17.2.2.1 Groundwater

The Amazon River basin is a region of high water availability with high and low demand offerings, as identified in the Water Resources Situation, published by the ANA (2013). The water balance in the state of Amazonas is defined as satisfactory.

Groundwater investigations identified four main aquifers within the study area of the Autazes Potash Project. The Solimões Aquifer consists mainly of clays and silts without significant continuity. Due to its characteristics, the aquifer does not represent a good supply source. However, it is capable of supplying houses through dug wells.

The Alter do Chão Aquifer is the main groundwater source in the project area and in the Amazon as a whole. This aquifer consists mainly of sedimentary rocks. Groundwater is confined by areas, where bedrock is consolidated.

In the Autazes Potash Project area there are layers of consolidated rock, particularly in the Andirá and Nova Olinda Formation. These units also contain sandy aquifer layers with high groundwater conductivity. Some communities make use of groundwater via either pumping or dug wells. The groundwater extraction volumes are usually low and concentrated in villages. For this reason, water availability is not considered an issue in the study area.

Golder (Golder Associates, 2015, /24/) conducted groundwater analysis in the Autazes Potash Project area by sampling, pumping and well digging:

- The region's population uses groundwater from shallow wells (dug wells) and pipe wells. Most of the wells are concentrated in the Urucurituba village region (adjacent to the port area). Cisterns are available with approximately 10 m depth for residential supply purposes;

- Sample analysis showed low quantity of dissolved solids and an acidic pH (between 4.3 and 5.5). Metals such as aluminum, iron, chrome and nickel were found above the maximum contaminant levels (MCL) for human consumption. The electrical conductivity is low, in the range of 38 mS/cm to 50 mS/cm. The oxidation-reduction (Redox) potential values are high, ranging between 220 mV and 260 mV. Together with the pH data this data suggests that oxidation is occurring in the water wells. Low temperature variations were observed between 28°C and 30°C.

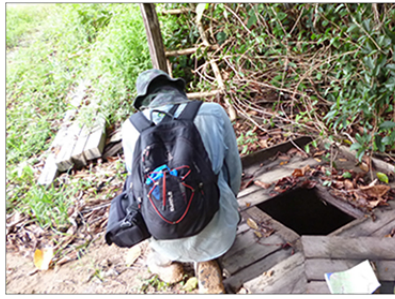


Figure 111 Dug well in the study area (Golder Associates, 2015, /24/)

17.2.3 Air

Air quality samples were collected from four locations in the study area over seven consecutive days (Golder Associates, 2015, /25/). The following parameters were monitored at these points: Total Suspended Particulates in Suspension (TSP), Inhalable Particles (IP), in addition to SO₂ (sulfur dioxide) and NO₂ (nitrogen dioxide) gases. Results from the analyses indicated:

- Concentrations of TSP and IP were below levels considered satisfactory according to the acceptable limits established by CONAMA Resolution N° 03/1990. The values of TSP ranged from 11.13 µg/m³ to 51.94 µg/m³, which are lower than the value permitted (240 µg/m³ for daily average concentrations). IP values ranged from 9.92 µg/m³ to 42.01 µg/m³, which is also below the permitted reference value of 150 µg/m³ for daily concentrations.

The TSP and IP likely originate from the dust of unpaved roads and exposed areas and smoke from fires in deforested areas. The concentrations of TSP and IP are very close, suggesting that the TSP primarily consists of IP, i.e. particle sizes are smaller than 1·10⁻⁶ m.

17.2.4 Noise and Vibrations

Noise is governed by Resolution CONAMA 001/1990, which identifies noise reference levels that are damaging to health and to public peace. Noise levels may not exceed reference levels. Resolution CONAMA 001/1990 establishes reference values in the standard NBR 10.151 – "Evaluation of the noise in lived in areas aiming at comfort of the community", revised in June 2000.

Measurements taken during the noise and vibration monitoring program in the Project's neighboring Urucurituba and Soares village (Golder Associates, 2015, /25/) indicate that the noise generated is mainly natural, produced by insects (crickets), frogs and wind action on vegetation. Detected noise levels that are not considered 'natural' consist of traffic noise from small boats on the waterways, conversations and neighborhood activities.

At Urucurituba and Soares village day-noise monitoring suggested values of 41 dBA and 52 dBA, respectively (Golder Associates, 2015, /25/). The first sound level is in accordance with reference value of the CONAMA Resolution N° 01/1990 (50 dBA at the school area), while the latter exceeds the reference level and becomes the new reference for this location as defined by law. Night-noise monitoring suggested values of 39 dBA and 44 dBA at these two villages, which is in accordance with the reference value of 45 dBA for this period.

No standards are available in Brazilian law for vibration. Background levels of vibration were assessed at four monitoring locations and it was determined that there was little variation between the points (0.16 mm/s to 0.17 mm/s root mean square). Based on the findings of the vibration monitoring it is predicted that environmental vibration in the region is constant. The values obtained in the evaluation of the local background are within the threshold of human perception, which is 0.15 mm/s to 0.30 mm/s as defined by (Whiffin and Leonard, 1971, /54/), and are not predicted to cause damage to neighboring buildings.

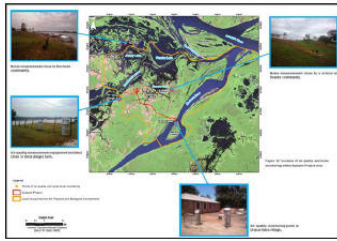


Figure 112 Location of air quality and noise monitoring within the Autazes Project Area (Golder Associates, 2015, /24/)

In September 2018, Golder conducted a Noise Impact Assessment (Golder Associates, 2018, /30/) with reference to the new location of the Project plot plan. Among the 19 monitored receivers, 12 indicated noise levels higher than the criteria established by NBR 10.151, which indicates the need to adopt mitigation measures in order to meet the criteria of this standard.

Golder concluded that with the implementation of the proposed measures and the acquisition of three of the receivers, it is expected that the Autazes Potash Project can operate in accordance with the admissible noise limits. Figure 113 contains the points where the receivers were installed and the indication of the noise levels recorded.

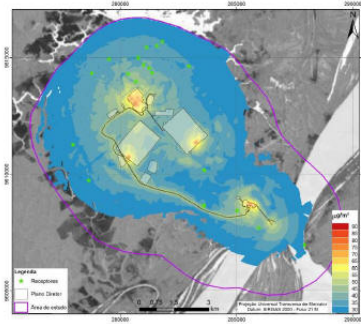


Figure 113 Noise levels for the Project after mitigation measures (Golder Associates, 2015, /24/), Golder Associates (2015)

17.2.5 Ecology and Biodiversity

17.2.5.1 Flora

Vegetable cover in the property area

The forest inventory carried out by the PIATAM Institute (Instituto Piatam, 2019, /37/) records that the site is an area of vegetation cover classified as Dense Anthropophilous Forest of Lowlands and Emerging Canopy. In the project area floristic diversity is high with the predominance of weed and opportunistic species, shrubby and woody, characteristics of an initial secondary forest with transition to a late secondary forest in regeneration as a complete ecological successor, and fragments of primary forest, where several forest species typical of stabilized forests "climax" occur, but where individuals are also still in development with increased biomass both in the air and root network. Anthropogenic areas with the presence of grasses were also identified, indicating an initial stage of regeneration. Figure 114 shows the map of the macrocharacterization of the vegetation cover of the Project area. Figure 115 shows pasture with Babaçu Palm Trees on the industrial plant area.

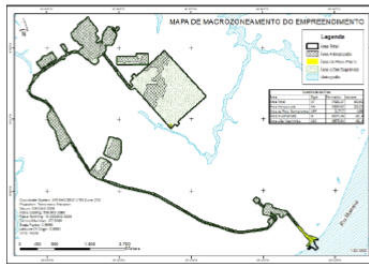


Figure 114 Characterization of area macrozoning (Instituto Piatam, 2019, /37/)



Figure 115 Pasture with Babaçu palm trees on industrial plant area

Approximately 7,200 ha of grassland was mapped during the field study for the EIA (Golder Associates, 2015, /25/), which represents approximately 11% of the study area. Water bodies occupy approximately 39% of the area (24,906 ha) and dense ombrophyllous forest (alluvial and montane) occupies around 37% (23,789 ha) of the area. An alluvial herbaceous shrub cover occupies approximately 12% of the Project area (8,035 ha) and it is associated with lotic and lentic water bodies, which are a habitat for aquatic macrophytes.

Due to prior human intervention in the Project area, the dense ombrophyllous forest was classified as secondary vegetation. Patches of primary forest vegetation were not found. Most of this secondary forest vegetation is in good condition and in an advanced stage of regeneration. Other parts are at an early stage of regeneration as represented by the presence of *Capoeiras*.

Golder (Golder Associates, 2015, /25/) conducted a flora survey in the Project area in the periods October 2013 to November 2013 (low water), April 2014 to May 2014 (high water) and August 2014 to October 2014 (low water), which had the following outcome:

- Six hundred and three (603) species were recorded, namely: 477 arboreal (22 palm trees), 25 shrub, 42 herbaceous (epiphytes and sub-wood), 22 liana and 37 aquatic species;
- Among these, *Aniba rosaeodora* (pau rosa), *Ocotea tabacifolia* (cinnamon) and *Bertholletia excelsa* (nut tree) are listed as endangered species and *Ocotea cymbarum* (inamul) is on the list of data deficient;
- *Amburana acreana* (umburana), *Bertholletia excelsa* (nut tree), *Hymenolobium excelsum* and *H. parvifolia* (jatobá trees) and *Mezilaurus itauba* (itaúba) are classified as vulnerable species;
- The species *Bertholletia excelsa* (nut tree), *Hevea brasiliensis* and *H. spruceana* (rubber tree) are classified as not exploitable for logging purposes according to Federal Decree N°. 5.975, dated November 30, 2006;
- The species *Mezilaurus duckei* van der Werff (blond avocado) is classified as rare (Golder Associates, 2015, /25/). No endemic species were recorded in the studied area of the Autazes Potash Project.

17.2.5.2 Fauna

Terrestrial and aquatic fauna were assessed during field work and desktop studies conducted by Golder for the EIA (Golder Associates, 2015, /25/). The following provides an outline of the findings of the investigations:

- Amphibians – 53 registered species of anuran amphibians (frogs, tree frogs, etc.) were recorded belonging to seven families. Of the 53 species the following is of note:
 - Species are forest dependent;
 - No endangered species were recorded;
 - Three rare species were recorded including *Bolivian Hamptophryne*, *Hydrolaetare schmidti*, and *Dendropsophus Triangulum*;
 - Two endemic species were recorded including *Chiasmocleis avilapiresae* and *Dendropsophus walfordi*;
 - A single frog species was identified as endangered and a potentially new species, not yet identified by science;
- Reptiles – 129 species were recorded: 52 species of lizards, amphisbaenas, alligators and turtles. Three species of tortoise and two species of alligators are listed as endangered species at the vulnerable category. 77 snake species were recorded, none of which were listed as endangered;
- Birds – 354 species of birds were observed, distributed among 25 orders and 61 families. Of the 354 species, 23 species have limited distribution within the Amazon region. No species were identified as threatened. 10 species were classified as endangered. 74 aquatic birds were identified;
- Mammals – 24 species of non-flying mammals (17 families) and 37 species (5 families) of bats were identified. The following is of note:
 - One species, the *Pantjera onca* is categorised as vulnerable to extinction;
 - *Saguinus ustus* is categorised as almost threatened;
 - 14 species were identified as endemic;
 - No rare species were identified.
- Insects – Sampling for insects occurred in 5 different environment types: dry land forest, floodplain forest, shrubby herbaceous cover, pasture and village. 98 species of ants were recorded. No species classified as endangered were recorded. 60 species of mosquito were identified 41 were from the from the Culicidae family, which are mosquito vectors of arboviruses. There are no species of disease transmitting mosquitoes listed as endangered. No rare species or species only occurring in the Amazon biome were recorded;
- Fishes – 281 fish species were recorded during field studies, distributed among 40 families. All the identified species are widely distributed, found in several Amazon hydrographic basins. From these 281 species, 9 potentially new species were identified and 43 were identified as migrating long distances;
- Hydrobiological Communities – Based on the results of the field program 719 types of seaweed were identified from nine classes of phytoplankton. No rare or endangered species were recorded. For the zooplankton community, 282 species are predicted for the region. Similar to the phytoplankton organisms, no rare or endangered species were recorded. A significant number of benthonic macro-invertebrates were recorded from 35 taxa and three phyla. No rare or endangered species were recorded for benthonic macro-invertebrates. Among mollusks some species were noted as vectors for parasites.

17.2.6 Socio-Economic and Cultural Settings

17.2.6.1 Economic Activity

From a regional perspective, Manaus, the Amazonas state capital, is the dynamic center of the region with approximately 2,256,000 inhabitants as well as important public and private institutions and regulatory agencies of the Amazonas state (IBGE, 2022, /31/). Manaus presents characteristics of growth, primarily due to the migrations of people from other locations. Figure 116 presents an aerial view of Manaus with one of the ports on the Negro River in foreground.



Figure 116 Aerial view of Manaus

Other municipalities have significant rural populations that are partially responsible for the supply of food products to Manaus.

Manaus includes a comprehensive, diversified industrial park occupying an important economic position at the regional and national levels. According to the EIA (Golder Associates, 2015, /25/), in 2006 24% of all employed persons were engaged in industrial activities, almost exclusively in the manufacturing industry. The largest employment sector is public administration, defense and social security, which represent 25% of the workforce. Trade activity, such as repair of motor vehicles and personal and household goods, constitutes approximately 16% of all employed persons.

Manaus is also considered the regional center for health and education in the north of Brazil.

Table 99 shows the distribution of persons employed in the various economic activities in Manaus.

Table 99 Persons employed in economic activity in Manaus (2006) (Golder Associates, 2015, /24/)

Economic Sector	Economic Activities	Persons Employed (%)
		Manaus
Primary Sector	Agriculture, livestock breeding, forest production, fishing and agriculture	0.10
	Fishing	0.02
Secondary Sector	Extraction Industry	0.02
	Processing Industry	24.03
Tertiary Sector	Power, water and gas production and distribution	0.45
	Construction	4.15
	Trade, motor vehicles repair, personal and household goods	15.79
	Accommodation and food	3.03
	Transport, storage and communications	7.32
	Financial assistance, brokering, insurance, supplementary welfare and related services	0.96
	Real estate activities, rental and services rendered for companies	9.92
	Public administration, defense and social security	25.10
	Education	3.26
	Health and Services	2.53
	Other collective, social and personal services	3.33
	Domestic services	-
	International agencies and other extraterritorial institutions	0.00
TOTAL		100.00

Figure 117 shows an aerial view of the industrial district in Manaus.



Figure 117 Aerial view of industrial district in Manaus

17.2.6.2 Socio-Economic Environment of Autazes

The major social impacts of the Project will occur in the municipality of Autazes. Other municipalities may be impacted by the Project as a result of the dynamics of the local socio-economic flow that characterizes the mobility of the population and the interdependence between settlements. The municipality of Autazes has a predominantly rural population with a low standard of human development. The index of social progress (ISP) of the Amazon, which measures 54 social and environmental indicators including basic human necessities and is the basis for well-being and opportunities is below the national average. The illiteracy rate is high, and almost 48% of illiterate people are between the ages of 20 and 49 years.

Autazes has the highest rate of incidence of infectious and parasitic diseases among the municipalities of the local influence area (LIA), representing 32% of total deaths.

The existing public safety and policing structure is inadequate due to the lack of basic police equipment and the small size of the police force. The land road systems are intermittent, particularly in the Amazonian territories, as they are oriented according to the ebb and flow cycles of the rivers. Electricity is provided by diesel generators, particularly in urban areas and some rural settlements, and sanitation is poor across the region. Figure 118 presents an aerial view of Autazes on the Autaz Açu River.



Figure 118 Aerial view of Autazes on the Autaz Açu River

The economic base of the LIA municipalities is agriculture trade and services. Only Itacoatiara has a strong industrial sector – primarily timber and furniture. Employment opportunities in the region are scarce and expectations regarding the arrival of the Project focus on the possibility of generating new jobs and opportunities in the region.

17.2.6.3 Traditional Communities and Indigenous Component

The EIA (Golder Associates, 2015, /25/) identified 21 indigenous lands in the municipality of Autazes at different stages of land tenure. Although the Project is not located on any indigenous lands, two indigenous lands were identified within a 10 km radius of the project area – TI Paracuhuba and TI Jauary. Only TI Paracuhuba has a legalized status.

In 2010, the indigenous population represented approximately 21% of the population of Autazes as presented in Table 100.

Table 100 Indigenous lands in Autazes (Comtexto, 2019, /11/)

No	Indigenous Lands	Status	Area (ha)	Population (hab)
1	Cuia	Regularized	1,322.38	281
2	Cunhã-Sapucaia	Regularized	471,450.54	587
3	Itaitinga	Regularized	135.88	25
4	Jauary	Bounded	24.831	331
5	Miguel/Josefa	Regularized	1,628.80	613
6	Murutinga/Tracaja	Declared	13,286	1,078
7	Natal/Felicidade	Regularized	313.34	157
8	Padre	Regularized	797.51	77
9	Paracuhuba	Regularized	927.53	210
10	Pataúá	Regularized	615.88	47
11	Recreio/São Felix	Regularized	251.05	172
12	São Pedro	Regularized	726.18	93
13	Trincheira	Regularized	1,624.60	497

No	Indigenous Lands	Status	Area (ha)	Population (hab)
14	Ponciano	Declared	4.329.00	115
15	Capivara	Under Study	To be defined	150
16	Guapenu	Under Study	To be defined	106
17	Muratuba	Under Study	To be defined	324

The project's area of influence is within an area sensitive to the Mura Indigenous people, especially those in villages along the Autaz Açu River. Indigenous and other traditional communities use the Autaz Açu River waters for potable water, bathing, fishing and transportation.

The Mura, with a population of 15,700 (Golder Associates, 2015, /25/), occupy wide areas in the water shed of the Madeira, Amazonas and Purus River. They live both in indigenous territories and in regional cities, such as Manaus, Autazes and Borba. Since the earliest reports from the 17th century, they are described as a seafaring people with broad territorial mobility and expert knowledge of the routes through creeks, islands and lakes.

Traditional communities are culturally different groups, who recognize themselves as such. They have their own forms of social organization and occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic conditions, using knowledge, innovations and practices generated and transmitted by tradition. The EIA (Golder Associates, 2015, /25/) and RIMA (Golder Associates, 2015, /24/) identified six traditional communities close to the Project area totaling to 455 families and approximately 1,700 people. Table 101 presents the communities and families close to the project area.

Table 101 Communities and families close to the project area

Communities	Families	Persons
Rosarinho	141	460
Urucurituba	128	535
Mastro	84	340
Tambor	51	180
Soares	51	203
TOTAL	455	1,718

The primary sector (farmers, coal producers, fishers) is the main source of income of the traditional communities of Autazes, as is the case for the communities in the Urucurituba village, Soares village and Rosarinho.

Brazil Potash created, with the support of several different education, health, industry, cultural and government agencies, the Autazes Sustainability Program (PAS in Portuguese) to centralize all plans and activities to improve the quality of life, protection of the environment, and sustainable use of resources in the Autazes region. The main institutional partners as seen in Figure 119.

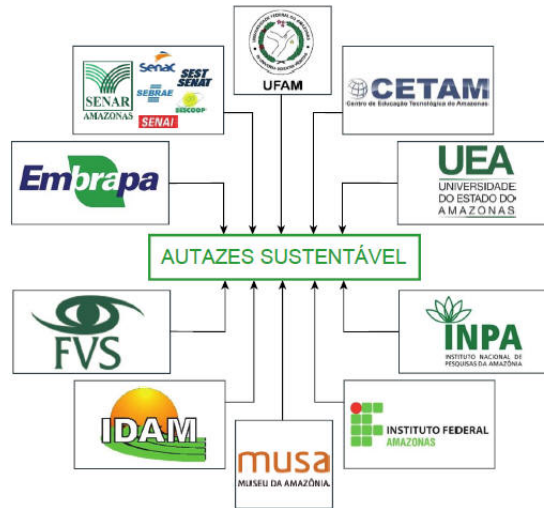


Figure 119 Partners to the Autazes Sustainability Program

Although Brazil Potash is still in the development stage, several initiatives have already been undertaken. For example, Brazil Potash sponsored the VII Week of Science and Technology hosted by the Federal University of Amazonas (UFAM) attended by over 3,000 students to improve their knowledge of "Bioeconomics: Diversity and Wealth for Sustainable Development". The Company also signed a cooperation agreement on January 24, 2019 with the Museum of the Amazon (Museu da Amazonia – MUSA) for the construction of structures for the safekeeping and preservation of archaeological material uncovered near the future port area of the Project.

As part of consultations with Mura indigenous people, the Company plans to negotiate an impact benefit agreement which we are calling the Mura Wellness Program (Bem Estar Mura Program). This program will include commitments to hire and retain a certain percentage of the workforce as Mura indigenous people, to provide support to the Mura people who want to start new businesses support our operation and preferentially utilize indigenous-owned companies to provide needed goods and services to the Company. The Mura Wellness Program will eventually be incorporated into the broader Autazes Sustainability Program.

17.2.6.4 Archaeology

The EIA (Golder Associates, 2015, /25/) reported the existence of the Urucurituba archaeological site, which was discovered earlier and sits on the Madeira River banks and houses a material record of indigenous occupations in a strip of land approximately 500 m wide and stretching for 1.5 km (Figure 120) on the right bank of the river. With the advance of studies conducted by the company Arqueológica in 2017 it was found that the archaeological site of Urucurituba occupied an area of 150 ha, higher than the extent indicated in other studies. Figure 121 contains the new delimitation of the Urucurituba Velho site proposed by the archeological company as well as its area of influence (450 ha) (Arqueologica, 2018, /4/).

The interventions generated a collection of 721 ceramic fragments and 23 lithic pieces, which were submitted to laboratory analysis and allowed for the identification of four distinct archaeological clusters. Some of these were clearly related to the Borba, Axinin and Tradicao Inciso-dotted phases in general. However, it was also collected unpublished data on the presence of the Saraca Regional Tradicao in Baixo Madeira.



Figure 120 Satellite image with detail of the future port area (in green) and estimated area of Urucurituba archaeological site (63 ha) (in red)

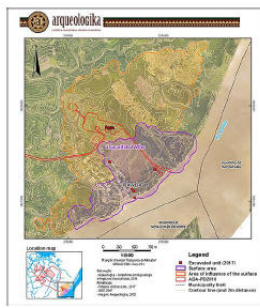


Figure 121 Satellite image with detail of the future port area (in green) and estimated area of Urucurituba archaeological site (150 ha) (Arqueologica, 2018, /4/)

During the archaeological studies developed for the EIA (Golder Associates, 2015, /25/), testing was carried out as per the guidelines of the National Artistic Cultural Heritage Institute (IPHAN) in the areas surrounding the project site. As a result, surveys were carried out on the port and road locations.

The 1,728 interventions carried out on the directly affected area (ADA) during the prospecting stage indicated its low archaeological potential with the few traces apparently related to the sites located around it. However, it was concluded that certain locations in this area will need to be monitored only during the actions of earthworks, given the presence of a large archaeological site (Terra Preta Site) next to it. Figure 122 contains the image of the prospection of the ADA of the plant.

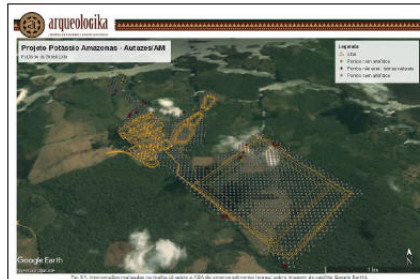


Figure 122 Satellite image with detail of the prospection of the directly affected area (ADA) of the plant

The archaeological evaluation of the project area was completed and the Project "Rescue, Archaeological Monitoring and Environmental Education in the Potassium Project Autazes" (Arqueologica, 2018, /4/) was approved by IPHAN on April 30, 2021 and published in the Official Gazette on May 3, 2021.

Data about the cultural heritage of the city of Autazes could not be located. There are isolated initiatives regarding the history of the city and the region, with some data on cultural property, but they are not identified for heritage protection. There is also no specific municipal legislation to protect heritage, only the recent Municipal Law N° 28/2013 that "Provides for the creation of the Department of Culture and Tourism, the Municipal Fund of Culture and Tourism, Municipal Council of Culture and Tourism and other provisions".

17.2.7 Infrastructure

With regard to basic infrastructure, the municipalities are served by a poor road system, partly because of the peculiarities within the territories in the Amazon region, which are influenced by the low water and high water cycles. Electric power is provided mostly to urban centers and a few rural settlements. The floating structures alongside the riverbanks receive power from generators. Most of the municipalities close to the Project site are not covered by basic sanitation services, which has an adverse impact on the health of the population and conservation of the inhabited

environment. Water supply is also an issue. Sewage services are practically non-existent, with a low number of dwellings connected to the general sewage network. The low basic infrastructure of the municipalities reflects on the low percentage of houses considered adequate.

17.3 Potential Impacts/Risks

The EIA (Golder Associates, 2015, /25/) evaluated the impacts on physical, biotic and socioeconomic environments for the construction, operation and closing stages of the Autazes Potash Project, based on the original location of the mine, processing plant, port and roads. For the new changes in location and design, the impacts were reevaluated and the report concluded (RT-021_139-515-2048_04-J_Evolução de tec. and economic studies) and submitted to IPAAM.

17.3.1 Soil

Alteration in the erosive dynamics and relief can be caused by the removal of vegetation, opening of roads and access ways, stacking of waste dumps and earthworks to level and fill a terrain for construction of infrastructure. These impacts will cause environmental changes including removal of ground cover, soil movement, generation of impervious areas, and physical interference with the flow of surface water.

In the project area the main impacts on soil during construction are associated with the formation of plateaus that will result in the fill of some drainage headwaters near the industrial area. During the operation phase, the main impact is related to the proposed waste dump, which will be approximately 25 m high and will stand out in the landscape of the region. It bears emphasizing that the waste dump is provisory and will be remediated and reclaimed during the project closure phase.

Mitigation proposed consists of installation of drainage systems, ground cover and re-vegetation.

The impacts to soil were assessed as having high significance at the construction phase, medium significance at the operation phase and low significance at the closure phase.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Prevention, Monitoring and Control of Erosion Program;
- Degraded Areas Restoration Plan (PRAD – Portuguese acronym);
- Sediment and Erosion Monitoring and Control;
- Solid Waste Management Program; and
- Water Quality Management Program.

17.3.2 Water

17.3.2.1 Surface Water Quality

The impacts related to surface water quality in streamlets, streams and rivers for the construction and operation phases of Autazes Potash Project are not predicted to change the current water quality. Control systems, such as effluent treatment, fluvial drainage reservoirs and sediment retention will be implemented to reduce possible impacts.

During the construction and operation phases, the quality changes to surface water, such as increase in turbidity, are mainly attributed to the activities such as vegetation removal, earthwork, civil works and equipment operation on access roads. Additionally, mitigation meant to suppress dust may increase sediment in the surface water. Appropriate mitigation such as sediment and erosion control will be established to minimize the effects of ground disturbance.

The impact on water quality was assessed as having low significance at the construction phase, medium significance during operation and very low significance at the closure phase.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Prevention, Monitoring and Control of Erosion and Mass Movement Program;
- Water Use and Management Program;
- Solid Waste Management Program; and
- Water Quality Management Program.

17.3.2.2 Groundwater

Groundwater Availability

The water supply for human consumption will come from artesian wells strategically located outside the process plant, and external areas influenced by tailings stakes and brine injection wells. The port will also be supplied with artesian well water. The water supply system is divided into two independent subsystems, one at the processing plant site and

the other at the port site. At the site of the processing plant, the water supply system is designed for the capture of water from the Madeira River, as it was the best alternative in technical, economic and environmental terms compared to supply via deep wells.

Based on the available information, the impact on water availability is predicted to have low significance at the construction and operation phases and very low significance at the closure phase.

To minimize the impacts of water use, three programs were established:

1. Water Quality Management Program;
2. Water Use Management Program; and
3. Quantitative Hydrogeological Monitoring Program.

Water supply for the construction phase will be the responsibility of BPC, which must deliver this water to different parts of the construction site as well as to the concrete plant. The treatment of this raw water from wells is not foreseen to be necessary due to the good quality presented for work purposes.

For potable water, treatment in WTP (ETA) and supply is foreseen as follows:

- Process plant – Pipa Trucks from the WTP (ETA) to the facilities;
- Port – same as above;
- Accommodation and restaurant – collection of potable water at the WTP (ETA) and pumped directly to the storage tanks.

The water for human consumption in the first stages of the work can be through gallons of mineral water. For the most advanced phases of the work, potable water must be supplied through artesian wells.

During the operation phase, the raw water to supply the process plant/mine will be captured from the Madeira River and pumped to two ponds with a capacity of 8,130 m³ each. These ponds have enough water volume to meet half of the water demand of the processing plant and to cover the complete demand required to supply the fire extinguishing system. The two artesian wells were designed to meet the following requirements:

- Minimum distance of 2 km from injection wells;
- Spacing between wells of 300 m.

Each water pond will have planned dimensions of 40 m×60 m, 3 m of water depth (0.5 m freeboard), being that from which 8,130 m³ in each pond 600 m³ is reserved for fire water. Raw water ponds will be lined with HDPE (PEAD) geomembrane to prevent water infiltration and loss to the unsaturated zone of the terrain.

Infiltration Rates

During construction, water infiltration rates will be affected by vegetation removal, soil removal and compression, implementation of infrastructures and earthworks. Earthworks physically alter the surface flow and alter the permeability of the soil. Furthermore, the construction of infrastructure required for the Project may reduce infiltration and groundwater flow within the area through compacting and waterproofing exposed soils. The process of vegetation removal exposes parts of the land, changes the rainwater seepage conditions and may impact local hydric availability.

As the affected area is very small, the impact was assessed as having very low significance at the construction, operation and closure phases.

In order to minimize this impact, the following environmental program is necessary:

- Quantitative Hydrogeological Monitoring Program.

Groundwater Dynamics

Alteration of groundwater dynamics refers to a change in groundwater flow. This impact may be related to other impacts (changes to aquifer recharge rates) or specific processes. As identified previously, the impact of groundwater infiltration has very low significance, contributing minimally to changes in groundwater dynamics.

The construction of a shaft is proposed to be completed using a freezing and grouting technique, which is predicted to affect the flow of groundwater while the activities are occurring. Detailed groundwater modelling will be required to confirm the predicted effects.

In order to minimize the impact to local groundwater, the following environmental program is necessary:

- Quantitative Hydrogeological Monitoring Program.

Groundwater Quality

Process saline rejects will be temporarily accumulated in a specially constructed stack for this purpose. Waterproofing layers will be installed under its base to prevent any brine infiltration into the soil, as well as prevent rising flows of water from inside the ground from contacting stored salt.

Part of the salt exposed in this pile will become brine both due to the rain that falls on it, as well as the artificial irrigation process. This brine will be accumulated in ponds installed around the pile to be later injected into layers between 300 and 400 m depth, where there is natural water with high concentration of sodium chloride.

The following environmental plans and programs will be implemented to control the risks of contamination of surface and groundwater from the vicinity of the pile and the Project's Direct Influence Area (Aid).

- Water Use and Management Program;
- Water Quality Management Program; and
- Quantitative and Qualitative Hydrogeological Monitoring Program.

17.3.3 Air

Air Quality

The construction, operation and decommissioning of the Project may affect air quality through the emission of dust from the circulation of vehicles, industrial processes at the processing plant, barges loading at the port of Urucurituba, earthworks, action of wind on surfaces without vegetation, and emission of combustion gases from the operation of vehicles and machinery.

According to the air modelling, if appropriate mitigation is in place there will be no loss of environmental quality beyond the limits set forth by the legislation for the main parameters pertaining to air quality. The generation of particulate (dust) is the main environmental concern identified in relation to air quality.

Increases in particulate matter concentrations occur during the construction and operation phases in areas of loading and discharge of materials (product, overburden, for example), resulting mainly from wind in the areas of ore management (crushing, broilers, screening to shoal), and the vehicle traffic on unpaved roads, mechanical movement of materials and dispersal by the wind.

During the operation phase modelling suggests that operational controls will be required to meet air quality standards, primarily for total particles in the air.

The impacts were assessed as having low significance at the construction phase, medium significance during operation and very low significance at the closure phase.

In order to minimize this impact, the following environmental programs and mitigation will be required at a minimum:

- Control of Atmospheric Emissions and Air Quality Monitoring Program.

17.3.4 Noise and Vibrations

Noise Levels

The generation of noise will primarily occur during the construction phase due to construction activities such as removal of vegetation, earthworks, civil works and circulation of machinery and equipment. During the operation phase, noise and vibration impacts will be associated with processing operations (mainly crushing), circulation of vehicles, inputs, equipment and ore along the access way connecting the plant and port, in addition to the loading of barges in the port area. These changes may adversely affect the routine of people living near the road connecting the industrial plant and the port, mainly near the Urucurituba village.

The impacts were assessed as having medium significance at the construction phase, high significance at the operation phase and low significance at the closure phase.

In order to minimize this impact, the following environmental program is necessary:

- Noise Control and Monitoring Program.

17.3.5 Ecology and Biodiversity

17.3.5.1 Flora

Vegetation removal activities, necessary for the installation of the project facilities, will take place during the construction phase, reducing the populations of species present in the areas. Affected populations may include endangered species and those of commercial and medicinal significance. Affects to vegetation may be reduced through the avoidance, transplantation of rare species, and progressive reclamation. Taking into account criteria such as reversibility, scope, importance and magnitude, the impact was assessed as having medium significance at the project construction phase.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Vegetation Removal and Use of Forest Resources;
- Flora and Fauna Rescue and Reintroduction Program;
- Flora and Fauna Monitoring and Mitigation Plan;
- Degraded Areas Restoration Plan (PRAD);

- Prevention and Forest Fire Fighting Program;
- Mine Closure Plan; and
- Environmental Compensation Program.

Forest Fragmentation and Increase of Edge Effect

The impact of forest fragmentation and edge effect increase is generated by deforestation. This effect is predicted for the Project development phase but is minimized through locating the mine, plant and port areas largely on previously deforested land.

The removal of ground cover will divide or fragment a continuous forest area into smaller separate areas. This division directly affects the reproduction of species, which when isolated in smaller fragments will have smaller number of partners to reproduce, resulting in a smaller number of genetic combinations. Thus, the smaller and the more isolated the forest fragment, the smaller its biological diversity.

Fragmentation also causes an increase of the edge effect. The edge may be defined as the boundary of a natural and disturbed environment, which is different from the inner portion of the forest fragment. Compared to the forest core, the edges have lower air and soil humidity, higher temperatures and receive more sunlight and wind.

The impact is defined as having medium significance at the project construction phase.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Vegetation Removal and Use of Forest Suppression and Utilization of Forest Resources Program;
- Flora and Fauna Rescue and Reintroduction Program;
- Flora and Fauna Monitoring and Mitigation Plan;
- Degraded Areas Restoration Plan (PRAD);
- Prevention and Forest Fire Fighting Program;
- Environmental Compensation Program; and
- Mine Closure Plan.

Loss of Biomass

The impact from loss of biomass will occur due to the removal of ground cover, which is required for installation of project structures. Approximately half the forest biomass consists of carbon. The development and growth of plants entails the accumulation of carbon by absorbing this element from the air.

The forest environment present in the local study area is at the initial and advanced stages of regeneration with significant presence of young trees under development fixing carbon. With the removal of vegetation from an area, carbon is released and returns to the atmosphere through the composition or burning of this material.

This impact is assessed as having medium significance during the construction phase of the project.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Vegetation Removal and Use of Forest Suppression and Utilization of Forest Resources Program;
- Flora and Fauna Rescue and Reintroduction Program;
- Degraded Areas Restoration Plan (PRAD);
- Prevention and Forest Fire Fighting Program Mine Closure Plan; and
- Environmental Compensation Program.

17.3.5.2 Fauna

Reduction and Fragmentation of the Habitat

Reduction and fragmentation of the fauna habitat will occur through vegetation removal, with deforestation considered the main negative event for faunistic groups. The removal of ground cover from natural forest and rural areas results in a decrease of the environments available to local fauna. The natural forest and rural environments provide fauna with essential resources for their survival such as food and shelter. The fauna identified in the Project study area is endemic, rare, endangered and has potentially new species.

Regarding the Autazes Potash Project, the impact of reduction and fragmentation of the fauna habitat is caused mainly by the isolation of individuals and decrease of their habitat area.

The impact is assessed as having high significance for the Project's construction phase.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Vegetation Removal and Use of Forest Suppression and Utilization of Forest Resources Program;
- Flora and Fauna Rescue and Reintroduction Program;

- Degraded Areas Restoration Plan (PRAD);
- Prevention and Forest Fire Fighting Program;
- Flora and Fauna Monitoring and Mitigation Plan
- Bioindicators Wildlife Groups Monitoring Program;
- Insect Monitoring and Control Program;
- Degraded Areas Restoration Plan; and
- Mine Closure Plan.

Alteration of the Terrestrial Fauna Communities

The alteration of fauna communities is an indirect impact generated by forest fragmentation and increase of edge effect, scaring away of fauna. The impact is caused by the removal of vegetation cover, noise generation, machinery movement, equipment and people.

Fauna frightened by Project related activities will occupy neighboring environments, creating an imbalance in the local habitat through increased population pressures. Increased competition for shelter, territory, food and breeding partners can occur if populations aren't stabilized. In addition, they may also take new diseases and parasites to the receiving environments.

Species that require specific habitats for living and breeding are among the most affected by this impact as they may be unable to find favorable environments in the surrounding areas. Animals with lower capacity for dispersion (i.e., three toed sloth and small rodents), may not find environments suitable for settling and may not survive displacement to neighboring area.

Once construction of building structures is completed, a new balance may be established within the local habitat, but with a trend towards the reduction in the number of individuals mainly for species less capable of adapting to altered environments.

The impact is assessed as having medium to high significance in the construction phase, low to medium during operation phase, and low for the closure phase.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Vegetation Removal and Use of Forest Suppression and Utilization of Forest Resources Program;
- Bioindicators Wildlife Groups Monitoring Program;
- Insect Monitoring and Control Program;
- Degraded Areas Restoration Plan (PRAD);
- Environmental Offset Plan; and
- Mine Closure Plan.

Reduction in the Number of Individuals

Reduction in the number of individuals of faunistic populations is a potential effect of the Project that derives either direct incidental take or indirect impacts from:

- Forest fragmentation and edge effect increase;
- Reduction and fragmentation of the fauna habitat;
- Fauna relocation;
- Changes to faunistic communities;
- Changes to aquatic communities; and
- Increase of fauna rundown.

Impacts from noise, increased vehicle traffic and frightening of fauna can also lead to direct mortality. Additionally, land clearing activities may cause animals to flee in search of new habitats making them susceptible to equipment related mortality.

During deforestation, the loss of individuals results in an ecological imbalance in neighboring environments (which will receive animals on the run) potentially affecting endangered species recorded in the local study area.

This impact was assessed as having a medium to high significance in the construction phase and low to medium significance at the operation and closure phases.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Flora and Fauna Monitoring and Mitigation Plan;
- Vegetation Removal and Use of Forest Suppression and Utilization of Forest Resources Program;

- Flora and Fauna Rescue and Reintroduction Program;
- Degraded Areas Restoration Plan (PRAD);
- Prevention and Forest Fire Fighting Program;
- Bioindicators Wildlife Groups Monitoring Program; Insect Control and Monitoring Program;
- Degraded Areas Restoration Plan (PRAD);
- Environmental Compensation Program; and
- Mine Closure Plan.

Unauthorized Hunting and Capture of Fauna

The impact of increased hunting pressure and unauthorized capture of fauna may occur due to the mobilization of labor for the development of the Autazes Potash Project. The clandestine capture for domestication and poaching are practices, which are culturally present and observed in the region, and which may promote changes in the fauna communities.

The impact of increased hunting pressure and unauthorized capture of fauna was assessed as having a very high significance during construction, high significance during operation and medium significance in the closure phase.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Environmental Education Program; and
- Bioindicators Wildlife Groups Monitoring Program.

Alteration in the Communities of Dipterous

The impact of alteration in the communities of dipterous (flies and mosquitoes), which transmit tropical diseases will be generated by land clearing, silting up of the rivers, generation of waste, and, indirectly, by the scaring away of fauna.

Deforestation will eliminate sites for sheltering and breeding of some species of mosquitoes, which transmit diseases, and some of them may disappear, such as those, which are typical of a forest environment. Another factor to be considered is the reduction of the number of rats and possums, animals which serve as a source of food (blood) to the mosquitoes, resulting in dipterous probably seeking other sources of blood such as from humans.

The impact is assessed as having low significance for the phases of construction, operation and closure of the project.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Solid Waste Management Plan;
- Insect Monitoring and Control Program;
- Degraded Areas Restoration Plan (PRAD); and
- Mine Closure Plan.

Alteration of Aquatic Communities

Land clearing increases the exposure of soil and its sediments, which become entrained in rivers, causing the rise of river bed sedimentation and burying of microscopic organisms. Siltation will reduce the diversity of aquatic environments present in rivers and streams. The forecast is a simplification of the communities with a prevalence of common species and generalist habits more resistant to these changes.

The impact is assessed as being of high significance for the construction phase and low during operation and closure.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Water Resources Management Plan;
- Degraded Areas Restoration Plan (PRAD);
- Subprogram for Hydrobiological Communities Monitoring;
- Water Quality Management Program; and
- Mine Closure Plan.

17.3.6 Socio-Economic and Cultural Settings

17.3.6.1 Traditional Communities and Indigenous Component

Interferences in the Social-Spatial and Cultural References

Among the 17 indigenous people sites recognized in the municipality of Autazes and listed in the socioeconomic and cultural study, only two are found within a radius of 10 km from the structures planned for the installation of the Autazes Potash Project: Paracuhuba Indigenous Land and Jaury Indigenous Land. Traditional communities, which do not have a delimited territory, are located close to the future area of the Project and are found in the localities of Rosarinho, Urucurituba, Mastro, Tambor and Soares.

Among these traditional communities, those of Soares and Urucurituba with close proximity to the project area will experience the main repercussions of the installation and operation of the Project. The main impacts are related to increased population pressure, generation of inconveniences related to the installation and operation of the Project and occurrences of social and health problems.

The impact on social-spatial and cultural references was assessed as very high during construction and operation and low during closure.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Mobilization Plan and Stakeholder Engagement Communication Program;
- Communication and Environmental Information Program; and
- Program for ethno-environmental protection.

17.3.6.2 Archaeology

Assets of National Archeological Heritage

The archeological investigation carried out in the area directly affected by the Project (port, industrial plant/mine and highway connecting the two sites) identified the archeological site of Urucurituba, which is an important archeological record. Of particular importance was the discovery of fragments of pottery and utensils in addition to whole or partially broken ceramic artifacts (such as burial urns, bowls and the like). As to the directly affected area of the industrial plant/mine, there are two positive occurrences of archeological material.

The impact on archeology was assessed as very high during construction and operation.

In order to minimize this impact, the following environmental plans and programs are necessary:

- Rescue Program Archeological Monitoring and Environmental Education.

17.3.7 Infrastructure

Generation of Direct and Indirect Employment

The Project will be responsible for the generation of a significant number of jobs during development and operation. The Project will also cause a deep change in labor relations, the methods of subsistence production and, consequently, in the relation with the environment from various standpoints. Firstly, the Project will contribute to a significant increase in the formalization of labor relations, e.g., through registered employment contracts, which imply compliance with regulations and receipt of social benefits.

In addition to the substantial number of direct jobs created by the Project the creation of multiple numbers of indirect jobs are predicted in sectors that are part of the production chain, and jobs resulting from the spending of income by the workers. It is estimated that, as a result of the income effect, during the construction phase, for each direct job there will be 1.5 jobs in the sectors of housing/lodging and meals/catering.

Jobs created during the construction phase will outnumber the workers required for ongoing operation. However, local people will have acquired experience and professional expertise, facilitating their placement elsewhere or even involvement in activities related to the project operation afterwards. In addition to the expenditures by the workers, the company itself will require goods and services from the Autazes market.

The impact on the generation of direct and indirect employment was assessed as very high during construction and operation and high during closure.

In order to minimize negative risks and maximize opportunities, the following plans and programs are necessary:

- Professional Skills Development Program;
- Socioeconomic Indicators Monitoring Program;
- Supplier Development Program;
- Mobilization Plan and Stakeholder Engagement Communication Program;
- Communication and Environmental Information Program; and
- Support for Diversification of the Local Economy Program.

Increase of Tax Revenue

The demand for goods, consumables and services for the implementation of the project will lead to the increase of tax revenue. Although the purchases related to the project involve a widely distributed procurement, in view of the size of

the economy even a small percentage of purchases made on the municipal market represents a significant local benefit.

Additionally, due to population growth, especially in the case of Autazes, there will be an increase in the occupation of urban areas and the number of residential units. The dynamics of expanded occupation of space by buildings of medium to high construction standards, associated with residents and trade owners with higher income, will provide additional income through the levy of property tax.

In order to minimize negative risks and maximize opportunities, the following plans and programs are necessary:

- Socioeconomic Indicators Monitoring Program; and
- Mobilization Plan and Stakeholder Engagement Program.

Pressure on Existing Infrastructure and Utilities

With the implementation of the Project, Autazes will experience significant population growth. Many people will migrate to the municipality seeking new business and employment opportunities. The local entrepreneurs attracted by the investment opportunities will need areas to install their establishments and, potentially, to build their homes. The workers, especially those with prospects of long term work, accompanied by their families, will seek real estate properties to settle in the region.

As such, there will be a large demand for real estate – lands, lots, areas and buildings for business and residential purposes – in the municipality of Autazes and in the villages of Urucurituba and Soares. However, these municipalities do not have adequate facilities available to meet these demands, neither in terms of quantity nor in terms of quality, so being not well prepared in this regard.

On the other hand, the occupational pressure will have positive consequences, since it will signal to the market an opportunity for good business and significant profit potentially resulting in investments being made to provide the services and goods necessary for the rise of housing developments.

Certain segments, in view of the shortage of housing policy, may build in areas without existing infrastructure, resulting in unapproved developments, or even squatting. Such areas tend to not have the proper infrastructure such as a road network, lighting, sanitation, health care units and schools, among other elements. In addition, the buildings will generally tend to be more precarious and not provide the minimum requirements of comfort and privacy. These irregular occupational pressures tend not only to cause serious problems for the occupation agents, but also to the population of the surrounding areas and to the municipality as a whole, through the expansion of social and environmental liabilities and the demand of public resources for solving problems.

The impact on existing infrastructure and utilities was assessed as very high during construction and operation and very low during closure.

In order to minimize negative risks and maximize opportunities, the following plans and programs are necessary:

- Mobilization Plan and Stakeholder Engagement Program; and
- Strategic Support and Urban, Institutional and Legal Readjustment of the Autazes Program.

Generation of Expectations

BPC has carried out formal social communication and local participation programs since 2013. In particular BPC initiated a committee comprised of local representatives from indigenous people communities, the executive and legislative bodies of the municipality, catholic and evangelic religious institutions and a representative of BPC that met regularly to discuss the Project.

Despite the involvement of a variety of players in the communication process, there is a risk that expectations, which have been voiced so far, arise from partial data, correct or incorrect, since in the process of conveying information and in the process of assimilating it, the informational content may suffer significant changes. As the project advances in its development, the generation of expectations tends to grow, and this is why it is necessary to consolidate the channels of direct communication with the various segments of society and set reasonable expectations.

The impact of the generation of public expectations was assessed as very high during all stages of the Project.

In order to minimize negative risks and maximize opportunities, the following plans and programs are necessary:

- Mobilization Plan and Stakeholder Engagement Communication Program; and
- Communication and Environmental Information Program.

Increase in the Occurrence of Social and Health Problems

In all phases of the Project there will be contact between external populations coming from other localities and regions, and the local population. Among the various interactions possible, there will be opportunities for shared experiences with the people involved in the interactive process, including in the field of knowledge, cultural reference and affectivity. Some interactions may result in serious social, cultural, ethical and individual problems.

Social concerns may include an increase in prostitution, as well as drug use and trafficking. Additionally, addition of increased transitory populations may lead to prostitution, increases in undesired pregnancies, and the proliferation of sexually transmitted diseases. Additional health concerns may include a risk of dissemination of vector transmitted

diseases such as TB, meningitis, viral hepatitis, amoebiasis, giardiasis, gastroenteritis, respiratory diseases, gastrointestinal parasites, mycoses, etc.

The impact of increases in social and health problems was assessed as very high during construction, high during operation and low during closure.

In order to minimize negative risks, the following plans and programs are necessary:

- Mobilization Plan and Stakeholder Engagement Communication Program;
- Communication and Environmental Information Program;
- Socioeconomic Indicators Monitoring Program;
- Sexual Education and Prevention Program; and
- Endemic Disease Prevention Program.

Changes in the Landscape

The implementation of a structure for exploiting minerals and building a port in the area will represent an industrialization of the landscape and therefore change some of its natural attributes.

In spite of this, it is important to point out that the location of the Project is characterized by pastures that have undergone significant changes due to forced transition to grazing land.

The impact from changes in the landscape was assessed as very high during construction, high during operation and low during closure. In order to minimize this negative risk, alteration of the landscape will be addressed during construction, operation, and mine closure. Areas not required for operation will be restored where appropriate and the site will be reclaimed post closure. The following plans are necessary:

- Degraded Areas Restoration Plan (PRAD); and
- Mine Closure Plan.

Disturbances for the Population

During the construction and operation of the Project, the population of Autazes will be subject to several disruptions, mainly those living in the villages of Soares and Urucurituba. The Project will generate a lot of movement and transformation of the area, whether through its buildings, its support structures (lodging, offices, workshops, yards, etc.) or its effects.

The change in the pre-existing conditions will generate nuisances for the local population related to the increased traffic of vehicles, need for increased security and pressure on public services.

The impact from population disturbances was assessed as very high during construction, high during operation and low during closure.

In order to minimize these negative risks, the following plans are necessary:

- Mobilization Plan and Stakeholder Engagement Communication Program;
- Communication and Environmental Information Program;
- Control of Atmospheric Emissions and Air Quality Monitoring Program;
- Security and Traffic Education Program;
- Strategic Support and Urban, Institutional and Legal Readjustment of the Autazes Program; and
- Strategic Support for the Readjustment of Public Service Structure Program.

Pressure on Public Services

The fragile infrastructure of Autazes is not capable of meeting current demands, much less those that will arise due to the implementation of the Project. The municipality will receive an influx of people seeking employment opportunities and better living conditions. Demographic and consumption growth will increase the generation of garbage and sewage, which could cause serious environmental problems for the local municipality if not handled appropriately.

The impact from increased pressure on public services was assessed as very high during construction, high during operation and low during closure. In order to minimize negative risks and maximize opportunities, the following plans and programs are necessary:

- Mobilization Plan and Stakeholder Engagement Communication Program;
- Communication and Environmental Information Program;
- Strategic Support and Urban, Institutional and Legal Readjustment of the Autazes Program; and
- Strategic Support for the Readjustment of Public Service Structure Program.

Revitalization and Change in the Profile of the Municipal Economy

After its implementation, due to the amount of investment, the area of civil construction will assume a leading position in the municipal economy of Autazes. Based on this, there will be a revitalization of other sectors of the economy as well as an expansion thereof. This fact will contribute to the structuring and consolidation of a diversified and dynamic economy. The municipality of Autazes will see the growth of existing activities and the creation of new ones, in the hotel/lodging, food, transportation, education, health and commerce.

After the implementation of the Project, seeing the operation phase as a peak, the municipality will have a significant consumer market, which in turn will encourage a variety of investments in its territory to meet demand.

The positive impact from a revitalization and change in the profile of the municipal economy was assessed as very high during construction and operation and low during closure.

In order to maximize these opportunities, the following plans and programs are necessary:

- Socioeconomic Indicators Monitoring Program; and
- Support for Diversification of the Local Economy Program.

Increase in Light and Heavy Vehicle Traffic

The activities for upgrading and paving the link road between the industrial plant and the mine will introduce the traffic of vehicles, buses, trucks and heavy equipment not seen before in this region. This will generate a certain amount of disruption for the community, such as noise, dust and reduced safety for pedestrians.

The impact from increases in light and heavy vehicle traffic was assessed as very high during construction and operation and very low during closure.

In order to minimize negative risks, the following plans and programs are necessary:

- Security and Traffic Education Program;
- Mobilization Plan and Stakeholder Engagement Communication Program; and
- Communication and Environmental Information Program.

Land Acquisition and Displacement of People

For the installation of structures at the mine and industrial plant, BPC has already started to purchase required land that is primarily used for cattle ranching and subsistence farming. The land purchase involves both the demobilization of economic activities, in some cases as well as the suppression of current uses.

The impact from land acquisition and displacement of people was assessed as medium significance during construction.

In order to minimize negative risks, the following plans and programs are necessary:

- Mobilization Plan and Stakeholder Engagement Communication Program;
- Communication and Environmental Information Program; and
- Program for purchase of land and monitoring of families.

Natural and Man-made Historical Heritage

The Autazes Potash Project will drive the acquisition of real estate properties due to speculation and population increase. Isolated properties may suffer a negative impact due to real estate speculation as a result of the valuation of the land and the increase in population density, which could lead to the demolition of buildings and replacement of the current material cultural assets with the objective of modernization or verticalization.

Schools and important public equipment linked to the identity and development of the communities were identified in the diagnosis as cultural assets, not due to their architectural characteristics, but rather to their centrality and reference that they represent to each rural and riverside community. Natural heritage assets, represented mainly by the rubber plantations of Rosarinho and Autazes, and the one located in Sol Nascente farm close to Urucurituba village stand out due to their landscape, scientific, historical and cultural values.

The impact on natural and man-made historical heritage was assessed as very high during construction and medium during operation.

In order to minimize negative risks, the following plans and programs are necessary:

- Mobilization Plan and Stakeholder Engagement Communication Program;
- Communication and Environmental Information Program; and
- Heritage Education Program.

17.4 Monitoring and Reporting Plans

The plans and programs proposed in (Golder Associates, 2015, /25/) correspond to a set of actions to prevent, mitigate, compensate and enhance the expected negative and positive impacts in the stages of construction, operation and closure of the Autazes Potash Project. At this stage of the environmental studies, the plans and programs were

presented according to the general guidelines (objectives and actions) and were detailed in the PBA that was submitted to obtain the Project's installation license. Periodic reports on the plans and programs will be submitted to IPAAM.

The objectives for each plan and program are described in Table 102.

Table 102 Plans and program objectives

Plan/Program	Objectives
Control of Atmospheric Emissions and Air Quality Monitoring Program	<p>Actions to control air emissions and monitor air quality in the area of direct influence of the Project.</p> <p>Control fugitive emissions from unpaved roads (dust suppression).</p> <p>Equipment Maintenance and emissions control.</p> <p>Detail the air quality monitoring points in the PBA, which will comprise at least the village of Urucurituba and Community of Soares.</p>
Noise Control and Monitoring Program	<p>Provide guidelines for procedures to monitor and control noise: identify changes in the noise levels resulting from Project activities, minimize the environmental impacts resulting from changes in noise levels, develop operational procedures aimed at reducing the noise levels from the generating sources, to provide for CONAMA Resolution No 1/1990.</p>
Prevention, Monitoring and Control of Erosion and Mass Movement Program	<p>Implement preventive and corrective operational actions to control erosion and/or problems related to drainage systems.</p>
Water Use and Management Program	<p>Provide procedures for proper management of water resources.</p>
Quantitative and Qualitative Hydrogeological Monitoring Program	<p>Monitor interference in the level fluctuations of underground water and determine the hydraulic properties of the deep aquifers.</p> <p>Monitoring groundwater in areas that may be affected by Project activities.</p>
Water Quality Management Program	<p>Monitor the water quality of a set of points (rivers, creek and lakes) as described in Section 17.4.4.</p>
Solid Waste Management Program	<p>Define operational measures for handling, packaging, temporary storage and final disposal of the solid and hazardous waste (see Section 17.4).</p>
Construction Environmental Plan	<p>Manage the environmental programs during construction of the Project.</p> <p>Provide relationship between environmental programs.</p>
Degraded Areas Restoration Plan (PRAD – Portuguese acronym)	<p>Recover deforested and impacted areas resulting from the construction and operation phases of the Project.</p>
Environmental Compensation Plan	<p>Establish guidelines for the application of funds aimed at environmental compensation for the impacts caused by the construction and operation of the Project.</p>
Mine Closure Plan	<p>Plan the closure of mining activities and promote the recovery of affected areas.</p>
Vegetation Removal and Use of Forest Resources Program	<p>Detail and plan the vegetation removal for each target area of deforestation.</p> <p>Define destination of forest residues with removal of usable commercial wood and use of the topsoil and non-woody vegetation.</p>
Flora and Fauna Rescue and Reintroduction Program	<p>Early identification and rescue of at-risk flora and fauna.</p> <p>Requirements for re-introduction of species and monitoring.</p>
Flora and Fauna Monitoring and Mitigation Plan	<p>Identification of mitigation and monitoring requirements for flora and fauna.</p>
Subprogram for Hydrobiological Communities Monitoring	<p>Identification of mitigation and monitoring.</p>
Prevention and Forest Fire Fighting Program	<p>Prevent or control the occurrence of forest fires and their effects on the biota in the Project area.</p> <p>Hold educational campaigns.</p> <p>Plan and execute works and services such as fire breaks, surveillance, climatological monitoring, training in preventing and fighting fires and awareness of resident landowners in the vicinity of the Project area with respect to non-use of fire or pasture.</p>

Plan/Program	Objectives
Fauna incidental mortality Prevention Program	Propose control measures to reduce wildlife fatalities on access roads and access roads to the mine/processing plant and port.
Bioindicators Wildlife Groups Monitoring Program	Monitor wildlife biomarker groups: birds, mammals, amphibians, reptiles and aquatic communities.
Insect Monitoring and Control Program	Carry out systematic monitoring of insect fauna potential transmitter of diseases (especially malaria, dengue, yellow fever and leishmaniasis) and, if necessary, take action to control the outbreaks and breeding of the main vectors.
Communication and Environmental Information Program	Inform the workforce and the communities regarding the activities of implementation, operation and closure of the Project. Target communication to communities inserted in the surrounding area of the project, including the community of Soares and the village of Urucurituba.
Strategic Support and Urban, Institutional and Legal Readjustment of the Autazes Program	Encourage and support actions to enable the municipality to focus on meeting the potential housing demand and land occupation as a result of population growth and the increase of economic activities.
Strategic Support for the Readjustment of Public Service Structure Program	Encourage and support a set of integrated public initiatives aimed at the promotion, optimization and expansion of sanitation services, security, health and education of the city of Autazes.
Support for Diversification of the Local Economy Program	Promote the development of existing economic activities in the municipality and diversification of such areas, mainly based on natural and cultural vocations and ensure their autonomy from the Project. Encourage increased competitiveness of such activities in the market.
Supplier Development Program	Contribute to the attraction, promotion and development of local companies in the project area of influence. Strengthen the business groups.
Communication and Environmental Education Program	Sensitize the local population with respect to environmental issues. Develop a process of forming concepts, skills acquisition and adoption of values that motivate conservation and improvement of the environment and the integration of environmental management to the concept of corporate sustainability. Train employees and contractors to involve schools and local communities through education and participatory activities.
Employees Capacity Program	Establish local labor qualification mechanisms for use in the activities of the Project.
Security and Traffic Education Program	Ensure safe access to the Project site through the following guidelines: Install warning and safety signals; Conduct education workshops on traffic for the surrounding communities; Carry out systematic recording of accidents caused by the intensification of the flow of vehicles resulting from the Project installation. Traffic safety education applicable to the road linking the industrial plant to the port.
Socioeconomic Indicators Monitoring Program	Monitor socio-economic indicators in order to be aware of the changes and support adjustment in other programs.
Program for ethno-environmental protection	Act in synergy with public bodies in the different spheres of power to promote actions that address indigenous rights in its various aspects related to: food security, territory protection, health, education, support for productive activities, and special attention the locations occupied by indigenous people closest to the Project.
Sexual Education and Prevention Program	Promote awareness to employees, contractors and the community of safe sex methods and the prevention of sexual violence.
Endemic Disease Prevention Program	Monitor and control the progress of endemic diseases (especially in relation to malaria vectors, yellow fever and leishmaniasis) at the construction sites, near the Project site and at the municipalities.
Land Acquisition and Monitoring Program	Establish transparent and fair mechanisms of land acquisition.
Ethnic Protection Program	Act in synergy with public institutions to promote actions that address indigenous rights related to: food security, territory protection, health and education.

Plan/Program	Objectives
	Support productive activities and pay special attention to the locations occupied by indigenous people closest to the Project.
Archaeological Prospecting, Saving and Monitoring Program	Provide actions and implement a rescue program in accordance and approval of IPHAM in order to preserve cultural heritage.
Patrimonial Education Program	Provide educational processes with a focus on cultural heritage identified in the area of influence of the Project.

The environmental plans and programs to be finalized (e.g. soil, water, air, noise, ecology and biodiversity) are in progress.

For those related to the socio-economics and cultural settings, Golder has been contracted to develop these plans:

- Mobilization Plan and Stakeholder Engagement Program;
- Communication and Environmental Education Program;
- Strategic Support and Urban, Institutional and Legal Readjustment of the Autazes Program;
- Strategic Support for the Readjustment of Public Service Structure Program;
- Sexual Education and Prevention Program;
- Support for Diversification of the Local Economy Program;
- Supplier Development Program;
- Skills Development Program;
- Environmental Education Program;
- Employees Capacity Program;
- Security and Traffic Education Program;
- Monitoring of Socioeconomic Indicators Program;
- Endemic Disease Prevention Program; and
- Land Acquisition and Monitoring Program.

17.4.1 Stakeholder Engagement

Stakeholder engagement is a broad, inclusive and continuous process of relationship building and maintenance between a company and its stakeholders. It includes a range of activities and spans the entire project lifecycle.

Stakeholder engagement is required for the Project and is being undertaken according to Brazilian legal requirements. The EIA (Golder Associates, 2015, /25/) defines two programs to ensure stakeholder engagement: a Mobilization Plan and Stakeholder Engagement Program and a Communication and Environmental Education Program.

The purpose of the Mobilization Plan and Stakeholder Engagement Program is to promote the participation of those involved with the Project in the socio-economic programs. Participation should be at all stages of the Project to allow adjustments to the planned actions. The implementation strategy of the Mobilization Plan and Stakeholder Engagement Program defines the continued involvement of directly affected communities, public authorities, agencies and/or institutions and associations representing various interest groups.



Figure 123 BPC presentation with community participation in Autazes

The Communication and Environmental Information Program was initiated in October 2013 by BPC. It identifies the different levels of relationships between the public and the Project as well as strategies for the formation of discussion groups composed of stakeholders. This program includes the local and indigenous communities. This measure was taken with the view that community participation is essential to the management of the information process, since the implementation of a mining activity can lead to various speculations, especially in areas occupied by traditional peoples.

The formation of a committee with local representation in November 2013 is one of the actions developed that serves as a forum for community participation. The committee consists of 16 representatives, including religious leaders, population leaders, municipality representatives and indigenous people. Newsletters are distributed to committee members to provide updates on the progress of the Project and main activities developed by BPC.

The committee has been an important communication channel for the public's involvement and to clarify actions related to the Project.

The main stakeholder groups are:

- Federal government authorities (Environment Ministry – MMA, Mines and Energy Ministry – MME);
- Local government authorities (state and municipal agencies, city council);
- Local communities and indigenous people; and
- Local churches and religious/cultural groups.

17.4.2 Tailings and Brine Management Plan

The waste generated in the process (basically Salt – NaCl) will be treated and managed in two ways:

- Tailings piles on the surface for later disposal via underground injection with generation of brine (salt + water) and pumping into deep injection wells;
- Backfill – filling of galleries and subsoil mined spaces with salt pulp/paste generated by the process and treated in the backfill plant.

The combined tailings operations processes will be named as tailings (tailings management or TM). After leaching, hot cycloning, and thickening stages, the leached solids (waste) are filtered and will undergo counter-current washing stages with freshwater to recover the soluble potash content entrained in the tailings, thus increasing the recovery.

Solids discharged from the horizontal belt filter will be transported to the tailings management area. Part of the tailings will be sent underground and used as a backfill in rooms of panels already mined underground, while the rest of the tailings will be stored on the surface in piles.

The filtered tailings cake discharged from the horizontal belt filter is transferred by a belt conveyor to the tailings piles. As mentioned, a part of the tailings will be redirected to the backfill plant, where the tailings are mixed with brine and a binder before being pumped underground and used as filling material for the mined-out panels.

Once the tailings are disposed underground in empty panel rooms, the solids settle, the effluent brine is collected, pumped back to the surface and re-used in the landfill plant. Excesses of brine that is not needed to polish the tailings from the backfill plant is pumped to the deep well brine injection circuit to maintain water balance.

The main waste conveyors go to the tailings management areas where the waste is deposited using mobile conveyors and stacking equipment in a waste system warehouse. There are a total of two tailings piles planned to be operated throughout the life of the processing plant. Both tailings piles will be built a short distance away from the processing plant at strategically defined locations, based on the following parameters and criteria:

- Non-floodable areas at elevations above the +25 m elevation with the base of the pile located at the elevation +30 m;
- Minimization of plant suppression in areas of dense ombrophilous forest in stage of advanced regeneration;
- Minimization of direct interference in thalwegs and/or water courses (APP areas);
- Elevation of the bottom of the ponds at elevation +25 m outside the recorded flood areas.

The tailings piles are designed at an elevation of +30 m with the following dimensions:

- Length: 1,247 m (at the base);
- Width: 1,147 m (at the base);
- Height: 25 m;
- Slope inclination: 1:5;
- Usable battery volume: 24.1 million m³ each;
- Tailings density: 1.6 t/m³.

The amounts of mobilized material involved in the construction of the piles are:

- Organic soil: 2,161,000 m³;
- Landfill: 6,573,000 m³;
- Cut: 6,572,000 m³;
- Loan material: 987,000 m³.

Each tailings pile will have two brine collection ponds, constructed adjacent to it. Each pond will be designed with the following dimensions:

- Length: 1,147 m (at the top);
- Width: 125 m (at the top);
- Depth: 3 m;
- Volume: 504,000 m³.

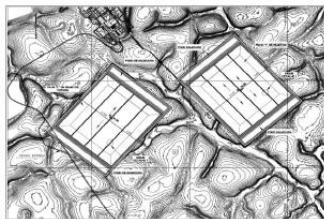


Figure 124 General layout of tailings piles 1 and 2

The base of the tailings piles will be formed by a sandy-clay silt pack with a thickness of 5 m to 6 m and with variable water table level. The intended coating will be formed by a 500 mm basal layer of sandy-clay silt mixed with 5-10% bentonite (existing on site), overlaid by a 1.5 mm thick HDPE geomembrane blanket, which is covered by a 300 mm layer of sandy clay, stabilized with cement or limestone.

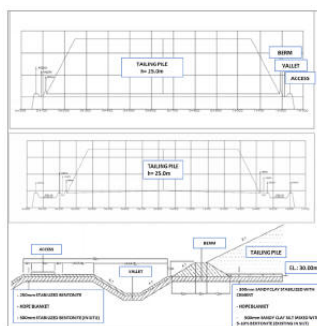


Figure 125 Dimensional cut sections of tailings piles 1 and 2

The base of the brine ponds will also consist of a 1.5 mm HDPE geomembrane sandwiched between two layers of sandy-clay silt mixed with 5-10% bentonite with thicknesses of 500 mm (layer under the blanket) and 250 mm (overlay layer).

In addition to the surface drainage of the piles, which has characteristics aimed at the production of brine necessary for injection into deep wells, the piles will have a deep drainage in order to keep the base of the piles solid without interference from groundwater level rise and surface water especially in periods of rain.

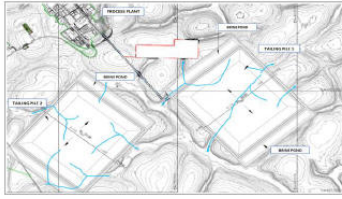


Figure 126 General plan of the tailings piles with details and paths of the deep drainage channels

The concept for the drainage of the base of the piles had as main objective to preserve the structure of the piles mainly in rainy periods when the water table tends to rise on the surface of the lower lands. This way, the construction of the base and the drainage considers all the characteristics that will maintain the waterproofing and structural safety of the piles.

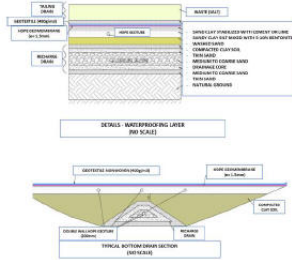


Figure 127 Details of waterproofing layers and typical section of bottom drains

The waste from the processing plant will be forwarded to the tailings management areas (i.e. tailings piles, brine ponds and brine injection wells) through a circuit conveyor composed of fixed conveyor belts and movable and relocatable conveyor belts. These mobile and relocatable belts will carry out the pile-forming operation together with mobile equipment (compactors, wheel loaders, bulldozers) that will be responsible for conformation and compaction of the tailings piles.



Figure 128 Photos of views with typical dry stacking installation planned for the formation of the tailings piles (Emerson, 2021, /13/)

The process of dissolving the salt piles is expected to be done using rainwater. The drainage is then directed to the brine ponds, where the brine pond overflow is pumped to the brine injection circuit, which comprises of:

- Brine tank and injection pumps located next to the brine ponds;
- Brine injection wells: 1 ring of 16 wells distributed according to studies carried out by SRK, around Pile 01. Average distance between wells: approximately 630 m to 750 m;
- Note: Regarding safety, critical distance between production wells and injection well ring is approximately 2 km.

In order to achieve adequate brine saturation, part of the brine can be recirculated to the tailings pile.



Figure 129 Illustrative layout of the brine Injection well locations (yellow points)

For the modelling of the brine injection process, the following parameters were considered:

- Project production scale: 23 years – total ROM (kton) 171,255;
- Mass balance of material available for injection after backfill operation: approx. 96,574 kton;
- Arrangement of injection wells: 1 ring of 16 wells (as indicated in Figure 129 above);
- Injection brine concentration: 300 kg/m³ NaCl;
- Depth of injection horizon: 366 m to 399 m;
- Total injection period: 43 years, 23 years of production and 20 years of decommissioning;
- Injection rates: 0-10 years = 647.50 m³/h; 10-23 years = 1,295 m³/h; 23-43 years = 647.50 m³/h – variable rates over periods.

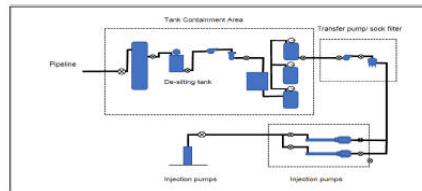


Figure 130 Typical schematic arrangement of the necessary facilities for the brine injection wells

The dimensions for each brine injection well station should be approximately of 30 m × 50 m with vehicular access to all stations being planned. These accesses will be built in parallel with the brine pipe.

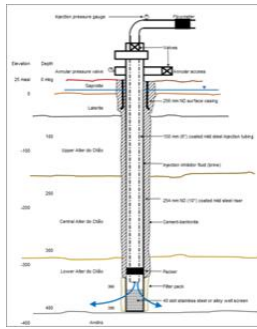


Figure 131 Typical section of the brine injection wells planned for the Autazes Potash Project

Additional engineering studies and injection test works is needed as part of the detailed design to implement this solution. The control and mitigation measures regarding the impacts on soil, groundwater, fauna and flora should be detailed and included in the respective monitoring programs provided in the EIA (Golder Associates, 2015, /25/) as well as in some conditionings, included on the previous license. Specifically, the following sections need to be reviewed:

- Water Quality Management Program, Hydrogeological Quantitative Monitoring Program, Degraded Areas Recovery Plan (PRAD), Vegetal Suppression Monitoring and Fauna Management Program, Fauna Monitoring and Mitigation Program and Hydro-biological Communities Monitoring Subprogram.

17.4.3 Solid and Hazardous Waste Management Plan

The solid waste generated during the lifetime of the Autazes Potash Project falls into two classes according to the NBR 10.004 standard of the Brazilian Association of Technical Standards (ABNT):

- Waste Class I – Hazardous;
- Waste Class II – Non-Hazardous (IIA Non inert; IIB Inert).

The Solid Waste Management Plan will promote the proper management of waste generated in the construction, operation and closure of the Project, including: collection, classification, storage, reuse and final disposal.

The objectives of this plan are:

- Identify alternatives that minimize the generation of waste at source, with consequent minimization of operating costs involved;
- Inventory and make qualitative and quantitative characterization of the waste generated in the Project;
- Promote the segregation of waste according to the characteristics and destination and implement selective collection as per CONAMA Resolution 275/2001;
- Classify and separate waste for proper disposal;
- Adopt temporary storage as a control procedure to be followed until viable alternatives for reuse and/or reprocessing and/or final disposal are identified;
- Search alternatives to reuse and/or reprocess waste generated.

Approximately 80% of the waste produced at the sites will be handled by recycling and by the composting of organic matter. The remaining 20% will be sent to the permanent sanitary landfill. All recyclable materials (i.e. paper and cardboard, plastics and metals, etc.) will be collected separately and pressed into bales, which will then be hauled by truck to their respective external recycling locations.

For the construction and operation phases, the following environmental control facilities will be implemented:

a) Intermediate Waste Deposit (IWD)

Waste collection stations will be distributed in the processing plant and administrative support areas and next to the restaurant, in order to temporarily store and separate the waste generated by the Project by characteristic and type. The waste will be forwarded to the DMC and to the sanitary landfill.

The area allocated for hazardous waste will be protected with fences and with signage and it will have a retention system for hazardous liquid waste.

b) Disposable Material Center (DMC)

The DMC is composed of storage yards and covered sheds for Class I and II waste and a composting area. Figure 132 shows the storage for the composting area.



Figure 132 Storage for composting area

The storage yard will be fenced and the floors will be covered with a primary coating.

A composting shed will receive the organic waste, which, after being crushed and mixed with the grass and pruning remnants, will be accumulated in piles for the maturation process that lasts approximately 40 days. The shed will have channels throughout its entire perimeter in order to collect washing water coming from the floors and slurry generated in the decomposition of waste.

c) Sanitary Landfill

The sanitary landfill area will be fenced and closed with a gate for access control. Non-compostable waste will be stored in the sanitary landfill.

17.4.4 Surface Water and Sediments Control Plans

Wastewater that will be generated during construction and operation of the Project includes sewage discharges (housing, offices, and cafeteria) that will be treated in sewage treatment plants (STPs), laundry effluent, oily wastewater (splitter box water-oil – SWAC) and concrete effluent.

The wastewater generated by the activities of the Project that is released into bodies of surface water must meet the effluent discharge standards set by CONAMA Resolution N°. 430/2011, so as not to cause change in the water quality of receiving waters above the limits established by CONAMA Resolution 357/2005.

For areas of the Project, where there will be removal of vegetation, earthwork, and excavation, interim and final drainage devices will be installed including gutters, ditches, channels, culverts, flow rate dissipation and proper disposal of water in marginal lands or water bodies. Ponds will be installed for sediment retention at critical points. The surfaces of cut and fill slopes as well as other exposed areas will be revegetated. These devices prevent or minimize intense erosion and stabilize slopes or embankments and prevent sediment from being transported into the surrounding waterways, which may impact the quality of the surface water and the aquatic ecosystem.

Installation of culverts at the point of drainage crossings in the road linking the port and processing plant should follow standard construction procedures to minimize the impacts on waterways in terms of sediment supply, erosion and water quality.

Uncontaminated rainwater collected by surface drainage at the port area will be directed to a retention pond for treatment and then discharged to the natural ground, which slopes towards the Madeira River.

The highest elevation for a seasonal flood event, considered a once in 100 year storm event, is predicted to reach 22.56 m, and earthwork located at the lowest elevation will have rock fill for slope protection.

Prevention monitoring, erosion control and water quality management programs will be implemented to mitigate impacts to surface water caused by construction and operation activities.

The water quality management programs aims to:

- Characterize the quality of the surface water in the current scenario, prior to implementation of the Project, in reference years (background) representing the dry and rainy seasons throughout the sampling network set;
- Monitor the natural seasonal variations in physical, chemical and bacteriological parameters in the surface water and follow the evolution of water quality quarterly during Project construction and operation;
- Evaluate the effectiveness of the procedures and environmental control systems that will be implemented for the Autazes Potash Project to minimize the change in the quality of surface water; and

- Propose corrective action when impacts to the quality of the surface water are discovered, monitor their implementation and evaluate the effectiveness of the actions taken.

The physical, chemical and bacteriological parameters proposed to be analyzed quarterly in the sampling network are shown in Table 103.

Table 103 Parameters to be analyzed for monitoring the quality of surface water and groundwater

Groups	Parameters
Physical parameters	Electrical conductivity (EC), water temperature, solids, dissolved solids in suspension, turbidity and color
Chemical parameters	Hydrogenic potential (pH), oxy reduction potential (Eh), dissolved oxygen (DO) and alkalinity
Major Ions	Calcium, magnesium, potassium, sodium, bicarbonate, sulfate and chloride
Metals	Aluminum, copper, chromium, iron, manganese, nickel and zinc
Nutrients	Phosphorus, nitrite, nitrate and ammonia nitrogen
Biological parameters	Biochemical Oxygen Demand (BOD), Escherichia coli and fecal coliforms
Others	Chemical Oxygen Demand (COD), chlorides and oil and grease

The prevention, monitoring and erosion control program is intended to identify, monitor and apply corrective measures at locations, where the potential for erosional processes might occur as a result of project activity, e.g. unstable embankment and/or natural slopes and where sediment transport results in silting of nearby waterways.

During the stages of construction, operation and project closure, the following monitoring activities and field inspection will occur:

- Monitor the destination of deforestation and land clearing materials, ensuring that they will not be released directly into watercourses and ban the use of chemical agents, uncontrolled mechanical processes and burning;
- Inspect temporary and permanent drainage structures (culverts, gutters, water descents, ditches, energy sinks etc.) to ensure they are functional, that they drain to the designated areas and that the flow is regulated;
- Monitor the effectiveness of drainage systems to prevent the transport of sediments (e.g. sedimentation basins) during deforestation activities and earthworks development near watercourses;
- Monitor the excavation of the slopes of cuts and embankments, ensuring that it is compatible with the geotechnical characteristics of the materials and the topography of the surrounding areas; and
- Monitor the revegetation of areas to ensure the exposed surfaces are protected from the actions of rainwater and surface water runoff.

Once instability and/or erosion are identified, corrective measures and geotechnical solutions for each case should be developed and implemented in order to promote the recovery of the impacted area. Recovery actions must be consistent and be subject to further monitoring for efficacy as per the Degraded Areas Recovery Plan.

17.4.5 Emergency Response Plans

17.4.5.1 Emergency Preparedness

As per the NR22 regulations, every mine must prepare, implement and keep an updated emergency plan, which should include at least the following:

- A list of the major risks involved in the mine operation;
- Procedures to be followed in the case of:
 - Fires;
 - Floods;
 - Explosions;
 - Cave-ins;
 - Ventilation system power failure;
 - Major accidents;
 - Other emergency situations as determined by the mine characteristics, its products and the raw materials used;

- Location of equipment and supplies required for emergencies and first-aid care;
- List of emergency and fire brigade members and procedures to be followed for situations as described in the EIA (Items I to VII);
- Regular training program for emergency brigades;
- Regular simulation rescue exercises mobilizing the mine contingent directly affected by the event;
- Defined areas and installations duly built and equipped to act as shelter for victims and first-aid personnel; and
- Defined communication systems and emergency alarms inside the company and external environments, and company agreements with civil defense organizations.

As such, a full emergency plan should be developed prior to, or during, the engineering, procurement and construction phases of the Project.

The costs for underground emergency equipment (including self-rescuers), first-aid, refuge stations, and communication systems have been incorporated in the capital cost estimate for the BFS.

Each section of the mine will have self-contained portable refuge bays. They will accommodate all employees working within that section plus 15% contingency room. They should be reachable within 500 m of the work area. Other permanent stations should be placed close to working areas underground. Locations for refuge bays are recommended by Bluhm Burton Engineering Pty Ltd (BBE, 2015, /5/) and are presented in their 'Emergency Preparedness Report' provided in Appendix G of the 2016 BFS report (WorleyParsons, 2016, /57/).

All underground emergency knowledge, training and exercises should be imparted to staff and teams should be put in place to act as an emergency brigade. In each vertical shaft a permanent hoist to allow a second means of accessing the underground working will be installed.

The following facilities will be available in the event of an emergency:

- Fire brigade: located next to the processing plant with one fire truck and ability to accommodate four firemen;
- First aid station and clinic: located next to the processing Train A with the ability to accommodate four patients;
- Emergency electrical power generators system: a set of diesel generators installed in each E-house to supply electrical power in emergencies to the mine ventilation system and to shaft operation to evacuate the underground mine;
- Mine ventilation system: for processing equipment in the plant such as thickeners, tank agitators and tailings pumping;
- Essential services: potable water, sewage, fire water and lighting for administrative buildings, rescue center;
- Control room: includes a public address and general alarm (PAGA) system that sends an alarm for fire detection, emergencies and evacuations requirements. The communication and information systems enable total connectivity to all operational areas in the underground and on the surface. The system infrastructure enables voice and video transmission signals (including underground monitoring cameras, cameras embedded in mining equipment, and other equipment);
- Heliport: will be located close to the processing plant and shaft area for the landing and take-off of helicopters that will be used for quick removal of accident victims to the hospital in Manaus or Autazes;
- Urucurituba port facilities: the port can be used as an option for the transport of people to hospitals in Manaus or Autazes. Ferries or boats can moor at the port and receive personnel needing removal. Ambulances can also use the port facility as an arrival or departure area.

Emergency systems will be installed in order to ensure the safety of personnel working in the underground including:

- Skips will be equipped with inspection platforms specially designed for increased security. Can be used in an emergency for the transport of personnel and material to the surface;
- A service well that will consist of a main and auxiliary elevator system (cages) to increase the transport capacity in case of emergency;
- Refuge stations (permanent and mobile) that will be installed every 1,000 m and will be equipped with communication system, maps, water, food and first aid instructions and equipment to ensure shelter for a minimum 36 hours;
- Emergency power generation system (diesel) located near the shafts.

The mine will have two independent access shafts equipped with vertical transport systems for people and equipment. In the underground it will be mandatory to wear appropriate personal protective equipment for the mine operating conditions. The atmosphere in underground potash mines is characterized by a dry and silica dust-free environment.

The mine atmosphere will be maintained under working conditions defined by the current legislation. Ventilation and cooling systems will be installed in the surface and underground and will be controlled and continuously monitored by a dedicated team.

Hydration points for the distribution of drinking water will be installed. A signaling system, indicating escape routes, will be adopted in the underground. In each operating shift there will be staff trained to operate in emergency situations.

Refuge rooms will be installed throughout the mine to be used in case of emergencies. The chambers are designed to ensure shelter and food for people for long periods of time. The main features of a refuge station are:

- Safe design;
- Independent breathing air system;
- Purification by Carbon Dioxide (CO₂) and carbon monoxide (CO);
- Resistant to 15 PSI explosive;
- View gates explosive-proofed;
- Internal and external gas monitoring;
- Fireproofed structure;
- Communication gates;
- Ergonomically designed seat;
- External toilet disposal system;
- First aid kit;
- Non-slippery floor;
- Fire extinguisher;
- Reflective signs;
- Food and water for long periods (minimum 100 hours of life support).

For severe accidents, the removal of the victim(s) will be by speedboat or helicopter; the victim will be transported to a hospital in Manaus.

17.4.5.2 Underground Mine Evacuation Plan

The evacuation plan shown in Figure 133 is dependent on the ventilation and mine design layout. Standard NR 22 requires the existence of two underground escape routes that lead to the surface. In the layout provided, primary escape routes are shown in green and secondary escape routes are shown in pink.

Both routes are placed in the intakes, as personnel cannot safely travel through return airway passages as per ventilation requirements. The routes have been designed as a straight path with an arrow pointing to the direction of the shaft location. For those workers farthest North, the route is divided into either West or East escape and then South escape.

The routes shown are high-level and alternate routes or escape ways should be taken into consideration closer to the mine construction date. During operations these plans should be updated quarterly.

The number of personnel working underground and the distribution throughout the sections will be limited based on the allowable quantity in that section. It will also be limited by the amount of emergency equipment available.

A detailed evacuation plan should be prepared during the construction phase that will consider meeting points, escape routes and a means of transport in the event of accidents at the processing plant.

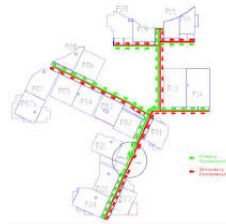


Figure 133 Underground evacuation plan

17.5 Closure and Reclamation Plan

17.5.1 Introduction

Mine closure is a process that seeks to rehabilitate areas that were affected by mining activities. Mine closure will include the following activities:

- Implementation of social programs: the project closure has direct impacts on workers and the surrounding communities. In order to minimize these impacts programs will be implemented;
- Structures and equipment decommissioning: disassembly of equipment, facilities and infrastructure will be held, if they do not have other use for the community;
- Shaft closure: closure of all accesses to the underground mine;
- Landscape reshaping: earthworks and activities aimed to transform the landscape into its original shape;
- Reforestation: intentional restocking of existing forests and woodlands (native species) that have been depleted as well as organic soil recovery and
- Monitoring: activities to follow engineering, environmental and social-economic indicators to ensure the efficiency of the Project's closure actions.

Planning for closure is an integral component of mining production and processing plant operation. Consultation with employees and stakeholders is a key component for the closure planning process. The closure plan is reviewed at least every five years and/or at key milestones during the Project life.

Based on exploration drilling to date and areas currently being permitted, the predicted life of the mine for the Project is 23 years, but the life of the Project will continue for an additional 20 years. During this time, the tailings resulting from the KCI processing will be naturally dissolved by the rain and injected to deep aquifers.

Components of the Project will be closed when they are no longer required. During the final closure phase, the remaining scope of work will cover only the facilities and disturbed land that were not closed during the life of the operation.

17.5.2 Legal and Other Requirements

17.5.2.1 Brazil Legal Requirements

The following Federal and State laws and decrees govern the closure requirements for the site:

- Federal Law 6.938/81, which establishes the Terms of Reference for the development of the PRDA;
- Federal Decree 97.632/89 requires, from all mining projects, the presentation of the Plan for the Recuperation of Degraded Areas (PRDA);
- Federal Constitution of 1988, Chapter VI – of the Environment – Article 225, which states: “§2nd – It is mandatory, for those exploring the mineral resources, to make the recovery of the degraded environment, in accordance with the technical solution required by the competent public agency, according to the law”;
- Federal Decree N° 3.420/000: “creates the National Forest Program, to purpose the sustainable use, conservation and recovery of forests and respective natural habitats”;
- State Law N. 2.984/2005: “amends, as per Policy of Prevention and Control of Pollution (Law N° 1.532 of July 6, 1982), the Improvement and Recuperation of the Environment and the Protection to the Natural Resources, and gives other provisions.”

The guidelines established by the National Department of Mineral Production (Departamento Nacional de Produção Mineral – DNPM NR20), state that the closure plan should consider the following:

- Disposal and containment systems;
- General condition of slopes;
- Water table behavior; and
- Water drainage.

The Ministry of Mining and Energy must receive notification of the upcoming closure. Following the submittal of the notification, a mine closure claim must be presented, accompanied by the following supporting information:

- Report on the work performed;
- Characterization of the remaining reserves;
- Demobilization plan for facilities and equipment;
- Topographic survey;

- Mine plan including the mined areas, restored areas and areas to be recovered, organic soil disposal areas, waste ore and tailings, disposal systems, access roads and other civil works;
- Planned monitoring program related to:
 - Disposal and containment systems;
 - Slopes;
 - Water table behavior;
 - Water drainage;
- Soil, air, and water resources pollution control plan;
- Measures to prevent access of strangers to the mine;
- Definition of environmental impacts;
- Capacity and intention of future use;
- Report on the occupational health of workers during the life of the mine; and
- Physical and financial schedule of proposed closure activities.

17.5.3 Project Closure Strategy

A part of the site location is a secondary growth forest and requires intense work to bring back the fauna and flora after operation of the mine and processing plant is finished. Considering the timeline for closure is 23 years away, the procedure should be constantly reanalyzed during construction and operation to ensure best practices are employed. These assumptions are aligned with the IFC requirements, in particular, the Biodiversity Conservation and Sustainable Management of Living Natural Resources – Performance Standard 6 and the ICMM Planning for Integrated Mine Closure.

As a guiding principle, the decommissioning activities should meet the requirements of physical chemical and biological stability, or be better than, to ensure that there are no restrictions for future use in the area. BPC will manage this process until the agreed closure objectives are met.

Extensive, ongoing consultation with the stakeholders will be undertaken to ensure that the plant closure will be implemented in partnership with the local communities and relevant Federal and State governments.

17.5.3.1 Mine Site

Mined-out areas will be sealed upon completion during the life of the mine. The district in the northeast part of the deposit will be sealed upon completion of underground mine panel P19. Any salvageable equipment will be removed from the main development entries and the shafts will be sealed.

The salvage value of equipment and infrastructure exposed to the potash mine environment will be minimal due to corrosion. Belt infrastructure could be removed for scrap metal but the manpower requirements make this activity futile. Electrical circuits will be disconnected and electrical equipment removed as required as recovery progresses towards the shaft.

The shaft equipment will be removed and all electrical circuits will be disconnected. Surface shaft equipment will also be removed from site.

Individual panels will be sealed upon conclusion of operations and districts will be sealed as areas are completed. The majority of the main development entries will remain open until the end of the life of mine. After the recovery has been completed, the shafts will be sealed preventing any access to the underground mine openings.

Warning signs will be posted as appropriate. Fences with locked accesses will surround the mining areas.

17.5.3.2 KCI Processing Plants and Associated Infrastructure

The processing plant buildings and infrastructure will be disassembled and removed from the plant site, prior to returning the site to conditions similar to the natural landscape. Restoring the landscape includes contouring the land to resemble the surrounding topography.

Internal roads and parking lots will be removed, re-contoured and rehabilitated.

Equipment from the processing plant will be reused at another location, sold for reuse or sold as scrap material.

The brine storage ponds will be backfilled with native soil and reforested.

The tailings pile residuals (after dissolution is complete) will be covered with an impermeable barrier, covered in soil and vegetated with natural vegetation.

The landfill will be covered with an impermeable barrier, covered in soil and vegetated with natural vegetation, so as to blend in with the surrounding environment.

The electrical substation will remain as an improvement to the local power supply for the surrounding communities. It will be transferred to the local power supplier to continue the service provision.

17.5.3.3 Port Facilities

All loading facilities, including the off-shore and land-based, will be removed and reused or elsewhere, sold for reuse or sold as scrap material. The improvements in the port facility will remain with ownership retained by the municipality.

17.5.3.4 Build Infrastructure, Concrete Foundation and Roads

All concrete to a depth of one meter below final ground level will be broken up and disposed of in an on-site waste disposal facility. The waste disposal facility will be sited and engineered to provide protection to the surface water and groundwater.

Material Storage

All chemical and hydrocarbon products required to facilitate site closure activities will remain temporarily on-site in secure and locked areas. Any remaining non-hazardous materials at the completion of the decommissioning phase will be transported to Manaus for treatment and disposal.

Structures and Equipment

Mine, processing plant and port structures will be assessed for their suitability for conversion to other uses, demolition or salvage. All remaining materials will be disposed off according to their characteristics and legal requirements.

Machinery and equipment, including mobile equipment, conveyors, pumps, processing and other equipment, will be decontaminated, cleaned and prepared for re-sale, if their condition warrants it.

Piping

Above-ground piping will be removed and placed in temporary storage, where it will be sorted for salvage or recycling and disposal in Manaus.

Demolition Waste

A demolition plan will be developed prior to closure to ensure that site infrastructure is demolished in a systematic manner and that mixing of waste material is avoided. Demolition material will be assessed for contamination prior to disposal. A testing protocol will be developed as part of the demolition plan to ensure that all material is tested using the appropriate methods.

Demolition waste will be recycled where possible, metals and plastics will be washed, cleaned and transported to Manaus. Wood, plastics, concrete, road material and other non-recyclable materials will be buried in an on-site waste disposal facility. Outlets for disposal of demolition waste will be investigated during the development of the closure plan.

Wash-Down Facilities

Facilities will be required for washing contaminated materials and equipment, where appropriate. Wash water from the wash-down facilities will be treated prior to disposal.

Re-contouring

All areas will be re-contoured after demolition to ensure the ground is suitable for future land uses. The ground will be re-contoured and covered with topsoil.

Rehabilitation

A rehabilitation management plan will be developed that is specific to the region and with ongoing consultation with stakeholders to determine final land use. Where appropriate, rehabilitation will incorporate native species indigenous to the area, with the intention that they become self-sustaining over a period of time. Additional information pertaining to social, community, employee, service providers and contractor measures will be included in the rehabilitation management plan.

17.5.3.5 Off-Site Road

The road between the processing plant site and port site, which is approximately 12 km, will remain as a local improvement to the region and neighboring properties. This will need to be discussed with the local government entities and other stakeholders.

17.5.3.6 Work Force

BPC will provide a replacement program for all employees for the region.

17.5.4 Closure and Post-Closure Impacts

Closure and post-closure activities that may cause impact include:

- Removal of surface infrastructure (mine, processing plants and port);
- Closure of mine;
- Decommissioning roads, pipelines, water, power supply;
- Rehabilitation of disturbed areas;
- Final clean-up;
- Decontamination;
- Reclamation of salt storage facilities and brine ponds;
- Waste disposal facilities; and
- Port facility.

The potential impacts associated with these activities are:

- Dust and noise from infrastructure removal during closure;
- Pollution impacts from tailings storage;
- Pollution impacts from brine storage;
- Safety and stability of remaining infrastructure post closure;
- Impact to soil by removal of infrastructure – compaction of soils, altered drainage, erosion;
- Ground subsidence;
- Sedimentation in stream/river due to erosion; and
- Loss of employment and contribution to local, regional and national economy.

A residual risk analysis session will be held to evaluate the risk that will remain after the implementation of the actions provided in the closure plan. This analysis will identify areas that present greater risks after closure and will determine if the residual risk is consistent with the future intended use. The risk analysis summary document should be reviewed periodically during the closure plan review process.

17.5.5 Closure Principles and Objectives

Sustainable development principles are used as part of the decision making criteria for closure planning throughout the life of the Project.

17.5.5.1 Closure Objectives

The objective for closure of the Project is to ensure that the final post-closure landscape is safe, stable and sustainable (economically, socially, chemically, physically and ecologically) for the long term. These objectives include:

- Protect the environment and public health and safety over the long term;
- Conduct the development and operation of the mine such that progressive rehabilitation can be executed to minimize post-operational closure activities and related costs;
- Return the mine, processing plant and port sites to conditions suitable for final land use;
- Remove all unwanted infrastructure and stabilize all engineered structures in consultation with stakeholders;
- Achieve chemical and physical stability, resulting in a reduction or elimination of long term environmental impacts;
- Ensure that the rehabilitated landforms are safe, with minimal risk to the public, native flora, fauna and livestock;
- Minimize the long-term requirements for active site care and maintenance during the post-closure period;
- Establish landforms that are stable, conform to the surrounding landscape and support self-sustaining local vegetation and faunal communities that are consistent with those prior to the Project;
- Return the sites to an environmental condition that has minimal off-site impacts by ensuring that potential contaminant sources are removed, contaminated sites are remediated and erosion, sedimentation and the degradation of the surface water and groundwater are controlled;
- Rehabilitate using technically effective and proven engineering practices, cost efficient methods and ecologically suitable practices that are discussed and agreed upon by the relevant regulatory authorities;
- Ensure that communication with employees is transparent regarding the project closure activities;

- Prepare and implement a stakeholder closure communication plan that is updated through construction and operation;
- Ensure stakeholder viewpoints are included in the closure options for the Project; and
- Involve stakeholders in assessing closure and post-closure community and social impacts.

17.5.6 Closure Management Plan

The Closure Management Plan is prepared prior to construction and is updated every five years during the operating life of the Project. A detailed decommissioning plan is prepared, based on the closure plan, at least five years prior to closure. The provision for financing of the decommissioning is included in the plan and is reviewed periodically by BPC.

17.5.6.1 Planning Resources for Closure

Planning for the staffing of human resources personnel for the execution of the closure plan is required well in advance of project closure.

The key drivers for the BPC Closure Management Plan include:

- Project closure issues – identify what the potential impacts of closure are, and through the closure planning process, identify closure options and a strategy to work through the issues;
- Compliance with federal regulatory requirements; and
- Compliance with state regulatory requirements and a closure estimate of $\pm 20\%$.

17.5.6.2 Methodology

The Closure Management Plan was developed by a multi-disciplinary team. The following areas were represented:

- Mine, process and infrastructure engineering;
- Technical;
- Environmental, social and community; and
- Cost estimating.

Review, input and commitment was made by project senior management.

17.5.6.3 Scope of Closure Management Plan

The scope of the Closure Management Plan covers the following areas:

- Mine site within mine lease boundaries;
- Processing plant site;
- Port terminal, including marine infrastructure;
- Tailings management area (TMA); and
- Employees.

It was assumed the road and transmission line will be donated to the local community, as it can be used to public benefits.

It is assumed that decommissioning and remediation activities for all facilities will occur over 20 years with 54 years of environmental monitoring before divestment.

17.5.6.4 Technical Studies

Studies required to support the closure objectives include:

- Mine site rehabilitation trials. Analysis of ongoing mine site rehabilitation results in direct progressive mine site rehabilitation work;
- Topographic survey of the mine surface is limited to provide a baseline for subsidence monitoring; and
- Study of residual brine disposal options following removal of tailings from tailings management facility.

17.5.6.5 Ongoing Development of the Closure Management Plan

The Closure Strategy and Management Plan will evolve through the life of the Project. The closure strategy, its assumptions and inputs must be regularly reviewed to assess whether there is a significant planned or unplanned

change to the operation. Significant changes in the closure strategy must be reflected in the Closure Management Plan and closure cost estimate. The Closure Management Plan is fully updated at least every five years and submitted to the relevant authorities, where appropriate. This systematic update identifies the adequacy, performance, areas of risk, and opportunity of the Closure Management Plan.

The updating process includes the integration of newly obtained monitoring data to present a more accurate reflection of "actual" versus "projected" conditions during the operational life of the Project. It also allows for the incorporation of any technological advances in these areas, given the ongoing dynamic research in rehabilitation methods and technologies.

A formal opportunity will be provided for the local community members to provide further input regarding the final use for the project lands. This ensures that changes in the local community composition and their value systems are reflected over the life of the mine and are also provided during the updating process.

The closure cost estimates are also revised to ensure that the assumptions for costing are still applicable. The closure cost estimate, as reported in the financial statements, is updated annually during the Project's lifetime to reflect known developments, including changes from the review of the closure strategy assumptions and inputs, scope changes, the effect of a further year's inflation, exchange rate differentials new regulatory requirements and any other material developments.

A detailed decommissioning plan and cost estimate is prepared five years prior to the estimated date of end of production. The decommissioning plan contains specific details of how closure is achieved and is linked to the Closure Management Plan. The resulting plan is submitted to the appropriate regulatory government agencies and presented to the local communities for their review and consultation prior to implementation.

17.5.6.6 Closure Monitoring

Closure monitoring will be conducted to confirm the effectiveness of the reclamation/rehabilitation activities. The intent of the physical and chemical monitoring program is to demonstrate stable or improving conditions over time, both during closure and post-closure. Closure monitoring is tailored to specific project facilities. Social and community monitoring is undertaken to determine the effectiveness of the consultation process and specific closure measures.

The environmental and social monitoring program for closure and post closure is based on the monitoring program for operations, with appropriate refinements as required to address closure monitoring, including:

- Ensure closure activities proceed as designed, and environmental data is current;
- Determine the effectiveness of the proposed reclamation measures carried out as part of closure;
- Identify unacceptable impacts to enable the implementation of supplementary mitigation and/or contingency measures in a timely manner;
- Ensure compliance with applicable health, safety and environmental legislation, policies and guidelines;
- Ensure accountability through a system of routine reporting from facility managers to BPC management with summary reports being sent to appropriate government agencies, as required;
- Investigate environmental incidents and identify follow-up requirements;
- Document and respond to community or governmental agency concerns; and
- Determine closure schedule from transition to post-closure care.

Environmental monitoring consists of physical, chemical, biological monitoring with finalization of the monitoring plan during subsequent stages of Project planning.

17.5.7 Closure Costs

Preliminary closure costing for the Project was carried out using the local parameters of costs model, which provides a systematic methodology for mine closure cost estimates.

17.6 Opinion of Qualified Person (QP)

L&M has reviewed this Chapter 17 to assess BPC's environmental studies, permitting and plans, and its negotiations or agreements with local individuals or groups, and L&M is of the opinion that BPC's current plans to address any issues related to environmental compliance, permitting, and local individuals or groups are adequate and sufficient for the Project's current stage of development.

18 Capital and Operating Costs

This chapter provides information about the capital and operational expenditures.

18.1 Basis of iCAPEX and sCAPEX Update

Updates of iCAPEX, sCAPEX and OPEX were provided, with the main components established based on the methodologies detailed in this chapter. Justifications were provided for the updated 2022 cost estimates, including any contingency budget estimates, with the accuracy level required for iCAPEX and OPEX estimates at the level of this study.

The iCAPEX and OPEX estimates were prepared by professionals with extensive experience in estimating costs, and fully qualified in similar projects where the risks associated with the specific methods of engineering estimation were considered. As part of this analysis, the costs estimates accounted for the accuracy of estimation methods in previous similar environments. The accuracy of iCAPEX and OPEX estimates must comply with § 229.1302 (Item 1302 of Regulation S-K). iCAPEX and OPEX estimates in a feasibility study should at least have an accuracy level of approximately ±25% and a contingency range of not more than 10%, as provided for in the current rule, as highlighted in Table 104.

Table 104 Cost estimate classification

Engineering Definition	Methodology	Expected Accuracy Range
10% – 40%	Semi-detailed unit costs with assembly level line items	Accuracy level should be approximately ±25% with a contingency range of not more than 10%.

All costs are at 2022 United States dollars (USD). Where the estimated original currency is different from USD, the following exchange rates are assumed. For this study, we adopted the future projection of the official exchange rate of the Central Bank of Brazil (BACEN) through the FOCUS report of July 8, 2022, with an exchange rate forecast until 2025.

1 USD = 1.2917	CAD
0.9608	EUR
16.4205	ZRA
5.2500	REAL
0.8301	GBP.

No allowances are made for hedging of foreign currency variability between estimate date and the settlement of the order.

The estimate is broken down, based on the work breakdown structure (WBS) presented in Table 105.

Table 105 Project work breakdown structure

Area	Area Name	Sub-Area	Sub-Area Name
10	Mining	1000	Underground mine
		1100	Shafts
20	Site general	2000	Site – General
		2200	Parking and fencing
		2300	Site roads
		2400	Surface drainage & ponds
		3000	Process plant – General
30	Process plant and equipment	3100	Raw ore handling and primary crushing
		3200	Wet process
		3300	Dry process
		3400	Product handling and storage
		3500	Tailings processing
		3600	Reagents
		3700	Process control system (PCS)

Area	Area Name	Sub-Area	Sub-Area Name		
		3900	Process building		
40	Tailings management	4000	Tailings management		
		4300	Brine distribution		
		4400	Brine reclaim and injection preparation		
		5000	Utilities – General		
50	Utilities	5100	Electrical services		
		5200	Water services		
		5300	Sanitary and waste services		
		5400	Fuel services		
		5500	Compressed air services		
		5700	Storm water drainage		
		5800	Process piping systems (external to buildings)		
		5900	Communications		
		60	Ancillary services facilities and equipment	6000	Ancillary services – General
				6100	Ancillary services facilities and equipment
		70	Off-site facilities	7000	Off-site facilities – General
7100	Off-site roads/bridges				
7200	Port (infrastructure and equipment)				
7210	Port-marine				
7265	Conveyors				
7270	Floating dock				
7275	Ship loaders				
7300	Off-site water supply				
7400	Off-site natural gas				
7500	Off-site electrical				
7600	Port ancillary services facilities and equipment				
80	Indirects	8000	Indirects – General		
90	Owner's costs	9000	Owner's costs – General		

The iCAPEX estimate includes all direct and indirect costs, local taxes and duties and appropriate contingencies for the facilities required to bring the Project into production, as defined by a feasibility level engineering study.

The estimate is based on an Engineering Procurement and Construction Management (EPCM) implementation approach, which is based on the project contracting strategy outlined in Chapter 21.

The total estimated iCAPEX for the project is USD 2,491.0 million (after tax) as shown in Table 106 'Project iCAPEX Summary'.

Table 106 Project iCAPEX summary

Area	Sub-Area	Total Costs (Million USD)
Mining	Underground Mine	268.0
	Shafts	433.4
Process plant and equipment	Site – General	68.3
	Process Plant	608.7
	Tailings Management	72.1

Area	Sub-Area	Total Costs (Million USD)
	Utilities	69.9
	Ancillary Services	28.3
	Off-Site Facilities	221.7
Direct costs		1,770.5
Indirect costs		135.2
Owner's costs		165.8
Contingency		200.2
TOTAL COSTS (pre-tax)		2,271.7
Taxes, duties, fees		219.3
TOTAL COSTS (after-tax)		2,491.0

The total estimated sCAPEX cost of the overall Project is USD 567.3 million (after tax) as shown in Table 107 'Project sCAPEX Summary'.

Table 107 Project sCAPEX Summary

Area Name	Total Costs (Million USD)
Mine development	212.2
Mine mobile equipment	22.8
Backfill	47.5
Second tailings site	99.1
Direct costs	382.1
Closure costs_Mine	6.8
Closure costs_Plant and Infrastructure	61.1
Closure costs_Tailings pile_Operation costs	57.0
Closure costs_Tailings pile_Monitoring costs	7.8
Indirect costs	132.8
Taxes, duties, fees	52.3
TOTAL COSTS	567.3

18.1.1 Key Feasibility Study Documents

A 3D model was developed for the processing plant; material take-offs used for piping, steel and mechanical equipment and bulks were generated from the 3D model. The mine and shaft material take-offs are based on general arrangement drawings. Table 108 defines the level of development of key feasibility study documents that are used to as the basis for the estimate.

Table 108 Key documents level of development

Document	Level of Development
Site-based investigations	
Geographical location	Defined
Topographical survey	Completed
Geotechnical survey	Preliminary
Hydrological survey	Preliminary
Power survey	Preliminary
Project team site visit	Completed

Document	Level of Development
Process design	
Bench-scale test work	Completed
Pilot plant test work	Not Required
PFDs	Issued for design
P&IDs	Issued for design
Equipment list	Issued for design
Mass balance	Issued for design
Equipment datasheets	Issued for most equipment
Line list	Preliminary
Facilities design	
Site plan	Issued for design
Overall plant layout	Issued for design
Mechanical GAs	Issued for design
Piping GAs	Modelled (6" and above)
Electrical SLDs	Issued for design
Tailings facility design	Preliminary
iCAPEX Cost Estimate	
Civil works	Material take-offs
Structural steel	Material take-offs
Piping	Material take-offs
Electrical	Material take-offs
Control and instrumentation	Material take-offs
Buildings	Material take-offs

18.1.2 Procurement

Budgetary prices were obtained for most packages, as shown in Table 109, with the balance estimated in-house from recent similar projects or by indexing prices obtained from vendor quotes in the 2016 feasibility study.

For the updated iCAPEX estimate, a cost structure methodology was used to distinguish all price sources and information for estimate formation, such as: "Budgetary", "In-House" and "Budgetary 2016+Indexation". The methodology also considered the origin of prices, selected suppliers from multiple bid packages, areas and sub-areas according to WBS, formation of supply packages, taxes in Brazil, and other factors.

For "In-House" prices, i.e. items without a commercial proposal in 2022, the working group specializing in cost estimation used the most appropriate criteria for updating "In House" prices. The group initially used an engineering database that indexes prices to 2022 for each discipline category offered according to a monthly publication of the Fundação Getúlio Vargas (FGV) (FGV IBRE, July 2022, /20/). FGV is a highly respectable private institute in Brazil, responsible for sector economic market indices. To account for foreign currency changes, prices were updated by the accumulated currency inflation to 2022 based on the origin of the equipment or material supplied (e.g.: USD and CAD). Finally, the current version of the supplier market price database for each discipline was used for similar items in other mining projects in Brazil.

To achieve the necessary results of the "In-House" price update, it was necessary to select the iCAPEX items for which a commercial proposal was not received, and group them by discipline category, as seen in the following examples. Subsequently, the prices were then factored, to incorporate figures from the engineering database, FGV economic indices, currency inflation in international supplies or the current view of the Brazilian supplier market for each discipline:

- For the electrical equipment, with a total value of USD 1,018,877, the economic index factor of 65.0% was applied, based on the current view for the Brazilian market;

- For the mechanical equipment, with a total value of USD 39,461,404, the prices were indexed based on the monthly publication by FGV, of which the Industrial Metallurgical category was selected and a factor of 113.2% was applied;
- For the structure steel and platework, with a total of USD 69,206,574, the prices were indexed based on the monthly publication reflecting economic market indices published by FGV of which the Basic Metallurgy category was selected and a factor of 105.5% was applied;
- For piping, with a total of USD 15,346,984, the prices were indexed according to FGV's monthly publication of the metallurgy sector of which a factor of 124.2% was applied;
- For "In-House" prices, exclusively on the basis of the original currencies (USD, CAD, etc.), their values were duly updated based on the application of accumulated currency inflation until 2022. For the supplied "In-House" with the USD currency value of \$93,000.251, inflation of 25.1% was applied and for the supply in CAD with value of \$12,760,386, inflation of 21.8% was applied.

For "In House" prices, the economic indexes of inflation in Brazil were applied to update to 2022, in each type of supply, according to the table of factors shown in Table 116 and Table 117.

18.1.3 Estimate of Inflationary Costs in the Supplies Originating from Other Countries

For the original prices obtained with another exchange rate (USD, CAD, RSA, GBP and EUR), the inflation indices accumulated until 2022 were used for each currency and country of origin and applied to the internal and budget/inflation items, as shown in the blue fraction in the pie chart below.

For "Budgetary" prices, all commercial proposals sent by suppliers located in Brazil or abroad were adopted, with the prices updated and quoted for 2022.

For prices marked as "Budgetary16+Indexation", without obtaining updated 2022 prices, previous commercial proposals, were considered with application of price indexes for each category of supply, obeying the same criterion according to the monthly publication made by the Fundação Getúlio Vargas / Instituto Brasileiro de Economia (FGV IBRE, July 2022, /20) a private institute highly reputed in Brazil, responsible for the sector-economic market indices. Prices originally quoted in foreign currencies were updated by the accumulated currency inflation until 2022 (example: USD and CAD), and finally, the current outlook of the supplier market was applied for similar items in other mining projects in Brazil.

Table 109 Equipment/material/services pricing basis

Package No	Description	Source of Costs
Mine and Plant		
CC005	Civil works buildings	In-House
CC007	Civil works services	Budgetary
CC008	Electro-mechanical assembly	Budgetary
CS013	Structural steel supply	Budgetary
CS017	Storage buildings	Budgetary
ES001	MV cable	Budgetary
ES002	LV cable	In-House
ES003	Cable tray	Budgetary
ES006	E House prefabricated electrical rooms	In-House
ES015	Primary overhead power line (inside plant)	Budgetary
ES016	Electrical main substation	Budgetary
IS001	Process control system	In-House
MS001	KCI product fluid rotary dryer	Budgetary
MS002	Granular product fluid bed dryer/cooler	Budgetary16+Indexation
MS004	Raw ore crusher	Budgetary
MS005	Slimes thickener	Budgetary
MS006	Tailing belt filter	Budgetary16+Indexation
MS007	Drag conveyors	Budgetary16+Indexation

Package No	Description	Source of Costs
MS008	Bucket elevators	Budgetary16+Indexation
MS009	Vibrating screens	Budgetary
MS010A	Belt conveyors (inside plant)	Budgetary16+Indexation
MS010B	Belt conveyors (outside plant)	Budgetary
MS011	Leaching tanks	Budgetary
MS012	Slurry pumps	Budgetary
MS013	Mill crushers	Budgetary
MS015	Crystallizers	In-House
MS016	Agitators	Budgetary
MS019	Plate work	In-House
MS021	Mixing condenser (part of package MS015)	Budgetary16+Indexation
MS022	Centrifugal water pumps	Budgetary
MS024	Crystallizer pumps (part of package MS015)	In-House
MS025	Flake breakers	Budgetary
MS026	Metal extractor	In-House
MS027	Compactors	Budgetary
MS028	Centrifuges (part of package MS015)	In-House
MS030	Dust control for granular conditioning	In-House
MS039	Flocculent system	Budgetary
MS042	Underground mining equipment	Budgetary
MS043	U/G conveyor system	Budgetary
MS044	Ventilation equipment underground	Budgetary
MS046	Compressors	In-House
MS048	Heat exchangers	In-House
MS051	Sewage treatment	In-House
MS052	Water treatment	In-House
MS053	Waste water treatment	In-House
MS054	Cooling system (Tower)	Budgetary
MS056	Screw conveyors	Budgetary16+Indexation
MS057	Reclaimer	Budgetary16+Indexation
MS058	Dust and emission control system	In-House
MS060	Diesel oil pumps	Budgetary
MS061	DSM screens	In-House
MS062	Cyclone cluster	In-House
MS063	System for truck loading silos	In-House
MS064	Marine off-shore structures (pier)	In-House
PS001	Piping materials (pipes SS & CS, valves)	In-House
Mine and Ventilation Shafts		
CIE-001	Early shaft site access (civil works)	In-House
EL-001	E&I installation contractor	In-House
EL-002	Earthing contractor	In-House

Package No	Description	Source of Costs
EL-003	LV switch gear contractor	In-House
EL-003	PLC panel manufacturer	In-House
EL-004	Generator power plant contractor	Budgetary
EL-005	MV switch gear contractor	In-House
EL-006	Transformer contractor	In-House
GT-001	Grouting contractor	In-House
IC-001	Geotech monitoring	In-House
ME-001	Crane supplier	In-House
ME-002	Sheave wheels	In-House
ME-003	Vibrating feeders	In-House
ME-004	Hydraulics	In-House
ME-005	Pumps	In-House
ME-006	Water filtration plants	In-House
ME-007	Conveyor equipment	In-House
ME-008	Winders (Hoists)	In-House
PI-001	Piping supply	In-House
SHS-001	Shaft sinking contractor	In-House

Figure 134 shows the percentage of firm, budget and in-house estimates obtained for equipment, materials and services.

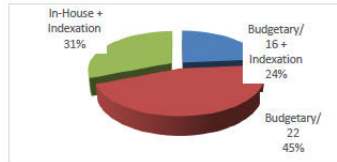


Figure 134 Equipment/material/services pricing basis

18.1.4 Design Allowances

Allowances are added to the estimate for design development (growth), cut, waste, over pour, procurement, rework, etc. These allowances are added to the estimate for nominal, anticipated design development (not changes in scope) that occurs through the normal evolution of engineering (from initial design diagrams, layouts and specifications to "approved for construction" drawings). Examples include changes to length, size or routing of pipe, nozzle locations, clips, etc.

Note that the allowances are not intended to cover scope changes, scope and estimating omissions, quality of bids and budget pricing, market forces, etc. (such risks are covered under Contingency). Required allowances are added to every line item of the estimate and a summary of the overall allowances are presented in Table 110.

Table 110 Design development allowances

Disciplines	Allowances
Civil works	5%
Concrete	5%
Structural steel	6%
Buildings/facilities	5%

Disciplines	Allowances
Mechanical	7%
Piping	5%
Electrical	7%
Instrumentation	8%

18.1.5 Direct Field Labor Costs

The prefabrication and installation labor hours and rates are based on budgetary data obtained from local contractors.

All direct field labor rates include base rate, burdens, overhead, profit, etc. They also include contractor's indirect costs, such as mobilization/demobilization, site administration temporary facilities, tools, equipment and any other requirement to fulfil their contractual obligations. Table 111 presents a summary of the field labor rates used in this estimate:

Table 111 Direct field labor crew rates

Crew	Crew Rate (BRL/h)	Crew Rate (USD/h)
Civil works	136.5	26.0
Concrete	98.9	18.8
Structural steel	253.2	48.2
Buildings/facilities	253.2	48.2
Mechanical	260.8	49.7
Piping	358.4	68.3
Electrical	266.6	50.8
Instrumentation	308.1	58.7

18.1.6 Contractors' Distributables

As noted above, contractors' distributables are included in their respective crew rates. These rates cover construction equipment and expenses to support and deploy installation labor. Cost components covered by these rates include:

- Mobilization and demobilization;
- Construction facilities (trailers, temporary buildings, temporary utilities, general purpose scaffolding, cribbing, etc.);
- Construction equipment, tools and supplies (including maintenance, fuels and lubricants, consumables and safety supplies);
- Material transportation from warehouse to job site;
- Construction supervision support and final clean-up, craft training and testing, on-site services (e.g. cleaning), surveying and pre-operational testing support;
- Manual indirects;
- Home office costs; and
- Contractors' fees, overhead, profits.

18.1.7 Labor Productivity

The direct field labor hours are primarily based on information received from local suppliers. Where such information was not available, the labor hours were estimated based on base case values multiplied by the expected productivity rates onsite.

Productivity adjustments are required when the work will be performed under conditions different from those assumed in the data base. Labor productivity of an area is directly proportional to the following conditions:

- Experience: whether or not the contractors are experienced in building similar projects;

- Economy: local market conditions (and the economy in general) may impact the availability of qualified work force;
- Project type: labor inefficiencies may arise as a result of specific project conditions such as access to the work site, work in an operating unit requiring a hot work permit, an unusually congested work site, etc.;
- Work week: overtime has been shown to lower both work output and efficiency as a result of physical fatigue and poor mental attitudes;
- Construction type: an adjustment should be made for inefficiencies and additional staffing due to stricter discipline jurisdiction;
- Climatic condition: inclement weather conditions reduce efficiency;
- Location factor: using the US Gulf Coast as a basis, adjustments may be required to account for the quality of skilled craftsmen in the local area; and
- Density: the number of workers on the project site and schedule restraints may result in inefficiencies.

The productivity factors presented in Table 112 are used in this estimate.

Table 112 Productivity factors

Crew	Productivity Factor
Civil works	2.17
Concrete	2.12
Structural steel	2.22
Buildings/facilities	2.18
Mechanical	2.37
Piping	2.52
Electrical	2.30
Instrumentation	2.31

Table 113 presents a summary of the labor hours used for major commodities and equipment:

Table 113 Direct Field labor rates for major commodities/equipment

Commodity	Unit of Measure (UOM)	Labor Hours (h/UOM)
Steel: light	tonne	90
Steel: medium	tonne	78
Steel: heavy	tonne	67
Air compressors	tonne	100
Pumps	tonne	80
Silos/bins	tonne	120
Tanks	tonne	140
Belt conveyors	tonne	75
Hoist	tonne	60
Water/sewage treatment system	tonne	130
Portal frame reclaimers	tonne	50
Galvanized tray, 8"	m	2
Galvanized tray, 16"	m	3
Galvanized tray, 24"	m	4
Cut and fill	m ³	0.2
Precast concrete piles (4 m x 4 m x15 m)	each	62

18.1.8 Freight Costs

International freight costs (plus insurance) were requested from all suppliers as delivered duty paid (DDP) to the Port of Manaus. Where freight costs were not available, they are calculated at 10% of the equipment/materials costs. The domestic freight portion of the international items (between Manaus and the Project site) is estimated at 2% of the equipment/materials costs. International shipping insurance is estimated at 0.3% of the equipment/materials costs.

The domestic freight costs (between the state of origin and the Project site) for those items that are supplied within Brazil are estimated at 8% of the equipment/materials costs.

18.1.9 Customs Duties, Taxes

The applicable local taxes, customs duties and fees for all equipment, materials and services are calculated by a Brazilian third-party tax specialist (L&M ADVISORY), hired by Potássio do Brazil and added to the estimate.

18.1.10 Project Indirect Costs

18.1.10.1 EPCM Services Costs

The Engineering, Procurement and Construction Management (EPCM) services are estimated and are based on the deliverables necessary to complete the Project. The EPCM costs are factored based on the total direct costs (excluding taxes and escalation) and include the provision of the following services:

- Project management;
- Discipline engineering;
- Administration;
- Document control;
- Cost control and estimating;
- Planning and scheduling;
- Procurement and logistics;
- Inspection and expediting;
- Field engineering;
- Construction management;
- Commissioning support;
- Business travel and accommodation; and
- Other EPCM employee costs, such as training/mobilization/demobilization, etc.

For this context, a budget of USD 105.3 million is foreseen.

Table 114 presents a summary of the EPCM costs per area:

Table 114 EPCM % per project area

Plant Area	EPCM Costs (% of direct costs)
Mining	3.0%
Shafts	8.5%
Processing plant	8.5%
Infrastructure	8.5%

18.1.10.2 Spare Parts

Commissioning, initialization, and two years of spare parts are accounted for in the direct costs. This cost in iCAPEX totals USD 40 million (excluding taxes and freight) and was also used as a reference the percentage in the following table:

Table 115 Spares (Comm, Startup, 2yr)

SPARES (Comm, Startup, 2yr)	(%)
Infrastructure, shafts and processing plant	0.5%

18.1.10.3 Vendor Representatives on Site

Vendor representatives will be required to supervise installation and startup of certain equipment. These costs are factored at 1.0% of the total direct costs (excluding taxes and freight).

18.1.10.4 Pre-Commissioning and Commissioning Handover

Provision has been made in the EPCM estimate for pre-operational testing and pre-commissioning punch lists to mechanical completion. This includes construction crews, a commissioning manager, field commissioning engineers, field planners and post-handover personnel. Provision has also been included for commission and start-up assistance.

It is assumed that formal commissioning, start-up and handover, including planning, procedures, training and execution, will be borne by the Owner – included in Owner's costs.

18.1.10.5 Closure Costs

The closure costs are calculated in detail for the closure of the mine, tailings pile and the processing plant and are included in the SCAPEX costs.

The system adopted for closure costs was carried out for the maintenance and closure of the mine/plant/tailings pile, based on a 23 year mine/processing plant operation.

The costs for closure of the mine and the processing plant are contemplated at the end of the life of the mine, while the costs for closure of the tailings pile are divided into three main categories:

- Brine injection operation costs after mine and plant closure;
 - Environmental monitoring of tailings piles after mine and plant closure
- and
- Decommissioning of tailings pile.

The costs considered from the year 25 to 28, refer to the closing costs of the mine and plant.

The costs for monitoring and operation of the tailings pile were considered between year 25 to 37.

Tailings pile closure costs were distributed in the three years following battery monitoring (year 37 to 39).

18.1.11 Owner Costs

The following costs items have been provided by the owner:

- Owner's team: This is the client team, responsible for execution of the project and includes the project management, operational readiness, commissioning, and the performance testing teams. It excludes the mine/processing plant operations team, which will be accounted for under operating costs;
- Communication: All communication activities including internal and external disclosure, institutional material, training, internal communication vehicles, press, audiovisual records, etc.;
- Health and safety (including security): All services required for the deployment and operation of the Project, including risk control, accident prevention, continuous improvement, loss prevention and security;
- Administration: Funds allocated to corporate areas that are borne by the Project;
- Insurance (excluding freight): Insurance costs for engineering and construction activities and civil liability;
- Pre-operational expenses: The operating expenses until the end of the commissioning and performance testing periods, including the pre-operations team, first fills, power, fuel, water, etc.;
- Environmental: All costs associated with environmental studies, assessment, compensatory measures and remediation of environmental liabilities;
- Community: Costs associated with community engagement activities such as social impact management, social investment, social dialogue, etc.;
- Sustainability: All services related to sustainability that are not included in the environment, community relations or communication; in particular, investments for carrying out voluntary actions.

At the direction of PdB, no land acquisition costs are assumed; they are considered as "sunk costs" and excluded from the estimate.

PdB also provided the following turn-key costs that are included as part of the processing plant and infrastructure direct costs, based on estimates obtained by Figener Consultoria (FIGENER and PdB, 2022, /21/), who is a Brazilian engineering firm specializing in energy infrastructure:

- Electrical SE at Silves (Amazonas States);
- Power Transmission Line between Silves SE and the Project site;

- Steam generation plant.

18.1.12 Contingency Estimate

The contingency factor for the iCAPEX was determined at 9.1% of total direct costs (including taxes). No contingency is assumed for sCAPEX.

18.1.12.1 Estimated Brazil Cost Inflation – Indexes Composition to Obtain iCAPEX's Inflation Factors

In the second half of 2022, the costs of the iCAPEX of the Autazes Potash Project were updated, based on:

- Exchange used of 5.25 BRL/USD;
- Updated review of the main quotations of equipment and materials;
- Base rate inflation updated using the local indexes Fundação Getúlio Vargas / Instituto Brasileiro de Economia (FGV IBRE, July 2022, /20/), including all the inputs of iCAPEX and SCAPEX (equipment, materials, services). The costs are all referred to the second half of 2022;
- Fuel update based on an actual quotation;
- General taxation revision and update to July 2022.

The details of the applied methodology are described in Section 18.1.2 (previous).

The indexes applied in this estimate were obtained by studying the behavior of inflation related to each part of the cost, per discipline, as well as the view of the supplier market, as shown in Table 116 below, for Brazilian costs.

The work of updating iCAPEX for 2022, took into account that 31% of the budget, is in the "In House" category. That is, it does not have proposals from the supplier market, and estimates were drawn from the database. For these "In House" estimates, economic indexes of inflation in Brazil were applied to update to 2022 prices, in each type of supply, according to the table of factors (Table 116).

The rates of economic inflation in Brazil in the period and until 2022 were obtained through information published by a highly qualified independent organization in Brazil, which is the Fundação Getúlio Vargas / Instituto Brasileiro de Economia (FGV IBRE, July 2022, /20/). This private organization publishes monthly market indices that are references for the updated prices of each supply category, and at the same time, prices also use the current outlook of the supplier market, where the reality prevails over the general indexes.

Table 116 Discipline indexing label

Indexation Label	Total USD (FOB W/O TAXES 2022) (BRL/USD = 5.25)			Quotation % 22/ 16	In-House % 22/ 16	Total % 22/ 16	OBS
	Quotation (Budget)	In-House	Total				
Architectural	1,033,353	3,836,385	4,869,738	2.2%	2.2%	2.2%	Applied indexation / Maintained the original quotation and in-house labels
Civil works	8,073,640	206,685,231	214,758,871	-33.2%	4.4%	2.2%	Applied indexation / Some quotation items become in-house data (Nortene / DER / blank)
Electrical equipment		1,018,877	1,018,877	0.0%	65.0%	46.6%	Applied indexation / Some quotation items become in-house data
Electrical material	132,010	7,952,124	8,084,134	110.8%	107.1%	107.2%	Applied indexation / Maintained the original quotation and in-house labels

Indexation Label	Total USD (FOB W/O TAXES 2022) (BRL/USD = 5.25)			Quotation % 22/ 16	In-House % 22/ 16	Total % 22/ 16	OBS
	Quotation (Budget)	In-House	Total				
Electromechanical erection	3,125,376	42,452,708	45,578,084	-83.7%	386.6%	63.7%	Applied indexation / Some quotation items become in-house data (GE)
Instrumentation	1,958,879	8,328,922	10,287,802	44.6%	130.5%	107.1%	Applied indexation / Some quotation items become in-house data
Mechanical equipment	13,215,523	39,461,404	52,676,927	4.4%	113.2%	69.0%	Applied indexation / Some quotation items become in-house data (blank)
Piping	19,786,178	15,346,984	35,133,162	109.7%	124.2%	115.8%	Applied indexation / Some quotation items become in-house data (blank)
Structure steel and platework	24,859,539	69,206,574	94,066,113	102.6%	105.5%	104.7%	Some items were In-House and it was applied unit prices from FAM, than it became QUOTATION
Specialized services		711,813	711,813	0.0%	31.9%	31.9%	Applied indexation

18.1.13 Estimate of Inflationary Costs in Supplies Originating from Other Countries

For the original prices obtained in another currency (USD, CAD, RSA, GBP and EUR), the inflation indices accumulated until 2022 were used for each currency and country of origin and applied to the internal and budget/inflation items.

Table 117 Inflation of currency supply origin

Inflation of Currency Supply Origin	Total USD (FOB W/O TAXES 2022) (BRL/USD = 5.25)			Budget % 22/16	In-House % 22/16	Total % 22/16	OBS
	Quotation (Budget)	In-House	Total				
USD	201,395,059	93,000,251	294,395,310	7.0%	97.3%	25.1%	Cumulative Currency Inflation Application from 2016 to 2022
CAD	18,644,889	12,760,386	31,405,275	-23.5%	796.8%	21.8%	Cumulative Currency Inflation Application from 2016 to 2022
RSA	34,963,474	2,918,391	37,881,865	38.0%	57.4%	39.3%	Cumulative Currency Inflation Application from 2016 to 2022

Inflation of Currency Supply Origin	Total USD (FOB W/O TAXES 2022) (BRL/USD = 5.25)			Budget % 22/ 16	In-House % 22/ 16	Total % 22/ 16	OBS
	Quotation (Budget)	In-House	Total				
GBP	34,786		34,786	21.1%	0.0%	21.1%	Cumulative Currency Inflation Application from 2016 to 2022
EUR	3,288,531		3,288,531	21.1%	0.0%	21.1%	Cumulative Currency Inflation Application from 2016 to 2022
BRL	9,871,308		9,871,308	39.2%	0.0%	39.2%	Cumulative Currency Inflation Application from 2016 to 2022

18.1.14 Estimate Assumptions

The following assumptions are made in preparing the iCAPEX cost estimate:

- Required statutory permits are in place according to the scheduled milestones discussed in Section 21.19;
- Trade practice agreements are met prior to construction;
- Engineering, Procurement and Construction Management (EPCM), are completed in accordance with the project schedule;
- Site access is granted, as per the timeline shown in the project schedule;
- Land acquisition and right-of-way have been established for construction;
- Weather conditions are not of extreme proportions that may disrupt the continuance of safe work. A nominal allowance for inclement weather is made in the labor productivity assessment;
- Project delivery will not be constrained because of concurrent projects;
- Suitable fabrication shops are available locally;
- Special cranes and special freight services, as required for heavy/difficult lifts or oversized goods for transport, are available locally;
- Pre-commissioning check-outs prior to mechanical completion are included; and
- Mining equipment, as well as temporary and standby power generation equipment, are leased and not purchased.

18.1.15 NaClBy-Product Cost Estimate

To evaluate the economic returns of the production of a by-product of sodium chloride, as proposed in the NaCl test paper (Section 10.1.3) and considered in the PEA (ERCOSPLAN, 2014, /16/), the capital order of magnitude and operating costs were developed by BPC and L&M, marketing studies were conducted and a discounted cash flow model generated to determine economic viability. The results from this work show selling of the NaCl by product to be uneconomic. Thus, as a basis for this study, a by-product of sodium chloride will not be produced, resulting in additional tailings that need to be managed. As a result, the NaCl plant has been removed from the project scope and is not included in iCAPEX.

18.1.16 Update Exclusions

The following items are excluded from the iCAPEX cost update:

- Any variation to the scope from that described in the feasibility study report;
- Deferred capital costs (addressed with sCAPEX);
- Changes to industrial relations laws;
- Finance and interest charges for Project duration;

- Any environmental requirement not identified in this estimate;
- Abnormal weather conditions;
- Soil remediation for any in situ hazardous contaminants;
- Extended periods of industrial unrest;
- Cost of delays associated with obtaining statutory approvals (e.g. building or development approval);
- Sunk costs (e.g. cost of this study and previous ones, land acquisition costs, etc.);
- Market forces related to the imbalance of supply and demand economics beyond the expected annual rate of inflation of prime commodities, such as steel, copper and pipe;
- Effect of related concurrent projects on the availability of construction labor and materials;
- Fuel and gas price variation;
- Foreign exchange update.

The iCAPEX for the following items was developed by an update:

- Tailings and brine management;
- Electrical SE at Silves;
- Power transmission line between Silves and the project site;
- Steam generation plant.

18.2 Initial CAPEX Cost Summaries (iCAPEX)

The projected iCAPEX costs of the production and ventilation shafts are presented in Table 118.

Table 118 Production and ventilation shafts iCAPEX costs

Area Name	Sub-Area	Sub-Area Name	Total Costs (Million USD)
Production and ventilation shafts	1100	Main shaft	200.1
		Ventilation shaft	121.9
		Surface infrastructure	75.6
		Underground infrastructure	32.8
		Capitalized OPEX	3.0
Direct costs			433.4
Taxes, duties, fees			51.8
TOTAL COSTS			485.2

The projected mine iCAPEX costs are presented in Table 119.

Table 119 Mine iCAPEX Costs

Area Name	Sub-Area	Sub-Area Name	Total Costs (Million USD)
Underground mine development	1000	Auxiliary mine	8.2
		Mine conveyance	61.8
		Capitalized OPEX	20.6
		Mine electrical	14.9
		Mine mobile	55.0
		Ventilation	103.8
		Mine vent devices	3.9
Direct costs			268.0
Taxes, duties, fees			37.3
TOTAL COSTS			305.3

The projected iCAPEX costs of the processing plant and above ground infrastructure are presented in Table 120.

Table 120 Processing plant and infrastructure iCAPEX costs

Area Name	Sub-Area	Sub-Area Name	Total Costs (Million USD)
Process plant and equipment	2000	Site – general	68.3
	3000	Process plant	608.7
	4000	Tailings management	72.1
	5000	Utilities	69.9
	6000	Ancillary services facilities and equipment	28.3
	7000	Off-site facilities	221.7
Direct costs			1,069.1
Taxes, duties, fees			125.4
TOTAL COSTS			1,194.5

Project initial CAPEX for each area are provided in APPENDIX 26.

18.3 Owner's Capital Expenditures, EPCM and Contingency

The projected owner's costs, as well as the contingency allowances, are presented in Table 121.

Table 121 Owner's costs, EPCM and contingency

Area Name	Sub-Area	Sub-Area Name	Total Costs (Million USD)		
EPCM costs	8000	EPCM	105.3		
		Assembly supervision (vendor rep.)	5.8		
		Construction camp	3.6		
		Spare parts/first fills	20.5		
		Owner's team	50.0		
Owner's costs	9000	Administration	4.0		
		Environment	33.8		
		Community	8.0		
		Sustainability	20.0		
		Communication	3.0		
		Health & safety	20.0		
		Insurance	8.0		
		Operational readiness	19.0		
		Total Pre-tax costs			301.0
		Contingency			200.2
		Taxes, duties, fees			0.0
TOTAL COSTS			501.2		

18.4 Sustaining Cost Summary (sCAPEX)

sCAPEX costs for mine equipment also include items such as the electric power distribution system, mechanical and electrical mine maintenance vehicles, crew vehicles, initial employee training, technical service equipment, and communication systems.

The projected sCAPEX costs for the mine development activities are presented in Table 122.

Table 122 Mine sCAPEX cost

Area Name	Sub-Area Name	Total Costs (Million USD)
Underground mine development	Backfill	47.7
	Mine conveyor	51.5
	Mine electrical	68.9
	Mine mobile	22.8
	Rebuilds	44.6
	UG general	2.9
	Ventilation devices	43.1
	Main shaft I&C	1.2
Mine mobile		22.78
Direct costs		305.42
Indirect costs		
Taxes, duties, fees		29.6
TOTAL COSTS		335.0

The mine equipment sCAPEX costs include the scheduled equipment principal payments and other equipment purchases. The production and ventilation shafts are designed for a 23 year life of mine and require no sCAPEX costs. The mining and ventilation shaft maintenance over the life of mine are accounted for in the OPEX costs.

The processing plant and above ground infrastructure sCAPEX costs are presented in Table 123.

Table 123 Processing plant and infrastructure sCAPEX costs

Area Name	Total Costs (Million USD)
Closure costs_Plant and infrastructure	61.1
Closure costs_Tailings pile_Operation costs of brine injection	12.1
Mine closure	6.8
Closure costs_Tailings pile_Monitoring costs	52.7
Tailings site	99.5
Direct costs	232.3
Taxes, duties, fees	12.6
TOTAL COSTS	244.9

Sustaining CAPEX breakdown in provided in APPENDIX 26. Figure 135 shows the estimated sCAPEX expenditure over the life of mine and until the tailing ponds decommissioning.

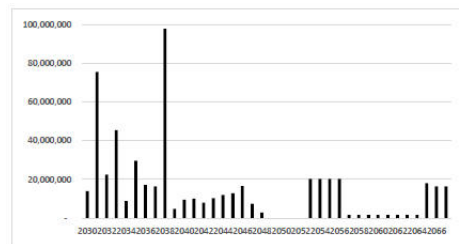


Figure 135 Estimated sCAPEX

The key sCAPEX items are:

- The project design is based on having two tailing piles and brine ponds. The first pile is divided in two sections, where the first section and the entire brine pond will be built as part of the iCAPEX and the second section of the pile and corresponding equipment will be built in the future as part of the sCAPEX;
- Typical mine and processing plant equipment replacement costs as well as mine development costs;
- Decommissioning and closure of the mine, processing plant and the corresponding infrastructure;
- Processing plant and tailing piles monitoring costs, as well as brine injection operation costs; and
- Decommissioning and closure of the tailing piles and brine ponds.

18.5 Summary of Operating Costs (OPEX)

The operating cost estimate has been completed to show the cost of KCl production over the Project life. Mining related operating costs are presented in terms of USD/tonne mined, while processing costs are reported in terms of USD/tonne MOP produced. In all cases, the exact unit of measure is reported with the unit cost. The full yearly costs of production are presented in all cases, except for year -2 when only Q3 and Q4, plus 50% of Q2, are included in the operating cost; all costs prior to the halfway point of Q2 of are included in the capital cost estimate.

The operating cost is made up of fixed costs and costs that vary with the rate of production. These costs are broken down into the following areas, each of which will be discussed individually below: labor; energy; reagents, water; mobile equipment; transportation; equipment repair; maintenance and replacement; port costs; and general and administrative costs.

The total operating cost for the Autazes Potash Project is estimated to be between USD 78.03 to USD 105.01 per tonne of potash produced over the projects life, after ramp-up completion, during years in which production is at least 75% of the designed 2.44 MTPA. The weighted average total operating cost, for years with at least 75% of the nominal production, is estimated at USD 88.15 per tonne of potash as per cost centers breakdown, excluding taxes.

The values in Table 124 exclude all sCAPEX, royalties, taxes and other fees, as described in the following sections. These are presented in Table 124.

Table 124 Summary of projected life of mine and Unit OPEX costs

Section	Total Million USD LOM	USD/t Mined	USD/t Potash	Total Million USD Year -4 to Year 19	USD/t Mined Year -4 to Year 19	USD/t Potash Year -4 to Year 19
Energy						
Mining	125.08	0.73	2.81	103.31	0.73	2.74
Shaft	209.05	1.22	4.70	161.60	1.14	4.29
Total mine energy	334.13	1.95	7.52	264.91	1.87	7.02
KCl process	1,513.96	8.84	34.07	1,261.15	8.89	33.44
Tailings process	26.80	0.16	0.60	22.20	0.16	0.59
Total process energy	1,540.76	9.00	34.67	1,283.36	9.05	34.03
Total energy	1,874.89	10.95	42.19	1,548.27	10.91	41.05
Wear and repair						
Mining	311.42	1.82	7.01	244.77	1.73	6.49
Shaft	80.50	0.47	1.81	71.24	0.50	1.89
Total mining wear and repair	391.93	2.29	8.82	316.01	2.23	8.38
KCl process	203.19	1.19	4.57	172.44	1.22	4.57
Tailings process	33.08	0.19	0.74	28.07	0.20	0.74
Total process	236.27	1.38	5.32	200.51	1.41	5.32
Total wear and tear	628.19	3.67	14.14	516.52	3.64	13.70
Other mining costs	88.52	0.52	1.99	60.86	0.43	1.61
Mobile equip. operating costs						

Section	Total Million USD LOM	USD/t Mined	USD/t Potash	Total Million USD Year -4 to Year 19	USD/t Mined Year -4 to Year 19	USD/t Potash Year -4 to Year 19
Surface equipment	14.58	0.09	0.33	11.79	0.08	0.31
Total mobile equip. operating costs	14.58	0.09	0.33	11.79	0.08	0.31
Process reagents	237.76	1.39	5.35	201.77	1.42	5.35
Logistics						
MOP logistics	211.65	1.24	4.76	179.62	1.27	4.76
Total logistics	211.65	1.24	4.76	179.62	1.27	4.76
Labor						
Mining	401.14	2.34	9.03	315.21	2.22	8.36
Shaft	74.56	0.44	1.68	62.50	0.44	1.66
Processing	272.25	1.59	6.13	231.04	1.63	6.13
Housing (mining, shaft and process)	6.53	0.04	0.15	5.41	0.04	0.14
Transportation (mining, shaft and process)	40.15	0.23	0.90	33.26	0.23	0.88
Total labor	794.63	4.64	17.88	647.42	4.56	17.17
G&A	127.81	0.75	2.88	105.88	0.75	2.81
Total	3,978.03	23.23	89.52	3,272.12	23.06	86.76
Sub-total						
Total mining	926.16	5.41	20.84	724.15	5.10	19.20
Total shaft	364.11	2.13	8.19	295.34	2.08	7.83
Total processing	2,673.18	15.61	60.15	2,240.84	15.80	59.42
TOTAL	3,978.03	23.23	89.52	3,272.12	23.06	86.76

18.5.1 Shaft Operating Costs

The shaft operating cost covers the cost of operating the mine ventilation, hoisting, bulk material loading, refrigeration and cooling, shaft dewatering and all other costs associated with the mine shafts.

18.5.2 Mine Operating Costs

The mine operating costs include all charges related to accessing and recovering material from the underground mineralization. These charges include drift development, panel extraction, roof bolting, mineral conveying, continuous mining, and geotechnical considerations for roof support, etc.

The operating costs also include the leasing costs for the underground mine mobile equipment.

18.5.3 Process Plant Operating Costs

The processing plant operating costs account for all expenditures related to refining the mined material to a saleable grade and mitigating the impact of the process activities on the environment.

18.6 Basis of OPEX Costs Update

The operating expenses are the expenses related to the operation of the processing plant, tailings management facility, mine, shaft, tailings run-off and rainwater treatment, barge port and the on-site administration facilities (excluding all costs associated with final delivery – sea freight and all other distribution charges are included in the financial model). The OPEX also does not include any governmental taxes. Taxes are categorized separately in the financial

model. All operating expenditures incurred after the project starts commercial operation are charged as OPEX; prior to this time, operating expenses will be recorded as initial capital.

The operating cost estimate was calculated on an annual basis, assuming no inflation or impact on project economics due to changing foreign exchange rates. The operating costs for the full production case (8.5 MTPA of mill feed) were calculated in detail. The OPEX for the initial ramp up years was scaled linearly according to the amount of mill feed. All operating costs are reported in terms of United States dollars (USD).

The OPEX was completed using industry standard practices to develop estimate, which is typical of bankable feasibility studies.

The OPEX for the following areas was developed by estimate:

- Tailings and brine management area;
- Steam generation plant.

18.6.1 Project Schedule

The Autazes Potash Project construction is scheduled to start after obtaining the Installation License, with focus initially on construction of the shaft. Following 48 months of shaft sinking and construction, the underground mine development. Mined material will be made available to the mill.

First feed to the plant will start in year -2; commercial production will start in Q4 of year -1. The major equipment within each of the two trains of process equipment has a turndown ratio of 50%, allowing the complete facility to operate between 25% and 100% of its nameplate value. The actual start-up production rate will vary according to the quantity of stockpiled material and the needs of the commissioning team.

Commissioning will start when the first train is finished construction in year -2. Construction of the second train will be finished in year -1. Production will start in year -1. The production will ramp down until the plant is finally decommissioned. The processing plant is in operation for 23 years, including the ramping periods. The plant will operate for 23 years producing at or above 75% of the nameplate capacity.

The key milestone dates for the engineering, procurement and construction are presented in further detail in Section 21.18.

18.6.2 Operating Cost Development

Operating and maintenance activities will be carried out by a work force employed by the company, with the following exceptions: trucking from processing plant to the Urucurituba village, personnel transportation and on-site accommodations and catering services.

Operating costs were estimated on a yearly or unit production basis to arrive at an overall operating cost estimate. Quantities for each item included in the OPEX are estimated based on test work, vendor quotation, or industry experience. Costs for each item included in the OPEX are based on direct vendor quotation, values supplied by external consultants identifying typical Brazilian costs, or from industry experience. The OPEX are presented first by area (mine, surface, etc.), and then by function (labor, electricity, etc.) on an annual basis. Each of these sub-divisions is described in their own section below.

18.6.3 Labor

The labor cost accounts for all salaries, wages, and benefits paid to the people who operate, supervise, or administer the activities at the processing plant site. Costs related to the corporate head office, contractor's labor, and governmental employment taxes are excluded from the OPEX, but are accounted in the financial model elsewhere. The use of labor by the shaft, mine, and process facility is described in the following sections. Labor was calculated for the full production years (8.5 MTPA), and scaled linearly when production was over or under this level in order to account for increased employment during high production years and layoffs during low production years.

18.6.3.1 Shaft Labor

The shaft operating labor complement will be responsible for the operation and maintenance of the main and ventilation shafts, including the supporting infrastructure both on surface and underground. The labor complement to maintain and operate the shaft and equipment was derived based on input from the shaft engineering team.

The annual salaries of each member of the maintenance and operations crew were obtained considering the job descriptions, grades and labor rates obtained from Brazil and other locations. The maintenance crew will work one shift, eight hours per day. The surface-based operations crew will work three shifts per day, eight hours per shift, while those operating underground will work six-hour shifts, four shifts per day. Table 125 presents the shift allocation for each shaft labor position.

Table 125 Shafts labor

Position	# of Staff/Shift	Shifts/Day	Staff/Day
Shaft Manager	1	1	1
Mine Captain	1	1	1
Foreman	4	1	4
Engineering Training Supervisor	1	1	1
Engineering Training Officer	4	1	4
Shaft Maintenance Planner	1	1	1
Electricians	3	1	3
Fitters	2	1	2
Riggers	2	1	2
Boiler Makers	3	1	3
On Setter	1	4	4
Banksman	1	3	3
Winding Engine Driver	1	3	3
Instrument Technicians	2	1	2
Equipment Drivers	2	3	6
Surface Loaders	4	3	12
Underground Loaders	4	4	16
LHD Driver	1	4	4
Pump Attendant	1	4	4
Conveyor Attendant	1	4	4
Electrical Assistant	4	1	4
Fitter Assistant	2	1	2
Rigger Assistant	2	1	2
Boiler Maker Assistant	3	1	3
Refrigeration Technicians	2	1	2
Refrigeration Fitters	2	1	2
Refrigeration Assistants	2	1	2
Other workers (unallocated)	4	3	12
TOTAL	61		109

An allowance has been made for the entire shaft operations crew to be on site for six months prior to commissioning for site-based training. Most of the shaft operations crew is fixed labor, e.g. they need to be paid regardless of tonnages produced. Overall, it is estimated that 90% of the shaft operations labor cost is fixed, whereas 10% of the labor cost is variable with tonnages. The variable labor is to cover the cost of scheduled biannual and annual Original Equipment Manufacturer (OEM) maintenance inspections on the critical machinery and equipment.

An additional 12% charge was added to the total hourly labor calculated for the shaft to provide for replacement personnel when the regular personnel are sick or on vacation.

During operation, only workers with the following job titles will receive on-site accommodations: Shaft Manager, Mine Captain, Foreman, Shaft Maintenance Planner, Engineering Training Supervisor and Engineering Training Officer. Each of these positions will be entitled to weekly transport to and from Manaus; however, one member of each of the first three aforementioned job titles will be required to spend the weekend onsite on a rotating basis. The people who remain on-site over the weekend will be responsible to provide senior leadership to the labor force and will not receive any payment for this additional duty. All workers not specifically identified, will be transported daily to and from Autazes.

Shaft management is broken down into four categories: Shaft General Management, Shaft Operational Management, Shaft Maintenance Management and Shaft Training Management. The responsibilities of each category are described below.

- Shaft General Management:
 - Shaft Manager or Shaft Engineer: Operate main and ventilation shafts and supporting infrastructure.
- Shaft Operational Management:
 - Mine Captain: Ensures safe operation of the main and ventilation shaft barrels.
 - Shaft Services Foreman: Operates and maintains the surface main fans, refrigeration plant, shaft barrels, main pump station and mineral conveyor belts on the loading level.
 - Shaft Logistics Foreman: Manages equipment, material and stores from surface to the production level.
- Shaft Maintenance Management:
 - Shaft Winder Foreman: Maintains surface winders.
 - Electrical Foreman: Maintains the shaft electrical infrastructure.
 - Maintenance Planner: Manages maintenance-scheduling for all shaft plant and equipment.
- Shaft Training Management:
 - Training Supervisor: technical and operational training of all shaft personnel.

18.6.3.2 Mining Labor

Mining labor includes mining production, maintenance, engineering and construction, as well as management and administration personnel that are directly engaged in the underground mining operation. The hourly and salaried personnel are responsible to ensure safe and efficient mining of potash, from cutting the material at the mining face, until delivering it via conveyor to the shaft transfer station.

Production and maintenance workers follow a four shift, five-crew roster, working seven days a week in six hour shifts. An additional crew is considered for downtime maintenance. Engineering and management personnel work five days per week, eight hours per day. Non-management employees will not receive onsite accommodations, but will receive daily transportation between the project site and Autazes. Management staff will receive accommodation onsite and weekly transportation back to Manaus; however, one manager per area must remain onsite to provide weekend supervision to their area; no additional pay will be provided for this duty.

Mining labor is split into eight categories:

- Mine management and supervision;
- Engineering;
- Panel production;
- Development production;
- Mine maintenance;
- Mine auxiliary;
- Backfill;
- Construction/conveyance.

An additional allowance of 12% is added for workers covering vacation/sick days for hourly production and maintenance personnel.

The salaries for mining labor were supplied by PdB and are based on actual salaries from another mining operation in the region. All personnel are paid an hourly rate or fixed salary, regardless of the tonnage mined.

18.6.3.3 Surface Operations Labor

Surface operations labor includes the personnel responsible for operating and maintaining all project equipment necessary to refine the mined potash into saleable products. This includes everyone who is directly responsible for the process, as well as those who are responsible for project management, safety, fire prevention, chemical assay, site security, IT, sanitation, etc. Surface operations labor excludes those whose duties are associated with mining, shaft operations, contractor personnel, or those who work in the corporate head office.

All surface personnel work seven days per week, eight hours per day, on a rotating basis, so that the operation may proceed 24 h/d. All non-management workers will live in, and commute daily, from Autazes. The company will provide transport to and from Autazes by boat. Management will live on-site during their five-day work week. The company will transport management to Manaus once a week by bus; however, one senior manager in each area (mill, tailings,

maintenance, etc.) will remain on-site over the weekends to supervise their area. Weekend duty will be assigned on a rotating fashion and the managers will not receive any overtime pay for their weekend shift. All off-site personnel are assumed to work five days per week, eight hours per day and do not receive accommodations or transportation.

The labor allotment is based on the staffing levels typically employed at potash refineries, with consideration given to general Brazilian practice. All operating and maintenance functions are carried out by people employed by the company with the following exceptions: transportation of product to the port at Urucurituba; personnel transport and on-site accommodations. Barge transportation and final delivery of product to the customers is not included in the OPEX. Surface operation's labor is divided into the following categories:

- Plant operation;
- Engineering and maintenance;
- Services;
- Safety, quality and environment (SQE).

A summary of the workforce, divided into these categories, is presented in Table 126. During nameplate production, 675 workers are required. The fully burdened cost of labor is calculated based on current industry practice.

Table 126 Surface operations labor requirement

Labor Category	Personnel Assigned
Plant operation	346
Engineering and maintenance	152
Services	128
SQE	49
TOTAL	675

18.6.4 Energy

The operational expenditure of energy covers the variable and fixed costs related to the use of electricity and diesel within the project installation. The cost of using energy within the shaft, mine, and processing facility is described in the following sections.

BPC held in July 2022, consults REPLACE CONSULTORIA, a highly specialized company to obtain the market price of electricity in the long term. The pre-tax unit electricity rate is USD 0.037/kWh; the post-tax rate is USD 0.040/kWh.

18.6.4.1 Shaft Energy

The shaft energy operating cost estimate is based on the availability of grid power for shaft operations. The diesel generators used for shaft sinking will be retained during operation as emergency back-up power for shaft area equipment.

The electrical power usage was adjusted to account for the lower tonnages during the ramp-up phase. Table 127 presents the shaft power demand.

Table 127 Shafts power demand

Description	kWh	h/a	kWh/a
Main shaft			
Winders			
Double drum service winder (main shaft)	5,000	6048	30,240,000
Double drum mineral winder 1 (main shaft)	5,000	6048	30,240,000
Double drum mineral winder 2 (main shaft)	5,000	6048	30,240,000
Pumps			
Main mine return water pump 1 & 2 (450 kW each)	900	7300	6,570,000
Main shaft bottom dewatering pump 1 & 2	50	7300	365,000
Conveyors/ore loading			
Silo vibrating feeder 1 & 2	38	6048	229,824

Description	kWh	h/a	kWh/a
Hydraulic power pack – Silo radial gates	15	6048	90,720
Hydraulic power pack – shaft loading conv. 1 & 2	60	6048	362,880
Hydraulic power pack-headgear discharge radial gate	15	6048	90,720
Shaft loading conveyor belt 1 & 2	90	6048	544,320
Take-up winch – Shaft loading conveyor 1 & 2	12	6048	66,528
Ventilation shaft			
Winders			
Double drum service winder	5,000	6,048	30,240,000
Single drum emergency winder	300	192	57,600
Pumps			
Ventilation shaft dewatering pump 1 & 2	30	7,300	219,000
Main fans			
Surface main fans (3)	4,665	8,760	40,865,400
Refrigeration and cooling			
Surface refrigeration and bulk air cooler	13,052	8,760	114,335,520
TOTAL	39,227	-	284,757,512

18.6.4.2 Mining Energy

Only electrical energy is consumed by the mining operation. The main mining equipment is equipped with trailing cables. Auxiliary machines, such as scoops, and personnel carriers run on exchangeable and rechargeable batteries.

Diesel will only be used by mobile generators to move the continuous miners around the mine. The cost to provide emergency ventilation and hoisting is borne by the shaft; therefore, there are no additional charges for emergency power within the mine.

The power demand was calculated for mining equipment, based on the expected operating and battery charging hours per year and a detailed load list that considers power and demand factors is provided in APPENDIX 16.

18.6.4.3 Process Energy

Process energy is the cost associated with all electricity and natural gas consumed by the process equipment, excluding mobile equipment. The electrical energy and fuel costs are described below.

18.6.4.3.1 Process Electrical Energy

A detailed list of all process equipment was prepared and used to generate an electrical load list. The process electrical load list is provided. Large electrical demands were determined by direct vendor quotation, while smaller demands were estimated according to industry standard sizing procedures. All electrical loads were assigned a demand factor to account for the amount of time each load would be operating. The installed electrical power requirements are summarized in Table 128.

Table 128 Summary of process electrical loads

Area	Area Name	Electrical Demand (kW)
3100	Raw ore handling and primary crushing	4,805
3200	Wet process	11,552
3300	Dry process	18,551
3400	Product handling and storage	387
3450	Brine injection	3,547
3500	Tailings processing	1,182
3600	Reagents	210

Area	Area Name	Electrical Demand (kW)
5000	Utilities	6,171
6100	Ancillary facilities	2,001
6200	Steam generation	161,000
7000	Barge port	1,276
TOTAL		210,682

It has been assumed that all electrical power will be supplied to the site from a dedicated grid line. Approximately 2.8 MW of process equipment will receive emergency power for 60 h/a. The emergency power will be sourced from the shaft's emergency power generators.

18.6.4.3.2 Process Natural Gas and Diesel Fuel

Natural Gas is used by the product driers and emergency generators consume diesel fuel in a way that contributes directly to the process OPEX. The fuel consumed by all mobile equipment, including front-end loaders, trucks, cranes, etc., is accounted for in the mobile equipment section.

Table 129 presents the process natural gas and diesel requirement.

Table 129 Process natural gas and diesel requirement

Natural Gas Consumer	Calories Consumed During Full Production
KCl product dryer/dryer cooler	1,064,176 MM BTU/a
Diesel consumer	Quantity consumed during full production
Emergency generators	40.5 thousand l/a

Reagents are all chemical substances not produced by the process, but are required for the process to operate at peak efficiency. Additional reagents are consumed to produce potable water; the cost of these reagents is included in the water treatment plant operating cost.

The demand for the reagents used in the process is based on test work or industry practice, as applicable. The unit cost of each reagent is based on typical Saskatchewan values. The consumption rates and unit costs are presented in Table 130.

Table 130 Summary of process reagent usage and cost

Reagent	Usage	Units	Purpose	Unit Cost (USD/kg)
Flocculant	20.00	g/t product	Improvement of thickening	4.36
Anti-caking agent	0.25	kg/t product	Prevention of caking in product storage	7.09
Dedust oil	1.40	kg/t product	Reduction of dust in product handling	2.89
Colorant	0.20	kg/t product	Improvement of product coloration	2.43

18.6.5 Water

Water is used by the shaft, mine and processing facility to dissolve potash, generate steam for equipment operation, washing, cooling and as potable water. The underground ventilation process uses cooled water to feed the cooling stations underground, in a closed circuit.

Water consumption for the surface facilities is calculated in detail and presented in the sections dealing with utility flows.

The Government of Brazil does not impose an extraction charge for the water used by the Autazes Potash Project. As a result, the cost of water is due to the power, maintenance and labor costs associated with running the equipment to extract the water. The cost of extracting water is integrated with the general process OPEX and is not described separately.

18.6.6 Mobile Equipment

The sections below summarize the cost of operating the mine and the processing plant mobile equipment. The mobile equipment required by the shaft for warehousing duties is included with the processing plant mobile equipment.

18.6.6.1 Mine Mobile Equipment

Mobile equipment in the underground mine includes all main production equipment, such as continuous miners, feeder breaker, shuttle cars and continuous haulage system. The remaining fleet underground consists of scoops, personnel carriers and mobile bolters.

All mobile equipment is electrically powered via a trailing cable or battery charger.

Average unit operating costs were gathered from the suppliers of the individual equipment types to cover costs, such as maintenance, repair and consumables. Machines directly involved in the mining process are based on a USD/t number; auxiliary machines are calculated based on a USD/h operating unit cost.

18.6.6.2 Plant Mobile Equipment

Mobile equipment includes all wheel loaders, light trucks, cranes, forklifts and similar equipment. The quantity of mobile equipment included in this project is based on typical numbers currently used at operating potash mills. These costs are summarized in Table 131.

Table 131 Summary of process plant mobile equipment

Equipment Type	Quantity	Operational Cost (USD/t)
Wheel loader	2	0.168
Boom lift	1	0.017
Backhoe	1	0.027
Forklift	6	0.011
Skid-steer loader	4	0.026
Crane	2	0.207
Fire truck	1	0.007
Boom truck	1	0.005
Welding truck	1	0.006
Lubrication truck	1	0.005
Fuel tanker	1	0.004
Water tanker	1	0.045
Light vehicle	21	0.138
Bulldozer	1*	0.049
Track loader	1*	0.168

* An additional bulldozer and track loader will be purchased when the second tailings pile become operational.

18.6.7 Transportation

Transportation considers the cost of moving final KCl product from the Autazes processing facility to the barge port at Urucurituba. Products will be transported from the processing plant site to the port using trucks. The provision and operation of these trucks, including labor, maintenance, and fuel costs, will be provided by a contractor external to PdB. As a result, all of these costs are present in the OPEX as a single contracted cost of USD 1.32/t product.

18.6.8 Equipment Repair, Maintenance and Replacement

Equipment repair, maintenance and replacement includes the costs of all activities required to keep the mine, shaft, and processing facility operating at nameplate capacity.

18.6.8.1 Mine Equipment Repair and Maintenance

Maintenance costs for the underground ventilation equipment are estimated at 5% of the total installed cost. Costs for repair and maintenance of the underground conveyor system are calculated with 5% of the running installed capital as

well. Repair and Maintenance costs for all other mobile mine equipment are calculated based on supplier provided unit operating costs as stated in Section 18.6.6.1.

18.6.8.2 Shaft Equipment Repair and Maintenance

Maintenance and replacement costs are estimated with reference to the capital cost associated with the shaft's infrastructure or equipment item. A percentage of the capital cost associated with each item is applied on an annual basis. Maintenance costs are the cost of servicing the equipment and infrastructure and keeping them in good working order. The percentage assigned to maintain infrastructure and equipment is based on input from the relevant discipline engineers, supplier's quotations (RFQs), industry standards and past experience with shaft operations.

Equipment replacement costs are included in the operating cost estimate in the year they occur and are based on the capital cost of the particular equipment and when, it needs to be replaced. The replacement philosophy, per item, is based on input from the relevant discipline engineers, vendor specifications and industry standards. Table 132 presents the shaft equipment maintenance and replacement assumptions.

Table 132 Shaft equipment maintenance and replacement assumptions

Description	Annual Maintenance (% of CAPEX)	Replacement Philosophy
Winders	0.85%	No replacement
Winder house, banksman's cabin (civils)	0.3%	No replacement
Cranes	0.2%	Replace 10% every 10 years
Mineral winder ropes	0.6%	Replace every 4 years
Attachments/hook sets	1.2%	Replace every 5 years
Skips, conveyances, bridles	8.5%	Replace every 5 years
Skeletons	1.2%	Replace every 5 years
Personnel/material winder ropes	1.2%	Replace every 4 years
Mineral winder sheaves	1.2%	Replace every 5 years
Personnel/material winder sheaves	2.4%	Replace every 5 years
Headgear discharge bins	0.5%	replace every 20 years
Shaft barrel maintenance	0.5%	No replacement
Pipes, couplings and supports	1%	No replacement
Loading flasks	0.5%	replace every 20 years
Loading flask and discharge bin liners	100%	Replace Liners every year
Vibrating feeders	5%	No replacement
Loading conveyor belts	10%	Replace every 3 years
Conveyor motors	5%	Replace every 20 years
Conveyor pulley	-	50% of CAPEX every 8 year
Conveyor winch	10%	replace every 20 years
Conveyor idler sets	10%	No replacement
Conveyor scraper and plough	100%	Replace every 3 years
Small electric LHD vehicle	USD 60 per hour	Replace every 10 years
Loading/offloading stations (civils)	0.1%	No replacement
Pumps – small	5%	50% of iCAPEX every 5 years
Pumps – large	5%	70% replace every 10 years
Counter weight	1%	No replacement
Emergency winder ropes	1.2%	Replace every 5 years
Guide ropes (emergency winder)	1.2%	Replace every 10 years
Emergency winder conveyance	0.12%	Replace every 5 year

Description	Annual Maintenance (% of CAPEX)	Replacement Philosophy
Emergency winder sheaves	0.1%	No replacement
Hydraulic power units	5%	20% of iCAPEX every 5 years
Surface refrigeration plant	5%	No replacement
Main surface fans	1.5%	No replacement

18.6.8.3 Process Plant Repair and Maintenance

Repair and maintenance cover all costs necessary to keep the Autazes facilities operating at their nominal capacity. The cost to maintain the processing plant in operating condition is estimated to be 4% of the total installed cost of the facility. These costs include an allowance to maintain the public roads between the mill and the barge port at Urucurituba. These costs are scaled proportionally to production during the ramp-up and down years. When the plant is operating at its nameplate capacity, the fixed plant repair and maintenance charge is USD 13.0 million per year.

18.6.9 Port Costs

Port costs cover all expenses related to product storage and operating the barge port at Urucurituba. KCI product will be loaded on barges and shipped to market from a barge port owned and operated by PdB. The cost of operating the barge port is estimated by PdB at 3.44 USD/t product handled. The labor and electrical costs associated with the port are incorporated with the process plant operating costs.

18.6.10 General and Administrative Costs

General and administrative (G&A) costs include items such as safety equipment, business travel, on-site office costs, etc. The G&A costs include all costs associated with the client corporate or head office operations as listed below:

- Office rental and utilities;
- Motor vehicles;
- Business travel;
- Recruitment and turnover;
- Corporate visitors and entertainment;
- Communications and business systems;
- Taxes, general statutory charges, and corporate audits;
- External consultants;
- Business insurance.

The G&A costs are incorporated in the OPEX as an allowance of USD 0.75/t mined.

18.6.11 Travel-In/Travel-Out, Messing and Accommodation Costs

Travel, messing and accommodation costs are the OPEX charges to transport the workers from a pickup location to the Autazes site and to provide for the needs of those workers entitled to on-site housing.

Non-management employees are not entitled to on-site housing; as a result, they will be transported to and from Autazes on a daily basis. Management employees will receive transportation to and from Manaus once per week; however, one manager per area (mill, maintenance, mine, shaft, etc.) will remain on-site to provide weekend supervision. Transportation to Autazes and Manaus will be by boat or bus, respectively. It will cost USD 3.84/trip and USD 9.45/trip to transport a worker or manager to, or from, Autazes and Manaus, respectively. The overall transportation cost is USD 0.82/t MOP.

Management employees will be provided a single room accommodation during the time they spend on-site. The management housing cost is USD 1.60/head/working hour. The overall housing cost is USD 0.18 /t MOP.

19 Economic Analysis

This Chapter 19 was written by L&M Assessoria Empresarial (L&M) and has been edited by ERCOSPLAN Ingenieurgesellschaft Geotechnik und Bergbau mbH (ERCOSPLAN) for consistency with the format of the report, but the information and opinions contained herein are those of L&M.

19.1 Introduction

This summary details the results of the economic analysis for the update of the Autazes Potash Project Pre-Feasibility Study.

The economic analysis for the Project was completed by L&M Assessoria Empresarial (L&M), based on information provided by ERCOSPLAN, who is responsible for the mine and processing plant, production schedule, capital and operating costs for the mine, processing plant, infrastructure and port. CRU International Limited (CRU), was the company responsible for product price forecasts based on competitive analysis of the Brazilian potash market. L&M was in charge of the estimation of tax impacts on the Project including revenue, operating costs, capital expenditures and profits. The tax rates used are all according to Brazilian tax legislation as well as the applicable tax benefits negotiated with the Amazon State Government.

The main tool used for the analyses is an Excel-based discounted cash-flow model developed by L&M. The purpose of this model is to assess the key economic metrics and to identify and assess the key value drivers of the Project. From a technical/operational point of view it is a high-level model focused on detailed tax implications and resulting Project economics appropriate for this phase of the Project's development.

19.2 Main Assumptions and Parameters

The following sections outline the main assumptions used for this economic analysis.

19.2.1 Production

The annual production rate varies from year to year and is based on a design capacity of 2.44 MTPA of granular MOP product. The expected life of mine is 23 years, including ramp up and down.

Table 133 summarizes the annual feed to the plant with the respective mineral grades, masses of ore and waste mined, plant production, KCl content recovered, inventories of product in process and finished products at the processing plant and Urucurituba port.

19.2.2 Initial CAPEX

The initial after-tax pre-escalation capital cost is USD 2.5 billion including an allowance for contingencies of USD 200 million. The capital cost expenditure disbursement schedule is shown in Table 133.

Table 133 Initial CAPEX

Year	CAPEX (USD thousands)			Total
	Net of Taxes	Non-Recoverable Taxes	Recoverable PIS/COFINS	
-6	181,009.5	4,018.1	14,251.7	199,279.3
-5	452,523.7	10,045.2	35,629.2	498,198.2
-4	497,776.1	11,049.8	39,192.1	548,018.0
-3	475,149.9	10,547.5	37,410.7	523,108.1
-2	362,019.0	8,036.2	28,503.4	398,558.5
-1	158,383.3	3,515.8	12,470.2	174,369.4
1	67,878.6	1,506.8	5,344.4	74,729.7
	2,262,618.6	50,226.2	178,146.1	2,490,990.9

19.2.3 Sustaining Capital and Mine Closure

The total sustaining capital expenditure during operation is estimated as USD 380.0 million on a pre-tax basis, including acquisition to increase, replace or rebuild mining mobile equipment, equipment for the processing plant and other infrastructure.

The estimated mine and processing plant closure costs amounts to USD 132.8 million on a pre-tax basis and is planned to be spent over a 15-year period starting immediately after commercial production shuts down. No salvage value has been assumed for remaining plant and equipment as it will likely be highly corroded.

The sustaining capital annual schedule and mine closure costs, including recoverable and non-recoverable taxes are detailed in Table 134.

Table 134 Sustaining capital

Sustaining Capital (USD thousand)					
Year	Sustaining Capital Net of Taxes	Mine Closure Net of Taxes	Non-Recoverable Taxes	Recoverable Taxes	Total
1	0.0	0.0	0.0	0.0	0.0
2	12,667.3	0.0	319.1	870.5	13,856.9
3	67,851.8	0.0	1,862.3	5,303.0	75,017.1
4	19,805.8	0.0	144.8	2,358.5	22,309.2
5	39,907.1	0.0	249.4	4,842.4	44,998.8
6	8,094.2	0.0	82.3	466.9	8,643.4
7	26,519.7	0.0	134.3	2,782.4	29,436.3
8	15,779.0	0.0	46.1	1,049.1	16,874.2
9	14,037.2	0.0	23.2	2,349.9	16,410.2
10	87,936.5	0.0	3,477.5	6,299.7	97,713.7
11	4,674.2	0.0	6.4	42.4	4,722.9
12	8,496.2	0.0	6.4	956.0	9,458.7
13	9,077.6	0.0	35.6	792.4	9,905.6
14	7,449.9	0.0	46.2	405.1	7,901.2
15	9,528.5	0.0	64.5	638.8	10,231.8
16	10,709.3	0.0	48.3	1,035.3	11,792.9
17	12,337.8	0.0	47.2	199.5	12,584.6
18	15,097.8	0.0	66.0	1,101.8	16,265.7
19	7,265.9	0.0	6.4	60.6	7,332.9
20	2,763.0	0.0	41.9	51.3	2,856.2
21	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0
25	0.0	18,530.9	1,014.3	740.4	20,285.6
26	0.0	18,530.9	1,014.3	740.4	20,285.6
27	0.0	18,530.9	1,014.3	740.4	20,285.6
28	0.0	18,530.9	1,014.3	740.4	20,285.6
29	0.0	1,536.8	84.1	61.4	1,682.3
30	0.0	1,536.8	84.1	61.4	1,682.3
31	0.0	1,536.8	84.1	61.4	1,682.3
32	0.0	1,536.8	84.1	61.4	1,682.3
33	0.0	1,536.8	84.1	61.4	1,682.3
34	0.0	1,536.8	84.1	61.4	1,682.3

Sustaining Capital (USD thousand)					
Year	Sustaining Capital Net of Taxes	Mine Closure Net of Taxes	Non-Recoverable Taxes	Recoverable Taxes	Total
35	0.0	1,536.8	84.1	61.4	1,682.3
36	0.0	1,536.8	84.1	61.4	1,682.3
37	0.0	16,499.0	903.1	659.2	18,061.3
38	0.0	14,962.2	818.9	597.8	16,379.0
39	0.0	14,962.2	818.9	597.8	16,379.0
	379,998.9	132,841.2	13,979.0	36,913.3	563,732.4

19.2.4 Operating Costs

The total operating cost for the Project is estimated to range from USD 78.03 to USD 105.01 per tonne of MOP produced after ramp-up completion from year 4 to year 20 during which production is at least 75% of the designed 2.44 MTPA (full run production rate). The annual average of all operating costs, within the full run rate production period, amounts to USD 192.5 million (pre-tax basis).

The detailed, year by year, LOM projections of total costs and unit costs per tonne of ore and per tonne of MOP, by activity and by commodity, are shown in Table 143 and Table 144, respectively.

19.2.5 Revenue

The projections of net revenue are based on the quantity of MOP to be sold at the price forecasted by CRU (Brazil Potash Final Report of 9/14/22). CRU's forecast reflects the prices for the period 2028-2046, in real dollars of 2021, on the basis FOB Autazes (Urucurituba).

For this Economic Analysis, the year 2029 was assumed as year 1 of operation of the Project. To adjust the projected prices to reflect the same purchasing power of the US dollar for 2022, the variation measured by the PPI (Producer Price Index, final demand minus food, energy and services published by the U.S. Bureau of Labor Statistics), between July 2021 and July 2022, of 5.8%, was applied.

Table 135 shows the long-term prices on the FOB Autazes basis explained in Chapter 16 based on the marketing study presented by CRU for the project lifetime in real dollars of 2021 and the adjusted prices for 2022.

Table 135 MOP sale price (FOB Urucurituba) (CRU, 2022, /12/)

Calendar Year	Project Year	MOP Price FOB Urucurituba	
		(\$2021 USD/t)	(\$2022 USD/t)
2029	1	312.0	330.1
2030	2	342.0	361.8
2031	3	371.0	392.5
2032	4	400.0	423.2
2033	5	430.0	454.9
2034	6	460.0	486.7
2035	7	490.0	518.4
2036	8	521.0	551.2
2037	9	551.0	583.0
2038	10	554.0	586.1
2039	11	556.0	588.2
2040	12	558.0	590.4
2041	13	560.0	592.5
2042	14	563.0	595.7

Calendar Year	Project Year	MOP Price FOB Urucurituba	
		(\$2021 USD/t)	(\$2022 USD/t)
2043	15	565.0	597.8
2044	16	567.0	599.9
2045	17	570.0	603.1
2046-2051	18-23	572.0	605.2

The annual average gross revenue during the full run rate production period (years 4 to 20) is USD 1,251.9 million. MOP Sales are taxed by ICMS at the effective rate of 4.00%, as detailed in Section 19.2.6.2. A royalty is also due to the government (CFEM) on sales at the rate of 2% of the gross revenue and royalties at a rate of 1% of the gross revenue to owners of surface rights of any land not owned by BPC.

The net revenue, after deduction of ICMS and CFEM, averages USD 1,166.0 million during the same period. The ICMS and CFEM taxation is detailed in Section 19.2.6 'Taxation'. Annual projections are shown in Table 145.

19.2.6 Taxation

The tax analysis for the Autazes Potash Project takes into consideration current tax laws applied to capital costs, operating costs, MOP sales and profits. This work was developed from the identification and analysis of the basic taxes applicable to the various activities of the Project and respective tax benefits provided for by the legislation of each tribute, whether at the Federal, State or Municipal level. The taxes included in the Project, as well as the legal basis that support the parameters and assumptions adopted, are presented in APPENDIX 27.

The relevant taxes included in the analysis are summarized in the following sub-items.

19.2.6.1 List of Taxes

Federal Level	
II	Imposto de Importação
IPI	Imposto sobre Produtos Industrializados
IRPJ	Imposto de Renda da Pessoa Jurídica
CSLL	Contribuição Social sobre o Lucro Líquido
COFINS	Contribuição para o Financiamento da Seguridade Social
PIS	Programa de Integração Social
CFEM	Compensação Financeira pela Exploração de Recursos Minerais
AFRMM	Adicional ao Frete para Renovação da Marinha Mercante
CIDE	Contribuições de Intervenção no Domínio Econômico
State Level	
ICMS	Imposto sobre Operações Relativas à Circulação de Mercadorias e sobre Prestação de Serviços de Transporte Interestadual e Intermunicipal e de Comunicação
DIFAL	Complemento relativo ao Diferencial de Alíquotas do ICMS
Municipal Level	
ISSQN	Imposto sobre Serviços de Qualquer Natureza

19.2.6.2 Taxes on MOP Sales

Federal level taxes: PIS, COFINS and IPI:

ICMS: Current scenario in the State of Amazonas:

The ICMS law of Amazonas follows the legislation applied in all other States in Brazil for the fertilizer sector. The Interstate Agreement of ICMS (CONFAZ 100/97 and amendments by Agreement ICMS 026/2021), ratifying its effects on the Regulation of ICMS approved by Decree 20.686 of December 28, 1999, establishes the reduction of the ICMS calculation base, so that the tax burden is equivalent to the application of the percentage of 4.00% (four percent) on the value of the operation on the interstate sales. For sales inside the State the legislation foresees a reduction of 30% in the ICMS calculation basis, providing an effective rate of 12.60% (18% x (1-30%). The state legislation assures the maintenance of all ICMS credits on purchases of equipment, supplies and electrical energy. BPC has started negotiations with the State of Amazonas for the grant of additional ICMS credits on MOP sales, as described in Section 19.2.6.7.

19.2.6.3 CFEM Royalty

Royalty paid to the Federal Government – Compensação Financeira pela Exploração de Recursos Minerais (CFEM).

For MOP, the applicable CFEM rate is 2%. CFEM is calculated on the basis of net sales revenues, corresponding to the gross revenue FOB (Free On Board) Urucurituba deducted from ICMS, PIS and COFINS on sales.

Royalties at a rate of 1% are payable to owners of surface rights of any land not owned by BPC. The calculation basis for these royalties is similar to CFEM. For additional information refer to Section 3.5.

19.2.6.4 Taxes on CAPEX and OPEX

Tax analysis on the CAPEX and OPEX was developed using the update cost estimates prepared by ERCOSPLAN. Tax classification requires very detailed work, based on the General Rules of the Common External Tariff (TEC) of Mercosul (Southern Common Market) and also on the Industrialized Products Tax Table (TIPI), as defined in legislation. Basic incidence of taxes at federal, state and municipal levels was applied, as well as tax benefits provided for by legislation, taking into account the activity and location of the Project. Taxation on the CAPEX and OPEX estimates, on project's revenue and profits, including applicable tax benefits, were updated according to the current tax legislation in 2022.

19.2.6.5 Taxes on Profits

Corporate income tax (IRPJ):

Brazilian corporate income tax is a federal tax charged on the net taxable income. It applies at a basic rate of 15% and a surplus of 10% on the annual income, totaling a 25% load. IRPJ payable may be reduced if the company obtain a benefit from SUDAM as described in Section 19.2.6.6.

Social contribution on net profits (CSLL):

Social contribution (CSLL) is applied on a similar calculation basis as defined for the corporate income tax. The applicable rate of CSLL is 9% on net income.

19.2.6.6 SUDAM Incentives

The Project is considered to be eligible for the tax incentive provided by the Superintendência do Desenvolvimento da Amazônia (SUDAM). This incentive entails a 75% reduction on the IRPJ payable by the Project for ten years of production given it is a new investment in the Legal Amazonia area, subject to approval by SUDAM.

Two 10-year periods of 75% reduction in income tax payable were considered in this Study. The first period, if granted, is expected to start in year 3, during the last year of the ramp-up phase of the project, and finish in year 12. A second period of ten years of benefit, if granted, would be based on the plant modernization, planned to occur at the beginning of year 13 and would remain in force until the end of the life of the mine, year 23.

19.2.6.7 ICMS: Tax Credits Assumptions

BPC has started negotiations with the Amazon State Government for a tax benefit to reduce the ICMS burden on the sales of MOP. Although still an ongoing process, the Government has confirmed the following negotiated benefits, through an official document as presented in APPENDIX 27 (Ofício nº 154/2016 – GS/SEPLAN-CTI of March, 17, 2016). No conditions have been required from BPC beyond the construction of the Project in the region.

- ICMS credit on MOP sales external to the State of Amazonas. The proposal under negotiation provides a 100% rate reduction credit for the first three years, with gradual reduction until the sixth year of operation as shown in Table 136.

Table 136 ICMS credit on sales

Year	Credit Rate (%)
1 to 3	100%

4	75%
5	50%
6	30%
7 to end	30%

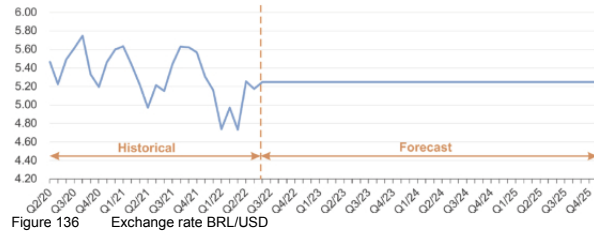
In addition to the ICMS credit on sales, the Amazonas State's proposal also includes:

- Deferral of the ICMS levied on imports and purchases within the Amazonas State of items for fixed assets (CAPEX);
- Deferral of the additional ICMS levied on purchases from outside the Amazonas State of items for fixed assets (CAPEX); and
- Exemption of the ICMS levied on electrical energy used in operating activities of the project (OPEX).

19.2.7 Exchange Rate

Economic projections are reported in 2022 US dollars utilizing a base case exchange rate of BRL/USD = 5.25 dollar (USD). This exchange rate was utilized for the initial capital estimation, as well as the long-term rate during operation of the mine including operating costs, sustaining capital and mine closure costs. Project economics at a range of exchange rates ($\pm 20\%$) are assessed as part of the project sensitivity analysis in Section 19.4.1.

The base case exchange rate of BRL/USD = 5.25 is within the range of historical actual rates over the past 2 years as shown in Figure 136. The forecasted exchange rate adopted is in accordance with the median of the forecasts for the period Q2 2022 to Q4 2025 of the Top 5 Brazilian independent market analysts listed in the Banco Central Do Brasil's weekly publication "Focus Market Readout".



19.2.8 Discount Rate

The discount rate adopted for the calculation of the NPV of the Project's free cash flow was 8.1%. This rate represents the BPC's estimated WACC (Weighted Average Capital Cost).

The methodology for the estimate of the BPC's WACC is detailed below. Additionally, a sensitivity analysis showing the Project's NPV in a range of discount rates between 5.1% to 13.1%, is presented in Section 19.4.2.

Equity Capital Cost

The cost of the equity capital (ke%) was estimated using the CAPM (Capital Asset Pricing Model) methodology.

$$ke\% = R_f + \beta \times (R_m - R_f)$$

A set of the 5 largest companies by market capitalization, listed directly or through American Depositary Receipts at NYSE, was used as a proxy to estimate the market risk premium (beta) for BPC. The methodology considered the effect of leverage in the beta of each of the companies, as well as the effect of the income tax, incident in its countries of origin. Table 137 presents the list of companies, the respective levered and unlevered betas for each company as well as the average unlevered beta of the set of companies, adopted as BPC's unlevered beta.

Table 137 Unlevered beta for BPC

Company		Country	Market cap (USD bn)	Beta	D/E	Income Tax Rate (%)	Unlevered Beta
Nutrien Ltd.	NTR	Canada	39.08	0.85	52/47	31.00%	0.48
CF Industries Holdings Inc.	CF	USA	16.93	1.08	67/32	21.00%	0.41
Sociedad Química y Minera de Chile S.A.	SQM	Chile	22.08	0.95	55/44	27.00%	0.49
The Mosaic Company	MOS	USA	15.77	1.55	51/48	21.00%	0.84
ICL Group Ltd.	ICL	Israel	9.81	0.96	58/41	23.00%	0.46
Average	-	-	-	-	-	-	0.54

The financial information for the listed companies, including D/E ratios and betas were obtained from their financial reports as of December 31, 2021 (WSJ Markets, 2022, /60/).

The effective income tax rate for the Autazes Project is as follows:

$$t = (\text{IRPJ}\% \times (1 - \text{SUDAM Benefit}\%) + \text{CSLL}\%)$$

$$t = (25\% \times (1 - 75\%) + 9\%)$$

$$t = 15.25\%$$

Based on the planned target capital structure Debt/Equity = 60/40, and on the average un-levered beta estimates for the set of companies, the market risk premium for BPC is estimated as following:

$$\beta = \text{Unlevered } \beta \times (1 - t) \times \text{D/E}$$

$$\beta = 0.54 \times (1 - 15.25\%) \times 60/40$$

$$\beta = 1.22$$

As the risk-free rate, the annual yield of the 10-years to maturity U.S. Treasury Bonds was adopted. $R_f = 0.7\%$ p.y (Nasdaq Data Link, 2022, /40/).

The average of the last 5 years (August/17 to July/22) of the S&P 500 Index, adjusted for inflation, was adopted as the market return. $R_m = 8.5\%$ p.y. (Banco Nacional do Desenvolvimento, 2022, /5/), (U.S. Bureau of Labor Statistics, 2022, /53/)

The resulting equity capital cost estimated for BPC is:

$$k_e\% = R_f + \beta \times (R_m - R_f)$$

$$k_e\% = 0.7\% + 1.22 \times (8.5\% - 0.65\%)$$

$$k_e\% = 10.3\%$$

Debt Capital Cost

The estimate of the debt cost of capital was based on the long-term interest rate practiced in Brazil, which is a market reference, the TLP of the BNDES - Banco Nacional do Desenvolvimento Econômico e Social. The interest rate is 7.9% p.y. (5.9% plus a spread of 2.0%) (Banco Nacional do Desenvolvimento, 2022, /5/). Considering the effective income tax rate for the Autazes Project, the estimate of the cost of debt capital is:

$$k_d\% = \text{Interest Rate} \times (1 - t)$$

$$k_d\% = 7.9\% \times (1 - 15.25\%)$$

$$k_d\% = 6.7\%$$

WACC (Weighted Average Capital Cost)

Based on the BPC's capital structure, D/E = 60/40, the resulting WACC% is estimated as follows:

$$\text{WACC} = k_e\% \times w_e\% + k_d\% \times w_d\%$$

$$\text{WACC} = 10.3\% \times 40\% + 6.7\% \times 60\%$$

$$\text{WACC} = 8.1\%$$

19.2.9 Evaluation Base Date and Others

The evaluation base date is the beginning of year -6. All financial modeling and analysis work is based in real terms as at 2022 using real, ungeared discount rates and excludes any financing cost.

19.3 Cash Flow Analysis

The Project's estimated post-tax, unlevered Net Present Value (NPV) is USD 2,497.6 million using a discount rate of 8.1% which represents the BPC's estimated Weighted Average Capital Cost (WACC). The post-tax, unlevered Internal Rate of Return (IRR) is 15.8% and the average annual earnings before interest, taxes, depreciation and amortization (EBITDA) from full run rate production period is USD 972.8 million. The total undiscounted free cash flow generated over the life of the project is USD 13,879.4 million and the payback period after the startup of the operations is reached at the middle of year 5.

Table 138 summarizes the financial results.

Based on the assumptions used in this PFS, the Project is economically viable, given the significantly positive NPV and IRR as compared to the discount rate adopted.

Table 138 Financial results summary

Financial Analysis	Unit	Post-Tax
NPV@8.1%	(USD million)	2,497.6
IRR	(%)	15.8%
Profitability Ratio	(%)	127.1%
EBITDA(*)	(USD million)	972.8
Total Cash Flow	(USD million)	13,879.4
Payback(**)	(Years)	5.6
(*) Average year 4-20, full run rate production period		
(**) Undiscounted, after start-up		

19.4 Sensitivity Analysis

The sensitivity analysis shows the impact of adjusting key input variables on the Project's NPV and IRR.

In assessing the sensitivity of the project returns, each of these inputs is varied independently of the others. Scenarios combining beneficial or adverse variations simultaneously in two or more variables will have a more marked effect on the economics of the Project than will the individual variations considered. The sensitivity analysis has been conducted assuming no change to the mine plan or schedule.

The following Section 19.4.1 shows sensitivity analyses of the Project's NPV and IRR to key input variables. In Section 19.4.2, a sensitivity analysis showing the Project's NPV in a range of discount rates between 5% to 15% is presented.

19.4.1 Sensitivity Analysis to Key Input Variables – After Tax, Unlevered NPV and IRR

As with most mining operations, the cash flows of the project are sensitive not only to commodity prices. The DCFM therefore was varied in a range of $\pm 20\%$ for the key input variables as follows:

- Exchange rate BRL/USD;
- MOP price;
- CAPEX;
- OPEX.

Table 139 and Figure 137 present the results of the sensitivity analysis for the Project's NPV on after-tax unlevered basis and for each of the critical variables. NPV results are reported at a discount rate of 10%. Table 140 and Figure 138 present the same for the IRR. As can be seen, the projects returns are highly sensitive to the potash sales price and exchange rate and to a lesser extent to operating costs and capital expenditures.

Table 139 Sensitivity for post-tax, unlevered NPV@8.1%

$\Delta\%$ (%)	MOP Price		Exchange Rate		OPEX		CAPEX	
	USD/t (LOM Avg. FOB Autazes)	NPV@ 8.1% USD M	BRL/ USD	NPV@ 8.1% USD M	USD/t MOP (Years 4-20)	NPV@ 8.1% USD M	USD M	NPV@ 8.1% USD M
20%	661.2	3,576.4	6.30	2,812.5	104.1	2,294.4	2,989.2	2,141.4
15%	633.6	3,307.1	6.04	2,744.2	99.8	2,345.2	2,864.6	2,230.5
10%	606.1	3,037.5	5.78	2,669.7	95.4	2,396.0	2,740.1	2,319.5
5%	578.5	2,767.9	5.51	2,587.9	91.1	2,446.8	2,615.5	2,408.5
0%	551.0	2,497.6	5.25	2,497.6	86.8	2,497.6	2,491.0	2,497.6
-5%	523.4	2,226.8	4.99	2,397.5	82.4	2,548.3	2,366.4	2,586.3
-10%	495.9	1,956.1	4.73	2,286.4	78.1	2,599.0	2,241.9	2,675.0
-15%	468.3	1,684.4	4.46	2,162.1	73.7	2,649.4	2,117.3	2,763.3
-20%	440.8	1,412.2	4.20	2,021.5	69.4	2,699.8	1,992.8	2,851.5

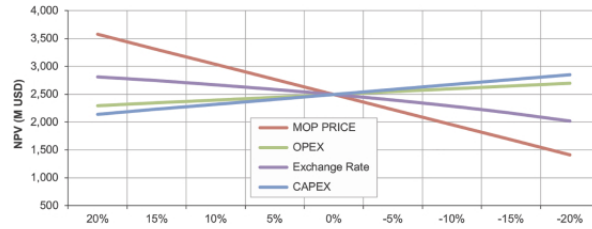


Figure 137 Sensitivity for post-tax, unlevered NPV@8.1%

Table 140 Sensitivity post-tax, unlevered IRR

Δ%	MOP Price		Exchange Rate		OPEX		CAPEX	
	USD/t (LOM Avg. FOB Autazes)	IRR %	BRL/USD	IRR %	USD/t MOP	IRR %	USD M	IRR %
20%	681.2	18.2%	6.30	17.2%	104.1	15.3%	2,989.2	14.1%
15%	633.6	17.7%	6.04	16.9%	99.8	15.4%	2,864.6	14.5%
10%	606.1	17.1%	5.78	16.6%	95.4	15.6%	2,740.1	14.9%
5%	578.5	16.5%	5.51	16.2%	91.1	15.7%	2,615.5	15.4%
0%	551.0	15.8%	5.25	15.8%	86.8	15.8%	2,491.0	15.8%
-5%	523.4	15.2%	4.99	15.4%	82.4	16.0%	2,366.4	16.4%
-10%	495.9	14.5%	4.73	15.0%	78.1	16.1%	2,241.9	16.9%
-15%	468.3	13.8%	4.46	14.5%	73.7	16.2%	2,117.3	17.5%
-20%	440.8	13.0%	4.20	14.0%	69.4	16.4%	1,992.8	18.1%

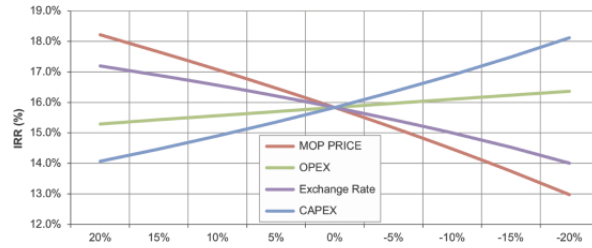


Figure 138 Sensitivity post-tax, unlevered IRR

19.4.2 Sensitivity Analysis – NPV x Discount Rate

Table 141 and Figure 139 present a sensitivity analysis showing the Project's NPV in a range of discount rates between 5.1% to 13.1%.

Table 141 Sensitivity post-tax, unlevered NPV x discount rate

Discount Rate	
(%)	NPV USD M
5.1%	4,863.6
6.1%	3,924.8
7.1%	3,145.8
8.1%	2,497.6
9.1%	1,956.7
10.1%	1,504.2
11.1%	1,124.9
12.1%	806.2
13.1%	538.0

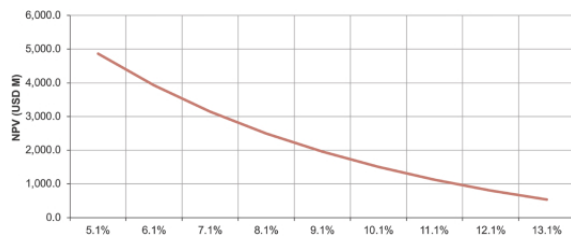


Figure 139 Sensitivity post-tax, unlevered NPV x Discount Rate

19.5 Financial Projections

Table 142 Production flow

Annual Projections	Project Year-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
OPERATING ASSUMPTIONS	Total LOM															
MINING																
ROM (000t)		171,254.8	3,212.6	5,644.9	7,925.2	8,429.9	8,035.1	8,797.5	8,204.6	8,294.1	8,264.1	8,392.0	8,355.2	8,719.4	8,505.9	7,948.2
PROCESSING																
MOP Production (000t)		44,438.9	691.9	1,249.9	1,817.3	2,049.7	2,149.2	2,189.7	2,336.4	2,248.6	2,463.1	2,445.6	2,229.3	2,373.8	2,471.1	2,427.8
Annual Residues		124,175.2	2,520.7	4,394.9	6,108.0	6,380.2	5,886.0	6,607.8	5,868.2	6,045.5	5,801.0	5,946.4	6,125.9	6,345.6	6,034.8	5,520.5
BACKFILLING																
Tailings Backfilling (000t)		2,640.7														
LOGISTICS																
Output to																
Urucurituba (000t)		44,438.9	691.9	1,249.9	1,817.3	2,049.7	2,149.2	2,189.7	2,336.4	2,248.6	2,463.1	2,445.6	2,229.3	2,373.8	2,471.1	2,427.8
Inventory at Urucurituba			19.2	34.7	50.5	56.9	59.7	60.8	64.9	62.5	68.4	67.9	61.9	65.9	68.6	67.4
Output to DCs		44,438.9	672.6	1,234.4	1,801.5	2,043.3	2,146.4	2,188.6	2,332.3	2,251.0	2,457.2	2,446.1	2,235.3	2,369.8	2,468.4	2,429.0
Annual Projections	Project Year-	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
OPERATING ASSUMPTIONS																
MINING																
ROM (000t)		7,950.1	8,024.1	8,498.9	8,492.4	8,386.9	8,570.2	5,862.0	4,889.7	1,851.7						
PROCESSING																
MOP Production (000t)		2,416.7	2,299.9	1,965.7	2,053.7	1,718.2	1,874.6	1,441.6	1,171.0	354.1						
Annual Residues		5,339.0	5,177.2	5,983.2	5,888.6	6,133.7	6,431.4	4,420.4	3,718.8	1,497.5						
BACKFILLING																
Tailings Backfilling (000t)		194.4	547.0	550.1	550.1	535.0	264.2									
LOGISTICS																
Output to Urucurituba (000t)		2,416.7	2,299.9	1,965.7	2,053.7	1,718.2	1,874.6	1,441.6	1,171.0	354.1						
Inventory at Urucurituba		67.1	63.9	54.6	57.0	47.7	52.1	40.0	32.5	9.8						
Output to DCs		2,417.0	2,303.1	1,975.0	2,051.3	1,727.5	1,870.3	1,453.6	1,178.5	376.8	9.8					

Table 143 Operating costs by activity

Annual Projections		Project Year->													
OPERATING COSTS BY ACTIVITY (Pre-Tax basis)		Total LOM	1	2	3	4	5	6	7	8	9	10	11	12	13
Total	(000USD)	3,978,025.9	76,577.0	139,364.3	180,648.0	194,779.3	193,309.1	197,815.5	196,568.9	195,937.5	196,307.6	202,812.2	185,933.0	194,710.4	197,105.4
Mining	"	1,290,275.2	30,138.6	56,674.8	62,657.9	65,732.4	64,421.6	61,602.4	60,701.5	61,970.7	56,162.7	62,147.1	53,698.9	55,361.2	56,608.7
Processing	"	2,301,612.6	39,936.1	71,038.2	101,314.1	110,717.7	110,474.4	116,824.5	116,394.2	114,798.3	120,014.2	120,485.2	113,083.0	119,173.3	120,070.5
Logistics	"	211,648.3	3,229.0	5,899.7	8,600.9	9,740.0	10,226.2	10,424.9	11,113.6	10,717.8	11,710.6	11,649.4	10,638.1	11,291.8	11,759.7
G&A	"	174,489.8	3,273.3	5,751.5	8,075.0	8,589.2	8,186.9	8,963.6	8,359.6	8,450.7	8,420.2	8,550.6	8,513.1	8,884.1	8,666.6
Unitary Cost per tonne of Ore	(USD/t ROM)	23.23	23.84	24.69	22.79	23.11	24.06	22.49	23.96	23.62	23.75	24.17	22.25	22.33	23.17
Mining	"	29.03	43.56	45.34	34.48	32.07	29.98	28.13	25.86	27.56	22.80	25.41	24.09	23.32	22.91
Processing	"	51.79	57.72	56.83	55.75	54.02	51.40	53.35	49.82	51.05	48.72	49.26	50.73	50.20	46.59
Logistics	"	4.76	4.67	4.72	4.73	4.75	4.76	4.76	4.76	4.77	4.75	4.76	4.77	4.76	4.76
G&A	"	3.93	4.73	4.60	4.44	4.19	3.81	4.09	3.58	3.76	3.42	3.50	3.82	3.74	3.51
Unitary Cost per tonne of MOP	(USD/t MOP)	89.52	0.00	0.00	0.00	0.00	0.00	0.00	110.68	111.50	99.41	95.03	89.95	90.34	84.13
Mining	"	29.03	0.00	0.00	0.00	0.00	0.00	0.00	43.56	45.34	34.48	32.07	29.98	28.13	25.86
Processing	"	51.79	0.00	0.00	0.00	0.00	0.00	0.00	57.72	56.83	55.75	54.02	51.40	53.35	49.82
Logistics	"	4.76	0.00	0.00	0.00	0.00	0.00	0.00	4.67	4.72	4.73	4.75	4.76	4.76	4.76
G&A	"	3.93	0.00	0.00	0.00	0.00	0.00	0.00	4.73	4.60	4.44	4.19	3.81	4.09	3.58

Annual Projections		Project Year->												
OPERATING COSTS BY ACTIVITY (Pre-Tax basis)		15	16	17	18	19	20	21	22	23	24	25	26	27
Total	(000USD)	194,562.7	190,051.9	186,744.9	188,025.2	180,771.7	188,853.5	137,164.0	117,385.0	55,346.5	35.8	0.0	0.0	0.0
Mining	"	59,612.3	57,947.2	60,680.0	59,458.0	62,906.2	64,955.4	47,659.9	43,665.4	29,993.4	0.0	0.0	0.0	0.0
Processing	"	114,854.3	112,502.5	107,615.5	109,730.4	100,758.4	105,877.8	76,332.6	62,898.4	21,626.3	0.0	0.0	0.0	0.0
Logistics	"	11,511.1	10,964.7	9,393.9	9,772.7	8,215.4	8,913.2	6,907.3	5,602.9	1,764.6	33.8	0.0	0.0	0.0
G&A	"	8,100.3	8,175.7	8,659.5	8,652.8	8,545.3	8,732.1	5,972.7	4,982.1	1,886.6	0.0	0.0	0.0	0.0
Unitary Cost per tonne of Ore	(USD/t ROM)	24.41	23.63	21.93	22.09	21.51	21.99	23.35	23.96	29.85	0.00	0.00	0.00	0.00
Mining	"	7.50	7.22	7.14	7.00	7.50	7.58	8.13	8.93	16.20	0.00	0.00	0.00	0.00
Processing	"	14.45	14.02	12.66	12.92	12.01	12.35	13.02	12.86	11.68	0.00	0.00	0.00	0.00
Logistics	"	1.45	1.37	1.11	1.15	0.98	1.04	1.18	1.15	0.95	0.00	0.00	0.00	0.00
G&A	"	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	0.00	0.00	0.00	0.00
Unitary Cost per tonne of MOP	(USD/t MOP)	80.31	82.44	94.80	91.35	105.01	100.54	94.94	100.04	156.08	0.00	0.00	0.00	0.00
Mining	"	24.67	25.20	30.87	28.95	36.61	34.65	33.06	37.29	84.70	0.00	0.00	0.00	0.00
Processing	"	47.52	48.92	54.75	53.43	58.64	56.48	52.95	53.71	61.07	0.00	0.00	0.00	0.00
Logistics	"	4.76	4.77	4.78	4.76	4.78	4.75	4.79	4.78	4.98	0.00	0.00	0.00	0.00
G&A	"	3.35	3.55	4.41	4.21	4.97	4.66	4.14	4.25	5.33	0.00	0.00	0.00	0.00

Table 144 Operating costs by commodity

Annual Projections by Commodity		Project Year->														
OPERATING COSTS BY ACTIVITY (Pre-Tax basis)		Total LOM	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total	(000USD)	3,978,025.9	0.0	0.0	0.0	0.0	0.0	0.0	76,577.0	139,364.3	180,648.0	194,779.3	193,309.1	197,815.5	196,568.9	195,937.5
Electrical Energy	-	1,874,894.2	0.0	0.0	0.0	0.0	0.0	0.0	33,085.5	58,906.8	82,198.1	89,061.4	87,494.6	93,945.3	91,068.3	91,473.4
Labour	-	747,946.2	0.0	0.0	0.0	0.0	0.0	0.0	15,149.0	29,419.1	34,245.2	36,205.3	36,247.9	35,210.0	36,226.3	35,056.3
Repair Parts	-	568,716.9	0.0	0.0	0.0	0.0	0.0	0.0	11,430.5	20,560.3	26,080.7	29,250.5	30,373.1	27,788.9	27,705.4	28,492.8
Reagents	-	237,755.5	0.0	0.0	0.0	0.0	0.0	0.0	3,701.6	6,687.4	9,722.8	10,966.4	11,498.3	11,715.2	12,500.2	12,030.4
Logistics Plant/ Urucurituba	-	211,648.3	0.0	0.0	0.0	0.0	0.0	0.0	3,229.0	5,899.7	8,600.9	9,740.0	10,226.2	10,424.9	11,113.6	10,717.8
Equipment Leasing	-	14,575.55	0.00	0.00	0.00	0.00	0.00	0.00	513.42	927.56	1,345.57	1,521.06	1,594.85	1,624.93	1,733.81	1,666.65
Others, G&A	-	174,489.80	0.00	0.00	0.00	0.00	0.00	0.00	3,273.28	5,751.48	8,074.96	8,589.18	8,186.89	8,963.65	8,358.68	8,450.73
Services	-	88,523.64	0.00	0.00	0.00	0.00	0.00	0.00	4,341.67	7,217.68	7,305.91	5,892.92	4,785.67	5,127.32	5,028.43	5,132.44
Consumables & Wear Parts	-	59,475.78	0.00	0.00	0.00	0.00	0.00	0.00	1,852.97	3,994.20	3,070.76	3,532.53	2,901.49	3,015.32	2,833.20	2,915.00
Unitary Cost per tonne of MOP (USD/ MOP)		89.52	0.00	0.00	0.00	0.00	0.00	0.00	110.68	111.50	99.41	95.03	89.95	90.34	84.13	87.14
Energy	-	42.19	0.00	0.00	0.00	0.00	0.00	0.00	47.82	47.13	45.23	43.46	40.71	42.90	38.98	40.68
Labour	-	16.83	0.00	0.00	0.00	0.00	0.00	0.00	21.90	23.54	18.84	17.66	16.87	16.08	15.51	15.59
Repair Parts	-	12.80	0.00	0.00	0.00	0.00	0.00	0.00	16.52	16.45	14.35	14.27	14.13	12.69	11.86	12.67
Reagents	-	5.35	0.00	0.00	0.00	0.00	0.00	0.00	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35
Logistics Plant/ Urucurituba	-	4.76	0.00	0.00	0.00	0.00	0.00	0.00	4.67	4.72	4.73	4.75	4.76	4.76	4.76	4.77
Equipment Leasing	-	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Others, G&A	-	3.83	0.00	0.00	0.00	0.00	0.00	0.00	4.73	4.60	4.44	4.19	3.81	4.09	3.58	3.76
Services	-	1.99	0.00	0.00	0.00	0.00	0.00	0.00	6.28	5.77	4.02	2.87	2.23	2.34	2.15	2.28
Consumables & Wear Parts	-	1.34	0.00	0.00	0.00	0.00	0.00	0.00	2.68	3.20	1.69	1.72	1.35	1.38	1.21	1.30

Annual Projections by Commodity	Project Year-														
	>	15	16	17	18	19	20	21	22	23	24	25	26	27	28
OPERATING COSTS BY ACTIVITY (Pre-Tax basis)															
Total (000USD)		194,078.0	189,590.1	186,348.9	187,613.9	180,425.4	188,478.5	136,872.5	117,148.7	55,271.0	33.8	0.0	0.0	0.0	0.0
Energy	-	89,704.5	89,484.2	90,493.3	90,876.7	87,825.7	90,350.8	66,491.2	57,398.0	28,548.0	0.0	0.0	0.0	0.0	0.0
Labour	-	36,466.9	36,369.2	35,174.8	36,924.2	37,550.4	35,618.0	26,418.8	22,775.5	11,191.6	0.0	0.0	0.0	0.0	0.0
Repair Parts	-	30,095.3	26,641.5	25,169.4	24,553.4	23,064.4	28,966.8	19,170.8	15,322.8	6,450.4	0.0	0.0	0.0	0.0	0.0
Reagents	-	12,929.9	12,304.7	10,516.7	10,987.6	9,192.6	10,029.5	7,712.9	6,265.0	1,894.6	0.0	0.0	0.0	0.0	0.0
Logistics Plant/ Urucurituba	-	11,511.1	10,964.7	9,393.9	9,772.7	8,215.4	8,913.2	6,907.3	5,602.9	1,764.6	33.8	0.0	0.0	0.0	0.0
Equipment Leasing	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others, G&A	-	8,100.31	8,175.69	8,659.47	8,652.81	8,545.31	8,732.12	5,972.74	4,982.10	1,886.64	0.00	0.00	0.00	0.00	0.00
Services	-	2,903.81	3,203.31	4,198.10	2,787.49	3,503.72	3,330.07	3,279.89	3,076.33	2,440.68	0.00	0.00	0.00	0.00	0.00
Consumables & Wear Parts	-	2,366.25	2,446.85	2,743.19	3,058.99	2,527.53	2,538.03	1,919.00	1,726.13	1,094.36	0.00	0.00	0.00	0.00	0.00
Unitary Cost per tonne of MOP (USD/ MOP)		80.31	82.44	94.80	91.35	105.01	100.54	94.94	100.04	156.08	0.00	0.00	0.00	0.00	0.00
Electrical Energy	-	37.12	38.91	46.04	44.25	51.11	48.20	46.12	49.02	80.62	0.00	0.00	0.00	0.00	0.00
Labour	-	15.09	15.81	17.89	17.98	21.85	19.00	18.33	19.45	31.60	0.00	0.00	0.00	0.00	0.00
Repair Parts	-	12.45	11.58	12.80	11.96	13.42	15.45	12.60	13.09	18.21	0.00	0.00	0.00	0.00	0.00
Reagents	-	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	0.00	0.00	0.00	0.00	0.00
Logistics Plant/ Urucurituba	-	4.76	4.77	4.78	4.76	4.78	4.75	4.79	4.78	4.98	0.00	0.00	0.00	0.00	0.00
Equipment Leasing	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others, G&A	-	3.35	3.55	4.41	4.21	4.97	4.66	4.14	4.25	5.33	0.00	0.00	0.00	0.00	0.00
Services	-	1.20	1.39	2.14	1.36	2.04	1.78	2.28	2.63	6.89	0.00	0.00	0.00	0.00	0.00
Consumables & Wear Parts	-	0.98	1.06	1.40	1.49	1.47	1.35	1.33	1.47	3.09	0.00	0.00	0.00	0.00	0.00

Table 145 Project Cash Flow

Annual Projections	Project Year-												
	>	-6	-5	-4	-3	-2	-1	1	2	3	4	5	6
PRODUCTION SUMMARY													
ROM	(000t)	171,254.8	—	—	—	—	—	3,212.6	5,644.9	7,925.2	8,429.9	8,035.1	8,797.5
KCI grade in ROM	(%)	27.3%	0.0%	0.0%	0.0%	0.0%	0.0%	22.6%	23.3%	24.1%	25.5%	28.1%	26.2%
Metallurgical Recovery	(%)	90.8%	0.0%	0.0%	0.0%	0.0%	0.0%	90.8%	90.8%	90.8%	90.8%	90.8%	90.8%
MOP Product	(000t)	44,438.9	—	—	—	—	—	691.9	1,249.9	1,817.3	2,049.7	2,149.2	2,189.7
CASH FLOW SUMMARY													
GROSS REVENUE	(000USD)	24,484,549.9	0.0	0.0	0.0	0.0	0.0	222,038.0	446,662.5	707,129.6	864,711.0	976,478.2	1,065,131.6
MOP Product													
Sales	(000t)	44,438.9	0.0	0.0	0.0	0.0	0.0	672.6	1,234.4	1,801.5	2,043.3	2,146.4	2,188.6
MOP price	(USD/t)	551.0	0.0	0.0	0.0	0.0	0.0	330.1	361.8	392.5	423.2	454.9	486.7
(-) Deductions	(000USD)	(1,664,537.0)	0.0	0.0	0.0	0.0	0.0	(15,276.2)	(30,730.4)	(48,650.5)	(59,492.1)	(67,181.7)	(73,281.1)
Recoverable													
Taxes on Revenue	"	(979,382.0)	0.0	0.0	0.0	0.0	0.0	(8,881.5)	(17,866.5)	(28,285.2)	(34,588.4)	(39,059.1)	(42,605.3)
Royalties													
CFEM	"	(795,155.0)	0.0	0.0	0.0	0.0	0.0	(6,394.7)	(12,863.9)	(20,365.3)	(24,903.7)	(28,122.6)	(30,675.8)
(=) Net Revenue	(000USD)	22,800,912.9	0.0	0.0	0.0	0.0	0.0	206,761.7	415,932.1	658,479.1	805,218.9	909,296.5	991,850.5
(-) OPERATING COSTS	(000USD)	(3,987,786.3)	0.0	0.0	0.0	0.0	0.0	(76,741.9)	(139,665.9)	(181,087.8)	(195,277.6)	(193,832.5)	(198,348.1)
Pre-tax													
Operating Costs	"	(3,978,025.9)	0.0	0.0	0.0	0.0	0.0	(76,577.0)	(139,364.3)	(180,648.0)	(194,779.3)	(193,309.1)	(197,815.5)
Non-Recoverable													
Taxes	"	(9,760.4)	0.0	0.0	0.0	0.0	0.0	(164.8)	(301.6)	(439.9)	(498.4)	(523.4)	(533.6)
(=) EBITDA	(000USD)	18,812,226.6	0.0	0.0	0.0	0.0	0.0	130,019.9	276,266.3	477,391.3	609,941.2	715,464.0	793,501.5
(%)	(%)	76.8%	0.00%	0.00%	0.00%	0.00%	0.00%	58.56%	61.85%	67.51%	70.54%	73.27%	74.50%
(-) CAPEX	(000USD)	(3,054,723.3)	(199,279.3)	(498,198.2)	(548,018.0)	(523,108.1)	(398,558.5)	(174,369.4)	(82,977.9)	(117,947.7)	(96,365.0)	(35,615.4)	(54,424.0)
Development Capex	"	(2,490,990.9)	(199,279.3)	(498,198.2)	(548,018.0)	(523,108.1)	(398,558.5)	(174,369.4)	(82,977.9)	(117,947.7)	0.0	0.0	0.0
Pre-Tax													
Development Capex	"	(2,262,618.6)	(181,009.5)	(452,523.7)	(497,776.1)	(475,149.9)	(362,019.0)	(158,383.3)	(67,878.6)	(67,878.6)	0.0	0.0	0.0
Non-Recoverable													
Taxes	"	(50,226.2)	(4,018.1)	(10,045.2)	(11,049.8)	(10,547.5)	(8,036.2)	(3,515.8)	(1,506.8)	(1,506.8)	0.0	0.0	0.0
Recoverable													
PIS/COFINS	"	(178,146.1)	(14,251.7)	(35,629.2)	(39,192.1)	(37,410.7)	(28,503.4)	(12,470.2)	(5,344.4)	(5,344.4)	0.0	0.0	0.0
Sustaining Capital	"	(418,312.4)	0.0	0.0	0.0	0.0	0.0	0.0	(13,856.9)	(75,017.1)	(22,309.2)	(44,998.8)	(8,643.4)
Pre-Tax													
Sustaining Capital	"	(379,998.9)	0.0	0.0	0.0	0.0	0.0	0.0	(12,667.3)	(67,851.8)	(19,805.8)	(39,907.1)	(8,094.2)
Non-Recoverable													
Taxes	"	(6,708.0)	0.0	0.0	0.0	0.0	0.0	0.0	(319.1)	(1,862.3)	(144.8)	(249.4)	(82.3)
Recoverable													
PIS/COFINS	"	(31,605.5)	0.0	0.0	0.0	0.0	0.0	0.0	(870.5)	(5,303.0)	(2,358.5)	(4,842.4)	(466.9)
Mine Closure Costs	"	(145,420.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-Tax Mine Closure Costs	"	(132,841.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable													
Taxes	"	(7,271.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable													
PIS/COFINS	"	(5,307.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WC movements	"	(0.0)	0.0	0.0	0.0	0.0	0.0	(8,248.2)	(28,961.0)	(21,347.9)	(13,306.2)	(9,425.1)	(6,927.9)
(+) Recoverable Taxes													
Cash Adjustments	(000USD)	111,091.3	0.0	0.0	0.0	0.0	0.0	555.1	2,852.1	7,854.6	12,065.9	16,438.8	19,282.0
(-) INCOME TAX	(000USD)	(1,989,244.4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income Taxes													
(IRP/CSLL)	"	(5,378,969.5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(16,075.5)	(81,349.0)	(105,709.1)	(165,601.3)
SUDAM													
Incentive & Federal Taxes													
Offsets	"	3,389,725.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16,075.5	81,349.0	105,709.1	165,601.3
(=) CASH FLOW AFTER TAXES	(000USD)	13,879,350.3	(199,279.3)	(498,198.2)	(548,018.0)	(523,108.1)	(398,558.5)	(174,369.4)	47,597.1	161,570.7	388,880.8	586,391.8	677,478.8

Annual Projections	Project Year-	Project Year-										
		9	10	11	12	13	14	15	16	17	18	19
PRODUCTION SUMMARY												
ROM	(000t)	8,264.1	8,392.0	8,355.2	8,719.4	8,505.9	7,948.2	7,950.1	8,024.1	8,498.9	8,492.4	8,386.9
KCI grade in ROM	(%)	31.3%	30.6%	28.0%	28.6%	30.5%	32.1%	31.9%	30.1%	24.3%	25.4%	21.5%
Metallurgical Recovery	(%)	90.8%	90.8%	90.8%	90.8%	90.8%	90.8%	90.8%	90.8%	90.8%	90.8%	90.8%
MOP Product	(000t)	2,463.1	2,445.6	2,229.3	2,373.8	2,471.1	2,427.8	2,416.7	2,299.9	1,965.7	2,053.7	1,718.2
CASH FLOW SUMMARY												
GROSS REVENUE	(000USD)	1,432,421.2	1,433,742.1	1,314,913.9	1,399,031.8	1,462,466.4	1,446,838.0	1,444,827.1	1,381,603.8	1,191,024.6	1,241,369.6	1,045,470.7
MOP Product												
Sales	(000t)	2,457.2	2,446.1	2,235.3	2,369.8	2,468.4	2,429.0	2,417.0	2,303.1	1,975.0	2,051.3	1,727.5
MOP price	(USD/t)	583.0	586.1	588.2	590.4	592.5	595.7	597.8	599.9	603.1	605.2	606.2
(-) Deductions	(000USD)	(98,550.6)	(98,641.5)	(90,466.1)	(96,253.4)	(100,617.7)	(99,542.5)	(99,404.1)	(95,054.3)	(81,942.6)	(85,406.2)	(71,9328.4)
Recoverable												
Taxes on Revenue	*	(57,296.8)	(57,349.7)	(52,596.6)	(55,961.3)	(58,498.7)	(57,873.5)	(57,793.1)	(55,264.2)	(47,641.0)	(49,654.8)	(41,818.8)
Royalties												
(CFEM)	*	(41,253.7)	(41,291.8)	(37,869.5)	(40,292.1)	(42,119.0)	(41,668.9)	(41,611.0)	(39,790.2)	(34,301.5)	(35,751.4)	(30,109.6)
(=) Net Revenue	(000USD)	1,333,870.6	1,335,100.7	1,224,447.8	1,302,778.4	1,361,848.7	1,347,295.5	1,345,423.0	1,286,549.5	1,109,082.1	1,155,963.3	973,542.3
(-) OPERATING COSTS	(000USD)	(196,906.9)	(203,408.5)	(186,381.2)	(195,185.6)	(197,600.4)	(190,784.0)	(194,562.7)	(190,051.9)	(186,744.9)	(188,025.2)	(180,771.7)
Pre-tax												
Operating Costs	*	(196,307.6)	(202,812.2)	(185,933.0)	(194,710.4)	(197,105.4)	(190,296.9)	(194,078.0)	(189,590.1)	(186,348.9)	(187,613.9)	(180,425.4)
Non Recoverable												
Taxes	*	(599.3)	(596.3)	(448.2)	(475.2)	(494.9)	(487.0)	(484.6)	(461.8)	(396.0)	(411.3)	(346.4)
(=) EBITDA	(000USD)	1,136,963.7	1,131,692.1	1,038,066.7	1,107,592.8	1,164,248.3	1,156,511.6	1,150,860.3	1,096,497.6	922,337.3	967,938.1	792,770.6
(%)		79.37%	78.93%	78.95%	79.17%	79.61%	79.53%	79.65%	79.36%	77.44%	77.97%	75.83%
(-) CAPEX	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Development Capex												
Pre-Tax Development Capex	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable												
Taxes	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable												
PIS/COFINS	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustaining Capital	*	(16,410.2)	(97,713.7)	(4,722.9)	(9,458.7)	(9,905.6)	(7,901.2)	(10,231.8)	(11,792.9)	(12,584.6)	(16,265.7)	(7,332.9)
Pre-Tax												
Sustaining Capital	*	(14,037.2)	(87,936.5)	(4,674.2)	(8,496.2)	(9,077.6)	(7,449.9)	(9,528.5)	(10,709.3)	(12,337.8)	(15,097.8)	(7,265.9)
Non-Recoverable												
Taxes	*	(23.2)	(3,477.5)	(6.4)	(6.4)	(35.6)	(46.2)	(64.5)	(48.3)	(47.2)	(66.0)	(6.4)
Recoverable												
PIS/COFINS	*	(2,349.9)	(6,299.7)	(42.4)	(956.0)	(792.4)	(405.1)	(638.8)	(1,035.3)	(199.5)	(1,101.8)	(60.6)
Mine Closure Costs	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-Tax Mine Closure Costs	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable												
Taxes	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable												
PIS/COFINS	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WC movements	*	(15,704.8)	(1,014.7)	10,727.9	(7,061.7)	(5,208.6)	1,332.5	(283.0)	5,644.6	15,980.9	(4,123.6)	16,453.8
(+/-) Recoverable Taxes												
Cash Adjustments	(000USD)	8,643.2	400.8	141.4	411.4	1,098.3	1,261.2	897.5	584.4	(1,633.2)	(979.4)	(2,687.9)
(-) INCOME TAX	(000USD)	(142,960.0)	(138,391.4)	(129,331.1)	(138,682.9)	(150,605.7)	(154,823.9)	(153,731.2)	(145,674.1)	(119,477.5)	(125,460.1)	(100,405.2)
Income Taxes (IRP/CSLL)	*	(359,572.6)	(357,223.8)	(325,172.6)	(348,813.6)	(374,782.1)	(382,172.6)	(380,770.3)	(362,519.2)	(302,698.2)	(317,149.5)	(258,427.0)
SUDAM												
Incentive & Federal Taxes Offsets	*	216,612.5	218,832.4	195,841.5	210,130.7	224,176.4	227,348.7	227,039.1	216,845.1	183,220.7	191,689.4	158,021.8
(=) CASH FLOW AFTER TAXES	(000USD)	970,531.9	894,973.1	914,882.0	952,800.9	999,626.8	996,380.1	987,511.8	945,259.5	804,622.9	821,109.3	698,798.4

Annual Projections	Project Year->	Project Year-													
		23	24	25	26	27	28	29	30	31	32	33	34	35	36
PRODUCTION SUMMARY															
ROM	(000t)	1,851.7	—	—	—	—	—	—	—	—	—	—	—	—	—
KCI grade in ROM	(%)	20.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metallurgical Recovery	(%)	90.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MOP Product	(000t)	354.1	—	—	—	—	—	—	—	—	—	—	—	—	—
CASH FLOW SUMMARY															
GROSS REVENUE	(000USD)	228,040.2	5,953.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOP Product															
Sales	(000t)	376.8	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOP price	(USD/t)	605.2	605.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(-) Deductions	(000USD)	(15,689.2)	(409.6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable															
Taxes on Revenue	*	(9,121.6)	(238.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Royalties															
(CFEM)	*	(6,567.6)	(171.4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Net Revenue	(000USD)	212,351.0	5,543.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(-) OPERATING COSTS	(000USD)	(55,346.5)	(35.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-tax															
Operating Costs	*	(55,271.0)	(33.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non Recoverable															
Taxes	*	(75.6)	(2.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBITDA	(000USD)	157,004.5	5,507.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(%)		68.85%	92.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(-) CAPEX	(000USD)	40,259.9	18,160.6	(19,789.5)	(20,285.6)	(20,285.6)	(20,285.6)	(20,285.6)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)
Development Capex	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-Tax															
Development Capex	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable															
Taxes	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable															
PIS/COFINs	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustaining Capital	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-Tax															
Sustaining Capital	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable															
Taxes	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable															
PIS/COFINs	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mine Closure Costs	*	0.0	0.0	(20,285.6)	(20,285.6)	(20,285.6)	(20,285.6)	(20,285.6)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)
Pre-Tax Mine															
Closure Costs	*	0.0	0.0	(18,530.9)	(18,530.9)	(18,530.9)	(18,530.9)	(1,536.8)	(1,536.8)	(1,536.8)	(1,536.8)	(1,536.8)	(1,536.8)	(1,536.8)	(1,536.8)
Non-Recoverable															
Taxes	*	0.0	0.0	(1,014.3)	(1,014.3)	(1,014.3)	(1,014.3)	(84.1)	(84.1)	(84.1)	(84.1)	(84.1)	(84.1)	(84.1)	(84.1)
Recoverable															
PIS/COFINs	*	0.0	0.0	(740.4)	(740.4)	(740.4)	(740.4)	(61.4)	(61.4)	(61.4)	(61.4)	(61.4)	(61.4)	(61.4)	(61.4)
WC movements	*	40,259.9	18,160.6	496.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+/-) Recoverable Taxes															
Cash Adjustments	(000USD)	(2,105.3)	68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(-) INCOME TAX	(000USD)	(47,481.3)	(1,869.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income Taxes															
(IRP/CSLL)	*	(52,327.4)	(1,872.6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUDAM															
Incentive & Federal Taxes															
Offsets	*	4,846.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) CASH FLOW AFTER TAXES	(000USD)	147,677.8	21,867.1	(19,789.5)	(20,285.6)	(20,285.6)	(20,285.6)	(20,285.6)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)	(1,682.3)

Annual Projections	Project Year-	Project Year-													
		37	38	39	40	41	42	43	44	45	46	47	48	49	50
PRODUCTION SUMMARY															
ROM	(000t)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KCl grade in ROM	(%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metallurgical Recovery	(%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MOP Product	(000t)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CASH FLOW SUMMARY															
GROSS REVENUE	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOP Product															
Sales	(000t)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOP price	(USD/t)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(-) Deductions	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable															
Taxes on Revenue	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Royalties (CFEM)	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Net Revenue	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(-) OPERATING COSTS	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-tax															
Operating Costs	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non Recoverable															
Taxes	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBITDA	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(%)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(-) CAPEX	(000USD)	(18,061.3)	(16,379.0)	(16,379.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Development Capex	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-Tax															
Development Capex	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable															
Taxes	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable															
PIS/COFINS	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustaining Capital	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-Tax															
Sustaining Capital	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable															
Taxes	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable															
PIS/COFINS	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mine Closure Costs	*	(18,061.3)	(16,379.0)	(16,379.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-Tax Mine															
Closure Costs	*	(16,499.0)	(14,962.2)	(14,962.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recoverable															
Taxes	*	(903.1)	(818.9)	(818.9)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recoverable															
PIS/COFINS	*	(659.2)	(597.8)	(597.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WC movements	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+/-) Recoverable Taxes															
Cash Adjustments	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(-) INCOME TAX	(000USD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income Taxes (IRP/CSLL)	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUDANI Incentive & Federal Taxes															
Offsets	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) CASH FLOW AFTER TAXES	(000USD)	(18,061.3)	(16,379.0)	(16,379.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

20 Adjacent Properties

The main properties (mineral rights) adjoining the mineral rights areas of BPC for the Autazes Potash Project are, amongst others, properties owned by (SIGMINE ANM, 2021, /47/):

- Amarello Mineração do Brasil Ltda. – 81 (eighty-one) mineral rights of which only 2 (two) permit exploration and the other 79 (seventy-nine) are already relinquished and ready for auction;
- Cowley Mineração Ltda. – 8 (eight) mineral rights of which only 2 (two) are applications and the other 6 (six) are already relinquished and ready for auction;
- PETROBRAS (including the Fazendinha and Arari Potash Deposit) – 45 (forty-five) mineral rights of which are 8 (eight) mining concessions, 4 (four) with the right to request mining, 3 (three) applications and 30 (thirty) permit exploration;
- Potássio Ocidental Mineração (POM) Ltda. – 69 (sixty-nine) mineral rights of which 15 (fifteen) permit exploration, 3 (three) are applications and 51 (fifty-one) are already relinquished and ready for auction;
- GBG Trade Consult Group Eireli – 8 (eight) mineral rights of which all are applications.

The Fazendinha Potash deposit is located south of the Autazes area, in the Nova Olinda region and comprises eight claims (mineral rights areas) with a total area of 511.1 km² (see Section 5.1). The Arari Potash deposit is located east of the Autazes area and comprises four claims (mineral rights areas) with a total area of 400.0 km² (ERCOSPLAN, 2007, /14/).

An overview of the adjacent properties is shown in Figure 140.

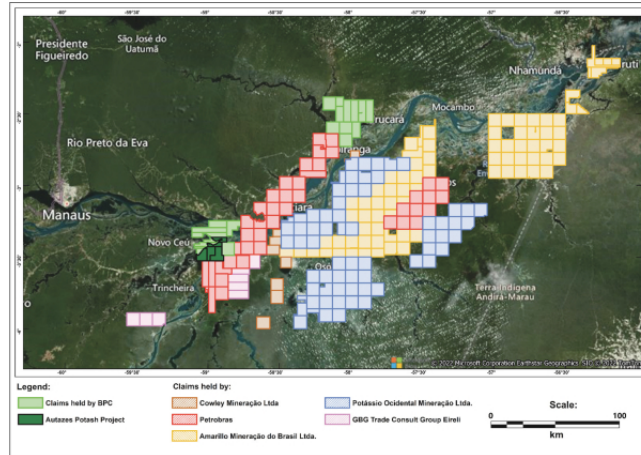


Figure 140 Adjacent properties (SIGMINE ANM, 2021, /47/)

20.1 Immediate Adjacent Properties on the Surface

Brazilian Law (Mining Code, Decree Law n. 227/1967, Article 27) grants to the titleholder of an exploration license the right to enter the mineral rights area and execute exploration activities by means of a private agreement with the landowner. Should any landowner refuse access to a mineral rights area, under Article 27 of the Brazilian Mining Code a judicial order could be obtained through a specific lawsuit, upon which the local court would guarantee access of the titleholder to the area and settle the amount to be paid to the landowner regarding rent and indemnification.

The holder of a mining concession has exclusive rights to mine the concession area, either on public or private land. Further, the holder of the concession is entitled to servitudes over the land covered by the concession or adjacent to it for mining, processing and infrastructure. The servitudes may be obtained judicially or amicably with the landowner.

PdB has developed a plan to purchase the following properties: (i) 11 properties, which correspond to 581.7 ha (negotiations in progress), and (ii) 7 properties, which correspond to 1,025.09 ha (to be negotiated).

21 Other Relevant Data and Information

This chapter provides information on other relevant data and information required for the execution of the project such as engineering (general approach and critical schedule activities), procurement strategy, materials management, contracting strategy, construction management and program, pre-commissioning, project schedule, project staffing and risk assessment and management.

21.1 Preliminary Project Implementation Plan

The Autazes Potash Project is a schedule driven project that incorporates a wide range of complexities, including:

- Semi-remote location;
- Weather restrictions;
- Limited communication;
- Shaft sinking; and
- Complex multidiscipline concurrent site developments.

The BFS Project Implementation Plan (PIP) for the Autazes Potash Project has been developed to meet the requirements of the mine plan. This plan will include two distinct construction phases. During the site preparation and development phase (Phase 1) the prime activities will include:

- Site mobilization – early works, shaft sinking and infrastructure;
 - Early works activities including: site clearing, grubbing and stripping;
 - commencement of bulk earthworks;
 - commencement of piling and foundation installations;
- Initial infrastructure development including:
 - Site access (from both North and South);
 - Construction roadways;
 - Laydown and assembly areas;
 - Contractor support area;
 - Installation of batch plant;
 - Site warehousing;
 - EPCM office establishment;
 - Early camp development.

The site preparation and development phase is dedicated to moving the shaft sinking area to a state so as to be self-sufficient in order to complete the shaft sinking scope, which is on the project critical path, and commence mine development operations as early as possible. The construction phase (Phase 2) is dedicated to the construction of a processing plant, further development of associated infrastructure scope and completion of the marine and port facilities.

21.2 Strategy for Implementation

Engineering, procurement and project management will be conducted from a project office to be defined by BPC. Some work packages with well-defined battery limits, will be developed for execution outside of the project office to take advantage of a lower cost execution center, center of excellence for specific activities and centers with local Brazilian knowledge. All work packages will be coordinated in the local execution center, but managed, monitored and progress reports generated from the project office.

Site management and all construction activities will be conducted from a temporary site office constructed at the site near the entrance to the processing plant. Area specific sub-offices (e.g. mine and port) may be developed as the need develops.

In order to support the early works program in the Implementation Schedule, the development of the temporary construction facilities has a high level of importance.

21.3 Project Drivers

The main project drivers are:

- Safe execution resulting in zero harm;
- Utilization of local labor resources to the maximum extent practical;

- Economical and practical solutions;
- Schedule;
- Quality design and innovative construction techniques;
- Environmental protection;
- Maximization of off-site fabrication possibilities; particularly in Manaus, where there are extensive machine shops and highly skilled mechanics, welders and electricians.

21.4 Estimated Construction Quantities

Table 146 Estimated construction quantities

Commodity	Unit of Measure	Total Quantity
Civil works: topsoil removal	CM	1,167,160
Civil works: Excavation, cut and fill	CM	6,752,790
Concrete: foundations, slabs, walls, grouting	CM	82,298
Structural steel: heavy, medium, light ,miscellaneous	MT	18,592
Structural steel: floor grating, roof/side sheeting etc.	SM	25,901
Facilities: prefabricated or preassembled	EA	20
Mechanical equipment: excluding brine evaporation, KCl processing, TMA	EA	1,053
Platwork: tanks, chutes, etc.(excluding KCl processing)	MT	2,777
Piping: excluding brine evaporation, KCl processing, TMA	LM	105,136
Electrical cables: electrical, control, ground etc.	LM	914,740
Cable trays, conduits: galvanized, aluminum etc.	LM	49,370

21.5 Location Factors

The location factors that will impact construction are as follows:

- The project site is located in the Amazonas Region, approximately 25 km from the city of Autazes;
- The project site is somewhat logistically challenged – primary access is via barge from Autazes;
- The average temperature is 26°C, with 83% humidity; the project site is located 30 m above sea level.

Wet weather will make construction conditions difficult due to the annual rain seasons which have an average annual rainfall greater than 2,500 mm, including peak months (November through April) with a monthly rainfall average of 300 mm. Earthworks during these rain periods, particularly December through February, should be avoided.

- Community relations:
 - The population of the existing Urucurituba village, near the intended port site, will be affected by the Project, and mitigation programs will be applied;
 - Training programs and employment opportunities are to be considered;
 - Dust and traffic issues are anticipated and mitigation plans must be implemented.

21.6 Construction Pre-Qualification Visit

An in-country investigation was conducted during August 2022 by ERCOSPLAN and BPC, for the purpose of meeting and evaluating several construction companies. In total, nine construction contracting companies were interviewed.

Key findings include:

- With the exception of the required shaft sinking scope local contractors are capable of handling the entire scope;
- Although a potash project similar to the Autazes Potash Project has not been constructed in recent years, the constructors are continuously working with the existing mine operations to facilitate upgrades and repairs. The constructors interviewed in Belo Horizonte are familiar with projects in a mining environment;

- Typical productivity factors for workers in the region are high considering the expertise the workers have with respect to working in the processing plant environment. There is an opportunity to favorably impact the labor productivity and associated man power counts with a consolidated material management and construction work packaging plan;
- The town of Autazes is sufficiently close to the site and of sufficient population based, with supporting infrastructure, to minimize the needs and overall size of the required site construction camp. Ferrying, followed by bussing of workers from the town to the site and arranging accommodation for outside workers is planned, and needs to be firmed up in advance of the construction start;
- The town of Autazes is of a sufficient size, approximate population 41,000 in 2021 (PdB, 2022, /42/), with a high level of unemployment so as to be a dependable source of both skilled and unskilled construction labor;
- Several of the electro-mechanical contractors surveyed have the capability to provide mobile fabrications shops. These shops have the ability to both spool pipe and pre-assembled selected mechanical and structural components in a controlled facility located on site. There exists an opportunity to improve labor productivity and move labor hours from the site, by utilizing this fabrication methodology for various items such as selected concrete foundations, pipe, steel, chutes and other prefabricated and pre-assembled construction items;
- Labor unions play a leading role in contractor methodologies. Project specific labor agreements are negotiated on an annual basis, or longer in certain instances, and labor unrest happens in some projects;
- Contractors prefer to supply their own camp accommodation blocks. Contractors have suggested that a site based camp/labor committee be formed early in the Project and include key members of each contractors labor force.

21.7 Engineering

21.7.1 General Execution Approach

Engineering for the next phase of the Autazes Potash Project should be executed in two phases:

1. Early Engineering phase, which needs to include the following activities:
 - Complete bulk earthworks civil design to support early construction activities for site access and mine development;
 - Complete outstanding test work to support process studies and next phase of the project;
 - Perform modularization study to assess potential benefits of adopting modular design approach for processing plant facilities. While modular equipment will have slightly higher supply costs, benefits can be realized in lower installation costs and a more comfortable installation schedule.
2. Basic and detail engineering phase which is structured as follows:
 - In parallel with process design activities and model development, procurement is initiated for long lead and design critical equipment packages. These packages are listed in details in the EPC Level 3 schedule provided in APPENDIX 28. The goal is to get these packages early enough to obtain engineering data from suppliers 14 to 18 weeks prior to the 60% model review. This allows the design group to incorporate critical vendor data into the design prior to the 60% model review;
 - Process design is substantially completed and HAZOP performed prior to the 60% model review;
 - With the 60% model review, building outlines are frozen and structural design is advanced to support development of engineering work package to support piling contract;
 - The remainder of the non-critical equipment is purchased so engineering data is available in sufficient time prior to 90% model completion;
 - Structural steel, platework, piping and E/I&C bulks are scheduled to be procured with engineering IFC data, which enables good supplier selection and eliminates extras due to the changes in quantities;
 - The main engineering work packages for mechanical/piping/structural/E/I&C installation are developed with IFC data in time to allow sufficient period for contractors to provide good quality lump sum proposals;
 - Separate engineering and procurement activities are identified to support development and early operation of the first tailings site in 2025.

21.7.2 Critical Engineering Schedule Activities

Early engineering activities start in June year -6 and should be complete by January year -5.

The remainder of engineering will be substantially complete by mid-April year -4.

Major activities in the engineering schedule, which drive the execution timeline, are as follows:

- Crystallization plant lead time: the crystallization technology vendor has advised that it will take two years from receipt of order to deliver last pieces of equipment for the crystallization circuit. Bearing in mind the complexity and cost of this package and the necessary time to properly bid and evaluate this equipment, engineering needs to start mid-November year -6 to deliver equipment by the end of year -5 when it is needed on site;
- Early bulk earthwork activities in year -5;
- Need for operational tailings stacking and brine injection system in year -3 to support waste salt depositing from mine development.

21.8 Procurement Strategy

The procurement strategy is to ensure advanced delivery of equipment to site to support the construction schedule and mitigate delays that could affect project completion.

An EPCM (Engineering, Procurement and Construction Management) company will act as procurement agent for purchases by PdB.

The procurement team will initially be based in Brazil, with the possible assistance of HV (high value) procurement teams in China.

The procurement team will manage the procurement, delivery and turnover to the construction contractors of the equipment and materials identified in the contract documents as being project supplied.

In this role, the procurement team will provide a comprehensive procurement and contract management service for all contracts and purchase orders associated with the Project. It is envisaged that this role will include the following activities for which the EPCM will provide dedicated contract and procurement management personnel, experienced in the provision of these services:

- Prepare procurement and contract package dictionary;
- Prepare standard request for quotation (RFQ) forms for contracts, equipment and services;
- Pre-qualify suitable national and international contractors, consultants, vendors and suppliers to ensure a minimum of three bids for each contract and/or purchase order;
- Prepare invitation to tender (ITT) documentation, issuance of ITT documentation, responding to ITT clarifications and coordinating responses;
- Complete commercial and technical bid evaluations and clarifications with support, as required, from both the engineering and construction teams;
- Negotiate with the preferred contractor and prepare a recommendation of award for BPC;
- Provide contract management and administration services for all contracts/ purchase orders;
- Undertake supplier quality surveillance;
- Expedite vendor data, drawings and submittals as well as deliveries of materials and equipment per 'required on site' construction need dates;
- Purchase order and contracts change management, claims and back charges negotiations;
- Safety leadership and management;
- Review and approve invoices; and
- Close-out purchase orders and contracts.

The procurement team should utilize its proven project management systems and processes.

A detailed package dictionary, defining the high level procurement strategy of the equipment and materials at the requisition level, is provided in the 2016 BFS report (WorleyParsons, 2016, /57/).

21.8.1 Inspection and Expediting

The EPCM should have a global network of expeditors and inspectors who ensure equipment and materials are fabricated according to the Project specifications and delivered as per agreed schedules.

Expediting functions include obtaining all required vendors' and subcontractors' drawings to the "Certified" or "As-built" status.

21.9 Freight and Logistics

It is recommended that a traffic and logistics services company be appointed to be integrated into the project management team to provide all traffic, freight forwarding and logistics services. The service provider should be in place and available to provide support early in the Detailed Engineering phase.

The traffic and logistics service company would be responsible for the preparation of a detailed route survey, to participate in design and vendor discussion phases to develop freight strategies and to achieve the following:

- Minimize out-of-gauge shipments;
- Prepare freight plans for each purchase order, ensuring economical and safe transportation within schedule limits;
- Provide pre-shipment marine engineering services;
- Prepare and manage all customs, shipping and importation documentation;
- Handle shipping from vendor's facility to site, including handling at a marshaling yard in Manaus and site receiving support; and
- Manage and track all shipment components down to line item detail.

To minimize transportation costs, consolidation points will be established at key shipping terminals and a marshaling yard for consolidation at Manaus. Warehouses for materials receiving and storage will be established at the project site.

Consolidation points and on-site warehouses will consist of indoor and outdoor facilities, and will consider all manufacturers' recommendations for storing equipment and materials.

21.10 Materials Management

21.10.1 Materials Planning

Materials management provides the coordination of all efforts that are directly related to the timely acquisition and delivery of all project supplied material and equipment. Materials management accomplishes this through planning, executing, monitoring and optimizing all activities and work processes associated with the material supply chain.

The purpose of a Materials Management Plan (MMP) is to identify key activities, work processes, strategies, systems, organization and personnel required to successfully manage material flows on a project. The plan identifies key project materials and communicates the responsibilities of project functions/departments that have direct participation in the work processes which are necessary to support effective material management.

Procurement personnel assigned to the Project will manage, monitor and measure the equipment, materials and services required for the Project. As presented in Figure 141, there is significant collaboration with procurement and engineering in the early stages of the Project during the identification, quantification and validation cycle; this is the interface between Gates 1 and 2, when the requisitions (supply and services) are to be issued.

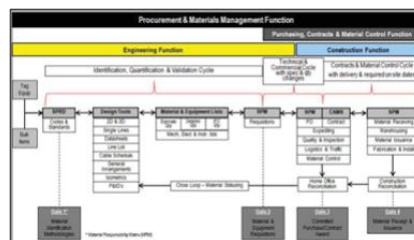


Figure 141 Procurement and materials management

The major technical and commercial activities commence between Gates 2 and 3, when the purchase orders and contracts are to be issued. Having a good understanding and control of the materials, equipment and services required for the Project, the procurement team is able to expedite, inspect and deliver the right material in the right place at the right time. The interface between Gates 3 and 4 is the hand over from home office to construction site.

The EPCM shall be responsible for receipt, security and storage of materials at site. A warehouse and fenced laydown area will be established and managed by the EPCM for all tagged and free issue materials.

21.10.2 Material Control System Implementation

The Project will implement an integrated Material Control System for project purchased material and equipment. An integrated Material Control System provides control of materials and equipment through the engineering, procurement

and construction phases of a project. The system also provides an accounting of quantities required, quantities purchased, under manufacture, in transit, received, held in stock, allocated and issued together with the required stock allocated for each item by line or drawing number.

Generally, an integrated Material Control System is comprised of three modules (engineering, procurement and construction) which reflects the various Project phases and which can be operated independently or in combination. Independent operation of either the procurement or construction module may require the provision of design and process data in an appropriate format and sequence.

An effective Material Control System interfaces with engineering, project control, document control and finance.

21.10.3 Bulk Materials Strategy – General

In order for project bulks to be purchased and made available on time, engineering and procurement will use the 60% model completion data to estimate the bulk quantity required. This estimate will be used to complete the RFQ step of the procurement cycle and obtain relevant pricing and availability data. In order to maximize savings of bulk purchasing overseas and decrease the risk of material surplus and/or shortages the commitment of Purchase Order quantities will not occur until the 90% model complete stage. The 90% model data is more precise and will enable the Project to purchase 100% of the bulks established at that time. Any remaining quantities or top-up will be procured locally either via an instruction to the installation contractor or through the project procurement team.

Only materials and equipment defined as project supply will be purchased and managed through the integrated Material Control System; all other goods labelled as contractor supply will not be tracked and will necessitate constant communication with the relevant contractor.

21.10.4 Bulk Piping

Until a future Material Assignment Schedule indicates otherwise, the Project will supply all necessary piping bulk materials. Piping bulks include the following:

- Piping of all material classes and diameters;
- Manual valves; and
- Nuts, bolts and gaskets.

Procurement will be conducted as an aggregate requirement for the Project, where quantities from all areas will be consolidated to validate what is required for purchase. The purchased materials will then be distributed across the Project according to their construction work package (CWP).

Material take-off data for Issued for Construction (IFC) piping isometric drawings will be provided by piping engineering. Piping engineering will maintain, within the engineering module of the Material Control System, a central isometric log to track IFC drawing and revision numbers, CWPs and dates of transmittal on a project wide basis. Piping fabrication and installation will be conducted to the latest revision of the isometric drawing. Where isometric drawings are being completed by a third party, the Project will instruct the third party to provide this information in order to upload the Material Control System.

21.10.5 Bulk Steel Strategy

The current procurement strategy is to procure and fabricate all structural steel items (steelwork, anchor bolts, structural nuts and bolts) internationally and/or locally and free-issue to the relevant installation contractors.

It is the current assumption that structural steel will be packaged and shipped to the Project per CWPs and in accordance with the construction schedule. This also includes the packaging of various CWP relevant ship-loose items including structural nuts, bolts and washers.

The strategy is to have the fabricator provide a clear tag stamp on each steel piece/section. The size and numbering sequence will be reviewed and agreed by the relevant groups at the RFQ stage. The structural steel fabricator will complete the various cut sheets, tagging of the fabricated pieces and providing a complete material take-off per drawing.

Several ease of identification and allocation methodologies should be explored as follows:

- Stamping the steel piece item number and CWP number on each steel item;
- Attaching a small aluminum tag stamped with the CWP number and attaching to the end of the steel section;
- Barcoding; and
- Radio-frequency identification system (RFID) tags for identified critical steel pieces.

The structural steel fabricator will provide the Project with complete material take-off data for each IFC drawing in the form of standardized Excel or "b" file. This will allow the updating of the steel tags in the Material Control System and ensure that tracking of goods by CWP is possible.

21.10.6 Bulk Electrical Material

It is suggested that a strategy for bulk cable be developed in conjunction with engineering, procurement and construction, which will result in the cable pull schedule being the driver for the cable drum management plan.

Generally, a Material Control System only tracks cable per meter. In order to track the cable drum itself, Material Management will receive the cable drum under the cable drum number as a location in the Material Control System, thus providing the Project with visible cable meterage and visible cable drum data.

Cable that is not tagged is generally considered to be construction contractor supply purchased from approved suppliers. This information is not identified in the Material Control System.

21.10.7 Tagged Equipment Strategy

All Project supplied equipment will be entered and tracked in the Material Control System as a tagged item and will be allocated to a CWP.

All ship-loose (sub-components) accessories that are known at the time of the purchase order will be entered as jewelry tags in the Material Control System. Items not known in advance will be entered in the Material Control System by the package expeditor so as to allow for tracking, receiving, issuing and reporting.

Shipping of equipment will be coordinated with the traffic group. When equipment is received at site, responsibility for care, custody and preservation consistent with specific storage guidelines and industry standards will be with the receiver. All receiving discrepancies will require immediate notification to the appropriate project function.

Advance copies of equipment storage and maintenance procedures will be obtained to assist field personnel in properly storing and maintaining equipment prior to and during construction. For equipment requiring a lifting crew for offloading, preliminary shipping weights will be noted on the advance packing list.

Tagged instruments and valves that appear on piping isometrics will be added to the respective material take-off during design. Materials not appearing on a piping isometric will be added to a dummy material take-off for the respective CWP. Tracking and management of tags from design to delivery to site will be through the standard tracking system of the integrated Material Control System.

21.10.8 Master Storage Plan

Prior to shipping project supplied materials via river transportation to the project site, the majority of project supplied material will be received at the main material consolidation warehouse located in Manaus. The main warehouse will consist of a secure area with covered and outdoor storage areas.

Once received at the project site, project supplied materials will either be direct issued to the construction contractors, or stored in a secure area.

21.10.9 Field Material Management

The project field material management team will be responsible for receiving, storing and distributing project supplied field materials to the contractors. The main components of field materials consist of tagged items including equipment, instrumentation, cable, steel, pipe spools and specialty items.

In order to maintain a consistent way of identifying warehouses and storage facility locations, a storage and naming convention will be established. The naming of warehouses and locations will allow easy identification when reading reports and in locating the material for inventory or issue purposes. Storage locations will generally fall into one of the following designations:

- Warehouse;
- Laydown yard;
- Shelf or bin;
- Pallet.

Warehouses normally consist of shelf or bin type storage, pallet tack units, floor and container storage. Laydown yard facilities normally are fenced outdoor areas consisting of bay type locations. Laydown yards will be established on a grid system of specified dimensional areas. Mechanical equipment and associated parts, fabricated piping and fabricated structural steel require a more defined storage location. Each lay down area will have truck flow and exit gates.

Materials and equipment stored outside will be stored off the ground by the use of sleepers, dunnage, pallets, etc. Sensitive items stored outside will be covered with tarpaulins, plastic, crated or containerized.

All flanged valves will be stored in a vertical position, with the valve stem protected against corrosion and damage, and valve inlets capped to prevent the entry of moisture or solid materials. Valves will be stored by type, commodity code and size.

Flanges will be adequately spaced to prevent damage to the beveled edges and will be suitably protected against corrosion. Pipe fittings will be stored by type, commodity code and size.

Stainless steel pipe and fittings will be segregated from carbon steel pipe and fittings to avoid contamination. Shelving for stainless steel items will be covered with a non-metallic cover or coating.

21.10.9.1 Receipt of Materials and Equipment

Materials and equipment that are delivered against a supply and install construction contract will be handled as outlined in the appropriate construction contract. All other incoming shipments will be routed to pre-planned locations for receipt and unloading. The receiving locations will be in controlled areas to preclude any materials being issued prior to the material being properly received, identified and documented.

Project related material receipts will be detailed checked against the packing list and purchase order release note at the appropriate storage location. Cases, boxes, etc. will be opened to enable a check of the contents. The packing list will be annotated with the date of receipt/check, detailed storage location, discrepancies, if any, and the signature of the individual responsible for the check. Upon completion of receiving, checking and inspection, all relevant documentation will be transferred for further processing.

Each consignment will be thoroughly inspected for damage prior to unloading. Where damage is obvious, photographs will be taken before unloading. Damage reporting will be in accordance with the Project over, short and damaged (OS&D) procedure. The consignment will be physically checked to ensure that receipts are in accordance with the accompanying shipping documents and the correct number of packages or items has been received.

Project materials that are classified as non-conforming products will be controlled and segregated from other Project materials. Specific storage locations will be established and clearly marked to indicate non-conforming material.

21.10.9.2 Issue/Transfer of Materials and Equipment

Project supplied materials and equipment will be issued in accordance with the construction schedule to ensure the correct sequence of usage, as follows:

- Contractors will provide a list of authorized personnel who can sign for receipt of material;
- Contractors will request materials a minimum of 72 hours in advance of use;
- A material issue report will be generated for each contractor request;
- Contractors will inspect all materials prior to receipt;
- Contractors assume care, custody, control and preservation requirements for material/equipment when they sign for receipt of same;
- Over-issue of material for items normally issued by length, weight or area will be applied to remaining open requirements;
- Any damage after receipt is the contractor's responsibility;

The following procedure is applicable to the control of electrical cable:

- Cable reels will be received as per the provisions of the receiving procedure;
- Reel information will be input into the data base/spreadsheet;
- Coordination with the Electrical Superintendent will occur to ensure that each cable pull is recorded on the reel record card, or the computer data base.

21.10.9.3 Preservation

The Field Material Management Team will manage the preservation and maintenance of equipment and materials, while in storage and prior to issue to the construction contractor.

All relevant data, based on the purchase order, attachments, vendor/manufacturer recommendations and warranty requirements, will be identified and obtained before arrival of equipment to ensure proper preservation and maintenance requirements are in place. These requirements may include:

- Dehumidification;
- Oil coatings and fillings;
- Lubrication;
- Rotation;
- Heating.

Once storage methods and preservation techniques have been defined and established, periodic maintenance and inspection requirements will be carried out and recorded.

21.10.10 Warehouse/Laydown Safety and Security

21.10.10.1 Safety

Material handling equipment will be in operation in each of the material storage areas, unloading and/or loading material and equipment. Each individual working or visiting inside the area will be made aware of the environment through the use of adequate signage and the wearing of hi-visibility clothing accessories.

Specific safety issues regarding warehouse and laydown areas include:

- Fire extinguishers, fire detection systems;
- Handling, segregation and storage of hazardous materials;
- Stacking of loose materials and use of dunnage;
- Contractor equipment and accessories including slings, chains, material handling equipment, etc.; and
- Signage.

21.10.10.2 Security

General security issues surrounding a warehouse and/or laydown area should be addressed as follows:

- Any customs bonded warehouse and/or laydown area will be segregated and designated by adequate signage. Entry into these areas will be controlled by customs authorities;
- Wherever possible, a perimeter fence will surround the warehouse(s) and laydown areas. A single gate will be controlled by warehouse personnel and/or by project security. Additional gates will be opened only to allow transport of special items such as oversize and heavy loads;
- All materials exiting the area will have a signed material gate pass, picking ticket or a material withdrawal request approved by individuals as delegated by the warehouse manager. These forms will be verified when exiting the warehouse/laydown areas;
- The warehouse manager shall ensure all gates, warehouses and other lock up areas within the warehouses are secured at the completion of each work shift.

21.11 Contracting Strategy

21.11.1 Overview

The contracting strategy covers two main options that the project management team should consider in executing the Autazes Project. The strategy focus is to ensure site construction contracts are managed, executed and closed out in the most cost effective and safe manner within the construction schedule time frame.

The project management team will be responsible for the engagement of reliable, technically qualified and experienced companies with sufficient available resources in personnel and equipment to execute the works with the required levels of safety, environmental compliance and quality, within the time schedule and at optimal commercial conditions.

Although two options are presented for consideration, the ability to alter and/or combine these approaches exists during the subsequent stages of the Project.

21.11.2 Contracting Options

There are two possible execution models that can be adopted to address project execution objectives:

1. Horizontal contracting approach;
2. Vertical contracting approach.

21.11.2.1 Horizontal Contracting Approach

A horizontal contracting approach is based on separate agreements between the Project and single discipline companies operating at the same level. The horizontal structure generally has smaller value contracts with many contracting parties, each having their own management and labor structures and contracting conditions.

The use of horizontal contracting is generally limited to areas where the project site is easily accessible and competitive pricing through reduced overheads is possible. Horizontal contracts are mostly managed close to home base and have substantially less site management costs due to their proximity to home base; however there is a risk of off-site contract/project management.

Advantages:

- Locally registered business utilization at a prime contract level;
- Flexibility of the project management team in nominating small business utilization;
- Flexibility to tailor smaller contracts to suite unique requirements, such as substantial execution activity start/finish date differences; and
- More direct control over each element of the works.

Disadvantages:

- Management and execution of the work is more complex requiring a larger project management team;
- Site wide communication and integration is complicated due to many contracting entities undertaking work in the same area;
- Smaller contract values require a larger mobilization cost per dollar expended;
- Smaller contract values present a risk of a "B" team being proposed for the Project; and
- Battery limits and/or milestone dates are to be clearly defined and in-between areas require close management and monitoring.

21.11.2.1.1 Availability of Horizontal Contractors

As the commercial exposure risk is considerably lower for a horizontal contractor, the pool of available contractor entities, including local or Brazil registered contractors is larger; however, the pre-qualification requirements are also substantially larger. Approached Brazilian contractors indicated they would be available for inclusion in a horizontal contracting structure, but with the potential for a downgraded management team. The approached contractors also indicated they would attempt to tender on multiple layers to increase their involvement, thereby creating their own vertical structure.

21.11.2.2 Vertical Contracting Approach

Vertical contracts or "single integrated contracts" are commonly used in remote areas where contractors face high mobilization and management costs. These contracts are awarded to selected prime contractors, who generally have multidiscipline divisions and/or possessing the ability to manage several contracts through a single management structure.

The main benefit of a vertical contracting approach is the reduction in preliminary and general costs (costs that cannot be reasonably allocated to any specific identified activity on a project), which account for a significant portion of a contractor's cost. This reduction in contractor costs results in a reduction of overall construction execution costs.

Advantages:

- Small business utilization is maximized, while maintaining large business management structures, including safety, environmental compliance, quality assurance and supervision;
- Preliminary and general contractor costs are reduced with the consolidation of trades, transportation, management, tools and equipment costs;
- Access to a broader range of expertise;
- Project administration costs are reduced due to a lower number of project direct control contracts;
- Simplified contractual relationships;
- Suitable for fast track/complex projects;
- Facilitates streamlining of the construction schedule;
- Plant, equipment and labor resources can be shared between disciplines;
- Encourages the engagement, training and longer term employment of local labor resources;
- Management, finance and human resources/ industrial relations skills are pooled.

Disadvantages:

- Local contracting entities often prefer dealing with a project management team on a direct basis;
- The prime contractor often feels they have the power and can do as they please;
- The project management team does not have a direct reporting structure with the smaller contractors making the management of project labor issues more complex;
- The project loses the flexibility offered by multiple smaller contractors.

21.11.2.3 Availability of Vertical Contractors

Several large Brazilian contractors, who would suit the vertical contracting approach, were approached and with the current state of the economy, the feedback was very positive and interest appeared to be high.

21.11.3 Role of Local Contractors

A prerequisite to either contracting strategy should be the maximum use of local contractors. The majority of candidates for the prime contracting approach indicated they preferred to optimize the use of local contractors, as this provides reduced execution cost opportunities and offers the prime contractor a better insight into the local culture and working environment.

The cost of transporting plant and equipment is high, making the use of local suppliers/contractors the normal approach in locations such as Autazes. A potential key success factor cited by contractors operating in remote areas, is the use of joint venture partnerships (or similar) to gain an appreciation of local market and labor conditions.

The use of the vertical contracting approach will incorporate a large percentage of local contractor involvement, under the leadership of the prime contractor and their systems, while the horizontal contracting approach will require the inclusion of a number of local contractors to undertake appropriate work, but under the direct leadership of the project management team.

21.11.4 Key Contracting Strategy Selection Considerations

The following items have been identified as contracting approach issues and each has been reviewed against the two contracting approach options to determine which approach may best address these issues.

21.11.4.1 Safety

All large contracting entities have a zero tolerance approach to safety. The higher the exposure to field based man-hours, the greater the possibility of a poor safety record, which will affect incident ratios and subsequent downstream contracting/commercial operations. It is in the prime contractor's best interest to ensure that safety is tightly managed. The vertical structure increases the prime contractor's exposure, thereby ensuring a more competent safety team and increased safety awareness.

21.11.4.2 Difficulties Which May Be Encountered

Smaller contractors are more susceptible to feeling the pressures of regulatory body policies, taxation related issues and human relations/industrial relations issues. Larger contractor entities have extensive experience working in the Autazes region and their stronger cash reserves make them more resilient to regulatory body policies, taxation and human resources/industrial relations pressures. Increasing a prime contractor's exposure requires the contractor to mitigate the risk associated with remote environment construction.

21.11.4.3 Base Wage Rate and Unit Price Issues

By tendering a large amount of work to a prime contractor, a large amount of the work is covered by a Bill of Quantity. Key to success of a vertical contracting approach is a rate based Bill of Quantity. Possessing rates greatly improves the project management team's position when challenges are encountered, as rates for most variations are available or sufficient data is available to develop as-required new rate structures. A well-structured enquiry document would incorporate Bills of Quantity to allow for re-measure as well as providing labor and processing plant and equipment rates for additional work.

21.11.4.4 Splitting the Packages Between at Least Two Contractors

This is a well-known method of mitigating project execution risk, which is not applicable to a vertical contracting approach. A split horizontal approach results in increased preliminary and general costs (establishment, management and plant and equipment). Whereas, a vertical contracting approach leads to a reduction in overhead costs by having a single overhead structure. Investigations have revealed that by increasing the exposure of a large prime contractor entity, senior company officers will insist on the deployment of an "A" team to protect their shareholder interests. While flexibility may be reduced, there is considerably more Project commitment from a prime contractor.

21.11.4.5 Use of Local Labor

In order to take advantage of local industry capability and/or maximize the utilization of local labor and have the project be commercially attractive, the prime contractor would subcontract select elements of the work thereby transferring knowledge and skills to the local environment. Historically, a prime contractor often assists the smaller subcontractor(s) in dealing with local business operation constraints, while gaining a more detailed appreciation of local knowledge and expertise.

21.11.4.6 Contractor Transparency

Contractor transparency is achieved through the selection of a suitable commercial option, such as an open book approach. Negotiating the most suitable commercial approach with a single prime contractor, who has the margin of transparency through his shareholder interests, is considerably easier than trying to convince an open book approach with multiple smaller contractors who may view a project as a potential to earn extraordinary profits.

21.11.5 Contracting Approach – Conclusion

When finalizing the construction contracting basis for the project the following factors were considered as key drivers:

- Complexity and or specialist;
- Regional experience and knowledge;
- Preferred contract format;
- Industry experience;
- Current Brazilian contracting practices;
- Owner’s familiarity;
- Project goals.

During the contractor survey and assessment process it became clear the local heavy industrial contracting market is driven by past practice. The current availability and skill set of local contracting companies is structured in a dominant and accepted delivery methodology. This methodology is structured so as to supply two prime skill sets:

- Civil contracting delivery models which primarily consist of:
 - Site development;
 - Bulk earthworks;
 - Underground utility installations including storm, sewer and fire water piping;
 - Concrete installations (with the provision for supply).
- Electromechanical delivery models which primarily consist of:
 - Structural installations;
 - Mechanical/piping;
 - Power and communication distribution services.

Although general contracting organizations exist within the local Brazilian market, for the purposes of this assessment the horizontal contracting methodology has been adopted in order to ensure alignment with current practices. For the purposes of this Report the project delivery method has been structured around the horizontal contracting approach. A specialist contractor will need to be engaged in order to complete the shaft sinking scope as this skill set is not readily available within the Brazilian market.

21.11.6 Contract Register

The contract register, as presented in Table 147 shows the scope, work breakdown structure and commercial description for each construction and service contract currently anticipated.

Table 147 Contract register

No.	Title	Scope Summary	Commercial
D1	Contract 1: Earthworks, civil work and underground commodities	<ul style="list-style-type: none"> • Deforestation, clearing and grubbing for construction infrastructure and plant construction needs (includes disposal and/or storage of vegetation and timber) • Development of overburden/spoils stockpile area • Installation of preliminary water control ditches and ponds • Installation of construction access roads as-required and not supplied by main earthworks contractor. All internal roadways and required construction access to support earthworks contracting • Maintenance of access ways until practical completion 	Unit Price

No.	Title	Scope Summary	Commercial
		<ul style="list-style-type: none"> Underground services, including trenches, installation and testing of service piping and backfill to nominal construction grade Mass excavation and backfill of port area, construction infrastructure establishment and laydown areas Installation of permanent water control diversion channels and water management systems Includes supply, transportation and placement of aggregates Excavation, earth forming, compaction and lining of permanent site ponds. Installation of pond in-water structures 	
D1A	Contract 1A: Earthworks – TMA	<p>Includes:</p> <ul style="list-style-type: none"> Mass excavations and backfilling associated with the TMA Installation of required liners Installation of sand bedding Importation of as required aggregates Installation of required water control and diversion systems Maintenance of access ways until practical completion. 	Fixed/Unit Price
D2	Contract 2: Structural steel and electrical/mechanical installation	<ul style="list-style-type: none"> Erect, plumb and finish structural steel associated with process facilities Install and finish mechanical equipment within processing facilities and select adjacent areas Install, finish and test piping works within processing facilities and select adjacent areas Install, finish and test electrical and instrumentation works within processing facilities and select adjacent areas. 	Fixed/Unit Price
D2A	Contract D2A: Structural steel and electrical/mechanical installation – brine injection plant	<ul style="list-style-type: none"> Erect, plumb and finish structural steel associated with process facilities Install and finish mechanical equipment within processing facilities and select adjacent areas Install, finish and test piping works within processing facilities and select adjacent areas Install, finish and test electrical and instrumentation works within processing facilities and select adjacent areas. 	Fixed/Unit Price
D3	Marine/port facilities	<ul style="list-style-type: none"> Install and commission port arge securing and load-out equipment/facilities, including: <ul style="list-style-type: none"> Bathymetric surveys and dredging, as required Supply, installation and operation of concrete batch plant Supply of batching cement and aggregates Detailed excavations Installation of pier, guidance and mooring assemblies Form, pour and finish all port facilities concrete works Supply and compaction of engineered backfill Installation of surface mechanical works. Installation of surface electrical/instrumentation works. 	Fixed/Unit Price
D4	Permanent and construction communications	<ul style="list-style-type: none"> Site wide communications. 	Fixed/Unit Price
D5	Non-process buildings	<ul style="list-style-type: none"> Design, supply, install and commission non-process buildings. 	Fixed Price
D6	Shaft sinking	<ul style="list-style-type: none"> Install, finish and commission both main and ventilation shafts. Refer to BFS Shaft Infrastructure Report for details. 	Fixed Price / Unit Price

No.	Title	Scope Summary	Commercial
D7	Main sub-station & overland power distribution	<ul style="list-style-type: none"> Supply and installation of main sub-station. Installation and commissioning of MV overland power distribution network. 	Fixed Price
D8	Steam generation plant	<ul style="list-style-type: none"> Engineering, Procurement and Construction (EPC). Design, supply, install and commissioning services. 	Fixed Price
Service contracts			
S1	Accommodation camp	<ul style="list-style-type: none"> Supply and installation of internally services fitted camp components Includes supply and installation of water treatment and sewage treatment plants Includes supply and installation of associated distribution and/or collection piping systems Includes supply and installation of a camp specific power generation unit Includes supply and installation of internal electrical distribution systems at the camp area from the power supply. 	Fixed/Unit Price
S2	Miscellaneous site services	<ul style="list-style-type: none"> General maintenance, waste collection/transfer, janitorial services on project supplied facilities, freight support, warehouse operations. 	Reimbursable
S3	Survey	<ul style="list-style-type: none"> Project wide control survey, check survey. General survey duties including: Site survey monument establishment and maintenance Bulk quantity verifications. Survey quality assurance monitoring. 	Hourly Rate
S4	NDT examination	<ul style="list-style-type: none"> Project wide non-destructive verification testing 	Hourly Rate
S5	Soil and concrete testing	<ul style="list-style-type: none"> Concrete production monitoring/testing Raw bulk material quality/suitability verifications Run-off water containment device/method installations Monitoring of soil compaction and testing. 	Monthly Rate
S6	Medical services	<ul style="list-style-type: none"> Provision of first response medical services and supplies for construction operations. 	Hourly Rate
S7	Freight forwarding/ third party logistics	<ul style="list-style-type: none"> Freight management, customs clearance, transportation of project supplied materials and equipment. 	Unit Rate
S8	Site security	<ul style="list-style-type: none"> Supply of labor and equipment to support mobile and static site security services Supply of labor and equipment to support emergency response situations. 	Hourly Rate
S9	Barging services	<ul style="list-style-type: none"> Supply of river transport services for personnel, equipment and modules. 	Unit Rate
S10	Construction power supply and maintenance	<ul style="list-style-type: none"> Supply and maintenance of required construction power generators. 	

21.12 Construction Management

21.12.1 Overview

Construction of the Autazes Potash Project will be performed by contractors under the direction of the EPCM construction management team. The construction management team will administer all site based construction contracts. Table 148 presents the split of responsibilities between the Owner and the Contractors.

Table 148 Split of responsibilities between Owner and Contractor for services

Service	Responsibility
Survey	Detail survey by contractor, control survey by project
Accommodation camp and operations	By Owner (Owner and EPCM) and by Contractor (until such time as permanent camp becomes available)
Camp catering	By Contractor and Owner, as noted above
Lunchrooms	By Contractor
Ablution facilities on-site	By Contractor
Waste collection & disposal	Class 1 and 2 by Owner, Class 3 by Contractor
Security	Owner for perimeter security, contractor within its own secure area
Offices	By Contractor
Concrete testing	General testing by contractor, verification testing by Owner
Soils testing	By Owner
Medical facilities	By Owner
Ambulance/emergency evacuation	By Owner
Fire response	Contractor to supply labor at no charge, equipment by Owner
Construction water	By Owner to a designated point
Construction power	By Owner to a designated point
Prepared laydown/establishment areas	By Owner
Heavy cranes	By Contractor
Site wide communications	Equipment by Owner, operating costs by contractor
Worker transportation	By Contractor
Site road maintenance	Contractor own work areas, balance by Owner
Lighting	Contractor own work areas, balance by Owner
Freight for contractor equipment and materials	By Contractor
Vendor representative services for engineered equipment	Coordinated by Owner
Construction personnel transportation: on-site/offsite	On-site by Contractor coordinated by Owner
Scaffolding	By Contractor

Table 148 is meant to be an indication of service supply responsibility. Further details should be developed during the next phase of project development.

Construction Management key objectives are:

- EHS training and enforcement for all site and contractor staff. Site hazard management tools and programs will be implemented to achieve the zero harm objectives;
- Applying contracting and infrastructure strategies to support project execution;
- Develop and implement a construction driven and cost effective master schedule;
- Establish a field project control systems to ensure effective cost and schedule control; and
- Develop and maintain a field logistics plan in order to control and plan the necessary flow of equipment, machinery and materials to the site.

Site specific conditions, which will need to be considered during the construction period, include rainfall, humidity and temperature. The impacts of weather will be most severe during Phase 1 (Early Works) at the beginning of the civil/earthworks phase of the construction program.

In order to achieve a successful civil/earthworks program, it is imperative that the water diversion and construction area water management be carefully planned and implemented early. The control of naturally occurring water and the resulting run-off is the key to success during the first year of construction activities. The schedule has been developed to reflect the installation of both permanent and temporary water control systems before any new area or specific platform is developed.

21.12.2 Objectives

The construction portion of the implementation schedule has been split into two phases. The schedule has been structured to suit the project critical path and to level site construction labor, while considering the applicable location factors.

The development phase construction activities include:

- Construction of temporary construction facilities including temporary site access to both process plant area and port and construction roads;
- Establishment of the construction camp;
- Early work site preparation activities across the site;
- Commencement of bulk earthworks across the site;
- Construction of the shaft sinking and underground development area surface infrastructure; and
- Commencement of piling and foundations across the site.

A construction camp, with a nominal capacity of 1,000 beds, will be constructed during the development phase. This camp will accommodate contractor management and labor, Owner and EPCM personnel. The construction camp will be utilized during both phases of construction and will be expanded to a peak capacity of 1,800 to support the mobilization requirements of the concrete placement contractor.

Overflow labor will be housed in the nearby municipality of Autazes and will be ferried and then bussed to site daily.

The construction phase activities will commence with the mobilization of the structural steel erection contractor in month 62. The construction phase also includes:

- Development of construction phase specific infrastructure, including additional laydown areas;
- Construction of the processing plant, including all related piping, mechanical, electrical and instrumentation works;
- Lateral mine development; and
- Installation of site based power distribution network and associated ancillaries.

21.12.3 Temporary Construction Facilities

A temporary construction facilities supply matrix has been developed so as to ensure that the EPCM contractor provides contractors with construction facilities to the maximum extent practical in order to facilitate effective contractor mobilization and to maintain an effective level of uniformity across the project site.

21.12.4 Temporary Facilities and Services Provided by the Project

The following temporary facilities and services will be provided by the project:

- EPCM and Owners team offices;
- EPCM safety training facility;
- Contractor office area;
- Construction fuel depot facility;
- Batch plant(s);
- Construction water;
- Power generation and distribution to nominated contractor facilities;
- Waste handling and disposal of Class 1 and 2 materials;
- Potable water;

- Perimeter project security;
- Outdoor laydown areas;
- Secured material receiving and indoor storage;
- Transportation of equipment and materials from consolidation point to site;
- Site establishment survey services and first order control.

The EPCM contractor will oversee the construction, installation, operation and maintenance of project supplied facilities.

21.12.5 Temporary Facilities and Services Provided by the Contractors

The following temporary facilities and services will be provided by the contractors:

- Contractor required offices and support facilities;
- Mobile equipment maintenance area;
- Security fencing, as required;
- Construction power supply;
- Scaffolding;
- Individual security of tools and offices;
- Waste handling and disposal of Class 3 materials;
- In-field construction communications – radios;
- Construction voice and data network;
- Aggregate and cement supply;
- All consumables;
- Construction personnel transportation – both on and off site;
- Fire control and suppression systems;
- Medical services;
- Contractor quality control survey.

21.12.6 Permanent Facilities for Use During Construction

The following permanent facilities will be made available for construction use as they become established during both phases of Project development:

- Perimeter security and lighting;
- Site access roads;
- Plant warehousing and storage facilities;
- Permanent power distribution;
- Potable water treatment and distribution;
- Sewage treatment and collection systems;
- Fire water systems.

21.13 Construction Program

21.13.1 General Site Preparation and Development

The following sections outline the plan to establish construction facilities in order to support an early mobilization on the site.

General site preparation activities will begin immediately upon receipt of the construction authorization permit (L1), with the mobilization of the site preparation contractor. The site preparation contractor will begin developing initial construction access from the existing Northern access point. The contractor's prime focus will be the establishment of the shaft sinking contractor.

The general site preparation activities that will be part of this initial early works phase will include:

- Establishment of construction survey monuments, as required;
 - Boundary staking and identification, as required;
 - Deforestation, clearing and grubbing of the mine shaft area;
 - Stripping and stockpiling of top soils of the mine shaft area;
 - Installation of water diversion and control ditching surrounding the mine shaft area
- and
- Installation of temporary construction facilities in order to support the shaft sinking contractor.

Once there has been sufficient progress in the above items, the shaft area has been cut to a nominal construction grade elevation; the area will then be handed over to the shaft sinking contractor in order to commence shaft sinking activities.

The site preparation contractor will then begin to expand his area of influence to include the processing plant, ancillary facilities and associated infrastructure related work fronts.

During the next phase of Project development it is suggested that a detailed planning exercise be undertaken in order to minimize the potential impacts of this expected wet weather mobilization and early work program.

Upon completion of the mine shaft area site preparation work, the contractor will focus all remaining Year-5 dry weather efforts during on the remaining site preparation activities including:

- Preparation of construction camp terrace;
- Preparation of EPCM and Owners office area terrace;
- Preparation of site laydown areas;
- Balance of site stripping activities;
- Installation of construction roads;
- Installation of water diversion and control systems;
- Preparation of batch plant terrace;
- Development of port area construction access ramp; and
- Commencement of bulk earthworks.

Due to the limited dry weather window and the lengthy lead time in sinking the mine shafts, the earthworks and piling programs will continue in a methodical manner. Works crews will be staffed so as to allow the bulk of the program to be completed during the dry weather window. As such, the earthwork and piling program will extend for a period of approximately 34 months. At the end of each dry weather season the contractor will de-staff to maintenance levels and continue with available work fronts ensuring that completed works are well maintained.

Following this initial development timeline, concrete forming and placing activities will begin in earnest during month 30 of the construction schedule. Concrete forming and placing activities will be on an area-by-area basis, with mill and major equipment bases having the priority, followed shortly thereafter by structural steel erection crews.

21.13.2 Civil – Piling

The sequence of piling works will be programmed to follow the bulk earthworks progress. Areas will be excavated (bath tubbed) to a nominal top of pile grade to allow access. Piling will be completed via a number of conventional crane type piling rigs outfitted with both static and vibratory hammers.

Piles will be transported to site in 15 m long pre-cast sections. Piling is planned at 3-4 piles per day per rig, with a total of approximately 2,500 piles to be installed, and will commence early in the dry season of construction year 2. Piling operations will continue through the following wet season until completed, allowing the concrete clear access. The piling program has been developed so as to take into account the potential effects of adverse weather conditions.

21.13.3 Civil – Foundations

The sequence of foundations works will be programmed to closely follow that of piling. Foundation crews will mobilize to site during the dry season of construction year 2. This mobilization will be approximately 90 days after the start of piling. The mid-dry season mobilization will allow the foundations crews sufficient time to establish and begin progressing various work fronts prior to the onset of the wet weather season. Foundations installations will continue through the wet weather, utilizing mobile temporary hoardings to maintain active work fronts.

There is an opportunity to have smaller independent foundations pre-cast.

21.13.4 Structural Steel

Primary structural steel, in areas of high man-hour concentrations, will be given priority in the installation sequence. Structural steel will be pre-fabricated and painted prior to arriving on site.

Miscellaneous work such as platforms, ladders, handrails, etc., will be completed in conjunction with the main steelwork.

21.13.5 Mechanical – Equipment Installations

When equipment foundations and grade slabs are completed, equipment will be installed by area.

Where feasible, before lifting into position, vertical columns will be pre-dressed on site with ladders and platforms and pipe-work and insulation.

Ladders, platforms and equipment internals installation will follow the equipment installation and prior to the erection of pipe-work. Final alignment of machinery will be carried out when connected piping systems have been tested and flushed. Whenever possible, the equipment delivered to site will be offloaded and set immediately onto their foundations, to avoid double handling. Pumps will be delivered with drivers where possible.

21.13.6 Mechanical – Field Fabricated Tanks

Tank installations on the Project site will be consistent with the following general criteria:

- Tanks larger than the shipping window will be fabricated on site from rolled and beveled strakes;
- Thickener and clarifier tanks will be fabricated on site from rolled and beveled plates;
- Tanks smaller than the shipping window will be shop fabricated and brought to site for installation.

21.13.7 Piping – On-Site Fabrication and Installation

Generally, all steel piping fabrication will be carried out onsite in temporary fabrication shops. Separate fabrication areas will be used for carbon steel, stainless steel and alloy steel to avoid contamination.

The availability of fabricated spools, to be installed according to the schedule sequence, will give large flexibility to the erection crew during early activities.

21.13.8 Piping – Off-Site Pre-Fabrication

There exists an opportunity to move a large portion of the piping fabrication work off-site through the utilization of contractor supplied mobile pipe fabrication facilities located in Manaus. During the next phase of project development this option will need to be explored.

21.13.9 Electrical Works

Cable pulling will begin immediately after the preparation of cable trays and underground cable routes. Segregation between control and power cables will be maintained and once pulled cables will be terminated as quickly as possible.

21.13.10 Instrument Works

Installation of the DCS system will commence as soon as access to the control room is available and HVAC is ready to function. In the meantime, instrumentation equipment and field instruments installation will start, including pneumatic piping for instruments.

21.13.11 Non-Process Buildings

The non-process buildings will be built in-situ by a selected design-build contractor on the basis of proven expertise in the design and delivery of similar buildings. Pre-fabricated buildings will be used, where possible, to reduce cost.

The permanent warehouse will be prioritized early in the construction program to initially be used as a construction warehouse and indoor fabrication area as soon as it is ready.

21.14 Contractor Interface Management

Construction management meetings will be held on site at predetermined intervals. These meetings will consist of the following:

- Daily toolbox meeting – to discuss upcoming activities, review of applicable HSE standards and procedures;
- Plan of the day meeting – day to day issues with regard to interfaces between disciplines and contractors;
- Weekly progress update – weekly review of planned vs. actuals, identification of impacts and development of mitigations and submission of look ahead schedules; and
- Monthly progress review – overview and update.

21.15 Construction Work Roster

The work schedule for the on-site contractor staff and the direct field labor component, will be based on a 40 hours work week (plus five additional hours legally available for spot duties) consisting of five, nine hour days.

Work rotations are expected as below or in accordance with the workers' union:

- Local (Brazilian) field labor: three months in and two weeks out (12:2);
- Local (Brazilian) EPCM labor: three weeks in and one week out (3:1);
- Expatriate (Non-Brazilian) field labor: six weeks in and two weeks out (6:2); and
- Expatriate EPCM labor: six weeks in and two weeks out (6:2).

Detailed assignment conditions, applicable to the project site personnel will be developed and approved by BPC prior to mobilization of construction management personnel to site.

21.16 Construction Camp

It is currently envisioned that the lead contractor will provide camp, catering, laundry and recreational services through one or more of its specialized third party contractors, in accordance with the following:

- Industry practices and applicable statutory rules.
- The contracting strategy developed for the Project.

An opportunity exists to reduce the camp loading profile by having the engaged contractors providing accommodation for their staff in the nearby city of Autazes. Furthermore, an alternate strategy of having the engaged contractors provide their own camp and catering services also exists.

The overall cost and possible social impacts of any strategy requires further study during the next phase of project development.

21.16.1 Recreational Facilities

Given the relatively remote location of the site, the provision of adequate recreational facilities for the field based staff will play an important role, both in terms of the moral and efficiency of the staff and in terms of staff retention.

The permanent camp currently envisages the following recreation facilities:

- One kitchen and diner building of complete with dining hall with seating for 400 people;
- One gymnasium building;
- Four movie rooms;
- Two games room with ping pong, football and billiards tables;
- One internet room;
- One full sized football pitch – 11 v. 11;
- Two half size football pitch for small sided games.

21.16.2 Catering

An accommodation camp management contractor will be engaged to provide meals for all personnel resident in the camp, inclusive of weekends. If practicable, it is advised that meals be tailored to suit cultural requirements.

21.17 Pre-Commissioning, Commissioning and Handover

21.17.1 Overview

During the next phase of project development, a comprehensive completions strategy will be developed, which aligns the completions, construction, engineering and procurement strategies.

The EPCM will initiate the planning of all pre-commissioning, commissioning and handover requirements, utilizing its in-house completions management tool (CMT). The CMT will be deployed early in the basic engineering phase in order to develop an efficient systems approach that will ensure the shortest possible commissioning readiness program. Early in the following phase, the facilities to be commissioned will be appropriately divided into logical commissioning systems and discrete packages, which can be independently inspected and tested.

21.17.2 Completions Management Tool (CMT)

The prime task of the CMT is to generate scope and control the data, information and documentation necessary to successfully manage the field commissioning activities. The CMT also controls the interfaces between the various stages of the commissioning process. During a project's completions stages, the CMT does the following:

- Imports engineering data and aligns completions scope of work accordingly;
- Backloads 'as-built' engineering data to Engineering, e.g. site raised tagging;
- Interacts with InControl and Primavera with regard to WBS and system status reporting controls and monitors as-built and as-commissioned drawings/documents – assigning systems and sub-systems;
- Controls and monitors all completions scope of work from Completions Stage1 (Mechanical Completion) through to Interim Facility Turnover (including 'A' and 'B' Check Sheets, Commissioning Test Procedures [CTPs], etc.);
- Automatically generates preservation records for completion at specified intervals by tag and tracks the completion of these records;
- Controls and monitors all punch listing and 'Work to Go' activities; and
- Records and reports on all system and sub-system engineering changes, e.g. site queries, technical queries, design change notices, field instructions, HAZOP, HAZIDs.

21.18 Project Schedule

21.18.1 Milestones

The BFS implementation schedule, as presented in the 2016 BFS report (WorleyParsons, 2016, /57/), is a preliminary Level 3 schedule providing the initial basis for the Project Implementation Plan.

Key milestones of the project implementation schedule are included in Table 149. Full implementation is expected to start in January year -5 pending authorization from the BPC Board of Directors, sufficient funding begin secured and the receipt of the installation license (see below); however, early works engineering and procurement activities will commence in year -6 to support procurement of long lead equipment, including shaft winders and the construction camp. The development of the earthworks detailed design to support the award of early works site contracts will also occur.

The schedule is constrained by the receipt of one principle permit, the installation license (LI), which is required to commence site based construction.

Table 149 Key milestones

Milestone	Date
Class 2 Estimate for Shaft – Start	4/17/-6
Detailed Engineering – Start	6/1/-6
Aggregate Supply Contract Award	10/3/-6
Construction Power Contract Award	10/3/-6
LI Permit – Construction Authorization	1/2/-6
Shaft Sinking – Engineering Complete	12/12/-6
Handover – Shaft Terrace	4/17/-5
60% Model Review	1/23/-5
90% Model Review	9/12/-5

Milestone	Date
Shaft Sinking – Start	5/12/-4
Process Plant – Detail Engineering Complete	4/17/-4
Operating License (LO) Permit Received	6/1/-3
Permanent Power Available	4/1/-2
Underground Infrastructure – Complete	9/1/-3
Shaft Commissioning – Complete	10/15/-2
Mine Surface Facilities – Complete	3/26/-2
First Tonne of Ore to Surface	4/19/-1
Port Construction – Complete	10/18/-2
Process Plant – Mechanical completion	10/23/-1
Mine Production – Train A – 580 t/h continuous	4/19/-1
Process Plant – Train A Production	12/8/-1
Mine Production – 60% Ramp Up	12/8/-1
Mine – ROM 1,160 t/h	6/4/1
Process Plant – Train B Production	1/9/1
Project Finish	6/4/1

21.18.2 Schedule Basis

21.18.2.1 General

The activity durations included in the BFS Implementation Schedule are based on the following:

- Direct field labor (DFL) man-hours from the estimate; and
- The build-up of work crews by trade from local Brazilian contractors and a five days per week working-day calendar.

21.18.2.2 Critical Path

The construction critical path is defined as the sequence of activities that must be completed on schedule for the entire Project to be completed on schedule. This generally is the longest duration path through the schedule.

The EPC Level 3 schedule (APPENDIX 28) shows the critical path centers on the construction period required for shaft sinking and mine development. Following receipt of the LI Permit, the critical path goes through the mobilization and establishment of the shaft sinking contractor, key shaft sinking activities and culminates with mine development and production at 828 m below ground level (B.G.L.).

21.19 Project Staffing

21.19.1 General

The establishment of a clear project management structure will significantly contribute to the achievement of Project objectives through managing interfaces and key decisions affecting project safety, technical integrity, efficiency and operability.

The project implementation plan (PIP) is based on an EPCM project delivery mode. That is, BPC will contract a qualified EPCM contractor to provide engineering, procurement and construction management services on behalf of BPC.

21.19.2 Site Office

The construction team will monitor and manage the contractors' activities with respect to maintaining the agreed scheduled dates. The construction team will ensure that the required standards are maintained across the site with respect to industrial relations, work safety, health and compliance with the environmental management plan.

The site office staffing plan has been based on an estimate of the following:

- Quantity and type of construction work fronts by contract;
- Duration of level of effort for field management and supervision activities;
- Duration of level of effort for materials management and warehousing activities; and
- Number and complexity of contracts to be monitored and administered on site.

The staffing requirements in the site office have been based on a site office work week of six days a week and ten hours a day, for a 60 hours work week.

The site organization will be led by a Site Manager who has overall responsibility on site. The site will be further divided into site management groups for major Project areas, including:

- Construction Manager dedicated to the shaft sinking and mine development;
- Construction Manager dedicated to the processing plant; and
- Construction Manager dedicated to the infrastructure and port facilities.

The area based Construction Managers will be supported by discipline based Superintendents and Coordinators to monitor, supervise and manage contractor work on site.

The Construction Managers will be further supported by specialist groups as follows:

Site HSE:

- Safety advisors and safety training;
- Site security and environmental.

The site technical services group will include:

- Field engineering;
- IT support;
- Document control;
- Pre-operational testing support;
- Site quality inspection and control.

The site controls group will include:

- Accounting;
- Scheduling and progress monitoring;
- Cost control;
- Contract administration.

The site materials management group will include:

- Minor item procurement;
- Materials and yard supervisors;
- Warehouse and material control administration.

The site services group will include:

- Camp and accommodation management;
- EMPC HR and travel coordination;
- Administration and clerical support.

21.20 Risk Assessment and Management

21.20.1 Introduction

Fundamental to delivering a successful EPCM project is the ability to understand and effectively manage risks. In order to do so, the full suite of risks and opportunities present in the project must be properly mapped and understood with regard to their potential impact on the delivery of the project.

The risk review provides BPC with insight into potential impact of risks on the Project costs, schedule and government approvals and opportunities for adding value. Where applicable, risk management strategies are discussed to reduce the potential consequence or likelihood of the risks occurring on the Project.

For this Project, risk workshops were conducted with participants from WorleyParsons and BPC, to review and identify risks and opportunities associated with the Autazes Potash Project.

21.20.2 Risk Assessment Process

WorleyParsons used a formalized process for the identification and management of project risks for the Autazes Potash Project. The process is based broadly on the International Standard, ISO 31000:2009, "Risk Management – Principles and Guidelines".

The process involves the following steps:

- The project risks are identified, generally by a facilitated brainstorming session involving key stakeholders in the project;
- The risks are evaluated, analyzed and prioritized into broad categories (e.g. extreme, high, medium and low risks), based on a credible scenario and its associated consequence and likelihood of occurrence;
- The critical risks are assessed and treated – treatment can include actions to reduce either the likelihood or the consequences or both, the off-loading of risks to another party more suitable to accept such risks, or the acceptance and on-going management of a risk. The treatment of a risk may involve allocating some money to cover the treatment;
- Opportunities are also identified utilizing this process by focusing on the possible additional benefits which could be extracted.

The output from this process is a Risk Register and Action Plan, which includes the following documents:

- Risk Maps, before and after treatment;
- Risk Register and associated Risk Treatment Plan and Risk Action Plan.

These documents form part of the strategic project management process for the Project and must be communicated to the project team and monitored, reviewed and updated progressively throughout the execution of the Project.

21.20.3 Risk Assessment Workshop

The risk workshop held by WorleyParsons (WorleyParsons, 2016, /57/) is conducted in accordance with guidance given in ISO 31000 and recorded in a spreadsheet format utilizing a structured brainstorming approach (WorleyParsons, 2016, /57/).

The risk identification process was assisted with the use of guide words and drew on the experience of the assembled workshop participants.

Where a risk was identified and considered credible, the current controls and possible consequences were investigated and recorded. The risks associated with the identified risk were then characterized based on the identified consequence and likelihood of occurrence using a risk matrix.

21.20.3.1 Risk Evaluations Scales

Consequence scales

The risk consequence scale was prepared by WorleyParsons in the 2016 BFS (WorleyParsons, 2016, /57/). The risk consequence scale for the project presented as Table 24-5 in the 2016 BFS report was reviewed by ERCOSPLAN and included in the updated 2022 report without changes (Table 150).

Table 150 Scale of risk consequences (WorleyParsons, 2016, /57/)

		Consequences				
		Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Category	Safety and Health	First Aid Case	Minor injury, medical treatment case with/or restricted work case	Serious injury or lost work case	Major or multiple Injuries, permanent injury or disability	Single or multiple fatalities
	Environment	No impact on baseline environment. Localized to point source. No recovery required	Localized within site boundaries. Recovery measurable within 1 month of impact	Moderate harm with possible wider effect. Recovery in 1 year	Significant harm with local effect. Recovery longer than 1 year	Significant harm with widespread effect. Recovery longer than 1 year. Limited prospect of full recovery
	Financial – CAPEX	< 2 MM	2-5 MM	5-10 MM	10-50 MM	> 50 MM
	Financial – OPEX	< 2 USD/ton	2-5 USD/ton	5-10 USD/ton	10-25 USD/ton	> 25 USD/ton
	Schedule	< 1 month	1-3 months	3-6 months	6-9 months	> 9 months of the schedule
	Reputation	Localized temporary impact	Localized, short term impact	Localized, long term impact but manageable	Localized, long term impact with unmanageable outcomes	Long term regional impact
	Business Impact	Impact can be absorbed through normal activity	An adverse event which can be absorbed with some management effort	A serious event which requires additional management effort	A critical event which requires extraordinary management effort	Disaster with potential to lead to collapse of the project

Likelihood scales

The workshop utilized the likelihood scale for the workshops, which is presented in Table 151.

Table 151 Likelihood scale for workshops

Likelihood				
Almost Certain A	Likely B	Moderate C	Unlikely D	Rare E
95% chance of occurring	80% chance of occurring	50% chance of occurring	20% chance of occurring	5% chance of occurring
Incident is very likely to occur on this project, possibly several times	Incident is likely to occur on this project	Incident has occurred on a similar project	Given current practices and procedures, this incident is unlikely to occur on this project	Highly unlikely to occur on this project

Once all of the risks are identified, the risks are evaluated against the likelihood scale, considering any existing controls. By considering the effectiveness of the existing controls, it can be determined if any further action is required to reduce the level of risk. When using likelihood and consequence scales, the potential consequence of a risk and the associated likelihood of the potential consequences occurring, are evaluated. Once risks have been evaluated, they are assigned a level of severity based on the associated risk matrix.

Risk matrix

Once evaluated, the risk matrix, which is presented in Figure 142, allows risks to be prioritized for action and risk treatment.

		Consequence				
		Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood	Almost Certain	H	H	E	E	E
	Likely	M	H	H	E	E
	Moderate	L	M	H	E	E
	Unlikely	L	L	M	H	E
	Rare	L	L	M	H	H
Risk Severity Rating		Priority (1 is highest)		Action Required		
E – Extreme		1		Immediate attention		
H – High		2		Immediate attention		
M – Moderate		3		Action as soon as practicable		
L – Low		4		Low priority		

Figure 142 Risk matrix (WorleyParsons, 2016, /57/)

21.20.3.2 Risk Treatment

Where the risks were evaluated and deemed intolerable by the workshop participants, risk treatment or 'action plans' were identified. For completeness, and to check their effectiveness, the risks' severity before and after treatment (e.g. with the action plan in place) were determined.

21.20.3.3 Workshops

A total of three risk workshops were held during the BFS by WorleyParsons and BPC in 2015 and 2016.

The risk assessment workshops identified 63 risks and 18 opportunities. Prior to treatment, 18 risks ranked as Extreme and 26 risks ranked as High, but post treatment only two risks ranked as Extreme and 15 risks ranked as High.

Figure 143 presents a detailed map of the risks ranking before and after treatment.

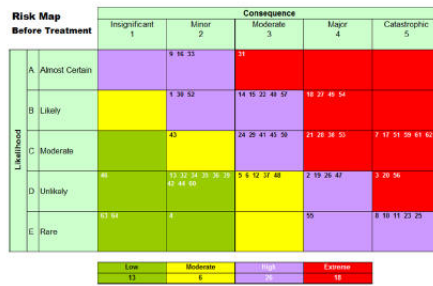


Figure 143 Risk maps – before and after treatment

21.20.3.4 Risk Assessment Summary

At the conclusion of the risk workshops held by WorleyParsons and BPC, a total of 63 risks were identified; 17 of these risks were mitigated during the project and 34 risks were in the process of mitigation using the identified action plans. 10 risks were deemed not applicable to this phase of the Project and were deferred to future phases of the Project (WorleyParsons, 2016, /57).

Figure 144 shows the overall status of the risks in the final risk register.

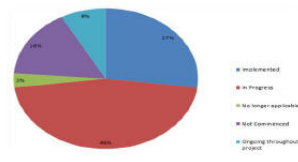


Figure 144 Identified risk status

Active risks

Table 152 to Table 161 present the risks ranked as Extreme and High that are currently executing action plans for mitigation which are edited and updated in some part by ERCOSPLAN. These risks are identified in the risk register with a status of "Mitigation Measures In Progress" or "Ongoing throughout the project" (WorleyParsons, 2016, /57).

Table 152 Community risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Impact on the Autazes community during construction of the project.	High	<ol style="list-style-type: none"> 1. Mobilize HSEC Manager to establish communications with the community. 2. Implement the programs proposed in the environmental license. 	Low

Table 153 Construction risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Not being able to consolidate ground on Alter do Chao could lead to flooding of the mine	Extreme	<ol style="list-style-type: none"> 1. Freezing and cementation trade-off study and detail design in monitoring of compliance during sinking. This risk has to be finally evaluated in a trade-off study, which have to be conducted by a shaft sinking and lining expert. 	High
Delay in the availability of permanent power impacts plant start-up and operations schedule.	High	<ol style="list-style-type: none"> 1. BPC building the power transmission line and handover ownership to the government after. 	Moderate
Lack of local technical and services support could lead to equipment downtime and loss of production	High	<ol style="list-style-type: none"> 1. Develop human resource strategy. 2. Undertake local service support agreement study and structure contracts appropriately. 3. Spare philosophy. 4. Increase automation/trade-off – implement in Automation Design Criteria. 5. Include a productivity factor for operations staff on production ramp-up. 6. Include in the cost estimates for training for operations staff. 	Moderate

Table 154 Engineering risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
The shaft design recently changed from freezing to grouting; the grouting option has been implemented in the BFS design. There is a risk to cost and schedule if the shaft floods (during sinking or operation) and delays in the project schedule.	Extreme	<ol style="list-style-type: none"> 1. Further geotechnical testing needs to be completed to perform the final grouting design. 	High
Brine Injection testing required to prove validity of process. Failure could result in contamination of fresh water aquifer.	Extreme	<ol style="list-style-type: none"> 1. Further modelling, test holes, during design 2. Ongoing monitoring during operation. 	Moderate

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Shaft sinking schedule is on the critical path and productivity factors could lead to schedule overrun	High	<ol style="list-style-type: none"> Elevate detailed schedules to Level 3 and include additional contingencies when appropriate. Schedule will have enough detail to understand the critical path. Contractor selection qualification. The process will be included in the project schedule. Contract experienced site supervisor. 	Moderate
Breaking into the potential aquifer above the mining unit could lead to flooding in the mine and shaft	High	<ol style="list-style-type: none"> Hydrological report to show aquifers in the vicinity of the mine and shafts. Geotechnical monitoring test work results have been incorporated in the mine design. Analyze the hydrology and test results from pilot hole 3. Implement further geotechnical tests. Rock mechanical modeling has also to be undertaken for the assessment of the impact of the mine cavities of the hydrogeological protection layer. Implement underground exploration plan (e.g. exploration drilling) to identify potential areas containing solutions enclosed in rocks beyond the mining face. Procure underground exploration equipment (drill rigs with accessories etc.). 	High
Presence of artesian conditions could require the design of the shaft sinking and permanent shaft lining to be complex and add more cost and schedule overrun	High	<ol style="list-style-type: none"> Gathering of more detailed geological, geotechnical and hydrological testing and reports. Design has been developed upon receipt of the test work and will incorporate shaft pilot hole results. 	High
BFS requires assurance on supply of energy. Lack of confirmation (MoU) of energy supply may result in delay or non-compliance of bankability requirements	High	<ol style="list-style-type: none"> Start Basic Engineering with Dalben. Further evaluate purchasing natural gas or LNG. 	High

Table 155 Environmental risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Change in the plant, port and road locations could delay the environmental license and project schedule	Extreme	Reinforce the advantages and reduction of the environmental impacts of the new location. Initiate baseline environmental studies for the new plant location.	High

Management of brine run-off from the tailings during the wet season. Lack of control may result in leak to the river and higher CAPEX to establish the proper management (current assessment results in higher piles of salt).	<i>Extreme</i>	<ol style="list-style-type: none"> 1. Design of disposal system for excess brine. 2. Protocol a new change related to the increase of the surface pile volume. 	<i>Moderate</i>
Management of excess brine during the continuous operation and disposal of the brine – may result in interruption in operation	<i>Extreme</i>	<ol style="list-style-type: none"> 1. Design disposal system for excess brine, considering deep injection. 2. Develop reference list of existing hot leach operations, listing excess brine quantities. 3. Confirm the amount of residues on the surface and develop a tailings management plan for that area. 	<i>Low</i>

Table 156 Financial risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Delays in the mine development plan is longer than what is allowed on the PEA; this affects overall return of the project	<i>Extreme</i>	1. Continue to optimize the mine development plan and project ramp up. A consequent underground exploration is mandatory and base for any optimization of the mine development plan.	<i>Extreme</i>
Delays in the project approval for the next phase, by the BOD, could lead to significant project completion delays.	<i>Extreme</i>	<ol style="list-style-type: none"> 1. Attract investors and equity debt. 2. Plan between the BFS and project implementation. 3. Develop monthly expenditure cash flow in the BFS. 	<i>High</i>
Delay in financing for the project will result in schedule delays for the project.	<i>Extreme</i>	<ol style="list-style-type: none"> 1. Engage major banks to reach out to high potential equity investors. 2. Meet with Export Credit Agencies on debt. 	<i>Extreme</i>

Table 157 Government risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Delay in indigenous study due to delay in authorization from FUNAI – could impact project schedule and LI.	<i>High</i>	<ol style="list-style-type: none"> 1. Follow up with FUNAI. Complete the study Indigenous study approved by FUNAI and the implementation has started. 	<i>Low</i>

Table 158 Legal/contractual risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Delays in the approval for the archaeological study causes delays in approval of environmental license, resulting in delay to overall schedule and increased CAPEX.	<i>High</i>	<ol style="list-style-type: none"> 1. Contract a company to provide the study and rescue the artifacts. 2. Receive authorization from IPHAN for the archaeological study. 3. Compress archeological study execution schedule. 	<i>Low</i>

Table 159 Operations risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Flooding the shaft during sinking or during operation resulting in collapse of the shaft and significant delays	Extreme	<ol style="list-style-type: none"> Freezing and cementation trade-off study and detail design in monitoring of compliance during sinking and geotechnical monitoring of water ingress during operations. Review test pilot hole results to confirm BFS design. 	High
Backfill and brine pumped underground; in the event of water breaks, could cause corrosion and erosion of the mine resulting in stopped production.	High	<ol style="list-style-type: none"> Backup pumping systems, power supply and pipelines. Inspection and monitoring. 	High

Table 160 Procurement risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Lack of procurement and contracting plan may result in delay in CAPEX development and accuracy	Extreme	<ol style="list-style-type: none"> Establish procurement and contracting strategy. Develop a detailed plan for project execution. 	Low

Table 161 Safety and health risks

Risk Description	Risk Severity Before Treatment	Risk Treatment Plan	Risk Severity After Treatment
Potential of interference and accidents on the public road from the port to the site due to the increase of trucks and vehicles, resulting in increased safety risks.	Extreme	<ol style="list-style-type: none"> Traffic Management Plan with potential lighting. Some Improvements on the current road already considered in the BFS design. Others need to be studied. Possibly fence the road. 	High
Transportation of construction equipment and operations personnel, by river, poses a safety risk due to congestion and travelling at night, particularly in the Madeira River.	Extreme	<ol style="list-style-type: none"> Avoid travelling at night During construction operations, try to find agreements with contractors for local transportation to require safe boats. Acquire specific routes for the company, and a safe boat. Construction readiness review to assess this risk. 	High

21.20.3.5 Opportunities Assessment Summary

Opportunities are conditions that are helpful to achieving the objectives or an upside/positive risk. During the risk workshops, a total of 18 opportunities were identified. The opportunities are summarized in Table 162 (WorleyParsons, 2016, /57/).

Table 162 Opportunities (WorleyParsons, 2016, /57/)

Item	Opportunity Description	Opportunity Treatment Plan
1	Utilize tax benefits on the project – potential for reducing CAPEX.	Negotiate preferred rates with Government
2	The project timing is very good considering the current market condition (availability of labor trades and materials, competitive pricing)	Capture the benefits of current market conditions through marketing strategies and contracting plan After establishing procurement plan, invite key vendors to seek ideas and solutions
6	Mechanical excavation of the shaft through Alter do Chao.	Potentially could save 2-3 weeks
7	Sell the untreated halite from the mine development to the market.	Conduct trial with local farmers
9	Constructability input, panelization and modularization can potentially result in optimization of cost and schedule.	To be developed in the next phase.
10	Pre-fabrication in Manaus can potentially result in reduction/ optimization in tax impact and energy and capital cost.	To be developed in the next phase.
12	Use gravel from the river for lean concrete. The materials can be dredged from the river and could potentially be crushed to improve the structural properties.	To be developed in the next phase.
14	Availability of wood in the Amazon region. Use of wood for some structures will enable use of local materials and reduce costs of procurement of materials from outside (e.g. ladders, stairs, floors furniture, etc.).	To be developed in the next phase.
15	Shaft sinking is on critical path and potentially 2 competitors could be mobilized to sink the two shafts in parallel.	Creates competition and could positively impact the schedule. Negatives: Complete resources such as concrete, water, power and human skills.
16	Upgrading existing resources could increase mine life.	To be actioned in the future as resources currently sufficient.
18	Hot leach residue may be sold as cattle salt.	Conduct trial with local farmers

21.20.4 Conclusions and Recommendations

The Risk Register and Action Plan and Opportunities Register should be reviewed on a continuous basis to ensure that appropriate actions have been taken and followed up has occurred. Reviews should also occur at the commencement of a new project phase or if there are significant changes to the project scope or operating environment.

The Risk Register and Action Plan, including action parties and forecast action close-out dates, is a "live" document and as such, should be maintained on the Project schedule or a standalone risk schedule.

22 Interpretations and Conclusions

The Autazes Potash Project is technically and economically viable and should advance to a further stage of execution.

The applied mining and processing concepts represent conventional technologies that have been used successfully in international potash mining operations for several decades. The deposit's resources are sufficient to provide an economically viable underground mining project under the circumstances and limitations as described in this report. Further investigations and engineering works should be executed as per recommendations included in this report.

22.1 Exploration, Geology and Resources and Reserve Estimate

The Autazes Potash Project is located in the Central Amazon Basin, a large Paleozoic basin in northern Brazil. Within this basin, a sequence of marine to fluvial-lacustrine sediments of the Tapajos Group has developed, which are of Upper Carboniferous to Permian age. These rocks un-uniformly overlay rocks of the Upper Devonian to Lower Carboniferous Curua Group and are un-uniformly overlain by the rocks of the Javari Group of Cretaceous to Palaeogene age.

For the Upper Carboniferous to Permian, a cyclically laid out evaporate sequence has been documented. The evaporite sequence consists of 11 cycles. The potash-bearing horizon always occurs within Cycle VII between the Markers (Marco) 10B and 11A, which are assigned to the Nova Olinda Formation. In its normal lithologic succession this horizon is subdivided into three zones – the Upper and Lower Sylvinite and the Middle Sulphate in between. This sylvinite deposit is of Lower Permian age.

The mineralogical composition of both the Upper and Lower Sylvinite comprises of Sylvite and Halite with minor amounts of sulphate minerals, mainly Anhydrite, and minor amounts of Carnallite in the Upper Sylvinite. The Middle Sulphate contains various sulphates, mainly Anhydrite, Kieserite and Polyhalite, which interlayer with Sylvite, Halite and Carnallite. Main potash-bearing mineral is Sylvite.

Based on the distribution of the potash-bearing horizon, derived from drill hole data, it was found that it has an irregular geometry and can be divided into two distinct domains, or into two connected sub-basins, one to the north and one to the south, divided by a fault zone. The best results in terms of thickness and grades are distributed over an area about 18 km long and 13 km wide. The northern, northeastern and eastern limits of the Autazes potash deposit still represent boundaries of mineralization expansion with holes that have reached intersections of significant KCl grades and thicknesses of the potash-bearing horizon.

The top of the sylvinite deposit was determined to be at a depth between 685 m to 863 m. The total thickness of the potash-bearing horizon in the explored area of the Autazes Potash Project ranges between 1.0 m and 4.0 m, with an average KCl grade of 25.0%.

The Nova Olinda Formation is overlain by thick layers of siltstone intercalated with thin anhydrite horizons, which are assigned to the Andirá Formation. These rocks form, together with the rocks of the Nova Olinda Formation in the hanging wall of the potash-bearing horizon, a hydrogeological barrier against the groundwater-bearing rocks of the overlying Alter do Chão Formation, based on data of shaft pilot hole PBAT-15-43.

As part of this Technical Report, an updated resource estimate was completed by ERCOSPLAN. As the original mineral rights of the Project intersect with the so called Jaury Indigenous Land, these mineral rights were dismembered resulting in mineral rights located inside the indigenous land and mineral rights located outside of it.

Independently of their location, the approach of the mineral resource estimate was equal for all mineral rights. A cut-off grade of 10% KCl and a minimum thickness of the potash-bearing horizon of 1 m were incorporated into the calculations along with the following radii of influence around each sampled hole drilled by BPC:

- Measured mineral resources occur within a radius of 750 m around an investigated drill hole;
- Indicated mineral resources occur within a radius of 1,500 m around an investigated drill hole;
- Inferred mineral resources occur within a radius of 2,000 m around an investigated drill hole in the southern part of the Autazes area and 2,500 m around an investigated drill hole in the northern Autazes area as the recent drill holes show a more continuous and homogenous distribution of the deposit in the northern part (except for PBAT-13-28, due to its proximity to the barren zones in the Southeast).

For the mineral resource estimate the interpretation of the 2D seismic survey results were incorporated.

For mineral rights located inside the Jaury Indigenous Land only inferred resources are reported given the uncertainty of being able to permit this area for future mining. For those outside the indigenous land measured, indicated and inferred resources are reported (Table 163).

Table 163 Mineral resources (amount and grade) of the Autazes Potash Project

Resource category	Tonnage	KCl grade	Remark
	[Mt]		
Inferred	219.83	27.63	located inside Jaury Indigenous Land
Inferred	106.83	30.97	located outside Jaury Indigenous Land

Indicated	189.09	32.36	located outside Jaury Indigenous Land
Measured	106.67	32.77	located outside Jaury Indigenous Land

As per information from BPC's subsidiary PdB (PdB, 2022, /42/) the mineral rights located inside the Jaury Indigenous Land will be considered in the future, after the year 15 according to the updated mine plan presented in this Report. Hence, mineral reserves are only reported for the mineral rights located outside of the Jaury Indigenous Land.

The mineral reserve estimate was conducted by using the resource block model, provided by BPC, and the mine plan, update by ERCOSPLAN, as a base for the calculations. The cut-off grade of 10% KCl was already incorporated into the block model. For the calculations a minimum mining height of 1.5 m in panel drifts and of 3.5 m in main and panel development drifts were applied. The result of the mineral reserve estimate is presented in Table 164. Portions of the mine plan that goes beyond the limits of mineral rights to the south were not included in the mineral reserve estimation.

Table 164 Mineral reserves (amount and grade) of the Autazes Potash Project

Reserve Category	Tonnage	KCl grade
	[Mt]	[%]
Probable	110.97	27.45
Proven	62.42	28.87
Proven & probable	173.39	27.96

22.2 Mining

The mining method selected for the Autazes Potash Project is based on a conventional room and pillar underground mine with two shafts for access and ventilation. Extraction of the potash ore is done by mechanical borers using the long pillar method. This is the most common method of potash extraction, with an established and well developed technology for ore extraction, followed by hauling and hoisting to the surface. The mine is divided into main development and production panels. Main development consists of a variety of split intake and return mains as well as single system mains. The production panels are a long pillar design with an extraction ratio slightly less than 60%. The production schedule has been updated based on the reduced mining licensed area and designed to follow the extraction of ore and productivity, while maintaining a safe working environment.

Rock mechanical test work on 68 selected drill core samples from the potash horizon, the hanging and the underlying wall, as well as subsequent modelling, was completed in November 2014. As a result of the simulations, a high-extraction long pillar mining layout is recommended. Since the pillar system is not stable in the long-term, all long-lived drifts need to be excavated in the rock salt floor. Backfilling of the chambers as a further optimization is recommended. Suggested additional test work was realized on 17 samples in 2015; whereas, the input parameters for the former rock mechanical modelling could be confirmed by the additional rock mechanical test work results.

ERCOSPLAN has developed a backfilling system using slurry backfill technology. Tailings residues are used as backfill material. Implementation of backfilling will decrease the volume of residues stored on the surface, decrease subsidence and increase the extraction ratio of mined panels. The backfill system is planned for implementation using the tailings material. The backfill plan updated for this study is based on mine plan Revision 7. The magnitude of the differences between old and new mine plan did not justify re-designing the backfill plan for the purpose of this study. It is recommended to update the backfill plan at the EPCM phase in order to reflect the most recent mine plan.

22.3 Metallurgy and Processing

Several test work have been carried out in order to find an appropriate processing method. Initially the method of Sylvite flotation was investigated. However it was found that an appropriately high enough recovery of potash with required 95% KCl purity using the flotation method could not be proven. Subsequently the processing method of hot leaching and cooling crystallization was investigated in comprehensive test work and as result it was proven that the desired product quality as well as a high recovery rate of KCl can be achieved reliably. Therefore, the method of hot leaching and crystallization was chosen for design of the processing plant to achieve a KCl product with 95% purity. The QP confirms that the hot leaching test work has been carried out with samples which are representative of the various types and styles of mineralization in the mineral deposit as a whole. To the QP's opinion, the data collected in the test work are adequate for the purposes used in the technical report summary. Based on completion of a review of mineral processing and metallurgical testing by ERCOSPLAN, it is the opinion of the QP that the testing procedures, results, interpretations and reporting meet standard industry practices.

For production of KCl with 95% purity from the sylvinite type potash raw material the recovery method of hot leaching followed by cooling crystallization has been selected. This recovery method ensures production of KCl with the desired quality and suitable efficiency considering the specific properties of the raw material to be processed. With the selected recovery method, the separation of significant side components beside NaCl such as Anhydrite and insolubles can be reliably realized at a comparably high KCl recovery rate of 90.8%. In the process, the raw material is

crushed and mixed with hot process brine and due to the temperature-dependent solubility of KCl, the KCl component is dissolved for the most part and most other components are mainly not dissolved and mechanically separated. The resulting hot KCl brine is cooled by vacuum cooling whereupon KCl recrystallizes which is separated and dried. Over years of full production, an average of 8.32 MTPA of ore is fed to the processing plant to produce 2.16 MTPA with a design capacity of up to 2.44 MTPA of KCl with purity of 95%. The whole amount of product will be compacted to granular MOP product. For this processing, the typical consumables required are water, heating steam, reagents e.g. flocculant and anticaking agent and natural gas for drying. The selected recovery method is proven technology and the considered high recovery rate as well as the intended product quality can be reliably achieved. The process design includes heat recovery for brine warming in order to utilize the fed energy as much as possible. The high recovery rate and heat recovery reduces the specific heat demand per tonne of product to the necessary minimum.

The processing plant contains two identical stand-alone production trains. Each production train includes crushing, hot leaching, cycloning, crystallizing, drying and compaction. All equipment and technology selected for the process has been proven successful in other potash operations.

Surface storage of dry stacked tailings was selected for the design of the tailings management area. The tailings management area consists of two tailings deposit sites. Each tailings deposit site is approximately 1.5 km long x 1.3 km wide. The base of the piles will be sealed with a plastic liner to prevent brine infiltration.

Tailings, comprised primarily of common salt, will be disposed of using a dissolution process caused by natural precipitation. The brine will be collected in designated ponds and slimes will be separated. The brine will be injected into brackish water in an aquifer that is approximately 300 m deep.

Once the tailings dissolution process is completed, the remaining solid residues will be covered with a plastic seal, a layer of topsoil and re-vegetated as part of the site reclamation process.

22.4 Infrastructure and Tailings Management

The design of the project infrastructure facilities include all required items for the mine site, processing plant site and port site. The foundations and tailing management facilities were designed based on geotechnical investigations.

A network of existing and new roads is designed to provide access to all project sites. A site drainage system handles uncontaminated and contaminated water from the project. The Project consists of 80 processing and auxiliary buildings and outdoor areas of varying construction and sizes with required services. The port site facilities comprise of a private use terminal to commercially handle potash, fuels and cargo by waterway.

The designed 500 kV transmission line is considered to be the interconnection between the substations SE Silves on Brazil's national electricity grid and the new SE Autazes with a distance of approximately 120 km. The estimated power demand for the construction phase is 20 MW and the maximum power required for the operation of the mine, processing plant, port and other facilities is estimated at 294 MW. Standby power for critical process and safety electrical loads is supplied by diesel generators.

The water supply system is divided in two sub-systems. At the processing plant site, the industrial and process water supply system is designed for 10 deep wells and the potable and make-up steam plant water supply system is designed to be supplied from two deep wells. The Madeira River has also been identified as an alternative source of water for the processing plant and mine site.

The infrastructure includes the required telecommunication facilities to enable the construction and permanent operation phases of the Project.

Waste management comprises the sanitary solid waste, e.g. recyclable materials, domestic waste, waste produced in the processing and hazardous waste.

The tailings management area consists of two dry stacked tailings deposit sites with usable battery volume of 24.1 million m³ each. Each pile has two brine ponds for collected surface water. The complete area under the tailings site is lined to manage surface water collection and prevent contamination of the surrounding soil and ground water.

The Autazes Potash Project requires the transportation of up to 2.4 MTPA of granular KCl from the processing plant to the port. This transportation will be done by trucks. River access will be provided by the Madeira River, which will be used for further potash transportation through waterways on barges.

22.5 Land Acquisition

As of the publication date for this Report BPC's subsidiary PdB has acquired 24 of the 42 properties required for construction of the Autazes Potash Project totaling to a corresponding area of 1,523.31 ha. Regarding the purchase of the remaining 18 properties, negotiations with the property owners are ongoing and purchases are planned for 2022/2023.

Properties affected by rural road improvements will not be acquired by PdB. However, authorization for these improvements will be obtained from the local government.

BPC has also acquired 11 properties (861.84 ha²), which will be used as a legal reserve for environmental compensation.

Environmental Permitting:

On July 23, 2015, BPC obtained the Previous License (LP) N° 054/2015 for the Autazes Potash Project that comprises the mine, processing plant, port terminal, and the road between port and mine. However, since issuance of LP N° 054/2015 a new location for the processing plant and shaft area has been selected. A report covering these changes was sent to IPAAM on September 8, 2015, and additional documents requested by IPAAM were provided by BPC on December 23, 2015 to IPAAM resulting in IPAAM's subsequent approval of these changes.

After receiving the Preliminary Environmental License, the Ministerio Publico Federal (the "Brazilian MPF"), which is Brazil's federal prosecution office, opened a civil investigation in December 2016 that questioned the validity of the license based on a motion from a non-governmental organization that the consultations with indigenous communities were not conducted in compliance with International Labour Organization Convention 169. As a result of the December 2016 Civil Investigation, in March 2017, BPC agreed with the court overseeing the December 2016 Civil Investigation, the Brazilian MPF, the Brazilian Amazonas Environmental Protection Institute, the Brazilian National Mineral Agency, FUNAI, and representatives of the Mura indigenous people to suspend the Preliminary Environmental License, and to conduct additional consultations with the local Mura indigenous communities near the Autazes Potash Project in accordance with the mentioned convention.

The Company's current near-term goals are to have the Preliminary Environmental License reinstated and obtain the Installation License, both of which are required prior to starting construction of the Autazes Potash Project. Reinstatement requires additional consultations with the indigenous communities near the Autazes Potash Project in accordance with the mentioned convention. There are two major steps that need to be followed in connection with these consultations. The first step is that the indigenous communities need to determine the means of, and who within their tribes will be involved in, the consultations. The first step has been completed. The second step is the actual consultation process, which initially started in November 2019 but was suspended in March 2020 due to the outbreak of COVID-19. In April 2022, following the lifting of COVID-19 related restrictions, consultations resumed with the Mura indigenous people.

Additionally, the reinstatement of the Preliminary Environmental License and the issuance of the Installation License are subject to submission to, and the review and approval by, FUNAI of the Company's Indigenous Component Study. Following FUNAI's approval, the Indigenous Component Study and FUNAI's decision will be submitted to (i) the court over-seeing the December 2016 Civil Investigation to decide whether the suspension of BPC's Preliminary Environmental License will be lifted, and (ii) the Brazilian Amazonas Environmental Protection Institute for its review. At such point following the completion of these steps, the Company would have also satisfied the two remaining items to be completed in order to obtain the Installation License. It is possible, however, that the court overseeing the December 2016 Civil Investigation and/or the Brazilian Amazonas Environmental Protection Institute may interpret the March 2017 Suspension Agreement as requiring the completion of BPC's consultations with the Mura indigenous communities near the Autazes Potash Project in accordance with International Labour Organization Convention 169 prior to the reinstatement of BPC's Preliminary Environmental License and/or the issuance of the Installation License, respectively.

22.6 Environmental

The main requirements for environmental licensing are stated in Law N° 6938/1981 and in CONAMA Resolutions 01/1986 and 237/1997. Resolution 01/1986 establishes the obligation for an environmental assessment of specific projects and a minimum scope for the Environmental Impact Study – EIA (in Portuguese, Estudo de Impacto Ambiental). Resolution 237-1997 establishes the legal requirement for environmental licensing prior to the development of a project. In addition to these, the Complementary Law N° 140/2011 discusses the state and federal jurisdiction requirements for licensing, based upon the location of the project.

Under the jurisdiction of the State of Amazonas there is the following legal framework related to environmental licensing: (i) State Law 1.532/82, which is on the State System of Licensing Activities with Potential Impact on the Environment; (ii) State Decree 10.028/87, which regulates State Law No. 1.532 (07/06/82); Law No. 3.219/2007, which regulates environmental licensing within the State of Amazonas; and State Law 3.785/2012, which establishes licensing fees, according to the activity and type of license required (LP, LI, LO, LAU, among others).

In accordance with Brazilian Legislation, there are four milestones of environmental licenses that companies must obtain during the course of the project development.

1. Term of Reference – TR (Termo de Referência) contains the minimum aspects to be studied during development of the project as determined by the environmental agency.
2. Previous License – LP (Licença Prévia) is obtained during the planning phase of the project.
3. Installation License – LI (Licença de Instalação) must be obtained prior to construction of the project.
4. Operation License – LO (Licença de Operação) is the last phase of the environmental licensing process and grants authorization to run the Project and sell products.

Other permits and authorizations, with specific requirements, will be required during the implementation of the PBA programs.

The License N° LP 054/2015 1st Amendment was issued by IPAAM to BPC for the Autazes Potash Project on July 23rd, 2015, specifying 41 restrictions and conditions for its validity. Key conditions identified in the License include:

Point 4 "Each and every modification included in the project after issuance of this license shall imply its automatic invalidation, and a new license must be requested with the cost to interested party";

Point 5 "This license is valid only for location, activity and purpose listed herein. The interested party must require a new license to IPAAM when there is any change to any of these items".

During the design phase of the Project changes were made to the proposed project location and operating parameters. Based on the proposed changes and the conditions of the License, BPC initiated discussions with IPAAM regarding re-validation of the License. A report, indicating the advantages and benefits of the new location and including a revised plot plan, was submitted to the IPAAM in September 8, 2015. On October 26, 2015, IPAAM requested an amendment of the EIA/RIMA to account for the changes. The amended EIA/RIMA was provided by BPC on December 23, 2015 and subsequently approved.

22.7 Marketing and Economics

For the market analysis and product price forecast, CRU International Ltd. conducted a custom study for the Project (CRU, 2022, /12/). For a global outlook, this study includes information about the demand and supply for the Brazilian market in the present and in the future.

Today, Brazil is the second largest consumer of potash in the world. The preferred product in the Brazilian market is granular MOP, which will be produced by the Autazes Potash Project. For the purpose of the PFS, 100% of the MOP production is considered to be sold domestically.

The current and projected consumption of potash in Brazil is sufficient to absorb the entire production of the Autazes Potash Project, which will largely displace current imports.

The biggest advantage of the Autazes Potash Project over its competitors will lie in logistics. As a domestic producer, BPC will be able to deliver to mega farmers, cooperatives and blending companies in Brazil's Mato Grosso region in less than 3 days ex-works.

On the basis of the data of the CRU report, a mid-term and long-term price forecast have been provided, which are used in the development of a discounted cash flow model. The Pre-Feasibility (PFS) cost estimate update was completed by ERCOSPLAN and L&M with consideration of the cost structure developed in 2016 for the:

- Mine, vertical shafts, processing plant, tailings management area, on site infrastructure and off-site infrastructure, including the port and power transmission line.

Table 165 summarizes the key elements of the PFS cost estimate and financial analysis for the Project. The capital cost estimate has a predicted accuracy of AACE Level 3, except for the tailings and brine management areas, steam generation plant and power transmission line, which have been completed to AACE Level 4. The ERCOSPLAN and L&M QPs consent to the updated estimated CAPEX and OPEX with an accuracy of ±25% which is in line with the requirements for a Pre-Feasibility Study (PFS). An exchange rate of BRL 5.25 : USD 1.00 for the US dollar (USD) to the Brazil Real (BRL) was used. No escalation was included in the economic analysis, as the discounted cash flow model was developed using a real dollar basis. The IRR on the total investment was calculated on the basis of 100% equity financing.

Table 165 Unlevered financial results summary

Financial Analysis	Unit	Post-Tax
NPV@8.1%	(USD million)	2,497.6
IRR	(%)	15.8%
Profitability Ratio	(%)	127.1%
EBITDA (*)	(USD million)	972.8
Total Cash Flow	(USD million)	13,879.4
Payback (**)	(Years)	5.6
(*) Average Year 4-20, full run rate production period		
(**) Undiscounted, after start-up		

A summary of the initial capital cost estimate (ICAPEX) using the cost centers breakdown, including taxes, is presented in Table 166.

Table 166 Initial capital cost summary

WBS	Description	Cost in Million USD
1000	Mine	268.0

1100	Shafts	433.4
2000	Site general	68.3
3000	Process plant	608.7
4000	Tailings management area	72.1
5000	Utilities	69.9
6000	Ancillary services	28.3
7000	Off-site facilities	221.7
	Total direct costs	1770.5
8000	Indirect costs	135.2
9000	Owner's costs	165.8
-	Contingency	200.2
-	Taxes, duties, fees	219.3
	Total indirect costs	720.5
	TOTAL	2,491.0

The total operating costs for the Autazes Potash Project is estimated to be between USD 78.03 to USD 105.01 per tonne of MOP over the Project's life after ramp-up is completed and during years when production is at least 75% of the designed 2.44 MTPA.

The weighted average life of mine total operating cost, post ramp-up is estimated at USD 86.76 per tonne of potash, as per the cost centers breakdown, excluding taxes, as summarized in Table 167.

Table 167 Operational cost summary

Description	Cost USD/tonne of MOP
Mine	19.20
Shaft	7.83
Processing	49.80
Tailings management and brine disposal	1.33
Logistics	4.76
Employee transportation and housing	1.03
General and administration	2.81
TOTAL	86.76

22.8 Final Conclusion

The updated Pre-Feasibility Study phase of the Project was completed to sufficient detail to assess the economics to a $\pm 25\%$ level of accuracy and to outline the issues facing the Project going forward. The project economics are sufficiently robust to warrant moving to the next phase of more detail engineering and the subsequent phase of project execution.

BPC needs to obtain the necessary Installation license (LI) and surface rights to conduct mine and processing plant development activities.

23 Recommendations

The Autazes Potash Project is technically and economically viable and should advance to a further stage of execution.

Recommended work programs have been listed in various chapters of this report and are summarized in this chapter.

23.1 Mineral Reserves and Mining

For the next stages of project development, ERCOSPLAN's QPs recommend the following work programs:

- Exploration from above ground is considered sufficient at the current stage of the Project;
- During the operation of the mine an underground exploration program comprising of exploration drilling and geophysical measurements in drill holes should be implemented to mitigate mining risks regarding grade control of the mined ore and inflow of brines possibly trapped within the rocks or even groundwater;
- Drilling should be conducted in different lengths, depending on how far ahead of time the mining is planned. For example, drilling length should be shorter in an area where mining is planned within the next few weeks (short-term mine planning), compared to an area where mining is planned within the next months (mid-term to long-term mine planning). The correct drilling length of an individual hole should be determined by the mine geologists taking the depth of advance into consideration, which can be achieved with the available mining equipment within the said amount of time. Implementing such a drilling scheme does not only improve grade control of the ore but also helps to mitigate the risk of possible brine inflows into the mine, which can never be completely excluded in potash deposits as worldwide experience has shown;
- Furthermore, exploration drilling should be conducted at several locations to be able to make detailed plans and assessments from which mining areas the ore should be blended during future mining to feed the processing plant with an ore of ideally constant grade;
- Additional work, like hydraulic borehole tests, should be considered for improvements in hydrogeological characterizations and the brine injection system;
- Regarding grade control it is necessary to sample the drilled material and analyze its chemical/mineralogical composition. Sampling intervals and extent of analyses have to be determined by the personnel in charge;
- When crossing fault structures, drilling length should be higher to have a wider safe-ty pillar between the starting point of a drill hole and a possible brine reservoir in the rocks that might be encountered during drilling. Brine inflows are much easier controllable within drill holes than within mining drifts;
- Regarding further risk mitigation arising from possible brine reservoirs in the rocks, underground exploration drilling should be accompanied by geophysical measurements (e. g. georadar). This allows to identify such reservoirs in the rocks close to an exploration hole that could not be identified by drilling, but would be located right within the mining face or so close to it that a brine breakthrough into the mining drift would be possible;
- Such an exploration program should be implemented over the entire life of the mine;
- Regarding the mineral resources and reserves, the economic viability of Mining Panels 11 and 12 should be reviewed again. According to the mine plan presented in (WorleyParsons, 2016, /57/) both panels were located around drill hole PBAT-12-21, but were removed from the production schedule in 2016 due to economic rea-sons. Since the forecast potash prices have dramatically increased, the economic viability taking into consideration the economic factors for the year of this Report and the following years should be applied. Though both panels are located in mineral rights inside the Jauary Indigenous Land, it is possible to extend mining in this area, if mining will be permitted inside the indigenous land in the future;
- It is recommended to negotiate mine permitting for the mineral rights located inside the Jauary Indigenous Land with the Mura and corresponding authorities as there exists large potential to increase total production of the mine and, hence, to the ex-tent the mine life;
- Additional geotechnical stability analyses should be conducted to confirm specific mining parameters for perimeter mining of panels and retreat pillar mining for the mains. Further detailed design of self-yielding mining techniques should be completed in the future for perimeter and retreat mining;
- Additional work should be considered for convergence and creep modelling at different seam heights to reduce risk and more accurately determine available void volumes for slurry backfill. Better definition of aquifer boundaries and detailed risk assessment of the effect on mine layout should be conducted. Higher resolution for lithology modelling should be conducted for better identification of material types;
- The heat load is based on assumptions for rock thermal properties, which still need to be validated; they can cause an impact on design of the refrigeration plant and cooling systems;
- Current mine plan Revision 7 is adjusted based on the new license area and shortened LOM from 35.5 to 23 years. In the next project phase the production schedule, annual equipment usage and therefore backfill schedule should be detailed based on the updated mineral reserves estimation;

- From the aspect of rock mechanical tests further optimization of the mining system is possible. To allow relaxation of conservative assumptions and to improve reliability, coupled with hydro-mechanical simulations, and emphasis on pressure-driven percolation, are suggested.

23.2 Mineral Processing and Metallurgical Testwork

The processing method of hot leaching and cooling crystallization was investigated in comprehensive test work and as result was proven that the desired product quality as well as a high recovery rate of KCl can be achieved reliably. The following recommendations for next steps are provided:

- The method of hot leaching and crystallization was chosen for design of processing the potash ore to KCl product with 95% purity. Nevertheless, there is still potential for detailing the design bases by further metallurgical test work. Taking sufficient available test material as a basis, future metallurgical test work can comprise mainly of the verification of optimum particle size for potash material given to hot leaching, tests for selection of optimum crushing equipment for ore crushing as well as thickening of hot brine obtained from hot leaching before it is sent to crystallization. Detailing the basis of process design and equipment design increases the reliability of process performance;
- The report on hand gives a clear overview of the recovery method to be applied. The respective process steps and the main throughputs are clearly defined. The selected process of hot leaching and cooling crystallization allows reliably a high KCl recovery rate and ensures the intended product quality. The principle process design results to an efficient KCl recovery. For the next step of engineering, the single process parameters for each process step should be again verified and interfaces between design sections should be checked that they are in balance to each other;
- Thickening test work is required to confirm the size of the lamella thickeners that will be used to remove solids from the hot leach brine. This test work is to ensure that the crystallizers will be fed with solids free brine; otherwise, the carried over solids could reduce KCl content of the product crystals, resulting in low-grade product;
- Crushing test work needs to be done to confirm the size of the primary double roll crushers and the secondary cage-mill crushers or to define other types of crushing equipment. This test work is to ensure the crushing circuit will be able to process the design ore throughput. If it is not done, then the design factor for the crushing equipment will need to be increased to account for assumptions that were made on equipment selection size during the PFS stage;
- Pilot plant filtration testing is required to confirm the size of the horizontal belt filters. This test work is required to complement the already completed batch filtration tests and to verify that the fine hot leach residue can be processed on belt filters and that the adherent brine will be recovered. If it is not done, then the design factor for the filtration equipment will need to be increased to account for assumptions that were made on equipment selection size during the PFS stage. In addition, appropriate high pressure washing equipment should be specified during the design phase to wash the filter cloth in the event that it plugs with clay;
- Hot leach test work needs to be completed to determine the optimum particle size for hot leaching, which could provide an opportunity to reduce the CAPEX and OPEX in the crushing circuit;
- Crystallizer pilot-plant testing to verify the predicted brine chemistry will bring positive impact for the next project phase;
- Compaction plant testing should be conducted to confirm the size and number of compactors, crushing and screening equipment. This test work should confirm that the current compaction circuit is sized correct;
- Drying plant test work should be conducted to confirm the dryer size and to determine dedusting equipment. Test work could confirm opportunity to use a smaller dryer, resulting in reduced CAPEX;
- Tailings characterization and stackability test work is required. This test work will confirm that high tailings piles can be produced that will not slump.

23.3 Project Infrastructure

The report gives a comprehensible overview to the infrastructure comprising the mine site, processing plant site, port site and general facilities. Following recommendations for next step is provided:

- Due to the relocation of the port site it is recommended to undertake a further geotechnical drilling program at the new determined area to evaluate surface and subsurface soil conditions;
- Although the Madeira River could be used as an alternative water supply subject to further investigation, the water supply system outlined in this report is mainly designed for several deep wells to be sunk. Bore and pump tests have to be done to confirm the expected availability of groundwater;
- In case of using the Madeira River as the source of water supply, laboratory tests and further investigations in accordance with process requirements have to be carried out. On this basis the water treatment plant has to be designed in more detail respecting varying properties of the Madeira River water;

- The determined power supply route between the existing substation SE Silves and the new substation SE Autazes has to be closer examined. Investigations have to be done to ensure if SE Silves provides the required conditions, e.g. available area, technical parameters, to connect the new route to SE Autazes. It is recommended to start negotiation with Brazilian authorities regarding the approval of the connection point as soon as possible;
- For the construction of the power supply route, impacted properties of all affected areas have to be arranged before construction as part of permitting. With an emphasis on environmental protection the construction has to ensure minimal impact on properties in the study for alternatives to select the optimal route for the transmission line;
- The consumption of fuels, e.g. natural gas or diesel, has to be estimated in greater detail during the next project stages with adjustment of fuel storage facilities on site.

Contracts or agreements should be negotiated for the following services prior to start of construction:

- Electrical power supply;
- Freight forwarding and logistics;
- Solid waste disposal;
- Upgrades to the local road between the port at Urucurituba village and the mine and processing plant site.

23.4 Land Acquisitions

Before proceeding to the execution phase of the Project, the rights to the required outstanding real estate primarily in the area of the tailings stacks need to be secured.

23.5 Bridging Phase

In order to meet the overall project execution schedule, as presented in this report, the following activities need to be completed in advance of the detailed engineering phase:

- Develop a detailed, comprehensive Project Execution Plan;
- Preparation of an updated feasibility study with more detailed engineering level to reach accuracy in cost estimate with $\pm 15\%$;
- Conduct studies necessary to implement the electrical power line construction and supply at a higher engineering accuracy level as basic design;
- Conduct studies necessary to implement the port construction at a higher engineering accuracy level as basic design;
- Complete studies and field work required for compliance with environmental permitting of the power line; and
- Complete updated topography survey for the project area, using the coordinates system SIRGAS 2000.

23.6 Environmental and Permitting

Negotiations with the regulatory bodies should be finalized and all permits and licenses required for the start of the EPCM phase of the Project including the last two items to obtain the Installation License should be secured.

All works need to be performed in strict compliance with the terms and conditions, as listed in the respective permits and licenses.

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25 Reliance on Information Provided by the Registrant

Reliance on information provided by the registrant (BPC) for preparation of this Technical Report is described in this chapter.

Descriptions of the Project location, mineral rights, property titles, environmental liabilities, permits and significant factors for the Project in Chapter 3, descriptions about climate, local resources, infrastructure accessibility and physiography of the Project site and its vicinity in Chapter 4 and information about environmental studies, legislation and permitting as well as negotiations or agreements with local individuals or groups in Chapter 17 presented in this Report were provided to the authors by BPC. BPC has warranted to the authors that the information provided for preparation of this report correctly represents all material information relevant to the Project. BPC has taken reasonable measures to ensure that the title of its properties are in good standing, including obtaining a legal title opinion with respect to the validity of the relevant project licenses and agreements. The authors have not independently verified the target mineral rights, nor have they verified the status of BPC's agreements. They have relied on information provided by BPC for the description of the title and status of the mineral rights agreements. They have no reason to doubt that the status of the legal title is anything other than what is reported by BPC. BPC has taken responsible measures to ensure that mineral rights to its properties are in good standing, including obtaining a legal opinion with respect to the validity of the relevant Autazes Potash Project mineral rights (William Freire Advogados Associados, 2022).

BPC retained the services of CRU (CRU, 2022, /12/) to perform a market study to evaluate potential markets for BPC's KCI product (Chapter 16). ERCOSPLAN relied and used provided information and price in this Technical Report.

L&M was contracted by BPC to review Chapter 17 (Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups) of this Technical Report, based on information provided by BPC, and to assess BPC's environmental studies, permitting and plans, and its negotiations or agreements with local individuals or groups described therein. Section 17.6 (Opinion of Qualified Person) of this Technical Report is based on an opinion and consent signed by L&M's QP.

L&M was contracted by BPC to complete an economic analysis for the Project, based on project information provided by ERCOSPLAN, including updated project costs (CAPEX+OPEX; Chapter 19). This included an estimation of the tax incidence on the Project, including revenue, operating costs, capital expenditures and profits, according to Brazilian tax legislation, and also an estimation to the application of potential benefits that should be negotiated with the State Government. Chapter 19 of this Technical Report is signed by L&M's QP. ERCOSPLAN has reviewed this chapter and agreed with the provided information and opinion contained within the Report.

The descriptions of the adjacent properties in Chapter 20 were written by BPC. ERCOSPLAN has reviewed this chapter for the Technical Report to ensure consistency in the format of the Technical Report.

LIST OF ABBREVIATIONS

Abbreviations of physical units/constants used throughout this study are as follows:

Am ³ /h	actual cubic meters per hour
Ca ²⁺	calcium ion
CaO	calcium oxide
Ca(OH) ₂	calcium hydroxide
CaCO ₃	calcium carbonate
CaSO ₄	anhydrite
d/a	days per year
g	gram
g/cm ³	gram per cubic centimeter
g/l	gram per liter
g/t	gram per tonne
H ₂ O	water
ha	hectare
HCl	hydrochlorid acid
Hz	hertz
K ⁺	potassium ion
K ₂ O	potassium oxide
K ₂ MgCa ₂ [SO ₄] ₄ ·2H ₂ O	polyhalite
KCl·MgCl ₂ ·6H ₂ O	carналite
K ₃ Na(SO ₄) ₂	glaserite
KCl	potassium chloride
kg	kilogram
km	kilometer
km ²	square kilometer
kN/m ³	kilonewton per cubic meter
kPa	kilo pascal
kV	kilovolt
LRMC	long run marginal cost
m	meter
m ²	square meter
m ³	cubic meter
m ³ /a	cubic meters per annum
m ³ /d	cubic meters per day
m ³ /h	cubic meters per hour
m%	percentage by mass
mA	milliampere
mbgl	meters below ground level
Mg	magnesium
MgCl ₂	magnesium chloride
MgCO ₃	magnesium carbonate
MgSO ₄	magnesium sulfate
M m ³	million cubic meters
Mt/a	million tonnes per annum
MTPA	million tonnes per annum
mm	millimeter
MM	million
Mt	million tonnes
Nm ³ /h	standard cubic meters per hour

Na	sodium ion
NaCl	sodium chloride
NOx	nitrogen oxide
psi	pounds per square inch
rpm	revolutions per minute
SiO ₂	silicon dioxide
SOx	sulfur oxide
SO ₄ ²⁻	sulfate ion
t	metric tonne
t/a	metric tonnes per annum
t/d	metric tonnes per day
t/h	metric tonnes per hour
t/m ³	metric tonnes per cubic meter
t/min	metric tonnes per minute
vol.%	percentage by volume
wt%	weight percent
µg/l	microgram per liter
°C	degree Celsius
°F	degree Fahrenheit
%	percent
ADA	Area directly affected
AFEAM	Amazonas State Development Agency
ANA	National Water Agency
BAC	Bulk air cooling
BFS	Bankable Feasibility Study
BPC	Brazil Potash Corporation
BRL	Brazilian real
bs	Below surface
CAD	Canadian dollar
CAPEX	Capital cost estimate
CCR	Central control room
CCTV	Closed circuit television
CIM	Canadian Institute of Mining
CM	Continuous miner
CONAMA	National Environmental Council
CWP	Construction work package
DMC	Disposable material center
DOL	Direct on line
E	East
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EPCM	Engineering, Procurement and Construction Management
ESHIA	Environmental, Social and Health Impact Assessment
EUR	Euro
FCEM	Financial compensation for exploration of mineral resources
FRP	Fiber-reinforced plastic
FUNAI	National Indigenous People Foundation
GA	General Arrangement

GBP	British pound
GEPE	Special Projects and Infrastructure Manager office
GIS	Gas-insulated switchgear
H	Horizontal
HAZOP	Hazard and operability
HDPE	high density polyethylene
HV	High voltage
HVAC	Heating, ventilating and air conditioning
IBGE	Brazil Institute of Geography and Statistics
ICP-OES	Inductively coupled plasma optical emission spectrometry
ICP-MS	Inductively coupled plasma mass spectrometry
IFC	International Finance Corporation
I/O	Input/output
INPA	National Institute for Amazonian Research
IPAAM	Amazonian environmental protection
IPHAM	National Artistic Cultural Heritage Institute
IT	Information technology
ITT	Invitation to tender
IWD	Intermediate waste disposal
LCR	Port control room
LI	Installation license (in Portuguese: Licença de Instalação)
LIA	Local influence area
LO	Operation license (in Portuguese: Licença de Operação)
LOM	Life of mine
LP	Previous license (in Portuguese: Licença Prévia)
LV	Low voltage
MCC	Motor control center
MM	Million
MMA	Environmental Ministry and Mines
MME	Energy Ministry
MMP	Materials Management Plan
MS	Mass spectrometry
MV	Medium voltage
NDIT	National Department for Infrastructure and Transportation
NGO	Non-governmental organization
NI	National Instrument
No.	Number
NW	Northwest
OSD	Out of steam dilution
OS&D	Over, short and damaged procedure
OPEX	Operating cost estimate
PAGA	Public address and general alarm
PBA	Environmental Basic Plan
PCS	Process control system
PEA	Preliminary Economic Assessment
PFD	Process flow diagram
PFS	Pre-Feasibility Study
PSTN	Public switched telephone network
PVC	Polyvinyl chloride

QA/QC	Quality assurance/ quality control
Q1	First quarter
Q2	Second quarter
Q3	Third quarter
Q4	Fourth quarter
QP	Qualified Person
RAM	Reliability and Maintenance
RFID	Radio-frequency identification
RFQ	Request for Quotation
RIA	Regional influence area
RIMA	Report on Environmental Impact
ROI	Radius of influence
ROM	Run-of-mine
S	South
SAP	Sustainable Amazon Plan
SCC	Standards Council of Canada
SCSR	Self-contained self-rescuer
SGN	Product size number
SISNAMA	Brazilian National Environmental System
SPT	Standard penetration test
SRC	Saskatchewan Research Council
STP	Sewage treatment plant
SVC	Static VAR Compensators
TER	Telecommunications equipment room
TMA	Tailings management area
ToR	Terms of Reference
TUP	Private Use Terminal
USD	United States dollar
UTM	Universal Transverse Mercator
UV	Ultra-violet
V	Vertical
VDC	Voltage direct current
VFD	Variable frequency drive
VOIP	Voice over internet protocol
VS	Variable speed drive
W	West
WGBT	Wet globe bulb temperature
WorleyParsons	WorleyParsons Canada Ltd.
XRD	X-ray powder diffraction
ZAR	South African rand
2D	Two-dimensional
3D	Three-dimensional

Calculation of Filing Fee Table

Form F-1
(Form Type)Brazil Potash Corp.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Newly Registered Securities								
Fees to be Paid	Equity	Common Shares, no par value	Rule 457(o)	N/A	N/A	\$100,000,000 ⁽¹⁾⁽²⁾	0.00014760	\$14,760
	Equity	Underwriters' Warrants ⁽³⁾	Rule 457(g)	N/A	N/A	— ⁽⁴⁾	N/A	—
	Equity	Common Shares, no par value, issuable upon exercise in full of the Underwriters' Warrants	Rule 457(g) Rule 457(o)	N/A	N/A	\$6,500,000 ⁽⁵⁾	0.00014760	\$960
Fees Previously Paid	N/A	N/A	N/A	N/A	N/A	N/A		N/A
Carry Forward Securities								
Carry Forward Securities	N/A	N/A	N/A	N/A		N/A		
		Total Offering Amounts				\$106,500,000		\$15,720
		Total Fees Previously Paid						—
		Total Fee Offsets						—
		Net Fee Due						\$15,720

- (1) Includes the offering price of additional Common Shares that the underwriters have the option to purchase.
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended (the "Securities Act").
- (3) The Registrant will issue to the underwriters, upon the closing of this offering, warrants exercisable for the number of Common Shares equal to 5% of the total number of Common Shares sold in this offering (the "Underwriters' Warrants"). The Underwriters' Warrants will be exercisable at an exercise price equal to 130% of the initial public offering price of the Common Shares sold in this offering.
- (4) Pursuant to Rule 457(g) under the Securities Act, no separate registration fee is required in connection with the registration of the Underwriters' Warrants hereby.
- (5) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(g) and Rule 457(o) under the Securities Act. The maximum aggregate offering price represents 130% (relating to the exercise price of the Underwriters' Warrants) of \$5,000,000, which is 5% of the maximum aggregate offering price of \$100,000,000 with respect to the initial public offering of Common Shares registered hereby.