ANNUAL INFORMATION FORM

For the year ended December 31, 2018

Dated: March 12, 2019

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FORWARD-LOOKING INFORMATION

Unless otherwise noted, the information given herein is as of December 31, 2018.

Certain statements made in this document that are not current or historical factual statements may constitute "forward looking information" within the meaning of applicable Canadian securities legislation. Forward looking information may include, but is not limited to, statements with respect to future events or future performance, the effect of the Copper Purchase Agreement in respect of the Chapada Mine (each as defined herein) on the Corporation's financial position and/or results; production volumes; the financial and operational strength of counterparties; industry conditions, trends and practices; realized prices for production; future mineral reserves and mine life; management's expectations regarding the Corporation's growth and results of operations; estimated future revenues; fluctuations in the prices of the primary commodities that are material for the Corporation's royalty revenue (including coal, potash, iron ore, zinc and copper); requirements for additional capital; business prospects and opportunities; treatment under governmental regulatory regimes with respect to environmental matters; treatment under governmental taxation regimes; government regulation of mining operations; dependence on personnel; and competitive conditions. Such forward looking information reflects management's current beliefs and is based on information currently available to management. Expressions such as "anticipates", "expects", "believes", "estimates", "could", "intends", "may", "plans", "will", "would", "pro forma" and other similar expressions, or the negative of these terms, are generally indicative of forward looking information. By its very nature, forward looking information requires the Corporation to make assumptions and is subject to inherent risks and uncertainties which give rise to the possibility that the Corporation's predictions, forecasts, expectations or conclusions will not prove to be accurate, that the Corporation's assumptions may not be correct and that the Corporation's objectives, strategic goals and priorities will not be achieved. Such forward looking information is not fact but only reflects management's estimates and expectations.

A number of factors could cause actual events or results to differ materially from any forward looking information, including, without limitation: fluctuations in the prices of the primary commodities that drive royalty revenue; fluctuations in the value of the Canadian dollar; changes in national and local government legislation, including permitting and licensing regimes and taxation policies; regulations and political or economic developments in any of the jurisdictions where properties in which the Corporation holds a royalty or other interest are located; influence of macroeconomic developments; reduced access to debt and equity capital; litigation; title, permit or licensing disputes related to the Corporation's interests or any of the properties in which the Corporation holds a royalty or other interest; excessive cost escalation as well as development, permitting, infrastructure, operating or technical difficulties on any of the properties in which the Corporation holds a royalty or other interest; rate and timing of production differences from resource estimates; and risks and hazards associated with the business of development and mining on any of the properties in which the Corporation holds a royalty or other interest, including, but not limited to unusual or unexpected geological and metallurgical conditions, slope failures or cave ins, flooding and other natural disasters.

The forward looking information contained herein is based upon assumptions management believes to be reasonable, including, without limitation: the ongoing operation of the properties in which the Corporation holds a royalty or other interest by the owners or operators of such properties in a manner consistent with past practice; the accuracy of public statements and disclosures made by the owners or operators of such underlying properties; no material adverse change in the market price of the commodities that underlie the asset portfolio; no adverse development in respect of any significant property in which the Corporation holds a royalty or other interest; the accuracy of publicly disclosed expectations for the development of underlying properties that are not yet in production; and the absence of any other factors that could cause actions, events or results to differ from those anticipated, estimated or intended. However, there can be no assurance that forward looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Investors are cautioned that the forward looking information is not a guarantee of future performance. The Corporation cannot assure investors that actual results will be consistent with any forward looking information disclosed herein. Accordingly, investors should not place undue reliance on forward looking information due to the inherent uncertainty thereof. For additional information with respect to risks, uncertainties and assumptions, please refer to the "Risk Factors" section of this AIF.

The forward looking information disclosed herein is provided as of the date of this AIF only and the Corporation does not assume any obligation to update or revise such information to reflect any new information, estimates or opinions, future events or results or otherwise, except as required by applicable law.

TECHNICAL AND THIRD PARTY INFORMATION

Except where otherwise stated, the disclosure in this Annual Information Form ("AIF") relating to properties and operations on the properties in which Altius holds royalty and streaming interests is based primarily on information publicly disclosed by the owners or operators of these properties and information available in the public domain as at March 12, 2019. As a royalty holder, Altius has limited, if any, access to properties included in its royalty portfolio. Altius generally relies on publicly available information regarding these properties and operations and generally has no ability to independently verify such information. Additionally, Altius has, and may from time to time receive, operating information from the owners and operators of these properties, which it is not permitted to disclose to the public. Altius is dependent on the operators of the properties and their qualified persons to provide information to Altius or on publicly available information to prepare required disclosure pertaining to properties and operations on the properties on which Altius holds royalty and streaming interests and generally has limited or no ability to independently verify such information. Although Altius does not have any knowledge that such information may not be accurate, there can be no assurance that such third party information is complete or accurate.

All currency references in this AIF are to Canadian dollars unless otherwise indicated.

CORPORATE STRUCTURE

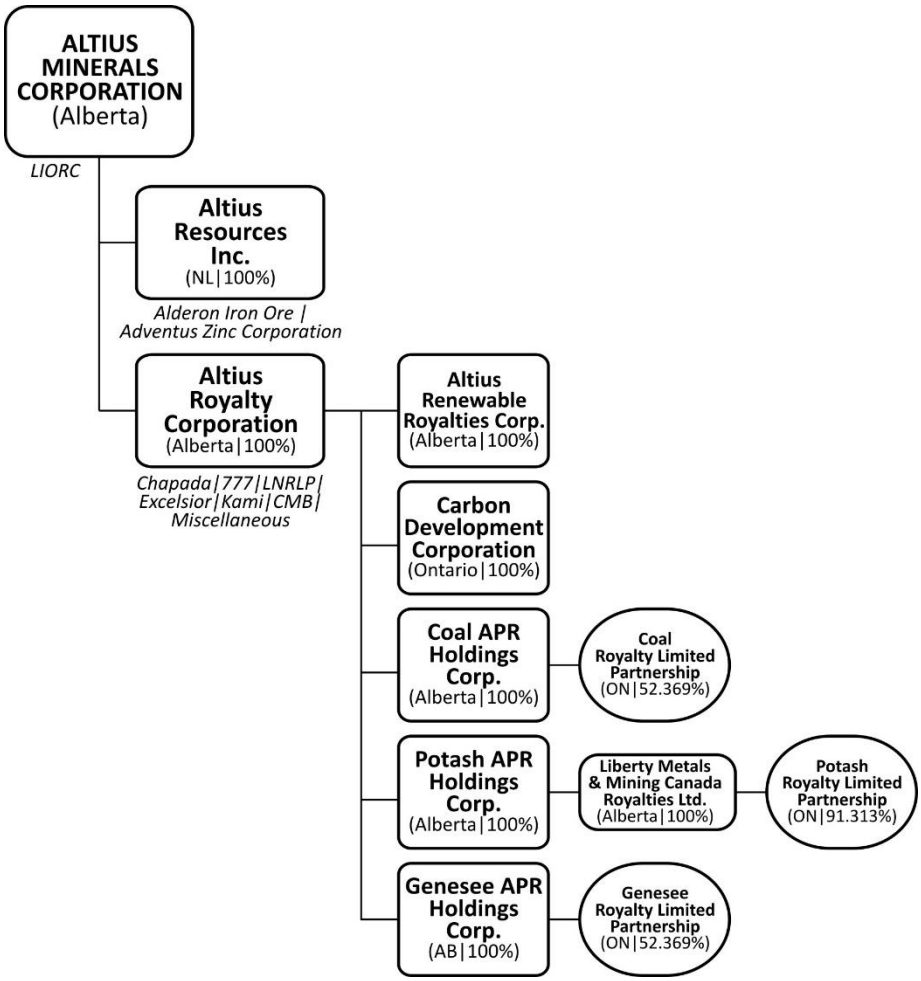
Name, Address and Incorporation

The Corporation was incorporated as a private corporation under the name 730260 Alberta Inc. by certificate and articles of incorporation (the "Articles") issued pursuant to the provisions of the *Business Corporations Act* (Alberta) on March 5, 1997. The Articles were amended by certificate and articles of amendment dated June 12, 1997 to remove the "private company" provisions and the restrictions on share transfers and to change the name of the Corporation to "Altius Minerals Corporation."

The head office of the Corporation is located at Suite 202 – 66 Kenmount Road, St. John's, Newfoundland and Labrador A1B 3V7. Its registered office is located at 4300 Bankers Hall West, 888 – 3rd Street S.W., Calgart Alberta, T2P 5C5.

Inter-Corporate Relationships

The following chart sets forth the intercorporate relationships between the Corporation and certain subsidiaries, their jurisdictions of incorporation, continuance, formation, or organization, as applicable, and the Corporation's current equity interest in each such subsidiary.



GENERAL DEVELOPMENT OF THE BUSINESS

Significant Acquisitions

On March 27, 2018, Altius announced the acquisition of additional potash royalty interests from Liberty Metals & Mining Holdings LLC ("Liberty") for $65 million. This brings the Corporation's total interest in Potash Royalty Limited Partnership ("PRLP") to 91.3% from its prior 52.4% interest. PRLP generates royalty revenue from six producing potash mines located in Saskatchewan, Canada including Nutrien Ltd's ("Nutrien") Rocanville, Vanscoy, Allan, Cory and Patience Lake mines and The Mosaic Company's Esterhazy mine.

The Corporation did not file a Form 51-102F4 (Business Acquisition Report) in respect of the acquisition of the potash royalty interests from Liberty on March 27, 2018.

Three Year History

2019 Year-To-Date

On January 28, 2019, Altius completed a drawdown of its revolving facility for $25 million to acquire mining and other investments.

On January 21, 2019, Altius announced that it had entered into an agreement to acquire a 2% Net Smelter Return Royalty covering the Curipamba copper-gold-zinc project ("Curipamba Project"), located in central Ecuador, for US$10 million in cash. The Curipamba Project is being developed under a 75:25 partnership between Adventus Zinc and Salazar Resources Ltd.

On February 7, 2019, Altius announced its first renewable energy royalty transaction. Through its recently formed subsidiary, Altius Renewable Royalties Corp., the Corporation has entered into a transaction with Tri Global Energy, LLC ("TGE"), to gain future royalties related to a portfolio of wind energy development projects. The US$30 million royalty investment into TGE will be invested in tranches over approximately the next three years as TGE achieves certain project advancement milestones, with an initial investment upon closing of US$7.5 million. On the same day, Altius also announced that it has acquired a private company, Great Bay Renewables, Inc. which holds a paying royalty on the 4.7 MW Clyde River hydroelectric/solar facility located in Vermont. Importantly, the GBR management will also continue as the operational management team of ARR and lead the business of further introducing the renewable energy royalty financing concept within the U.S. and elsewhere.

Year ended December 31, 2018

Attributable Royalty Revenue and Project Generation

Attributable royalty revenue for the year ended December 31, 2018 grew to $67 million compared to $46.7 million in the eight-month period ended December 31, 2017. Most of the growth came from the higher contribution from potash royalties reflecting the increased ownership, along with higher potash pricing. The Voisey's Bay nickel-copper-cobalt royalty, which had been suspended pending litigation proceedings, resumed payment in late 2018 when Altius and its partner, Royal Gold Inc., entered into a settlement agreement with Vale Canada Inc. and certain of its subsidiaries regarding the royalty calculation.

The project generation business had a very productive year, with sale or partnering transactions completed relating to a record 25 of its mineral properties. All of the project transactions have resulted in the creation of early stage royalties or royalty options in favour of Altius, in addition to either share or cash payments and work commitments by the incoming partners.

Refinancing of Credit Facility

On July 3, 2018, Altius announced a refinancing of its existing term and revolver debt. The $125 million of debt balance outstanding at the time of announcement was transferred to a new term facility with a maturity date of June 2023. In addition, the Corporation gained access to an additional $100 million revolver facility. The refinancing was jointly led by the Bank of Nova Scotia and ING Capital LLC, with participation from the Toronto-Dominion Bank and Export Development Canada. Concurrent with the refinancing, Altius entered into a floating-to-fixed interest rate swap to lock in the interest rate on $100 million of the term facility. This $100 million represents the portion of the term facility expected to be repaid through regular principal repayments of $5 million per quarter over the 5-year term, although additional repayments can be made at any time with no penalty. At December 31, 2018, the remaining balance on the term facility was $115 million, with no drawdowns on the revolver.

Normal Course Issuer Bid

In August 2018, Altius announced the renewal of its Normal Course Issuer Bid facility, which enables Altius to continue to repurchase its common shares on the open market through the TSX. The TSX approved a maximum of 2,038,535 shares for repurchase in the twelve-month period ending August 21, 2019, and as of December 31, 2018, the number of shares that have been repurchased is 297,100 shares. These shares were canceled and returned to treasury.

Increased Investment in Labrador Iron Ore Royalty Corporation

Altius continued to deploy cash toward an increased position in Labrador Iron Ore Royalty Corporation ("LIORC") and at December 31, 2018 owned 3,495,000 shares, or approximately 5.46%. Subsequent to year end, the Corporation increased its ownership to approximately 6.3%.

On February 5, 2019 Altius announced that the Corporation's management representatives met with the CEO and a Director of LIORC. Recent communications from LIORC concerning an intention to seek an amendment to its Articles of Incorporation had created uncertainty within Altius relating to continuity of its mandate to serve as a passive flow-through vehicle for royalties and equity dividends

of Iron Ore Corporation of Canada ("IOC"). Altius' investment in LIORC is predicated upon LIORC adhering to a commitment to serve as a passive flow-through vehicle for such royalties and equity dividends. On February 27, 2019 the Corporation announced that during a constructive meeting held with representatives of LIORC, it received positive assurances that LIORC no longer intends to pursue changes to its current Articles or its passive flow-through mandate and that it will maintain adherence to its policy of paying dividends to the maximum extent possible. A special dividend was subsequently announced by LIORC on March 7. 2019. Prior to the meeting Altius responded to an invitation to provide the board of LIORC with details of an analysis it completed that examined the potential merits of segregating its IOC equity and royalty interests.

Increased Position in Alderon Iron Ore

On March 22, 2018, Altius acquired 18,797,454 common shares of Alderon Iron Ore Corp. ("Alderon") from Liberty. Subsequent to this acquisition, in July 2018, Altius also participated in a loan facility led by Sprott Resource Lending, whereby Altius became a lender of US$2 million of the US$14 million facility. Interest on the loan is payable to lenders Sprott Resource Lending and Altius at the rate of 10% per annum, paid monthly. The maturity date of the facility is December 31, 2019, which is extendible in accordance with the terms of the facility. The loan proceeds were used to repay a loan from Liberty. Alderon common shares were issued to Sprott Resource Lending and Altius as part of this transaction, diluting the Altius common share position to approximately 38%. Alderon is a leading iron ore development company proposing to develop the Kami Iron Ore Project, located within Canada's premier iron ore district, the Labrador Trough, and is surrounded by three producing iron ore mines.

Filing of Statement of Claim Against Alberta and Canadian Federal Governments over Coal Royalties

As reported by press release dated November 26, 2018, the Genesee Limited Partnership, of which Altius is the General Partner, has filed suit against the governments of Alberta and Canada. The suit claims $190 million in damages and describes actions that Altius believes were tantamount to expropriation of its royalty interest in the integrated Genesee Mine (as defined below) and power plant in Alberta. More particularly, the suit claims an unlawful taking of its property and undue interference with its economic interests.

Lynx Diamond Project in Manitoba

Altius continued early stage exploration work on the Lynx Diamond project, the first known discovery of diamonds in Manitoba, during 2018. In addition, during the 2018 year, Altius incorporated a private company to focus solely on the Lynx Diamond project. 100% of the Lynx Diamond Project was transferred to Adia Resources Inc ("Adia") in exchange for common shares and a royalty option. The Corporation initially owned 80% of the newly formed entity. Subsequently, Adia entered into an agreement with De Beers Canada, Inc. to provide in-kind services, receiving as payment common shares of Adia valued up to $1.5 million. De Beers Canada, Inc. will use proprietary geotechnical services to further evaluate and advance the project before a larger investment decision is made. Adia has also built up its leadership team and commenced exploratory drilling in February and has raised funds through a private placement to conduct the phase one of drilling before considering a go -public strategy.

Eight Month Period Ended December 31, 2017

In the eight-month period between May 1, 2017 to December 31, 2017, commodity price appreciation and production improvements continued to fuel record royalty revenue. Attributable royalty revenue for the eight-month period is $46.7 million, compared with approximately $46.0 million for the full twelve-month period ended April 30, 2017.

Renewal of Normal Course Issuer Bid

In August 2017, Altius announced the resumption of its Normal Course Issuer Bid (NCIB) program, under which the Corporation made purchases of 48,400 shares at a weighted average price of $12.45 per share over the twelve-month period that ended August 2018. These repurchased shares were then canceled and returned to treasury.

Lynx Diamond Project in Manitoba

In September 2017, Altius announced the discovery of micro diamonds on its 100% owned Lynx Diamond Project ("Project"). During June and July, Altius collected 23 outcrop channel and grab samples (sixteen kilograms each) from various parts of the Project following up positive results that had been reported earlier in the year. The samples were submitted for micro-diamond analysis ("MiDA"). All 11

samples collected from the Eastern Bay zone were diamondiferous – yielding between 34 and 303 micro-diamonds per sample (note that grab and channel samples reported here are selective and may not be representative of the mineralization on this property). From these 11 Eastern Bay zone samples, a total of 1,149 micro-diamonds in the +0.106 mm to +0.850 mm size fraction were recovered from a total of 176 kg of outcrop sample material. Eight of the diamonds are considered macros with a dimension of at least 0.5 mm, with the largest stone having a long axis of 1.42 mm.

Wolfden Resources Royalty and Equity Purchase

In November 2017, Altius announced the combination of a royalty and equity purchase, whereby Altius agreed to purchase 14,200,000 equity subscription receipts of Wolfden Resources Corporation ("Wolfden") for an aggregate amount of $3.55 million. At the same time, for cash consideration of US$6 million, Altius acquired a 1.35% Gross Sales Royalty on the Pickett Mountain VMS deposit in Northern Maine, which is currently in exploration. With this share purchase, Altius became a 13.44% holder of Wolfden.

Full Drawdown of Fairfax Preferred Facility and Increased Investment in Labrador Iron Ore Royalty Corporation

By the end of November 2017, Altius had drawn the full $100 million Fairfax preferred security facility, with the proceeds used mainly to accumulate shares of LIORC, as well as smaller investments in Wolfden as described above and to acquire an additional Rocanville potash royalty from the publicly traded entity, McChip Resources Inc.

Dividend Increase

In December 2017, as part of its financial reporting, Altius announced that its board of directors ("Board") had approved an increase to the quarterly dividend on its common shares of one cent per share, resulting in a new annual dividend rate of 16 cents per share from the prior rate of 12 cents per share.

Fiscal Year Ended April 30, 2017

Junior equity markets improved as a result of the cyclical upturn in commodity prices that gained momentum in the second half of 2016. The Corporation took advantage of this upturn to vend 22 mineral properties in eight separate vend out agreements to third parties during the year.

The Corporation also added another producing royalty/streaming interest (to bring its total to 15) with the acquisition of the Chapada copper stream from Yamana Gold Inc. ("Yamana"). The Corporation increased its credit capacity and lowered its debt cost with a new credit facility led by the Bank of Nova Scotia and gained additional access to capital through an investment agreement with Fairfax Financial Holdings Limited.

Fairfax Investment

On April 26, 2017 the Corporation executed an agreement with Fairfax Financial Holdings Limited and certain of its subsidiaries (collectively "Fairfax") which will allow Fairfax to invest up to $100,000,000 in the Corporation's preferred securities and common share purchase warrants. Fairfax agreed to purchase, on a private placement basis, a $10, 5% preferred security, in an aggregate amount of up to $100,000,000, issuable in tranches of not less than $25,000,000. The preferred securities are subordinate secured securities that may be repaid by the Corporation at any time after April 26, 2022 and at any time after April 26, 2020 if the volume-weighted average trading price of its common shares for any 10-day period after April 26, 2020 is at least $24 per share. The preferred securities mature on April 26, 2102.

On April 26, 2017 the Corporation also issued 6,670,000 common share purchase warrants, exercisable at $15 per share, which will vest proportionately based on the aggregate amount of preferred securities purchased by the Fairfax entities under the private placement. Each vested warrant will be exercisable on or prior to April 26, 2022, but the expiry date will be extended to April 26, 2024 if the closing price of the Corporation's common shares is less than $24 per share on April 26, 2022. The Corporation can also elect to require early exercise of the warrants if the volume-weighted average trading price of the Corporation's common shares, for any 10-day period, reaches $24 per share at any time after April 26, 2020.

Chapada Copper Stream

On May 3, 2016 the Corporation closed an agreement ("Agreement") to acquire a copper purchase streaming interest in the Chapada copper-gold mine located in central Brazil and operated by a subsidiary of Yamana. The total consideration paid for the acquisition was US$60,000,000 and 400,000 common share purchase warrants of the Corporation**.** Under the terms of the Agreement, the Corporation is entitled to purchase 3.7% of the payable copper produced from the Chapada mine at 30% of the market price. The percentage of payable copper is subject to reduction in the event of a threshold production increase at Chapada or upon delivery of 75 million pounds of copper to the Corporation. Additional details on the agreement can be found in the Corporation's news release dated March 31, 2016 and filed under the Corporation's profile on SEDAR.

Equity Raise

On May 3, 2016, the Corporation closed an equity financing under a short-form prospectus. The equity offering consisted of 3,578,800 common shares of the Corporation (the "Common Shares") at a price of $11.25 per Common Share, for aggregate gross proceeds of $40,261,500. The Common Shares were offered for sale pursuant to an underwriting agreement dated April 19, 2016 between the Corporation and a syndicate of underwriters that included TD Securities Inc., Scotia Capital Inc., Raymond James Ltd., BMO Nesbitt Burns Inc. and Haywood Securities Inc. Upon closing, the Corporation paid the Underwriters a fee equal to 5.0% of the gross proceeds of the equity offering. The Corporation used the net proceeds of the equity offering for general corporate purposes and to partially fund the acquisition of the Chapada copper stream.

Credit Facility

The Corporation arranged a new senior secured debt facility of $150,000,000 (the "New Credit Facilities"), comprised of a $70,000,000, 4-year amortizing term debt facility (the "Term Facility") and an $80,000,000, 3 year, revolving facility (the "Revolving Facility"). The Term Facility was repayable over a four year period with quarterly principal repayments of $2,000,000, which commenced July 31, 2016, until July 31, 2017 and increased to $3,250,000 per quarter thereafter, bearing interest at variable rates of approximately 5.3%. The Revolving Facility is payable in full in 3 years and also bears interest at variable rates. Additional draw-downs on the Revolving Facility are permitted for future qualifying royalty and streaming acquisitions.

Zinc, Ireland and Newfoundland

In December 2016, Altius reported that together with select strategic investors it participated in the co-founding of a new company, Adventus Zinc Corporation ("Adventus Zinc") (TSXV:ADZN), by contributing a portfolio of zinc exploration projects from its Newfoundland and Irish properties and cash in exchange for shares in Adventus Zinc. Adventus Zinc, through an Initial Public Offering, began trading as a public company on the TSXV on February 9, 2017. The Corporation held an initial position of 12,114,012 shares (approximately 26.6%) and two seats on Adventus Zinc's board of directors.

Adventus Zinc is focused on pursuing the acquisition of one or more advanced-stage zinc projects while advancing its portfolio of prospective zinc exploration projects located in both Ireland and Eastern Canada.

DESCRIPTION OF THE BUSINESS

General

The Corporation has two key elements to its long-term business strategy - the building of a diversified portfolio of long-life royalty/streaming interests and the generation of high quality exploration projects that are converted to royalties and various other types of third party funded interests. Both business components recognize the strong inherent cyclicity of valuations and the availability of capital within the minerals sector and are managed with contrarian discipline over full-cycle investment timeframes. Altius currently has 21 employees.

Its diversified direct and indirect royalties and streams generate revenue from 15 operating mines located in Canada (14) and Brazil (1), from copper, zinc, nickel, cobalt, precious metals, potash, iron ore and thermal (electrical) and metallurgical coal. The portfolio also includes development stage royalties in copper and renewable energy and numerous pre-production stage royalties covering a wide spectrum of mineral commodities in numerous jurisdictions.

The Corporation's exploration project generation portfolio is well diversified by commodity and geography and consists of exploration projects it has generated in respect of which it seeks to create funding partnerships with other exploration and mining companies to advance the projects while retaining royalties and equity or minority project interests.

See Schedules "A", "B", "C" and "D" for additional discussion on material royalties as well as Item 7 Royalty Portfolio.

Coal

The coal royalties comprise royalty interests in respect of thermal (electrical) coal produced from the Genesee Mine, the Sheerness Mine, the Paintearth Mine and the Highvale Mine. As a result of Alberta's climate leadership plan that is phasing out fossil fuels, these four electrical coal royalties are not expected to produce beyond 2030, which is the deadline that the province has set. The Corporation also holds a royalty interest in respect of metallurgical coal produced from the Cheviot Mine. All of the coal mines are located in Alberta, Canada.

The government of Alberta has publicly acknowledged that the province's new policy objective - to completely phase out coal-based electrical generation capacity by 2030 - will have a negative economic impact on certain stakeholders that made investments in its integrated coal electricity sector under previous policy regimes. It has therefore elected to provide transition payments to impacted electrical generation stations as a means of compensation for resulting stranded investments and to ensure continuing investor confidence in the province. After attempting unsuccessfully to seek positive engagement with the Alberta government for a year, Altius announced in November 2018 the filing of a Statement of Claim against the governments of Alberta and Canada. The suit claims $190 million in damages while describing actions that Altius believes were tantamount to expropriation of its royalty interest in the integrated Genesee Mine and power plant in Alberta. More particularly, the suit claims an unlawful taking of its property and undue interference with its economic interests. The Statement of Claim was subsequently served to both governments in early 2019.

Coal Royalty Agreements

The coal royalties are comprised of electrical coal rights at the Genesee Mine, Sheerness Mine, Paintearth Mine and Highvale Mine, which are payable under coal leases, coal supply/exchange agreements and the Genesee Royalty Agreement. All of the electrical coal royalty arrangements provide for a royalty payable at a base rate with an annual escalator provision that is tied to indices published by Statistics Canada. Electrical coal royalties are paid by the power utilities and the royalty rates are escalated in accordance with Canadian GDP inflation, in most cases. Certain of the coal rights to which the coal royalties are tied have been unitized with the coal rights of other owners within a larger geographic area to form dedicated reserves. These dedicated reserves may or may not be subject to unitization agreements. Under a unitization agreement, any coal produced from a unitized area is allocated to and deemed to be produced from the lands of each party in accordance with each party's proportionate share of the coal reserves for the purpose of calculating royalties. Under the terms of its unitized leases, Altius will earn its share of royalties based on its proportionate share of total coal production within the unitized area. Under a non-unitized arrangement, actual royalties earned may vary depending on the total coal production in the areas where coal and royalty mineral rights are located. At the Sheerness Mine, Paintearth Mine and Highvale Mine, not all coal rights have been unitized and, as such, variations will result from mining operations moving in and out of the areas where coal and mineral rights are located.

Chapada Copper Stream

On May 3, 2016 Altius completed its acquisition of a copper purchase agreement (the "Copper Purchase Agreement") with a subsidiary of Yamana to acquire future copper payments referenced to Yamana's Chapada copper-gold mine located in central Brazil (the "Chapada Mine"). The Copper Purchase Agreement has a base rate of 3.7% referenced to copper production from the Chapada Mine, reducing to 1.5% for remaining life of mine after 75 million pounds of copper are delivered to Altius. In addition, the Copper Purchase Agreement

provides for an expansion incentive rate whereby the base rate decreases to 2.65% in the event of an expansion of the Chapada Mine. The Copper Purchase Agreement is guaranteed by Yamana and Yamana's wholly-owned Brazilian subsidiary, which owns the Chapada Mine. For more information on the Chapada Mine, please refer to Schedule "B" to this AIF.

Potash

The potash royalties comprise royalty interests in respect of potash produced from the Rocanville Mine, Cory Mine, Allan Mine, Patience Lake Mine, Vanscoy Mine and Esterhazy Mine, each of which is located in Saskatchewan, Canada.

Potash Royalty Agreements

The potash royalty agreements under which the potash royalties are payable are generally structured as a lease of subsurface mineral rights, owned by a party to a potash mining company, in return for a royalty payment based on a percentage of the net selling price of potash. The specific royalty percentages are generally determined in accordance with Saskatchewan's Subsurface Mineral Regulations, which provide for a variable rate depending on the average grade of potash ore mined. The net selling price is typically determined with reference to the mining company's list price for standard grade potash.

Subsurface minerals are leased to Nutrien and Mosaic Co., which are mining companies that have the exclusive right to mine the leased subsurface minerals under various unitized and non-unitized leases. Under the unitized leases, as with the coal royalties, Altius will earn royalties based on its proportionate share of all potash mined within the larger area. Altius will earn royalty payments for each tonne of potash produced based on the market price of potash, the quality of the potash that is produced during a given period, and the tonnage produced from within the lands or the unitized area. Actual royalties earned each year may vary depending on total potash production at each of the mines underlying the potash royalties. At mines where the leases of mineral rights are not unitized, or where there are multiple unitized areas, variations will also result from mining operations moving in and out of the areas where the potash rights are located.

777 Mine

Altius owns a 4% net smelter royalty, in addition to a tonnage royalty, covering the 777 Mine and the 777 North expansion, which are located in the Flin Flon mining district, Manitoba, Canada and are operated by Hudbay Minerals Inc. The 777 Mine is an underground mining operation that commenced commercial production in 2004 and has an expected mine life of 2021 based on current reserves. The mine is a low-cost producer of copper, zinc, gold and silver.

Voisey's Bay

In 2003, Altius indirectly acquired a 7.5% interest in a 3% net smelter return royalty interest in Voisey's Bay nickel-copper-cobalt project. Altius has since increased its 7.5% interest to a 10% interest and therefore currently has an effective 0.3% net smelter return royalty. The Voisey's Bay mine is operated by Vale S.A. Royalty payments were suspended by Vale Canada Inc., as further described in the Legal Proceedings section of this AIF, but have resumed effective 2018 with the announced settlement between Altius, and its partner Royal Gold Inc., with Vale Canada Inc. and certain of its subsidiaries. Total royalty revenue in 2018 was approximately $973,000, which represents three quarters due to the timing of the settlement in 2018.

Below is a summary of the Corporation's producing royalties and 2018 revenues.

Summary of Producing Royalties and Streaming Interests

Mine	Operator	Royalty	2018 Revenue [1] (millions $)	Commodity
Chapada	Yamana Gold	3.7% of payable copper	17.0	Copper
777	Hudbay Minerals	Net smelter	11.3	Zinc, Copper, Gold & Silver
Genesee	Westmoreland/Capital Power Corporation	Tonnes x indexed multiplier	5.9	Coal/Electricity
Sheerness	Westmoreland/ATCO/TransAlta	Tonnes x indexed multiplier	5.5	Coal/Electricity
Paintearth	Westmoreland/ATCO	Tonnes x indexed multiplier	0.5	Coal/Electricity
Highvale	TransAlta	Tonnes x indexed multiplier	1.2	Coal/Electricity
Cheviot	Teck	2.5% effective net revenue	3.2	Metallurgical Coal
Rocanville	Potash Corp	Revenue	8.9	Potash
Cory	Potash Corp	Revenue	0.7	Potash
Allan	Potash Corp	Revenue	0.7	Potash
Patience Lake	Potash Corp	Revenue	0.2	Potash
Esterhazy	Mosaic	Revenue	3.4	Potash
Vanscoy	Agrium	Revenue	0.1	Potash
Voisey's Bay	Vale	0.3% NSR	1.0	Nickel-Copper-Cobalt
CDP	Various	Revenue	0.7	Potash /other
IOC [2]	Iron Ore Company of Canada	7% gross overriding royalty	5.9	Iron

(1) Attributable revenue (non-gaap) based on annual Management Discussion and Analysis, December 31, 2018
(2) Held indirectly through common shares of Labrador Iron Ore Royalty Corporation

Founding Equity Stakes

Adventus

The Corporation currently owns 21.9% and one board seat in Adventus Zinc Corporation ("Adventus Zinc"), by contributing a portfolio of zinc exploration projects from its Newfoundland and Irish properties and cash in exchange for shares in Adventus Zinc. Adventus Zinc, through an Initial Public Offering, began trading as a public company on the TSXV on February 9, 2017.

Alderon

The Corporation currently holds a 38% interest in Alderon Iron Ore Corporation, a corporation conducting further exploration and evaluation work on the Kamistaitusset ("Kami") iron ore property located in western Labrador. The Corporation received its initial equity stake in exchange for transfer of the Kami iron ore property in 2011and added to its ownership position in 2018.

Risk Factors

The following risk factors relating to Altius are most likely to influence an investor's decision to buy, sell or hold securities of the Corporation.

Operational and Development Risk

The Corporation operates in the mineral exploration sector, which implicitly involves a high degree of risk caused by limited chances of discovery of an economic deposit and eventual mine development. The Corporation mitigates this risk by cost-sharing with exploration partners and by continuously evaluating the economic potential of each mineral property at every stage of its life cycle.

Development Stage Projects

Profits from commercial operations will depend on a significant number of factors, including economic feasibility, changing market conditions, aboriginal involvement, environmental and governmental regulations, labour availability, the cost of and the ability to attract external financial capital, and the ability to attract partners with sufficient technical expertise and relevant industry experience to further develop the various projects. Any failure to meet one or a combination of these factors may result in project delays or potential cancellation and the Corporation's future operating results may be adversely affected. The Corporation mitigates this risk by evaluating the economic potential of each property at each stage of its life cycle and through diversification of projects.

Dependence on Third Party Property Owners and Operators

The revenue derived from the Corporation's royalty portfolio is based on production by third party property owners and operators. These owners and operators are responsible for determining the manner in which the properties underlying the royalties are exploited, including decisions to expand, continue or reduce production from a property, and decisions to advance exploration efforts and conduct development of non-producing properties. The Corporation will have little or no input on such matters. The interests of third party owners and operators and those of the Corporation on the relevant properties may not always be aligned. As an example, it will, in almost all cases, be in the interest of the Corporation to advance development and production on properties as rapidly as possible in order to maximize near term cash flow to mitigate the risk, while third party owners and operators may, in many cases, take a more cautious approach to development as they are at risk on the cost of development and operations. The inability of the Corporation to control the operations for the properties in which it has a royalty interest may result in a material and adverse effect on the Corporation's profitability, results of operation and financial condition.

Exposure to Mineral Price Fluctuations

The revenue derived by the Corporation from the its royalty portfolio and investments could be affected by changes in the market price of the commodities that underlie those royalties and other investments, which can affect production levels to which its royalty portfolio is tied. The Corporation's revenue will be particularly sensitive to changes in the price of copper, metallurgical coal and potash, as the revenue from these commodities represents the majority of the cash flow expected to be derived in the near future. Commodity prices, including those to which the Corporation is exposed, fluctuate on a daily basis and are affected by numerous factors beyond the control of the Corporation, including levels of supply and demand, industrial development levels, inflation and the level of interest rates. Such external economic factors are in turn influenced by changes in international investment patterns, monetary systems and political developments.

All commodities, by their nature, are subject to wide price fluctuations and future material price declines will result in a decrease in revenue or, in the case of severe declines that cause a suspension or termination of production by relevant operators, a complete cessation of revenue from royalties or working interests applicable to one or more relevant commodities. Moreover, the broader

commodity market tends to be cyclical, and a general downturn in overall commodity prices could result in a significant decrease in overall revenue. Any such price decline may result in a material and adverse effect on the Corporation's profitability, results of operation, financial condition and dividend policy. The Corporation mitigates this risk through monitoring of prices as well as ensuring asset and commodity diversification.

Limited Access to Data and Disclosure for Royalty / Stream Portfolio

The Corporation neither serves as the mine property owner or operator for the properties underlying its royalty portfolio, and in almost all cases the Corporation has no input into how the operations are conducted. Consequently, the Corporation has varying access to data on the operations or to the actual properties themselves. This could affect its ability to assess the value of the royalty interest or enhance the royalty's performance. This could also result in delays in cash flow from that anticipated by the Corporation based on the stage of development of the applicable properties underlying its royalty portfolio. The Corporation's royalty payments may be calculated by the royalty payors in a manner different from the Corporation's projections and the Corporation may or may not have rights of audit with respect to such royalty interests. In addition, some royalties may be subject to confidentiality arrangements that govern the disclosure of information with regard to royalties and as a result the Corporation may not be in a position to publicly disclose non-public information with respect to certain royalties. The limited access to data and disclosure regarding the operations of the properties in which the Corporation has an interest may restrict the Corporation's ability to assess the value or enhance its performance, which may result in a material and adverse effect on the Corporation's profitability, results of operation and financial condition. The Corporation mitigates this risk by building relationships with various operators and counterparties to encourage information sharing.

Dependence on Payment from Operators

The Corporation will be dependent to a large extent upon the financial viability and operational effectiveness of owners and operators of the properties underlying its royalty and streaming portfolio. Payments from production generally flow through the operator and there is a risk of delay and additional expense in receiving such revenues. Payments may be delayed by restrictions imposed by lenders, delays in the sale or delivery of products, recovery by the operators of expenses, the establishment by the operators of mineral reserves for such expenses or the bankruptcy, insolvency or other adverse financial condition of the operator. The Corporation's rights to payment under the royalties must, in most cases, be enforced by contract without the protection of a security interest over property that the Corporation could readily liquidate. This inhibits the Corporation's ability to collect outstanding royalties upon a default. In the event of a bankruptcy, insolvency or other arrangement of an operator or owner, the Corporation will be treated like any other unsecured creditor, and therefore have a limited prospect for full recovery of royalty revenue. The Corporation mitigates this risk by having formal legal agreements with royalty payors which would allow the Corporation to exert legal rights and enforce royalty contracts, if required.

Unknown Defects and Impairments

A defect in a streaming transaction under a copper purchase agreement may arise to defeat or impair the claim of the Corporation to such streaming transaction, which may have a material adverse effect on the Corporation. It is possible that material changes could occur that may adversely affect management's estimate of the recoverable amount. Any impairment estimates, which are based on applicable key assumptions and sensitivity analysis, are based on management's best knowledge of the amounts, events or actions at such time, and the actual future outcomes may differ from any estimates that are provided by the Corporation. Any impairment charges on the Corporation's carrying value could have a material adverse effect on the Corporation.

Security over Underlying Assets

There is no guarantee that the Corporation will be able to effectively enforce any guarantees, indemnities or other security interests it may have. Should a bankruptcy or other similar event related to a mining operator occur that precludes a party from performing its obligations under the copper purchase agreement, the Corporation would have to enforce its security interest. In the event that the mining operator has insufficient assets to pay its liabilities, it is possible that other liabilities will be satisfied prior to the liabilities owed to the Corporation. In addition, bankruptcy or other similar proceedings are often a complex and lengthy process, the outcome of which may be uncertain and could result in a material adverse effect on the Corporation.

The Corporation's security interests may be subject to enforcement and insolvency laws of foreign jurisdictions that differ significantly from those in North America, and the Corporation's security interests may not be enforceable as anticipated. Further, there can be no assurance that any judgments obtained in Canadian courts will be enforceable in any of those jurisdictions. If the Corporation is unable to enforce its security interests, there may be a material adverse effect on the Corporation.

The Ability to Attract Partners for Exploration

The probability of successfully progressing early stage projects is dependent on an ability to attract exploration partners to share project expenditures and to provide additional technical expertise required to develop projects. If the Corporation is unable to attract partners to cost-share project expenditures and to provide additional technical expertise, the level of exploration the Corporation could perform with limited personnel may be adversely impacted. This could affect the likelihood of discovering future commercially feasible projects. To mitigate this risk, the Corporation monitors the market cycles and adjusts our business development approach for the changes. Marketing and business development are ongoing throughout all stages.

Credit Facility

The Credit Facility is subject to certain restrictive conditions that limit the discretion of management with respect to certain business matters, including financial covenants that require the Corporation to meet certain financial ratios, financial condition tests and other restrictive covenants. A failure to comply with the obligations in the Credit Facility could result in a default which, if not cured or waived, could result in a termination of the Credit Facility. The Corporation monitors this risk by analysis of financial results and covenant calculations as well as ongoing communications with creditors.

Leverage Risk

The Corporation's degree of leverage, could have adverse consequences for the Corporation, including: limiting the Corporation's ability to obtain additional financing for working capital, debt service requirements, acquisitions and general corporate or other purposes; restricting the Corporation's flexibility and discretion to operate its business; having to dedicate a portion of the Corporation's cash flows from operations to the payment of interest on its existing indebtedness and not having such cash flows available for other purposes including expenditures that are important to its growth and strategies; exposing the Corporation to increased interest expense on borrowings at variable rates; limiting the Corporation's ability to adjust to changing market conditions; and placing the Corporation at a competitive disadvantage compared to its competitors that have less debt. The Corporation mitigates this risk through awareness and recognition that reducing the debt balance is a priority and ensuring that the Corporation meet debt obligations and working capital requirements by budgeting and monitoring cash flow.

Dividends

The ability to pay dividends will be dependent on the financial condition of the Corporation. Payment of dividends on the Corporation's common shares is within the discretion of the Board and will depend upon the Company's future earnings, cash flows, acquisition capital requirements and financial condition, and other relevant factors. Although the Corporation currently pays a regular dividend, there can be no assurance that it will be in a position to declare dividends due to the occurrence of one or more of the risks described herein.

Debt and Equity Financing

Because of their size and scale, the success of some resource-based projects depends on the ability of the Corporation, its partners or its investments to raise the financial capital required to successfully construct and operate a project. This ability may be affected by general economic and market conditions, including the perceived threat or actual occurrence of an economic recession or liquidity issues. If market conditions are not favorable, major resource based projects could be cancelled or delayed, or the expected rate of return to the Corporation may be significantly diminished. The Corporation mitigates this risk by asset and commodity diversification to protect and cover if one market is unfavorable.

Government Regulations

The Corporation's operations are subject to extensive governmental regulations with respect to such matters as environmental protection, health, safety and labour; mining law reform; restrictions on production or export, price controls and tax increases; aboriginal

land claims; and expropriation of property in the jurisdictions in which it operates. Compliance with these and other laws and regulations may require the Corporation to make significant capital outlays which may slow its growth by diverting its financial resources. The enactment of new adverse regulations or regulatory requirements, such as the announcement by the Government of Alberta regarding the phase out of its coal fueled electrical generation capacity by 2030 or more stringent enforcement of current regulations or regulatory requirements may increase costs, which could have an adverse effect on the Corporation. As a result of these regulations, there is the possibility of operators converting coal fired electrical generation to gas generation prior to 2030 which could have an adverse effect on the Corporation's thermal coal royalties. The Corporation cannot give assurances that it will be able to adapt to these regulatory developments on a timely or cost effective basis. Violations of these regulations and regulatory requirements could lead to substantial fines, penalties or other sanctions. The Corporation mitigates this risk through not doing business in unstable countries and within stable countries, the Corporation follows all laws and regulations and engages legal counsel to ensure compliance, if necessary.

Key Employee Attraction and Retention

The Corporation's continued success is highly dependent on the retention of key personnel who possess business and technical expertise and are well versed in the various projects underway and under consideration. The number of persons skilled in the acquisition, exploration and development of natural resource and mining projects is limited and competition for such persons is intense. As the Corporation's business activity grows, additional key financial, administrative and operations personnel as well as additional staff may be required. Although the Corporation believes it will be successful in attracting, training and retaining qualified personnel, there can be no assurance of such success. If the Corporation is not successful in attracting, training and retaining qualified personnel, the efficiency of operations may be affected. Additionally, should any key person decide to leave, then the success of one or more of the projects underway or under consideration could be at risk.

Although safety and health factors are considered integral to all aspects of the Corporation, mineral exploration is an inherently risky business. In the event of an accident or an unforeseen circumstance, the Corporation has emergency succession plans in place for both the Executive Chairman and the CEO of the Corporation as well as for other members of senior management.

Exploration Alliances

The Corporation's objective is to create joint ventures or corporate structures related to the opportunities it generates, which results in the Corporation carrying minority and non-operating project or equity interests and/or royalty interests. In certain circumstances the Corporation must rely on the decisions and expertise regarding operational matters for properties, equity interests and other assets including: whether, when and how to commence permitting; feasibility analysis; facility design and operation, processing, plant and equipment matters; and the temporary or permanent suspension of operations. In some of these instances, it may difficult or impossible for the Corporation to ensure that the properties and assets are operated in its best interest. To mitigate this risk, the Corporation participates in cost-sharing with exploration partners. As well, there is continuous evaluation of economic potential of each property at every stage of its life cycle. The Corporation will undertake ongoing monitoring and relationship building with appropriate government officials in order to have input into possible regulatory changes and to better plan for what these changes might mean financially and operationally to the Corporation.

Legal Claims

Altius may become party to legal claims arising in the ordinary course of business, including as a result of activities of joint ventures in which it has an interest. There can be no assurance that any such legal claims will not result in significant costs to Altius. To mitigate this risk, there are ongoing communications with the parties to whom it does business and are aware of any legal issues and potential operational and financial impacts. The Corporation works diligently with counterparties to limit legal issues.

Title to Mineral Properties Cannot Be Assured

The acquisition of title to mineral properties is a very detailed and time consuming process. Title to, and the area of, mineral rights may be disputed and additional amounts may have to be paid to surface rights owners in connection with any development of mining activity. The properties may also be subject to prior unregistered agreements of transfer or aboriginal land claims, and title may be affected by undetected defects. Although Altius believes it has taken reasonable measures to ensure that title to its properties are in good standing,

there is no guarantee that title to its 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 the Corporation.

Financial Instrument Risk

The Corporation's financial assets and financial liabilities are exposed to various risk factors that may affect the fair value presentation or the amount ultimately received or paid on settlement of its assets and liabilities. The Corporation manages these risks through prudent investment and business decisions, and, where the exposure is deemed too high, the Corporation may enter into derivative contracts to reduce this exposure. The Corporation does not utilize derivative financial instruments for trading or speculative purposes. Hedge accounting is applied only when appropriate documentation and effectiveness criteria are met. The Corporation does not currently use any hedges.

A summary of the major financial instrument risks and the Corporation's approach to the management of these risks are highlighted below.

Credit risk

Credit risk is the risk that a third party might fail to fulfill its performance obligations under the terms of a financial instrument. Credit risk arises from cash and cash equivalents and receivables. The Corporation closely monitors its financial assets, including the receivables from royalty operators who are responsible for remitting royalty revenues. The operators are established and reputable companies in the mining and mineral sector and as such management does not believe we have a significant concentration of credit risk.

Foreign currency risk

Certain royalty and streaming interests are denominated and paid in US dollars and therefore expose the Corporation to foreign currency fluctuations. The Corporation does not enter into any derivative contracts to reduce this exposure. However, a portion of the Corporation's new credit facility is denominated in US dollars and acts to partially offset the near-term variability in the US dollar exchange rate.

Liquidity risk

The Corporation believes that on a long-term basis its revenue generating assets, ability to increase its Credit Facility and net working capital position will enable it to meet current and future obligations at the current level of activity. This conclusion could change with a significant change in the operations of the Corporation or from other developments.

Other price risk

The value of the Corporation's mining and mineral related investments is exposed to fluctuations in the quoted market price depending on a number of factors, including general market conditions, company-specific operating performance and the market value of the commodities that the companies may focus on. The Corporation does not utilize any derivative contracts to reduce this exposure.

The Corporation may be unable to sell its entire interest in an investment without having an adverse effect on the fair value of the security due to low trading volumes on some investments. The Corporation does not enter into any derivative contracts to reduce this exposure.

Interest rate risk

The Corporation has debt and is therefore exposed to interest rate risk on liabilities. The Corporation manages this risk by monitoring debt balances, entering into hedging transactions and making discretionary payments, as well as maintaining a diversified royalty portfolio. The Corporation entered into a floating to fixed interest rate swap to manage the interest rate risk of its debt balance. The Corporation's cash and cash equivalents may fluctuate in value depending on the market interest rates and the time to maturity of the instruments. The Corporation manages this risk by limiting the maximum term to maturity on invested funds or holding the investments to maturity.

ROYALTY PORTFOLIO

The Corporation considers the following royalties to be material for purposes of National Instrument 43-101 – *Standards for Disclosure for Mineral Projects* ("NI 43-101").

Genesee Royalty

The Corporation holds a royalty on the Genesee coal mine (the "Genesee Mine"), which is located approximately 70 km southwest of Edmonton, Alberta (the "Genesee Royalty"). The Genesee Mine, which is an open pit mine, has been in operation since 1989 and has an annual production capacity of 5.1 Mt. Its coal is delivered to the Genesee power station which is approximately 25 km southwest of the mine. The power station is operated by Capital Power Corporation.

The coal rights underlying the Genesee Royalty have been unitized with the coal rights of other owners within a larger geographic area and are subject to a unitization agreement. The Genesee Royalty has been amended to replace the crown equivalent royalty with an inflationary indexed rate and an overriding royalty, which is an agreed upon base rate that is escalated by the GDP implicit price index published by Statistics Canada.

Additional information on the Genesee Royalty can be found in Schedule "A" to this AIF.

Chapada Copper Stream

Under the terms of the Chapada Copper Streaming Agreement, the Corporation is entitled to purchase 3.7% of the payable copper produced from the Chapada mine at 30% of the market price. The rate of payable copper is subject to reduction in the event of a threshold production increase at Chapada or upon delivery of 75 million pounds of copper.

The Chapada mine is located in Goias state, Brazil, and is a 21- to 22-million-tonne-per-year copper-gold mine that began production in 2007. It produced 129 million pounds of copper in 2018, an increase over the original guidance provided by Yamana of 120 million pounds. Yamana's guidance for 2019 remains at 120 million lbs of copper (along with 100,000 oz of gold). Life of mine is stated to be 2034. However, significant mine life upside and expansion potential exists as detailed below.

Yamana stated on February 14, 2019 that it continues to advance its exploration program at Chapada with the objective of identifying higher-grade copper and gold opportunities that are near the mine, completing infill drilling of the Sucupira and Baru deposits which would lead to a pit expansion, and advancing district scale targets. Mineralization has been identified along a 15-kilometre trend with numerous prospective areas under consideration for further drilling. Infill drilling in the Baru area is expected to reduce stripping ratios for the Sucupira deposit. Notwithstanding the focus on the exploration potential to discover higher-grade copper and gold areas, the Corporation has also advanced other projects that are expected to further enhance returns from the Chapada mine.

To this end, Yamana states that it has completed studies and evaluations on several of the development opportunities at Chapada and has embarked on a feasibility-level review of a three-phase plan at Chapada. These opportunities range in scope from plant optimization initiatives to enhance copper and gold recoveries, to plant expansions to bring forward cash flows, and pit wall pushbacks to expose higher-grade zones. The study and evaluations include third party design and engineering, estimates of capital expenses, production and operating cost forecasts. Given the nature of the opportunities, the projects can be considered on their own or as part of a phased development plan.

The Phase 1- Plant Optimization Work, with expected recovery improvements in the range of 2% for both copper and gold, has been approved. Associated capital expenditures are estimated to be approximately $9 million. Yamana is continuing to prioritize engineering for long lead-time equipment for Phase 1 and, during the fourth quarter, the flotation circuit expansion continued as planned with the installation of six new DFR flotation cells. Commissioning is scheduled for mid-2019.

Engineering is being advanced for Phases 2 and 3, an expansion of the Chapada mill, and pushback of the Chapada pit wall to expose higher grade Sucupira ores, respectively. While review of these projects are in the evaluation process, the Corporation does not anticipate the allocation of significant expansionary capital for these projects before 2021.

Based on the work completed to date, the Corporation estimates the phased plan will provide the foundation to sustain annual production in the range of 100,000 to 110,000 ounces of gold and 150 to 160 million pounds of copper until at least 2034. This represents an opportunity to deliver significant cash flow increases and cash flow returns on invested capital and an increase to the production outlook, as disclosed in the Chapada NI 43-101 Technical Report dated March 21, 2018. Further project details are expected to be available in mid-2019 with the completion of the feasibility study commenced in 2018. A development decision for Phase 2 is expected to follow in 2020. Further details on Chapada can be found on Yamana's website.

Additional information on the Chapada streaming interest can be found in Schedule “B” to this AIF.

Rocanville Royalty

The Corporation holds a royalty on Nutrien’s Rocanville potash mine (the “Rocanville Mine”). The potash royalty agreements are structured as a lease of subsurface mineral rights to Nutrien in return for royalty payments based on percentage of ownership in the underlying units and the net selling price of potash. The Rocanville mine is located in south eastern Saskatchewan near the Saskatchewan-Manitoba Provincial Boundary, approximately 15 kilometers north-east of the town of Rocanville, Saskatchewan.

Additional information on the Rocanville royalty can be found in Schedule “C” to this AIF.

Esterhazy Royalty

The Corporation holds a royalty on Mosaic’s Esterhazy potash mine (the “Esterhazy Mine”). The potash royalty agreements are structured as a lease of subsurface mineral rights to Mosaic in return for royalty payments based on percentage of ownership in the underlying units and the net selling price of potash. The Esterhazy Mine comprises three shafts (K1, K2 and K3) located approximately 85 km southeast of Yorkton, Saskatchewan and approximately 15 km east of the township of Esterhazy, Saskatchewan.

Additional information on the Esterhazy royalty can be found in Schedule “D” to this AIF.

DIVIDENDS AND DISTRIBUTIONS

Altius paid aggregate dividends of $6,899,000 on its common shares in the year ended December 31, 2018 (eight-month period ended December 31, 2017 - $2,596,000, year ended April 30, 2017 - $5,204,000). The future payment of dividends or distributions will remain dependent upon the financial requirements to fund future growth, the financial condition of the Corporation and other factors the Corporation’s Board may consider appropriate in the circumstances. The ability to pay future dividends and distributions is subject to continued compliance with debt covenants.

The Corporation also paid aggregate distributions to the holders of preferred securities of $4,931,000 in the year ended December 31, 2018 (eight-month period ended December 31, 2017 - $928,000, year ended April 30, 2017 - $nil).

DESCRIPTION OF CAPITAL STRUCTURE

Authorized and Issued Capital

The Corporation is authorized to issue an unlimited number of common shares and an unlimited number of preferred shares. As at December 31, 2018, there were 42,851,726 common shares and 10,000,000 preferred securities issued and outstanding.

In addition, there are 400,000 warrants issued to Yamana at an exercise price of $14.00 with an expiry date of May 3, 2021, and 6,670,000 warrants issued to Fairfax at an exercise price of $15.00. The Fairfax warrants are exercisable on or prior to April 26, 2022

and the expiry date may be extended to April 26, 2024 if the closing price of the Corporation's common shares is less than $24.00 per share on April 26, 2022.

Preferred Securities

During the year ended April 30, 2017, Fairfax agreed to purchase, on a private placement basis, a $10, 5% preferred security, in an aggregate amount of up to $100,000,000, issuable in tranches of not less than $25,000,000. At the end of December 2017 and 2018, the full $100,000,000 had been drawn. The preferred securities are subordinate secured securities that may be repaid by the Corporation at any time after April 26, 2022 and at any time after April 26, 2020 if the volume-weighted average trading price of its common shares for any 10-day period after April 26, 2020 is at least $24 per share. The preferred securities have a term of 85 years.

Common Shares

The holders of common shares are entitled to dividends if, as and when declared by the Board, to one vote per share at meetings of common shareholders of the Corporation and, upon liquidation, dissolution, or winding up to receive on a pro rata basis the net assets of the Corporation after payment of debts and other liabilities, in each case subject to the rights, privileges, restrictions and conditions attaching to any other series or class of shares ranking senior in priority or on a pro rata basis with the common shares. The common shares do not carry any pre-emptive subscription, redemption or conversion rights, nor do they contain any sinking or purchase fund provisions.

Preferred Shares

The preferred shares may be issued in one or more series, each consisting of a number of preferred shares as determined by the Board who also may fix the designations, rights, privileges, restrictions and conditions attaching to the shares of each series of preferred shares. The preferred shares, with respect to payment of dividends and distribution of assets in the event of voluntary or involuntary liquidation, dissolution or winding-up or any other distribution of the assets, rank on a parity with the preferred shares of every other series and shall be entitled to preference over the common shares and the shares of any other class ranking junior to the preferred shares.

MARKET FOR SECURITIES

The Corporation's common shares trade on the Toronto Stock Exchange under the trading symbol "ALS". The common shares were listed for trading on the Toronto Stock Exchange on January 15, 2007, prior to which they were listed for trading on the TSX Venture Exchange.

Price Range and Trading Volume

The following table sets forth the reported high and low sale prices and the trading volumes of the Corporation's common shares for each month in the year ended December 31, 2018.

Month	Price Range		Trading
	High ($)	Low ($)	Volume
January 2018	15.50	13.32	1,279,697
February 2018	14.22	11.82	1,358,495
March 2018	14.55	12.56	1,043,229
April 2018	14.80	13.47	788,663
May 2018	14.75	12.82	887,362
June 2018	14.13	12.69	681,324
July 2018	13.24	12.47	604,817
August 2018	12.90	11.86	954,891
September 2018	13.33	11.94	1,024,488
October 2018	13.50	12.34	1,001,762
November 2018	13.93	12.62	930,002
December 2018	13.11	10.04	2,159,114

DIRECTORS AND OFFICERS

Name, Address, Occupation and Security Holding

The following table sets forth the names, the provinces or state and countries of residence, and the positions held with the Corporation and the principal occupations of each of the directors and executive officers during the five preceding years:

Name	Province and Country of Residence	Position and Date of Appointment	Principal Occupation
John Baker	Newfoundland and Labrador, Canada	Director since June 1997, Executive Chairman since November 2006	Executive Chairman of the Corporation
Brian Dalton	Newfoundland and Labrador, Canada	President and CEO, Director since June 1997	President and CEO of the Corporation
Frederick Mifflin[1,2]	Ontario, Canada	Director since November 2006, Lead Director since September 2017	Vice Chairman, Blair Franklin Capital Partners Inc., an independent financial advisory firm
Jamie Strauss[2,3]	London, United Kingdom	Director since October 2010	Director, Strauss Partners, a mining finance boutique firm
Anna Stylianides[3]	British Columbia, Canada	Director since May 2015	Director, Eco-Oro Minerals Corp, Director of Entrée Gold, Sabina Gold & Silver, Capfin Partners and the Fraser Institute
Donald Warr[1]	Newfoundland and Labrador, Canada	Director since November 2006	Partner, Blackwood & Warr Chartered Professional Accountants
Guy Bentinck[1, 3]	Ontario, Canada	Director from May 2017 to January 2019	Chief Financial Officer, Fairfax Africa Holdings Limited as of December 31, 2018
Andre Gaumond[2]	Quebec, Canada	Director since September 2017	Former President & CEO of Virginia Gold Mines
Ben Lewis	Newfoundland and Labrador, Canada	Chief Financial Officer since October 2006	Chief Financial Officer of the Corporation
Chad Wells	Newfoundland and Labrador, Canada	Vice President, Business Development/Corporate Secretary since February 2003	Corporate Secretary and Vice President, Business Development of the Corporation
Lawrence Winter	Newfoundland and Labrador, Canada	Vice-President, Exploration since October 2006	Vice-President, Exploration of the Corporation

Notes:

1) Member of the Audit Committee.
2) Member of the Compensation Committee.
3) Member of the Governance Committee.

[1] Prior to June 30, 2014, Mr. Baker was a partner with the law firm McInnes Cooper. Prior to his appointment as Chief Financial Officer of Fairfax Africa Holdings Limited in February 2017, Mr. Bentinck was a consultant to Fairfax Financial Holdings Limited from August 2015 and President and Chief Executive Officer of Potash Ridge Corporation from 2010. Prior to his Director position with Osisko Gold Royalties in February 17, 2015, Mr. Gaumond was President, Chief Executive Officer and Director of Virginia Mines Inc.

Except as otherwise noted in the footnote[1], each of the directors and the officers of the Corporation has held the principal occupation set forth opposite his or her name in the table above for the past five years.

As at the date of this AIF, the directors and executive officers of the Corporation, as a group, beneficially own, or exercise control or direction, directly or indirectly, over 2,513,765 common shares or 5.9% of the issued and outstanding common shares of the Corporation. Each director holds office until the next annual general meeting of shareholders or until his or her successor is elected or appointed.

Corporate Cease Trade Orders or Bankruptcies

During the past ten years, none of the directors or executive officers of the Corporation is or has been a director, chief executive officer or chief financial officer of any company that was the subject of a cease trade order, or order similar to a cease trade order, or an order that denied such company access to any exemption under securities legislation for a period of more than 30 consecutive days that was issued (a) while the director or executive officer was acting in the capacity as director, chief executive officer or chief financial officer, or (b) after the director or chief executive officer ceased to be a director, chief executive officer or chief financial officer and which resulted from an event that occurred while that person was acting in the capacity as director, chief executive officer or chief financial officer.

Furthermore, during the past ten years, except as noted below, none of the directors, executive officers or shareholders holding a sufficient number of securities to affect materially the control of the Corporation is or has been a director or executive officer of any other company that while such person was acting in that capacity or within a year of that person ceasing to act in that capacity, such company became bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency or was subject to or instituted any proceedings, arrangement or compromise with creditors or had a receiver, receiver manager or trustee appointed to hold the company's assets.

John Baker, Executive Chairman, and Brian Dalton, CEO, also serve as directors of Newfoundland and Labrador Refining Corporation ("NLRC"), a 39.6% owned equity investment of the Corporation. In response to a bankruptcy petition initiated by a contractor, NLRC sought and was granted creditor protection under the BIA on June 24, 2008. This protection enabled NLRC, under the supervision of a trustee, to formulate a proposal for restructuring and to continue its efforts to attract financing and/or partners for the refinery project. The initial period of creditor protection granted was 30 days and was later extended until October 17, 2008. NLRC filed a proposal with the Trustee and Official Receiver on October 17, 2008 and an amended Proposal on or about November 6, 2008 (the "Proposal"). The Proposal was approved by Order of the Supreme Court of Newfoundland and Labrador (the "Court") on November 20, 2009. Altius Resources Inc. filed a Proof of Claim in the amount of $30,092,865 to $30,099,254 of which is a secured claim as a result of a debenture dated December 20, 2007 and registered under the Personal Property Security Act (Newfoundland and Labrador) on February 19, 2008. Under the Proposal, NLRC was given a continued period of time, up to 3 years, to search for an equity partner, buyer or funding (the "Standstill Period"). During the Standstill Period, funds which would otherwise be allocated to Altius, as secured creditor, were utilized to maintain the existence of regulatory approvals and to fund the cost of a continuing equity solicitation process. The Proposal further stated that, upon Project commencement, creditors would receive 100% of the amount owing to them plus interest within 30 days of the date of restructuring, defined as the earlier of the following: (i) the date at which all or substantially all of the shares or all or substantially all of the non-tangible assets of NLRC are sold, (ii) the date at which financing of the NLRC Project is achieved, and (iii) the date at which construction of the NLRC Project commences. On June 12, 2014 the Trustee under the Proposal delivered a Notice of Default in the Performance of the Proposal indicating that there had been a default in the performance of a provision of the Proposal which was not cured or waived, that the Trustee intended to apply for its discharge as Trustee, and that creditors were free to take proceedings to annul the Proposal and place NLRC in bankruptcy. No further proceedings were taken by creditors and accordingly on July 30, 2014 the *Trustee was granted an Order by the* Court discharging the Trustee under the Proposal without annulment of the Proposal.

Penalties or Sanctions

None of the directors, executive officers or shareholders holding a sufficient number of securities to affect materially the control of the Corporation has been subject to (a) any penalties or sanctions by a court relating to securities legislation or by a securities regulatory authority or has entered into a settlement agreement with a securities regulatory authority or (b) any other penalties or sanctions imposed by a court or regulatory body that would likely be considered important to a reasonable investor in making an investment decision.

Personal Bankruptcies

During the past ten years, none of the directors, executive officers or shareholders holding a sufficient number of securities to affect materially the control of the Corporation has become bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, or 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 director, executive officer or shareholder.

Conflicts of Interest

Some of the directors and officers are or may be engaged in business activities on their own behalf and on behalf of other corporations, and situations may arise where some of the directors and officers may be in a potential conflict of interest with the Corporation. Conflicts, if any, will be subject to the procedures and remedies under the *Business Corporations Act* (Alberta).

LEGAL PROCEEDINGS

The Corporation and its subsidiaries are not a party to any material legal proceedings.

On November 23, 2018, Altius, through Genesee Royalty Limited Partnership ("Genesee LP"), of which Altius is indirectly the general partner, filed a suit in the Court of Queen's Bench of Alberta against the governments of Alberta and Canada. The suit claims $190 million in damages and describes actions that Altius believes were tantamount to expropriation of Genesee LP's royalty interest in the Genesee mine, which serves and is integrated with the Genesee power plant in Alberta, Canada. More particularly, the suit claims breach of legitimate expectations, an unlawful taking of Genesee LP's property and undue interference with its economic interests. Each defendant has filed a Statement of Defence, and pleadings are now closed. Subsequent to Altius' investment in the partnership, both Alberta and Canada announced policy and regulatory changes that will result in a discontinuance of coal-fired electrical generation at the Genesee power plant, and a cessation of coal royalty payments to Genesee LP, by 2030. The damage claim amount of $190 million is the estimated value of the portion of the royalty that has been taken as a result of those policy and regulatory changes, and uses the same discount rate applied by the Province of Alberta in determining compensation to the operator of the Genesee power plant.

In 2014, Carbon Development Partnership ("CDP"), Altius Prairie Royalties Corp. ("APRC") and 1815953 Alberta Ltd, now Altius Royalty Corporation ("ARC") were served with a Statement of Claim filed in the Court of Queen's Bench of Alberta by Bow City Power Ltd. ("BCPL"), in which BCPL alleged that CDP breached a 2007 purchase agreement between BCPL and CDP by hindering it from obtaining certain consents in aid of its financing efforts, by granting certain coal bed methane rights to a third party, and by failing to enter into a coal lease agreement with BCPL pursuant to a coal lease option agreement. BCPL claims damages in excess of $1 billion. Questioning for discovery is nearing completion. Altius believes that the BCPL claims are without merit, and has not recorded any provision for such claims in its accounts. However, as with any action, a successful outcome cannot be guaranteed.

Altius is a 10% unit holder in the Labrador Nickel Royalty Limited Partnership ("LNRLP"), of which Royal Gold Inc. is the General Partner, holding the remaining 90%. On September 14, 2018 the Corporation and Royal Gold Inc. entered into an agreement with Vale Canada Limited and certain of its subsidiaries (collectively, the "Parties") to comprehensively settle litigation related to calculation of the royalty in respect of all concentrates produced from the Voisey's Bay mine in Newfoundland and Labrador, Canada. The Voisey's Bay 3% net smelter return royalty is directly owned by the LNRLP. The Parties agreed to a new method for calculating the royalty in respect of

concentrates processed at Vale's Long Harbour Processing Plant ("LHPP"), which became effective for all Voisey's Bay mine production after April 1, 2018. The specific terms of the settlement are confidential.

INTEREST OF MANAGEMENT AND OTHERS IN MATERIAL TRANSACTIONS

There are no material interests, direct or indirect, of any director, executive officer, or any person or company who beneficially owns, directly or indirectly, more than 10% of the outstanding common shares or any known associate or affiliate of such persons, in any transaction during the three most recently completed financial years, or during the current financial year, which has materially affected or is reasonably expected to materially affect the Corporation or a subsidiary of the Corporation.

TRANSFER AGENT AND REGISTRAR

TSX Trust Company, through its office in Toronto, Ontario, is the transfer agent and registrar for the Corporation's common shares.

MATERIAL CONTRACTS

The following are the material contracts entered into by Altius other than contracts entered into in the ordinary course of business, during the financial year ended December 31, 2018, or since such time or before such time, and that are still in effect:

1) Copper Purchase Agreement relating to the Chapada copper-gold mine between Altius and certain subsidiaries of Yamana Gold Inc.;
2) Credit Agreement and related amendments among Altius and certain subsidiaries originally dated May 3, 2016 and amended and restated as of June 29, 2018 relating to the credit facilities;
3) Governance and indenture agreements providing for the issue of 5% subordinate preferred securities to Fairfax dated April 26, 2017.

A copy of each material contract is available on SEDAR under Altius' profile at www.sedar.com.

In the normal course of business, the Corporation enters into and maintains several earn-in agreements or exploration alliances with other exploration companies to provide technical support and to cost – share in exploration expenditures. These agreements normally result in the Corporation holding a reduced ownership in the mineral property and holding a royalty interest in any future potential mining revenues. While these agreements are not individually material, any of them could become material pending a significant mineral discovery and eventual development.

The Corporation holds directly and indirectly royalty and streaming interests with third party mine operators that may be considered material. Because the Corporation enters into these contracts in normal course of its business, they are not listed in the summary above. However, the Corporation does file these contracts on SEDAR. See the Summary of Producing Royalty and Streaming Interests table above for a list of these royalties.

INTERESTS OF EXPERTS

Other than transactions carried out in the ordinary course of business of the Corporation or its subsidiaries, none of the directors or executive officers of the Corporation, any shareholder directly or indirectly beneficially owning, or exercising control or direction over, more than 10% of the outstanding Common Shares, or an associate or affiliate of any of the foregoing persons has had, during the three most recently completed financial years of the Corporation or during the current financial year, any material interest, direct or indirect, in any transactions that materially affected or would materially affect the Corporation or its subsidiaries.

Keith Wilson, P. Eng., of Stantec, a "qualified person" as such term is defined in NI 43-101 and who is independent of the Corporation, has reviewed and approved the scientific and technical information in this annual information form on the Genesee Mine. Keith Wilson

does not own any securities of the Corporation or of any associate or affiliate of the Corporation. Readers should consult the Westmoreland 10-K, to obtain further particulars regarding the Genesee Mine. The Westmoreland 10-K is available for review under Westmoreland's profile on EDGAR at www.sec.gov.

Lawrence Winter, PhD, P. Geo, Vice President of Exploration for Altius, a "qualified person" as such term is defined in NI 43-101 has reviewed and approved the scientific and technical information in this annual information form on the Chapada Mine. Lawrence Winter owns less than 1% of the securities of the Corporation or of any associate or affiliate of the Corporation. Readers should consult the Yamana annual information form for the year ended December 31, 2017 dated March 27, 2018 (the "Yamana AIF") and *Technical Report on The Chapada, Mine Goiás State, Brazil* dated March 21, 2018 ("Chapada Technical Report"), prepared by Roscoe Postle Associates Inc. ("RPA").

Carol Seymour, P.Geo., Senior Geologist for Altius, has reviewed and approved the scientific and technical information in this annual information form on the Rocanville and Esterhazy Mines. Carol Seymour owns less than 1% of the securities of the Corporation or of any associate or affiliate of the Corporation. Readers should consult the *Technical Report on Rocanville Potash Deposit (KL305), Saskatchewan, Canada* dated February 20, 2019, prepared by Nutrien to obtain further particulars regarding the Rocanville Mine. Nutrien's Technical Report is available for review under Nutrien's profile on SEDAR at www.sedar.com. Readers should consult the Mosaic 2017 10-K to obtain further particulars regarding the Esterhazy Mine. The Mosaic 10-K is available for review under Mosaic's profile on EDGAR at www.sec.gov. Readers should also consult the *Technical Report on Potash Freehold Mineral Rights, Reserves and Resources, Saskatchewan* dated May 23, 2006, prepared by ADM Consulting for Royal Utilities Income Fund to obtain further particulars regarding the Esterhazy Mine. Royal Utilities Income Fund's Technical Report is available for review under Royal Utilities Income Fund's profile on SEDAR at www.sedar.com.

Deloitte LLP is the auditor of the Corporation and is independent of the Corporation within the meaning of the Rules of Professional Conduct of the Institute of Chartered Accountants of Newfoundland and Labrador.

AUDIT COMMITTEE

The purpose of the Corporation's audit committee is to provide assistance to the Board in fulfilling its legal and fiduciary obligations with respect to matters involving the accounting, auditing, financial reporting, internal control and legal compliance functions of the Corporation. It is the objective of the audit committee to maintain free and open communications among the Board, the independent auditors and the financial and senior management of the Corporation.

The full text of the audit committee's charter is included as Schedule "E" to this AIF.

Composition of the Audit Committee

During the year ended December 31, 2018, the audit committee was comprised of Fred Mifflin (Chair), Don Warr and Guy Bentinckwho has since resigned from the Board in January 2019. All members are financially literate and are independent, as defined under Section 1.4 and 1.5 of National Instrument 52-110 *Audit Committees*.

Relevant Education and Experience

Frederick Mifflin

Mr. Mifflin is Vice Chairman of Blair Franklin Capital Partners Inc., an independent financial advisory firm. From 1989 to 2006, Mr. Mifflin was employed by BMO Capital Markets Inc. in various executive positions. Mr. Mifflin holds a B. Comm. (Honours) degree from Queen's University, an M.B.A. from The University of Chicago and is a graduate of the Advanced Management Program of the Harvard Business School. Mr. Mifflin is also a director accredited by the Institute of Corporate Directors.

Donald Warr

Mr. Warr is a chartered professional accountant with over 45 years of experience in providing accounting and financial services. He has been a partner in the firm of Blackwood & Warr Chartered Accountants since 1992. Prior to 1992, Mr. Warr was a partner with a national public accounting firm. Mr. Warr was the Chief Financial Officer of the Corporation from February 2004 to October 2006.

Guy Bentinck

Mr. Bentinck is a chartered professional accountant who at December 31, 2018 served as Chief Financial Officer of Fairfax Africa Holdings Limited, an investment holding company publicly traded on the Toronto Stock Exchange focused on investing in Africa. Prior to this role, Mr. Bentinck served as a consultant to Hamblin Watsa Investment Counsel, a wholly-owned subsidiary of Fairfax Financial Holdings Limited that provides global investment management services to the insurance and reinsurance subsidiaries of Fairfax. He has over 20 years of public company experience, and has served as a Chief Financial Officer of Sherritt International Corporation and of Royal Utilities Income Trust. Mr. Bentinck resigned from the board in January 2019.

Pre-Approval Policies and Procedures

Under its terms of reference, the audit committee is required to review and pre-approve the objectives and scope of the audit work to be performed by the Corporation's external auditors and their proposed fees. In addition, the audit committee is required to review and pre-approve all non-audit services which the Corporation's external auditors are to perform.

Pursuant to these procedures since their implementation, all of the services provided by the Corporation's external auditors relating to the fees reported as audit, audit-related, tax and all other services have been approved by the audit committee.

Audit Fees

The aggregate fees billed by the external auditors in the twelve-month period ending December 31, 2018 were $391,000 which included non-refundable HST of $47,000 and $263,000 for the eight months ended December 31, 2017 which included non-refundable HST of $24,000.

Tax Fees

The aggregate fees billed by the external auditors in the year ended December 31, 2018 were $84,000 which included non-refundable HST of $10,000 and $44,000 for the eight-month period ended December 31, 2017 for tax compliance, tax advice and tax planning services which included non-refundable HST of $2,000.

Audit Related Fees

The aggregate fees billed by the external auditors in the year ended December 31, 2018 were $53,000 which included non-refundable HST of $7,000 compared to $9,200 for the eight months ended December 31, 2017 which included non-refundable HST of $nil.

All Other Fees

All other fees billed by the external auditors in the year ended December 31, 2018 and the eight-month period ended December 31, 2017 were $nil and $nil, respectively.

ADDITIONAL INFORMATION

Additional information relating to the Corporation may be found on the System for Electronic Document Analysis and Retrieval (SEDAR) at www.sedar.com.

Additional information, including regarding directors' and officers' remuneration and indebtedness, principal holders of the Corporation's securities and securities authorized for issuance under equity compensation plans, is contained in the Corporation's management information circular for its most recent annual meeting of shareholders that involved the election of directors. Additional information is also provided in the Corporation's financial statements and Management's Discussion & Analysis for its most recently completed financial year.

SCHEDULE "A"

GENESEE ROYALTY

Certain of the information below has been excerpted or derived from the "Technical Report Genesee Mine Alberta" dated March 30, 2005 (the "Genesee Technical Report"), Sherritt International Corporation ("Sherritt")'s Annual Information Form dated March 26, 2013 (the "Sherritt AIF") and Westmoreland Coal Company ("Westmoreland")'s Annual Report on Form 10-K dated March 28, 2017 as filed with the United States Securities and Exchange Commission (the "Westmoreland 10-K"). All of the information below is subject to the historical assumptions, qualifications and procedures set out in the Genesee Technical Report, the Sherritt AIF and the Westmoreland 10-K and is qualified in its entirety with reference to the full text of such documents. Keith Wilson, P. Eng., of Stantec Consulting Ltd. ("Stantec"), has reviewed and approved the scientific and technical information in this section on the Genesee Mine. Readers should consult the Genesee Technical Report, the Sherritt AIF and the Westmoreland 10-K to obtain further particulars regarding the Genesee Mine. The Genesee Technical Report and the Sherritt AIF are available for review under Sherritt's profile on SEDAR at www.sedar.com. The Westmoreland 10-K is available for review under Westmoreland's profile on EDGAR at www.sec.gov.

Schedule "A" refers to Sherritt, EPCOR Utilities Inc. ("EPCOR"), Prairie Mines & Royalty Ltd. ("PMRL"), and Norwest Corporation ("Norwest"). The following comments should be noted:

- PMRL was a 100% owned subsidiary of Sherritt. In 2014 Sherritt sold PMRL to the Westmoreland Coal Company. These assets now exist as Prairie Mines & Royalty ULC (PMRULC), a subsidiary of Westmoreland;
- EPCOR is a utility company owned by the City of Edmonton. In 2009 EPCOR divested its power producing assets through the creation of a publicly traded company, Capital Power Corporation ("Capital Power");
- Norwest was acquired by Stantec in 2018, and
- References to Sherritt, EPCOR, PMRL, and Norwest are historical in nature.

For a description of the royalties associated with the Genesee Mine, see "Description of Royalty Portfolio".

Property Description and Location

The Genesee Mine is a surface mine located in central Alberta, north of the Town of Warburg and approximately 70 km southwest of Edmonton, and consists of leased and freehold lands totaling approximately 21,038 ha. It falls within Townships 50 and 51, Range 3, west of the 5th Meridian and Township 50, Range 2, west of the 5th Meridian. Coal rights within the permit area are controlled by Prairie Mines and Royalty ULC ("PMRULC") a subsidiary of the Westmoreland, Capital Power and a joint venture between the two parties. As part of the joint venture agreement all coal leases are dedicated to the mine for the coal supply to the Genesee Generating Station. By contract, PMRULC has exclusive right to mine the coal within the Genesee Mine permit area.

The mine supplies sub-bituminous coal to the three units at the Genesee Generating Station which is owned by Capital Power and TransAlta Corporation ("TransAlta") and operated by Capital Power. Average annual production from the mine is approximately 5.1 million tonnes per year.

The Genesee Mine is operated under the Alberta Energy Regulator (AER) Mine permit No. C99-8C. Alberta Environmental Protection and Enhancement Act ("EPEA") Approval No. 10404-03-00 regulates the development, operation and reclamation of the mine and any

disturbances directly related to the Genesee Mine. The approval expires on July 02, 2025. All operating licenses and approvals are granted with the capability to renew every ten years upon reapplication.

Of the 7,381 ha of land within the mine permit area, 650 ha are privately held. The remaining area is controlled by EPCOR.

The Genesee Mine area of mutual interest consists of 21,038 ha in which 1,359 ha are Crown coal mineral leases, 7,568 ha are held by PMRL, 5,656 ha are held by EPCOR, and another 1,464 ha are owned or controlled by others in the mine area. A total of 2,985 ha comprise the area controlled by a joint venture between PMRL and EPCOR. The remaining 2,006 ha are located in the northern most portion of the area of mutual interest, an area containing no mineable coal. PMRL has exclusive right to mine the coal within the Genesee Mine, supplying run-of-mine coal to EPCOR generating stations.

Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Genesee Mine is accessible southwest of Edmonton, Alberta via Highway Nos. 16 and 770. The City of Edmonton is located 70 km to the northeast. The main east-west line of Canadian National Railway passes 25 km to the north en-route to, and from, west coast port facilities.

The average annual daily temperature of the area is 3.4°C, with an average summer maximum of 21.8°C and a winter minimum of −15.9°C. Winds from the west and northwest predominate with average speeds of 9.3 to 11.9 km/hr. The average annual precipitation is 536 mm of which 410 mm is recorded as direct rainfall. The average annual snowfall is 133.9 cm.

The principal resources of the area are agriculture and some oil and gas production. The local terrain is gently to moderately rolling farmland, light boreal forest and wetlands. The North Saskatchewan River flows from west to east immediately north of the property. Surface elevations vary from approximately 730 m to 840 m above mean sea level.

The Genesee Mine does not typically experience constraints regarding power or water supply needed for operations due to the availability of such infrastructure in close proximity to the mine. The Genesee Mine does not require tailings ponds, refuse areas or leach pads as the coal produced is not refined before use. Ample space is available for storage or processing, where needed.

History

EPCOR acquired the major mineral leases for Genesee Mine following encouraging drill tests in the 1950's. Subsequent drilling investigations were carried out in the 1960's and 1970's, resulting in production of an exploration report by R.S. Taylor in 1977. EPCOR and Fording formed a joint venture in 1980 and conducted a burn test of a bulk sample from the property in September and October of that same year. Fording developed significant exploration and feasibility reports in 1983 and 1987 after further drilling was completed. A 400 MW thermal power unit was eventually brought on line in 1989. A second 400 MW unit was commissioned in 1994 and a 450 MW unit was commissioned on March 1, 2005.

Geological Setting, Mineralization and Deposit Type

The Genesee Mine is located within the Plains Region of Alberta, a principal physiographic region of the province.

The coal seams found in the mine are Sub-bituminous 'B' in rank and are contained in the uppermost Cretaceous Scollard Formation Ardley Coal Zone. The strata are relatively flat-lying and structurally undisturbed although some glacial faulting has been noted along the north-facing subcrop.The Scollard Formation represents predominantly fluvial environments and unconformably overlies the Upper Cretaceous Battle Formation and underlies the Tertiary Paskapoo Formation. The Ardley unit locally consists of coal seams interbedded with bentonic and carbonaceous shales and clay beds with associated sandstones and siltstones. The Ardley includes three major coal

successions regionally across west central Alberta. These include the lowermost, or Lower Ardley A unit, the overlying Lower Ardley B, and the uppermost, Upper Ardley. The zone of commercial interest at the Genesee Mine is the Lower Ardley B. The Upper Ardley has been removed by post-Cretaceous erosion and the Lower Ardley A is not economically mineable at the Genesee Mine.

The strata are relatively flat-lying and structurally undisturbed although some glacial faulting has been noted along the north-facing subcrop edge of the formation.

The sub-bituminous coal at Genesee lies within the Lower Ardley B Coal Zone of the Upper Cretaceous Scollard Formation. Four seams are present and are designated, in ascending stratigraphic order, as the Lower Main, Upper Main, Hanging Wall and High seams. The average thicknesses are 1.80 m, 2.74 m, <0.60 m, and 0.74 m respectively. Three of the four local coal seams are commercially exploitable and demonstrate consistent stratigraphic continuity with thicknesses ranging from 0.5 m to 4.0 m. The Hanging Wall Seam is excluded from reserves estimates because it is not normally of mineable thickness. The High Seam is similarly of insufficient mining thickness in some areas of the Genesee Mine. A number of rider seams and splits are present throughout the Genesee Mine which are included for mining if of sufficient thickness and within close stratigraphic proximity to mineable coal intervals. Major interburden thicknesses vary from 0.18 m to 15.5 m.

Exploration

A large number of exploration holes have been drilled on the Genesee Mine property since the 1950's. Major drilling programs in the 1970's and 1980's largely defined the extent and quality of the reserves. The final spacing of exploration drilling by 1987 was generally less than 800 m and core holes were spaced approximately 800 m to 1,600 m, or less. Geophysical log suites for each hole typically included caliper, resistivity, natural gamma ray, and density runs. Drilling programs conducted almost annually since the late 1980's have continued to more closely define the stratigraphy and quality of the deposit.

Drilling

To year end 2004, data from approximately 3,800 drill holes and surveyed data locations were available. Approximately 2,710 of these holes provided coal seam data and 2,200 provided glacial till data. In 2004 the drill hole database, and subsequent geological model, were expanded to include 85 auger holes used to better define the till/rock contact as well as 39 core and or geophysically logged holes used to interpret coal seams.

Drill holes have been surveyed for collar data which includes the "x", "y" and "z" coordinates of the surface location of the hole. Further, the drill hole data, including geophysical logs, geologists' core/cuttings descriptions, sample intervals (core) and drillers' logs, have been compiled and transcribed into a digital database containing the "from", "to" and "thickness" of lithologic units per drill hole, including coal and till, coal seam identification as well as analytical results from sampled coal core.

Drill hole core descriptions, geophysical logs and coal quality data are used to characterize and interpret the stratigraphy in the mine area, particularly with respect to the economic coal seams, partings and interburden intervals.

As of December 31, 2013, the Genesee Mine drill hole database contained data from approximately 2,248 drill holes.

Sampling and Analysis

Samples are collected from drill core and submitted for analysis using methods that are standard for the coal industry. Typical sampling processes at an operation such as the Genesee Mine are described below:

1. Core from the drill hole is logged (i.e., measured and described) using standard geological terms to document various attributes including lithology, color, hardness and grain size.

2. Each core hole is subject to a down-hole geophysical logging program. The logging program produces a geophysical log suite consisting of caliper, density (gamma-gamma), natural gamma and resistivity trace. The geophysical logs are used to identify rock types, including coal intersected in the hole.

3. Coal intervals are collected in a split tube core barrel that is opened and logged at the drill site by a geologist. The geologist's core log consists of the measured thickness and description of the coal, inter-seam partings, adjacent roof and floor rock, and details of any sample intervals removed for analysis.

4. Recovered core is measured to determine an overall recovery (reported in percent) by comparing the recovered core length with the coring run length recorded by the driller. Recovered core is measured and compared to the coal interval thickness determined from the geophysical log suite.

5. Recovered coal intervals are sampled using the following criteria:

a) The minimum thickness for a coal sample is usually 30 to 50 cm.

b) All non-carbonaceous partings >15 cm are not typically sampled.

c) In-seam partings, to a maximum thickness of 15 cm, will be included in a coal sample, where the thickness of the adjacent coal beds above and below the parting are both a minimum of 35 cm in thickness.

d) Collected samples are cleaned of any mud contamination and placed in individual plastic bags. The bags are labelled on the outside with both the core hole and sample number and sealed with plastic tape to prevent excessive moisture loss. The sample bags are placed together in a collection bag for the core hole before being placed in palletized containers and shipped to an independent lab for analysis.

Individual ply samples are analysed for moisture contents, relative density, and proximate analyses (including heating value). Composite (full seam) samples are also analysed for these same parameters as well as ultimate analyses, chemical analyses of the ash, fusibility temperatures, and Hardgrove Grindability Indices.

The geological data collected during these test drilling programs is used to model coal seams and predict coal quality using geological modeling software. In addition, samples are collected during mining operations to further enhance understanding and prediction of coal quality. In-pit samples are routinely collected from active coal faces or from the plant feed and analyzed at the utility customer's laboratory for sulphur, ash, heat value and moisture. This data is used to help optimize the quality of the coal being delivered to the utility customer.

Data Verification

In 2005 PMRL provided Genesee Mine data to Norwest in digital format for validation and subsequent use in geological modeling and reserve estimation work. Norwest also reviewed a randomly chosen series of test holes throughout the mine area for data quality and file content. The assessment included in the Genesee Report was based entirely on a review of the Southfield database where mine development is concentrated for the foreseeable future.

PMRL's digital geological data are stored in an Oracle database and comprise drill hole collar coordinates, lithology, coal seam intercepts, and coal quality information. At the time of the Genesee Report, PMRL used MineSight to interpret and model the geologic data at the Genesee Mine. All digital data in PMRL's Oracle database and MineSight were exported and provided to Norwest in ASCII format.

In the process of creating new geological models for the Genesee Mine, Norwest first reviewed, verified, and completed any necessary edits of the PMRL data files before creating a new database in Microsoft Access. The geological database created by Norwest included over 3,800 drill holes.

The data and/or interpretations are a reasonable representation of the geology of the Genesee Mine, based on the exploration and development drill hole data.

Processing

In east central Alberta, the near-surface coals of the Ardley Formation are most commonly ranked as Sub-bituminous B and are best suited as a fuel for a "mine-mouth" power station (i.e., the generating station is located in close proximity to the mine). There are no coal processing and/or preparation facilities — the coal is delivered directly to the power plant from the pit(s).

Sub-bituminous B is a lower rank, consolidated, black coal that produces between 22,100 and 24,400 kilojoules per kilogram (kj/kg) on a moist, mineral-matter-free basis when burned. The coal has high moisture content and is bright to dull in lustre, medium hard and often has a blocky texture. The Genesee coals yield approximately 22,500 kj/kg on a moist, mineral-matter-free basis upon testing.

Mineral Reserve Estimates

The following table summarizes coal reserves in the Genesee Mine as of December 31, 2017, as reported in the Westmoreland 10-K and converted to metric units.

Proven Reserves (Mt)	Probable Reserves (Mt)	Sulphur Content[(1)] (%)	Heating Value [(2)] (kj/kg)
65.6	2.0	0.22	19,231

(1) Approximate sulphur content applies to the coal mined in 2017

(2) Approximate heat content applies to the coal mined in 2017

(3) Westmoreland has not yet produced a 10-K report for the year ending December 31, 2018. Stantec expects the reserve estimates stated above will decrease by the 2018 annual production, approximately 5.1 million tonnes.

Stantec notes that the Genesee Mine reserve estimate has declined from approximately 139 million tonnes in December 31, 2016 to 68 million tonnes in December 31, 2017. This reduction is in response to the agreement the Alberta Government reached with the owners of the Genesee Generating Station. This agreement provides for the closure (for the purposes of coal fired generation) of the Genesee units by December 31, 2030.

Mining Operations

The Genesee Mine is a typical prairie-type mine-mouth dragline operation. Draglines strip the overburden to expose the coal seam which is then lifted onto the operating bench. An electrical powered cable shovel or a front end loader loads the coal into haulers for transportation to the truck dump. Pits are reclaimed using tracked dozers to recontour the dragline spoil piles prior to the spreading of subsoil and topsoil.

Currently mining operations are conducted in the East and West Pit areas. Coal is supplied to the three generating units at the Genesee Power Station (Units 1, 2, 3).

Environmental Conditions

The Genesee operations achieved environmental certification under the ISO 9001 and 14001 quality and environmental management standards in 2001.

Capital and Operating Costs

The Genesee Mine is an on-going joint venture operation with significant operating history. Annual budget plans, as well as long range mine plans are developed on a regular basis. These plans forecast mine waste volumes and coal tonnage as well as project operating and capital mine expenditures on an annual basis. The plans are based on historical and projected equipment operating productivities and costs and are reviewed regularly to ensure that the projected equipment and labour operating hours and associated costs are valid. All aspects of the mining process are included in the operating plans, including waste mining, coaling operations and reclamation activities. Indirect costs, such as taxes, royalties, administration and overhead where applicable are also detailed on an annual basis. Capital expenditures for development of new mining areas and equipment acquisitions and replacements are developed and a schedule of the spending is prepared.

Exploration and Development

Historically, PMRL maintained a geological model of coal reserves and resources at Genesee Mine. Drilling activities were generally only necessary in advance of new mining area development or where tighter drill hole spacing is required to determine accurate near-term mine plans that will reflect the variations in coal seam quality and any geological anomalies that may exist. In 2013, PMRL continued its test drilling programs at Genesee Mine as part of its mine planning and development processes.

SCHEDULE "B"

CHAPADA MINE

All of the information below with respect to the Chapada Mine owned by Yamana has been excerpted or derived from the Yamana annual information form for the year ended December 31, 2017 dated March 27, 2018 (the "Yamana AIF") and the *Technical Report On The Chapada, Mine Goiás State, Brazil* dated March 21, 2018 ("Chapada Technical Report"), prepared by Roscoe Postle Associates Inc. ("RPA").

Readers should consult the Yamana AIF to obtain further particulars regarding the Chapada Mine. The Yamana AIF and Chapada Technical Report are available for review under Yamana's profile on SEDAR at www.sedar.com. The information below is subject to the assumptions, qualifications and procedures set out in the Yamana AIF and is qualified in its entirety with reference to the full text of the Yamana AIF.

Lawrence Winter, Ph.D., P.Geo, Vice President, Exploration for Altius, who is a "qualified person" for the purpose of NI 43-101, has reviewed and approved the scientific and technical information in this section on the Chapada Mine.

Property Description, Location and Access

The Chapada Mine is located in northern Goiás State, approximately 320 kilometres north of the state capital of Goiania and 270 kilometres northwest of the national capital of Brasilia. It is situated at latitude 14° 14' S, longitude 49° 22' W. Corpo Sul is situated at the southwest extremity of the Chapada deposit. The Suruca deposit is located six kilometres northeast of the Chapada Mine at approximately latitude 14° 11' S, longitude 49° 20' W.

Access to the project area from Brasilia is via BR-153 (Belem/Brasilia) to Campinorte (GO) and then via GO-465 (Campinorte/Santa Terezinha) west to Alto Horizonte. The town of Alto Horizonte lies between the Suruca and Chapada deposits. Chapada Airport, suitable for small aircraft with an 800 metres long airstrip, is located close to Alto Horizonte, approximately four kilometres northeast of the Chapada Mine.

The Chapada Mine is divided into 37 claims totalling 43,866.31 ha. The claims are held in the name of Mineração Maracá Indústria e Comércio S/A ("Mineração Maracá"), a 100% owned subsidiary of Yamana. See also "– Exploration, Development and Production".

Yamana (via Mineração Maracá) holds all of the surface rights in the area of the Chapada Mine, which incorporates all of the proposed locations of buildings, fixed installations, waste dumps, and tailing disposal in the current mine plan. Yamana is of the opinion that it can acquire the right to dispose of waste rock and tailings on additional surface property, if and when required. The land ownership is registered with the Registrar of Real Estate in Mara Rosa, Goiás.

Other than statutory royalties which are paid to the Brazilian government based on commercial copper and gold production, RPA states that it is not aware of any rights, agreements or encumbrances to which the Chapada Mine is subject, which would adversely affect the value of the property or Mineração Maracá's ownership interest. The environmental licensing process for Corpo Sul started in 2013 and the required licences were granted in 2014. No current environmental liabilities have been identified within the mine area. Ongoing items such as waste stockpiles, depleted heap leach piles, and tailings storage facilities will be rehabilitated during the mine life or at the time of mine closure.

Mineração Maracá pays to a subsidiary of Altius Minerals Corp. a stream of 3.7% of copper based on production from the Chapada mine, reducing to 1.5% for remaining life of mine after 75 million pounds delivered, which is anticipated around 2034. Altius pays 30% of the copper spot price. Similarly, Sandstorm Gold Royalties owns a variable 4.2% stream on copper and 52% of Ag from Chapada, payable at 30% of spot prices.

History

The Chapada deposit was discovered in 1973 by a Canadian company, INCO Ltda. ("INCO"), which followed up with geochemistry, geophysics, trenching, and initial drilling. There are few outcrops in the mine area due to laterite-saprolite cover. Consequently, deposit definition required extensive diamond drill exploration. Development drilling of the deposit occurred in several campaigns from 1976 through 1996 by INCO, Parsons-Eluma Projetos e Consultoria S/C ("Parsons"), a Brazilian copper company, Eluma — Noranda, Santa Elina, and Santa Elina-Echo Bay ("Echo Bay"). Historical ownership and exploration activities are summarized in Table 1.

Table 1

Date	Owner	Activity
1973	INCO	Chapada discovery.
1975-1976		2,000 metres x 500 metres grid drilling program. Parsons acquires a 50% interest in the Chapada project.
1976-1979	INCO & Parsons	200 metres x 100 metres drill grid.A 92 metres deep shaft is completed with 255 metres of cross-cuts for exploration and metallurgical sampling.
1979		Mining concession No. 2394 covering 3,000 hectares is issued to Mineração Alonte by the Departamento Nacional da Producao Mineral ("DNPM").
1980-1981		Soil drilling completed in the plant, tailing ponds, and potential water dam areas.
1981	Parsons	Feasibility study completed.
1994-1995		A 4,500 metres drilling program re-evaluation of a near surface gold deposit. Preliminary feasibility study by Watts, Griffis and McOuat.
May 1994	SERCOR	Mineração Santa Elina Industria e Comercio S/A ("SERCOR") acquires the Chapada deposit through a subsidiary, Mineração Maracá.
July 1994	SERCOR and Echo Bay	Echo Bay acquires an initial interest in Santa Elina by purchasing 5% of the outstanding shares from SERCOR.
December 1994		Santa Elina completes its initial public offering.
September 1995		Santa Elina and Echo Bay approve the Chapada project joint venture. Santa Elina issues about 3% of the outstanding shares to Echo Bay. Echo Bay receives the option to acquire 50% interest in the project.
May 1996		Santa Elina is privatized and SERCOR and Echo Bay become equal owners of the company.
December 1996		Santa Elina completes an in-fill drilling program
December 1997		Independent Mining Consultants, Inc. reviews the Echo Bay model and completes a mine feasibility study.
January 1998		Kilborn Holdings Inc., (now SNC-Lavalin Group Inc.), completes the Chapada project bankable feasibility study.
April 2001		Construction licence issued.
May 2000	PINUS	PINUS acquires 100% of Mineração Maracá.
2003	Yamana	The property is purchased by Yamana.
2004		The feasibility study is completed.
2007		Commercial production starts.

In 2008, Yamana started a plant expansion to increase throughput from 16 million tonnes per annum to 22 million tonnes per annum.

From 2007 to the end of 2017, the Chapada Mine has produced 212 million tonnes grading 0.34 grams per tonne gold and 0.39% copper.

The Suruca deposit has been explored by various companies since the 1970s, as summarized in Table 2, and was exploited by garimpeiros in the 1980s. Yamana reports that garimpeiros produced approximately 200 kilograms of gold in that period. A historical estimate of resources was identified in the mid-1990s; however, as this estimate is historic in nature, it cannot be relied upon.

Table 2

Date	Ownership
1980-1981	INCO/Eluma
1987-1988	Cominco
1993-1994	WMC
1996-1997	Santa
2008 - Present	Yamana

Geological Setting, Mineralization and Deposit Types

The Chapada area is located between the Amazonian craton to the northwest and the San Francisco craton to the southeast, within the north-northeast striking metavolcano-sedimentary Mara Rosa Magmatic Arc which is part of a large system of mobile belts that have a complex, multi-phased history of deformation.

The Chapada, Corpo Sul and Suruca deposits are located in the Eastern Belt of the Mara Rosa volcano sedimentary sequence. The Eastern Belt in the vicinity of the Chapada Mine comprises a thick package of amphibolites succeeded by volcanic and volcanoclastic rocks and overlying metasedimentary rocks. The metavolcanic-sedimentary units are intruded by metaplutonic rocks of dioritic to quartz-diorite composition. These intrusions are associated with magmatic fluids responsible for copper-gold and gold mineralization. The volcanics and sediments have been metamorphosed to biotite and amphibolite schist in the Chapada mineralized area.

The deposit has undergone hydrothermal alteration typical of a copper-gold porphyry system. Alteration styles include biotitization, sericitization, argillitization, and propylitization.

The bedrock schists are overlain by approximately 25 metres of saprolite material with a minor lateritic component near the top of the saprolite zone. Within that laterite component, there is a ferricrete zone at surface.

The primary copper-gold mineralization at Chapada is epigenetic. Copper is principally present as chalcopyrite with minor amounts of bornite. Fine grained gold is closely associated with the sulphide mineralization and was likely to be contemporaneous with the copper.

Copper mineralization occurs as finely disseminated crystals, elongated pods, lenses along foliation, crosscutting stringers, and coarse clots in occasional late stage quartz veins or pegmatites. The copper mineralization and grade are somewhat better in the central zone of the deposit along the anticline axis than in the surrounding anticlinal limbs; however, copper mineralization is pervasive over a broad area. Gold mineralization is more uneven spatially and may have been remobilized by post mineral low temperature alteration events.

The gold at Suruca is related to folded quartz vein/veinlets with sericitic and biotite alteration, rather than high sulphide concentrations. The second generation of quartz veins/veinlets with sulphides (sphalerite + galena + pyrite), carbonates and epidote also host gold which is related to zinc.

Mineralization predominately pre-dates deformation hence the gold is associated with epithermal features and not structurally controlled.

Exploration

For exploration work completed prior to Yamana, please see “–History”, above.

Yamana started exploration work in 2007 with diamond drilling mainly to the east of the pit to check for the extension of the mineralization potentially hosted in a synclinal structure.

In early 2008, consultant Richard Sillitoe defined a genetic model of mineralization with a typical porphyry copper-gold system (Cu-Au-Mo association) that underwent intense isoclinal folding and amphibolite facies metamorphism during continental collision at the end of the Neoproterozoic. However, original mineralogy may not have been profoundly changed, due to the stability of minerals like quartz, anhydrite, pyrite, chalcopyrite, magnetite and biotite under amphibolite facies conditions.

Yamana began exploration work at Suruca in 2008 with geological mapping, chip sampling and shallow drilling at Suruca South. The 2008 drill program was designed to discover another deposit in the vicinity of Chapada Mine and to test for possible extensions of known resources. To achieve these objectives, regional geological mapping, and detailed geological mapping of the open pit were carried out,

and geological model of the mine was prepared. Additionally, historic drill holes were re-logged, chip/soil samples were taken, and 5,530 m of diamond drilling was carried out in the vicinity of the Chapada Mine.

During 2010, Yamana drilled 16 holes in the southwest pit area and completed ten infill diamond drill holes in the northeast area. Samples from both the exploration and infill program were analyzed in a commercial and accredited laboratory. Yamana staff carried out quality assurance/quality control (QA/QC) and followed the protocol applied during the previous drilling programs. The drill program continued in 2011 Yamana continued a drilling program in the southwest pit area consisting of 14,362 m in 63 holes. Total drilling for the 2011 campaign was 19,305 m.

In 2013 Yamana drilled seven exploration holes for 1,704 m in the northeast section of Chapada Corpo Principal with the objective of delineating an inferred mineral resource. Several historic JVE series holes were used to estimate the mineral resource. In the same area condemnation holes were drilled to sterilize the location of waste dumps in the northeastern portion of the main Pit. In Corpo Sul, an infill drilling program was carried out in the southwest portion of the deposit on a 50 m by 50 m grid to upgrade Indicated to Measured Mineral Resources and on a 100 m by 100 m grid to convert Inferred to Indicated Mineral Resources.

In 2014, Yamana's Exploration Team restarted the generative exploration activities at Chapada working with a deformed/metamorphosed copper-gold porphyry/skarn model for the region. Consultant Richard Sillitoe assisted with the understanding the regional geological model and district exploration strategy in early 2014. Based on this exploration information, the following work was completed: integration of previous drilling data, geological mapping with focus on hydrothermal halos, and sampling (soil, chip, and auger). As a result, in mid-2014, the Yamana claims were extended to cover the areas covered by soil and chip sampling. The main result in 2014 was the discovery of Sucupira target close to main Chapada deposit.

In 2015, the mineralization in the Sucupira was delineated with a drill grid of 100 m by 50 m along a 1,700 m NE-SW strike length, 260 m width, and an average thickness of 110 m. The mineralization has an average vertical depth between 180 m to 240 m from surface. Several holes returned average grade above 0.7% CuEq, which is higher than the current reserve grade at Chapada.

In 2016, the Baru target was discovered. It comprises a large tonnage and low grade envelope of 0.1% Cu with a richer gold core. Typical Baru mineralization was intersected by drill hole NM-237: 82.6 m grading 0.12 g/t Au, 0.25% Cu at 114 m; and 30 m grading 0.2 g/t Au, 0.35% Cu at 150 m.

In 2017, Yamana drilled ten exploration targets with the objective of delineating new potential. Additionally, the Buriti target was discovered three kilometres south of the Chapada main pit. The Buriti target comprises copper-gold sulphide mineralization (greater than 0.15% CuEq) in a 2.0 km long copper geochemical anomaly. The Buriti hydrothermal alteration is similar to Chapada with a flat geometry close to surface, gently plunging to NW. Drill hole BRT-05 contains typical mineralization with 10.15 m grading 0.3 g/t Au, 0.3% Cu at 51.85 m. Inferred mineral resources were delineated with a 500 m northeast-southwest strike length, a width of 50 m, and a 150 m depth.

See also "– Exploration, Development and Production".

Drilling

Yamana commenced drilling the Chapada deposit in 2008. To date, Yamana and its predecessors have drilled 1,147 holes for a total of 229,254 m. Drilling has delineated the main deposit areas at a spacing of 100 m by 50 m, with a tighter 50 m pattern in the central portion of the deposit.

Table 3

Year	# Drill Holes	Total Depth (m)
1976-1996	435	59,956
1996	4	383
2001	4	1,089
2007	8	1,337
2008	30	5,126
2009	8	3,217
2010	18	4,373
2011	87	20,470
2012	155	33,789
2013	112	21,994
2014	60	15,792
2015	122	35,970
2016	73	18,703
2017	31	7,055
Grand Total	1,147	229,254

The 2008 and 2009 drilling campaigns were concentrated in the region named “Near Mine” and on the south portion of the area. The 2010 and 2011 campaigns targeted the Near Mine and Corpo Sul areas. The drill holes were collared at HW diameter, reduced to HQ diameter at the top of the saprolite, and changed to NQ2 when fresh rock was encountered. The drill rods were three metres long.

The majority of holes were drilled at an azimuth of 130° and an 85° dip. Drill holes with inclination between 45° and 85° were surveyed every three metres downhole using Devicom Deviflex electronic surveying instrument. No significant deviation issues were found to date. Collar surveys were taken by a Total Station GPS in UTM co-ordinates, SAD 69 Brazil datum, 22 South Zone.

Suruca

One hundred and twenty drill holes totalling 4,050 m were drilled at Suruca by previous owners; however, the database only contains details of the 1997 Santa Elina/Echo Bay holes with minimal data regarding the WMC reverse circulation drill holes.

Table 4: Historical Saruca Drill Holes

Company	No. Holes	Metres
INCO/Eluma	4	649.3
EDEN/COMINCO	7	623.6
WMC	91	2,241.0
Santa Elina/Echo Bay	18	536.4
Total	120	4,050.3

The majority of the historical holes were drilled within the saprolite which was characterized by low grade zones 0.1 g/t Au to 0.5 g/t Au), with occasional high grade interceptions ranging between 0.5 g/t Au and 6.0 g/t Au.

Yamana commenced drilling in the Suruca area in 2008 with seven holes for 440 m. The 2009 and 2010 drill programs used a 400 m by 200 m grid, with infill drilling at 200 m by 200 m. They extended the geometry of the deposit to a known strike length to 2,100 m, a width of 1,000 m, and 500 m depth. An infill grid of 100 m by 100 m was drilled in the northern portion of the deposit (between lines L500S and L1500S). To the end of 2017, a total of 1,002 holes for 77,301 m have been drilled at Suruca, including 18 holes for 536 m drilled by previous owners in 1996.

Table 5 – Yamana Drill Holes at Suruca

Year	# Drill Holes	Total Depth (m)
1996	18	536
2008	7	440
2009	21	7,420
2010[(1)]	120	24,368
2011	48	9,607
2013	63	4,359
2014	3	938
2016	497	15,943
2017	225	13,691
Grand Total	1,002	77,301

(1) Includes 11 metallurgical holes for 1,014 m

The drill holes were collared at HW diameter, reduced to HQ diameter at the top of the saprolite and changed to NQ when fresh rock was encountered. The drill rods were three metres long and the wireline core drilling method was employed. The majority of holes were drilled at an azimuth of 130° and a 60° dip, however, some holes were drilled at an azimuth of 310°. Downhole surveys were taken by the drilling contractor upon completion of the drill hole.

Regional Targets

Yamana commenced drilling in the regional targets in 2014 with 31 holes totalling 5,458 m. The 2014 and 2017 drill programs used a wide-spaced grid in order to test several targets. In 2015, the drill holes intercepted high grade copper-gold mineralization in the Formiga target. In 2017, an infill grid of 100 m by 100 m was drilled in the western portion of the Formiga target to establish inferred resources.

To the end of 2017, Yamana has drilled 230 holes for 32,736 m in regional targets. The drill holes were collared at HW diameter, reduced to HQ diameter at the top of the saprolite and changed to NQ when fresh rock was intercepted. The drill rods were three metres long and the wireline core drilling method was employed.

Drill holes with inclination between 45° and 85° were surveyed every three metres downhole using a Reflex Maxibor II or Devicom Deviflex electronic surveying instrument. In sub-vertical holes, a PeeWee or EZ-Shot instrument were used. Generally, the deviation was below 5% and no significant deviation issues were found to date. Collar surveys were taken by a Total Station GPS in UTM co-ordinates, SAD 69 Brazil datum, 22 South Zone. Drill hole collars were cased and protected at surface with a cement block affixed with a metal tag stamped with the drill hole number, final depth, inclination, azimuth, and start and finish dates.

See also "– Exploration, Development and Production".

Sampling, Analysis and Data Verification

Yamana's samples are selected down the entire length of the drill hole core, sawn in half with an electric diamond bladed core saw, and sampled prior to logging. Half core samples are selected by a geology technician or trained sampler. The samples are then placed in a numbered plastic bag along with a paper sample tag, and tied closed with a piece of string. Sample weight is approximately 3.5 kilograms. Six to eight samples are placed in a larger plastic bag, loaded onto a truck owned and driven by a locally based transport company, and driven to the ALS Chemex laboratory sample preparation facility in Goiania, State of Goiás.

After sampling, the geologist completes a graphic log and logs the core in detail for lithology, structure, mineralization, and alteration. Codes are assigned for the oxidation state, consistency, and alteration including alteration halo, sulphides, silicification, biotite, sericite, epidote, amphibolite, garnet, carbonate, rhodochrosite, chlorite, and kyanite content. Angles of structures such as foliation and faults are recorded, although drill holes are not oriented. Sample intervals and sample numbers are also recorded on the exploration hole log. (When the drill hole is an infill hole, the core is quickly logged, according to the alteration halos with fewer details, and no structural drawings.)

Approximately four samples from each alteration halo per drill hole are selected for density testwork by two different methods after sampling and logging. The first method used is the water displacement method, performed in the logging shed. This method uses half core samples from eight to twelve centimetres long, coated with Vaseline to prevent water impregnation, and placed in a plastic beaker containing 500 ml of water to determine the volume of water displacement.

Sample preparation is undertaken by ALS Chemex in Goiania and involves crushing and pulverization (Codes PREP-33y and PREPINT). Upon receipt of the samples, each sample is weighed and dried at 105°C for eight hours to 12 hours. The entire sample is then crushed to 90% passing <2 mm (10 mesh), split to 0.5 kg in a riffle splitter, and pulverized to 95% passing 150 mesh. The samples are then split again to 50 g using a rotating splitter/spatula. The crusher and pulverizer are cleaned between each sample. Each fraction retained is returned to Yamana.

Samples are transported from the drill rig to Yamana's core storage facilities at the Chapada Mine exploration camp by the drilling contractor, where Yamana geological staff log and sample the core. The samples are transported to the independent sample preparation facility by a locally based transport company, after which the samples are sent for preparation in ALX Chemex in Goiania, Brazil, and for analysis in Lima, Peru.

All Yamana samples are analyzed by fire assay with an Atomic Absorption (AAS) or ICP finish by ALS Chemex Lima, Peru, accredited by the Standards Council of Canada ISO 17025 and SGS GEOSOL, Belo Horizonte, Brazil is accredited by ISO 9001:2008. Yamana is at arm's length with these laboratories.

Yamana conducted an external (independent of the laboratory being assessed), industry standard quality assurance/quality control ("QA/QC") program for its drill campaigns, which followed written protocols. The QA/QC program consisted of the insertion of blanks and CRMs into the sample stream and the running of duplicate field (quarter-core) samples. Later, pulp duplicate samples were re-assayed at a secondary facility.

Yamana's QA/QC program meets industry standard with a generally acceptable rate of insertion for CRMs and pulp duplicates. The results of the pulp duplicate assays showed good reproducibility with no discernible grade biases. The insertion of CRMs showed that laboratory results from SGS Geosol and ALS Chemex were acceptable with respect to precision and accuracy. The results from the insertion of blanks are also generally acceptable.

In 1996, Echo Bay became actively involved in the drilling and sampling program for the Project. Samples taken by Santa Elina in 1996 were subject to a rigorous QA/QC program; Geolab in Brazil was the primary assay laboratory and a large number of samples were sent to various laboratories in North America for check assays.

IMC Mining (IMC) was contracted to review the historical data. IMC's review included the following (i) all historical QA/QC control files; and (ii) a comparison of historical data with re-assayed data from analytical laboratories in the US. IMC concluded that the historical data was appropriate for estimation of Mineral Resources.

A total of 18 Suruca diamond drill holes from Mineração Alonte were re-analysed following Yamana's procedures. The new assay results were compatible with the historical results.

In RPA's opinion, the QA/QC program as designed and implemented by Yamana is adequate and the assay results within the database are suitable for use in a Mineral Resource estimate.

Yamana has written procedures and checks for all aspects of drilling, sampling, analyses, and data compilation. For example, drill logs are verified at the point prior to entry into the database by the Geology Department.

Compilation of assay QA/QC results is carried out on a continuous basis by a staff geologist in the Exploration Department. The data are collected and plotted on graphs to look for problem areas, and monthly and annual reports are generated. General performance is monitored, including the number of samples collected, the number and type of QA/QC samples, equipment availability, assay return times, etc. The reports also describe the progress and results of special research projects, such as heterogeneity studies, that may be underway at the time. Any problem areas with regard to assay verification are flagged and recommendations for appropriate action are implemented.

In RPA's opinion, the collection and analysis of assay QA/QC data at Chapada is quite thorough and meets standard industry practice.

RPA is of the opinion that data collection and entry, and database verification procedures for Chapada comply with industry standards and the data is adequate for the purposes of Mineral Resource estimation.

Mineral Processing and Metallurgical Testing

For a discussion of mineral processing and metallurgical testing work completed by Yamana, see "Mining Operations", below.

Mineral Resources and Mineral Reserves

RPA has reviewed the updated Mineral Resource estimates for the Chapada and Suruca deposits completed by Yamana personnel effective as of December 31, 2017. The Mineral Resource estimate is based on open pit mining scenarios and Chapada Mineral Resources are constrained by Whittle optimized pits which are based on a copper and gold net smelter return (NSR) cut-off value. At Chapada and Suruca SW, a variable NSR marginal cutoff value averaging approximately US$4.06 per tonne at Chapada and a fix US$4.50 per tonne at Suruca SW to account for the extra haulage distance, was used for sulphide and 0.3 g/t Au for oxide mineralization. For Suruca gold-only resources, a 0.2 g/t Au cut-off grade was used for oxide material and 0.3 g/t Au cut-off grade, for sulphide material.

The Mineral Resource estimates, exclusive of those mineral resources used to estimate the Mineral Reserves, are summarized in Table 1. Measured and Indicated Mineral Resources of gold are estimated at 82.2 Mt grading 0.48 g/t Au containing approximately 1.3 million ounces of gold. Measured and Indicated Mineral Resources of copper/gold are estimated at 274.2 Mt grading 0.17 g/t Au and 0.22% Cu containing approximately 1.5 million ounces of gold and 1.3 billion pounds of copper. Inferred Mineral Resources of gold are estimated at 28.0 Mt grading 0.44 g/t Au approximately 390,000 ounces of gold. Inferred Mineral Resources of copper/gold are estimated at 47.1 Mt grading 0.15 g/t Au and 0.24% Cu containing approximately 220,000 ounces of gold and 250 million pounds of copper.

Yamana personnel developed mineralization and lithology wireframes using Vulcan software, with refinements in Leapfrog 3D software. Block models were generated in MineSight measuring ten metres in each direction for Chapada (Cava Central, Cava Norte, Corpo Sul and Sucupira) and five metres in each direction for the Suruca deposits. Block grades were estimated using Ordinary Kriging (OK) in areas where sufficient composites were available to produce reliable variograms. In the absence of reliable variograms, block estimates were performed using Inverse Distance (ID) to the third power.

Classification for Chapada was based on a 50 m by 50 m drill pattern for the Measured Mineral Resources, 100 m by 100 m drill pattern for indicated, and 200 m by 200 m drill pattern for Inferred. For Suruca, classification was based on a 35 m by 35 m drill pattern for Measured Mineral Resources, 100 m by 50 m for Indicated, and 200 m by 200 m drill pattern for Inferred Mineral Resources.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues that would materially affect the Mineral Resource estimate.

The resource estimates were prepared using industry standard methods and provide an acceptable representation of the deposit. RPA reviewed the reported resources, production schedules, and factors for conversion from Mineral Resources to Mineral Reserves. Based on this review, it is RPA's opinion that the Measured and Indicated Mineral Resource within the final pit designs at Chapada Mine can be classified as Proven and Probable Mineral Reserves.

Table 6 - Mineral Resources – December 31, 2017

Category	Deposit	Tonnes (000)	Au (g/t)	Au (000 oz)	Cu (%)	Cu (Mlb)
Measured						
	Chapada	53,637	0.11	193	0.20	231
	Suruca SW	1,178	0.29	11	0.07	2
Sub-Total Copper/Gold		54,815	0.12	204	0.19	233
	Suruca Sulphide	0	-	-	-	-
	Suruca Oxide	0	-	-	-	-
Sub-Total Gold Only		-	-	-	-	-
Total Measured		**54,815**	**0.12**	**204**	**0.19**	**233**
Indicated						
	Chapada	148,666	0.17	819	0.26	838
	Suruca SW	70,711	0.22	503	0.16	242
Sub-Total Copper/Gold		**219,377**	**0.19**	**1,322**	**0.22**	**1,080**
	Suruca Sulphide	78,464	0.49	1,244	-	-
	Suruca Oxide	3,697	0.28	34	-	-
Sub-Total Gold Only		**82,161**	**0.48**	**1,277**	**-**	**-**
Total Indicated		**301,538**	**0.27**	**2,600**	**0.16**	**1,080**
M+I						
	Chapada	202,303	0.16	1,013	0.24	1,069
	Suruca SW	71,889	0.22	514	0.15	244
M+I Total Copper/Gold		**274,192**	**0.17**	**1,527**	**0.22**	**1,313**
	Suruca Sulphide	78,464	0.49	1,244	-	-
	Suruca Oxide	3,697	0.28	34	-	-
M+I Total Gold Only		**82,161**	**0.48**	**1,277**	**-**	**-**
Total M+I		**356,353**	**0.24**	**2,804**	**0.17**	**1,313**
Inferred						
	Chapada	46,592	0.15	219	0.24	251
	Suruca SW	453	0.29	4	0.09	1
Sub-Total Copper/Gold		47,046	0.15	223	0.24	252
	Suruca Sulphide	25,296	0.45	362	-	-
	Suruca Oxide	2,257	0.34	24	-	-
Sub-Total Gold Only		27,553	0.44	386	-	-
Total Inferred		**74,599**	**0.25**	**609**	**0.15**	**252**

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

2. For Chapada Corpo Principal and Corpo Sul, Mineral Resources are estimated at a cut-off grade of 0.2 g/t Au for Oxide and a US$4.06 NSR cut-off for Sulphide.

3. For Suruca, Mineral Resources are estimated at a cut-off grade of 0.2 g/t Au for Oxide and 0.3 g/t for Sulphide.

4. Mineral Resources are estimated using a long-term gold price of US$1,600 per ounce and a long-term copper price of US$4.00 per pound.

5. Mineral Resources at Chapada are constrained by an optimized pit and the December 2017 topographic surface.

6. Mineral Resources are exclusive of Mineral Reserves.

7. Numbers may not add due to rounding

Total Proven and Probable Copper/Gold Mineral Reserves for Chapada and Suruca are estimated at 621.9 Mt grading 0.16 g/t Au and 0.25% Cu. Total Proven and Probable Gold Mineral Reserves for Suruca are estimated at 59.331 Mt grading 0.53 g/t Au.

RPA is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

Table 7 - Mineral Reserves (Proven and Probable) – December 31, 2017

Deposit	Category	Tonnes (000)	Au (g/t)	Au (000 oz)	Cu (%)	Cu (Mlb)
Chapada Corpo Principal	Proven	86,678	0.17	482	0.25	477
Corpo Sul	Proven	127,865	0.17	691	0.25	718
Stocks	Proven	87,950	0.17	480	0.23	447
Sub-Total Copper/Gold		**302,492**	**0.17**	**1,653**	**0.25**	**1,642**
Suruca Oxide	Proven	9,868	0.43	135	-	-
Sub-Total Gold Only		**9,868**	**0.43**	**135**	**-**	**-**
Sub-Total Proven		**312,360**	**0.18**	**1,788**	**0.24**	**1,642**
Corpo Principal	Probable	131,453	0.15	639	0.25	731
Corpo Sul	Probable	141,743	0.13	584	0.25	783
Sucupira	Probable	46,131	0.27	405	0.31	315
Sub-Total Copper/Gold		**319,327**	**0.16**	**1,627**	**0.26**	**1,829**
Suruca Oxide	Probable	8,990	0.38	111	-	-
Suruca Sulphide	Probable	40,473	0.59	761	-	-
Sub-Total Gold Only		**49,463**	**0.55**	**872**	-	-
Sub-Total Probable		**368,790**	**0.21**	**2,500**	**0.22**	**1,829**
Total Copper/Gold	**Proven and Probable**	**621,819**	**0.16**	**3,280**	**0.25**	**3,471**
Total Gold Only	**Proven and Probable**	**59,331**	**0.53**	**1,007**	-	-
Total Reserves	**Proven and Probable**	**681,150**	**0.20**	**4,287**	**0.23**	**3,471**

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.

2. Chapada copper-gold Mineral Reserves are estimated at a cut-off NSR value of $4.06.

3. Chapada copper-gold Mineral Reserves are estimated using an average long-term gold price of US$1,250 per ounce and a long-term copper price of $3.00 per pound.

4. Suruca Oxide and Suruca Sulphide Mineral Reserves are estimated at cut-off grades of 0.21 g/t and 0.30 g/t respectively.

5. Suruca Oxide and Suruca Sulphide Mineral Reserves are estimated using an average long-term gold price of US$1,300 per ounce and US$900 per ounce respectively.

Mining Operations

The Chapada Mine is a traditional open pit truck/shovel operation that has been in continuous operation since 2007. There are two main open pit mining areas to be developed on the property, Chapada and Suruca. Current production is entirely from Chapada, including the Corpo Principal, Cava Norte, Corpo Sul and Sucupira pits. These pits are planned to eventually join into a single pit and Sucupira pit is planned as an additional series of pushbacks. The Suruca mining area includes Suruca Oxide and Suruca Sulphide gold Mineral Reserves.

The Chapada Mine is located in gently undulating terrain at elevations between 340 MASL and 400 MASL. The Chapada open pit, which is currently being mined, has ultimate design dimensions of approximately 8.0 km along strike, up to 1.5 km wide, and 420 m deep. The Suruca open pit will be located approximately seven kilometres northeast of the Chapada open pit. Final pit dimensions for Suruca will be approximately two kilometres along strike and about one kilometre wide.

The processing plant is located at the northwest end of the Chapada pit rim. The tailings storage facility is located to the northwest of the Chapada open pit, with the pond as close as 0.5 km to the pit rim and the tailings dam being up to five kilometres to the northwest.

The Life of Mine (LOM) plan is based on Mineral Reserves, as of December 31, 2017, plus an additional 68 Mt of Measured and Indicated Mineral Resources from Sucupira at an average grade of 0.26% Cu and 0.17 g/t Au. These additional resources require the relocation of surface infrastructure that will be studied in a Feasibility Study commencing in 2018. The LOM plan is based on a processing rate of 23.4 Mtpa. The ore stockpile will be processed intermittently throughout the mine life. The mine life is 27 years plus an additional two years at the end of the mine life for processing the remainder of the ore stockpile.

Processing and Recovery Operations

The Chapada Mine treatment plant processed an average of 63,000 tpd in 2017 with average copper and gold recoveries of 80% and 57% respectively.

The first step of the process occurs in the two parallel crushing circuits. The primary crushing system consists of an in-pit gyratory crusher in series with a roll crusher and a jaw crusher in parallel. Crushing is followed by grinding in a semi-autogenous (SAG) mill followed by a ball mill. The ore is then sent to the flotation, thickening, and filtration processes. The tailings are placed in a tailings storage facility, where the embankments are constructed using the coarser material from the grinding plant.

The Suruca oxide gold deposit is currently being planned for processing through a heap leach. A feasibility study was completed for the Suruca oxide project in early 2018 and Yamana is currently assessing the project within the context of the Chapada complex. Suruca sulphide ore is currently being planned to be processed through the existing Chapada plant, with some modifications, at the end of the Chapada mine life. However, there is also an option to construct a standalone CIL or CIP plant for processing the sulphide ore. Conceptual studies are ongoing.

Conceptual studies have been completed to expand the Chapada processing plant capacity to 28 to 32 Mtpa. A feasibility study for this expansion project is schedule to commence in 2018.

Infrastructure, Permitting and Compliance Activities

Chapada currently operates one open pit mine and process plant and has all the required infrastructure necessary for a mining complex including:

- Open pit mine and mine infrastructure including truck shop, truck wash facility, warehouse, fuel storage and distribution facility, explosive's storage and magazine sites, and electrical power distribution and substations to support construction projects and mine operations.
- A conventional flotation mill for processing sulphide ore and mill infrastructure including assay laboratory, maintenance shops, and offices.
- Mine and mill infrastructure including office buildings, shops, and equipment.

- A tailings storage facility comprising a raised dam constructed with cyclone tailings with capacity for three years and plans for further expansion.
- Local water supplies as required.
- Electric power from the national grid.
- Haulage roads from the mines to the plant.
- Stockpile areas for high grade and low grade ore.
- Maintenance facilities.
- Administrative office facilities.
- Core storage and exploration offices.
- Access road network connecting the mine infrastructure to the town site and to public roads.

Yamana has all the environmental permits required to operate the Chapada mine and process plant. Additional permits are occasionally required for expansion or construction projects. The mine life for Chapada Mine is currently 29 years, i.e., until 2047. The closure plan consists of two major types of activity: decommissioning and rehabilitation. Decommissioning involves permanently ending the mining and mineral processing operations and removing all the equipment and facilities that are not destined to remain in place for future use. Reclamation includes reclaiming the mine site to other sustainable uses as defined in closure management plans.

Yamana is very active in engaging the local community with a series of cultural, social, and economic programs.

Capital and Operating Costs

LOM capital costs include capital projects, sustaining capital, and closure costs. LOM expansionary capital costs for Chapada are approximately $27 million and sustaining costs are approximately $290 million. The Suruca oxide pit and heap leach pre-production Capital Cost estimate is an additional $66 million including contingency. Exclusions from the capital and sustaining cost estimate include: mine development waste movement, working capital, and project financing and interest charges.

Operating costs are tracked and well understood as the mine has been in production since 2007. Operating costs are estimated for the LOM in 2018 US dollars. All in unit operating costs are $8.03 per tonne processed, consisting of mining, processing, and general and administrative costs.

Exploration, Development and Production

The Chapada Mine is divided into 37 claims covering 43,866.31 ha held in the name of Mineração Maraca. The Suruca deposit is located on claim numbers 860.708/2009 and 860.595/2009 (both Application for Mining Licences), totalling 845.75 ha. The Chapada and Corpo Sul deposits are located on claim numbers 808.931/1994, 808.923/1974, and 860.273/2003 (all Mining Licences) encompassing 3,830.19 ha.

Production at the Chapada Mine in 2017 consisted of 119,852 ounces of gold and 252,748 ounces of silver, contained in concentrate compared to 107,301 ounces of gold and 259,444 ounces of silver contained in concentrate in 2016. Chapada Mine copper production was 127.3 million pounds in 2017 compared to production of 115.5 million pounds of copper in 2016.

The Company completed a total of 43,543 metres of drilling in 383 holes over the course of the year ended December 31, 2017. The focus of the 2017 exploration program at Chapada was (i) to complete delineation drill programs at Sucupira/Baru, Corpo Sul and Suruca SW, concentrating on development of high-grade gold and copper lenses; (ii) delineation drilling at Formiga, Suruca Oxide, SW Mina and other targets with high potential to grow the mineral resource base; and (iii) to conduct exploration drilling at new near-mine targets like Buriti and Hidrotermalito. Exploration in 2018 will continue to define and expand the Suruca deposit, upgrade resources at Sucupira, Baru and explore for further near mine high-grade lenses of mineralization.

Several initiatives are underway to improve the performance of the Chapada processing plant. Following from the success of Phase I and Phase II plant optimization projects in 2016 and 2017, which has resulted in increased copper and gold recoveries, in 2018 Chapada will commence Phase III of the optimization. Commissioning is scheduled for the second quarter of 2019 and the project is expected to

increase copper and gold recoveries by a further 1.5% to 2%. In addition to this, Chapada is assessing options to increase processing capacity to 28 to 32 Mt per year, with a Feasibility Study to commence in 2018.

Please refer to the section “Cautionary Note Regarding Forward-Looking Statements”.

SCHEDULE “C”

ROCANVILLE ROYALTY

Current Technical Report

All of the information below with respect to the Rocanville Mine owned by Nutrien Ltd. (“Nutrien”) has been excerpted or derived from the *Technical Report on Rocanville Potash Deposit (KL305), Saskatchewan, Canada* dated February 20, 2019*,* prepared by Nutrien Carol Seymour, P.Geo., Senior Geologist for Altius, has reviewed and approved the scientific and technical information in this section on the Rocanville Mine. Readers should consult the *Technical Report on Rocanville Potash Deposit (KL305), Saskatchewan, Canada* dated February 20, 2019*,* prepared by Nutrien to obtain further particulars regarding the Rocanville Mine. Nutrien's Technical Report is available for review under Nutrien's profile on SEDAR at www.sedar.com.

Project Description, Location and Access

The Rocanville mine (surface plant) is located in south eastern Saskatchewan near the Saskatchewan-Manitoba Provincial Boundary, approximately 15 kilometers north-east of the town of Rocanville, Saskatchewan.

The legal description (Saskatchewan Township / Range) of the Rocanville surface plant is Section 22 Township 17 Range 30 West of the 1st Meridian. More precisely, the Rocanville #2 Shaft collar is located at:

- Latitude: 50 degrees 28 minutes 19.54 seconds North
- Longitude: 101 degrees 32 minutes 42.58 seconds West
- Elevation: 480.36 metres above mean Sea Level (SL)
- Northing: 5,596,826.122 m
- Easting: 745,137.307 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

The legal description (Saskatchewan Township / Range) of the Rocanville Scissors Creek Shaft is Section 13 Township 17 Range 32 West of the 1st Meridian and is approximately 12 kilometers north-east of the town of Rocanville, Saskatchewan. More precisely, the Shaft collar is located at:

- Latitude: 50 degrees 27 minutes 7.0632 seconds North
- Longitude: 101 degrees 46 minutes 13.58 seconds West
- Elevation: 525.35 metres above mean Sea Level (SL)
- Northing: 5,593,868.30 m
- Easting: 729,253.35 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

Nutrien owns approximately 3,061 hectares (7,564 acres) of surface rights required for current Rocanville mine operations, including all areas covered by the existing surface plant and Tailings Management Area, and all surface lands required for the anticipated future Rocanville mine and expanded milling operations.

All permits and approvals required for the operation of a potash mine in Saskatchewan are in place at Rocanville.

Mineral rights at Rocanville are mined pursuant to Subsurface Mineral Leases with the Province of Saskatchewan, Canada (the Crown), and with non-Crown (Freehold) mineral rights owners. Crown mineral rights are governed by *The Subsurface Mineral Tenure Regulations, 2015,* and Crown Subsurface Mineral Leases are approved and issued by the Ministry of the Economy.

The original Rocanville Crown Subsurface Mineral Lease KL 111 was entered into in June 1966. In the following years, various minor amendments were made to this Crown Lease, resulting in Crown Subsurface Mineral Lease KL 111R. KL 111R covered approximately 24,146 hectares (59,668 acres) of Crown mineral rights.

In May 2007, application was made for a Permit to Prospect for Subsurface Minerals (Potash Exploration Permit) covering approximately 26,184 hectares (64,702 acres) of Crown mineral rights in the area just west of and adjoining the existing Rocanville Crown Lease KL 111R. In late 2007, a major expansion of the Rocanville mine was announced. Shortly after this, in May 2008, Potash Exploration Permit KP 338A was issued. A potash exploration program was initiated in 2007 and completed in 2008 to determine the extent of potash mineralization to the west of the mine workings.

A new Crown Subsurface Mineral Lease numbered KLSA 002 was issued in February 2010 incorporating all Crown mineral rights within the existing Crown Lease KL 111R and approximately two-thirds of Crown mineral rights covered in KP 338A. The portion of the lands that were not part of the Lease amalgamation remained as Crown Exploration Permit KP 338B until December 2016 when they were converted to a Crown Subsurface Mineral Lease numbered KL 249.

In October 2017, KL 305 was formed by the amalgamation of Crown Subsurface Leases KLSA 002 (KLSA 002B, following minor amendments) and KL 249. KL 305 covers an area of approximately hectares 113,975 (281,639 acres). At Rocanville, Nutrien has leased potash mineral rights for 54,184 hectares (133,892 acres) of Crown Land and owns or has leased approximately hectares 45,612 (112,710 acres) of Freehold Land within the Lease boundary. The Rocanville Crown Lease term is for a period of 21 years from October 2017, with renewals at Nutrien's option for 21-year periods. Freehold Lands also remain under lease providing, generally, that production is continuing and that there is a continuation of the Crown Lease.

Within the current Rocanville Crown Lease area, 80,181 hectares (198,132 acres) are mined pursuant to Unitization Agreements with mineral rights holders (Crown and Freehold) within two Unitized Areas. Rocanville Unit Area #1 has been in place since 1970 when mining began, was amended in 2006 and includes 35,234 hectares (87,065 acres) of mineral rights. Rocanville Unit Area #2 has been in place since 2011, and includes 44,947 hectares (111,067 acres) of mineral rights.

When underground workings of a potash mine are designed, there are inevitably regions that are mined with higher mining extraction (e.g. production panels) and other regions where mining extraction is lower (e.g. conveyor-belt development rooms). To treat mineral rights holders in both low extraction and high extraction areas fairly, and to promote good mining practices, a Unitization Agreement is the preferred method for determining royalty payouts. Under a Unitization Agreement, each mineral rights holder is paid a royalty based on their proportional share of the entire Unit Area regardless of whether or not their lands are actually mined. For example, if one mineral rights holder owns rights to 4,000 hectares within a 40,000-hectare Unit Area, they would be paid 10% of the total monthly royalty payout from that Unit Area.

The Rocanville mine surface facilities are accessed by an existing paved road that is part of the Saskatchewan Provincial Highway System. Most finished potash products are shipped by rail over existing track, with some product shipped by truck over the North American Highway System.

The Rocanville mine is served by a number of towns and villages within 50 kilometres of the minesite. The nearest towns are Rocanville (15 km distant), Moosomin and Esterhazy (both 50 km distant). The nearest city is Yorkton (100 km distant).

Rocanville is situated near the north extent of the Great Plains of North America. Topography is relatively flat, with gently rolling hills and occasional valleys. The Qu'Appelle River valley, a glacial outflow channel, lies just north of the minesite, and the Assiniboine River Valley

is a few kilometers to the east.Climate at the Rocanville mine is typical for an inland prairie location at latitude 50° North (often characterized as “mid-latitude steppe” climate).

Part of the normal surface infrastructure associated with operating the potash mine in Saskatchewan includes waste disposal on the land and disposal of salt brine into deep subsurface aquifers. Facilities to carry out all aspects of these tasks are in place at Rocanville

History

Exploration drilling for potash in the Rocanville, Saskatchewan area was carried out in the 1960s. Thirty-four potash test holes were drilled during this early exploration phase: 25 in Saskatchewan and nine in Manitoba. The Rocanville mine was built by a company called Sylvite of Canada Ltd. (a division of Hudson’s Bay Mining and Smelting Ltd.) in the late 1960s, and potash production began at Rocanville in 1970. The mine has run on a continuous basis since then (other than during short-term shutdowns taken for inventory management purposes). PotashCorp acquired the Rocanville mine in 1977.

A major expansion to increase the nameplate capacity of Rocanville from 3.0 million tonnes to approximately 6.0 million tonnes of finished potash products per year was announced in 2007. Expansion work was substantially completed by the end of 2016, and production was ramped up through 2017 when a nameplate capacity of 6.5 million tonnes of finished potash product was announced. The operational capability at Rocanville as of December 31, 2018 is 5.2 million tonnes of finished potash product.

Effective January 1, 2018, PotashCorp and Agrium completed a merger resulting both companies becoming wholly-owned subsidiaries of Nutrien.

Geological Setting, Mineralization and Deposit Types

Much of southern Saskatchewan is underlain by the Prairie Evaporite Formation, a layered sequence of salts and anhydrite which contains one of the world’s largest deposits of potash. The potash extracted from the predominantly sylvinite ore has its main use as a fertilizer.

The 100 m to 200 m thick Prairie Evaporite Formation is overlain by approximately 500 m of Devonian carbonates, followed by 100 m of Cretaceous sandstone, and 400 m of Cretaceous shales and Pleistocene glacial tills to surface; it is underlain by Devonian carbonates (Fuzesy, 1982). The Phanerozoic stratigraphy of Saskatchewan is remarkable in that units are flat-lying and relatively undisturbed over very large areas. Rocanville stratigraphy differs slightly from this regional model in that Mississippian carbonates and Jurassic clastics are present.

There are three mineable potash members within the Prairie Evaporite Formation of Saskatchewan. Stratigraphically highest to lowest, these members are: Patience Lake, Belle Plaine, and Esterhazy.\

The Rocanville potash deposit lies within the Esterhazy Member of the Prairie Evaporite Formation. The Patience Lake Member potash beds are not present in the Rocanville Area. The Belle Plaine and White Bear Members are present, but not conventionally mineable in the Rocanville area. The potash zone at Rocanville is approximately 2.4 metres thick and occurs near the top of the Prairie Evaporite Formation. Potash mineralization in this area is flat-lying and continuous. Mine elevations range from approximately 895 m to 1040 m, averaging approximately 955 m. Within the Rocanville Lease, depths to the top of the ore zone can reach up 1250 m (the deepest potash exploration drillhole) but are expected to be shallower than 1200 m over most of the lease area. Salt cover from the ore zone to overlying units is approximately 30 m. The Rocanville mine operates as a conventional, underground potash mine.

Potash mineralization in this region of Saskatchewan is predominantly sylvinite, which is comprised mainly of the minerals sylvite (KCl) and halite or rock salt (NaCl), with minor carnallite ($KMgCl3 \cdot 6H2O$) and water insolubles. Potash fertilizer is concentrated, nearly pure KCl (i.e. greater than 95% pure KCl), but ore grade is traditionally reported on a % K2O equivalent basis. The “% K2O equivalent” gives a standard measurement of the nutrient value of different potassium-bearing rocks and minerals. To convert from % K2O equivalent tonnes to actual KCl tonnes, multiply by 1.58.

Over the past three years (2016, 2017, 2018), the average, measured potash ore grade of the mill feed at Rocanville was 23.2% K20 equivalent. The average ore grade reported from 31 surface drillhole intersections, all within Rocanville Lease KL 305, is 22.4% K20 equivalent. The average ore grade observed from 39,245 in-mine chip samples to December 31, 2017 is 23.4% K20 equivalent.

Exploration

Before the Rocanville mine was established in 1970, all exploration consisted of drilling test holes from surface and analysis of core from these drillholes. PotashCorp did not conduct any exploration drilling after start-up until 2008, when a potash exploration program was initiated under the direction of PotashCorp staff to determine the extent of potash mineralization in the western portion of the current Lease. Between 2007 and 2008, exploration work consisted of:

- Analysis of data from five existing exploration drillholes (well-logs from surface casing to total depth within or below the Prairie Evaporite Formation)
- Analysis of 377 km of existing 2D surface seismic data
- Acquisition and analysis 124 km2 (48 miles2) of 3D surface seismic data,
- Drilling of four potash exploration drillholes from surface to the base of the Prairie Evaporite Formation (all with a complete suite of modern well-logs plus coring of the potash mineralized zone)
- Drilling of one shaft pilot drillhole (with a complete suite of modern well-logs plus coring of the entire rock column from surface to below the potash mineralized zone)

In most of southern Saskatchewan, potash mineralization is in place wherever Prairie Evaporite Formation salts exist, are flat-lying, and are undisturbed. Since the surface seismic exploration method is an excellent tool for mapping the top and bottom of Prairie Evaporite salts, this has become the main potash exploration tool in any existing Saskatchewan Subsurface (potash) Mineral Lease. Historically, 2D seismic, and now the more accurate 3D seismic methods are used to map continuity and extent of potash beds in flat-lying potash deposits. Seismic data are relied upon to identify collapse structures that must be avoided in the process of mine development since these structures can act as conduits for water. As a result, isolation pillars or mining buffer zones are left around these anomalous features. This practice reduces the overall mining extraction ratio, but the risk of inflow to mine workings are effectively mitigated.

A total of 1,111 linear kilometres of 2D seismic lines have now been acquired at Rocanville. Between 1988 and 2017, 3D seismic has been acquired over an area covering 627 square kilometres. The most recent seismic survey was conducted in 2017 and accounted for 96 square kilometres of the total square kilometres stated above.

Surface seismic data are generally collected three to five years in advance of mining. Any area recognized as seismically unusual is identified early, and mine plans are adjusted to avoid these regions.

Drilling

For the original Rocanville potash test holes drilled in 1960s, the primary objective of this drilling was to sample the potash horizon to establish basic mining parameters. Seismic surveys (2D) were done sparingly in those days, so the drillhole information was relied upon heavily to evaluate potash deposits. Test holes would penetrate the evaporite section with a hydrocarbon based drilling mud (oil-based or diesel fuel) to protect the potash mineralization from dissolution. Basic geophysical well-logs were acquired, and in many cases, drill stem tests were run on the Dawson Bay Formation, a carbonate immediately overlying the Prairie Evaporite Formation, to help assess mine inflow potential. Core samples from the targeted potash intersections were split or quartered (cut with a masonry saw) crushed and analysed to establish potash grades.

Original Rocanville drillhole assay data are taken from Robertson et al. (1977), where the best 2.44 m (8') mining interval – the original mining height at Rocanville – is reported. As explained in the Robertson Associates report, the Rocanville prospect was originally explored by 34 drillholes in Saskatchewan and Manitoba. Of these original drillholes, 26 are located within the current Rocanville Lease KL 305 and are shown in Table 1.

Potash intersections for one drillhole revealed anomalously low grades. With nearly 50 years of mining experience at Rocanville, it is the opinion of the authors that areas of low grade (i.e. <15% K2O) are localized with a relatively small lateral extent. Therefore, the average grade calculation does not include these drillholes.

No further exploration drilling was done by the Company at Rocanville until 2008, when four potash exploration drillholes and one shaft pilot hole were completed. The basic drilling program was specified by PotashCorp technical staff.

Each of the 2008 exploration drillholes and the shaft pilot hole were drilled in such a way as to protect the potash minerals from dissolution while core sampling through the targeted mining zone (the Esterhazy Member of the Prairie Evaporite Formation). To accomplish this, the aquifers above the top of salt (top of the Prairie Evaporite) were isolated behind a casing before the drilling mud was changed over to an oil based system. Each drillhole penetrated approximately 10 m into the Winnipegosis Formation, which lies immediately below Prairie Evaporite salts, before drilling was terminated (i.e. through the Prairie Evaporite Formation and far enough into the underlying formation to permit proper geophysical logging of the base of salt).

Hydrogeology in the formations immediately overlying the Prairie Evaporite Formation was evaluated in part by core sampling through the Dawson Bay Formation (for examination of porosity and permeability). As well, drill stem tests were run in the Dawson Bay and Lower Souris River Formations. In the shaft pilot hole, core sampling and drill stem testing were done more extensively as part of a comprehensive investigation for a shaft liner design. In every drillhole, coring and testing of formations above the Prairie Evaporite was completed prior to setting the casing and changing the drilling mud to an oil based system.

A standard suite of geophysical logs was run in each drillhole. These logs included: Gamma Ray, Neutron, Density, Electrical Resistivity (or Induction), Sonic (full-waveform P & S), and Caliper. In certain drillholes, additional specialized logs were run for fracture mapping and/or porosity investigation over certain geological intervals. A deviation survey was run in each drillhole; the results of which were found to be minimal (i.e. all holes are vertical). Stages of open-hole logging had to be completed before casing was put in place. The stages depended on formational permeability (such as the Mannville Formation, which is a major regional aquifer and needs to be isolated) and formational composition (it is necessary to change drilling mud when drilling through salts to not dissolve the rock).

Potash core samples from the four 2008 exploration drillholes and the Scissors Creek shaft pilot hole were assayed. The assay results for these drillholes are listed in Table 2. Note that 2008 assay results are for the best 2.59 m (8.5') mining interval, since an operational decision was made to develop parts of the western portion of Rocanville Lease KL 305 at a height of 2.59 m (8.5'). This mining height allows for more headroom with minimal negative impact on ore grade. Mining machines at Rocanville use potassium sensing technology to ensure that rooms are always cut in the best available potash ore. It is difficult to determine at which mining height certain Mineral Resources and Reserves will be cut in the future, so the more conservative mining height of 2.51 m (8.25') was applied to Mineral Resource and Reserve calculations.

Table 1: Assay results for all potash test holes within Rocanville Lease KL 305. Weighted Average for 2.44 m (8') Mining Interval

Drillhole	Year Drilled	% K2O	% Water Insolubles	% Carnallite
01-04-17-30 W1	1957	23.84	1.15	4.34
16-14-017-01W2	1957	Excluded	N/A	N/A
04-20-17-32 W1	1958	22.74	0.95	1.77
08-32-17-30 W1	1959	20.74	1.06	5.18
10-12-17-30 W1	1959	16.35	1.06	7.62
13-16-18-30 W1	1959	20.32	0.75	0.74
05-07-18-30 W1	1961	19.95	1.07	4.92
16-04-18-30 W1	1961	21.89	1.26	5.71
02-11-18-30 W1	1961	24.87	0.97	0.20
01-16-17-30 W1	1964	27.05	1.31	4.29
04-20-17-30 W1	1964	23.86	1.22	0.19
16-22-17-30 W1	1964	29.06	1.38	0.11
14-36-17-30 W1	1964	17.06	0.93	6.80
14-36-17-30 W1(1)	1964	26.26	1.42	4.76
03-28-17-30 W1	1966	26.32	1.26	6.48
13-14-17-30 W1	1966	23.73	1.40	7.02
04-24-17-30 W1	1966	17.88	0.81	0.19
10-34-17-30 W1	1966	24.85	1.48	0.18
11-25-17-30 W1	1966	19.60	1.15	2.13
11-14-18-30 W1	1966	26.53	1.09	0.22
13-22-17-30 W1	1967	35.10	1.30	5.40
01-14-17-33 W1	1967	25.62	2.72	2.52
13-22-17-33 W1	1967	21.75	2.61	7.24
16-26-17-33 W1	1967	24.01	0.92	0.16
14-05-17-30 W1	1969	15.56	0.96	10.27
01-14-17-30 W1	1971	15.67	1.15	N/A
04-01-019-31W1	1989	22.48	0.64	0.00
06-13-17-32 W1(2)	2008	23.60	0.41	0.25
08-02-18-32 W1(2)	2008	20.70	1.06	0.76
13-09-16-33 W1(2)	2008	23.44	1.42	8.32
04-34-16-33 W1(2)	2008	15.70	0.67	8.84
09-11-18-33 W1(2)	2008	18.03	0.36	0.25
Average of 31 useable values:		22.41	1.16	3.56

(1)Refers to a deflection, or whipstock, off original drillhole

(2)Refers to drillhole from the 2008 exploration program, where the best 2.59 m (8.5') mining interval is reported

Sampling, Analysis and Data Verification

Exploration in the Rocanville area was conducted in two very different time periods: the 1960s, then in 2008. Sampling and assaying of potash cores samples was done using methods considered consistent with standard procedures for potash exploration at these times.

Drillhole sampling methods have remained essentially the same over the years. Potash core samples are acquired as described in above under *Drilling*. Short segments of core usually about 0.3 m (1') in length are labeled based on visible changes in mineralization, and sometimes based on more or less fixed intervals. Each segment of core is then split in half using some type of rock or masonry saw. The split portion of core is then bagged and labeled and sent to a laboratory for chemical analysis. Samples from historical drillholes were sometimes quartered; most historical samples have deteriorated substantially. Exploration drillhole samples from 2008 were halved. Potash samples remain stored at the Subsurface Geological Laboratory of the Saskatchewan Ministry of the Economy (Regina, Saskatchewan).

For the exploration holes drilled in 2008, samples were chemically analysed at the Nutrien Pilot Plant (under the supervision of PotashCorp's Chief Chemist at the time, D. Matthews, MCIC) using the most accurate methods available for the required elements:

- Potassium (K) content was analysed by titration using the STPB (sodium tetraphenylboron) method.
- Sodium (Na) was analysed by Atomic Absorption.
- Calcium (Ca) and Magnesium (Mg) were analysed by EDTA (ethylenediaminetetracetate) titration.
- Water Insoluble (WI) was analysed gravimetrically.

All wet chemical methods are based upon either American Society of Testing Materials (ASTM) or Association of Official Analytical Chemists (AOAC) methods of analysis. The same samples were also analysed for process (milling) related properties, namely flotation performance, liberation characteristics, and mineralogical content.

Mineralogical (x-ray diffraction) testing was conducted by the Saskatchewan Research Council (SRC) Mining and Minerals Division, in Saskatoon, Saskatchewan. The SRC geoanalytical laboratories are Standards Council of Canada Accredited, with the laboratory management system operated in accordance with ISO / IEC 17025:2005 (Can-P-4E), General Requirements of the Competence of Mineral Testing and Calibration Laboratories.

After chemical analysis was completed, PotashCorp's technical staff identified the ore zone (2.59 m) section of the cores. A composite sample of the ore zone was prepared for each core location. Flotation, liberation and metallurgical analysis were conducted on the composite samples to confirm milling assumptions for the ore in the western portion of Rocanville Lease KL 305.

In-mine grade samples are taken at 60 m intervals in every underground mine room at Rocanville. Traditionally, Rocanville in-mine grade samples were collected as chips along a sidewall from back (roof) to floor; this methodology is referred to as channel sampling. In 2015, in-mine grade samples were taken from the floor (i.e. grab sampling) at the same 60 m sampling interval. Nutrien technical staff believe that collecting samples from the floor is as representative of ore grade in the mining interval as channel sampling, and far less labour-intensive. Grab sample results are currently being compared to channel sample results to thoroughly assess the best practice moving forward.

To the end of 2017, 39,245 in-mine ore grade samples were collected. All samples were analysed in the Rocanville mill laboratory using analysis techniques that were up-to-date for the era in which the sample was collected. In-mine samples collected and analysed in 2018 contributed no meaningful change to the overall mineral ore grade.

Regarding quality assurance for analytical results of in-mine samples, Nutrien participates in the Saskatchewan Potash Producers Association (SPPA) Sample Exchange Program to monitor the accuracy of analytical procedures used in its labs. In the early 1970s, the SPPA initiated a round-robin Sample Exchange Program, the purpose of which was to assist the potash laboratories in developing a high level of confidence in analytical results. This program has continued up to the present, and participants include all major Canadian potash mine site labs, the Nutrien Pilot Plant Lab, and an independent surveyor lab. The Sample Exchange Program provides the participants with three unknown potash samples for analysis four times per year. Results for the unknown sample analysis are correlated by an independent agency that distributes statistical analysis and a summary report to all participants. Completed SPPA samples can be used for control standards as required in QA/QC sections of standard analytical procedures.

Assay Data. Original drillhole ore grade assays were studied by independent consultant David S. Robertson and Associates (1977). The original assay results for core samples from historical drillholes were taken as accurate in these studies, as there is no way to reliably reanalyze these samples. Most of the remaining core samples in storage have long since deteriorated to the point where they are no longer usable.

Assay data for the 2008 core samples were supervised and verified by the Company's former Chief Geologist, T. Danyluk (P. Geo.).

Ore grades of in-mine samples are measured inhouse at the Rocanville mine laboratory by Company staff using modern, standard chemical analysis tools and procedures. These results are not verified by an independent agency; however, check sampling through the SPPA program, discussed above, does occur.

It should be noted that assay results from historical drillholes match mine sample results closely – within approximately 1.0% – even though sample spacing is obviously much greater in the case of drillholes. This fact is a validation of the methodology. Based on 48 years of in-mine experience at Rocanville, historical assay results are considered accurate and provide an excellent basis for estimating potash grade in areas of future mining at Rocanville. The mean mineral grade of 23.4% K2O equivalent determined from 39,245 in-mine grade samples is thought to provide the most accurate measurement of potash grade for the Rocanville mine.

Exploration Data. The purpose of any mineral exploration program is to determine extent, continuity, and grade of mineralization to a certain level of confidence and accuracy. For potash exploration, it is important to minimize the amount of cross-formational drilling,

since each drillhole is a potential conduit for subsurface groundwater from overlying (or underlying) water-bearing formations into future mine workings. Every potash test drillhole from surface sterilizes potash mineralization; a safety pillar is required around every surface drillhole once underground mining commences. This is the main reason that minimal exploration drilling has been carried out at Rocanville in recent years.

Initial sampling and assaying of cores was done during potash exploration at Rocanville in the 1960s. Methods were consistent with standard procedures for that era. The mine began production in 1970 and no further core drilling was carried out by PotashCorp at Rocanville until 2008 when the decision was made to expand the mine westward.

Assay of physical samples (drillhole cores and/or in-mine samples) is the only way to gain information about mineral grade, but extent and continuity of mineralization are correctly determined using data collected from geophysical surveys correlated with historic drilling information. To date, surface seismic data at Rocanville have been collected, analysed, and verified by PotashCorp staff, at times, in cooperation with an independent consultant. Ultimate responsibility for final analyses including depth conversion (seismic depth migration), as well as the accuracy of these data, rests with Nutrien qualified persons.

Data for the Mineral Resource and Reserve estimates for Rocanville mine were verified by PotashCorp staff as follows:

- Annual review of potash assay sample information (drillholes and in-mine grade samples),
- Annual review of surface geophysical exploration results (3D and 2D seismic data),
- Annual crosscheck of mined tonnages reported by minesite technical staff with tonnages estimated from mine survey information, and
- Annual crosscheck of Mineral Resource and Reserve calculations carried out by corporate technical staff.

This approach to data verification of potash mineral grade and surface seismic information is in accordance with generally accepted industry practice for areas adjacent and contiguous to an existing operating potash mine.

Security of Samples. The Nutrien Pilot Plant is secured in the same way as modern office buildings are secured. Authorized personnel have access and visitors are accompanied by staff. No special security measures are taken beyond that. Currently, no external laboratory certification is held by the Nutrien Pilot Plant. On occasion, product quality check samples are sent to the Saskatchewan Research Council, a fully certified analytical facility.

Mineral Processing and Metallurgical Testing.

See 'Mining Operations' below.

Mineral Resource and Mineral Reserve Estimates

Exploration information used to calculate reported Mineral Resource tonnages at Rocanville consist of both physical sampling (drillhole and in-mine) and surface seismic (2D and 3D) as discussed in earlier sections. All mineral rights leased or owned by Nutrien, and within Crown Subsurface Mineral Lease KL 305, are assigned to one of the three Mineral Resource categories.

Mineral Resources are reported as mineralization in-place and are exclusive of Mineral Reserves. In-place tonnes were calculated for each of the Mineral Resource categories using the following parameters:

Mining Height:	2.51 metres (8.25 feet)
Ore Density:	2.080 tonnes / cubic metre

The Mineral Resources for Rocanville Potash, as of December 31, 2018 are as follows:

Inferred Resource	1,376 million tonnes
Indicated Resource	1,342 million tonnes
Measured Resource	1,761 million tonnes

The average mineral grade of the Rocanville Mineral Resource is 23.4% K20 equivalent, and was determined from 39,245 in-mine samples at Rocanville.

The tonnage reported in the Rocanville Measured Resource is comprised of the potash that is within 1.6 km (1 mile) of physically sampled location (i.e. drillhole or mine working). Also included as Measured Resource is the potash that is left behind as pillars in mined-out areas of the Rocanville mine. In a potash mine, it is common practice to consider mining remnant pillar mineralization using solution methods after conventional mining is complete, or after a mine is lost to flooding. The Patience Lake mine was successfully converted from a conventional mine to a solution mine after being lost to flooding in 1989. Since conversion to a solution mine is not anticipated in the near future at Rocanville, in-place pillar mineralization remains as a Mineral Resource rather than a Mineral Reserve at this time.

CIM defines Modifying Factors as "considerations used to convert Mineral Resources into Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors."

For Saskatchewan, in regions adjacent and contiguous to an operating potash mine, Mineral Reserve categories are characterized by PotashCorp as follows:

1) **Probable Mineral Reserve:** identified recoverable potash mineralization classified as a Measured Resource, within a 1.6 km (1 mile) radius of a sampled mine entry or exploration drillhole, and within Crown Subsurface Mineral Lease KL 305.

2) **Proven Mineral Reserve**: identified recoverable potash mineralization classified as a Measured Resource, delineated on at least three sides by sampled mined entries or exploration drillholes to a maximum of 3.2 km (2 miles) apart, and within Crown Subsurface Mineral Lease KL 305.

Along with this approach, analysis of in-mine samples for potash grade has provided an observation-based understanding of the potash mineralized zone at Rocanville that is far superior to the level of understanding provided by any surface drilling based exploration program. An understanding of the amount of ore that can be conventionally mined from the Measured Resource category using current mining practices comes from nearly 50 years of potash mining experience at Rocanville.

Using the definitions outlined above, part of the Rocanville Measured Resource has been converted to Mineral Reserve. The assigned Mineral Reserve category is dependent on proximity to sampled mined entries also described above. An overall extraction rate for the Rocanville mine has been applied to the qualifying areas outlined as Measured Resource. This extraction rate is significantly lower than the local extraction rate as it takes into account areas which cannot be mined due to unfavorable geology.

The overall extraction rate at the Rocanville mine is 31%. It was derived by dividing the total tonnes mined to date by the tonnage equivalent of the total area of the mine workings (i.e. the perimeter around the mine workings) less future mining blocks. Since an extraction rate has been applied, Mineral Reserves are considered recoverable ore, and are reported as such.

The Mineral Reserves for Rocanville Potash as of December 31, 2018 are as follows:

Probable Reserve	348 million tonnes
Proven Reserve	195 million tonnes
Total Reserve	**543 million tonnes**

The average mineral grade of the Rocanville Mineral Reserve is 23.4% K20 equivalent, and was determined from 39,245 in-mine samples at Rocanville.

Mining Operations

All conventional potash mines in Saskatchewan operate at 900 m to 1200 m below surface within 9 m to 30 m of the top of the Prairie Evaporite Formation. Over the scale of any typical Saskatchewan potash mine, potash beds are tabular and regionally flat-lying, with only moderate local variations in dip. At Rocanville, potash ore is mined using conventional mining methods, whereby:

- Shafts are sunk to the potash ore body;
- Continuous mining machines cut out the ore, which is hoisted to surface through the shafts;
- Raw potash is processed and concentrated in a mill on surface; and
- Concentrated finished potash products (near-pure KCl) are sold and shipped to markets in North America and offshore.

Sinking of the two original shafts (Shaft #1 and Shaft #2) from surface to the potash zone was completed in early 1970, and the first potash ore was hoisted by the fall of that year. The Rocanville mine has run on a continuous basis since the first ore was hoisted in 1970, other than short-term shutdowns taken for inventory management purposes or occasional plant maintenance and construction work.

In recent years the Rocanville mine has undergone a major expansion which brought the nameplate capacity of the Rocanville facility to 6.5 million tonnes of finished potash products per year. This work involved sinking a third shaft, enhancement of hoists, major expansions of both mine and mill, major improvements to loadout facilities, and other infrastructure improvements. The recent Rocanville expansion, which was announced in 2007, was substantially complete in 2016, and production was ramped up through 2017. The operational capability of the Rocanville facility as of December 31, 2018 is 5.2 million tonnes per year.

Virtually all Rocanville underground mining rooms are in one potash mineralized zone, within the Esterhazy Member the Prairie Evaporite Formation (the host evaporite salt). In contrast, Nutrien potash mines further west in Saskatchewan mine in a different potash layer, the Patience Lake Member of the Prairie Evaporite. Rocanville mine elevations range from approximately 895 m to 1040 m, averaging approximately 955 m. Within the Rocanville Lease, depths to the top of the ore zone can reach up 1250 m (the deepest potash exploration drillhole), but are expected to be shallower than 1200 m over most of the lease area. Mine workings are protected from aquifers in overlying formations by approximately 30 m of overlying salt and potash beds, along with salt plugged porosity in the Lower Dawson Bay Formation, a carbonate layer lying immediately above potash hosting salt beds.

The Rocanville mine is a conventional underground mining operation whereby continuous mining machines are used to excavate the potash ore by the long-room and pillar mining method. Continuous conveyor belts transport ore from the mining face to the bottom of the production shaft. Mining methods employed in Saskatchewan are discussed in Jones and Prugger (1982) and in Gebhardt (1993). The highest mineral grade section of the Rocanville potash seam is approximately 2.3 m (7.5 ‘) thick, with gradations to lower grade sylvinite salts immediately above and below the mining horizon. The actual mining thickness at Rocanville is dictated by the height of continuous boring machines used to cut the ore, which are designed to cut slightly thicker than the high-grade mineralized zone. Historically, Rocanville borers cut at a thickness of 2.44 m (8’). These five older machines were recently adjusted to cut a thicker 2.51 m (8.25’) mining height. Six newly-acquired boring machines cut a slightly thicker 2.59 m (8.5’) mining height. This mining height allows for more headroom with minimal negative impact on ore grade. Mining machines at Rocanville use potassium sensing technology to ensure that rooms are always cut in the best available potash ore. It is difficult to determine at which mining height certain Mineral Resources and Reserves will be cut in the future, so the more conservative mining height of 2.51 m (8.25’) was applied to Mineral Resource and Reserve calculations.

Conservative local extraction rates (never exceeding 45% in any mining block) are employed at all Saskatchewan mines, including Rocanville, in order to minimize potential detrimental effects of mining on overlying strata; this is common practice in flat-lying, tabular ore bodies overlain by water-bearing layers.

From the shaft-bottom, potash ore is hoisted approximately 960 m from the potash level through the vertical shafts to a surface mill. Both production shafts also provide exhaust ventilation from underground workings; the third shaft from surface at Scissors Creek is used for service access, fresh air ventilation and second egress.

Over the 48 year mine life, 248.193 million tonnes of potash ore have been mined and hoisted at Rocanville to produce 80.967 million tonnes of finished potash products (from startup in 1970 to December 31, 2018). The life-of-mine average concentration ratio (raw ore/finished potash products) is 3.07 and the overall extraction rate over this time period is 31%.

The mining of potash is a capital-intensive business, subject to the normal risks and capital expenditure requirements associated with mining operations. The production and processing of ore may be subject to delays and costs resulting from mechanical failures and such hazards as unusual or unexpected geological conditions, subsidence, water inflows of varying degree, and other situations associated with any potash mining operation.

Potash beds in all regions of Saskatchewan are overlain by a number of water-bearing formations, and there are water zones underlying the potash beds as well. A water inflow into mine workings is generally significant in a potash mine since salt dissolves in water; an inflow can lead to anything from increased costs at best to closure of the mine at worst (e.g. see Prugger and Prugger, 1991).

In November 1984 a major brine inflow occurred at Rocanville. A single production room mined into a previously unknown geological disturbance (a vertical “chimney-like” solution collapse), resulting in an uncontrolled inflow into the mine that was as high as approximately 18,927 litres/minute (5,000 US gallons/minute). Mining operations were suspended and all of the mine’s physical and human resources were devoted to sealing the inflow. By the end of January 1985, a concrete plug was installed at the inflow point, and in March 1985, high pressure valves in the plug were shut off. After four months of concerted effort, the brine inflow into the mine was completely contained.

Since 1984 there has been no ingress of subsurface brines of any significance at Rocanville. At present, brine flow into underground workings at Rocanville is effectively nil (not measurable), and inflow into each existing shaft is estimated at less than 3 litres / minute (less than 1 US gallon / minute).

Processing and Recovery Operations

At Rocanville, potash ore has been mined and concentrated to produce saleable quantities of high-grade finished potash products since 1970. Products include granular and standard grade potash used for agriculture applications.

Both flotation methods and crystallization methods are used to concentrate potash ore into finished potash products at the Rocanville mill. A simplified process flow diagram is shown in Figure 1. Raw potash ore is processed on surface, and concentrated finished potash products (near-pure KCl) are sold and shipped to markets in North America and offshore

Over the past three years, production of finished potash products at Rocanville was:

- 2016: 2.720 million tonnes finished potash products at 60.60% K2O (average grade)
- 2017: 4.857 million tonnes finished potash products at 60.62% K2O (average grade)
- 2018: 5.222 million tonnes finished potash products at 60.46% K2O (average grade)

Over the past decade actual mill recovery rates have been between 81.5% and 85.7%, averaging 83.5% (see Figure 24). Given the long-term experience with potash geology and actual mill recovery at Rocanville, no fundamental potash milling problems are anticipated in the foreseeable future.

Quality control testing and monitoring geared towards fine-tuning and optimizing potash milling and concentrating processes are conducted on a continual basis at all Nutrien minesites and at Nutrien research facilities. At Rocanville, this is no exception; test work to optimize circuit performance and ensure product quality is carried out on an ongoing basis.

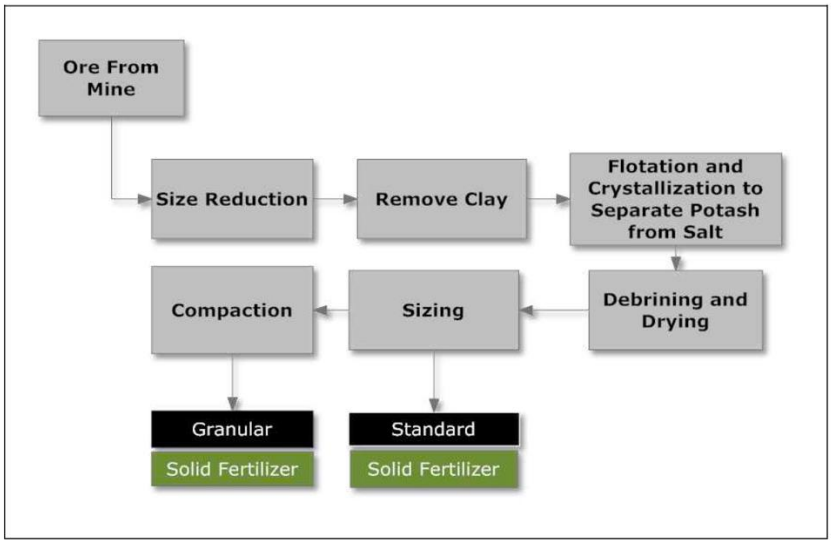


Figure 1 - Simplified flow diagram for potash flotation and crystallization milling methods used at Rocanville.

Infrastructure, Permitting and Compliance Activities

Infrastructure is in place to meet current and projected requirements for transportation, energy (electricity and natural gas), water and process materials at Rocanville. The Rocanville mine is served by a number of towns and villages within 50 kilometres of the minesite. The nearest towns are Rocanville (15 km distant), Moosomin and Esterhazy (both 50 km distant). The nearest city is Yorkton (100 km distant).

The Rocanville mine surface facilities are accessed by an existing paved road that is part of the Saskatchewan Provincial Highway System. Most finished potash products are shipped by rail over existing track, with some product shipped by truck over the North American Highway System.

At present, high voltage power utilization at the Rocanville Potash is 84 MVA (i.e. 72 MVA to the Rocanville Plant site plus 12 MVA to the Scissors Creek site). The ten-year projection of power utilization indicates that the utility can meet foreseeable future demand.

The tailings management strategy at all Nutrien potash mines in Saskatchewan, including Rocanville, is one of sequestering solid mine tailings in an engineered and provincially licenced Tailings Management Area (TMA) near the surface plant site. The Rocanville TMA currently covers an area of approximately 567 hectares (1400 acres) of land owned by the Company. Solid potash mine tailings typically consist of 85% to 95% rock salt (NaCl) and 5% to 15% insolubles (carbonate mud = CaCO3, anhydrite mud = CaSO4, and clays like chlorite, illite, and so on). An engineered slurry-wall has been constructed around the entire Rocanville TMA. The slurry-wall provides

secondary containment for any saline mine waters, minimizing brine impacts from the TMA to surrounding surface water bodies and near-surface aquifers. Areas surrounding the TMA are closely monitored: this includes everything from daily visual perimeter inspections to annual investigations and inspections of surrounding subsurface aquifers.

Rocanville currently operates five brine disposal wells near the surface plant of the Rocanville mine (marked in Figure 11) where clear salt brine (i.e. no silt, clay slimes, or other waste) is borehole-injected into the Interlake Carbonates, at a depth of approximately 1200 m to 1400 m below surface (marked in Figure 13). The groundwater in these extensive deep aquifers is naturally saline.

Emissions to air (mostly salt dust and potash dust) are kept below regulatory limits through various modern air pollution abatement systems (e.g. dust collection systems built into mill processes) that are provincially licensed. This same procedure is followed at all Nutrien mines in Saskatchewan.

The Rocanville operation requires a sustained fresh water supply for the milling process which is sourced from two subsurface reservoirs called the Welby Plains Surficial Aquifer and the Welby Plains Middle Aquifer. This water supply is provincially licensed and provides a sustainable source of process water for Rocanville milling operations, without having any perceptible impact on other users of water drawn from these aquifers. The tailings management strategy at all Nutrien potash mines in Saskatchewan, including Rocanville, is one of sequestering solid mine tailings in an engineered and provincially licenced Tailings Management Area (TMA) near the surface plant site.

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In Saskatchewan, all potash tailings management activities are carried out under an “Approval to Operate” granted by the Saskatchewan Ministry of Environment (MOE), the provincial regulator. The Rocanville mine is in compliance with all regulations stipulated by the Environmental Protection Branch of Saskatchewan MOE. The current Rocanville Approval to Operate has been granted to July 1, 2028, the renewal date.

In terms of long-term decommissioning, environmental regulations in the Province of Saskatchewan require that all operating potash mines in Saskatchewan create a long-term decommissioning and reclamation plan that will ensure all surface facilities are removed, and the site is left in a chemically and physically stable condition once mine operations are complete. PotashCorp has conducted numerous studies of this topic, and the most recent decommissioning and reclamation plan for Rocanville was approved by MOE technical staff in October 2016. Because the current expected mine life for Rocanville is many decades into the future, it is not meaningful to come up with detailed engineering designs for decommissioning at present. Instead, decommissioning plans are reviewed every five years, and updated to accommodate new ideas, technological change, incorporation of new data, and adjustments of production forecasts and cost

estimates. Any updated decommissioning and reclamation reports generated by this process are submitted to provincial regulatory agencies. For Rocanville, a revised decommissioning and reclamation plan is required in July 2021.

In addition to the long-term decommissioning plan, provincial regulations require that every potash producing company in Saskatchewan set up an Environmental Financial Assurance Fund, which is to be held in trust for the decommissioning, restoration, and rehabilitation of the plant site after mining is complete. This fund is for all mines operated by Nutrien in the province of Saskatchewan (i.e. Allan, Cory, Lanigan, Patience Lake, Lanigan, Rocanville, and Vanscoy).

Capital and Operating Costs

The Rocanville mine has been in operation since 1970; in the years immediately preceding this, major capital investment was made to bring this mine into production. Since then, capital expenditures were made on a regular and ongoing basis to sustain production, and to expand production from time to time.

A major refurbishment and expansion of the Rocanville mine was completed in 2013, increasing nameplate capacity to 6.5 million tonnes of finished potash products per year. This work involved construction of a third shaft, enhancement of hoists and shaft conveyances, major expansions of both mine and mill, improvements to loadout facilities, and some infrastructure improvements. All construction was carried out without significant disruption to existing potash production from the site.

Exploration, Development, and Production

- See ‘Exploration’ above.

SCHEDULE "D"

ESTERHAZY MINE

Current Technical Report

All of the information below with respect to the Esterhazy Mine owned by the Mosaic Company (”Mosaic”) has been excerpted or derived from the Mosaic 2017 10-K and the *Technical Report on Potash Freehold Mineral Rights, Reserves and Resources, Saskatchewan* dated May 23, 2006, prepared by ADM Consulting for Royal Utilities Income Fund. Carol Seymour, P.Geo., Senior Geologist for Altius, has reviewed and approved the scientific and technical information in this section on the Esterhazy Mine. Readers should consult the Mosaic 2017 10-K to obtain further particulars regarding the Esterhazy Mine. The Mosaic 10-K is available for review under Mosaic’s profile on EDGAR at www.sec.gov. Readers should also consult the *Technical Report on Potash Freehold Mineral Rights, Reserves and Resources, Saskatchewan* dated May 23, 2006, prepared by ADM Consulting for Royal Utilities Income Fund to obtain further particulars regarding the Esterhazy Mine. Royal Utilities Income Fund's Technical Report is available for review under Royal Utilities Income Fund's profile on SEDAR at www.sedar.com.

Project Description, Location and Access

The Esterhazy Mine comprises three shafts (K1, K2 and K3) located approximately 85 km southeast of Yorkton, Saskatchewan and approximately 15 km east of the township of Esterhazy, Saskatchewan. The mine has an annual production capacity of 5.3 million tonnes of finished product.

Mosaic's potash mineral rights at Esterhazy in the Province of Saskatchewan consist of the following:

	Esterhazy Acres Under Control
Owned in fee	114,945
Leased from province	197,253
Lease from others	79,543
Total under control	391,741

Leases are generally renewable at Mosaic's option for successive terms, generally 21 years each, except that certain of the acres shown above as “Leased from others” are leased under long-term leases with terms (including renewals at Mosaic's option) that expire from 2023 to 2170. Mosaic pays Canadian resource taxes consisting of the Potash Production Tax and resource surcharge. The Potash Production Tax is a Saskatchewan provincial tax on potash production and consists of a base payment and a profits tax. Mosaic also pays a percentage of the value of resource sales from their Saskatchewan mines. In addition to the Canadian resource taxes, royalties are payable to the mineral owners in respect of potash reserves or production of potash.

The Esterhazy Mine is easily accessible, two of the mines, K1 and K2, exist on CNR sidings at Yarbo and Gerald, approximately 85 km southeast of Yorkton, Saskatchewan. Yarbo can be accessed approximately 25 km south of Churchbridge, Saskatchewan on Highway 80, or accessed 6 km northeast of Esterhazy, also on Highway 80. Gerald is approximately 20 km east of Esterhazy on Highway 22.

The mine is situated near the north extent of the Great Plains of North America and the topography is relatively flat, with gently rolling hills and occasional valleys. Land use is almost totally agricultural, largely in cropland with some unimproved pasture and southern woodland.

Mine services are provided by Saskatchewan public utilities with dedicated electrical power transmission lines and natural gas pipelines. Mining operations continue all year long utilizing a work force that commutes from nearby cities and towns or comes from the local farming community.

Prairie winters are long and cold with short, warm summers. Average daily mean temperatures range between -16°C in January to +20°C in July. Mean annual precipitation averages 430 mm with the majority of the precipitation occurring in the summer months. Winds are predominantly from the northwest throughout the year with mean annual wind speeds of 20 km/hr.

Mosaic maintains the operating licenses required by the provincial government as well as permits to operate a tailings area or waste management facility. Potash tailings, consisting primarily of salt and clay, are stored in surface disposal sites.

History

The Esterhazy mines were the first to come into production in the early 1960's and were constructed by the International Minerals Company (IMC). The mines later became part of IMC Global when IMC took over Kalium and then became part of Mosaic, formed by the merger of Cargill Crop Nutrition and IMC Global.

The mines have been dealing with a major water inflow since 1985. Although the flow has been successfully kept under control it is difficult to anticipate the long range effect on mine life.

Geological Setting, Mineralization and Deposit Types

Extensive potash deposits are found in the southern half of the Province of Saskatchewan. The potash ore is contained in a predominantly rock salt formation known as the Prairie Evaporites. The Prairie Evaporite Formation forms part of the Elk Point Basin, a sub-basin of the Williston Basin centred in the northwest corner of North Dakota. The deposits are all sedimentary with the potash minerals representing the final stages of evaporation of a shallow inland sea. The depositional model described by Garrett, "Sequential Flow During Evaporation", suggests the Saskatchewan Sub-basin, the Central Alberta Sub-basin were cut off from the seas by the Presqu'lle barrier reef. Periodic ruptures or overflowing of the reef due to tectonic changes allowed sea water into the evaporating Elk Point Basin. Similar barriers at the Peace River Arch and the Meadow Lake Escarpment further restricted the amounts of water passing through into the Central Alberta and Saskatchewan Sub-basins to the point that by the time brines made it into Saskatchewan most of the salt (halite) had been deposited in Alberta and the brines were now highly concentrated in potash and carnallitic salts. The potash salts are confined to the Saskatchewan Sub-basin. Numerous cycles of deposition and dissolution contributed to the insoluble mud seams present in the Upper and Lower Patience Lake. Fewer seams and much larger crystal growth are characteristic of the southeastern Esterhazy Members.

Canadian potash deposits are estimated to be among the largest in the world, in a band up to 80 km wide that stretches 724 km across Saskatchewan. The deposits lie diagonally across the southern plains of Saskatchewan gently sloping from approximately 1000 m depth along a northwest line through Rocanville, Esterhazy and Saskatoon to more than 1600 m depth at Belle Plain and up to 3000 m in depth in North Dakota. The known deposits are massive, with total resources estimated at 67 billion tonnes.

There are three potash members occurring in the Prairie Evaporite called the Esterhazy Member, which is mined at Mosaic Esterhazy and Nutrien Rocanville Division, the Patience Lake Member, mined in the Saskatoon area, and the Belle Plain Member, that is not currently conventionally mined. The Esterhazy Member was the first potash bearing bed to be deposited and therefore is stratigraphically the deepest. However as these beds are closer to the basin edge, the Rocanville/Esterhazy area mines are shallower than the younger Patience Lake Member mines.

The potash deposits in Saskatchewan are generally a flat lying, bedded deposit sloping slightly to the south-east. It is amenable to mining using track mounted boring machines and floor to roof mounted conveyor systems and ancillary wheel mounted mining and transport equipment. The deposit is unique in the world in that the mineralization covers such a vast area of the Province. The same beds mined on the west side of Saskatoon are mined over 100 km to the east. These same beds can be traced into Manitoba, Montana and North Dakota. Continuity is such that a hole could be drilled almost anywhere within the region of potash deposition with every expectation of intersecting the potash beds.

Notwithstanding the remarkable continuity, the deposit is not without interruption. Solution activity over geological time has resulted in barren or collapse features. Mining company exploration programs use 3D seismic techniques to locate such features so they can be avoided in mining operations. Such exploration takes place on an almost annual basis.

The Esterhazy Member of the Prairie Evaporite Formation is mined at Esterhazy. Each of the major potash members contains several potash beds of different thicknesses and grades. The particular beds mined at Esterhazy have a mining height of 8 feet (2.4 metres). While the term potash refers to a wide variety of potassium bearing minerals, the predominant potash mineralization at Esterhazy is sylvinite, which is comprised mainly of the minerals sylvite (KCl/potassium-salt) and halite (NaCl/rock-salt), with minor amounts of carnallite (KCl · MgCl2 · 6H2O) and water-insolubles.

Exploration/Drilling

Nothing reported by the current operator.

Sampling, Analysis and Data Verification

Nothing reported by the current operator.

Mineral Processing and Metallurgical Testing

Nothing reported by the current operator.

Mineral Resource and Mineral Reserve Estimates

Mosaic's estimates below of their potash reserves and non-reserve potash mineralization are based on exploration drill hole data, seismic data and actual mining results over more than 35 years. Proven reserves are estimated by identifying material in place that is delineated on at least two sides and material in place within a half-mile (0.8 km) radius or distance from an existing sampled mine entry or exploration core hole. Probable reserves are estimated by identifying material in place within a one mile (1.61 km) radius from an existing sampled mine entry or exploration core hole. Historical extraction ratios from the many years of mining results are then applied to both types of material to estimate the proven and probable reserves. Mosaic believes that all reserves and non-reserve potash mineralization reported below are potentially recoverable using existing production shaft and refinery locations.

The following table summarizes potash reserves at the Esterhazy Mine as of December 31, 2017, as reported in Mosaic's 10-K.

	Reserves[1][2]		Potash Mineralization[3]
	Recoverable Tonnes (Mt)	Average Grade (%K_2O)	Potentially Recoverable Tonnes
Esterhazy	865	24.7	655

(1) There has been no third party review of reserve estimates within the last five years. The reserve estimates have been prepared in accordance with the standards set forth in Industry Guide 7 promulgated by the SEC

(2) Includes both proven and probable reserves that are not categorically reported by type in Mosaic's 10K report

(3) Based on available geologic data, the non-reserve potash mineralization represents potash that Mosaic expects to mine in the future, but it may not meet all of the technical requirements for categorization as proven or probable reserves under Industry Guide 7

Mining Operations

At Esterhazy, Mosaic utilizes traditional potash shaft mining taking place underground at depths of over 1,000 meters where continuous mining machines cut out the ore face and load it onto conveyor belts. The ore is then crushed, moved to storage bins and hoisted to refineries above ground.

Brine inflows at Esterhazy are managed through a number of methods, primarily by reducing or preventing particular sources of brine inflow by locating the point of entry through the use of various technologies, including 3D seismic surveys, micro seismic monitoring, injecting calcium chloride into the targeted areas from surface, and grouting targeted areas from underground. Mosaic also pump brine out of the mine, which they impound in surface storage areas and dispose of by injecting it below the surface through the use of injection wells. Excess brine is also stored in mined-out areas of the mine, and the level of this stored brine fluctuates, from time to time, depending on the net inflow or net outflow rate. To date, brine inflow and remediation efforts have not had a material impact on Mosaic's production processes or volumes. In recent years, Mosaic have been investing in additional capacity and technology to manage the brine inflows. For example, Mosaic have significantly expanded their pumping capacity at Esterhazy in the last several years, introduced horizontal drilling capabilities, and have added brine injection capacity at a site that is remote from their current mine workings. These efforts allow them to be more disciplined and efficient in their approach to managing the brine inflow and to reduce their costs.

Processing and Recovery Operations

No mineral processing or metallurgical testing has been reported by the operator. However, the mining leases are in production and commercial scale mineral processing is ongoing at these sites.

Infrastructure, Permitting and Compliance Activities

See 'Project Description, Location and Access' regarding local infrastructure. Limited information has been provided by the operator regarding environmental, permitting, and social or community factors, but we note no compliance issues regarding the operation.

Capital and Operating Costs

Nothing reported by the current operator.

Exploration, Development, and Production

During 2017, Mosaic started to mine a limited amount of potash from its K3 shaft and following ramp-up expect to add an estimated 0.9 million tonnes to its existing potash operational capacity. This will provide an infrastructure to move ore from K3 to the K1 and K2 mills, giving Mosaic the flexibility to optimize production at K1, K2 and K3 in order to mitigate risk from current and future brine inflows.

SCHEDULE "E"

Audit Committee Charter

I. INTRODUCTION

1. The purpose of the Audit Committee (the "Committee") is to assist the Board of Directors of the Corporation (the "Board") in fulfilling its oversight responsibilities by reviewing the financial information which will be provided to shareholders of the Corporation and others, the systems of corporate financial controls which Management and the Board have established and the audit process.

2. The Committee will oversee the Corporation's financial reporting process on behalf of the Board and report the results to the Board.

3. While the Committee has the responsibilities and powers set forth in this mandate, it is not the duty of the Committee to plan or conduct audits or to solely determine that the Corporation's financial statements are complete and accurate and are in accordance with International Financial Reporting Standards (IFRS). Management is responsible for preparing the Corporation's financial statements and the independent auditors are ultimately accountable to the Board and the Committee, as representatives of the Corporation's shareholders.

II. DEFINITIONS

1. "Management" refers to the Officers of the Corporation, and the other members of the senior management team of the Corporation as may be determined from time-to-time by the Chief Executive Officer and communicated to the Board.

2. "Officers" refer to those employees who are appointed as officers by the Corporation.

3. "Reports" refers to all documents publicly filed on SEDAR, including but not limited to Audited Annual Financial Statements, Interim Financial Statements, Managements' Discussion and Analysis for the respective periods, News Releases relating to the release of financial information, Annual Information Form, Compliance Certificates, and Material Change Reports.

III. DUTIES AND RESPONSIBILITIES

1. Financial Reporting
   (a) Review with Management and with the independent auditor as applicable the Reports prior to their public filing.
      (i) Include in this review discussions regarding their judgment on the quality, not just the acceptability, of significant accounting principles, the reasonableness of significant judgments, and the clarity of the disclosures in the financial statements;
      (ii) Discuss the results of the review and any other matters required to be communicated to the Committee by the independent auditor under IFRS if a review engagement of the interim financial statements is requested by the Committee; and
      (iii) Ensure the Corporation's compliance with legal and regulatory requirements relating to financial disclosure.

   (b) Review any new financial appointments to senior positions of the Corporation;

(c) Review reports from senior officers of the Corporation outlining any significant changes in financial risks facing the Corporation;

(d) Review all Risk Assessment reports prepared from time to time by Management to determine if risk assessment has been properly managed and if any issues need to be reported to the Board;

(e) Review the management letter of the external auditor and the Corporation's responses to suggestions made;

(f) Review interim and annual financial statements, interim and annual management discussions and analyses, all financial news releases, other documents containing audited or unaudited financial information, at its discretion, and report thereon to the Board before such documents are approved by the Board and disclosed to the public;

(g) Submit quarterly and annual financial statements to the Board for approval unless, in the case of any quarterly financial statements, the Board is unavailable or approval by them is impractical, all quarterly issues have been satisfactorily resolved and the Audit Committee has approved them;

(h) Be satisfied that adequate procedures are in place for the review of the Corporation's public disclosure of financial information extracted or derived from the Corporation's financial statements, other than the discourse provided in this section 1(e);

(i) Review quarterly the expense reports of the Chief Executive Officer and the Executive Chairman; and

(j) Review the financial metric component of the annual management compensation plan, both as a Committee and with the independent auditor, to ensure reasonableness of the calculation as well as compliance with the Corporation's debt covenants, prior to presentation to the Board for approval.

2. External Audit

(a) Recommend to the Board the external auditor, subject to shareholders' approval, to be appointed for purposes of preparing or issuing an auditor's report or performing other audit reviews or attestation services;

(b) Review the terms of the external auditor's engagement, the appropriateness and reasonableness of proposed audit fees, and any issues relating to the payment of audit fees, and make a recommendation to the Board with respect to the compensation of the external auditor;

(c) Review the independence of the external auditor including the quarterly and annual reports prepared by the external auditor regarding its independence;

(d) Review the audit plan with the external auditor and discuss the overall scope and plans for the audit, including the adequacy of staffing and compensation;

(e) Review with the external auditor and Management any changes in IFRS that may be material to the Corporation's financial reporting; and

(f) Meet separately with the external auditor, with and without Management present, to discuss the results of the examinations and provide sufficient opportunity for the auditor to meet privately with members of the Committee.

3. Internal Procedures Review

(a) Annually review with the external auditor and Management any internal procedures and control deficiencies identified for the past year; and

(b) Annually review with the external auditor and Management any proposed internal procedures and control modifications for the coming year.

4. Risk Oversight

In performing its duties and exercising its powers, the Committee shall consider and address the risks related to the establishment, maintenance and implementation of disclosure controls and procedures and internal control over financial reporting in relation to disclosure by the Corporation in accordance with applicable law. The Committee shall also provide oversight as to the risks assessed with each new investment according to the Board approved risk criteria.

5. Financial Complaints Handling Procedures

The Committee shall establish procedures for:

(a) The receipt, retention and treatment of complaints received by the Corporation regarding accounting, internal accounting controls or auditing matters; and

(b) The confidential, anonymous submission by employees of the Corporation of concern regarding questionable accounting or auditing matters.

6. Miscellaneous

Perform any other matters referred to the Committee or delegated to it by the Board.

7. Director Responsibilities and Performance

(a) Committee Duties

(i) Act honestly and in good faith with a view to the best interests of the Corporation and to exercise the care, diligence and skill that a reasonable prudent person would exercise in comparable circumstances.

(b) Committee Values

(i) Assist the Corporation to operate in compliance with all corporate policies and codes, and all laws and regulations governing the Corporation; and

(ii) Maintain strong financial reporting and control processes

(c) Reliance on Experts

(i) Place appropriate reliance in good faith on reports that the financial statements of the Corporation represented to each member of the Committee by an Officer of the Corporation or in a written report of the external auditor present fairly the financial position of the Corporation in accordance with IFRS; and on any report of a lawyer, accountant, engineer, appraiser or other person whose profession lends credibility to a statement made by any such person.

IV. OPERATION OF THE COMMITTEE

1. Reporting

The Committee shall report to the Board.

2. Composition of Committee

The Committee shall consist of not less than three directors, all shall qualify as “independent” as defined in multilateral instrument 52-110 Audit Committees and all shall be deemed to be “financially literate”.

3. Appointment of Committee Members

Members of the Committee shall be appointed at a meeting of the Board, typically held immediately after the annual shareholders’ meeting, provided that any member may be removed or replaced at any time by the Board and shall in any event cease to be a member of the Committee upon ceasing to be a member of the Board.

4. Vacancies

Where a vacancy occurs at any time in the membership of the Committee, it may be filled by the Board.

5. Chair of the Committee

The Board shall designate the Chair of the Committee. The Chair shall have responsibility for overseeing that the Committee fulfills its mandate and its duties effectively. In the absence of the Chair of the Committee, the members will appoint an acting Chair.

6. Secretary

Unless the Committee otherwise specifies, the secretary of the Corporation will act as secretary of all meetings of the Committee.

7. Committee Meeting

(a) The Committee will meet at least four times annually (or more frequently as circumstances dictate).

(b) Committee meetings may be held in person, by video-conference, by means of telephone or by any combination any of the foregoing.

8. Notice of Meeting

(a) Notice of the time and place of every meeting may be given orally, in writing, by facsimile or by e-mail to each member of the Committee at least 48 hours prior to the time fixed for such meeting.

(b) A member may in any manner waive notice of the meeting. Attendance of a member at the meeting shall constitute waiver of notice of the meeting except where a member attends a meeting for the express purpose of objecting to the transaction of any business on the grounds that the meeting was not lawfully called.

9. Quorum

A quorum will be a majority of the members of the Committee present in person, by video-conference, by telephone or by a combination thereof.

10. Attendance at Meetings

(a) The Chief Financial Officer is expected to be available to attend meetings, but a portion of every meeting can be reserved for in camera discussion without the Chief Financial Officer or any other member of Management, being present.

(b) The Committee may by specific invitation have other resource persons in attendance.

(c) The Committee shall have the right to determine who shall and who shall not be present at any time during a meeting of the Committee.

11. Meeting Agenda

Committee meeting agendas shall be set by the Chair of the Committee in consultation with Committee members, Management if appropriate, and the external auditor if appropriate.

12. Minutes

The Committee shall keep regular minutes of proceedings and shall cause them to be recorded in books kept for that purpose.

13. Outside Advisors

The Committee is empowered to engage and compensate any outside advisors as it deems advisable to permit it to carry out its duties, at the expense of the Corporation.

14. Reporting to the Board

The Committee, through its Chair, will report regularly to the Board, and in any event no less frequently than on a quarterly basis.

V. REVIEW

The Corporate Governance Committee will review this Charter at least every two years to determine if further additions, deletions or amendments are required, and make recommendations to the Board for their approval.

VI. HISTORY

This Charter was:

(a) Initially adopted by the Board on October 31, 2007
(b) Reviewed and amended by the Board on January 22, 2018.