

# lundin mining

**Annual Information Form  
For the Year Ended December 31, 2016**

**March 24, 2017**



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## DEFINITIONS

In this Annual Information Form all units are SI metric unless otherwise noted. Abbreviations are as defined below unless the context otherwise indicates:

**\$** means United States dollars.

**€** means the Euro.

**Ag** means silver.

**Aguablanca** or **Aguablanca Mine** means the Aguablanca nickel and copper mine located approximately 100 km north of Seville in the Extremadura region of southern Spain, which was disposed during 2016.

**AIF** means this Annual Information Form.

**BHPB** means BHP Copper Inc. (now BHP Billiton).

**BHR** or **BHR Partners** means BHR Newwood Investment Management Limited, a British Virgin Islands company.

**Board** or **Board of Directors** means the board of directors of the Company.

**C1 cash costs** means the costs of mining, milling and concentrating, onsite administration and general expenses, property and production royalties not related to revenues or profits, metal concentrate treatment charges, and freight and marketing costs less the net value of the by-product credit.

**C\$** means Canadian dollars.

**Candelaria** or **Candelaria Mine** or **Candelaria Copper Mining Complex** means the open pit and underground mines located near Copiapó in the Atacama Province, Region III of Chile owned by Minera Candelaria and Minera Ojos del Salado.

**Candelaria 2030 EIA** means the EIA entitled “Candelaria 2030 - Project Operational Continuity”, which was submitted to the environmental authorities in September 2013 and approved on July 23, 2015.

**Candelaria Report** means the NI 43-101 technical report entitled “Technical Report for the Candelaria Copper Mining Complex, Atacama Province, Region III, Chile” dated effective January 17, 2017 prepared for Lundin Mining by Jean-François Couture, PGeo, Glen Cole, PGeo, Benny Zhang, PEng, John Nilsson, PEng, Adrian Dance, PEng, and Cameron C. Scott, PEng, each of whom is a Qualified Person.

**CBCA** means the *Canada Business Corporations Act*.

**CCAA** means *Companies' Creditors Arrangement Act*.

**CIM** means the Canadian Institute of Mining, Metallurgy and Petroleum.

**CIM Standards** means the definitions adopted by CIM Council on May 10, 2014, which are utilized by the Canadian Securities Administrators in NI 43-101.

**CLP** means Chilean Peso.

**CMOC** means China Molybdenum Co., Ltd.

**Company** or **Lundin Mining** means Lundin Mining Corporation, and where applicable, includes its subsidiaries.

**Credit Agreement** means the amended and restated credit agreement dated October 7, 2013, as amended by a first amending agreement dated October 27, 2014, a second amending agreement dated January 13, 2015, a third amending agreement dated April 27, 2015, a fourth amending agreement dated October 19, 2016, between the Company and a banking syndicate comprised of The Bank of Nova Scotia, ING Capital LLC, Bank of Montreal, Export Development Canada, Bank of America, N.A., Société Générale and Skandinaviska Enskilda Banken AB.

**Cu** means copper.

**DRC** means Democratic Republic of the Congo.

**Eagle** or **Eagle Mine** or **Eagle Project** means the Eagle nickel and copper mine located in the Upper Peninsula of Michigan, USA, in Michigamme Township, Marquette County.

**Eagle East** means the high grade massive and semi-massive nickel-copper sulphide mineralisation approximately 2 km east of the Eagle deposit.

**Eagle Report** means the NI 43-101 technical report entitled “NI 43-101 Technical Report on the Eagle Mine, Upper Peninsula of Michigan, USA” dated August 10, 2016 prepared for Lundin Mining by Graham G. Clow, P.Eng, Normand L. Lecuyer, P.Eng, David W. Rennie, P.Eng, and Brenna J.Y. Scholey, P.Eng, each of whom is a Qualified Person.

**EIA** means Environmental Impact Study (Estudio de Impacto Ambiental).

**Feasibility Study** is defined by CIM and contained in the CIM Standards.

**EuroZinc** means EuroZinc Mining Corporation, which was acquired by the Company on October 31, 2006 and subsequently amalgamated with the Company effective November 30, 2006.

**FMC** means Freeport-McMoran Corporation, a wholly-owned subsidiary of Freeport, formerly called Phelps Dodge Corporation.

**Freeport** means Freeport-McMoRan Inc., a US-based natural resource company with a portfolio of mineral and oil and gas assets, which owns Freeport Cobalt and owned the majority interest in TF Holdings to November 16, 2016 and was indirectly the majority owner and operator of TFM and, where applicable, includes its subsidiaries to November 16, 2016.

**Franco-Nevada** means Franco-Nevada Corporation.

**Freeport Cobalt** means Freeport Cobalt Oy, a large scale cobalt chemical refinery located in Kokkola, Finland and its related sales and marketing companies.

**Galmoy** or **Galmoy Mine** means the former Galmoy mine located in County Kilkenny, Ireland, which was disposed in March 2017.

**GBS** means GBS Gold International Inc.

**Gécamines** means La Générale des Carrières et des Mines, the government of the DRC state mining company.

**G&A** means general and administrative.

**ha** means hectare.

**Indenture** means the indenture dated October 27, 2014 between the Company and U.S. Bank National Association, as trustee.

**IOCG** means iron oxide copper gold.

**km** means kilometre.

**Lakota** means Lakota Resources Inc.

**LOM** means life of mine estimate.

**Lundin DRC Holdings Ltd.** means a Bermuda company indirectly owned by the Company that owns 30% of TF Holdings.

**m** means metre.

**Mandate** means the Company’s audit committee mandate.

**MCP** means mine closure plan.

**MD&A** means Management’s Discussion and Analysis of results of operations and financial condition of the Company.

**Minera Candelaria** means Compañía Contractual Minera Candelaria.

**Minera Ojos del Salado** means Compañía Contractual Minera Ojos del Salado.

**Mineral Reserves** are as defined by the CIM and contained in the CIM Standards.

**Mineral Resources** are as defined by the CIM and contained in the CIM Standards.

**mm** means millimetre.

**Moody's** means Moody's Investors Service.

**mtpa** means million tonnes per annum.

**Neves-Corvo** or **Neves-Corvo Mine** means the copper and zinc mine situated approximately 220 km southeast of Lisbon in the Alentejo district of southern Portugal.

**Neves-Corvo Report** means the NI 43-101 technical report entitled "NI 43-101 Technical Report for Neves-Corvo Mine and Semblana Deposit, Portugal" dated January 18, 2013 prepared for Lundin Mining by Mark Owen, BSc, MSc (MCSM), CGeol, EurGeol, FGS and Lewis Meyer, ACSM, MCSM, BEng, MSc, PhD, CEng, FIMMM, each of whom is a Qualified Person.

**Ni** means nickel.

**NI 43-101** means National Instrument 43-101 "Standards for Disclosure For Mineral Projects" adopted by the Canadian Securities Administrators.

**NI 52-110** means National Instrument 52-110 "Audit Committees" adopted by the Canadian Securities Administrators.

**North Australia** means North Limited of Australia.

**NSR** means Net Smelter Return.

**OMX** means the NASDAQ OMX Nordic Exchange, Stockholm.

**Order** means (i) a cease trade order; (ii) an order similar to a cease trade order; or (iii) an order that denied the relevant company access to any exemption under securities legislation that was in effect for a period of more than 30 consecutive days.

**oz** means ounces.

**PAC** means Pedro Aguirre Cerde, a concentrator located at Candelaria.

**Pb** means lead.

**PGM** means platinum group metals.

**Phelps Dodge** means Phelps Dodge Corporation, a copper mining company which was acquired by Freeport in 2007.

**Preliminary Economic Assessment** or **PEA** is as defined in NI 43-101.

**Purchase and Sale Agreement** means the purchase and sale agreement dated October 6, 2014 among the Company, LMC Bermuda Ltd., Franco-Nevada and Franco-Nevada (Barbados) Corporation effective as of July 28, 2015 and as amended on November 4, 2016.

**QA/QC** is the combination of quality assurance, the process or set of processes used to measure and assure the quality of a product, and quality control, the process of ensuring products and services meet consumer expectations.

**Qualified Person** means a qualified person as defined in NI 43-101.

**RBI** means RB Energy Inc.

**Rio Tinto** means the Rio Tinto Group.

**S&P** means Standard & Poor's Ratings Services.

**SEC Guide 7** means the United States Securities and Exchange Commission Guide 7 under the United States Securities Act of 1933, as amended.

**SEDAR** means the System for Electronic Document Analysis and Retrieval.

**SEK** means Swedish kronor.

**SERNAGEOMIN** means Chile's Servicio Nacional de Geología y Minería.

**Silver Wheaton** means Silver Wheaton Corp.

**Sirocco** means Sirocco Mining Inc.

**Somincor** means Somincor-Sociedade Mineira de Neves-Corvo, S.A. (Portugal), a wholly-owned indirect subsidiary of the Company that owns the Neves-Corvo Mine located in Portugal.

**Stock Purchase Agreement** means the definitive stock purchase agreement dated October 6, 2014 between the Company and Freeport for the purchase of Candelaria from Freeport which was completed on November 3, 2014.

**Stock Purchase Agreement – BHR** means the definitive stock purchase agreement dated November 15, 2016 between the Company, Tenke Holdings Ltd. and BHR for the sale of the Company's indirect interest in TF Holdings.

**Sumitomo** means Sumitomo Metal Mining Co., Ltd and Sumitomo Corporation and, where applicable, includes their subsidiaries.

**TC/RC** means Treatment Charge (TC) and Refining Charge (RC).

**Technical Reports** means the Candelaria Report, Eagle Report, Neves-Corvo Report, Tenke Report and Zinkgruvan Report.

**Tenke** or **Tenke Fungurume** or **Tenke Fungurume Mine** means the Tenke copper and cobalt mine located in the southeast region of the DRC (formerly, Katanga Province).

**Tenke Report** means the NI 43-101 technical report entitled "Technical Report Resource and Reserve Update for the Tenke Fungurume Mine, Katanga Province, Democratic Republic of Congo" dated July 21, 2014 prepared for Lundin Mining by John Nilsson, PEng and Ronald G. Simpson, PGeo, each of whom is a Qualified Person.

**TF Holdings** means TF Holdings Limited (formerly, Lundin Holdings Ltd.), a Bermuda company owned 30% by Lundin DRC Holdings Ltd. and 70% by CMOC International DRC Holding Ltd., a wholly-owned subsidiary of CMOC, which owns a controlling 80% interest in TFM.

**TFM** means Tenke Fungurume Mining SA, a Congolese company that owns the Tenke Fungurume mine.

**tpa** means tonnes per annum.

**tpd** means tonnes per day.

**TSF** means tailings storage facility.

**TSX** means the Toronto Stock Exchange.

**TSX-V** means the TSX Venture Exchange.

**US** means the United States.

**ZEP** means the Zinc Expansion Project.

**Zinkgruvan** or **Zinkgruvan Mine** means the Zinkgruvan zinc and copper mine located approximately 250 km south-west of Stockholm in south-central Sweden.

**Zinkgruvan Report** means the NI 43-101 technical report entitled "NI 43-101 Technical Report for the Zinkgruvan Mine, Central Sweden" dated January 18, 2013 prepared for Lundin Mining by Mark Owen, BSc, MSc (MCSM), CGeol, EurGeol, FGS and Lewis Meyer, ACSM, MCSM, BEng, MSc, PhD, CEng, FIMMM, each of whom is a Qualified Person.

**Zn** means zinc.



## CAUTIONARY STATEMENT ON FORWARD-LOOKING INFORMATION

Certain of the statements made and information contained or incorporated by reference herein is "forward-looking information" within the meaning of applicable Canadian securities laws. All statements other than statements of historical facts included in this Annual Information Form, including but not limited to statements regarding the prospects of the industry and the Company's prospects, plans, future financial and operating performance and business strategy, constitute forward-looking information. Forward-looking information is based on current expectations, estimates, forecasts and projections as well as beliefs and assumptions made by the Company's management. Such statements include, in particular, statements about the Company's plans, prospects, position, future results, and business strategies; the Company's Technical Reports, or any Preliminary Economic Assessment or Feasibility Study, including, without limitation, with respect to Mineral Resource and Mineral Reserve estimates, life of mine estimates, and mine and mine closure plans; the parameters and assumptions underlying the Mineral Resource and Mineral Reserve estimates and financial analysis; anticipated market prices of metals; the Company's anticipated capital and operating costs for its material mineral properties; the development of the Company's Responsible Mining Management System; the Company's ability to comply with contractual and regulatory requirements; the receipt of all necessary permitting and approvals; the Company's intentions with respect to exploration and development activities at its projects and expectations regarding the results of operations and production at the Company's projects. Words such as "aim", "anticipate", "believe", "continue", "contingent", "endeavour", "estimate", "expect", "feasibility", "forecast", "focus", "foresee", "future", "guidance", "initiative", "intend", "likely", "may", "model", "objective", "opportunity", "option", "outlook", "PEA", "plan", "potential", "predict", "preliminary", "project", "proposed", "prospect", "risk", "seek", "should", "strategy", "study", "target", "uncertainty", or "will", or the negatives of these terms or variations of them or similar terminology or statements that certain actions, events or results "could", "may", "might", "would", or "will be taken", "occur," or "be achieved" are intended to identify such forward-looking information. Although the Company believes that the expectations reflected in the forward-looking information contained herein are reasonable, these statements, by their nature, involve risks and uncertainties and are not guarantees of future performance. Forward-looking information is based on a number of assumptions and are subject to a variety of risks and uncertainties, and ultimately, actual events or results may differ materially from those reflected in the forward-looking information. Risks and uncertainties that may impact the Company's performance include, without limitation, risks associated with operating in foreign countries; uncertain political and economic environments; community activism and risks related to negative publicity with respect to the Company or the mining industry in general; changes in laws, regulations or policies including but not limited to those related to permitting, environmental management, labour, trade relations, and transportation; delays in or inability to obtain necessary permits; risks associated with business arrangements and partners over which the Company does not have full control; risks associated with acquisitions and related integration efforts; competition; development or mining results not being consistent with the Company's expectations; estimates of future production; operating and cash costs estimates; allocation of resources and capital; litigation; uninsurable risks; volatility in metal prices; the estimation of asset carrying values; funding requirements and availability of financing; indebtedness; foreign currency fluctuations; interest rate volatility; changes in the Company's share price, and equity markets, in general; changing taxation regimes; counterparty and credit risks; health and safety risks; risks related to the environmental impact of the Company's operations and products and management thereof; unavailable or inaccessible infrastructure; risks inherent in mining including but not limited to risks to the environment, industrial accidents, catastrophic equipment failures, unusual or unexpected geological formations, or unstable ground conditions; actual ore mined varying from estimates of grade, tonnage, dilution and metallurgical and other characteristics; ore processing efficiency; risks relating to attracting and retaining of highly skilled employees; ability to retain key personnel; the potential for and effects of labour disputes or other unanticipated difficulties with or shortages of labour or interruptions in production; the price and availability of energy and key operating supplies or services; the inherent uncertainty of exploration efforts as well as development, and the potential for unexpected costs and expenses; risks associated with the estimation of Mineral Resources and Mineral Reserves and the geology, grade and continuity of mineral deposits including but not limited to models relating thereto; natural phenomena such as earthquakes, flooding, and unusually severe weather; potential for the allegation of fraud and corruption involving the Company, its customers, suppliers or employees, or the allegation of improper or discriminatory employment practices; security at the Company's operations; breach or compromise of key information technology systems; materially increased or unanticipated reclamation obligations; risks related to mine closure activities; title risk and the potential of undetected encumbrances; risks associated with the structural stability of waste rock dumps or tailings impoundments; and other risks and uncertainties, including but not limited to those described in the Risk and Uncertainties section of this Annual Information Form and the Managing Risks section of the Company's annual management's discussion and analysis available under the Company's SEDAR profile at [www.sedar.com](http://www.sedar.com). Readers are cautioned that the foregoing list is not exhaustive of all factors and assumptions which may have been used. Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking information, there may be other factors that cause results not to be as anticipated, estimated, forecast or intended. Forward-looking information is in addition based on various assumptions including, without limitation, the expectations and beliefs of management that the Company can access financing, appropriate equipment and sufficient labour and that the political environment in which the Company operates will continue to support the development and operation of mining projects. Should one or more of these risks and uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in forward-looking information. Accordingly, there can be no assurance that forward-looking information will prove to be accurate, and so readers are advised not to place undue reliance on forward-looking information. The forward-looking information contained herein speaks only as of the date of this Annual Information Form. The Company does not undertake to update such forward-looking information unless required under applicable laws.

## ITEM 1 INTRODUCTION

### 1.1. Date of Information

All information in this AIF is as of December 31, 2016 unless otherwise indicated.

### 1.2. Currency

The Company reports its financial results and prepares its financial statements in US dollars. All currency amounts in this AIF are expressed in US dollars, unless otherwise indicated. The period-end US dollar exchange rates for the Company's principal operating currencies and for the Canadian dollar are as follows:

As at December 31	2016	2015	2014
Canadian dollar (C\$)	1.3427	1.3840	1.1601
Chilean Peso (CLP)	669.47	710.16	606.75
Euro (€)	0.9487	0.9185	0.8237
Swedish krona (SEK)	9.0971	8.3524	7.8117

### 1.3. Accounting Policies and Financial Information

Financial information is presented in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board and with interpretations of the International Financial Reporting Interpretations Committee which the Canadian Accounting Standards Board has approved for incorporation into Part 1 of the CPA Canada Handbook – Accounting.

### 1.4. Technical Information

In this AIF, the definitions of Proven and Probable Mineral Reserves and Measured, Indicated and Inferred Mineral Resources are those used by Canadian Securities Administrators and conform to the definitions utilized by the CIM in the CIM Standards. Where Mineral Resources are stated alongside Mineral Reserves, those Mineral Resources are inclusive of, and not in addition to, the stated Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Unless otherwise stated, the scientific and technical information in this AIF has been reviewed and approved by Mr. Stephen Gatley, Vice President, Technical Services of Lundin Mining and Mr. Graham Greenway, Group Resource Geologist of Lundin Mining. Each is a "Qualified Person" under NI 43-101 and Mr. Gatley is an officer of Lundin Mining. Messrs. Gatley and Greenway are not independent of Lundin Mining for purposes of NI 43-101.

The estimates of Mineral Reserves and Mineral Resources discussed in this AIF may be affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing and other relevant issues. The Company's current Technical Reports, which are available on SEDAR under the Company's profile at [www.sedar.com](http://www.sedar.com), contain further details regarding Mineral Reserve and Mineral Resource estimates, classification, reporting parameters, key assumptions and risks for each of the Company's material mineral properties.

## ITEM 2 CORPORATE STRUCTURE

### 2.1. Name, Address and Incorporation

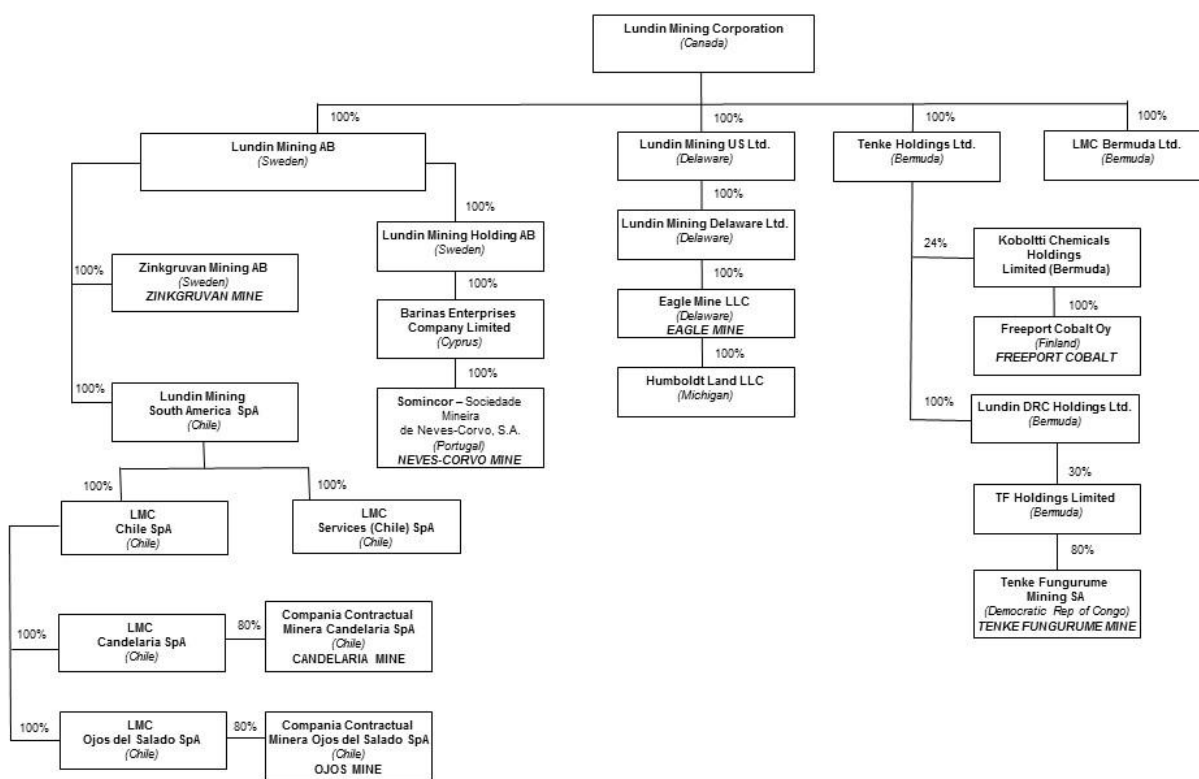
Lundin Mining was incorporated by Articles of Incorporation on September 9, 1994, under the CBCA as "South Atlantic Diamonds Corp." and subsequently changed its name to "South Atlantic Resources Ltd." on July 30, 1996, and to "South Atlantic Ventures Ltd." on March 25, 2002. The Company changed its name to "Lundin Mining Corporation" on August 12, 2004.

The Company amalgamated with EuroZinc effective November 30, 2006 and with Tenke Mining Corp. effective July 31, 2007.

The Company's registered and records office and corporate head office is located at 150 King Street West, Suite 1500, Toronto, Ontario, Canada M5H 1J9.

## 2.2. Inter-Corporate Relationships

A significant portion of the Company's business is carried on through its various subsidiaries. The following chart illustrates the Company's material subsidiaries, including their respective jurisdiction of incorporation and the percentage of votes attaching to all voting securities of each subsidiary that are beneficially owned, controlled or directed, directly or indirectly, by the Company as at December 31, 2016:



## ITEM 3 GENERAL DEVELOPMENT OF THE BUSINESS

### 3.1. Three Year History

#### Recent Developments

- On February 22, 2017, the Company declared its first dividend of C\$0.03 per share for payment in April 2017.
- On March 22, 2017, all of the issued and outstanding shares of Galmoy Mines Limited, the owner of Galmoy Mine, were sold to an affiliate of the Lanes Group plc, who has in turn assumed all of the assets and liabilities of Galmoy.

#### 2016

- On May 9, 2016, the Company received notice from Freeport that it had entered into an agreement to sell its indirect interest in TF Holdings to CMOC, subject to the Company's right of first offer to acquire Freeport's indirect interest in TF Holdings.
- On June 29, 2016, the Company announced a maiden Inferred Mineral Resource estimate for Eagle East. Eagle East is located 2 km east and 650 metres below the Eagle mine deposit. The Company also announced the results of a Preliminary Economic Assessment that indicate that these Inferred Mineral Resources can potentially be mined with no significant changes to the current mine, ore transport, mill and tailings disposal infrastructure. Similar mining methods to Eagle are proposed and the potential mine production will significantly increase nickel and copper production from 2020 and extend the mine life to at least the end of 2023. Given the results of the Preliminary Economic Assessment, the Company initiated a Feasibility Study on Eagle East. Refer to the news release entitled "Lundin Mining Announces Eagle East Mineral Resources, PEA Results and Project Commencement" on the Company's website ([www.lundinmining.com](http://www.lundinmining.com)).
- On October 20, 2016, the Company announced that it has executed an amending agreement to its \$350 million revolving credit facility that reduces the costs of borrowing and extends the term to June 2020, from October 2017.
- On November 15, 2016, the Company announced that it had entered into a definitive agreement to sell its indirect interest in the Tenke Fungurume Mine by selling its indirect shareholdings in TF Holdings to an affiliate of BHR Partners, a Chinese private equity firm, for \$1.136 billion in cash and contingent consideration of up to \$51.4 million, consisting of \$25.7 million if the average copper price exceeds \$3.50 per pound and \$25.7 million if the average cobalt price exceeds \$20 per pound, both during a 24-month period beginning on January 1, 2018. In connection with its announced sale, Lundin Mining waived its right of first offer which allowed Freeport to complete its sale of its interest to CMOC on November 16, 2016. Completion of Lundin Mining's sale is expected in the first half of 2017.
- On November 30, 2016, the Company announced that the Board of Directors approved a dividend policy (the "Dividend Policy") providing for the payment of a regular quarterly dividend of C\$0.03 per common share commencing in 2017, subject to Board approval.
- During the fourth quarter of 2016, the Company divested the Aguablanca mine in Spain through the transfer of all the shares of Rio Narcea Recursos S.A. ("RNR") to Valoriza Minería, a subsidiary of Grupo Sacyr. The assets of RNR included the Aguablanca mine and other exploration licenses. The Company transferred approximately €30 million to RNR prior to the

transfer in order to ensure that all of the environmental, employee and other liabilities were fully funded.

## 2015

- On April 7, 2015, the Company reported Mineral Reserve estimates for two orebodies at the Candelaria Mine, known as Susana and Damiana, located to the immediate south and below the current open pit.
- On June 2, 2015, the Company announced that exploration drilling near the Eagle Mine intersected a new zone of high-grade massive and semi-massive nickel-copper sulphide mineralization. The discovery is located approximately two km east of the Eagle deposit, and is a consequence of the step-out drilling program described in the Company's press release dated July 16, 2014.
- On July 23, 2015, the Company announced it received approval of the Candelaria 2030 EIA for the extension of operations and mine life for the Candelaria Mine in Chile, also known as the Candelaria 2030 Project.
- On July 29, 2015, the Company announced it had completed an updated mine plan and annual sustaining capital cost estimate for Candelaria. The new plan is expected to result in an improved production and operating cost profile over the next four-year period, as compared to the mine plan that was summarized in the previous technical report for the Candelaria Mine.

## 2014

- On September 23, 2014, the Company announced that concentrate production had commenced at the Eagle Mine. On November 24, 2014, the Company announced the achievement of commercial production at the Eagle Mine.
- On October 6, 2014, the Company announced that it had entered into the Stock Purchase Agreement to purchase an 80% ownership interest in Candelaria and supporting infrastructure for cash consideration of \$1.8 billion, plus customary adjustments. In addition, contingent consideration of up to \$200 million in aggregate is payable, calculated as 5% of net copper revenues in any annual period over five years from the date of acquisition if the realized copper price exceeds \$4 per pound.

The Company also announced that it had entered into the Purchase and Sale Agreement to sell to Franco-Nevada a gold and silver stream from Candelaria for an upfront deposit of \$648 million, subject to expected post-closing adjustments. In addition to the upfront deposit, Franco-Nevada will make ongoing payments upon delivery of the stream.

The Company concurrently announced that it had agreed to a bought deal equity financing for gross proceeds of \$600 million (C\$674 million) and that it had obtained a senior secured bridge loan commitment of up to \$1 billion which would only be utilized if the Company could not complete a private offering of fixed rate permanent debt securities.

In conjunction with the October 6, 2014 news release, the Company filed a NI 43-101 technical report on the Candelaria Mine.

- On October 23, 2014, the Company announced that it had completed the bought deal equity financing to raise gross proceeds of approximately \$600 million (C\$674 million). The Company issued a total of 132,157,000 subscription receipts at a price of C\$5.10 per subscription receipt. Each subscription receipt represented the right to acquire, without payment of additional consideration or further action, one common share of Lundin Mining upon closing of the acquisition of an 80% ownership stake in Candelaria from Freeport and the approval and registration with the Swedish Financial Supervisory Authority of a prospectus regarding

the listing of the corresponding Swedish Depository Receipts relating to the common shares on conversion of the subscription receipts. The subscription receipts converted to common shares on or about November 27, 2014.

- On October 27, 2014, the Company completed its offering of \$1.0 billion of senior secured notes in two tranches, \$550 million of 7.5% senior secured notes due 2020 and \$450 million of 7.875% senior secured notes due 2022, pursuant to the terms of the Indenture.
- On November 3, 2014, the Company announced the closing of its acquisition of an 80% ownership stake in Candelaria and supporting infrastructure from Freeport. Total cash consideration of \$1.852 billion was paid, consisting of a \$1.8 billion base purchase price plus \$52 million for cash and non-cash working capital and other agreed adjustments.

The remaining 20% ownership stake in Candelaria continues to be held by Sumitomo. Pursuant to a shareholders' agreement with Sumitomo, the Company is the operator of Candelaria.

The Company also announced the completion of the sale of a gold and silver stream to Franco-Nevada pursuant to the Purchase and Sale Agreement.

The Company also repaid its \$250 million term loan and executed an amendment to the Credit Agreement, which provides for its \$350 million revolving credit facility.

#### ITEM 4 SIGNIFICANT ACQUISITIONS

There were no significant acquisitions during 2016.

#### ITEM 5 DESCRIPTION OF THE BUSINESS

Lundin Mining is a diversified Canadian base metals mining company with operations in Chile, the USA, Portugal, and Sweden, primarily producing copper, nickel and zinc. In addition, Lundin Mining holds an indirect 24% equity stake in the world-class Tenke Fungurume copper/cobalt mine in the Democratic Republic of Congo and in the Freeport Cobalt business, which includes a cobalt refinery located in Kokkola, Finland. The Company has entered into an agreement to sell its indirect equity stake in Tenke Fungurume.

##### 5.1 Principal Products and Operations

Lundin Mining's principal products and sources of sales are copper, nickel, zinc and lead concentrates from Candelaria, Eagle, Neves-Corvo and Zinkgruvan. Lundin Mining also holds a minority interest in TFM and Freeport Cobalt. Information related to Lundin Mining's segmented information is set forth in Note 25 to the annual consolidated financial statements for the year ended December 31, 2016 and the MD&A for the year ended December 31, 2016 discusses each operation that is separately defined as a segment. Both of these documents are filed on the Company's SEDAR profile at [www.sedar.com](http://www.sedar.com).

Production from operations was as follows:

Contained metal (tonnes) <sup>(1)</sup>	2016	2015	2014
Copper <sup>(2)</sup>	256,980	282,210	137,636
Nickel	24,114	34,380	12,931
Zinc	148,050	145,372	145,091

(1) Includes production from Aguablanca to October 2015.

(2) The Company's attributable share of copper production reflects its 80% interest in Candelaria, effective November 3, 2014 and 24% interest in the Tenke Fungurume Mine.



## 5.2 Employees

As of December 31, 2016, Lundin Mining had a total of approximately 3,221 employees and 3,984 contract employees located in Canada, Chile, Ireland, Portugal, Sweden, United Kingdom, United States and other exploration locations for a total equivalent full time employment of 7,205 people.

The Company's success at mining and marketing its minerals is reliant on the services of key employees and contractors, as well as the development and continued relationships with certain third parties, including geologists, engineers, metallurgists and other personnel with specialized skill and knowledge.

## 5.3 Health, Safety, Environment and Community

Lundin Mining conducts its business responsibly and in a manner designed to protect its employees, nearby communities and the environment. Lundin Mining respects human rights and is committed to achieving a safe, productive and healthy work environment for its employees and contractors. The Company seeks to create sustainable value for employees, business partners and the communities in which it operates. The Company and its operations endeavor to comply with all applicable legal requirements, and to go beyond those requirements where deemed appropriate in the interest of the Company or its stakeholders.

To ensure that Lundin Mining meets its health, safety, environment and community ("HSEC") commitments, the Company has adopted a Responsible Mining Management System, a corresponding Responsible Mining Policy, and a group of supporting management system standards that govern operational activities. The Responsible Mining Policy was formally approved by the Board in 2015.

The objectives of the Responsible Mining Management System are:

- To ensure that formal systems, processes and controls are designed and implemented to achieve a safe, productive and healthy work environment for all employees and contractors.
- To ensure formal systems are in place to avoid or manage social impacts to communities, to uphold fundamental human rights and respect cultures, customs, and values while engaging in open and inclusive dialogue with communities, employees, and others who are affected by the Company's activities.
- To generate shared value through the Company's projects, providing tangible support to local communities and host regions by working with communities, local governments and other organizations to promote sustainable development.
- To avoid, minimize or mitigate environmental impacts of operations and ensure appropriate management and monitoring systems are in place at all times.
- To ensure robust corporate governance processes underpin corporate responsibility commitments while maintaining high standards of ethics in all aspects of the Company's business.

As part of the Responsible Mining Management System, HSEC commitments and objectives are integrated into Company activities as follows:

- The Company evaluates and considers HSEC risks and opportunities during business planning and decision making processes.
- The Company applies the principles of continuous improvement to HSEC performance through the use of defined targets and objectives.
- The Company has established clear HSEC accountabilities for all employees.
- The Company advises and trains employees and contractors to assist them with meeting HSEC requirements and commitments.

- The Company designs, develops and operates its facilities to minimize the environmental impact of its operations; efficiently using energy, water and other resources; reducing or preventing pollution; and managing waste responsibly.
- The Company develops and maintains operational closure plans and, wherever practicable, progressively rehabilitates non-active operational areas using environmentally sound methods.
- The Company engages its employees, contractors, communities, regulators and other interested parties to ensure that stakeholder concerns are considered in managing business activities.

For the purpose of assurance, Company management regularly monitors and reviews operational activities, and publicly reports HSEC performance against objectives and targets.

For additional information on Lundin Mining's Responsible Mining Policy or HSEC performance, please consult the most recent Sustainability Report which is available on the Company's website at [www.lundinmining.com](http://www.lundinmining.com).

## **5.4 Description of Properties**

The summaries below have been prepared by Mr. Stephen Gatley, Vice President, Technical Services of the Company and Mr. Graham Greenway, Group Resource Geologist of the Company, each of whom is a Qualified Person.

### **5.4.1 MATERIAL PROPERTIES**

The following descriptions of Lundin Mining's material operating properties, being Candelaria, Eagle, Neves-Corvo, Zinkgruvan, and Tenke Fungurume are based in part on the respective filed Technical Reports for each property. Non-material updates since the date of the respective Technical Reports are based on (i) the most recent Mineral Resource and Mineral Reserve estimates included in this AIF as Schedule A, and (ii) the Company's previously filed material change reports, financial statements and MD&As. All of the Technical Reports referenced in this AIF have been filed on SEDAR under Lundin Mining's profile at [www.sedar.com](http://www.sedar.com). For more detailed information in respect of Lundin Mining's properties, refer to the Technical Reports.

#### **5.4.1.1 CANDELARIA MINE**

The following information is based, in part, on the Candelaria Report. Updates to Mineral Reserve and Mineral Resource estimates are due to mining and exploration activities, and have been reviewed and approved as described in Schedule A, which provides such estimates as at June 30, 2016. The Candelaria Report is available under Lundin Mining's SEDAR profile at [www.sedar.com](http://www.sedar.com).

##### **5.4.1.1.1 Project Description, Location and Access**

The Candelaria Copper Mining Complex comprises two adjacent copper mining operations, Candelaria and Ojos del Salado, that produce copper concentrates from open pit and underground mines. Minera Candelaria is an open pit and underground mine providing copper ore to an on-site concentrator with a capacity of 75,000 tpd per day, and Minera Ojos del Salado comprises two underground mines: Santos and Alcaparrosa. The Santos mine provides copper ore to an on-site concentrator with a capacity of 3,800 tpd, while ore from the Alcaparrosa mine is treated at the Minera Candelaria processing plant. The Candelaria Copper Mining Complex is indirectly owned by Lundin Mining Corporation (Lundin; 80%), and Sumitomo Metal Mining Co., Ltd. and Sumitomo Corporation (collectively, Sumitomo; 20%).

The Candelaria Copper Mining Complex is located in Chile's Atacama Province, Region III, at an elevation of approximately 650 m above sea level, 20 km south of the city of Copiapó and 650 km north of Santiago. The properties are easily accessed using the public road system. Personnel employed at the Candelaria Copper Mining Complex come primarily from the Copiapó region. Copiapó is a modern city with all regular



services and a population of approximately 160,000. Copiapó regional airport is serviced by regional flights from Santiago and other destinations on a daily basis.

The Minera Candelaria property comprises 249 mining exploitation concessions (approximately 5,855 ha) and 65 mining exploration concessions (approximately 6,580 ha). The Ojos del Salado property comprises 192 mining exploitation concessions (approximately 9,273 ha) and 38 mining exploration concessions (approximately 6,848 ha). The tenements are free of mortgages, encumbrances, prohibitions, injunctions, and litigation. The tenements containing the active and future mining activities are not affected by royalties.

#### **5.4.1.1.2 History**

The Candelaria sulphide deposit was discovered by Phelps Dodge in 1987. A Feasibility Study was completed in 1990, and, following approval by the Chilean government, construction started in October of 1992. Sumitomo acquired a 20% stake in the property in 1992. Production commenced in early 1995.

In 2007, property ownership changed when Freeport acquired Phelps Dodge.

During 2011, a pipeline was completed to bring water from a nearby sewage treatment facility to the Candelaria Mine. A desalination plant at the port of Caldera was built and commissioned in 2013 at a capacity of 500 litres per second.

The Santos underground mine has been in production since 1929, with processing taking place at what is now called the PAC plant. Phelps Dodge became sole owner of Minera Ojos del Salado and the Santos mine and PAC plant in 1985. The PAC plant has been expanded several times to its current capacity of 3,800 tpd. Sumitomo acquired its 20% interest in Minera Ojos del Salado in 2005.

In early 1996, production from the Alcaparrosa underground mine commenced.

In November 2014, Lundin acquired Freeport's interest in the Candelaria Copper Mining Complex.

In 2015, the Candelaria 2030 project, including the new Los Diques tailings management facility, received environmental approval from Chilean regulators. Construction of Los Diques commenced in 2016 after the receipt of the major construction permits.

The Candelaria Copper Mining Complex has been a significant producer of copper since the mid-1990s. In the last four years, annual payable copper and gold metal in concentrates sold varied between 157 and 191 kilotonnes and 87,000 and 101,000 oz, respectively.

#### **5.4.1.1.3 Geological Setting, Mineralisation and Deposit Type**

The Candelaria sulphide deposit is located at the boundary between the Coastal Cordillera and the Copiapó Precordillera. The Coastal Cordillera of Chañaral and Copiapó is composed of Permian to Lower Cretaceous intrusions within a basement of metasedimentary rocks of Devonian to Carboniferous age. Volcanic, volcanoclastic, and marine carbonate rocks represent intra- and back-arc sequences that were deposited during Early to Mid-Cretaceous period.

The Candelaria, Santos, and Alcaparrosa mines are located in the district of Punta del Cobre. The polymetallic sulphide deposits are hosted in volcanic rocks of the Punta del Cobre Formation. Polymetallic sulphide deposits in the Punta del Cobre district are located to the east of the main branches of the Atacama fault zone, a subduction-linked strike-slip fault system stretching over 1,000 km along the Chilean coast and active at least since the Jurassic period. The dominant structural elements of the Punta del Cobre area are the northeast-trending Tierra Amarilla Anticlinorium, a southeast verging fold-and-thrust system and a series of north-northwest- to northwest-trending high-angle faults.

The copper-gold sulphide mineralization found at the Candelaria Copper Mining Complex is generally referred to as IOCG mineralization. The sulphide mineralization occurs in breccias, stockwork veinlets, disseminations in andesite, and as an internal tuff unit. There are also some localized controls to

mineralization in the form of faults, breccias, veins, and foliation. Candelaria has become an exploration model for Andean-type IOCG deposits that display close relationships to the plutonic complexes and broadly coeval fault systems. Depending on lithology and the structural setting, the polymetallic sulphide mineralization can occur as veins, hydrothermal breccias, replacement mantos, and calcic skarns. The Candelaria IOCG system lies within the thermal aureole of the Lower Cretaceous magmatic arc plutonic suite in the Candelaria-Punta del Cobre district.

#### **5.4.1.1.4 Exploration**

Ongoing exploration is conducted by Candelaria Copper Mining Complex with the primary purpose of supporting mining and increasing estimated Mineral Resources and Mineral Reserves available for mining. Exploration is focused on the known mantos, veins, and breccia masses in proximity to existing underground infrastructure. Historically, this strategy has proven very effective in defining new estimated Mineral Resources and Mineral Reserves available for underground mining. Much of the exploration is conducted from underground, requiring significant underground development to provide adequate drilling stations. Regional exploration is also undertaken on the large properties surrounding the mines to identify targets and define new areas with Mineral Resource estimates. All existing exploration information is being compiled into a comprehensive 3D model to allow for evaluation and prioritization of exploration efforts.

From 2010 to 2016, more than \$149 million was invested in exploration primarily below the Candelaria open pit, to the north and south, and at the three underground mines. This exploration has resulted in a significant expansion of the Mineral Resource and Mineral Reserve estimates of the underground mines, and contributed to the extension of their LOM.

#### **5.4.1.1.5 Drilling**

Mineral Resources are estimated based on information obtained from surface and underground drill holes. In 2016, 27 diamond drill holes have been drilled in and around the Candelaria open pit mine. In the Santos and Alcaparrosa mines, 69 and 24 diamond drill holes were drilled, respectively and 120 were drilled in Candelaria Norte. Drilling in Candelaria Sur (Susana and Damiana) during 2016 totaled 43 underground diamond drill holes. Up to 11 drill rigs were employed during the year and a total of 80,452 m were drilled. The drilling and sampling procedures used are consistent with generally recognized industry best practices.

#### **5.4.1.1.6 Sampling, Analysis and Data Verification**

Analytical samples informing the Minera Candelaria Mineral Resource estimates were prepared and assayed at the Candelaria Mine laboratory that is accredited to ISO 17025 for the analyses of copper, iron, zinc, and silver. Analytical samples informing the Minera Ojos del Salado Mineral Resource estimates were prepared and assayed by Intertek (formerly Vigalab). Conventional preparation and assaying procedures are used. Copper is analyzed by multi acid digestion and atomic absorption spectroscopy. Gold and silver are assayed using a fire assay procedure. Specific gravity is systematically measured on core samples.

Since 2007, all drilling assay samples have been collected by the Company's personnel or under the direct supervision of the Company's personnel. Samples from Minera Candelaria are processed and analyzed entirely at the mine site. Samples from Minera Ojos del Salado are shipped directly from the property to the Intertek laboratory.

Assay samples are collected by appropriately qualified staff at the laboratories. Sample security involves two aspects: maintaining the chain of custody of samples to prevent inadvertent contamination or mixing of samples and rendering active tampering as difficult as possible.

The sampling preparation, security, analytical procedures, data verification and QA/QC protocols used are consistent with generally accepted industry best practices.

#### **5.4.1.1.7 Mineral Processing and Metallurgical Testing**

The Candelaria Copper Mining Complex maintains regular metallurgical testing programs that are incorporated with historical testing results and mill performance into a statistical model to predict and improve the complex's processing performance in terms of mill throughput, metal recovery to concentrate, and final concentrate grade. Metallurgical tests are executed in a number of specialized in-house and commercial facilities. Testing includes rock hardness classification, mineralogy using QEMSCAN technology and bench scale, and flotation testing that is correlated with industrial scale performance in order to predict mill throughput and metallurgical performance. A similar but less intense program is underway for the PAC plant.

New metallurgical tests were initiated in late 2016 as part of a Feasibility Study to evaluate potential throughput increases at the Candelaria mill.

#### **5.4.1.1.8 Mineral Resource and Mineral Reserve Estimates**

The Mineral Resources at the Candelaria Copper Mining Complex are estimated from core drilling information stored in a secure central database, and were evaluated using a geostatistical block modelling approach. Separate models were prepared for the Candelaria open pit mine and the three underground mines (Candelaria Norte, Santos, and Alcaparrosa) using slightly different methodologies and assumptions. Each underground mine was sub-divided into sectors and evaluated using separate block models. In total, 19 distinct block models were created to model the zones of sulphide mineralization of the Candelaria Copper Mining Complex, including eight new models since the acquisition by Lundin Mining.

The open pit Mineral Reserve estimate is based on a mine plan and open pit designs developed using modifying parameters including metal prices, metal recovery based on performance of the processing plant, actual operating and sustaining capital cost estimates based on the production schedule and equipment requirements. Open pit optimisations are carried out using Minesight® and Datamine software.

Underground Mineral Reserve estimates at Candelaria Norte, Alcaparrosa and Santos are based on mine plans and designs developed using modifying parameters including metal prices, metal recovery based on performance of the processing plant), actual operating and sustaining capital cost estimates based on the production schedule and equipment requirements. Stope layouts and development plans are developed in MineSight® software with CAE Mine Stope Optimizer used for stope design.

Details of the June 2016 Mineral Resource and Mineral Reserve estimate for the Candelaria Copper Mining Complex are included in Schedule A, attached to this AIF.

#### **5.4.1.1.9 Mining Operations**

The Candelaria open pit mine operates with an overall mining rate of approximately 228,000 tpd including 68,400 tpd of ore sent to the Candelaria processing plant. The average grade of the ore that will be mined from the open pit over the remaining life of mine is estimated at 0.54% Cu, while stockpiled work-in-progress material is estimated to have an average grade of 0.34% Cu. The mine operates seven electric shovels, 46 haulage trucks, eight production drills, and a fleet of support equipment.

The open pit was designed to be mined in several phases of development. As of June 2016, five phases of development remain in the LOM plan (Phases 9 to 13). The overall strip ratio is 2.8:1 excluding stockpiles. The total in-pit waste is 950 million tonnes and the LOM of the open pit mine is 19 years.

The Candelaria Norte underground mine currently produces 7,000 tpd of ore but is planned to ramp up to 7,500 tpd by year 2020 with an estimated average grade of 0.88% Cu in the LOM. The Alcaparrosa underground mine produces 4,300 tpd of ore with an average grade of 0.85% Cu. The Santos underground mine produces 5,000 tpd of ore with an estimated average grade of 0.99% Cu over the remaining LOM. The three underground mines utilize a sublevel stoping mining method for ore extraction. This method is ideal for relatively large, vertical, as well as thick deposits with favourable and stable host rock.

#### **5.4.1.1.10 Processing and Recovery Operations**

Minera Candelaria and Minera Ojos del Salado operate their own processing plants. The Candelaria processing plant receives ore from the open pit and Candelaria Norte and Alcaparrosa underground mines. It has a nominal capacity of 75,000 tpd. The PAC processing plant receives ore from the Santos underground mine and has a design capacity of 3,800 tpd.

The Candelaria processing plant flowsheet is conventional comprising two parallel process lines for grinding and flotation followed by common final concentrate filtration and shipping of bulk copper concentrates. Run of mine ore is trucked to a primary gyratory crusher which then feeds a semi-autogenous grinding mill – ball mill circuit with pebble extraction and crushing. The secondary ball mill cyclone overflow constitutes feed to the rougher flotation bank. Rougher concentrate is reground prior to two stage cleaning in column flotation cells. Final flotation copper concentrate with gold and silver by-product metals is thickened, filtered, and stored on site. Final flotation tails are conventionally thickened and disposed in a rockfill embankment tailings storage facility. Typical metallurgical recoveries average 94% for copper, 75% for gold and 83% for silver.

A Feasibility Study is underway to evaluate potential debottlenecking expansions of the main Candelaria processing plant to add approximately 15-20% throughout capacity. The results of this expansion study are expected to be received during 2017.

The PAC concentrator has been in operation since 1929. The PAC concentrator flowsheet comprises a conventional three stage crushing plant. The grinding circuit has three closed circuit ball mills operating in parallel. The ball mill cyclone overflow constitutes feed to the rougher flotation bank. Rougher concentrates are reground prior to cleaning in a column cell with the tailings scavenged with conventional mechanical flotation cells. Final concentrate is thickened and filtered using a ceramic disc filter. Final flotation tailings from the PAC plant are pumped to the main Candelaria tailings storage facility. Typical metallurgical recoveries average 94% for copper, 72% for gold and 72% for silver.

Copper concentrates containing precious metals are sold on contract to local smelters or trucked to the Punta Padrones port, near Caldera for export to overseas smelters.

Candelaria Copper Mining Complex has an agreement with a third party company to process Candelaria's flotation tailings to produce a magnetite concentrate and this produces an additional source of by-product revenue subject to favorable iron ore prices.

#### **5.4.1.1.11 Infrastructure, Permitting and Compliance Activities**

The mines of the Candelaria Copper Mining Complex receive electrical power through long-term contracts with AES Gener S.A., a local energy company. The main water supply comes from a desalination plant, which was commissioned in 2013 and is located adjacent to the Punta Padrones port facility. Local treated sewage water is also used by the mines. Copper concentrate is shipped from the Punta Padrones port facility at the port of Caldera. Both the desalination plant and the Punta Padrones port are owned by Minera Candelaria.

The current Candelaria tailings storage facility receives the flotation tails from the Candelaria and PAC processing plants. The remaining tailings storage capacity is estimated at 23.3 million cubic metres, sufficient to receive tailings until the June 2018 at the current production throughput.

A new tailings storage facility, known as Los Diques, has been designed to replace the Candelaria tailings storage facility. The Los Diques facility will be located to the southwest of the open pit and plant sites and will have an approximate designed capacity of 600 million tonnes. The Los Diques tailings management facility was a key part of the Candelaria 2030 EIA that was submitted to the environmental authorities in September 2013 and was approved in July 2015. Engineering was completed during 2016 and after receipt of key sectorial permits construction of the starter dam was initiated. Completion of Los Diques tailings facility and the placement of first tailings is forecast in the first quarter 2018.

Chile has in place a comprehensive regulatory framework for mining and other industrial activities, dating from the mid-1990s and most recently updated in 2013. Although the Candelaria and Ojos del Salado facilities were permitted and developed prior to the modern framework being in place, both now hold numerous environmental approvals stemming from modifications to the original developments. In addition, the two companies hold more than 1,000 permits for construction and operation of the mining and milling facilities, and related infrastructure.

The most recently completed major environmental assessment process was initiated in September 2013 with the submittal of the Candelaria 2030 EIA. This included, among other things, an extension of the operating life of the facilities and the Los Diques tailings storage facility. The EIA received regulatory approval with conditions in July, 2015. None of the conditions of approval represent risks to the technical or economic feasibility of the operation.

The Alcaparrosa Mine's current environmental approval expires at the end of 2017. An EIA was submitted in December 2016 to extend its operating life until 2022. Comments on the EIA were received from the Environmental Evaluation Service (Servicio de Evaluación Ambiental, SEA) in early February, 2017, which the Company will address in an updated EIA, currently planned for submission in early April, 2017. Assuming the updated EIA is satisfactory to the SEA, approval of the EIA is expected in late 2017.

The Environmental Management Systems of Minera Candelaria and Minera Ojos del Salado have been certified for many years under the international ISO 14001 Standard. Minera Candelaria was most recently re-certified in March 2015 and the certification for Minera Ojos del Salado was achieved in September 2016.

Separate MCPs are in place for Minera Candelaria and Minera Ojos del Salado and both have been approved by the Chilean National Geology and Mining Service. The approved closure costs are \$42.4 million for Minera Candelaria and \$7.9 million for Minera Ojos del Salado. The closure cost estimate for Minera Candelaria does not reflect the developments recently permitted under the Candelaria 2030 EIA, including the Los Diques tailings facility. In December 2016, an updated closure plan was submitted for review and approval, which includes the Candelaria 2030 developments.

Minera Candelaria is an active participant in civil society in the Atacama region of Chile, with social initiatives focussed principally on the communities nearest to the mine and port sites, namely Tierra Amarilla and Caldera. The Candelaria Copper Mining Complex includes liaison offices in both communities and has implemented a formal Stakeholder Engagement Plan and a grievance/suggestions mechanism. Community forums, called "Encuentros con Candelaria" and consisting of open meetings, have been conducted to share relevant information about the company's strategic plan and initiatives on topics related to safety, environmental, operational and social performance.

Minera Candelaria has in place an agreement with the local government of Tierra Amarilla, which makes available more than \$16 million to develop a portfolio of community programs in areas such as housing, culture and health services improvements. In addition, at Caldera where most residents are either directly or indirectly linked to the fishing industry, Candelaria established the Fishermen Development Fund to offer local fishermen resources to develop individual and collective projects in the four main areas of housing, health, education and economic development.

#### **5.4.1.1.12 Capital and Operating Costs**

Total forecast Candelaria C1 cash costs for 2017 are tabulated below using a forecast exchange rate of US dollar/CLP: 650. Unit operating costs have fallen from recent levels as a result of cheaper diesel, energy and consumables prices, efficiency initiatives, particularly in the open pit mine, and lower overhead costs. Forecast C1 cash costs for 2017 are \$1.20/lb Cu, assuming Au and Ag by-product credits priced at \$1,250/oz and \$16.50/oz, respectively.

<b>Candelaria (\$/lb Cu)<sup>(1)</sup></b>	<b>2017</b>
Mining costs	0.45
Milling costs	0.47
G&A and other costs	0.25
TC/RCs	0.27
By-product credit, net of TC/RCs	(0.24)
<b>Cash Cost per payable pound of Copper</b>	<b>1.20</b>

(1) Includes the impact of the Franco Nevada streaming agreement but excludes any allocation of upfront cash received under the streaming agreement, and capitalized stripping costs.

Total forecast capital costs for Candelaria 2017 are tabulated below. The main capital project at Candelaria is the construction of the new Los Diques tailings storage facility which commenced construction in 2016 and is expected to be ready to receive first tailings in 2018. The mine and mill capital costs comprise typical sustaining capital items for a mature operation and include replacement and rebuild of equipment and infrastructure.

The Company capitalizes waste stripping costs when experienced strip ratios are above the average planned strip ratio for each open pit phase under development. During the production phase of the Candelaria open pit mine, waste stripping costs, which provide probable future economic benefits and improved access to the orebody are capitalized to mineral properties. In 2017, capitalized waste stripping is forecast at \$105 million.

<b>Candelaria Capital Costs</b>	<b>Unit</b>	<b>2017</b>
Tailings	\$M	135.0
Other sustaining	\$M	25.0
<b>Total</b>	<b>\$M</b>	<b>160.0</b>
<b>Capitalized Waste</b>	<b>\$M</b>	<b>105.0</b>
<b>Total Cost</b>	<b>\$M</b>	<b>265.0</b>

#### 5.4.1.1.13 Exploration, Development, and Production

During 2017, the planned exploration program at the Candelaria Mining Complex is expected to total 111,500 m of diamond drilling. A total of 1,650 m of exploration drifting are also planned for the year. Drilling will continue to target lateral extensions of the mineralization, with the objective of generating additional Mineral Resources and Mineral Reserves in open pit and underground mines.

A district exploration programme will continue in 2017, building upon the district-wide database and 3D model developed in 2016 with an emphasis on development of new target areas, and possible extensions to known mineralization. Total exploration expenditure in 2017 is forecast at approximately \$32 million.

In 2016, the Candelaria Copper Mining Complex produced 166,592 tonnes of copper in concentrate (100% basis). For 2017, forecast production is as tabulated below.

<b>Candelaria (100%)</b>	<b>Unit</b>	<b>2017</b>
Copper Production	'000 Tonnes	181 – 188

The current LOM of the Candelaria open pit is to 2035, while the underground mines, Candelaria Norte, Alcaparossa and Santos, have mine LOMs 2027, 2023 and 2022 respectively.



### **5.4.1.2 EAGLE MINE**

The following information is based, in part, on the Eagle Report. Updates to Mineral Reserve and Mineral Resource estimates are due to mining and exploration activities, and have been reviewed and approved as described in Schedule A, which provides such estimates as at June 30, 2016. The Eagle Report is available under Lundin Mining's SEDAR profile at [www.sedar.com](http://www.sedar.com).

#### **5.4.1.2.1 Project Description, Location and Access**

The Eagle Mine is located in the Upper Peninsula of Michigan, USA, in Michigamme Township, Marquette County. The property is on the watershed divide of the Yellow Dog River and Salmon Trout River. The closest community to the mine site is Big Bay, 24 km from the property by road. Big Bay is an unincorporated community within Powell Township, Marquette County and has limited services. The closest full service community is Marquette, approximately 53 km by road from the property. Marquette provides a regional airport, rail and shipping facilities, and a full range of commercial services.

The Humboldt mill property, a former iron ore processing facility, occupying approximately 142 ha, is located approximately 61 km west of Marquette, Michigan. The facility is located in the township of Humboldt, Marquette County, Michigan. Ore from the Eagle Mine is trucked approximately 105 km to the Humboldt mill for processing.

Road access to the mine property is by means of paved roads from the communities of Big Bay to the east, and Marquette to the south. The Humboldt mill is located close to the main US Route 41.

The Eagle Mine is 100% owned by Lundin Mining. The Eagle deposit is covered by both state and private mineral leases with the Mineral Resource estimates split approximately 50:50 between them. The state leases expire in July 2023 but are extendable by production, while the private leases have various expiry dates that are extendable by continued payments or production. Eagle Mine has obligations under state and private royalty agreements ranging from 1.0% to 7.0%.

#### **5.4.1.2.2 History**

The Eagle deposit was first drilled in 2002 as part of a nickel exploration program commenced by Rio Tinto in 2000. Following further drilling an initial Mineral Resource was estimated in early 2004.

Following further drilling, feasibility studies, and the receipt of all relevant permits Rio Tinto began construction of the Eagle Mine site in 2010 and began underground development in September 2011. The re-construction work at the Humboldt mill also commenced in 2011.

In July 2013, Lundin Mining acquired the Eagle Mine project from Rio Tinto and accelerated construction activities. Construction was completed in mid-2014 and commercial production of nickel and copper concentrates was achieved in November of 2014.

In June 2016, a maiden Inferred Mineral Resource estimate was released on Eagle East and a Preliminary Economic Assessment published.

#### **5.4.1.2.3 Geological Setting, Mineralization and Deposit Type**

Eagle is an ultramafic-intrusive-hosted high grade Ni-Cu deposit, with associated cobalt, platinum, palladium, silver and gold, which is interpreted to have formed from multiple intrusive phases. The peridotite intrusive is hosted in Paleoproterozoic meta-sediments, which exhibit hornfels at the contact with the intrusion. The whole area is mostly covered by Pleistocene glacial till.

The Eagle deposit is hosted by one of two peridotite intrusions historically known as the Yellow Dog Peridotites and referred to as Eagle peridotites within the project lexicon. The eastern intrusion forms a prominent outcrop that rises above the Yellow Dog Plains and, at depth, hosts the new Eagle East zone two kilometers east of the Eagle deposit. The western intrusion, 650 m to the west and host to Eagle, is

only poorly exposed in a small outcrop on the north side of Salmon Trout River. The intrusions are characterized by very prominent magnetic highs relative to the surrounding sedimentary rocks.

The Eagle deposit measures approximately 300 m in strike length, up to 85 m in width, and 340 m in vertical depth. Eagle East, at a depth of approximately 950 m, is approximately 500 m in strike length and 50 m in width and height.

The Eagle and Eagle East deposits are high-grade magmatic sulphide deposits containing nickel and copper mineralization and minor amounts of cobalt, precious metals and PGMs. The economic minerals associated with this deposit are predominately pentlandite and chalcopyrite.

Three distinct types of sulphide mineralization occur at the Eagle deposit. They are described as disseminated, semi-massive and massive sulphide. Massive sulphide is generally over 90% pyrrhotite-pentlandite-chalcopyrite. Semi-massive, or matrix ore, is 30% or greater net textured sulphide. Disseminated mineralization is generally uneconomic. The semi-massive and massive sulphides occur in separate zones called the massive sulphide, semi-massive East, and semi-massive West zones. At Eagle East, both the Massive and semi-massive sulphides occupy a continuous horizontal peridotite conduit.

#### **5.4.1.2.4 Exploration**

In the first half of 2016, seven drill rigs were devoted to successfully completing the delineation of the Eagle East discovery sufficient to allow an initial Inferred Mineral Resource estimate to be defined. In the second half of the year, the drill rig contingent was reduced to four. Drilling targeted possible controlling structures of Eagle East and probing for extensions of the Eagle East conduit.

#### **5.4.1.2.5 Drilling**

Surface and underground exploration drilling is an ongoing operation at the mine with the work undertaken by contractors. The nominal hole spacing of the underground diamond drilling averages 15 m, with surface drilling averaging a spacing of less than 25 m within the Eagle deposit. Drilling at Eagle and Eagle East is restricted to diamond core using various size tools. Down hole surveys at Eagle and Eagle East are predominantly either north seeking (rate) gyros or normal gyro surveys.

In 2016, 49,740 m of drilling was completed from surface with 88 holes and wedges. Underground, 3,283 m of definition/delineation drilling was completed with 106 holes. Surface drilling extensively employed Devico directional services.

#### **5.4.1.2.6 Sampling, Analysis and Data Verification**

The entire Mineral Resource estimate at Eagle and Eagle East is based on drill core samples. Sampling intervals are generally equal to 1.5 m or less. Drill core samples lengths reflect ore type and lithological contacts.

Industry standard exploration drill core splitting, sampling, insertion of quality control samples and density measurement protocols and procedures are in place. Samples are prepared on-site and sent to ALS Minerals (ALS Chemex) laboratory in Vancouver, Canada for assay.

Data verification, sample security and QA/QC procedures that conform to industry standards are in place at Eagle. All drill core is logged and photographed, and the cores and sampling splits are stored in secure facilities near Negaunee, Michigan. Traceability records prevent errors of identification and ensure sample history can be followed.

#### **5.4.1.2.7 Mineral Processing and Metallurgical Testing**

Eagle maintains regular metallurgical testing programs that are incorporated with historical testing results and mill performance into a statistical model to predict and improve the complex's processing performance



in terms of mill throughput, metal recovery to concentrates, and final concentrate grades. Metallurgical tests are executed in a number of specialized in-house and commercial facilities. Testing includes work index determination, mineralogy using optical and QEMSCAN technology and bench scale flotation testing that is correlated with industrial scale performance in order to predict mill throughput and metallurgical performance.

#### **5.4.1.2.8 Mineral Resource and Mineral Reserve Estimates**

Mineral Resources at Eagle are estimated using 3D block modelling using Maptek Vulcan® mining software. Ordinary Kriging is used for grade and density estimation. Mineral Resources at Eagle East are estimated using Datamine Studio RM software. Grades and density values were estimated using the Inverse Power Distance method.

Eagle Mineral Reserves are estimated from the Mineral Resources by designing stopes and sill layouts using Vulcan® software. Eagle East Mineral Reserves are estimated using the same methodology in the Deswik software. A separate NSR cut-off is applied to the two orebodies together with dilution and mining recovery factors.

Details of the June 2016 Mineral Resource and Mineral Reserve estimate for Eagle and Eagle East are included in Schedule A, attached to this AIF.

#### **5.4.1.2.9 Mining Operations**

Eagle is a relatively shallow underground mine with access gained via a surface ramp that also serves as the route for waste, ore and backfill haulage. The mine employs transverse bench-and-fill stoping with mining in an up-dip primary secondary sequence. Backfilling is undertaken using cemented and uncemented rockfill. Two ventilation shafts are in place, with the downcast shaft also equipped for emergency egress. Ore from the mine is stored in a covered coarse ore stockpile facility prior to transport by road 105 km to the Humboldt mill site.

Eagle East will be accessed by ramp from the bottom of the Eagle mine, with the mine services and infrastructure being extended from Eagle. Eagle East will require no new surface infrastructure and will use the same mining method as Eagle with ore, waste and backfill hauled through the ramp.

#### **5.4.1.2.10 Processing and Recovery Operations**

The Humboldt mill is a former iron ore processing plant that has been converted for processing Eagle ore. From a covered coarse ore storage facility, the ore is processed using a conventional three stage crushing and single stage ball milling process followed by differential flotation to produce separate nickel and copper concentrates. Metallurgical recoveries of nickel and copper average 84% and 97% respectively. Tailings from the plant are deposited sub-aqueously in the adjacent former Humboldt iron ore open pit. No modifications to the process plant are necessary for the treatment of the Eagle East which will be blended with that from Eagle over the final years of the LOM.

Nickel and copper concentrates are stored in a covered concentrate building on site prior to being transported via rail car direct to smelter facilities within North America or to ports for shipment overseas.

#### **5.4.1.2.11 Infrastructure, Permitting, and Compliance Activities**

The Eagle Mine and Humboldt mill areas are served by an extensive network of paved roads, a regional airport, rail services, excellent telecommunications facilities, national grid electricity, an ample supply of water and a highly educated work force.

Both the mine and mill operate under a number of local, state and federal permits. All permits are in place for the operation and Eagle has maintained full compliance with the corresponding requirements. In addition to adhering with all legal requirements, Eagle Mine LLC operates using a management system that is aligned with the Lundin Mining's health, safety and environment system standards. This system

undergoes annual third party auditing to ensure continued compliance with all corporate standards and guidance documents.

Initial development of a decline for Eagle East and associated Eagle East-related exploration and technical data collection activities commenced under provisions of the existing Eagle Mine Part 632 Mining Permit issued by the MDEQ. A request for amendment to formally incorporate the decline into the permit was also submitted in February 2017 to assure this regulatory approval would be in place should the Feasibility Study be approved. An updated EIA and Mine Permit Amendment application are nearing completion as part of a future request to modify the Eagle mine Part 632 Mining Permit to allow the extraction of Eagle East. No other permit requirements are anticipated for Eagle East, aside from planned modifications to the Humboldt Mill Part 632 Mining Permit and the Part 301 Inland Lakes and Streams Act permits, required for the placement of additional tailings in the Humboldt pit for both the exiting Eagle tailings and those from Eagle East.

Eagle is committed to engage with the local community and other stakeholders in relation to all safety, health and environmental aspects of the business. An information centre on the project is located in the town of Marquette and a Community Scoring Program has been developed to measure the effectiveness of the satisfaction with the mine's performance on safety, environmental and other matters affecting the community. A Community Environmental Monitoring Programme is also in place using independent non-profit organizations to independently monitor the project's environmental performance.

Eagle has several community investment initiatives in place including the Technical Middle College Partnership, Accelerate UP and the Eagle Emerging Entrepreneurs' Fund.

#### 5.4.1.2.12 Capital and Operating Costs

Total forecast Eagle C1 cash costs for 2017 are tabulated below. Unit operating costs are based on the operating experience gained in 2016 and include the use of contractors for mining and ore transport from the mine to mill. Lower diesel, energy and consumables prices and efficiency initiatives have resulted in lower operating costs. Forecast C1 cash costs for 2017 are \$2.45/lb Ni, assuming a Cu by-product credit priced at \$2.25/lb.

<b>Eagle (\$/lb Ni)</b>	<b>2017</b>
Mining costs	1.08
Milling costs	0.62
G&A and other costs	1.38
TC/RCs	1.71
By-product credit, net of TC/RCs	(2.34)
<b>Cash Cost per payable pound of Nickel</b>	<b>2.45</b>

Total forecast capital costs for Eagle for 2017 are tabulated below. Sustaining capital includes primarily development to access new areas of the orebody as well equipment replacements and upgrades in both the mine and mill. The Eagle East capital covers the access development and equipment purchases.

<b>Eagle</b>	<b>Unit</b>	<b>2017</b>
Sustaining	\$M	10.0
Eagle East	\$M	35.0
<b>Total</b>	<b>\$M</b>	<b>45.0</b>

#### 5.4.1.2.13 Exploration, Development, and Production

In 2017, near-mine surface exploration will target potential extensions of the Eagle East conduit both laterally and at depth. A total of 25,000 m of drilling from surface are projected. Exploration on regional targets is also being contemplated.

Underground delineation drilling during 2017 will focus on improving the definition of ore above the 265 Level. The program will focus on longer holes than previously drilled, in an effort to remain ahead of the rapidly advancing mine plan. A total of 5,400 m is planned in 55 holes.

In 2016, Eagle produced 24,114 tonnes of nickel and 23,417 tonnes of copper in concentrate, respectively. For 2017, forecast production is as tabulated below.

<b>Eagle</b>	<b>Unit</b>	<b>2017</b>
Nickel Production	'000 Tonnes	17 – 20
Copper Production	'000 Tonnes	15 – 18

Current estimated Mineral Reserves at Eagle are sufficient for a LOM of 5 years.

### **5.4.1.3 NEVES-CORVO MINE**

The following information is based, in part, on the Neves-Corvo Report. Updates to Mineral Reserve and Mineral Resource estimates are due to mining and exploration activities, and have been reviewed and approved as indicated in Schedule A, which provides such estimates as at June 30, 2016. The Neves-Corvo Report is available for review under Lundin Mining's SEDAR profile at [www.sedar.com](http://www.sedar.com).

#### **5.4.1.3.1 Project Description, Location and Access**

The Neves-Corvo Mine is owned and operated by the Portuguese company Somincor, which is a 100% owned subsidiary of Lundin Mining. It is situated approximately 220 km southeast of Lisbon in the Alentejo district of southern Portugal. The mine site is located approximately 15 km southeast of the town of Castro Verde and exploits five major orebodies from an underground mine. The ore is processed on-site and tailings are disposed of in the Cerro de Lobo impoundment approximately 3 km from the plant. Concentrates are dispatched by rail and road for onward shipping to customers.

Neves-Corvo has good connections to the national road network which links with Faro to the south and Lisbon to the north. The mine has a dedicated rail link into the Portuguese rail network and to the port of Setúbal.

There are no major centres of population close to the mine, although a number of small villages with populations numbered in the hundreds are located within the mining concession. Most employees travel to the mine by Company-provided buses or private cars.

The mining operations are contained within a mining concession contract between the State and Somincor that as of July 1, 2014 covers an area of 28.9 km<sup>2</sup> and are located in the parishes of Santa Bárbara de Padrões and Senhora da Graça de Padrões, counties of Castro Verde and Almodôvar, district of Beja. The concession comprises the Neves-Corvo area with 13.5 km<sup>2</sup> and the Semblana area, covering the Semblana orebody, with 15.4 km<sup>2</sup>. The concession provides the rights to exploit the Neves-Corvo deposits for copper, zinc, lead, silver, gold, tin and cobalt for an initial period of fifty years (from November 24, 1994) with two further extensions of twenty years each. The mining concession provides sufficient surface rights to accommodate the existing mine infrastructure and allow expansion if required.

This mining concession was in turn surrounded by the Castro Verde exploration concession. This concession covers an area of 294 km<sup>2</sup> and expired in May 2014. A new exploration concession of 140.6 km<sup>2</sup> that surrounds the combined Neves-Corvo mining concession and exploration targets in the district has been requested and the areas was granted to Somincor in May 2015. Negotiations for the exploration agreement are due to start early in 2017.

Royalties for the Neves-Corvo area of the mining concession are either a profit-related royalty of 10%, or a revenue-based royalty of 1% (at the State's discretion). Royalties on the Semblana area are a 4% revenue based royalty for copper and associated payable metals and 3.5% for zinc and associated payable metals. The Semblana royalty payments may be reduced by between 2% and 6% of Somincor expenditure on mining related research, social projects and the granting of scholarships.

#### **5.4.1.3.2 History**

The Neves-Corvo ore bodies were discovered in 1977. The Portuguese company Somincor was established to exploit the deposit and by 1983, the Corvo, Graça, Neves and Zambujal sulphide deposits had been partially outlined, covering an area of approximately 1.5 km by 2 km. Rio Tinto became involved in the project in 1985, effectively forming a 49%/51% joint venture with the Portuguese State owned company EDM. The project was reappraised with eventual first production commencing from the Upper Corvo and Graça orebodies in January 1989.

During the development of the mine, high-grade tin ores were discovered, associated with the copper mineralization, which led to the rapid construction of a tin plant that was commissioned in 1990.

The railway link between Neves-Corvo and Setúbal was constructed between 1990 and 1992 for the shipment of concentrates and the hauling of sand for backfill on the return journey. This was followed between 1992 and 1994 by a major mine deepening exercise to access the Lower Corvo orebody through the installation of an inclined conveyor ramp linking the 700 and 550 levels.

In June 2004, EuroZinc acquired a 100% interest in Somincor for consideration of €128 million. In October 2006, EuroZinc merged with Lundin Mining and the Lundin Mining name was retained.

In 2006, zinc production was commenced at Neves-Corvo with processing through the modified tin plant. In June 2007, Silver Wheaton (formerly Silverstone Resources Corp.) agreed to acquire 100% of the life-of-mine payable silver production from the mine, within the limits of the original concession, as the mine produces around 0.5 million ounces of silver per year in copper concentrate. Zinc production was suspended in November 2008 due to the low prevailing zinc price. In September 2009, the decision was made to expand the zinc plant at an estimated cost of €43 million, to a design capacity of 50,000 tpa zinc in concentrate and first zinc production was achieved from the expanded plant in mid-2011.

In mid-2009, a copper tailings retreatment circuit was commissioned to recover both copper and zinc, and in late 2010, tailings disposal changed from subaqueous to paste methods at the Cerro do Lobo facility.

In October 2010, the copper rich Semblana deposit was discovered located 1 km to the northeast of the Zambujal copper-zinc orebody within the Castro Verde exploration concession. In December 2011, following extensive diamond drilling, an initial Inferred Mineral Resource estimate was published, which was further updated in June 2012. A high-resolution 3D seismic survey carried out in 2011 also identified several new exploration targets in the Neves-Corvo vicinity.

A Feasibility Study examining an expansion of the zinc operations to 2.5 mtpa throughput was completed in 2015. Permitting of this zinc expansion project is progressing with approximately 28 months anticipated between project approval and doubled zinc metal production. Approval of the permit is expected during the first half of 2017.

#### **5.4.1.3.3 Geological Setting, Mineralization and Deposit Types**

Neves-Corvo is located in the western part of the Iberian Pyrite Belt, which stretches through southern Spain into Portugal and which has historically hosted numerous major stratiform volcano-sedimentary massive sulphide deposits.

The Neves-Corvo deposits occur within the Volcanic Sedimentary Complex, which consists of acid volcanics separated by shale units, with a discontinuous black shale horizon immediately below the lenses. Above the mineralization, there is a thrust-faulted repetition of volcano-sedimentary and flysch units. The whole assemblage has been folded into a gentle anticline oriented northwest to southeast which plunges to the southeast, resulting in orebodies distributed on both limbs of the fold. All the deposits have been affected by both sub-vertical and low angle thrust faults, causing repetition in some areas.

Seven massive sulphide lenses have been defined at Neves-Corvo comprising Neves (divided into North and South), Corvo, Graça, Zambujal, Lombador (divided North, South and East), Semblana and Monte Branco. The base metal grades are segregated by the strong metal zoning into copper, tin and zinc zones, as well as barren massive pyrite. The massive sulphide deposits are typically underlain by stockwork sulphide zones, which form an important part of the copper orebodies.

The mineral deposits at Neves-Corvo are classified as volcano-sedimentary massive sulphide. They typically occur as lenses of polymetallic (Cu, Zn, Sn, Pb) massive sulphides that formed at or near the seafloor in submarine volcanic environments. They formed from accumulations of the focussed discharges of hot metal-enriched fluids associated with seafloor hydrothermal convection, typically in tectonic areas of active submarine volcanism, including rift spreading centres and island arc subduction zones.

#### **5.4.1.3.4 Exploration**

In 2016, exploration work was concentrated on the development of a 3D regional geological model, using Leapfrog® modelling software, to be later transferred to an integrated Gocad model. No underground or surface exploration drilling was undertaken. Underground infill and production drilling was completed during 2016 to delineate new areas suited for bulk mining methods. This drilling program targeted the Lombador, Neves, Zambujal and Lower Corvo orebodies.

#### **5.4.1.3.5 Drilling**

Underground production drilling was largely executed with a 10 m spacing between sections in order to better define the shape and grades of the production panels. As a standard procedure, drill holes are surveyed with a Reflex EZ-Shot tool at 30 m intervals, which provides an accurate location of the drill intersections.

In 2016, 362 underground diamond drill holes were drilled providing a total of 22,998 m of underground production drilling.

#### **5.4.1.3.6 Sampling, Analysis and Data Verification**

Industry standard exploration drill core splitting, sampling, insertion of quality control samples and density measurement protocols and procedures are in place at Neves-Corvo. In addition to drill core sampling, underground grade control sampling is carried out using face sampling in the areas subject to drift-and-fill mining and short diamond drill holes in the bench-and-fill areas. Samples are prepared on-site and analyzed at either the mine's fully accredited assay laboratory facility or by the ALS Chemex laboratory in Vancouver, Canada.

Data verification, sample security and QA/QC procedures that conform to industry standards are in place at Neves-Corvo. All drill cores are logged and photographed, and the cores and sampling splits are stored on-site. Traceability records prevent errors of identification and ensure sample history can be followed.

#### **5.4.1.3.7 Mineral Processing and Metallurgical Testing**

Neves-Corvo maintains regular metallurgical testing programs that are incorporated with historical testing results and mill performance into statistical models to predict and improve the complex's processing performance. Model outputs are mill throughput, grind requirements, metal recovery to concentrate, and final concentrate grade. Metallurgical tests are executed in a number of specialized in-house and commercial facilities. Testing includes milling work indices, mineralogy using optical QEMSCAN and MLA techniques and bench scale flotation testing that is correlated with industrial scale performance in order to predict mill throughput and metallurgical performance.

#### **5.4.1.3.8 Mineral Resource and Mineral Reserve Estimates**

Mineral Resources at Neves-Corvo are estimated using three dimensional interpretation and modelling methods with calculations performed using specialized software and in particular Leapfrog® and Vulcan®

3D. The ordinary kriging method of interpolation is used to estimate metal grades and a multiple regression formula using the estimated metal grades is used to estimate density.

Mineral Reserves are estimated by the Neves-Corvo Mine planning department primarily using Vulcan® 3D software. Stopping volumes are cognizant of the method of access to allow for the cut-off grade boundary and include an allowance for planned and unplanned dilution and ore loss. An effective minimum mining width of 5 m is applied.

The Semblana Mineral Resource was modelled and estimated using Datamine Studio software. Metal grades were estimated using ordinary kriging or inverse distance weighting. Bulk density was estimated using inverse distance weighting.

Details of the June 2016 Mineral Resource and Mineral Reserve estimates for Neves-Corvo and Semblana are included in Schedule A, attached to this AIF.

#### **5.4.1.3.9 Mining Operations**

Neves-Corvo is a major underground mine. The principal means of mine access are provided by one vertical 5 m diameter shaft and a ramp from surface. The shaft is used to hoist ore from the 700 m level. The surface is nominally 1,200 m above datum. A conveyor decline descends from the 700 m level to the 550 m level and provides ore hoisting from the deeper levels of the mine. The mine is highly mechanized and a number of different stoping methods are employed but the most significant are bench-and-fill and drift-and-fill. Backfill is provided by hydraulically placed sand, paste tailings and internally generated waste rock.

#### **5.4.1.3.10 Processing and Recovery Operations**

The treatment facility at Neves-Corvo comprises two processing plants. The copper plant treats copper ores and has a maximum capacity of approximately 2.6 mtpa and the zinc plant, which treats zinc or copper ores was expanded to 1.0 mtpa capacity during 2011. Both processing plants comprise conventional crushing, rod and ball mill grinding circuits with flotation cells and concentrate thickening and dewatering. In mid-2009, modifications to the copper plant were completed to regrind and recover additional copper and zinc concentrate from the copper tailings stream. A similar modification to the zinc plant was commissioned in late 2014.

Copper and zinc concentrates are transported by rail to a dedicated port facility at Setúbal, Portugal from where they are shipped to smelter customers. Lead concentrate is containerised and trucked to ports for overseas shipment.

Tailings disposal was changed from subaqueous to sub-aerial paste deposition during 2010 following approval by the Portuguese authorities. Tailings are thickened and pumped from a new facility located at the Cerro de Lobo tailings impoundment, 3 km from the mine site.

Copper, zinc and lead concentrates from the mine are sold to a variety of smelter customers that are primarily European based. Multi-year sales contracts are normally agreed with customers and treatment, refining and penalty charges are typical of those for copper, zinc and lead sulphide concentrates.

#### **5.4.1.3.11 Infrastructure, Permitting and Compliance Activities**

The Neves-Corvo area in southern Portugal is well served by excellent transport facilities including a dedicated railhead to the mine site, a major highway within 25 km and the international airport of Faro 80km to the south.

Fresh water is supplied to the mine via a 400 mm diameter pipeline from the Santa Clara reservoir, approximately 40 km west of the mine. Supply capacity is 600 m<sup>3</sup>/hr and storage facilities close to the mine hold 30 days' requirements. The total water requirement for the mine and plant is estimated at over 350



m<sup>3</sup>/hr with as much as 75% of the volume being reused. The mine is connected to the national grid by a single 150 kV, 50 MVA rated, overhead power line 22.5 km long.

The Neves-Corvo Mine operates under an Integrated Pollution Prevention and Control Licence (No.19/2008) granted by the Portuguese Environmental Agency, Agência Portuguesa do Ambiente (the “APA”) in 2008. The licence includes conditions covering environmental management systems, tailings and waste rock disposal, water and energy consumption, emissions to atmosphere, emissions to water courses and water treatment, noise, industrial waste disposal, emergency and closure planning.

Key environmental issues include the acid-generating potential of the ore and waste rocks; the close proximity of the Oeiras River to the mine site; the groundwater is a significant aquifer and connects to local water supplies and the Oeiras River; and the dispersal of dust and noise from the mine site. The mine permit requires that closure plans for the mine are updated every five years, and an accumulating closure fund is in place to cover final closure costs.

Somincor submitted an Environmental Impact Study in late November 2016 to the Portuguese authorities, in support of a potential expansion of the zinc plant from the ZEP from 1.1 to 2.5 mtpa. The document is now under review by the APA and approval is expected during the first half of 2017.

In addition, Somincor has initiated an administrative process at the request of the APA to review and update the Environmental License. The new Environmental License, now named the Single Environmental Title (“SET”) or Título Único Ambiental (“TUA”) in Portuguese, shall be issued upon completion of the APA’s review once the upload is complete and payment of the fee (“SEF”). The Environmental License modification upload was completed on January 16, 2017 and the SEF was paid on January 18, 2017.

Somincor has a well-established relationship with local residents and the community. Recent community investments have included partnerships with Regional Health Institutions to prevent childhood obesity, a Horse Riding School for disabled children and regular contributions to local sports clubs. The mine also sponsored the Viola Campaniça and Cante Alentejano, traditional music of Alentejo and elected as Intangible Heritage of Humanity by UNESCO.

#### 5.4.1.3.12 Capital and Operating Costs

Total forecast Neves-Corvo C1 cash costs for 2017 are tabulated below using a forecast exchange rate of US dollar/€: 0.8696. Unit operating costs are forecast to reduce with a number of cost saving initiatives including reduced use of contractors, greater use of bulk mining and the introduction of new larger underground loaders and trucks. Forecast C1 cash costs for 2017 are \$1.35/lb Cu, assuming a Zn by-product credit priced at \$1.00/lb.

<b>Neves-Corvo (\$/lb Cu)</b>	<b>2017</b>
Mining costs	1.12
Milling costs	0.47
G&A and other costs	0.59
TC/RCs	0.38
By-product credit, net of TC/RCs	(1.21)
<b>Cash Cost per payable pound of Copper</b>	<b>1.35</b>

Total forecast capital costs for Neves-Corvo for 2017 are tabulated below. Capital includes primarily underground development, completion of the water treatment plant and rebuild and replacement of underground mining equipment.

<b>Neves-Corvo</b>	<b>Unit</b>	<b>2017</b>
Underground development	\$M	12.0
Water treatment plant	\$M	10.0
Other sustaining	\$M	28.0
<b>Total</b>	<b>\$M</b>	<b>50.0</b>

#### 5.4.1.3.13 Exploration, Development, and Production

The 2017 underground drilling campaign will include 34,000 m of production drill holes to improve the definition of the mining panels in the Lower Corvo, Neves North, Zambujal and Lombador South orebodies.

Plans for 2017 surface exploration include 10,000 m of drilling within the exploration lease, along with subsequent borehole electro-magnetic surveys if favorable geologic horizons are encountered. Targeting will be based on updates to the 3D integrated model, including new geologic cross sections and new structural interpretation from the 3D seismic data. Total drilling meterage may be increased depending on results.

In 2016, Neves-Corvo produced 46,557 tonnes of copper and 69,527 tonnes of zinc in concentrate. For 2017, forecast production is as tabulated below.

<b>Neves-Corvo</b>	<b>Unit</b>	<b>2017</b>
Copper Production	'000 Tonnes	41 - 46
Zinc Production	'000 Tonnes	72 - 77

The current copper and zinc Mineral Reserves at Neves-Corvo will support a LOM of over 10 years with copper production, based on current Mineral Reserves estimates, gradually decreasing, and planned zinc production increasing.

#### 5.4.1.4 ZINKGRUVAN MINE

The following information is based, in part, on the Zinkgruvan Report. Updates to Mineral Reserve and Mineral Resource estimates are due to mining and exploration activities and have been reviewed and approved as indicated in Schedule A which provides such estimates as at June 30, 2016. The Zinkgruvan Report is available under Lundin Mining's SEDAR profile at [www.sedar.com](http://www.sedar.com).

##### 5.4.1.4.1 Project Description, Location and Access

The Zinkgruvan Mine is owned and operated by Zinkgruvan Mining AB which is a 100% indirect subsidiary of Lundin Mining. It is located approximately 200 km southwest of Stockholm in south central Sweden. The mine site is approximately 15 km from the town of Askersund and comprises a deep underground mine, a processing plant and associated infrastructure and tailings disposal facilities. Concentrates are trucked from the mine to the inland port of Otterbäcken on Lake Vänern from where they are shipped via canal and sea to European smelter customers.

Zinkgruvan has good local road access and is close to the main E18 highway linking Stockholm and Oslo. Rail and air links are available at the town of Örebro some 60 km distant. Lake Vänern, the largest lake in Sweden, is 100 km distant and provides access to coastal shipping via a series of inland canals and the port of Göteborg.

The mining operations are contained within two exploitation concessions covering the deposit and its immediate area. The Zinkgruvan concession was amalgamated from a large number of smaller rights in 2000, has an area of 254 ha and is valid until 2025. The neighbouring Klara concession was granted in 2002, has an area of 355 ha and is valid until 2027. These concessions are automatically extendable for periods of 10 years provided the concession is being regularly exploited. In addition, the mine currently holds exploration concessions in the area totaling 3,291 ha of which 530 ha was acquired in 2015. For exploitation concessions granted before 2005, there are no mining royalties in Sweden. The corporation tax rate in Sweden is 22%. The Zinkgruvan Mine owns sufficient freehold surface land to accommodate the existing and planned mine infrastructure.

The Zinkgruvan Mine is operating under a recently extended environmental licence that is valid until 2026.



#### **5.4.1.4.2 History**

The Zinkgruvan deposit has been known since the 16th century but it was not until 1857 that large scale production commenced under the ownership of the Belgian Vieille Montagne Company. The processing plant for these operations was initially based in Åmmeberg on the shores of Lake Vättern with ore transported approximately 5 km from the mine site by narrow gauge railway.

In the mid-1970s, a decision was made to significantly expand production to 600,000 tpa. A new shaft, named P2, was sunk to access deeper ore and a new concentrator and tailings facility established adjacent to the mine site.

In 1990, Belgian Vieille Montagne Company merged with Union Miniere, and in 1995, North Australia acquired the Zinkgruvan Mine. In August 2000, Rio Tinto became the owner of the mine following its acquisition of North Australia. In June 2004, Lundin Mining purchased the mine from Rio Tinto.

In December 2004, Silver Wheaton agreed to purchase the LOM silver production from the Zinkgruvan Mine. In October 2007, the Company announced the Zinkgruvan expansion program to increase ore production by 300,000 tpa through the addition of copper to the current zinc-lead production.

In late 2010, the copper plant was commissioned and, during 2011, modifications were made to allow the plant's 300,000 tpa ore capacity to be used to also treat zinc/lead ores. In November 2010, an access ramp from the surface to the underground workings was completed, allowing a significant increase in the mine's operational flexibility. In 2015, a low cost project was approved to increase the overall mill capacity by approximately 10%. This investment focused primarily on increased grinding capacity and improved plant availability is due for completion by mid-2017. Expansion of the existing Enemossen tailings facility was initiated in 2016 with the first phase due for completion in the third quarter of 2017.

#### **5.4.1.4.3 Geological Setting, Mineralization and Deposit Types**

Zinkgruvan is located in the southwest corner of the Proterozoic aged Bergslagen greenstone belt. The district is comprised of a series of small, elongated basins with felsic metavolcanics overlain by metasediments. The basins are surrounded by mainly granitoid intrusions of which the oldest are the same age as the metavolcanics.

The Zinkgruvan deposit is situated in an east-west striking synclinal structure. The tabular-shaped Zn-Pb-Ag orebodies occur in a 5 m to 25 m thick stratiform zone in the upper part of the metavolcanic-sedimentary group. The orebody is 5 km long and is proven to a depth of 1,650 m below surface. A major sub-vertical fault splits the ore deposit in two parts, the Knalla mine to the west and the Nygruvan to the east.

The Zinkgruvan orebodies are dominated by sphalerite and galena and are generally massive, well banded and stratiform. Remobilization of galena and silver has occurred in response to metamorphism and deformation, and is most pronounced in the lead-rich western extension of Nygruvan and in the Burkland area.

Copper stockwork mineralization has been identified in the structural hanging wall of the Burkland deposit. Chalcopyrite is the main copper mineral and occurs as coarse disseminations and patches within a marble host rock.

While the most appropriate genetic model for Zinkgruvan is still somewhat controversial, evidence, particularly the presence of what appears to be a copper-rich stringer zone stratigraphically below the Burkland ore body, seems to favour a volcanogenic model in a distal environment. In this model, mineralised hydrothermal fluids ascended through a vent system and deposited copper mineralisation just below the paleo-sea floor and lead-zinc sulphide mineralisation in shallow, fairly flat-lying sea floor depressions during a particularly quiescent period. However, some researchers prefer a sedimentary-exhalative model.

#### **5.4.1.4.4 Exploration**

Exploration has focused primarily on replacing mining depletion with new Mineral Resource estimates, initially by exploring the Burkland and the Dalby areas at depth. Due to the depth of the exploration areas and the relatively complex geometry, exploration is mostly done by underground drilling. Underground development has been done in the Mellanby/Dalby area at depths of 650 m and 1,125 m to provide platforms for drilling to test for possible extensions and further evaluate the potential of these areas.

#### **5.4.1.4.5 Drilling**

Underground exploration, comprising Mineral Resource estimation and stope definition drilling, is carried out on an ongoing basis. Stope definition holes are drilled from underground with intersections typically on 15 m by 20 m centres. All drill holes are surveyed at 3 m intervals using Maxibore surveying equipment which provides an accurate location of the drill intersections.

In 2016, 8,700 m of exploration drilling was completed, with 5,184m from underground and 3,516 m from surface, to explore the possible continuation of the Western field and the Burkland area at depth. In addition, a total of 6,337 m of infill and definition drilling was completed underground.

#### **5.4.1.4.6 Sampling, Analysis and Data Verification**

Industry standard exploration drill core splitting, sampling, insertion of quality control samples and density measurement protocols and procedures are in place. Samples are prepared on-site and sent to ACME Analytical Laboratories (Vancouver) Ltd.'s laboratory in Vancouver, Canada for assay.

Data verification, sample security and QA/QC procedures that conform to industry standards are in place at Zinkgruvan. All drill core is logged and photographed, and the cores and sampling splits are stored on-site in a purpose built facility at the mine site. Traceability records prevent errors of identification and ensure sample history can be followed.

#### **5.4.1.4.7 Mineral Processing and Metallurgical Testing**

Zinkgruvan makes significant use of historical testing results and mill performance to predict and improve the complex's processing performance in terms of mill throughput, metal recovery to concentrate, and final concentrate grade. Metallurgical tests are also executed in a number of specialized academic and commercial facilities. Testing includes grindability work indices, mineralogy using optical and QEMSCAN technology when necessary and bench scale flotation testing. This is correlated with industrial scale performance in order to predict mill throughput and metallurgical performance.

#### **5.4.1.4.8 Mineral Resource and Mineral Reserve Estimates**

Mineral Resources at Zinkgruvan are estimated using two methods: the polygonal method and 3D block modelling. The polygonal method is generally used at the early stages of resource assessment and is carried out on parts of Nygruvan, and Sävsjön. The remaining areas of Nygruvan and all of Burkland are estimated using block modelling with Microstation® AutoCad and Prorok® software. Ordinary kriging and inverse distance weighting methods are used for grade estimation and density estimation uses a regression formula based on estimated metal grades.

Mineral Reserves are estimated from Mineral Resource estimates using Prorok® and Microstation® software. A zinc equivalent cut-off is applied together with dilution and mining recovery factors that are based on the mine's long operating experience.

Details of the June 2016 Mineral Resource and Mineral Reserve estimates for Zinkgruvan are included in Schedule A, attached to this AIF.

#### **5.4.1.4.9 Mining Operations**

Zinkgruvan is an underground mine with a long history. Mine access is currently via three shafts, with the principal P2 shaft providing hoisting and man access to the 800 m and 850 m levels with the shaft bottom at 900 m. A ramp connecting the underground workings with surface was completed in 2010 and now provides vehicle access direct to the mine. A system of ramps is employed to exploit estimated Mineral Resources below the shaft and the deepest mine level is now at 1,130 m below surface. The mine is highly mechanized and uses longhole primary secondary panel stoping in the Burkland area of the mine, and sublevel benching in the Nygruvan area and in the Cecilia area. Recently underhand panel stoping has been introduced to the lower sections of the Burkland and Nygruvan orebodies. All stopes are backfilled with either paste tailings and cement or waste rock.

#### **5.4.1.4.10 Processing and Recovery Operations**

The processing plant is located adjacent to the P2 shaft. The run-of-mine ore is ground in a single stage closed-circuit autogenous mill with partial crushing of mid-size particles. A bulk flotation stage is followed by lead-zinc separation in the cleaner flotation section to produce separate zinc and lead concentrates. The concentrates are thickened and filtered and then stockpiled under cover. Metallurgical recoveries average 92% for zinc and 82% for lead. Tailings are pumped some 4 km to a dedicated tailings impoundment from which decant water is returned to the process.

A separate 0.3 mtpa copper treatment line in the processing plant was commissioned during 2010. This line was further modified during 2011 to allow it the flexibility to treat zinc-lead ore as well as copper ore. An expansion project is currently underway which is aimed at increasing the overall mill capacity by approximately 10%. Metallurgical recoveries of copper average 90%.

Zinc, lead and copper concentrates from the mine are sold to a variety of European smelters. Multi-year sales contracts are normally agreed upon with customers and treatment, refining and penalty charges are typical of those for zinc, lead and copper sulphide concentrates. The lead concentrates are particularly high grade and contain elevated levels of silver.

#### **5.4.1.4.11 Infrastructure, Permitting and Compliance Activities**

Zinkgruvan has good local road access with rail and air links are available at the town of Örebro approximately 60 km distant. Lake Vänern is 100 km distant and provides access to coastal shipping via a series of inland canals and the port of Göteborg. The mine has ready access to grid power, domestic water and industrial water sources and communications systems.

The Zinkgruvan Mine is operating under a recently extended environmental licence that is valid until 2026. The licence includes conditions covering production levels, tailings disposal, water discharge limits, hazardous materials, process chemicals, water recirculation, noise levels, blast induced vibrations, dust pollution, waste handling, energy use and closure planning.

Zinkgruvan has in place a local stakeholder engagement plan and regular meetings are held between the mine and the local community. The mine publishes a regular magazine and newsletter and these are distributed freely in the community. Community initiatives include teaming up with an external partner to encourage local entrepreneurs and continued sponsorship of the Zinkgruvan mining museum. Zinkgruvan has also established tech-centric scholarships to encourage young people into technology and engineering disciplines and supported the establishment with a local community board of a summer swimming school.

#### **5.4.1.4.12 Capital and Operating Costs**

Total forecast Zinkgruvan C1 cash costs for 2017 are tabulated below using a forecast exchange rate of US dollar/SEK: 8.40. Unit operating costs are based on 2016 operating experience with anticipated efficiency and cost saving initiatives as well as favourable currency exchange rates. Forecast C1 cash costs for 2017 are \$0.40/lb Zn, assuming a Pb and Cu by-product credit priced at \$0.90/lb and \$2.25/lb, respectively.

<b>Zinkgruvan (\$/lb Zn)</b>	<b>2017</b>
Mining costs	0.31
Milling costs	0.13
G&A and other costs	0.12
TC/RCs	0.23
By-product credit, net of TC/RCs	(0.39)
<b>Cash Cost per payable pound of Zinc</b>	<b>0.40</b>

Total forecast capital costs for Zinkgruvan for 2016 are estimated at \$45 million, as tabulated below. The capital forecast includes approximately \$5 million remaining to be spend on the 1350 expansion project prior to commissioning in mid-2017.

<b>Zinkgruvan</b>	<b>Unit</b>	<b>2017</b>
Underground development	\$M	12.0
Processing expansion	\$M	5.0
Other sustaining	\$M	28.0
<b>Total</b>	<b>\$M</b>	<b>45.0</b>

#### 5.4.1.4.13 Exploration, Development, and Production

Exploration activities in 2017 will focus on in-fill, definition, down-dip and step-out drilling mainly in the Burkland, Nygruvan and Dalby areas in order to define new Inferred Mineral Resource estimate. In order to establish underground drill platforms to allow drilling of deeper extensions of the Dalby orebody, a total of 400 m of development in the Dalby exploration drive at 1,125 m below surface is planned for 2017. In order to get in position to allow drilling the extensions of ore lenses in the Western field a total of 600 m of development in the Mellanby exploration drive at 650 m below surface is also planned for 2017.

In total, 15,700 m of exploration drilling is planned with 9,500 m to be completed from underground and 6,200 m from surface. A total of 21,300 m of infill and definition drilling, all from underground, is also planned.

In 2016, Zinkgruvan produced 78,523 tonnes of zinc, 31,661 tonnes of lead and 1,906 tonnes of copper in concentrate. For 2017, forecast production is as tabulated below.

<b>Zinkgruvan</b>	<b>Unit</b>	<b>2017</b>
Zinc Production	'000 Tonnes	80 - 85
Copper Production	'000 Tonnes	1.0 – 2.0

The current zinc/lead and copper Mineral Reserve estimates at Zinkgruvan are able to support a LOM in excess of 10 years.

#### 5.4.1.5 TENKE FUNGURUME MINE

The following information is based, in part, on the Tenke Report. The Mineral Reserve and Mineral Resource estimates as at December 31, 2015 are provided in Schedule A. There have been no material changes since December 31, 2015 beyond depletion due to mining. Furthermore, exploration in 2016 was not expected to produce significant oxide additions in the Mineral Reserve and Mineral Resource estimates. The Tenke Report is available under Lundin Mining's SEDAR profile at [www.sedar.com](http://www.sedar.com).

Lundin mining holds a 24% indirect interest in TF through the Company's indirect 30% shareholding of TF Holdings. Since November 16, 2016, CMOC indirectly has owned the remaining shares of TF Holding and, in turn, a 56% indirect interest in the mine which it consequently also operates. Gécamines holds a 20% free carried interest in the mine.

In May 2016, Freeport announced that it had entered into a definitive agreement to sell its indirect 70% interest in TF Holdings to CMOC for \$2.65 billion in cash and contingent consideration of up to \$120 million, consisting of \$60 million if the average copper price exceeds \$3.50 per pound and \$60 million if average cobalt price exceeds \$20 per pound, both during the 24-month period between 2018 and 2019. Lundin Mining had a right of first offer on the sale of Freeport's interest and retained legal and financial advisors to evaluate all strategic options.

On November 15, 2016, Lundin Mining announced that it had entered into a definitive agreement to sell its indirect 30% interest in TF Holdings to BHR Partners for \$1.136 billion in cash and contingent consideration of up to \$51.4 million, consisting of \$25.7 million if the average copper price exceeds \$3.50 per pound and \$25.7 million if average cobalt price exceeds \$20 per pound, both during the 24-month period beginning on January 1, 2018. In connection with its announced sale, Lundin Mining waived its right of first offer to acquire Freeport's indirect interest in TF Holdings, which allowed Freeport to complete its sale of that interest to CMOC on November 16, 2016.

Lundin Mining's sale agreement with BHR Partners is subject to the receipt of certain regulatory approvals and other customary closing conditions. A termination fee of \$100 million, which has been secured by a letter of credit that has been received by the Company, is payable to Lundin Mining in certain circumstances, including upon termination of the transaction due to the failure to obtain necessary regulatory approvals. Completion of Lundin Mining's sale is expected in the first half of 2017.

#### **5.4.1.5.1 Property Description, Location and Access**

Tenke Fungurume's copper-cobalt deposits are believed to be one of the world's largest known copper-cobalt resources. The deposits are located on contiguous concessions which total approximately 1,500 km<sup>2</sup>. These concessions are located in the southeast region of the DRC, approximately 175 km northwest of the city of Lubumbashi.

The main highway, railroad and power line connecting Kolwezi and Likasi with Lubumbashi pass through the concessions. Scheduled air services are available between Lubumbashi and the capital Kinshasa, as well as from Johannesburg, South Africa and Zambia. An airstrip constructed on the concession can accommodate medium sized aircraft. The copper and cobalt product and bulk mine consumables are primarily transported by truck between Tenke Fungurume and ports in South Africa via transport hubs located at Chingola and Ndola in Zambia.

The concessions on which Tenke Fungurume lies and their associated royalties, rights and payments are fully described in the History section below.

#### **5.4.1.5.2 History**

The Tenke Fungurume deposits have a history dating back to at least 1917. A controlling interest in the concessions was acquired from Gécamines following a lengthy tender process, and in November 1996, pursuant to a mining convention and TFM formation agreement, the concessions were transferred to TFM in exchange for a series of transfer bonus payments and other significant commercial and development commitments. TFM was established in December 1996 under the DRC *Companies Act* and formed for the purpose of developing the deposits of copper, cobalt and associated minerals under mining concession n<sup>o</sup> 198<sup>1</sup> and mining concession n<sup>o</sup> 199<sup>2</sup> granted to TFM in 1996 at Tenke and Fungurume. TF Holdings paid Gécamines the first stage of the transfer payments (\$50 million) in May 1997.

In December 1998, Tenke Mining concluded an option agreement with BHPB which established a formal structure for BHPB to acquire, directly or indirectly, a controlling interest in the Tenke Fungurume. In December 2000, Phelps Dodge entered into an agreement with BHPB, whereby Phelps Dodge had the

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<sup>1</sup>Renumbered n<sup>o</sup> 123 by the *Cadastre Minier Certificat d'Exploitation* n<sup>o</sup> CAMI/CE/940/2004 dated November 3, 2004; subsequently divided and renumbered n<sup>o</sup> 123, n<sup>o</sup> 9707 and n<sup>o</sup> 9708 by the *Ministère des Mines* through Ministerial Decree dated February 20, 2009.  
<sup>2</sup>Renumbered n<sup>o</sup> 159 by the *Cadastre Minier Certificat d'Exploitation* n<sup>o</sup> CAMI/CE/941/2004 dated November 3, 2004; subsequently divided and renumbered n<sup>o</sup> 159, n<sup>o</sup> 4728 and n<sup>o</sup> 4729 by the *Ministère des Mines* through Ministerial Decree dated July 7, 2006.

opportunity to earn up to one-half of BHPB's position. On September 13, 2002, BHPB's rights and obligations under the option agreement were formally transferred to Phelps Dodge.

As a result of the DRC's new 2002 World Bank sponsored mining code and other developments in the DRC, an extensive renegotiation process commenced upon formation of the transitional government in 2003, which successfully concluded with amended agreements related to Tenke Fungurume in late 2005. Pursuant to the terms agreed in the amended agreements, the single purpose joint venture company, TF Holdings (then controlled 70:30% by FMC and Tenke Mining), agreed to pay Gécamines additional payments based on pre-agreed development-related milestones. In accordance with shareholding agreements finalized between FMC and Tenke Mining in January 2004, FMC funded \$42.5 million, with Tenke Mining funding the remaining \$7.5 million.

A positive build decision was made in December 2006 by then operator FMC.

Initial facilities were ultimately designed for a capacity of 115,000 tpa copper production. The amended agreements contain objectives without guarantee of reaching in excess of 130,000 tpa copper production by year 5 and 400,000 tpa by year 11 of operations, subject to a number of qualifications including DRC conditions and markets.

In early 2007, Freeport acquired FMC, which resulted in them taking over as operator and owner of a 70% interest in TF Holdings. In mid-2007, Lundin Mining acquired Tenke Mining, resulting in Lundin Mining controlling the remaining 30% of TF Holdings. This resulted in Freeport indirectly holding 57.75% of TFM, and Lundin Mining indirectly holding 24.75% of TFM. Gécamines held the balance of ownership – 17.5% by way of a directly held carried interest in TFM.

In accordance with the amended agreements, a base metals royalty is payable at the rate of 2% of net sales. In addition, a 1% net sales metals export duty applies. Full repatriation of funds is allowed, subject to a 10% expatriated dividends withholding tax. Income tax is payable at the rate of 30% and certain other minor taxes and duties apply as defined in the amended agreements consistent with the 2002 DRC Mining Code Title IX. In addition to the 15% of the base metals royalty that is defined to be distributed by the government of the DRC to the region of the mine, TFM has committed to a 0.3% net sales social fund, to be administered annually to benefit local communities.

In February 2008, the Ministry of Mines, Government of the DRC, sent a letter seeking comment on proposed material modifications to the mining contracts for the Tenke Fungurume concessions, including the amount of transfer payments payable to the government, the government's percentage ownership and involvement in the management of the mine, regularization of certain matters under Congolese law and the implementation of social plans.

In October 2010, the government of the DRC announced the conclusion of the review of TFM's mining contracts. The conclusion of the review process confirmed that TFM's existing mining contracts were in good standing and acknowledged the rights and benefits granted under those contracts.

In connection with the review, TFM made several commitments, which have been reflected in amendments to its mining contracts, including: an increase in the ownership interest of Gécamines from 17.5% to the current 20.0%, resulting in a decrease of Freeport's effective ownership interest from 57.75% to the current 56% and Lundin Mining's effective ownership interest from 24.75% to the current 24%.

Further, TFM also made the following commitments: an additional royalty of \$1.2 million for each 100,000 tonnes of proven and probable copper reserves above 2.5 million tonnes at the time new reserves are established by Freeport; additional payments totalling \$30 million which have been paid in full; a conversion of \$50 million in intercompany loans from the TFM shareholders to TFM to equity; a payment from TFM to Gécamines of approximately \$5 million for surface area fees, which amount has been paid in full, ongoing surface area fees of approximately \$0.8 million annually; incorporation of clarifying language stating that TFM's rights and obligations are governed by the amended and restated mining convention dated September 28, 2005; and expanding Gécamines' participation in TFM management.



TFM has also reiterated its commitment to the use of local services and Congolese employment. In connection with the modifications, the annual interest rate on advances from TFM shareholders increased from a rate of LIBOR plus 2% to LIBOR plus 6%.

The aforementioned changes in Lundin Mining's ownership interest in TFM and the conversion of intercompany loans to equity became effective on March 26, 2012.

Construction started at Tenke Fungurume in late 2006 on open-pit and oxide ore processing facilities designed to produce 115,000 tpa of cathode copper and over 8,000 tpa of cobalt in hydroxide. Commissioning of the copper facilities occurred at the end of the first quarter 2009, and of the cobalt hydroxide facilities at the end of the second quarter. By year end 2009, full name plate capacities for both products were being achieved. Subsequent debottlenecking and plant upgrades allowed expansion to increase to 132,000 tpa of copper cathode and approximately 11,000 tpa cobalt hydroxide. A phase 2 expansion of the plant was completed in 2014, which has increased nameplate capacity to 195,000 tpa of copper cathode and 15,000 tpa cobalt hydroxide. In 2014, construction work commenced on a second sulphuric acid plant which was commissioned in early 2016.

The phase 2 expansion was one of several stages of development contemplated with the objective of ultimately producing up to 500,000 tpa of copper by mining multiple deposits concession-wide. The current electrowinning tankhouse has excess capacity of copper cathode which is taken in to consideration for future expansion.

#### **5.4.1.5.3 Geological Setting, Mineralization and Deposit Types**

Tenke Fungurume is classified as a strata-bound copper cobalt deposit. The Tenke Fungurume copper-cobalt deposits are typical of those that comprise the Central African Copperbelt. The Copperbelt is located in a major geological structure called the Lufilian Arc, a 500 km fold belt that stretches from Kolwezi in the southern DRC to Luanshya in Zambia. The deposits of the Tenke Fungurume district are located at the northernmost apex of the arc. The arc formed between the Angolan Plate to the southeast and Congo Plate to the northwest during the late Neoproterozoic, approximately 650 to 600 million years before present (Ma). Rocks in the arc are exposed in a series of tightly folded and thrust anticlines and synclines, generally trending east-west to southeast-northwest in the southern DRC. The Tenke Fungurume group of sediment-hosted copper cobalt deposits occurs near the base of a thick succession of sedimentary rocks belonging to the Katanga System of Proterozoic age (1050-650 Ma).

The older rocks of the basement complex belonging to the Kibara Supergroup form the framework within which the Katangan sediments were deposited and consist of granitic rocks and metamorphosed sediments. Sedimentation took place in shallow intra-cratonic basins bounded by rifts. A series of cratonic events of Pan African age (650 Ma to 500 Ma) resulted in extensive deformation of these rocks. The principal tectonic event is referred to as the Lufilian Orogeny and this led to the formation of the Lufilian Arc. All of the major Zambian and Congolese copper-cobalt deposits are located along this 500 km long arcuate structure, which extends from Kolwezi in the DRC to Luanshya in Zambia. The Tenke and Fungurume deposits are located in the northernmost apex of the arc.

The copper-cobalt mineralization is mainly associated with two dolomitic shale horizons, each ranging in thickness from 5 m to 15 m, separated by 20 m of cellular silicified dolomite.

The main economic minerals present are malachite, chrysocolla, bornite, and heterogenite. Primary copper and cobalt mineralogy is predominately chalcocite, digenite, bornite, and carrollite. Oxidation has resulted in widespread alteration producing malachite, pseudomalachite, chrysocolla (hydrated copper silicate) and heterogenite.

The primary copper-cobalt mineral associations are homogeneous in both mineralized zones and any variations are due to the effect of oxidation and supergene enrichment. Consequently, the mineral assemblages can be grouped into three main categories dependent upon the degree of alteration – oxide, mixed and sulphide zones. Dolomite and quartz are the main gangue minerals present. Dolomite or dolomitic rocks make up the bulk of the host strata. Weathering of the host rocks is normally depth-related,

intensity decreasing with increasing depth, producing hydrated iron oxides and silica at the expense of dolomite, which is leached and removed.

#### **5.4.1.5.4 Exploration**

The mineral concessions at Tenke Fungurume have been subject to multiple phases of exploration over time. Aside trenching and diamond drill programs, the concessions were subject to geophysical (IP) and seismic surveys in 2008 and 2009. In 2013, the concessions were subject to airborne geophysical surveys and both electromagnetic and radiometric data was gathered and interpreted for future exploration targeting.

Underground development for bulk metallurgical sampling of mixed oxide-sulphide and sulphide mineralization was started at Fungurume in 2012 and Kwatebala in 2013. Bulk metallurgical samples from both tunnels were successfully taken during 2015 and transported to North America for future testing purposes. The underground workings at both orebodies have now been placed on care and maintenance as necessary samples have been obtained at this time.

#### **5.4.1.5.5 Drilling**

The exploration and drilling history of Tenke Fungurume deposits began in 1919. Union Minière du Haut Katanga explored the surface and drilled exploration core holes between 1919-1921, 1942-1951 and 1958-1968. Gécamines conducted exploration and drilling 1968-70 and 1981-1991. Société Minière de Tenke Fungurume carried out exploration and core drilling from 1971-1976. TFM carried out additional core drilling in 1997. Reverse circulation drilling was used locally to drill through unmineralized waste.

Exploration drilling in 2016 continued the focus on finding additional high-grade oxide resources and the investigation of deeper mixed and sulphide mineralization including drilling across the full width of the Dipeta syncline. A total of 23,097 m of diamond drilling was completed during 2016.

#### **5.4.1.5.6 Sampling, Analysis and Data Verification**

Industry standard exploration drill core splitting, sampling, quality control sample insertion and density measurement protocols have been followed by FMC and subsequently by Freeport. Regular independent audits to review sampling activities with respect to quality assurance, quality control and sample security are completed. In addition to drill core and drill cutting sampling, open-pit grade control sampling is carried out using a trench cutting tool.

Samples are prepared on-site and analyzed at the mine's assay laboratory facility. Strict quality assurance/quality control protocols are in place including placement and assaying of duplicates, blanks and check samples. A computerized Laboratory Information Management System is used to manage data.

Data verification, sample security and QA/QC procedures that conform to industry standards are in place. All drill cores are logged and photographed and the cores and sampling splits are stored on-site. These and other traceability records prevent errors of identification and ensure sample history can be followed.

#### **5.4.1.5.7 Mineral Processing and Metallurgical Testing**

Metallurgical extraction of copper from oxide-type minerals has been commercially practiced for many decades. Unit operations required for the process are technically proven and many examples of similar type units currently operating can be found. The Tenke flowsheet includes atmospheric leaching of ground ore followed by solvent extraction and electrowinning for copper recovery. Flowsheet development has focused on optimizing the copper recovery unit operations in conjunction with identifying and optimizing cobalt purification and refining steps. Current investigation work includes front-end debottlenecking and trial heap leach options to take advantage of excess SX/EW tank house capacity in the plant. Other metallurgical testwork has continued to evaluate alternative options for the oxide ores, particularly those of lower grade or high acid consumption, and to develop potential treatment solutions for the deeper mixed and sulphide



ores. The completion of the second acid plant, expected in the first half of 2016, is expected to allow further evaluation of debottlenecking and alternative processing options.

Ore characterization and metallurgical testing of a large number of master composite samples has been undertaken on mixed and sulphide ores from the different orebodies. These composites have been subject to grinding, flotation testwork and followed by variability testwork on the preferred circuit configuration. Concentrates from the flotation testwork are being subject to further work with both batch kiln and fluid bed testing. Testwork on the mixed and sulphide ores has been accelerated to further define designs and flow sheets for the next phases of expansion at Tenke Fungurume

#### **5.4.1.5.8 Mineral Resource and Mineral Reserve Estimates**

Mineral Resources at Tenke Fungurume have been estimated with 16 deposit models within the concessions: Kwatebala, Tenke, Fwaulu, Mwandinkomba, Kansalawile, Fungurume, Fungurume VI/VI Extension, Katuto (L3K), Shinkusu, Kazinyanga, Mambilima, Pumpi, Zikule, Mudilandima, Shadirandzoro and the Dipeta Syncline, using three dimensional geological modelling methods with MineSight® software. Grade estimation has been carried out using specially developed Local Anisotropy Kriging and the MineSight Dynamic Unfolding techniques to account for the narrow and structurally complex nature of the orebodies.

With the exception of the Dipeta Syncline, the open-pit designs were optimized for all of the deposits listed above using Minesight® software. In each case, a Lerch Grossman algorithm was used to maximize the gross value of the pit. Pits were designed with variable slope angles dependent on rock type, depth and local lithological dip based on experience gained in mining and recommendations of consultants. Input parameters to the open-pit optimizations were updated in 2015 and include revisions to the mine operating costs, cobalt recovery factors and the gangue acid consumption estimations.

Dilution is potentially a significant issue as mineralized zones are long, typically narrow (6 m to 15 m wide), faulted and folded, and contacts are relatively sharp. To address this issue, the Mineral Resource and Mineral Reserve estimation models have block dimensions of 5 m by 2.5 m by 2.5 m. For mine planning purposes, Mineral Resource grades are reduced by 5% to account for anticipated grade dilution during operations.

Details of the December 2015 Mineral Resource and Mineral Reserve estimates for Tenke Fungurume are provided in Schedule A, attached to this AIF.

#### **5.4.1.5.9 Mining Operations**

Tenke Fungurume mines copper-cobalt oxide ores by open-pit mining techniques. Drill and blast is employed in the both the ore and waste rock. Conventional loaders and trucks transport the ore to the crusher or stockpiles and the waste to dumps. Larger mining equipment is currently being introduced to enable increased mining rates. In 2016, production was sourced largely from the Fwaulu, Tenke, Fungurume and Mwandinkomba orebodies. The other orebodies are scheduled to be mined in a number of phases over time.

#### **5.4.1.5.10 Processing and Recovery Operations**

The latest proven process technology is being used to extract copper and cobalt. Copper is extracted using standard SAG milling, sulphuric acid leach, SX-EW to produce copper cathode. Iron, manganese and aluminium are removed from a low grade residue stream from the tankhouse and a cobalt rich solution is recovered which is purified before the cobalt hydroxide product is precipitated out. Copper is marketed with guidance from Freeport's global copper marketing program. Cobalt is sold as cobalt hydroxide under contract and on the spot market, including to Freeport Cobalt.

Nominal daily mill feed of oxide ore has increased from the original design of 8,000 tpd to 11,000 tpd to 14,500 tpd following several phases of plant debottlenecking and the completion of a phase 2 expansion.

The phase 2 expansion of Tenke Fungurume was completed in 2014 increasing annual copper production by 50% to a nameplate of 195,000 tonnes copper cathode and 15,000 tonnes cobalt hydroxide. The expansion included additional mining equipment, mill upgrades, acid plant expansion and a doubling of the existing tank house capacity. A second sulphuric acid plant was commissioned in early 2016.

#### **5.4.1.5.11 Infrastructure, Permitting and Compliance Activities**

The main highway, railroad and power line connecting Kolwezi and Likasi with Lubumbashi pass through the concessions. Scheduled air services are available between Lubumbashi and the capital Kinshasa, as well as from Johannesburg, South Africa and Zambia. An airstrip constructed on the concession can accommodate medium sized aircraft. The copper and cobalt product and bulk mine consumables are primarily transported by truck between Tenke Fungurume and ports in South Africa via a transport hub located at Ndola in Zambia.

The TSF is located to the north west of the process plant site. The entire impoundment area is lined with a high density polyethylene liner. The current location and configuration will provide containments sufficient for the full known reserves. Further expansions of the existing TSF are planned by raising and extending the dam walls and advancing the placement basis to the north of the current footprint. Conceptual location studies over the concession area have also been carried out to identify future tailings sites to meet potentially expanded production scenarios.

Electrical power is provided from the national grid. The power supply to the plant site is provided via a high voltage overhead line from the Fungurume substation to the switchyard at the plant site. The Fungurume substation has been upgraded to provide a reliable power supply to TFM. SNEL is the state owned electric utility company serving the region. TFM has signed a long term contract with SNEL for supply of electricity from SNEL's Nseke hydro-electric power station located west of the Tenke Fungurume concessions towards Kolwezi. The total power committed to TFM under the long-term contract with SNEL is in excess of 200 MW. Current TFM operations utilize approximately 100 MW. The second acid plant, completed in 2016, produces 10 to 15 MW of by-product power from steam turbines for use in operations.

Under a separate contract, TFM has lent to SNEL the funds required to recondition the Nseke hydro-electric power station and increase generating capacity from three to four 65 megawatt units, as well as to construct new local transmission lines to service the mine and neighbouring communities. The initial phase of reconditioning the power station and construction of power lines was completed during the second quarter of 2009. Three generating unit refurbishments have been completed, with the remaining unit to be refurbished with full completion expected in 2017. In 2014, TFM took over responsibility from SNEL for the oversight and project management of this project.

There have been ongoing issues with power supply interruptions that occasionally limits production capability of the processing facility. Foreign investments in new and refurbishment of power generation and associated infrastructure in the southeast region of the DRC have increased in recent years and this trend is expected to continue. The southeast region of the DRC also draws power from neighbouring Zambia.

Water supply is available within a reasonable distance of the mine site and plant. Appropriately spaced wells sustain the mining and plant processes, with standby capacity. Additional process water requirements come from a combination of water from the TSF supernatant return water and potentially impacted run-off stormwater collected from the waste rock stockpiles and plant site. Potable water is supplied to, and reticulated throughout, the permanent village located north of Fungurume.

The Tenke Fungurume Mine has been developed in accordance with Equator Principles, Voluntary Principles of Security and Human Rights, applicable World Bank/IFC standards and the Extractive Industries Transparency Initiative. Development and operation are subject to a number of DRC laws, regulations and standards dealing with the protection of public health, public safety and the environment. Permits and authorizations are in place for construction and operation.

Key environmental issues addressed by the project include mitigation of damage to sensitive indigenous flora unique to highly mineralized areas of the DRC copper belt, design of the project to zero discharge

objectives, and adoption of fully plastic-lined process water and tailings storage impoundments. As this is the first commercial development of mining on the concessions, there are no known existing environmental liabilities.

Key social investments addressed during project development include extensive community consultation and stimulation of both direct and indirect employment – during the initial phase of construction, employment peaked at more than 8,000 DRC nationals. As of December 2016, TFM employed approximately 3,400 full time personnel and 3,700 contractors. Economic impact assessments commissioned by TFM in recent years, indicate that TFM directly and indirectly accounts for approximately 5 percent of all formal employment in the DRC's private sector.

Other social investments include medical, fresh water supply, education, agricultural and regional infrastructure investments in power, roads and border crossings.

#### **5.4.1.5.12 Capital and Operating Costs**

Given the agreement to sell Lundin Mining's indirect interest in Tenke Fungurume, thereby classifying the asset under IFRS as an asset held for sale/discontinued operation, annual guidance has not been included.

#### **5.4.1.5.13 Exploration, Development and Production**

In 2016, Tenke Fungurume produced approximately 216,000 tonnes of cathode copper and 16,000 tonnes of cobalt in cobalt hydroxide (100% basis).

Given the agreement to sell Lundin Mining's indirect interest in Tenke Fungurume, thereby classifying the asset under IFRS as an asset held for sale/discontinued operation, annual guidance has not been included.

### **5.4.2 OTHER PROPERTIES**

#### **5.4.2.1 AGUABLANCA MINE**

The Aguablanca mine is a single open-pit and underground mine located approximately 100 km north of Seville in the Extremadura region of southern Spain. The mine lies approximately 30 km south of the town of Monesterio.

In late July 2015, Aguablanca was formally notified that Spanish environmental authorities would require a full environmental evaluation of the transition from open pit to underground mining. The mine submitted an environmental impact assessment documentation and the authorities required the suspension of underground production activities pending the receipt of approval to proceed. The process plant completed milling of stockpiled ore in October 2015.

In January 2016, it was announced that, considering expected prices for nickel and copper, the capital investment required and the limited remaining mine life, it is expected that the Company would incur significant financial losses. As such, the mine would be permanently closed.

During the fourth quarter of 2016, the Company divested of the Aguablanca Mine in Spain through the transfer of all the shares of RNR to Valoriza Minería, a subsidiary of Grupo Sacyr. The assets of RNR included the Aguablanca mine and other exploration licenses. Prior to the divestiture, the Company transferred approximately €30 million to RNR to fund all environmental, employee and other liabilities at the time of closing.

#### **5.4.2.2 FREEPORT COBALT**

During 2013, Lundin Mining acquired, in partnership with Freeport, a large scale cobalt chemical refinery located in Kokkola, Finland and the related sales and marketing business. The acquisition provided direct end-market access for the cobalt hydroxide production from the Tenke Fungurume among other advantages. Lundin Mining holds an effective 24% ownership interest, with Freeport holding an effective

56% ownership interest and acting as operator and Gécamines holding a 20% interest. Initial consideration of \$348 million, net of cash acquired, was paid at closing. Lundin Mining's share of the investment is based on a 30/70% split with Freeport and will be repaid in full prior to any distributions. Under the terms of the agreement, there was the potential for additional consideration of up to \$110 million payable over a period of three years from the acquisition date, contingent upon the achievement of revenue-based performance targets, which period expired in 2016 with no payments for additional consideration having been required.

Subsequent to the acquisition, the operations were re-branded Freeport Cobalt.

The refinery located on the Baltic Sea in Finland processes unrefined cobalt and related metals and manufactures advanced inorganic products for use in a variety of applications in fast-growing end use markets. Freeport Cobalt is one of the world's largest suppliers of cobalt chemicals and powders for use in batteries, pigments, chemicals, catalysts and ceramics and powder metallurgy.

The Kokkola refinery has been in operation since 1968. It has an experienced management team, approximately 400 employees, and a global sales and marketing footprint that services approximately 500 customers in over 50 countries in Asia, Europe and the Americas.

### **5.4.3 MINE CLOSURES**

The Galmoy Mine in County Kilkenny, Ireland was acquired by Lundin Mining in 2005. Mining was completed in October 2012. The Company implemented an approved MCP including the dismantling and sale of the mill, sealing and capping the mine entrances and rehabilitation of the tailings management facility. Closure activities were completed in 2015 and the site transitioned into the aftercare phase during which the main activity will be routine environmental monitoring. On March 22, 2017, all of the issued and outstanding shares of Galmoy Mines Limited, the owner of Galmoy Mine, were sold to an affiliate of the Lanes Group plc, who has in turn assumed all of the assets and liabilities of Galmoy.

Lundin Mining acquired the closed Vueltas del Rio gold mine in Honduras as part of the acquisition of Rio Narcea Gold Mines, Ltd. (Canada) in 2007. The Company undertook site reclamation under an approved MCP, including a three-year aftercare monitoring program that will be completed in mid-2017. The Company is now working with authorities and local communities to wind down its activities related to Vueltas del Rio.

Production ceased in 2008 at the Storliden zinc-copper mine in northern Sweden. A rehabilitation program was substantially completed in accordance with the approved MCP, with some limited remediation work left to be undertaken in 2017. The site is now subject to a long-term monitoring program.

The Company has been working with local government authorities to define an environmental remediation program for a legacy processing and tailing site at Ammeberg near the Zinkgruvan operation, where mining and processing operations date from 1857. The area was partially rehabilitated during the 1980s and is currently used as a golf course and marina facility. A risk assessment was carried out according to Swedish requirements and submitted to authorities in 2013 following the identification of locally elevated metal concentrations near the old mill site. Additional site characterization and human health and environmental risk assessment studies are planned in 2017, which are expected to lead to a final remediation plan under agreement with the local authority in due course.

## **ITEM 6 RISKS AND UNCERTAINTIES**

The Company's business activities are subject to risks, including those described below. Every investor or potential investor in the Company's securities should carefully consider these risks. Any of the following risks could have an adverse effect on the Company, its business and prospects, and could cause actual events to differ materially from those described in the forward-looking statements relating to the Company. Additional risks related to the Company's material properties are discussed in the Technical Reports filed by the Company from time to time under the Company's profile on SEDAR at [www.sedar.com](http://www.sedar.com). In addition, other risks and uncertainties not presently known by management of the Company or that management currently believes are immaterial could affect the Company, its business and prospects.

The following section discusses various risks to which the Company is exposed. These risks are listed under three main categories: *Strategic/External Risks* related to the external environment in which the Company operates and/or the Company's business strategies; *Financial Risks* related to economic, market, and financial counterparty conditions, among other; and *Operational Risks* including all people, process and system aspects of operations management.

## **6.1 STRATEGIC/EXTERNAL RISKS**

### **6.1.1 Country Risk**

The Company has a significant investment in mining operations located in the DRC. In November, 2016, the Company entered into an agreement to sell its interests in the DRC which is scheduled to close in 2017. Notwithstanding such pending sale, the carrying value of this investment may be adversely affected by political instability and legal and economic uncertainty. Such risk of political instability increased with the disputed postponement of the planned 2015 presidential elections to 2018, by the incumbent president.

The risks by which the Company's interest in the DRC and in other developing nations may be adversely affected include, but are not limited to: political unrest; labour disputes; invalidation of governmental orders, permits, agreements or property rights; risk of corruption including violations under applicable anti-corruption laws; military repression; war; rebel group and civil disturbances; criminal and terrorist actions; changes in laws, regulations, policies, taxation, price controls and exchange controls; delays in obtaining or the inability to obtain necessary permits; opposition to mining from environmental or other non-governmental organizations; limitations on foreign ownership; limitations on the repatriation of earnings; limitations on mineral exports; and high rates of inflation and increased financing costs. These risks may limit or disrupt the Company's operations and projects, restrict the movement of funds or result in the deprivation of contractual rights or the taking of property by nationalization, expropriation or other means without fair compensation.

There can be no assurance that industries which are deemed of national or strategic importance in countries in which the Company has operations or assets, including mineral exploration, production and development, will not require mandatory government participation or be nationalized. The risk exists that further government limitations, restrictions or requirements, not presently foreseen, will be implemented. Changes in policy that alter laws regulating the mining industry could have an adverse effect on the Company. There can be no assurance that the Company's assets will not be subject to nationalization, requisition or confiscation, whether legitimate or not, or undue taxation by an authority or body.

Political instability or civil unrest in target jurisdictions for exploration and business development may also curtail the Company's growth efforts.

In addition, in the event of a dispute arising from foreign operations, the Company may be subject to the exclusive jurisdiction of foreign courts or may not be successful in subjecting foreign persons to the jurisdiction of courts in Canada.

It is not possible for the Company to accurately predict such developments or changes in laws or policy or to what extent any such developments or changes may have an adverse effect on the Company, including, but not limited to, its operations.

### **6.1.2 External Stakeholder Relations**

The Company places great importance on establishing and maintaining positive relationships with its stakeholders, including the communities in which the Company operates, local indigenous groups, regulators and other stakeholders. There is an increasing level of public concern relating to the perceived effect of mining activities on certain environmental and social aspects such as water consumption and water quality, land use, noise and vibration, dust, mine closure, and employment and economic development opportunities. Opposition to mining activities by communities or indigenous groups may ultimately affect permitting, operations, and the Company's reputation. Publicity adverse to the Company's operations, partners, or extractive industries generally, could have an adverse effect on the Company and may affect its ability to operate. The Company maintains active dialogue with stakeholder groups and regularly reviews



stakeholder engagement plans. In addition, the Company undertakes various initiatives involving or for the benefit of stakeholder groups in accordance with its sustainable mining strategies. While the Company is committed to operating in a socially responsible manner, there can be no assurance that its efforts, in this respect, will mitigate this potential risk.

### **6.1.3 Regulatory Environment**

The Company has operations in Chile, the United States, Portugal, and Sweden and exploration and inactive mine properties in various countries. These operations are subject to various political, economic and social uncertainties, and local laws and regulations. The implementation of new, or the modification of, existing laws and regulations affecting the mining and metals industry could have an adverse impact on the Company.

The Company's mining and exploration activities require a number of licenses, permits and approvals from various governmental authorities. The Company is presently complying in all material respects with necessary licenses and permits under applicable laws and regulations to conduct its current operations. However, licenses and permits are subject to change in various circumstances, and permits and approvals may require renewal from time to time, and new permits may need to be obtained in the future.

The Company was successful in 2016 in obtaining major construction and other sectoral permits for a new TSF at Candelaria in Chile. There are additional permitting requirements to complete the new facility and there is no assurance that all of these requirements can be satisfied in a timely manner. The Company has prepared or has submitted permit applications in respect of further mine extensions and an extension of the tailing pipeline and the mine workings at Candelaria, and is progressing with permitting activities related to eventual development of the Eagle East resource at the Eagle Mine. In November 2016, Somincor submitted to Portuguese authorities an EIA in connection with its potential ZEP. There is no certainty that approvals will be received in a timely manner or at all. The granting, renewal and continued effectiveness of permits and approvals are subject to discretion by the applicable regulatory authority. Certain governmental approval and permitting processes are subject to public comment and can be challenged by project opponents, which may result in significant delays or in approvals being withheld or withdrawn. There can be no assurance that the Company will be able to obtain or maintain all necessary licenses and permits as are required to explore and develop its properties, commence construction or operate mining facilities. Any of these factors could have an adverse effect on the Company, including, but not limited to its results of operations and financial position.

Non-compliance with applicable laws, regulations and permitting requirements (including allegations of such) may result in enforcement actions, including orders issued by regulatory or judicial authorities causing operations to cease or be curtailed or causing the withdrawal of mining licenses, and the imposition of corrective measures requiring material capital expenditure or remedial action resulting in materially increased cost of compliance, reputational damage and potentially impaired ability to secure future approvals and permits. The Company may be required to compensate third parties for loss or damage and may have civil or criminal fines or penalties imposed for violations of applicable laws or regulations.

### **6.1.4 Business Arrangements**

The Company has business arrangements involving partners for various investments such as Candelaria, Tenke Fungurume and Freeport Cobalt. There may be risks associated with the Company's partners in these arrangements which include, but are not limited to: disagreement on how to develop, operate or finance projects; differences between partners in economic or business goals; lack of compliance with agreements and laws; insolvency of a partner; limits placed on the Company's ability to control decision-making and possible limitations on its ability to sell its interest in a particular project. In November 2016, the Company entered into an agreement to sell its indirect minority interest in Tenke, which is expected to close in 2017. Though a legal agreement is in place, there is no certainty that the sale of the Company's interest in Tenke will be completed as planned.

### **6.1.5 Acquisition and Integration**

The strategic acquisition of a mining company, property or asset may change the scale of the Company's business and operation, exposing the Company to new geographic, political, legal, regulatory, operational

and financial risks. The Company's assessment and valuation of an acquisition target may be based on estimates or assumptions that ultimately prove to be incorrect. The Company may discover it has acquired a substantial undisclosed liability with little recourse against the seller. Such liabilities could have an adverse impact on the Company's business, financial condition, results of operations and cash flows. Integration efforts may cause an interruption of, or a slowdown in, the activities of the Company's business. The Company may not succeed in identifying suitable acquisition candidates, completing effective due diligence activities, negotiating acceptable terms, and integrating the acquired operations into the Company. There can be no assurance that investments made will yield expected returns. A capital-intensive acquisition may also materially weaken the Company's balance sheet.

#### **6.1.6 Competition**

There is competition within the mining industry for the discovery and acquisition of properties considered to have commercial potential. The Company competes with other mining companies, many of which have greater financial resources than the Company, for the acquisition of mineral claims, leases and other mineral interests as well as for the recruitment and retention of qualified employees and other personnel.

#### **6.1.7 Mine Development Risks**

The Company's ability to maintain, or increase, its annual production of copper, nickel, zinc and other metals is dependent, in significant part, on its ability to bring new mines into production and to expand existing mines. Although the Company utilizes the operating history of its existing mines to derive estimates of future operating costs and capital requirements, such estimates may differ materially from actual operating results. The economic feasibility analysis with respect to any individual project is based upon, among other things, the interpretation of geological data obtained from drill holes and other sampling techniques, feasibility studies (which derive estimates of cash operating costs based upon anticipated tonnage and grades of ore to be mined and processed), and base metals price assumptions, the configuration of the orebody, expected recovery rates of metals from the ore, comparable facility and equipment costs, anticipated climatic conditions, estimates of labour, productivity, royalty or other ownership requirements and other factors. Development projects are also subject to issuance of necessary permits and other governmental approvals, sourcing suitable power and water requirements, confirming the availability of appropriate local area infrastructure, receipt of adequate financing and addressing local stakeholder concerns.

The capital expenditures and timeline needed to develop a new mine or expansion are considerable and the economics of and the ability to complete a project can be affected by many factors, including; inability to complete construction and related infrastructure in a timely manner; changes in the legal and regulatory environment; currency fluctuations; industrial disputes, availability of parts, machinery or operators; delays in the delivery of major process plant equipment; inability to obtain, renew or maintain the necessary permits, licenses or approvals; unforeseen natural events and political and other factors. Factors such as changes to technical specifications, failure to enter into agreements with contractors or suppliers in a timely manner, and shortage of capital may also delay the completion of construction or commencement of production or require the expenditure of additional funds. The actual operating results of development projects may differ materially from those anticipated, and uncertainties related to operations are even greater in the case of development projects. There can be no assurance that development projects will be able to be developed successfully or economically or that they will not be subject to the other risks described in this section.

#### **6.1.8 Resource Allocation**

Exploration, acquisition, development and operation activities require significant investment of resources and capital. The Company allocates such resources and capital to support business objectives, and the availability of required resources and capital is subject to market conditions and the Company's financial position. There can be no assurance that the Company will not be forced to curtail investments in the growth of the Company, due to changing economic conditions, geo-political events or other factors, and this may impact the Company's future profitability. The Company may not have sufficient personnel with required expertise to successfully deliver on all business objectives, and this may also impact the Company's results.



### **6.1.9 Litigation**

The Company is subject to litigation from time to time and may be involved in disputes with other parties in the future, which may result in litigation. Claims to-date have not resulted in adverse consequences however the Company cannot accurately predict the outcome of any litigation. If the Company cannot resolve disputes favourably, the Company's activities, financial condition, results of operations, future prospects, share price and reputation may be adversely affected.

### **6.1.10 Uninsurable Risks**

Exploration, development and production operations on mineral properties involve numerous risks, including unexpected or unusual geological operating conditions, work force health issues, contaminations, labour disputes, changes in regulatory environment, rock bursts, cave-ins, fires, floods, droughts, earthquakes, severe weather events and other natural phenomena, as well as political and social instability. Certain risks may not currently be insurable or may become uninsurable, or required insurance will not be sufficient or available at affordable premiums. The Company may decide not to insure against certain risks as the potential loss associated with risk events is deemed acceptable or as the costs of insurance are deemed excessive for the protection provided. The Company does not maintain insurance against political risks.

## **6.2 FINANCIAL RISKS**

### **6.2.1 Commodity Prices**

Commodity prices, primarily copper, nickel, and zinc are key performance drivers and fluctuations in the prices of these commodities can have a dramatic effect on the results of operations. Prices can fluctuate widely and are affected by numerous factors beyond the Company's control. The prices of metals are influenced by supply and demand, exchange rates, interest rates and interest rate expectations, inflation or deflation and expectations with respect to inflation or deflation, speculative activities, changes in global economies, and geo-political, social and other factors. The supply of metals consists of a combination of new mine production, recycling and existing stocks held by governments, producers and consumers.

If the market prices for metals fall below the Company's full production costs and remain at such levels for any sustained period of time, the Company may experience losses and may decide to discontinue mining operations or development of a project at one or more of its properties. If the prices drop significantly, the economic prospects of the mines and projects in which the Company has an interest could be significantly reduced or rendered uneconomic. Low metal prices will affect the Company's liquidity, and if they persist for an extended period of time, the Company may have to look for other sources of cash flow to maintain liquidity until metal prices recover. A sustained and material impact on the Company's liquidity may also impact the Company's ability to comply with financial covenants under its credit facilities. The Company does not currently hedge metal prices. Any hedging activity requires approval of the Company's Board of Directors. The Company will not hold or issue derivative instruments for speculation or trading purposes.

### **6.2.2 Asset Valuation**

The Company annually undertakes a detailed review of the LOM plans for its operating properties and an evaluation of the Company's portfolio of development projects, exploration projects and other assets. The recoverability of the Company's carrying values of these operating and development properties may be affected by a number of factors including, but not limited to, metal prices, foreign exchange rates, capital cost estimates, mining, processing and other operating costs, metallurgical characteristics of ore, mine design and timing of production. In the event of a prolonged period of depressed prices, the Company may be required to take a material impairment, writing down the carrying value of certain of its operating and/or development properties.

### **6.2.3 Liquidity and Financing**

The Company does not have unlimited financial resources and there is no assurance that sufficient additional funding or financing will be available to the Company or its direct and indirect subsidiaries on

acceptable terms, or at all, for further exploration or development of its properties or to fulfill its obligations under any applicable agreements. Lundin Mining is a multinational company and relies on financial institutions worldwide to fund its corporate and project needs. Instability of large financial institutions may impact the ability of the Company to obtain equity or debt financing in the future and, if obtained, on terms favourable to the Company. Disruptions in the capital and credit markets as a result of uncertainty, geo-political events, changing or increased regulation of financial institutions, reduced alternatives or failures of significant financial institutions could adversely affect the Company's access to the liquidity needed for the business in the longer term. Failure to obtain such additional funding could result in the delay or indefinite postponement of the exploration and development of the Company's properties.

The Company may incur substantial debt from time to time to finance working capital, capital expenditures, investments or acquisitions or for other purposes. If the Company does so, the risks related to the Company's indebtedness could intensify, including: (i) increased difficulty in satisfying existing debt obligations; (ii) limitations on the ability to obtain additional financing, or imposed requirements to make non-strategic divestitures; (iii) imposed hedging requirements, (iv) imposed restrictions on the Company's cash flows, for debt repayment; (v) increased vulnerability to general adverse economic and industry conditions; (vi) interest rate risk exposure as borrowings may be at variable rates of interest; (vii) decreased flexibility in planning for and reacting to changes in the industry in which it competes; (viii) reduced competitiveness as compared to less leveraged competitors; and (ix) increased cost of borrowing.

In addition, the Company's existing credit facilities and other agreements may contain restrictive covenants that limit the Company's ability to engage in activities that may be in the Company's long-term best interest. The Company's failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of repayment of the Company's debt. The Company's ability to make scheduled payments on or refinance its debt obligations, depends on the Company's financial condition and operating performance, which are subject to prevailing economic and competitive conditions and to various external and other risks as outlined elsewhere in this "Risks and Uncertainties" section.

#### **6.2.4 Foreign Currencies**

The Company's revenue from operations is received in US dollars while a significant portion of its operating expenses are incurred in CLP, EUR, SEK, and other currencies. Accordingly, foreign currency fluctuations may adversely affect the Company's financial position and operating results. The Company regularly reviews its exposure to currency price volatility as part of its financial risk management efforts. Hedging activities approved by the Board may be undertaken, from time to time, to mitigate the potential impact of currency price volatility.

#### **6.2.5 Interest Rates**

The Company holds various financial assets, the value of which may be impacted by changes in interest rates. Interest rates may also affect the Company's credit arrangements over time. The Company does not currently hedge interest rate exposure. Any hedging activity requires approval of the Company's Board of Directors. The Company will not hold or issue derivative instruments for speculation or trading purposes.

#### **6.2.6 Equity Markets**

The Company's share price may be significantly affected by factors unrelated to the Company's performance. Macro-economic, geo-political, and industry-related events, among others, may affect investor sentiment and have an impact on the price of the Company's common shares. The market price of the Company's common shares may not accurately reflect its long-term value.

#### **6.2.7 Taxation**

The Company's operations are subject to local tax regimes which may be complex and subject to changes. Future adverse effects on the Company's financial performance may result from changes in tax regulations. Any change in taxation law or review and assessment thereof could result in higher taxes being payable by the Company. The Company may also be the object of a tax audit by regulators, and such audit may result in an adverse tax ruling. Repatriation of earnings to Canada from other countries may be constrained or

subject to withholding taxes. The Company has no control over changes in tax laws or regulations and withholding tax rates.

### **6.2.8 Counterparties**

The Company is subject to credit risk associated with trade receivables. The Company manages this risk through evaluation and monitoring of industry and economic conditions and assessment of customers' financial reports. The Company transacts with credit-worthy customers to minimize credit risk and if necessary, employs pre-payment arrangements and the use of letters of credit, where appropriate, but cannot always be assured of the solvency of its customers over time.

The Company's access to funds under its credit facilities or other debt arrangements is dependent on the ability of the financial institutions that are counterparties to the facilities to meet their funding commitments. Those financial institutions may not be able to meet their funding requirements. Default by financial institutions could require the Company to take measures to conserve cash until the markets stabilize or until alternative credit or other funding arrangements for the Company's business needs can be obtained.

The Company maintains relationships with various banking partners for its operating activities in the jurisdictions in which the Company operates. One or more partners may experience a deteriorating financial condition ultimately resulting in their failure or default. The Company regularly monitors the financial position of its key partners.

## **6.3 OPERATIONAL RISKS**

### **6.3.1 Health and Safety**

Exploration and mining activities represent inherent safety hazards, and maintaining the health and safety of the Company's employees and contractors is of paramount importance to the Company. Health and safety risk assessments are carried out regularly throughout the lifecycle of the Company's activities, and robust policies, procedures and controls are in place. Notwithstanding continued efforts to adhere to the Company's "zero harm" policy, safety incidents may still occur. Significant potential risks include, but are not limited to, surface or underground fires, rock falls underground, blasting accidents, vehicle accidents, contact with power sources, and exposure to infectious disease. Employees involved in exploration activities in remote areas may also be exposed to attacks by individuals or animals or violent opposition by local communities that may place the employees at risk of harm. Any incident resulting in serious injury or death could result in litigation and/or regulatory action (including, but not limited to suspension of operations and/or fines and penalties), or otherwise adversely affect the Company's ability to meet its objectives.

### **6.3.2 Environment**

All phases of mining and exploration operations are subject to extensive environmental regulation. These regulations mandate, among other things, the preparation of environmental assessments before commencing certain operations, the maintenance of air and water quality standards, and land reclamation. They also set forth limitations on the generation, transportation, storage and disposal of solid and hazardous waste. The transportation of the Company's concentrates may also be affected by environmental amendments to international maritime laws that may impose restrictions on products shipped by vessel. Some laws and regulations may impose penalties for environmental contamination, which could subject the Company to liability for the conduct of others or for its own actions that were in compliance with all applicable laws at the time such actions were taken. Environmental legislation is evolving in a manner that will result in stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects and MCPs, and a heightened degree of responsibility for companies and their officers, directors and employees. Any future changes in environmental regulation could adversely affect the Company's ability to conduct its operations.

In addition, environmental conditions may exist on the Company's properties that are unknown and/or have been caused by previous or existing owners or operators of such properties, but the remediation of which may be the Company's responsibility. Some of the Company's properties may also have been used for mining and related operations for many years before they were acquired and were acquired as is or with

assumed legacy environmental liabilities from previous owners or operators. The Company may need to address contamination at its properties in the future, either for existing environmental conditions or for leaks or discharges that may arise from ongoing operations or other contingencies. Contamination from hazardous substances at properties for which the Company is responsible, may subject it to material liability for the investigation or remediation of contamination, as well as for claims seeking to recover for related property damage, personal injury or damage to natural resources.

### **6.3.3 Infrastructure**

Mining, processing, development and exploration activities depend, to one degree or another, on adequate infrastructure. Reliable roads, bridges and power and water supplies are important determinants which affect capital and operating costs. Extreme weather damage, sabotage or government or other interference in the maintenance or provision of such infrastructure could adversely affect the activities and profitability of the Company.

### **6.3.4 Mining and Processing**

The Company's business operations are subject to risks and hazards inherent in the mining industry, including, but not limited to, unanticipated variations in grade and other geological problems, surface and ground water conditions, underground conditions, metallurgical, ore hardness and other processing problems, critical equipment or process failure, the lack of availability of input materials and equipment, disruption to water or power supply, ground subsidence, the occurrence of rock wall or ramp collapses, accidents, labour force disruptions, supply chain/logistics disruptions, force majeure factors, unanticipated transportation costs, and weather conditions, any of which can materially and adversely affect, among other things, the safety of personnel, the development of properties, production quantities and rates, costs and expenditures, production commencement dates, contractual obligations and financial covenants.

The Company's processing facilities are dependent upon continuous mine feed to remain in operation. Significant disruption in either mine feed or processing throughput, whether due to equipment failures, adverse weather conditions, supply interruptions, labour force disruptions or other causes, may have an immediate adverse effect on results of operations of the Company.

### **6.3.5 Staffing**

Attracting, motivating, and retaining highly skilled employees is essential to the success of the Company. There can be no assurance, however, that the Company will successfully retain current key personnel or attract additional qualified personnel to manage the Company's current or future needs.

### **6.3.6 Labour Relations**

A prolonged labour disruption by employees or suppliers at any of the Company's mining operations or distribution channels could have an adverse effect on the Company's ability to achieve its objectives with respect to such properties and its operations as a whole.

### **6.3.7 Price and Availability of Energy and Key Operating Supplies/Services**

The Company's mining operations and facilities are intensive users of electricity and carbon based fuels. Energy prices can be affected by numerous factors beyond the Company's control, including global and regional supply and demand, weather patterns, political and economic conditions and applicable regulatory regimes. The availability of energy and water may be negatively impacted due to a variety of reasons including, fluctuations in climate, severe weather conditions, inadequate infrastructure capacity, equipment failure or the ability to extend supply contracts on economical terms. A catastrophic failure of Candelaria's desalination plant would materially impair water supply to the operation which, until corrected, would result in partial or total suspension of the operations. The prices and various sources of energy the Company relies on may be negatively impacted and any such change could have an adverse effect on profitability.

Key operating supplies such as explosives, reagents, tires and spare parts are necessary for the ongoing operations of the Company's mines and mills. If these supplies become unavailable or their costs increase significantly, the profitability of the Company's operations would be negatively impacted.

Concentrate treatment and transportation costs are a significant component of costs. Increases in treatment costs, rates, or lack of available ocean vessels or rail cars may have an adverse impact on results of operations, cash flows and financial position.

### **6.3.8 Exploration**

Exploration of mineral properties involves significant risk. Very few properties that are explored are later developed into operating mines. Whether a mineral deposit will be commercially viable depends on a number of factors, including: the particular attributes of the deposit, such as size, grade and proximity to infrastructure; metal recoverability; metal prices, which are highly cyclical; and government regulation, including regulations relating to prices, taxes, royalties, land tenure, land use, importing and exporting of minerals and environment protection. In addition, political instability and/or community opposition to mining activities in certain jurisdictions may restrict the Company's ability to explore. The Company cannot provide assurance that its exploration efforts will result in any new commercial mining operations or yield new Mineral Resource and Mineral Reserve estimates.

### **6.3.9 Mineral Resource and Mineral Reserve Estimates**

The Company's reported Mineral Resources and Mineral Reserves are only estimates. No assurance can be given that the estimated Mineral Resources and Mineral Reserves will be recovered or that they will be recovered at the rates estimated. Mineral Resource and Mineral Reserve estimates are based on limited sampling, and, consequently, are uncertain because the samples may not be representative. Mineral Resource and Mineral Reserve estimates may require revision based on actual production experience. Market fluctuations in the price of metals, as well as increased production costs, reduced recovery rates or deteriorating ground conditions may render certain Mineral Reserves estimates uneconomic and may ultimately result in a restatement of estimated Mineral Resources and/or Mineral Reserves. Short-term operating factors relating to the estimated Mineral Resources and Mineral Reserves, such as the need for sequential development of ore bodies and the processing of new or different ore grades or types, may adversely affect the Company's profitability. Resequencing of mining activities may ultimately impair the LOM.

### **6.3.10 Natural Phenomena**

Certain Company operations are located in regions considered to be at high risk of severe natural phenomena such as earthquakes, windstorms, and severe precipitation. The Company regularly reviews its emergency response and crisis management plans. Infrastructure at high-risk locations has been constructed to meet construction standards designed for regions of high seismicity. Chilean operations, in particular, have been the subject of numerous studies to assess the robustness of various mine structures, including tailings management facilities and waste rock dumps. In addition to monitoring equipment in place to detect unusual movement, or presence of water, regular geotechnical reviews are carried out at all Company operations. There is no assurance that a significant natural event may not result in catastrophic losses having an adverse affect on the Company's, including, but not limited to its personnel and assets.

Severe drought conditions impacting the regions in which the Company operates may affect its access to adequate water to sustain operations in the normal course, may result in conflict with local communities, or may materially increase operating costs.

### **6.3.11 Fraud and Corruption**

As a matter of Company policy, the Company prohibits illegal payments of any kind, directly or indirectly. Employees are required to avoid all situations in which their personal interests conflict or might conflict with their duties to the Company or with the economic interest of the Company. Notwithstanding, there is no assurance of compliance or that the Company, its customers, suppliers or employees will not be the subject of allegations by third parties of fraud and corruption. Such allegations may result in material reputational



damage to the Company, may prompt investigations by regulators or result in litigation, may impact its standing with stakeholders and ultimately adversely impact the Company, including, but not limited to its share price.

### **6.3.12 Ethics and Business Practices**

The Company maintains and requires adherence to policies governing ethical business conduct and practices, including respect for human rights and the individual. All personnel are expected to promote a respectful and inclusive workplace environment irrespective of ethnic background, gender, age or experience. Nevertheless, there is no assurance of compliance and the Company may be subject to allegations of discriminatory practices, harassment, unethical behavior, or breach of human rights.

### **6.3.13 Security**

A number of the Company's operations are located within reasonable proximity of communities, and each operation maintains security controls to prevent illegal ingress onto its property. There is no assurance, however, that unauthorized access onto an exploration or mining concession will not occur. Such illegal ingress may result in injury to personnel or third parties and/or damage to property, as well as illegal mining and theft.

### **6.3.14 Cyber Security**

The Company and its operations rely heavily on various operating and financial systems and data. A breach of the Company's information or operational technology systems may result in disruption of business activities, loss of confidential or proprietary data, failure of internal controls over financial reporting, failure to meet obligations and reputational damage. Such a breach may also expose the Company to legal and regulatory action. Policies and procedures are maintained to ensure the security of its information technology systems, and data and system security controls are regularly tested and audited. The Company also relies on third-party service providers for the storage and processing of various data. These third parties are the subject of external audits and the Company annually reviews the reports of such audits. There can be no assurance, however, that the Company will not suffer a business disruption or loss or corruption of proprietary data, whether inadvertent or otherwise.

### **6.3.15 Mine Closure**

Closure activities typically include ground stabilization, infrastructure demolition and removal, topsoil replacement, regrading and revegetation. Mine closure may have significant impacts on local communities and site remediation activities may not be supported by local stakeholders. To mitigate this risk, the Company develops and regularly updates MCPs for all operations over the LOM, giving consideration to where post-mining land use may benefit local communities. In addition to immediate closure activities, closed mining operations may require long-term surveillance and monitoring.

MCPs are developed in accordance with the Company's corporate standards and to comply with local regulatory requirements. Future remediation costs for inactive mines are estimated at the end of each financial reporting period, including ongoing care, maintenance and monitoring costs. Actual costs realized in satisfaction of mine closure obligations may vary materially from management's estimates. From time to time, regulatory approval for amendments to MCPs and associated permits may be sought, and these could have a significant impact on mine closure costs.

As at December 31, 2016, the Company had \$41.3 million in cash in a number of reclamation funds that will be used to fund future site reclamation and mine closure costs at the Company's various mine sites. The Company will continue to contribute to these funds as required, based on an estimate of the future site reclamation and mine closure costs as detailed in the approved MCPs. Changes in environmental laws, regulations and standards can create uncertainty with regards to future reclamation costs and affect the funding requirements. There can be no assurance that the reclamation funds set aside will be sufficient to meet the needs of actual reclamation work in the future.

### **6.3.16 Waste Management**

The mining and milling processes generate waste rock and tailings and the disposal of these materials is regulated. The Company follows strict protocols for compliance with regulatory requirements and permits.

Waste rock dumps and tailings impoundments may be subject to ground movements or deteriorating ground conditions, or extraordinary weather events that may result in structure instability, or impoundment overflow, requiring that deposition activities be suspended. The TSF infrastructure, including pipelines, pumps, liners, etc. may fail or rupture. The occurrence of such an event may result in environmental release, extended business interruption, damage or harm to third parties, regulatory fines and penalties, revocation or suspension of permits or licenses, material impact to cash flows, balance sheet, share price and reputational damage.

Waste rock dump and tailings storage facilities are the object of continual monitoring, regular inspections and reviews, and various third party assessments.

### **6.3.17 Title**

Although the Company has investigated the right to explore and exploit its various properties and obtained records from government offices with respect to all of the mineral claims comprising its properties, there is no guarantee of title. Other parties may dispute the title to a property or the property may be subject to prior unregistered agreements and transfers or land claims by aboriginal, native, or indigenous peoples. The title to the Company's properties may be affected by undetected encumbrances or defects or governmental actions. The Company has not conducted surveys of all of its properties and the precise area and location of claims or the properties may be challenged. Title insurance is generally not available for mineral properties.

## **ITEM 7 DIVIDENDS AND DISTRIBUTIONS**

The Company has not paid dividends on its common shares in the last five years.

On November 30, 2016, the Company's Board approved a Dividend Policy. The Company's Dividend Policy anticipates paying four cash dividends per calendar year, the first declared with the release of year-end results; the second declared with the release of first quarter results; the third declared with the release of second quarter results; and the fourth declared with the release of the third quarter results. The declaration, timing, amount and payment of all dividends remain at the discretion of the Board.

On February 22, 2017, the Board approved a dividend of C\$0.03 cents per share with a record date of March 31, 2017 and a payment date of April 18, 2017. Holders of Swedish Depository Receipts will have a dividend payment date on or around April 25, 2017 and will receive payment in SEK.

Payment of any future dividends will be at the discretion of the Board after taking into account many factors, including the Company's operating results, financial condition and current and anticipated cash needs.

## **ITEM 8 DESCRIPTION OF CAPITAL STRUCTURE**

As at December 31, 2016, the authorized share capital of the Company consisted of an unlimited number of common shares without nominal or par value of which 725,134,187 common shares were issued and outstanding, and one special share without nominal or par value. The special share is not issued and outstanding at this time.

The holders of common shares are entitled to receive notice of and attend all meetings of shareholders with each common share entitling the holder to one vote on any resolution to be passed at such shareholder meetings. The holders of common shares are entitled to dividends if, as and when declared by the Board of Directors. The common shares are entitled, upon liquidation, dissolution or winding up of the Company, to receive the remaining assets of the Company available for distribution to shareholders.



## ITEM 9 RATINGS

The following table sets out the current ratings of the Company's corporate debt by the rating agencies:

<u>Standard &amp; Poor's</u>	<u>Moody's Investors Service</u>
BB-	Ba3

S&P's credit ratings are on a rating scale that ranges from AAA to D, which represents the range from highest to lowest quality. Ratings AAA to BBB- are considered investment grade, and BB+ to D are considered speculative grade. The ratings from AA to CCC may be modified by the addition of a plus (+) or minus (-) sign to show relative standing within the major rating categories. S&P's rating outlook assesses the potential direction of a long-term credit rating over the intermediate term (typically six months to two years). In determining a rating outlook, consideration is given to any changes in the economic and/or fundamental business conditions. When an event, unexpected change or criteria change occurs that is likely to cause a ratings change in the near term, S&P places the rating on CreditWatch, which replaces the outlook on that rating. CreditWatch highlights the potential direction of a short- or long-term rating. It focuses on identifiable events and short-term trends that may cause ratings to be placed under special surveillance by S&P. These may include mergers, recapitalizations, voter referendums, regulatory action, performance deterioration of securitized assets, or anticipated operating developments.

Moody's credit ratings are on a rating scale that ranges from Aaa to C, which represents the range from highest to lowest quality. Moody's appends numerical modifiers 1, 2 and 3 to each generic rating classification from Aa through Caa. The modifier 1 indicates that the obligation ranks in the higher end of its generic rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates a ranking in the lower end of that generic category.

Lundin Mining understands that the ratings are based on, among other things, information furnished to the above ratings agencies by Lundin Mining and information obtained by the ratings agencies from publicly available sources. The credit ratings given to Lundin Mining's corporate debt by the rating agencies are not recommendations to buy, hold or sell debt instruments since such ratings do not comment as to market price or suitability for a particular investor. There is no assurance that any rating will remain in effect for any given period of time or that any rating will not be revised or withdrawn entirely by a rating agency in the future if, in its judgment, circumstances so warrant. Credit ratings are intended to provide investors with (i) an independent measure of the credit quality of an issue of securities; (ii) an indication of the likelihood of repayment for an issue of securities; and (iii) an indication of the capacity and willingness of the issuer to meet its financial obligations in accordance with the terms of those securities. Credit ratings accorded to Lundin Mining's corporate debt may not reflect the potential impact of all risks on the value of debt instruments, including risks related to market or other factors discussed in this AIF. See also "Risk Factors".

## ITEM 10 MARKET FOR SECURITIES

### 10.1 Exchange Listings

The common shares of the Company are traded in Canada on the TSX under the symbol "LUN". In Sweden, the common shares are represented by Swedish Depository Receipts which trade on the OMX under the symbol "LUMI".

### 10.2 Trading Price and Volume

Lundin Mining's common shares are listed on the TSX under the symbol "LUN". In addition to trading on the TSX, the LUN common shares also trade on various alternative Canadian exchanges which cumulatively trade significant volume over the course of the year. The following table provides information as to the price ranges and volume traded by month in 2016.

Month	High (C\$)	Low (C\$)	Volume
January 2016	3.92	2.98	95,490,629
February 2016	4.01	2.98	112,359,519
March 2016	4.59	3.66	165,429,776
April 2016	4.96	3.70	127,973,842
May 2016	4.85	3.86	128,689,450
June 2016	4.57	4.08	91,664,562
July 2016	5.54	4.42	105,559,301
August 2016	5.79	4.95	85,432,430
September 2016	5.47	4.90	79,008,482
October 2016	5.43	4.97	76,030,763
November 2016	7.12	5.15	156,173,684
December 2016	7.15	6.30	128,064,296

## ITEM 11 DIRECTORS AND OFFICERS

### 11.1 Name, Address, Occupation and Security Holding of Directors and Officers

The Board of Directors currently comprises eight directors who are elected annually and whose term of office will expire at the Company's annual shareholders' meeting scheduled to be held on or about May 12, 2017. Each director holds office until the next annual meeting of shareholders or until his/her successor is duly elected unless his/her office is earlier vacated in accordance with the by-laws of the Company. The names, provinces and countries of residence of each of the directors and executive officers of the Company as at the date of this AIF, their respective positions and offices held with the Company, their principal occupations within the preceding five years and the number of securities of the Company owned by them as at the date of this AIF are set forth in the following table:

Name, residence and current position(s) held in the Company	Principal occupations for last five years	Served as director since	Number of securities beneficially owned, or controlled or directed
<b>Lukas H. Lundin</b> Vaud, Switzerland <i>Chairman and Director</i>	Chairman and Director of the Company since September 1994; chairman, president and/or director of a number of publicly traded resource-based companies.	September 9, 1994	2,271,449 common shares
<b>Paul K. Conibear</b> British Columbia, Canada <i>President, Chief Executive Officer and Director</i>	President and Chief Executive Officer of the Company since June 30, 2011; and Senior Vice President, Corporate Development of the Company from October 2009 to June 2011.	June 30, 2011	789,904 common shares

Name, residence and current position(s) held in the Company	Principal occupations for last five years	Served as director since	Number of securities beneficially owned, or controlled or directed
<b>Donald K. Charter</b> Ontario, Canada <i>Director</i>	A corporate director with experience in executive leadership positions in mining and financial services as well as mergers and acquisitions and finance since 2006. He was the President and Chief Executive Officer of Corsa Coal Corp. from August 2010 to July 2013. Currently a director of, IAMGold and Dream Real Estate Investment Trust and Sprott Resources Holdings Inc.	October 31, 2006	67,424 common shares
<b>John H. Craig</b> Ontario, Canada <i>Director</i>	Lawyer, partner of Cassels Brock & Blackwell LLP (“Cassels”) until December 31, 2016. Counsel to Cassels since January 1, 2016. Also a director of a number of publicly traded companies.	June 11, 2003	213,849 common shares
<b>Peter C. Jones</b> Alberta, Canada <i>Director</i>	Corporate director and retired executive with over 40 years of experience in the global mining industry. Mr. Jones served as Interim President and CEO of IAMGOLD Corporation, President and Chief Operating Officer of Inco Ltd., and President and Chief Executive Officer of Hudson Bay Mining & Smelting Co. Mr. Jones has been a director of public companies for over 20 years.	September 20, 2013	61,482 common shares
<b>Dale C. Peniuk</b> British Columbia, Canada <i>Director</i>	Chartered Professional Accountant (CPA, CA) and corporate director; formerly an assurance partner with KPMG LLP; director of a number of publicly traded companies.	October 31, 2006	50,000 common shares
<b>William A. Rand</b> British Columbia, Canada <i>(Lead) Director</i>	President and Director of Rand Investments Ltd. since July 1986; director of a number of publicly traded companies.	September 9, 1994	223,424 common shares
<b>Catherine J. G. Stefan</b> Ontario, Canada <i>Director</i>	Corporate director since October 2016. President, Stefan & Associates, a consulting firm, between 1990 and October 2016. Prior thereto, Managing Partner, Tivona Capital Corporation, a private investment firm, from 1999-2008; director of another public company for more than 10 years.	May 8, 2015	55,000 common shares

<b>Name, residence and current position(s) held in the Company</b>	<b>Principal occupations for last five years</b>	<b>Served as director since</b>	<b>Number of securities beneficially owned, or controlled or directed</b>
<b>Susan J. Boxall</b> Ontario, Canada <i>Vice President, Human Resources</i>	Vice President, Human Resources of the Company since August 2012; and Group Human Resources Director with De Beers from March 2010 to July 2012.	N/A	20,000 common shares
<b>Stephen T. Gatley</b> United Kingdom <i>Vice President, Technical Services</i>	Vice President, Technical Services of the Company since June 2012; and Director, Technical Services of the Company from January 2006 to May 2012.	N/A	55,000 common shares
<b>Nicholas J. Hayduk</b> Ontario, Canada <i>Senior Vice President, Chief Legal Officer and Corporate Secretary</i>	Senior Vice President, Chief Legal Officer and Corporate Secretary of the Company since March 1, 2017; and Senior Vice President & General Counsel of Kinross Gold Corporation (and various prior senior legal roles) from December 2006 to February 2017.	N/A	Nil
<b>Marie Inkster</b> Ontario, Canada <i>Senior Vice President and Chief Financial Officer</i>	Senior Vice President and Chief Financial Officer of the Company since May 2009.	N/A	130,200 common shares
<b>Julie A. Lee Harrs</b> Ontario, Canada <i>Senior Vice President, Corporate Development</i>	Senior Vice President, Corporate Development of the Company since November 2011.	N/A	10,000 common shares
<b>Jinhee Magie</b> Ontario, Canada <i>Vice President, Finance</i>	Vice President, Finance of the Company since May 2009.	N/A	20,000 common shares
<b>Paul M. McRae</b> Algarve, Portugal <i>Senior Vice President, Projects</i>	Senior Vice President, Projects of the Company since January 2012.	N/A	Nil
<b>Neil P. M. O'Brien</b> Ontario, Canada <i>Senior Vice President, Exploration and New Business Development</i>	Senior Vice President, Exploration and New Business Development of the Company since March, 2007.	N/A	82,000 common shares
<b>Peter Quinn</b> Arizona, USA <i>Chief Operating Officer</i>	Chief Operating Officer of the Company since August 1, 2015; President, of the Company's subsidiaries Compañía Contractual Minera Candelaria and Compañía Contractual Minera Ojos del Salado since December 2014; President, Candelaria & Ojos del Salado, subsidiaries of Freeport-McMoRan Inc. from February 2010 to November 2014.	N/A	Nil

<b>Name, residence and current position(s) held in the Company</b>	<b>Principal occupations for last five years</b>	<b>Served as director since</b>	<b>Number of securities beneficially owned, or controlled or directed</b>
<b>Derek Riehm</b> Ontario, Canada <i>Vice President, Environment</i>	Vice President, Environment of the Company since January 1, 2015; Vice President, Approvals & Permitting of Barrick Gold Corporation from 2011 to 2014.	N/A	Nil
<b>J. Mikael Schauman</b> Stockholm, Sweden <i>Vice President, Marketing</i>	Vice President, Marketing of the Company since February 2007.	N/A	Nil

Certain directors of the Company have other business interests and do not devote all of their time to the affairs of the Company. See "Conflicts of Interest" below.

The directors and officers of the Company, as a group, beneficially own, or control or direct, directly or indirectly, a total of 4,049,732 common shares, representing approximately 0.56% of the number of common shares of the Company issued and outstanding as of the date of this AIF.

There are currently four standing committees of the Board of Directors. These committees are the Audit Committee, the Corporate Governance and Nominating Committee, the Health, Safety, Environment and Community Committee and the Human Resources/Compensation Committee. The following table identifies the members of each of these Committees:

<b>Audit Committee</b>	<b>Human Resources/ Compensation Committee</b>	<b>Corporate Governance and Nominating Committee</b>	<b>Health, Safety, Environment and Community Committee</b>
Dale C. Peniuk (Chair) William A. Rand Catherine J. G. Stefan	Donald K. Charter (Chair) Peter C. Jones William A. Rand	Catherine J. G. Stefan (Chair) Donald K. Charter Dale C. Peniuk	Peter C. Jones (Chair) Paul K. Conibear John H. Craig

## 11.2 Corporate Cease Trade Orders or Bankruptcies

Except as noted below, no director or executive officer of the Company is, as at the date of this AIF, or was within 10 years before the date of this AIF, a director, chief executive officer or chief financial officer of any company (including Lundin Mining), that:

- was subject to an Order that was issued while the director or executive officer was acting in the capacity as director, chief executive officer or chief financial officer, or
- was subject to an Order that was issued after the director or executive officer ceased to be a director, chief executive officer or chief financial officer and which resulted from an event that occurred while that person was acting in the capacity as director, chief executive officer or chief financial officer.

Mr. Jones was a director of Lakota between September 2008 and October 2009. In May and August 2009, cease trade orders were issued against Lakota for failure to file financial statements on July 13, 2009. The company was delisted from the TSX-V for failure to maintain the continued listing requirements of the TSX-V. The cease trade order was revoked in 2011.

Except as noted below, no director or executive officer of the Company, or a shareholder holding a sufficient number of securities of the Company to affect materially the control of the Company:

- a) is, as at the date of this AIF, or has been within the 10 years before the date of this AIF, a director or executive officer of any company (including Lundin Mining) that, while that person was acting in that capacity, or within a year of that person ceasing to act in that capacity, 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 its assets; or
- b) has, within the 10 years before the date of this AIF, 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 the director, executive officer or shareholder.

Messrs. Conibear, Craig and Lundin were all directors of Sirocco. Pursuant to a plan of arrangement completed on January 31, 2014, Canadian Lithium Corp. acquired Sirocco. Under the plan of arrangement, Canadian Lithium Corp. amalgamated with Sirocco to form RBI.

In October 2014, RBI commenced proceedings under the *Companies' Creditors Arrangement Act* (the CCAA). CCAA proceedings continued in 2015 and a receiver was appointed in May 2015. The TSX delisted RBI's common shares in November 24, 2014 for failure to meet the continued listing requirements of the TSX.

Messrs. Conibear, Craig and Lundin were never directors, officers or insiders of RBI. Messrs. Conibear, Craig and Lundin, however, were directors of Sirocco within the 12-month period prior to RBI filing under the CCAA.

Ms. Inkster was Vice President, Finance of GBS from September 2007 to June 2008. On September 15, 2008, GBS put its Australian group of subsidiaries into voluntary liquidation proceedings. In March 2009, GBS announced that it had agreed to transfer its remaining valued assets to the secured promissory note holders pursuant to the terms of a note indenture and general security deed entered into on May 27, 2008. The shares of GBS were suspended from trading on the NEX board and it ceased carrying on business.

The foregoing information, not being within the knowledge of the Company, has been furnished by the respective directors, officers and controlling shareholders of the Company individually.

### **11.3 Penalties or Sanctions**

No director or executive officer of the Company, or a shareholder holding a sufficient number of securities of the Company to affect materially the control of the Company, has been subject to:

- a) any penalties or sanctions imposed 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.

### **11.4 Conflicts of Interest**

The Company's directors and officers may serve as directors or officers of other companies or have significant shareholdings in other resource companies and, to the extent that such other companies may participate in ventures in which the Company may participate, the directors of the Company may have a conflict of interest in negotiating and concluding terms respecting the extent of such participation. In the event that such a conflict of interest arises at a meeting of the Company's directors, a director who has such a conflict will abstain from voting for or against the approval of such participation or the terms of such



participation. From time to time, several companies may participate in the acquisition, exploration and development of natural resource properties, thereby allowing for their participation in larger programs, the involvement in a greater number of programs or a reduction in financial exposure in respect of any one program. It may also occur that a particular company will assign all or a portion of its interest in a particular program to another of these companies due to the financial position of the company making the assignment. In accordance with the laws of Canada, the directors of the Company are required to act honestly, in good faith and in the best interests of the Company. In determining whether or not the Company will participate in a particular program and the interest therein to be acquired by it, the directors will primarily consider the degree of risk to which the Company may be exposed and the financial position at that time.

The directors and officers of the Company are aware of the existence of laws governing the accountability of directors and officers for corporate opportunity and requiring disclosure by the directors and officers of conflicts of interest and the Company will rely upon such laws in respect of any directors' and officers' conflicts of interest or in respect of any breaches of duty by any of its directors and officers. All such conflicts will be disclosed by such directors or officers in accordance with the CBCA and they will govern themselves in respect thereof to the best of their ability in accordance with the obligations imposed upon them by law. Other than as disclosed herein, the directors and officers of the Company are not aware of any such conflicts of interest in any existing or contemplated contracts with or transactions involving the Company.

## **ITEM 12            AUDIT COMMITTEE**

### **12.1    Overview**

The Audit Committee of the Board of Directors oversees the accounting and financial reporting processes of the Corporation and its subsidiaries and all external audits and interim reviews of the financial statements of the Corporation, on behalf of the Board, and has general responsibility for oversight of internal controls, and accounting and auditing activities of the Corporation and its subsidiaries. All auditing services and non-audit services to be provided to the Corporation by the Corporation's auditors are pre-approved by the Audit Committee. The Audit Committee reviews, on a regular basis, any reports prepared by the Corporation's external auditors relating to the Corporation's accounting policies and procedures, as well as internal control procedures and systems. The Audit Committee is also responsible for reviewing all financial information, including annual and quarterly financial statements, MD&A and press releases regarding earnings, prepared for securities commissions and similar regulatory bodies, and recommending approval thereof to the Board, prior to public dissemination or delivery of the same. The Audit Committee also oversees the work of the external auditor on the annual audit process, the quarterly review engagements, the Corporation's internal accounting controls, the Corporation's Whistleblower Policy, any complaints and concerns regarding any known or suspected accounting, financial or auditing irregularities or any known or suspected violations of the Corporation's Code of Conduct, Ethical Values and Anti-Corruption Policy, and the resolution of issues identified by the Corporation's external auditors. The Audit Committee recommends to the Board annually the firm of independent auditors to be nominated for appointment by the shareholders at the annual general meeting of shareholders and approves the compensation of such external auditor.

### **12.2    Audit Committee Mandate/Charter**

The Board of Directors has adopted the Mandate which sets out the Audit Committee's purpose, procedures, organization, powers, roles and responsibilities. The complete Mandate is attached as Schedule B to this AIF.

### **12.3    Composition of the Audit Committee**

Below are the details of each Audit Committee member, including his/her name, whether he/she is independent and financially literate as such terms are defined under NI 52-110 and his/her education and experience as it relates to the performance of his/her duties as an Audit Committee member. The qualifications and independence of each member is discussed below.



<b>Member Name</b>	<b>Independent<sup>(1)</sup></b>	<b>Financially Literate<sup>(2)</sup></b>	<b>Education and Experience Relevant to Performance of Audit Committee Duties</b>
Dale C. Peniuk (Chair)	Yes	Yes	Mr. Peniuk is a Chartered Professional Accountant (CPA, CA) and holds a B.Comm (Accounting and Management Information Systems). He was formerly an audit/assurance partner of KPMG LLP Chartered Accountants and led KPMG Vancouver's Mining industry practice. In addition to Lundin Mining, he is presently a director and audit committee chair of Argonaut Gold Inc. and Capstone Mining Corp. and has been the audit committee chair of a number of other reporting issuers since 2006.
William A. Rand	Yes	Yes	Mr. Rand is a retired corporate and securities lawyer and mining executive with a B.Comm. from McGill University (Honours in Economics and Major in Accounting), who has been a member of a number of boards and audit committees of public companies for over 30 years. Through this education and experience, Mr. Rand has experience overseeing and assessing the performance of companies and public accountants with respect to the preparation, auditing and evaluation of financial statements.
Catherine J. G. Stefan	Yes	Yes	Ms. Stefan is a Chartered Professional Accountant (CPA, CA) and B. Comm. She held the position of Chief Operating Officer, O&Y Properties Inc., President of Stefan & Associates, Executive Vice-President of Bramalea Group and Chair, Tax Committee of Canadian Institute of Public Real Estate Companies (CIPREC). In addition to Lundin Mining, she is presently a director and audit committee chair of Denison Mines Corp.

- (1) A member of an audit committee is independent if the member has no direct or indirect material relationship with the Company which could, in the view of the Board of Directors, reasonably interfere with the exercise of a member's independent judgment, or is otherwise deemed to have a material relationship pursuant to NI 52-110.
- (2) An individual is financially literate if he has the ability to read and understand a set of financial statements that present a breadth of complexity of accounting issues that are generally comparable to the breadth and complexity of the issues and can reasonably be expected to be raised by the Company's financial statements.

#### **12.4 Audit Committee Oversight**

Since the commencement of the Company's most recently completed financial year, there has not been a recommendation of the Audit Committee to nominate or compensate an external auditor which was not adopted by the Board of Directors.

#### **12.5 Pre-Approval Policies and Procedures**

All audit and non-audit services performed by the external auditor are pre-approved by the Audit Committee.

## 12.6 External Auditor Service Fees (By Category)

The following table discloses the fees billed to the Company by its external auditors during the financial year ended December 31, 2016 and 2015. Services billed in C\$, SEK or € were translated using average exchange rates that prevailed during 2016 and 2015.

Fiscal Year Ending	Audit Fees <sup>(1)</sup>	Audit-Related Fees <sup>(2)</sup>	Tax Fees <sup>(3)</sup>	All other Fees <sup>(4)</sup>
December 31, 2016	\$1,360,466	\$54,002	\$226,566	-
December 31, 2015	\$1,375,682	\$42,296	\$173,799	\$21,614

(1) Audit fees represent fees billed by the Company's auditors for audit services.

(2) Audit-related fees represent fees billed for assurance and related services by the Company's auditors that are reasonably related to the performance of the audit or review of the Company's financial statements and not disclosed in the Audit Fees column.

(3) Tax fees represent fees billed for professional services rendered by the Company's auditor for tax compliance, tax advice and tax planning.

(4) All other fees represent fees billed for products and services provided by the Company's auditors other than services reported under clauses (1), (2) and (3) above.

PricewaterhouseCoopers LLP, Chartered Professional Accountants, Licensed Public Accountants, have prepared the Independent Auditor's Report dated February 22, 2017 in respect of the Company's annual consolidated financial statements as at December 31, 2016 and 2015 and for the years then ended, and February 18, 2016 in respect of annual consolidated financial statements as at December 31, 2015 and 2014 and for the years then ended.

## ITEM 13 LEGAL PROCEEDINGS AND REGULATORY ACTIONS

### 13.1 Legal Proceedings

Other than as disclosed below, to the best of the Company's knowledge, the Company is not and was not, during the year ended December 31, 2016, a party to any material legal proceedings, nor is any of its property, nor was any of its property during the year ended December 31, 2016, the subject of any such legal proceedings. As at the date hereof, no such legal proceedings are known to be contemplated.

In May 2015, Minera Candelaria was notified by the Chilean Environmental Superintendent (Superintendencia de Medio Ambiente, or "SMA") of 16 charges associated with alleged infractions of its environmental approvals. The charges, which originate from two inspections carried out by SMA in June 2013 and August 2014, relate to issues including dust control, road maintenance and signage, disposal of used tires, brine management at the desalination plant, fresh water consumption and the footprint of the mining operations, among others. Minera Candelaria followed the process established by the SMA for responding to the charges, which continued for approximately 18 months.

On December 1, 2016, SMA issued a resolution clearing some of the charges and sanctioning Minera Candelaria with a fine of approximately \$4M for others. The majority of the fine relates to water management issues. On December 7, 2016, former legal representatives of Tierra Amarilla community submitted an independent administrative appeal with SMA. They requested that certain charges be reclassified from "serious" to "very serious" which, if successful, this would most likely result in increased fines. On December 23, 2016, Minera Candelaria filed an appeal to the sanctioning resolution with the Environmental Court. Once the administrative appeal is resolved with the SMA, the Court may request a report from SMA and will then call the parties to a hearing. The adjudication process is expected to take several months to resolve, subject to appeal to a superior court.

On October 1, 2015, Frutícola y Exportadora Atacama Ltda. ("FEA") filed a legal challenge before the Committee of Ministers, against the approval ("RCA") of the Candelaria 2030 EIA, which was granted on July 23, 2015, by the SEA. The challenge claims that the environmental review process did not properly

consider the observations made by FEA and requests the annulment of the RCA or, alternatively, modification of the mitigation, compensation and monitoring measures specified in it.

In September 2016, the Council of Ministers issued a decision that upheld the RCA and imposed additional impact mitigation measures with respect to fugitive dust control, aquifer management and noise monitoring. FEA appealed the decision and, on November 15, 2016, the Environmental Court agreed to process the appeal. On January 24, 2017, the parties to the appeal appeared before the Environmental Court to make submissions. The legal process continues with an uncertain time frame for resolution. The decision of the Environmental Court may be appealed to a superior court.

The Company believes that the legal challenge of the RCA is without merit; however, if FEA is successful and the RCA is annulled, it could cause the suspension of operations at the Candelaria Mine, which may have an adverse effect on the Company, including, but not limited to results of operations, cash flows and financial position.

### **13.2 Regulatory Actions**

No penalties or sanctions were imposed against the Company by a court relating to securities legislation or by a securities regulatory authority during the year ended December 31, 2016, nor were there any other penalties or sanctions imposed by a court or regulatory body against the Company that would likely be considered important to a reasonable investor in making an investment decision, nor were any settlement agreements entered into by the Company before a court relating to securities legislation or with a securities regulatory authority during the year ended December 31, 2016.

## **ITEM 14 INTEREST OF MANAGEMENT AND OTHERS IN MATERIAL TRANSACTIONS**

To the best of the Company's knowledge, none of the directors or executive officers of the Company, nor any person or company that beneficially owns, controls or directs, directly or indirectly, more than 10% of any class or series of outstanding voting securities of the Company, nor any associate or affiliate of any of the foregoing persons, has or has had any material interest, direct or indirect, in any transaction within the three most recently completed financial years or during the current financial year that has materially affected or is reasonably expected to materially affect the Company.

## **ITEM 15 TRANSFER AGENTS AND REGISTRARS**

The transfer agent and registrar for the common shares of the Company is Computershare Investor Services Inc. at its principal offices in Toronto, Ontario.

## **ITEM 16 MATERIAL CONTRACTS**

The only material contracts entered into by the Company, other than those entered into in the ordinary course of business, within the most recently completed financial year, or before the most recently completed financial year but are still in effect, are set forth below. Copies of these material contracts are available under the Company's SEDAR profile at [www.sedar.com](http://www.sedar.com).

- (a) Credit Agreement. See "General Development of the Business – Three Year History".
- (b) Stock Purchase Agreement. See "General Development of the Business – Three Year History".
- (c) Purchase and Sale Agreement. See "General Development of the Business – Three Year History".
- (d) Indenture. See "General Development of the Business – Three Year History".
- (e) Stock Purchase Agreement - BHR. See "General Development of the Business – Three Year History".

## ITEM 17 INTERESTS OF EXPERTS

The Qualified Persons who have supervised the preparation of the Company's Mineral Reserve and Mineral Resource estimates during the year ended December 31, 2016 or authored portions of the Technical Reports disclosed in this AIF are as follows:

### *Candelaria Mine:*

- Messrs. Patricio Calderón, Superintendent Resource Estimation, Candelaria Mine and Erick Lagos, Manager Technical Services, Candelaria Mine, in respect of the Candelaria Mineral Resource and Mineral Reserve estimates.
- Messrs. Jean-Francois Couture, P.Geo., Glen Cole, P.Geo., Benny Zhang P.Eng, Adrian Dance, P.Eng., and Cameron C. Scott, P.Eng, SRK Consulting (Canada) Inc. and John Nilsson, P.Eng., Nilsson Mine Services Ltd., in respect of the Candelaria Report;

### *Tenke Fungurume Mine*

- Messrs. John Nilsson, P.Eng., Nilsson Mine Services Ltd., and Ronald G. Simpson, P.Geo, GeoSim Services Inc. in respect of the Tenke Fungurume Mineral Resource and Mineral Reserve estimate and the Tenke Report;

### *Neves-Corvo Mine*

- Messrs. Nelson Pacheco, Chief Geologist, Neves-Corvo, and Antonio Salvador, Group Mining Engineer, Lundin Mining, in respect of the Neves-Corvo Mineral Resource and Mineral Reserve estimate;
- Mr. Graham Greenway, Group Resource Geologist, Lundin Mining, in respect of the Semblana deposit Mineral Resource estimate;
- Dr. Lewis Meyer and Mr. Mark Owen, Wardell Armstrong International Ltd., in respect of the Neves-Corvo Report;

### *Zinkgruvan Mine*

- Messrs. Graham Greenway, Group Resource Geologist, Lundin Mining, and Antonio Salvador, Group Mining Engineer, Lundin Mining, in respect of the Zinkgruvan Mineral Resource and Mineral Reserve estimate;
- Dr. Lewis Meyer and Mr. Mark Owen, Wardell Armstrong International Ltd., in respect of the Zinkgruvan Report;

### *Eagle Mine*

- Messrs. David Rennie, Associate Principal Geologist and Normand Lecuyer, Principal Mining Engineer, respectively, both of Roscoe Postle Associates Inc.in respect of the Eagle and Eagle East Mineral Resource and Mineral Reserve estimates;
- Graham Clow, David Rennie, Brenna Scholey, and Normand Lecuyer, of Roscoe Postle Associates Inc, in respect of the Eagle Report; and

Each of the aforementioned firms or persons held less than 1% of the outstanding securities of the same class of the Company or of any associate or affiliate of the Company when such expert prepared the reports or the Mineral Resource or Mineral Reserve estimates referred to, and held less than 1% of the outstanding securities of the same class of the Company following the preparation of such reports or data.

None of the aforementioned firms or persons, nor any directors, officers or employees of such firms, are currently expected to be elected, appointed or employed as a director, officer or employee of the Company or of any associate or affiliate of the Corporation, other than Messrs. Gatley and Greenway who are each currently employed by Lundin Mining or one of its subsidiaries.

PricewaterhouseCoopers LLP, Chartered Professional Accountants, Licensed Public Accountants, are the auditors of the Company and has advised the Company that they are independent in accordance with the Rules of Professional Conduct of the Chartered Professional Accountants of Ontario.

## **ITEM 18            ADDITIONAL INFORMATION**

Additional information regarding the Company is available on SEDAR at [www.sedar.com](http://www.sedar.com). Additional information, including directors' and officers' remuneration and indebtedness, principal holders of the Company's securities, if any, and securities authorized for issuance under equity compensation plans is contained in the Company's management information circular dated March 24, 2016 prepared in connection with the annual meeting of shareholders held on May 13, 2016. The Company's management information circular for the year ended December 31, 2016 will be prepared and filed in connection with its annual and special meeting of shareholders, which is expected to be held on or about May 12, 2017. Additional financial information is provided in the Company's annual consolidated financial statements for the years ended December 31, 2016 and 2015, together with the auditors' report thereon and the notes thereto, and MD&A for the year ended December 31, 2016.

## SCHEDULE A

### Mineral Resources and Reserves - 2016

#### Mineral Reserves

Category	000's Tonnes	Cu %	Zn %	Pb %	Au g/t	Ag g/t	Ni %	Co %	Contained Metal 000's (Ounces millions)									
									Cu t	Zn t	Pb t	Au Oz	Ag Oz	Ni t	Co t	Lundin Interest		
<b>Copper</b>																		
Candelaria	Proven	320,997	0.5		0.1	1.8				1,746	1.3	18		80%				
Open Pit	Proven (Stockpile)	93,772	0.3		0.1	1.4				321	0.3	4		80%				
	Probable	16,634	0.5		0.1	1.6				76	0.1	1		80%				
	<b>Total</b>	<b>431,404</b>	<b>0.5</b>		<b>0.1</b>	<b>1.7</b>				<b>2,143</b>	<b>1.6</b>	<b>24</b>		<b>80%</b>				
Candelaria	Proven	31,309	0.9		0.2	3.4				295	0.2	3		80%				
Underground	Probable	19,821	0.8		0.2	2.1				166	0.1	1		80%				
	<b>Total</b>	<b>51,131</b>	<b>0.9</b>		<b>0.2</b>	<b>2.9</b>				<b>461</b>	<b>0.3</b>	<b>5</b>		<b>80%</b>				
Neves-Corvo	Proven	6,423	3.7	0.9	0.2	35				239	55	12	7	100%				
	Probable	19,716	2.3	0.7	0.2	35				455	136	40	22	100%				
	<b>Total</b>	<b>26,139</b>	<b>2.7</b>	<b>0.7</b>	<b>0.2</b>	<b>35</b>				<b>694</b>	<b>191</b>	<b>52</b>	<b>30</b>	<b>100%</b>				
Zinkgruvan	Proven	3,583	2.2	0.2		29				79	7		3	100%				
	Probable									-	-		-	100%				
	<b>Total</b>	<b>3,583</b>	<b>2.2</b>	<b>0.2</b>		<b>29</b>				<b>79</b>	<b>7</b>		<b>3</b>	<b>100%</b>				
Tenke	Proven	57,096	3.4					0.4		1,968				220	24%			
Fungurume	Probable (Stockpile)	45,075	1.3					0.3		590				140	24%			
	Probable	42,191	2.8					0.4		1,201				150	24%			
	<b>Total</b>	<b>144,362</b>	<b>2.6</b>					<b>0.4</b>		<b>3,760</b>				<b>510</b>	<b>24%</b>			
<b>Zinc</b>																		
Neves-Corvo	Proven	7,425	0.3	8.5	2.1	75				26	631	155	18		100%			
	Probable	16,024	0.4	6.5	1.4	63				64	1,046	222	32		100%			
	<b>Total</b>	<b>23,449</b>	<b>0.4</b>	<b>7.2</b>	<b>1.6</b>	<b>67</b>				<b>90</b>	<b>1,678</b>	<b>378</b>	<b>50</b>		<b>100%</b>			
Zinkgruvan	Proven	7,382		8.5	3.6	81				627	266		19		100%			
	Probable	3,388		6.9	2.6	51				234	88		6		100%			
	<b>Total</b>	<b>10,770</b>		<b>8.0</b>	<b>3.3</b>	<b>72</b>				<b>861</b>	<b>354</b>		<b>25</b>		<b>100%</b>			
<b>Nickel</b>																		
Eagle	Proven	1,479	2.8				3.3	0.1		41			49	1	100%			
	Probable	2,238	1.8				2.0	0.1		41			45	1	100%			
	<b>Total</b>	<b>3,717</b>	<b>2.2</b>				<b>2.5</b>	<b>0.1</b>		<b>82</b>			<b>95</b>	<b>3</b>	<b>100%</b>			
Note: totals may not summate correctly due to rounding										<b>Lundin's share</b>		<b>3,931</b>	<b>2,737</b>	<b>783</b>	<b>2</b>	<b>131</b>	<b>95</b>	<b>125</b>

#### Mineral Resources - inclusive of Mineral Reserves

Category	000's Tonnes	Cu %	Zn %	Pb %	Au g/t	Ag g/t	Ni %	Co %	Contained Metal 000's (Ounces millions)									
									Cu t	Zn t	Pb t	Au Oz	Ag Oz	Ni t	Co t	Lundin Interest		
<b>Copper</b>																		
Candelaria	Measured	412,265	0.6		0.1	2				2,281	1.7	25		80%				
Open Pit	Measured (Stockpile)	93,805	0.3		0.1	1				321	0.3	4		80%				
	Indicated	30,787	0.5		0.1	2				146	0.1	2		80%				
	Inferred	11,254	0.3		0.1	1				38	-	-		80%				
Underground	Measured	84,270	1.1		0.3	3				948	0.7	9		80%				
	Indicated	67,860	1.1		0.2	2				732	0.5	5		80%				
	Inferred	50,336	1.0		0.2	2				503	0.4	4		80%				
Neves-Corvo	Measured	14,732	4.2	0.9	0.3	44				625	137	38	21	100%				
	Indicated	55,254	2.2	1.1	0.4	45				1,232	580	199	80	100%				
	Inferred	12,758	1.7	1.2	0.4	37				222	152	45	15	100%				
Semblana	Inferred	7,807	2.9			25				223			6	100%				
Zinkgruvan	Measured	4,719	2.3	0.3		33				109	14		5	100%				
	Indicated	619	2.1	0.4		36				13	2		1	100%				
	Inferred	193	2.3	0.3		25				4	1		-	100%				
Tenke	Measured	211,589	2.9					0.3		6,070				630	24%			
Fungurume	Indicated	423,677	2.4					0.3		10,197				1,062	24%			
	Indicated (Stockpile)	45,075	1.3					0.3		590				140	24%			
	Inferred	531,651	2.2					0.2		11,594				1,291	24%			
<b>Zinc</b>																		
Neves-Corvo	Measured	15,464	0.3	7.7	1.7	67				48	1,183	266	33		100%			
	Indicated	91,355	0.3	5.9	1.2	56				283	5,344	1,115	164		100%			
	Inferred	11,386	0.3	4.4	1.0	52				39	499	118	19		100%			
Zinkgruvan	Measured	7,938		10.0	4.1	91					794	325	23		100%			
	Indicated	8,152		8.8	3.7	86					717	302	23		100%			
	Inferred	7,862		8.3	3.6	83					653	283	21		100%			
<b>Nickel</b>																		
Eagle	Measured	1,445	3.4				4.2	0.1		49			61	2	100%			
	Indicated	2,226	2.2				2.6	0.1		50			58	2	100%			
	Inferred	44	1.1				1.1	0.0		-			-	-	100%			
	Inferred Eagle East	1,180	4.3			0.5	15.8	0.1		51			61	1	100%			
Note: totals may not summate correctly due to rounding										<b>Lundin's share</b>		<b>9,997</b>	<b>8,772</b>	<b>2,245</b>	<b>3</b>	<b>386</b>	<b>119</b>	<b>443</b>
										not including Inferred Resources								



## Notes on Mineral Reserves and Mineral Resources Table

Mineral Reserves and Mineral Resource estimates are shown on a 100 percent basis for each mine. The Measured and Indicated Mineral Resource estimates are inclusive of those Mineral Resource estimates modified to produce the Mineral Reserve estimates. All estimates, with the exception of Tenke Fungurume, are prepared as at June 30, 2016. The Tenke Fungurume estimate is dated December 31, 2015.

Estimates for all majority owned operations are prepared by or under the supervision of a Qualified Person as defined in NI 43-101, or have been audited by independent Qualified Persons on behalf of Lundin Mining. Tenke Proven and Probable Mineral Reserves are estimated by the operator Freeport, and are prepared to SEC Guide 7 standards and are reviewed by Lundin Mining's independent Qualified Persons.

Except as noted below, Mineral Reserves have been estimated using metal prices of \$2.75/lb copper, \$1.00/lb zinc, \$1.00/lb lead, \$8.50/lb nickel, \$1,000/oz gold and exchange rates of €/\$1.25, \$/SEK 7.00 and Chilean Peso/\$550.

### Candelaria and Ojos

Open pit Mineral Resources are estimated within a conceptual pit shell based on metal prices of \$3.16/lb copper and \$1,000/oz gold, and estimated at a cut-off grade of 0.2% copper. Underground Mineral Resources are estimated at a cut-off grade of 0.6% copper. Mineral Reserves for the open pit and underground for the Candelaria property are reported at cut-off grades of 0.28% and 0.64% copper, respectively. Underground Mineral Reserves for the Ojos del Salado property (Santos and Alcaparrosa mines) are estimated at cut-off grades of 0.73% and 0.66% copper, respectively. Mineral Resources and Mineral Reserves for Candelaria and Ojos del Salado were estimated by mine technical staff supervised by Qualified Persons Patricio Calderón, Superintendent Resource Estimation, and Erick Lagos, Manager Technical Services.

### Neves-Corvo

Mineral Resources are estimated above cut-off grades of 1.0% for copper and 3.0% for zinc. The copper and zinc Mineral Reserves have been estimated using variable NSR values based on area and mining method. The NSR is calculated on a recovered payable basis taking in to account copper, lead, zinc and silver grades, metallurgical recoveries, prices and realization costs. The copper Mineral Reserves are estimated above a site average cut - off grade equivalent to 1.3%. For zinc Mineral Reserves an average cut-off grade equivalent to 5.2% is used. Mineral Reserves and Mineral Resource estimates for Neves-Corvo were estimated by the mine's geology and mine engineering departments under the guidance of Nelson Pacheco, Chief Geologist and Fernando Cartaxo, Chief Mine Planning Engineer. Qualified Persons are Nelson Pacheco and Antonio Salvador, Group Mining Engineer, Lundin Mining.

### Semblana

Mineral Resources are estimated above a cut-off grade of 1.0% copper. The Mineral Resource estimate was prepared by and the Qualified Person is Graham Greenway, Group Resource Geologist, Lundin Mining.

### Zinkgruvan

The zinc Mineral Resources and Mineral Reserves are estimated above a site average cut-off grade of 3.9% zinc equivalent. The copper Mineral Resources and Mineral Reserves are estimated above cut-off grades of 1.0% and 1.5% respectively. The zinc Mineral Reserves have been estimated using variable NSR values based on area and mining method. The NSR is calculated on a recovered payable basis taking in to account copper, lead, zinc and silver grades, metallurgical recoveries, prices and realization costs. The Zinkgruvan Mineral Resource and Mineral Reserve estimates are prepared by the mine's geology and mine engineering department under the guidance of Anja Hagerud, Resource Manager, employed by Zinkgruvan mine. Qualified Persons are Graham Greenway and Antonio Salvador.

**Eagle**

The Eagle and Eagle East Mineral Resources are estimated above a fixed NSR cut-off of \$142/t. The Eagle and Eagle East Mineral Reserves are estimated above fixed NSR cut-offs of \$142/t and \$160/t respectively. The NSR is calculated on a recovered payable basis taking in to account nickel, copper, cobalt, gold and PGM grades, metallurgical recoveries, prices and realization costs. The Eagle Mineral Resource and Mineral Reserve estimates are prepared by the mine's geology and mine engineering department under the guidance of Robert Mahin, Chief Geologist and Colin Connors, Eagle East Project Mining Lead, respectively, both of whom are employees of Eagle mine. The Eagle East Mineral Resource estimate was prepared by Graham Greenway, Group Resource Geologist, Lundin Mining. The Eagle and Eagle East Mineral Resource and the Eagle Mineral Reserve estimates were audited by Roscoe Postle Associates Inc. Qualified Persons are David Rennie, P.Eng., Associate Principal Geologist and Normand Lecuyer, P.Eng., Principal Mining Engineer, respectively, both of Roscoe Postle Associates Inc.

**Tenke Fungurume**

The Mineral Resources are estimated above a cut-off of 1.3% copper equivalent and a cobalt to copper factor of 4.0 without assigning economic probability. The 2015 Mineral Reserves are estimated based on smoothed pit designs for Measured and Indicated Mineral Resources using metal prices of \$2.00/lb copper and \$10.00/lb cobalt which result in a cut-off grade of approximately 1.37% copper equivalent. The Mineral Resource (not reported by Tenke operator Freeport) and Mineral Reserve estimates (reported under United States SEC Guide 7) for Tenke were prepared as of December 31, 2015 by Freeport staff and reviewed by independent consultants and Qualified Persons John Nilsson, P.Eng. of Nilsson Mine Services Ltd and Ron Simpson P.Geo. of GeoSim Services Inc., on behalf of Lundin Mining.

**A. PURPOSE**

The overall purpose of the Audit Committee (the “Committee”) is to ensure that the Corporation’s management has designed and implemented an effective system of internal financial controls, to review and report on the integrity of the consolidated financial statements of the Corporation and to review the Corporation’s compliance with regulatory and statutory requirements as they relate to financial statements, taxation matters and disclosure of material facts.

**B. COMPOSITION, PROCEDURES AND ORGANIZATION**

1. The Committee shall consist of at least three members of the Board of Directors (the “Board”), all of whom shall be “independent directors”, as that term is defined in Multilateral Instrument 52-110, “Audit Committees”.
2. All of the members of the Committee shall be “financially literate” (i.e. able to read and understand a set of financial statements that present a breadth and level of complexity of the issues that can reasonably be expected to be raised by the Corporation’s financial statements).
3. At least one member of the Committee shall have accounting or related financial expertise (i.e. able to analyze and interpret a full set of financial statements, including the notes thereto, in accordance with generally accepted accounting principles).
4. The Board, at its organizational meeting held in conjunction with each annual general meeting of the shareholders, shall appoint the members of the Committee for the ensuing year. The Board may at any time remove or replace any member of the Committee and may fill any vacancy in the Committee.
5. Unless the Board shall have appointed a chair of the Committee or in the event of the absence of the chair, the members of the Committee shall elect a chair from among their number.
6. The secretary of the Committee shall be designated from time to time from one of the members of the Committee or, failing that, shall be the Corporation’s Corporate Secretary, unless otherwise determined by the Committee.
7. The quorum for meetings shall be a majority of the members of the Committee, present in person or by telephone or other telecommunication device that permits all persons participating in the meeting to speak and to hear each other.
8. The Committee shall have access to such officers and employees of the Corporation and to the Corporation’s external auditors, and to such information respecting the Corporation, as it considers to be necessary or advisable in order to perform its duties and responsibilities.
9. Meetings of the Committee shall be conducted as follows:
  - (a) the Committee shall meet at least four times annually at such times and at such locations as may be requested by the Chair of the Committee. The external auditors or any member of the Committee may request a meeting of the Committee;
  - (b) the external auditors shall receive notice of and have the right to attend all meetings of the Committee;
  - (c) the Chair of the Committee shall be responsible for developing and setting the agenda for Committee meetings and determining the time and place of such meetings;
  - (d) the following management representatives shall be invited to attend all meetings, except executive sessions and private sessions with the external auditors:
    - (i) Chief Executive Officer; and
    - (ii) Chief Financial Officer.
  - (e) other management representatives shall be invited to attend as necessary; and

- (f) notice of the time and place of every meeting of the Committee shall be given in writing to each member of the Committee a reasonable time before the meeting.
- 10. The internal auditors and the external auditors shall have a direct line of communication to the Committee through its chair and may bypass management if deemed necessary. The Committee, through its Chair, may contact directly any employee in the Corporation as it deems necessary, and any employee may bring before the Committee any matter involving questionable, illegal or improper financial practices or transactions.
- 11. The Committee shall have authority to engage independent counsel and other advisors as it determines necessary to carry out its duties, to set and pay the compensation for any advisors employed by the Audit Committee and to communicate directly with the internal and external auditors.

### **C. ROLES AND RESPONSIBILITIES**

- 1. The overall duties and responsibilities of the Committee shall be as follows:
  - (a) to assist the Board in the discharge of its responsibilities relating to the Corporation's accounting principles, reporting practices and internal controls and its approval of the Corporation's annual and quarterly consolidated financial statements;
  - (b) to establish and maintain a direct line of communication with the Corporation's internal and external auditors and assess their performance;
  - (c) to ensure that the management of the Corporation has designed, implemented and is maintaining an effective system of internal financial controls; and
  - (d) to report regularly to the Board on the fulfilment of its duties and responsibilities.
- 2. The duties and responsibilities of the Committee as they relate to the external auditors shall be as follows:
  - (a) to recommend to the Board a firm of external auditors to be engaged by the Corporation, and to verify the independence of such external auditors;
  - (b) to review and approve the fee, scope and timing of the audit and other related services rendered by the external auditors;
  - (c) review the audit plan of the external auditors prior to the commencement of the audit;
  - (d) to review with the external auditors, upon completion of their audit:
    - (i) contents of their report;
    - (ii) scope and quality of the audit work performed;
    - (iii) adequacy of the Corporation's financial and auditing personnel;
    - (iv) co-operation received from the Corporation's personnel during the audit;
    - (v) internal resources used;
    - (vi) significant transactions outside of the normal business of the Corporation;
    - (vii) significant proposed adjustments and recommendations for improving internal accounting controls, accounting principles or management systems; and
    - (viii) the non-audit services provided by the external auditors;
  - (e) to discuss with the external auditors the quality and not just the acceptability of the Corporation's accounting principles; and
  - (f) to implement structures and procedures to ensure that the Committee meets the external auditors on a regular basis in the absence of management.
- 3. The duties and responsibilities of the Committee as they relate to the Corporation's internal auditors are to:
  - (a) periodically review the internal audit function with respect to the organization, staffing and effectiveness of the internal audit department;

- (b) review and approve the internal audit plan; and
  - (c) review significant internal audit findings and recommendations, and management's response thereto.
4. The duties and responsibilities of the Committee as they relate to the internal control procedures of the Corporation are to:
- (a) review the appropriateness and effectiveness of the Corporation's policies and business practices which impact on the financial integrity of the Corporation, including those relating to internal auditing, insurance, accounting, information services and systems and financial controls, management reporting and risk management;
  - (b) review compliance under the Corporation's Code of Conduct, Ethical Values and Anti-Corruption Policy;
  - (c) review any unresolved issues between management and the external auditors that could affect the financial reporting or internal controls of the Corporation; and
  - (d) periodically review the Corporation's financial and auditing procedures and the extent to which recommendations made by the internal audit staff or by the external auditors have been implemented.
5. The Committee is also charged with the responsibility to:
- (a) review the Corporation's quarterly statements of earnings, including the impact of unusual items and changes in accounting principles and estimates and report to the Board with respect thereto;
  - (b) review and recommend to the Board for approval of the financial sections of:
    - (i) the annual report to shareholders;
    - (ii) the annual information form;
    - (iii) prospectuses; and
    - (iv) other public reports requiring approval by the Board,and report to the Board with respect thereto;
  - (c) review regulatory filings and decisions as they relate to the Corporation's consolidated financial statements;
  - (d) review the appropriateness of the policies and procedures used in the preparation of the Corporation's consolidated financial statements and other required disclosure documents, and consider recommendations for any material change to such policies;
  - (e) review and report on the integrity of the Corporation's consolidated financial statements;
  - (f) review the minutes of any audit committee meeting of subsidiary companies;
  - (g) review with management, the external auditors and, if necessary, with legal counsel, any litigation, claim or other contingency, including tax assessments that could have a material effect upon the financial position or operating results of the Corporation and the manner in which such matters have been disclosed in the consolidated financial statements;
  - (h) review the Corporation's compliance with regulatory and statutory requirements as they relate to financial statements, tax matters and disclosure of material facts;
  - (i) develop a calendar of activities to be undertaken by the Committee for each ensuing year and to submit the calendar in the appropriate format to the Board of Directors following each annual general meeting of shareholders; and
  - (j) establish procedures for:
    - (i) the receipt, retention and treatment of complaints received by the Corporation regarding accounting, internal accounting controls, or auditing matters; and

- (ii) the confidential, anonymous submission by employees of the Corporation of concerns regarding questionable accounting or auditing matters.



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