

# HUDBAY MINERALS INC. ANNUAL INFORMATION FORM FOR THE YEAR ENDED DECEMBER 31, 2016

March 30, 2017

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# FORWARD-LOOKING INFORMATION

This annual information form ("AIF") contains forward-looking information within the meaning of applicable Canadian and United States securities legislation. All information contained in this AIF, other than statements of current and historical fact, is forward-looking information. Often, but not always, forwardlooking information can be identified by the use of words such as "plans", "expects", "budget", "guidance", "scheduled", "estimates", "forecasts", "strategy", "target", "intends", "objective", "goal", "understands", "anticipates" and "believes" (and variations of these or similar words) and statements that certain actions, events or results "may", "could", "would", "should", "might" "occur" or "be achieved" or "will be taken" (and variations of these or similar expressions). All of the forward-looking information in this AIF is qualified by this cautionary note.

Forward-looking information includes, but is not limited to, production, cost and capital and exploration expenditure guidance, including anticipated capital and operating cost savings and anticipated production at our mines and processing facilities, the anticipated timing, cost and benefits of developing the Rosemont project, Pampacancha deposit and Lalor growth projects, anticipated mine plans, anticipated metals prices and the anticipated sensitivity of our financial performance to metals prices, events that may affect our operations and development projects, the permitting, development and financing of the Rosemont project, the potential to increase throughput at the Stall mill and to refurbish the New Britannia mill and utilize it to process ore from the Lalor mine, anticipated cash flows from operations and related liquidity requirements, the anticipated effect of external factors on revenue, such as commodity prices, estimation of mineral reserves and resources, mine life projections, reclamation costs, economic outlook, government regulation of mining operations, and business and acquisition strategies. Forward-looking information is not, and cannot be, a guarantee of future results or events. Forward-looking information is based on, among other things, opinions, assumptions, estimates and analyses that, while considered reasonable by us at the date the forward-looking information is provided, inherently are subject to significant risks, uncertainties, contingencies and other factors that may cause actual results and events to be materially different from those expressed or implied by the forward-looking information.

The material factors or assumptions that we identified and were applied by us in drawing conclusions or making forecasts or projections set out in the forward looking information include, but are not limited to:

- the success of mining, processing, exploration and development activities;
- the scheduled maintenance and availability of our processing facilities;
- the sustainability and success of our cost reduction initiatives;
- the accuracy of geological, mining and metallurgical estimates;
- anticipated metals prices and the costs of production;
- the supply and demand for metals we produce;
- the supply and availability of all forms of energy and fuels at reasonable prices;
- no significant unanticipated operational or technical difficulties;
- the execution of our business and growth strategies, including the success of our strategic investments and initiatives:
- the availability of additional financing, if needed;
- the ability to complete project targets on time and on budget and other events that may affect our ability to develop our projects:
- the timing and receipt of various regulatory, governmental and joint venture partner approvals;
- the availability of personnel for our exploration, development and operational projects and ongoing employee and union relations;
- the ability to secure required land rights to develop the Pampacancha deposit;
- maintaining good relations with the communities in which we operate, including the communities surrounding our Constancia mine and Rosemont project and First Nations communities surrounding our Lalor and Reed mines;
- no significant unanticipated challenges with stakeholders at our various projects;
- no significant unanticipated events or changes relating to regulatory, environmental, health and safety matters;



- no contests over title to our properties, including as a result of rights or claimed rights of aboriginal
- the timing and possible outcome of pending litigation and no significant unanticipated litigation;
- certain tax matters, including, but not limited to current tax laws and regulations and the refund of certain value added taxes from the Canadian and Peruvian governments; and
- no significant and continuing adverse changes in general economic conditions or conditions in the financial markets (including commodity prices and foreign exchange rates).

The risks, uncertainties, contingencies and other factors that may cause actual results to differ materially from those expressed or implied by the forward-looking information may include, but are not limited to, risks generally associated with the mining industry, such as economic factors (including future commodity prices, currency fluctuations, energy prices and general cost escalation), uncertainties related to the development and operation of our projects (including risks associated with the permitting, development and economics of the Rosemont project and related legal challenges), risks related to the maturing nature of our 777 and Reed mines and their impact on the related Flin Flon metallurgical complex, dependence on key personnel and employee and union relations, risks related to the schedule for mining the Pampacancha deposit (including the timing and cost of acquiring the required surface rights), risks related to the cost, schedule and economics of the capital projects intended to increase processing capacity for Lalor ore, risks related to political or social unrest or change, risks in respect of aboriginal and community relations, rights and title claims, operational risks and hazards, including unanticipated environmental, industrial and geological events and developments and the inability to insure against all risks, failure of plant, equipment, processes, transportation and other infrastructure to operate as anticipated, compliance with government and environmental regulations, including permitting requirements and anti-bribery legislation, depletion of our reserves, volatile financial markets that may affect our ability to obtain additional financing on acceptable terms, the failure to obtain required approvals or clearances from government authorities on a timely basis, uncertainties related to the geology, continuity, grade and estimates of mineral reserves and resources, and the potential for variations in grade and recovery rates, uncertain costs of reclamation activities, our ability to comply with our pension and other post-retirement obligations, our ability to abide by the covenants in our debt instruments and other material contracts, tax refunds, hedging transactions, as well as the risks discussed under the heading "Risk Factors".

Should one or more risk, uncertainty, contingency or other factor materialize or should any factor or assumption prove incorrect, actual results could vary materially from those expressed or implied in the forwardlooking information. Accordingly, you should not place undue reliance on forward-looking information. We do not assume any obligation to update or revise any forward-looking information after the date of this AIF or to explain any material difference between subsequent actual events and any forward-looking information, except as required by applicable law.

# NOTE TO UNITED STATES INVESTORS

This AIF has been prepared in accordance with the requirements of the securities laws in effect in Canada, which may differ materially from the requirements of United States securities laws applicable to U.S. issuers.

Information concerning our mineral properties has been prepared in accordance with the requirements of Canadian securities laws, which differ in material respects from the requirements of the Securities and Exchange Commission (the "SEC") set forth in Industry Guide 7. Under the SEC's Industry Guide 7, mineralization may not be classified as a "reserve" unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time of the reserve determination, and the SEC does not recognize the reporting of mineral deposits which do not meet the SEC Industry Guide 7 definition of "Reserve". In accordance with National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101") of the Canadian Securities Administrators, the terms "mineral reserve", "proven mineral reserve", "probable mineral reserve", "mineral resource", "measured mineral resource", "indicated mineral resource" and "inferred mineral resource" are defined in the Canadian Institute of Mining, Metallurgy and Petroleum (the "CIM") Definition Standards for Mineral Resources and



Mineral Reserves adopted by the CIM Council on May 10, 2014. While the terms "mineral resource", "measured mineral resource", "indicated mineral resource" and "inferred mineral resource" are recognized and required by NI 43-101, the SEC does not recognize them. You are cautioned that, except for that portion of mineral resources classified as mineral reserves, mineral resources do not have demonstrated economic value. Inferred mineral resources have a high degree of uncertainty as to their existence and as to whether they can be economically or legally mined. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Therefore, you are cautioned not to assume that all or any part of an inferred mineral resource exists, that it can be economically or legally mined, or that it will ever be upgraded to a higher category. Likewise, you are cautioned not to assume that all or any part of measured or indicated mineral resources will ever be upgraded into mineral reserves. You should consider closely the disclosure on the mining industry technical terms in Schedule A "Glossary of Mining Terms" of this AIF.

# CURRENCY AND EXCHANGE RATES

This AIF contains references to both United States dollars and Canadian dollars. All dollar amounts referenced, unless otherwise indicated, are expressed in United States dollars, and Canadian dollars are referred to as "Canadian dollars" or "C\$". For United States dollars to Canadian dollars, the average exchange rate for 2016 and the closing exchange rate at December 31, 2016, as reported by the Bank of Canada, were one United States dollar per 1.3248 and 1.3427 Canadian dollars, respectively. On March 29, 2017, the Bank of Canada noon rate of exchange was one United States dollar per 1.3372 Canadian dollars.

# OTHER IMPORTANT INFORMATION

Certain scientific and technical terms and abbreviations used in this AIF are defined in the "Glossary of Mining Terms" attached as Schedule A.

Unless the context suggests otherwise, references to "we", "us", "our" and similar terms, as well as references to "Hudbay" and "Company", refer to Hudbay Minerals Inc. and its direct and indirect subsidiaries.

# CORPORATE STRUCTURE

#### INCORPORATION AND REGISTERED OFFICE

We were formed by the amalgamation of Pan American Resources Inc. and Marvas Developments Ltd. on January 16, 1996, pursuant to the Business Corporations Act (Ontario) and changed our name to Pan American Resources Inc. On March 12, 2002, we acquired ONTZINC Corporation, a private Ontario corporation, through a reverse takeover and changed our name to ONTZINC Corporation. On December 21, 2004, we acquired Hudson Bay Mining and Smelting Co., Limited ("HBMS") and changed our name to HudBay Minerals Inc. In connection with the acquisition of HBMS, on December 21, 2004, we amended our articles to consolidate our common shares on a 30 to 1 basis. On October 25, 2005, we were continued under the Canada Business Corporations Act ("CBCA"). On August 15, 2011, we completed a vertical short-form amalgamation under the CBCA with our subsidiary, HMI Nickel Inc. On January 1, 2017, we completed a vertical short-form amalgamation under the CBCA with two of our subsidiaries, HBMS and Hudson Bay Exploration and Development Company Limited, and changed our name from HudBay Minerals Inc. to Hudbay Minerals Inc.

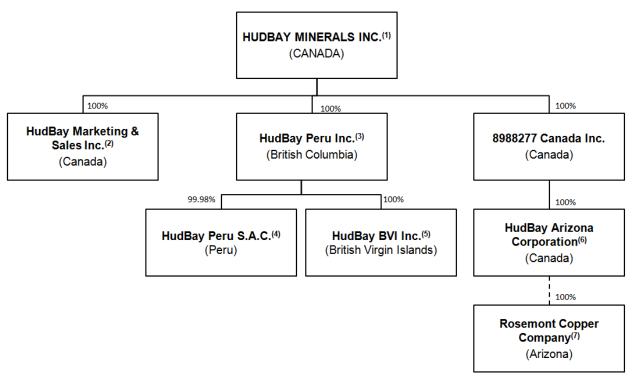
Our registered office is located at 2200-201 Portage Avenue, Winnipeg, Manitoba R3B 3L3 and our principal executive office is located at 25 York Street, Suite 800, Toronto, Ontario M5J 2V5.



Our common shares are listed on the Toronto Stock Exchange ("TSX"), New York Stock Exchange ("NYSE") and Bolsa de Valores de Lima under the symbol "HBM". Our warrants are listed under the symbol "HBM. WT" on the TSX and "HBM/WS" on the NYSE.

#### INTERCORPORATE RELATIONSHIPS

The following chart shows our principal subsidiaries, their jurisdiction of incorporation and the percentage of voting securities we beneficially own or over which we have control or direction.



- Hudbay owns our 777 and Lalor mines and our 70% owned Reed mine, holds exploration properties in Canada and is a borrower under our Canada Facility and is the issuer of our Senior Unsecured Notes.
- HudBay Marketing & Sales Inc. markets and sells our copper concentrate and zinc metal produced in Manitoba and is a guarantor of our Canada Facility and our Senior Unsecured Notes.
- HudBay Peru Inc. owns 99.98% of HudBay Peru S.A.C. ("Hudbay Peru"). The remaining 0.02% is owned by 6502873 Canada Inc., our wholly-owned subsidiary. HudBay Peru Inc. is a guarantor of our Peru Facility and our Senior Unsecured Notes.
- Hudbay Peru owns the Constancia mine, is the borrower under our Peru Facility and is a guarantor of our Senior Unsecured Notes.
- 5. HudBay (BVI) Inc. ("Hudbay BVI") was incorporated for the sole purpose of entering into and fulfilling our obligations under the precious metals stream agreement in respect of the Constanciamine.
- HudBay Arizona Corporation, through its subsidiaries, indirectly owns 100% of Rosemont Copper Company.
- Rosemont Copper Company currently owns a 92.05% interest in the Rosemont project.



# **DEVELOPMENT OF OUR BUSINESS**

#### **STRATEGY**

Our mission is to create sustainable value through acquisition, development and operation of high quality, long life deposits with exploration potential in mining friendly jurisdictions. We believe that the greatest opportunities for shareholder value creation in the mining industry are in the discovery of new mineral deposits and the development of new facilities to profitably extract ore from those deposits. We also believe that our successful development and ramp-up of the Constancia mine in Peru, along with our long history of mining and experience in northern Manitoba, provide us with a competitive advantage in these respects relative to other mining companies of similar scale.

We intend to grow Hudbay through exploration and development of properties we already control, such as our Rosemont project in Arizona, as well as through the acquisition of other properties that fit our strategic criteria. We also intend to optimize the value of our producing assets through efficient and safe operations.

In an attempt to ensure that any acquisitions we undertake create sustainable value for stakeholders, we have established a number of criteria for evaluating mineral property acquisition opportunities, which include the following:

- Potential acquisitions should be located in jurisdictions that are supportive of mining activity and have acceptable levels of political risk. Given our current scale and geographic footprint, our current geographic focus is on select investment grade countries in the Americas;
- We believe we have particular expertise in the exploration and development of volcanogenic massive sulphide and porphyry mineral deposits. While these types of deposits typically contain copper, zinc and precious metals in varying quantities, we are not targeting any one type of metal; rather, we focus on properties where we see the greatest opportunities for risk adjusted returns;
- We typically look for mineral assets that we believe offer significant potential for exploration, development and optimization. We believe that the market for mineral assets is sophisticated and fully values delineated resources and reserves, especially at properties that are already in production, which makes it difficult to acquire properties for substantially less than their fair value. However, markets may undervalue the potential of prospective properties, and more rarely producing properties, providing us with an opportunity to create value through exploration, development and optimization of acquired properties;
- We believe that large, transformational mergers or acquisitions are risky and potentially value destructive in the mining industry, so we typically focus on specific high quality (low cost, long life) mines, development projects and earlier stage projects unless exceptional opportunities present themselves;
- Before we make an acquisition, we develop a clear understanding of how we can add value to the acquired property through the application of our social, technical, operational and project execution expertise, the provision of necessary financial capacity and other optimization opportunities; and
- Acquisitions should be accretive to Hudbay on a per share basis. Given that our strategic focus includes the acquisition of non-producing assets at various stages of development, when evaluating accretion we will consider measures such as net asset value per share and the contained value of reserves and resources per share.

#### THREE YEAR HISTORY

#### **Amalgamation**

On January 1, 2017, the Company amalgamated with two of its wholly-owned subsidiaries, being Hudson Bay Mining and Smelting Co., Limited and Hudson Bay Exploration and Development Company Limited, and changed its name from "HudBay Minerals Inc." to "Hudbay Minerals Inc.".



#### **Senior Unsecured Notes Refinancing**

On December 12, 2016, we completed an offering of \$1.0 billion aggregate principal amount of senior notes in two series: (i) a series of 7.250% senior notes due 2023 in an aggregate principal amount of \$400 million (the "2023 Notes") and (ii) a series of 7.625% senior notes due 2025 in an aggregate principal amount of \$600 million (the "2025 Notes and, together with the 2023 Notes, the "Senior Unsecured Notes").

The proceeds from this offering were used to redeem all \$920 million of our outstanding 9.50% senior unsecured notes due 2020 (the "Redeemed Notes") and to pay a call premium, pre-paid interest and other transaction costs associated with the refinancing. The Senior Unsecured Notes have extended maturity dates, significantly reduced interest costs and a more flexible covenant structure as compared to the Redeemed Notes.

The \$1.0 billion aggregate principal amount of Senior Unsecured Notes are fully and unconditionally guaranteed, jointly and severally, on a senior unsecured basis, by substantially all of our existing and future subsidiaries other than our subsidiaries associated with the Rosemont project. For additional information, see "Description of Capital Structure - Senior Unsecured Notes".

# **Credit Facility Amendments**

On March 30, 2016, we amended and restated our two secured credit facilities to consolidate the lender groups and restructure the two facilities to provide, among other things, more flexible financial covenants. The \$300 million corporate revolving credit facility (the "Canada Facility") is secured by our Manitoba assets and the \$200 million Peru revolving credit facility (the "Peru Facility" and, together with the Canada Facility, the "Facilities") is secured by our Peru assets. In the second quarter of 2016, a Canadian chartered bank joined the syndicate for the Facilities with \$30 million in new commitments and, in connection with the refinancing of our Redeemed Notes, subsequently increased its commitment by \$20 million, bringing the total maximum available amount under the Canada Facility to \$350 million and the total maximum available amount under both Facilities to \$550 million. The Facilities, which currently are not cross-collateralized, mature on March 30, 2019.

#### **CEO Transition**

Effective January 1, 2016, Alan Hair became our President and Chief Executive Officer, replacing David Garofalo, who announced his resignation in early December 2015. Mr. Hair has twenty years of experience with Hudbay and has worked in the mining industry for more than three decades. He previously served as Hudbay's Chief Operating Officer from 2012 to 2015, a role that is now held by Cashel Meagher. Mr. Meagher was previously Vice President, South America Business Unit from 2011 to 2015, where he led the successful construction and ramp-up of the Constancia operation.

#### **Constancia Mine**

We substantially completed construction of the Constancia mine in Peru in the fourth guarter of 2014 at a capital cost of construction of approximately \$1.7 billion and the mine reached commercial production in the second guarter of 2015. The mine reached full and steady state production in the second half of 2015. In November 2016, we filed an updated National Instrument 43-101 technical report in respect of Constancia, which includes updates of the mine plan, including the high-grade Pampacancha satellite deposit, reserves and resources, throughput and capital and operating costs for the remaining life of mine at Constancia. For additional information, see "Description of our Business - Material Mineral Projects -Constancia Mine".



## **Manitoba Operations**

Our Lalor and Reed mines achieved commercial production in 2014, and in May 2015 we acquired the New Britannia mill, which is located in Snow Lake, Manitoba and has the potential to increase our capacity to process Lalor ore. In March 2017, we announced an updated mine plan for Lalor, which includes a 4,500 tonne per day throughput rate at the Stall mill for the base metal zone (see "Description of Our Business - Material Mineral Projects", below). Engineering work is underway on a potential restart of the New Britannia mill.

# **Acquisition of the Rosemont Project**

We acquired all of the issued and outstanding common shares (the "Augusta Shares") of Augusta Resource Corporation ("Augusta") (now HudBay Arizona Corporation, "Hudbay Arizona") pursuant to a take-over bid, which ultimately was supported by Augusta and its largest shareholders and expired July 29, 2014, and a subsequent acquisition transaction, which closed on September 23, 2014 (the "Augusta **Acquisition**"). The consideration per Augusta Share in the transaction was 0.315 of a Hudbay common share and 0.17 of a warrant to acquire a Hudbay common share. Through our acquisition of Augusta, we acquired our 92.05% ownership interest in the Rosemont project, a copper development project located in Pima County, Arizona, approximately 50 kilometres southeast of Tucson. Our ownership in the Rosemont project is subject to an Earn-In Agreement and a Joint Venture Agreement with United Copper & Moly LLC ("UCM"). Pursuant to the Earn-In Agreement, UCM has earned a 7.95% interest in the project and may earn up to a 20% interest (the "Earn-In Right"). The Earn-In Right is conditional on UCM contributing an additional \$106 million to the joint venture (the "Earn-In Investment"), which amount UCM is not obliged to contribute until all material permits in respect of the Rosemont project have been granted. After such permits have been obtained and a decision is made to commence construction at Rosemont, UCM is required to advance the Earn-In Investment pro rata with the \$230 million upfront deposit payment under the precious metals stream agreement with Silver Wheaton Corp. ("Silver Wheaton") in respect of the Rosemont project. In March 2017, we filed a National Instrument 43-101 technical report for Rosemont (see "Description of Our Business – Material Mineral Projects", below).

## **Equity Financing**

On January 9, 2014, we announced that we had entered into an agreement with a syndicate of underwriters who agreed to purchase, on a bought deal basis, 18,200,000 of our common shares at a price of C\$8.25 per common share. The underwriters were also granted an over allotment option, which they exercised in full, for an additional 2,730,000 common shares. The transaction closed on January 30, 2014, and the aggregate gross proceeds from the offering were C\$172.7 million. The net proceeds of the equity financing were used for general corporate purposes.

# **DESCRIPTION OF OUR BUSINESS**

## **GENERAL**

We are an integrated mining company producing copper concentrate (containing copper, gold and silver) and zinc metal. With assets in North and South America, we are focused on the discovery, production and marketing of base and precious metals. Directly and through our subsidiaries, we own four polymetallic mines, four ore concentrators and a zinc production facility in northern Manitoba and Saskatchewan (Canada) and Cusco (Peru), and a copper project in Arizona (United States). Our growth strategy is focused on the exploration and development of properties we already control, as well as other mineral assets we may acquire that fit our strategic criteria. Our vision is to become a top-tier operator of long-life, low cost mines in the Americas. Our mission is to create sustainable value through the acquisition, development and operation of high-quality and growing long-life deposits in mining-friendly jurisdictions.



We have four material mineral projects:

- 1. our 100% owned Constancia mine, an open pit copper mine in Peru, which achieved commercial production in the second guarter of 2015;
- 2. our 100% owned Lalor mine, an underground zinc, copper and gold mine near Snow Lake, Manitoba, which achieved commercial production in the third guarter of 2014;
- 3. our 100% owned 777 mine, an underground copper, zinc, gold and silver mine in Flin Flon, Manitoba, which has been producing since 2004; and
- 4. our 92.05% owned Rosemont project, a copper development project in Pima County, Arizona; our ownership in the Rosemont project is subject to an Earn-In Agreement with UCM, pursuant to which UCM has earned a 7.95% interest in the project and may earn up to a 20% interest.

We also own a 70% interest in the Reed mine near Snow Lake, Manitoba, which commenced commercial production in April 2014, exploration properties in North and South America and minority equity investments in several junior exploration companies as part of our strategy to build a pipeline of projects with the potential for development.

In addition, we own and operate a portfolio of processing facilities in northern Manitoba, including our primary Flin Flon ore concentrator, which produces zinc and copper concentrates, our Stall concentrator, which produces zinc and copper concentrates and our Flin Flon zinc plant, which produces high-grade zinc metal. In 2015, we acquired the New Britannia mill, located in Snow Lake, which, if refurbished, has the potential to increase our capacity to process gold ore from Lalor. In Peru, we own and operate a processing facility at Constancia, which produces copper and molybdenum concentrates.

The following map shows where our primary assets and certain exploration properties are located.





#### **MATERIAL MINERAL PROJECTS**

#### Constancia

Constancia is our 100% owned copper mine in Peru. It is located in the Province of Chumbivilcas in southern Peru and consists of the Constancia and Pampacancha deposits.

We completed construction of the Constancia mine in the fourth quarter of 2014 at a capital cost of construction of approximately \$1.7 billion and the mine reached commercial production in the second quarter of 2015. The mine reached full and steady state production in the second half of 2015.

Mining of the high-grade Pampacancha satellite deposit is planned to begin in 2018 with total project costs (excluding the costs associated with acquiring surface rights) of \$54 million.

Pursuant to a precious metals stream agreement we entered into with Silver Wheaton in respect of the Constancia mine, we received \$430 million in upfront deposit payments against delivery of 100% of the payable silver and 50% of the payable gold at Constancia. In addition to the upfront payments, for gold and silver delivered in accordance with the stream agreement, we receive cash payments equal to the lesser of (i) the market price and (ii) \$400 per ounce (for gold) and \$5.90 per ounce (for silver), subject to one percent annual escalation starting in 2019. Gold recovery for purposes of calculating payable gold is fixed at 55% for gold mined from Constancia and 70% for gold mined from Pampacancha.

On November 21, 2016, we filed a technical report titled "NI 43-101, Technical Report, Constancia Mine Cuzco, Peru", effective as of June 30, 2016, prepared by Cashel Meagher, P. Geo (our Chief Operating Officer) (the "Constancia Technical Report"), a copy of which is available under our profile on SEDAR at www.sedar.com and on EDGAR at www.sec.gov. For additional details on our Constancia mine, refer to Schedule B of this AIF.

#### Mineral Reserves and Resources

The following table sets forth our estimates of the mineral reserves at the Constancia mine as at January 1, 2017.(1)(2)

Constancia Mineral Reserves – January 1, 2017 <sup>(1)(2)</sup>						
	Tonnes	Cu (%)	Mo (g/t)	Au (g/t)	Ag (g/t)	
Constancia						
Proven	431,300,000	0.30	95	0.037	2.88	
Probable	109,900,000	0.23	62	0.034	2.55	
Total Proven and Probable	541,200,000	0.28	88	0.037	2.81	
Pampacancha						
Proven	22,800,000	0.53	149	0.299	4.44	
Probable	20,200,000	0.44	164	0.250	3.85	
Total Proven and Probable	43,000,000	0.49	156	0.276	4.17	
Total Mineral Reserve	584,200,000	0.30	93	0.054	2.91	

#### Notes:

- The mineral reserve estimates for Constancia are based on a long range mine plan with economic value calculation per block (NSR in \$/t), mining, processing and detailed engineering parameters.
- The Constancia reserve pits (Constancia and Pampacancha) consist of operational pits of proven and probable reserves and are based on the following long-term metals prices: \$3.00 per pound of copper; \$11.00 per pound of molybdenum; \$18.00 per ounce of silver; and \$1,260 per ounce of gold; metallurgical recoveries applied by ore type (between 84.4% to 90.5%); and



processing cost of \$4.44 per tonne, general and administrative costs of \$1.60 per tonne and mining costs of \$1.30 and \$1.35 per tonne (waste and ore, respectively).

The following table sets forth our estimates of the mineral resources at the Constancia mine as at January 1, 2017.(1)(2)

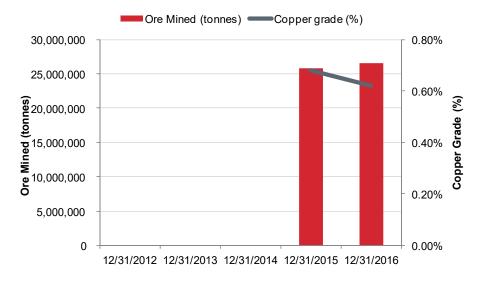
Category	M (tonnes)	Cu (%)	Mo (g/t)	Au (g/t)	Ag (g/t)
Constancia					
Measured	161,800,000	0.19	55	0.031	2.26
Indicated	287,800,000	0.17	50	0.026	1.89
Total Measured & Indicated	449,600,000	0.18	52	0.028	2.02
Total Inferred	138,100,000	0.17	40	0.018	1.70
Pampacancha					
Measured	7,500,000	0.35	57	0.235	4.13
Indicated	15,200,000	0.18	90	0.180	2.85
Total Measured & Indicated	22,700,000	0.23	79	0.198	3.27
Total Mineral Resources (Measured and Indicated)	472,300,000	0.18	53	0.036	2.08

#### Notes:

- Mineral resources that are not mineral reserves do not have demonstrated economic viability. The above mineral resources are exclusive of mineral reserves.
- Mineral resources are constrained within a computer generated pit using the Lerchs-Grossman algorithm. Estimates of mineral resources are based on the following long-term metals prices: \$3.00 per pound of copper; \$11.00 per pound of molybdenum; \$18.00 per ounce of silver; and \$1,260 per ounce of gold. Metallurgical recoveries of 90.5% copper, 55% molybdenum, 72% silver and 60% gold were applied to sulfide material. Metallurgical recoveries of 88.4% copper, 55% molybdenum, 90% silver and 60% gold were applied to mixed and supergene material. A metallurgical recovery of 84% copper, 52% silver and 60% gold for copper was applied to skarn and high zinc material. NSR was calculated for every model block and is an estimate of recovered economic value of copper, molybdenum, silver and gold combined.

The following chart shows Constancia production (tonnes and grade) for the last two years:

# **Constancia Mine Output**





#### Lalor

Our 100% owned Lalor mine is a zinc, copper and gold mine near the Town of Snow Lake in the province of Manitoba. Lalor is located approximately 208 kilometres by road east of Flin Flon, Manitoba.

In the first quarter of 2014, we received the Environment Act licence for Lalor, which allowed the mine to move into full production via the main shaft. Lalor commenced initial ore production from the ventilation shaft in August 2012 and achieved commercial production from the main shaft in the third guarter of 2014. In the third quarter of 2014, we completed a refurbishment of the equipment and facilities at the Stall concentrator, which now has the capacity to treat 3,000 tonnes per day. Lalor base metal ore and gold ore in contact with base metals is being transported for processing at the Stall concentrator.

The Lalor mine is currently operating at 3,000 to 3,500 tonnes per day and is ramping up production to 4,500 tonnes per day by 2018. The increase in production to 4,500 tpd at Lalor is complemented by the Stall concentrator expansion to 4,500 tpd, which is currently underway and is expected to be commissioned in the third quarter of 2018.

In the fourth quarter of 2016, Hudbay developed 37 drift rounds at Lalor to assess the continuity and variability of non-contact gold mineralization within discrete areas of zones 21 and 25. Approximately 10,000 tonnes of bulk sample material was mined and hauled to surface. The material was primary crushed and processed through a sample tower to collect a representative subsample of each development round. The integrity of the material was maintained at all times through a rigorous chain of custody process. The mined material, stored on surface, is available for milling pending the potential economic viability of refurbishing the New Britannia gold mill in Snow Lake by Hudbay.

On March 30, 2017, we filed a NI 43-101 technical report titled "NI 43-101 Technical Report, Lalor Mine, Snow Lake, Manitoba, Canada", prepared by Robert Carter, P. Eng. (our Lalor Mine Manager), dated effective March 30, 2017 (the "Lalor Technical Report"), a copy of which is available under our profile on SEDAR at www.sedar.com and will be filed on EDGAR at www.sec.gov. For additional details on our Lalor mine, refer to Schedule B of this AIF.

#### Mineral Reserves and Resources

The following tables set forth our estimates of the mineral reserves and resources at the Lalor mine.

Lalor Mineral Reserves – January 1, 2017 (1)(2)(3)							
	Tonnes	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)		
Lalor Mine							
Proven	4,383,000	0.76	6.76	2.37	27.33		
Probable	9,849,000	0.65	4.39	2.72	26.12		
Total Mineral Reserve	14,232,000	0.69	5.12	2.61	26.50		

#### Notes:

- 1. Mineral reserves are estimated at an NSR cut-off of \$88 per tonne for longhole open stope mining method and \$111 per tonne for cut and fill mining method.
- A zinc price of \$1.07 per pound (includes premium), copper price of \$3.00 per pound, gold price of \$1,260 per ounce and silver price of \$18.00 per ounce and an exchange rate of 1.10 C\$/US\$ was used to estimate mineral reserves.
- For additional details relating to the estimates of mineral reserves at our Lalor mine, including data verification and quality assurance / quality control processes, refer to Schedule B and the Lalor Technical Report.



# Lalor Base Metal Mineral Resources, Exclusive of Mineral Reserves – September 30, 2016 (1)(2)

	Tonnes	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
Lalor – Indicated Base Metal					
Indicated	2,100,000	0.49	5.34	1.69	28.10
Lalor – Inferred Base Metal					
Inferred	545,300	0.32	8.15	1.45	22.28

#### Notes:

- A zinc metal price of \$1.19 per pound, a copper price of \$2.67 per pound, gold price of \$1,300 per ounce and a siliver price of \$18.00 per ounce were used to calculate a zinc equivalence (Zn Eq) cut-off of 4.1%, where Zn Eq = Zn% + (1.98 x Cu%) + (1.11 x Au g/t) + (0.01 x Ag g/t) - (0.01 x Pb%). An exchange rate of 1.25 C\$/US\$ was used to estimate mineral resources. The Zn Eq considers the ratio of milling recovery, payability and value of metals after application of downstream processing costs. The Zn Eq cut-off of 4.1% covers administration overhead, mining removal, milling and general and administration costs.
- Mineral resources that are not mineral reserves do not have demonstrated economic viability.

# Lalor Gold Mineral Resources, Exclusive of Mineral Reserves – September 30, 2016 (1)(2)

	Tonnes	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
Lalor - Indicated Gold Zone					
Indicated	1,750,000	0.34	0.40	5.18	30.61
Lalor – Inferred Gold Zone					
Inferred	4,124,000	0.90	0.31	5.02	27.61

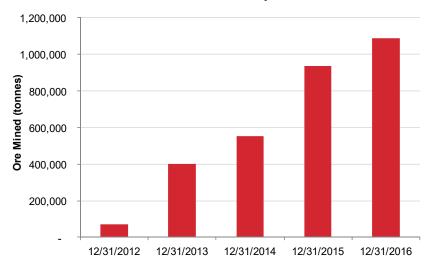
- A gold metal price of \$1.300 per ounce, a copper price of \$2.67 per pound and a silver price of \$18.00 per ounce were used to calculate a gold equivalence (Au Eq) cut-off of 2.4 g/t Au Eq, where Au Eq = Au g/t + (1.34 x Cu %) + (0.01 x Ag g/t). An exchange rate of 1.25 C\$/US\$ was used to estimate mineral resources. The Au Eq considers the ratio of milling recovery, payability and value of metals after application of downstream processing costs. Au Eq cut-off of 2.4 g/t covers administration overhead, mining removal, milling and general and administration costs.
- Mineral resources that are not mineral reserves do not have demonstrated economic viability.

#### Production

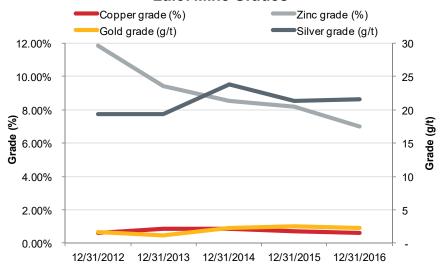
The following charts show Lalor production (tonnes and grade) for the last five years:



# **Lalor Mine Output**



#### **Lalor Mine Grades**



#### 777

Our 100% owned 777 mine is an underground copper, zinc, gold and silver mine located within the Flin Flon Greenstone Belt, immediately adjacent to our principal concentrator and zinc pressure leach plant in Flin Flon, Manitoba. Development of the 777 mine commenced in 1999 and commercial production began in 2004. The mine life is expected to be until 2020.

Ore produced at the 777 mine is transported to our Flin Flon concentrator for processing into copper and zinc concentrates. Copper concentrate is sold to third party purchasers and zinc concentrate is sent to our Flin Flon zinc plant where it is further processed into special high grade zinc before being sold to third party purchasers. For additional information, see "Description of our Business - Other Information - Processing Facilities" and "Description of our Business - Other Information - Products and Marketing".

Pursuant to the precious metals stream agreement we entered into with Silver Wheaton in respect of the 777 mine, we received a \$455 million upfront deposit payment for a portion of the precious metals stream at 777. We are currently required to deliver 50% of the payable gold and 100% of the payable silver from the 777 mine and receive fixed payments equal to the lesser of (i) the market price and (ii) \$400 per ounce (for gold) and \$5.90 per ounce (for silver), subject to one percent annual escalation that started in 2015.



On November 6, 2012, we filed a NI 43-101 technical report titled "Technical Report, 777 mine, Flin Flon, Manitoba, Canada", prepared by Brett Pearson, P. Geo., Darren Lyhkun, P. Eng., Cassandra Spence, P. Eng., Stephen West, P. Eng. and Robert Carter, P. Eng. and dated effective October 15, 2012 (the "777 Technical Report"), a copy of which is available under our profile on SEDAR at www.sedar.com and on EDGAR at www.sec.gov. For additional details on our 777 mine refer to Schedule B of this AIF.

#### Mineral Reserves and Resources

The following tables set forth our estimates of the mineral reserves and resources at the 777 mine.

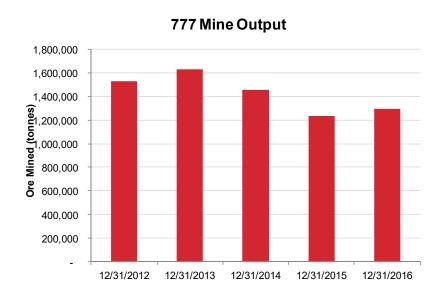
777 Mineral Reserves – January 1, 2017 <sup>(1)(2)</sup>							
777 Mine	Tonnes	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)		
Proven	3,080,000	1.98	4.93	2.01	31.53		
Probable	1,386,000	1.16	5.09	2.04	30.96		
Total Mineral Reserve	4,466,000	1.73	4.98	2.02	31.35		
777 In	dicated Mineral R	esources – Se <sub>l</sub>	ptember 30, 20	<b>16</b> <sup>(1)(2)(3)</sup>			
	Tonnes	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)		
777 Mine	736,000	0.99	3.53	1.82	26.24		
777 In-Mine Inferred Mineral Resources – September 30, 2016 (1)(2)(3)							
	Tonnes	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)		
777 Mine	673,000	1.01	4.26	1.72	30.95		

#### Notes:

- A zinc price of \$1.24 per pound (includes premium), copper price of \$2.67 per pound, a gold price of \$1,300 per ounce and silver price of \$18.00 per ounce using an exchange rate of 1.25 C\$/US\$ was used to estimate mineral reserves and mineral
- For additional details relating to the estimates of mineral reserves and resources at our 777 mine, including data verification and quality assurance / quality control processes, refer to Schedule B and the 777 Technical Report.
- Mineral resources that are not mineral reserves do not have demonstrated economic viability. The above mineral resources are exclusive of mineral reserves.

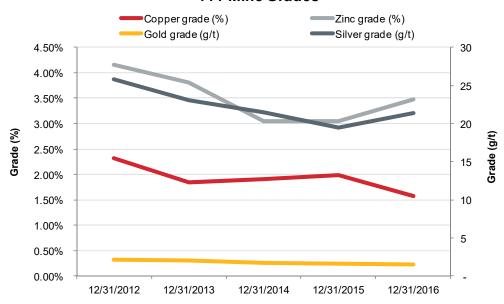
## Production

The following charts show 777 production (tonnes and grade) for the last five years:





#### 777 Mine Grades



#### Rosemont

Rosemont is a copper development project, located in Pima County, Arizona, approximately 50 kilometres southeast of Tucson. We acquired Rosemont through our acquisition of Augusta in 2014. Our ownership in the Rosemont project is subject to an Earn-In Agreement with UCM, pursuant to which UCM has earned a 7.95% interest in the project and may earn up to a 20% interest.

Since the acquisition of the Rosemont project, we have completed an extensive work program, including in-fill drilling, detailed metallurgical test work, and a bottom-up approach to cost estimation, along with other feasibility-level work. The Rosemont project will be a traditional open pit, shovel and truck operation and has an expected 19-year mine life. Rosemont is expected to generate an after-tax, unlevered internal rate of return of 15.5%, using a long-term copper price of \$3.00 per pound of copper, and has a capital cost estimate of \$1,921 million (on a 100% basis).

The permitting process for Rosemont is well advanced and continues to progress. The key federal permits outstanding are the Final Record of Decision from the U.S. Forest Service and the Section 404 Water Permit from the U.S. Army Corps of Engineers. These federal permits are currently in the final stages of the review process. All State of Arizona permits and approvals have been issued for Rosemont and remain in force and are current. The project design included in the Rosemont Technical Report (as defined below) is specifically intended to meet the impacts analyzed and commitments outlined in the federal and state permits.

Pursuant to our precious metals stream agreement with Silver Wheaton in respect of the Rosemont project, we will receive deposit payments of \$230 million against delivery of 100% of the payable silver and gold from the Rosemont project. The deposit will be payable upon the satisfaction of certain conditions precedent, including the receipt of permits for the Rosemont project and the commencement of construction. In addition to the deposit payments, as gold and silver is delivered to Silver Wheaton, we will receive cash payments equal to lesser of (i) the market price and (ii) \$450 per ounce (for gold) and \$3.90 per ounce (for silver), subject to one percent annual escalation after three years.

On March 30, 2017, we filed a technical report titled "NI 43-101, Feasibility Study, Updated Mineral Resource, Mineral Reserve and Financial Estimates, Rosemont Project, Pima County, Arizona, USA", effective as of March 30, 2017, prepared by Cashel Meagher, P. Geo (our Chief Operating Officer) (the "Rosemont Technical Report"), a copy of which is available under our profile on SEDAR at www.sedar. com and will be filed on EDGAR at www.sec.gov. For additional details on our Rosemont project, refer to



Schedule B of this AIF.

#### Mineral Reserves and Resources

The following table sets forth our estimates of the mineral reserves at the Rosemont project as at March 30, 2017.(1)(2)(3)

Rosemont Mineral Reserves	Tonnes	Cu (%)	Mo (%)	Ag (g/t)
Proven	426,100,000	0.48	0.012	4.96
Probable	111,000,000	0.31	0.010	3.09
Total Proven and Probable	537,100,000	0.45	0.012	4.58

#### Notes:

- Blocks were classified as Proven or Probable in accordance with CIM Definition Standards 2014.
- Mineral resources are constrained within a computer generated pit using the Lerchs-Grossman algorithm. Metal prices of US\$3.15/lb copper, US\$11.00/lb molybdenum and US\$18.00/troy oz silver were used. Metallurgical recoveries of 90% copper, 63% molybdenum and 75.5% silver were applied. No metallurgical recovery of molybdenum and silver from oxide ore is
- Based on 100% ownership of the Rosemont project.

The following table sets forth our estimates of the mineral resources at the Rosemont project as at March 30, 2017. (1)(2)(3)

Rosemont Mineral Resources	Tonnes	Cu (%)	Mo (%)	Ag (g/t)
Measured	161,300,000	0.38	0.009	2.72
Indicated	374,900,000	0.25	0.011	2.60
Total Measured & Indicated	536,200,000	0.29	0.011	2.64
Total Inferred	62,300,000	0.30	0.010	1.58

#### Notes:

- Mineral resources that are not mineral reserves do not have demonstrated economic viability. The above mineral resources are exclusive of mineral reserves.
- Mineral resources are constrained within a computer generated pit using the Lerchs-Grossman algorithm. Estimates of mineral resources are based on the following long-term metals prices: \$3.15 per pound of copper; \$11.00 per pound of molybdenum; and \$18.00 per ounce of silver. Metallurgical recoveries of 85% copper, 60% molybdenum and 75% silver were applied to sulfide material. Metallurgical recoveries of 40% copper, 30% molybdenum and 40% silver were applied to mixed material. A metallurgical recovery of 65% for copper was applied to oxide material. NSR was calculated for every model block and is an estimate of recovered economic value of copper, molybdenum, and silver combined. Cut-off grades were set in terms of NSR based on current estimates of process recoveries, total process and general and administrative operating costs of \$5.70 per ton for oxide, mixed and sulfide material.
- Based on 100% ownership of the Rosemont project; Hudbay currently owns a 92.05% interest in the project and its ownership interest is subject to an Earn-In Agreement with UCM, pursuant to which UCM has earned a 7.95% interest in the project and may earn up to a 20% interest.

#### **OTHER ASSETS**

#### Reed

Our 70% owned Reed mine near Flin Flon, Manitoba began commercial production on April 1, 2014. Reed ore is transported by truck for processing at the Flin Flon concentrator.



Our estimates of mineral reserves and resources for Reed are set out below.

Reed Mineral Reserves – January 1, 2017 (1)(2)						
Reed Mine	Tonnes	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	
Proven	362,000	3.35	0.68	0.39	5.35	
Probable	337,000	3.95	0.31	0.52	5.26	
Total Mineral Reserve	699,000	3.64	0.50	0.45	5.30	

Reed Inferred Mineral Resources – September 30, 2016 (1)(3)							
Ton	nes Cu (%	%) Zn (%)	Au (g/t)	Ag (g/t)			
88,	000 3.1	13 0.42	0.79	6.00			

#### Notes:

- 1. A zinc price of \$1.22 per pound (includes premium), copper price of \$2.50 per pound, gold price of \$1,300 per ounce and silver price of \$18.00 per ounce using an exchange rate of 1.28 C\$/US\$ was used to estimate mineral reserves. A zinc price of \$1.24 per pound (includes premium), copper price of \$2.67 per pound, gold price of \$1,300 per ounce and silver price of \$18.00 per ounce using an exchange rate of 1.25 C\$/US\$ was used to estimate mineral resources.
- For additional details relating to the estimates of mineral reserves and resources at the Reed mine, including data verification and quality assurance/quality control processes refer to the pre-feasibility study filed on SEDAR on May 14, 2012 by VMS Ventures Inc. titled "Pre-Feasibility Study Technical Report on the Reed Copper Deposit, Central Manitoba, Canada" prepared by Trevor Allen, P. Geo., Cassandra Spence, P. Eng., Mark Hatton, P. Eng. and Brent Christensen, P. Eng. and dated effective April 2 2012
- Mineral resources that are not mineral reserves do not have demonstrated economic viability. The above mineral resources are exclusive of reserves and were estimated using the same metals prices as were used for the estimate of mineral reserves at Reed

#### **Processing Facilities**

#### Concentrators

Our primary ore concentrator in Manitoba is located in Flin Flon. The concentrator, which is directly adjacent to our metallurgical zinc plant, produces zinc and copper concentrates primarily from ore mined at our 777 mine. Its capacity is approximately 6,000 tonnes of ore per day. The concentrator can handle ore from more than one mine separately, and blending is done at the grinding stage. As a result, ore mined from our Reed mine is transported to the Flin Flon concentrator for processing. The Flin Flon concentrator facility includes a paste backfill plant and associated infrastructure such as maintenance shops and laboratories. Tailings from the concentrator are pumped to the Flin Flon tailings impoundment immediately adjacent to the concentrator.

Our Stall concentrator in Snow Lake, Manitoba was re-started in late 2009 and a new copper recovery circuit was installed in the third quarter of 2012 to facilitate processing of Lalor ore. In 2014, we refurbished equipment and facilities at the Stall concentrator, which has exceeded performance expectations and, with a modest capital investment, will have capacity to treat 4,500 tonnes per day on a sustainable basis starting in the third quarter of 2018. The concentrator processes ore from Lalor and produces zinc and copper concentrates. The zinc concentrate is shipped by truck for further processing at our zinc plant in Flin Flon. Tailings generated by the Stall concentrator are deposited in our Anderson Lake tailings facility, which we believe mitigates environmental impacts, as the tailings are deposited in a subaqueous manner, minimizing the potential for generation of acid rock drainage.

On May 4, 2015, Hudbay acquired a 100% interest in the New Britannia mine and mill, located in Snow Lake, Manitoba, The New Britannia mill is currently on care and maintenance, If refurbished, it has the potential to process up to 1,500 tonnes per day of gold zone and copper-gold zone ore from the Lalor mine, with the potential to augment the base metal production from the Stall mill and utilize the full 6,000 tonnes per day capacity of the Lalor mine shaft. The New Britannia mill includes an existing Carbon-in-Pulp circuit that has historically produced gold doré on site.



Our processing plant at Constancia processes a nominal throughput of 90,000 tonnes per day of ore and average annual throughput of 30.9 million tonnes per year from the Constancia open pit and Pampacancha satellite deposit. The principal product of the concentrator is copper concentrate. The primary crusher, belt conveyors, thickeners, tanks, flotation cells, mills and various other types of equipment are designed and constructed to be open to the environment. The concentrate filtration and storage building is enclosed. The tailings are pumped to the tailings management facility for storage and water is returned via parallel piping to the process plant for reuse.

#### Zinc Plant

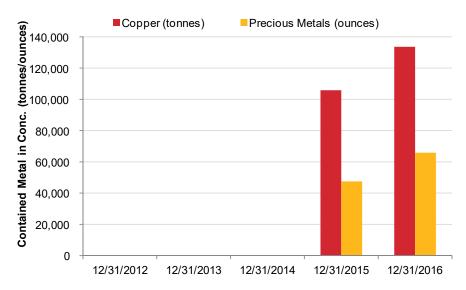
Our zinc plant in Flin Flon, Manitoba produces special high-grade zinc metal in three cast shapes from zinc concentrate. Our plant is a primary zinc producer in North America. We produced 102,594 tonnes of cast zinc in 2016 and the capacity of the zinc plant is approximately 115,000 tonnes of cast zinc per year. Included in the zinc plant are an oxygen plant, a concentrate handling, storage and regrinding facility, a zinc pressure leach plant, a solution purification plant, a modern electro-winning cellhouse, a casting plant and a zinc storage area with the ability to load trucks or rail cars. The zinc plant has a dedicated leach residue disposal facility. The bulk of the waste material is gypsum, iron and elemental sulphur. Wastewater is treated and recycled through the zinc plant.

With Lalor and 777 in full production, domestic zinc concentrate currently provides sufficient feed for our zinc plant and we do not plan to purchase any zinc concentrate in 2017.

#### Production

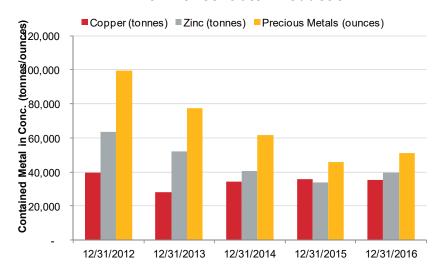
The following charts show concentrator production (tonnes/ounces) for our Constancia, Flin Flon and Stall concentrators for the last five years:

#### **Constancia Concentrator Production**

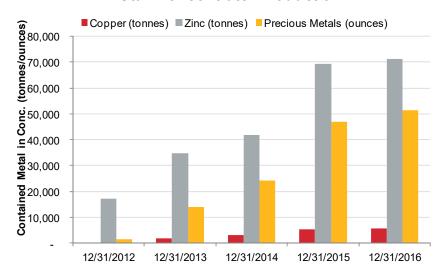




#### Flin Flon Concentrator Production



#### Stall Concentrator Production



#### **Exploration**

Exploration in Manitoba during 2016 focused on underground drilling at Lalor and has been incorporated into the updated resource estimate in this AIF. Our total land package in the Flin Flon greenstone belt of Manitoba and Saskatchewan as at December 31, 2016 was 256,000 hectares. Given that much of this property is within 100 kilometres of our processing facilities in the region, we are better positioned for the economic exploitation of mineral deposits on these lands than a mining company that is without such facilities. In 2017, we plan to continue early stage exploration on our best prospects in the region.

Activities in Peru include brownfield exploration in the vicinity of Constancia, greenfield exploration within the Constancia belt and other areas, acquiring option properties and land consolidation. Our Peru land package increased in 2016 from approximately 40,000 hectares to approximately 50,000 hectares as we continue to benefit from opportunities to inexpensively acquire exploration rights arising from the difficult market environment for exploration-stage mining companies.

Exploration activities in Chile focus on an optioned property. Work includes mapping, geochemical sampling, geophysics and drilling. Activities on this property and other areas that meet our geological criteria will continue in 2017.



In addition, we will continue to consider greenfield exploration opportunities in North and South America that fit our strategic criteria as they present themselves.

#### **Strategic Investments**

As at December 31, 2016, we held minority equity positions in 15 junior exploration companies, representing investments with a fair market value of approximately C\$20 million, as part of our strategy to populate a pipeline of projects with the potential for exploration and development. Our early stage opportunity pipeline consists of minority interests in junior exploration companies with projects in Canada, the United States, Chile and Peru. We are continuing to evaluate new projects and potential investments to add to our portfolio and will seek to dispose of investments when the underlying projects are no longer consistent with our strategy.

#### **Cash and Cash Equivalents**

Our cash and cash equivalents as of December 31, 2016 were \$147 million, and are held in low risk liquid investments and deposit accounts pursuant to our investment policy.

#### OTHER INFORMATION

#### **Products and Marketing**

Our principal products are copper concentrate, which contains payable copper, gold and silver, and refined zinc metal. In 2016, with Constancia having its first full year of commercial production, we experienced significant growth and produced 703,299 tonnes of copper concentrate (527,296 tonnes at Constancia and 176,003 tonnes in Manitoba) and 102,594 tonnes of cast zinc. In 2016, copper concentrate sales represented approximately 81% (79% in 2015) and zinc metal sales represented approximately 19% (21% in 2015) of our total gross consolidated revenue (which includes the unrealized gains and losses on derivatives associated with sales of copper and zinc).

In 2016, we sold approximately 69% (90% in 2015) of our copper concentrate production to third party purchasers on benchmark terms, and in 2017 we expect to sell approximately 83% to third parties on benchmark terms. We sell the remainder of our copper concentrate production pursuant to shorter-term contracts as opportunities arise. Manitoba copper concentrate production is primarily sold for delivery to smelters in Canada and Europe, while Peru concentrate is primarily sold for delivery to smelters in Asia, with some volumes delivered to Europe and India.

We sell gold and silver from our 777 and Constancia mines and contained in our copper concentrate to Silver Wheaton pursuant to the terms of the precious metals stream agreements in respect of our 777 and Constancia mines.

We ship cast zinc metal produced at our Flin Flon zinc plant by rail and truck to third party customers in North America. One customer in Canada represented approximately 30% of our zinc metal sales in 2016.

#### **Commodity Markets**

Our financial performance is directly affected by a number of factors, including metal prices, foreign exchange rates, and input costs, including energy prices. Average prices for zinc and precious metals were higher in 2016 than in 2015, while average copper prices were lower. For additional information refer to our market analysis of copper, zinc, gold and silver prices during this period on pages 18 and 19 of our management's discussion and analysis for the year ended December 31, 2016, a copy of which has been filed on SEDAR at www.sedar.com and EDGAR at www.sec.gov.



#### Specialized Skill and Knowledge

The success of our operations depends in part on our ability to attract and retain geologists, engineers, metallurgists and other personnel with specialized skill and knowledge about the mining and mineral processing industries in the geographic areas in which we operate. For additional information, see "Risk Factors - Human Resources".

## **Competitive Conditions**

The mining industry is intensely competitive and we compete with many companies in the search for and the acquisition of attractive mineral properties. In addition, we also compete for the technical expertise to find, develop, and operate such properties, the labour to operate the properties, and the capital for the purpose of funding such properties. For additional information, see "Risk Factors – Competition".

#### **Economic Dependence**

We do not have any contracts upon which our business is substantially dependent, as our principal products, copper concentrate and zinc, are widely traded commodities and we may enter into contracts for the sale of such products with a variety of potential purchasers.

#### **Environmental Protection**

Our activities are subject to environmental laws and regulations. Environmental laws and regulations are evolving in a manner that will require stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects and a heightened degree of responsibility for companies and their officers, directors and employees. For additional information, see "Risk Factors – Governmental and Environmental Regulation".

Our goal is to continue to improve our environmental performance. We have established an environmental management program directed at environmental protection and compliance to achieve our goal and address these regulatory changes. For additional information, see "Corporate Social Responsibility".

#### **Employees**

As at December 31, 2016, we had 65 employees at our Toronto head office, 1,342 employees in Manitoba, 593 employees in Peru and 40 employees in Arizona.

Of our 1,342 employees in Manitoba, 1,031 were unionized as at December 31, 2016. Our collective bargaining agreements with the seven unions representing the unionized employees in Manitoba expire on December 31, 2017.

Hudbay maintains a profit sharing plan pursuant to which 10% of the after-tax profit of the Manitoba Business Unit (excluding provisions or recoveries for deferred income and mining tax) for any given year is distributed among eligible employees in the Flin Flon/Snow Lake operations, with the exception of executive officers and key management personnel.

As is typical with large Peruvian mining operations following startup, some of the employees at Constancia have formed a labour union and we recently entered into a collective agreement with these employees to cover a one year period from November 2016 to November 2017.

# CORPORATE SOCIAL RESPONSIBILITY

At Hudbay, we view our responsible corporate behaviour as integral to the successful execution of our business strategy, particularly in maintaining a good reputation with our regulators and communities and



being able to bring that good reputation to new communities and jurisdictions when we embark on new projects. We therefore commit to our stakeholders to work to create benefits and opportunities that contribute to their economic and social sustainability, and to protect our natural environment. We also commit to our employees to maintain a safe and healthy work environment. As described below, we have adopted a number of voluntary codes and other external instruments that we consider particularly relevant to our business, including Environmental Management System Standard ISO 14001, Occupational Health and Safety Assessment Series ("OHSAS") 18001, the Voluntary Principles on Security and Human Rights, and our commitment to follow the Toward Sustainable Mining ("TSM") program of the Mining Association of Canada at all of our operating locations.

#### **HEALTH, SAFETY AND ENVIRONMENTAL POLICIES**

Among our core values are protecting the health and welfare of our employees and contractors and reducing the impact of our operations on the environment. All of our producing operations have management systems certified to OHSAS 18001 and Environmental Management System Standard ISO 14001 or are, in the case of Constancia, on track to have certified systems by mid-2017. In addition, the production and supply of our cast zinc products are registered to the ISO 9001 quality standard.

We believe that ongoing improvement in the safety of our workplace assists in maintaining healthy labour relations and that our ability to minimize lost-time injuries and environmental regulatory violations is a significant factor in maintaining and realizing opportunities to improve overall operational efficiency. Our safety management systems include the Positive Attitude Safety System ("PASS"), which is in use at our Manitoba operations. The PASS system is based on facilitated discussions at all levels of the organization to increase each person's involvement in recognizing and managing workplace risks. In 2016, our consolidated lost time accident frequency per 200,000 hours worked was 0.3. This is the same as our frequency in 2015, as the number of lost time accidents and the number of hours worked both decreased in 2016. We continue to focus our safety efforts on maintaining a high level of safety performance at all ourlocations.

Our environmental management program consists of a corporate environmental policy, and at each site codes of practice, regular audits, the integration of environmental procedures with operating procedures, employee training and emergency prevention and response procedures. We have dedicated teams which are charged with managing our environmental activities and our compliance with all applicable environmental standards and regulations. Appropriate water stewardship plays an important role in the development and operation of our projects, particularly the Rosemont project. We did not have any material environmental non-compliances in 2016.

In 2016 we continued to refine our company wide information system for recording, managing and tracking environmental, health, safety and community incidents.

# **HUMAN RIGHTS POLICY**

Our Human Rights Policy articulates our commitments to human rights and addresses topics such as business and labour practices, community participation and security measures. Our Corporate Standards for Community Giving and Investment and Local Procurement and Employment provide our business units with additional corporate direction on minimum standards with respect to meeting the commitments we set out in our Human Rights Policy.

The Voluntary Principles on Security and Human Rights provide important guidance for our security and community relations practices in locations with higher potential for social conflict and, in Peru, we regularly audit security policies and practices and conduct gap analyses against the Voluntary Principles.

#### SUSTAINABILITY REPORTING

We publish an annual corporate social responsibility report that further presents and discusses our environmental, social, health and safety performance. This report is prepared pursuant to the Global



Reporting Initiative guidelines, which is the world's most widely used sustainability framework. Our 2015 Annual / Corporate Social Responsibility Combined Report has been prepared largely in accordance with G4 and available on option of the quidelines is our http://www.hudbayminerals.com/English/Responsibility/Reports. Our 2016 report is expected to be released in the second quarter of 2017.

# RISK FACTORS

An investment in our securities is speculative and involves significant risks that should be carefully considered by investors and prospective investors. In addition to the risk factors described elsewhere in this AIF, the risk factors that impact us and our business include, but are not limited to, those set out below. Any one or more of these risks could have a material adverse effect on our business, results of operations. financial condition and the value of our securities.

#### METALS PRICES AND FOREIGN EXCHANGE

Our profit or loss and financial condition depend upon the market prices of the metals we produce, which are cyclical and which can fluctuate widely with demand. The profitability of our current operations is directly related and sensitive to changes in the market price of copper and zinc and, to a lesser extent, that of gold and silver. Market prices of metals can be affected by numerous factors beyond our control, including the overall state of the economy, general levels of supply and demand for a broad range of industrial products, substitution of new or different products in critical applications for existing products, level of industrial production, expectations with respect to the rate of inflation, foreign exchange rates and investment demand for commodities, interest rates and speculative activities. Such external economic factors are in turn influenced by changes in international investment patterns, monetary systems and political developments. The Chinese market has become a significant source of global demand for commodities, including copper and zinc. Chinese demand has been a major driver in global commodities markets for a number of years. A further slowing in China's economic growth could result in lower prices and demand for our products and negatively impact our results. We could also experience these negative effects if demand in China slowed for other reasons, such as increased self-sufficiency or increased reliance on other suppliers to meet demand. Prices are also affected by the overall supply of the metals we produce, which can be affected by the start-up of major new mines, production disruptions and closures of existing mines. Future price declines may, depending on hedging practices, materially reduce our profitability and could cause us to reduce output at our operations (including, possibly, closing one or more of our mines or plants). If such price declines were significant, there could be a material and adverse effect on our cash flow from operations and our ability to satisfy our debt service obligations (see "Access to Capital and Indebtedness" below).

In addition to adversely affecting the reserve estimates and the financial condition of the Company, declining metals prices can impact operations by requiring an assessment or reassessment of the feasibility of a particular project. If metals prices should decline below our cash costs of production and remain at such levels for any sustained period, we could determine that it is not economically feasible to continue production at any or all of our mines. We may also curtail or suspend some or all of our exploration and development activities, with the result that our depleted reserves are not replaced.

In addition, since our core operations are located in Canada and Peru, many of our costs are incurred in Canadian dollars and Peruvian soles. However, our revenue is tied to market prices for copper, zinc and other metals we produce, which are typically denominated in United States dollars. If the Canadian dollar or Peruvian sol appreciate in value against the United States dollar, our results of operations and financial condition could be materially adversely affected. Although we may use hedging strategies to limit exposure to currency fluctuations, there can be no assurance that such hedging strategies will be successful or that they will mitigate the risk of such fluctuations.



#### **DEVELOPMENT OF NEW PROJECTS**

Our ability to successfully develop the Rosemont project (and, to a lesser extent, our current brownfield growth projects in Manitoba and Peru) is subject to many risks and uncertainties, including: the ability to generate sufficient free cash flows and secure adequate financing to fund the projects; obtaining and maintaining key permits and approvals from governmental authorities; successful resolution of administrative and legal challenges against permits that have been issued to us and those permits that may be issued in the future; construction, commissioning and ramp-up risks; scheduling and cost-overrun risks; developing and maintaining good relationships with the community, local government and other stakeholders and interested parties; and political and social risk.

Significant amounts of capital will be required to construct and operate Rosemont. Our capital and operating costs may be affected by a variety of factors, including project scope changes, local currency appreciation and general cost escalation common to mining projects globally. Factors such as changes to technical specifications, failure to enter into agreements with contractors or suppliers in a timely manner, including contracts in respect of project infrastructure, and shortages of capital, may also delay or prevent the completion of construction or commencement of production or require the expenditure of additional funds. Many major mining projects constructed in the last five to ten years have experienced cost overruns that substantially exceeded the capital cost estimated during the basic engineering phase of those projects, sometimes by as much as 50% or more. There can be no certainty that after Rosemont is fully permitted there will be sufficient financing or other transactions available on acceptable terms to fund the construction of Rosemont.

The development of the Rosemont project may not occur as planned. While we expect that the Rosemont project's successful completion will result in increased copper and precious metals production and enhanced growth opportunities for us, these anticipated benefits will primarily depend on whether and when the Rosemont project receives the permits required to commence construction and operate the mine. While we believe the permits will be granted, there can be no assurance that this will be the case and that any administrative and legal challenges to Rosemont's permits will be successfully resolved. Moreover, there may be a delay in their issuance and further delay caused by administrative and legal challenges. The Rosemont project is also subject to a joint venture agreement under the Earn-In Agreement with UCM, which requires UCM's consent for a number of important project decisions (including approval to commence construction of the project). Any failure to agree with UCM on one of these decisions or any other disagreement or dispute with UCM could hinder our ability to successfully develop the project.

The capital expenditures, timeline and other risks involved with developing a new mine, such as Rosemont, or mining a new deposit such as Pampacancha at our Constancia mine in Peru, are considerable. We also may not be able to secure the surface rights required to develop the Pampacancha deposit. Any inability to secure required surface rights or take possession of areas for which we hold surface rights could render us unable to carry out planned exploration, development and mining activities. Such capital expenditure, timeline and other risks also (though to a lesser extent) apply to our brownfield growth projects in Manitoba and Peru. There can be no assurance that our current development projects or other projects we intend to develop will be able to be developed successfully or economically or that they will not be subject to the other risks described in this section.

#### **ACCESS TO CAPITAL AND INDEBTEDNESS**

To fund growth, and in difficult economic times, to ensure continued operations, we may need to secure necessary capital through loans or other forms of permanent capital. The availability of this capital is subject to general economic conditions and lender and investor interest in the Company and our projects. Financing may not be available when needed or, if available, may not be available on terms acceptable to us. Failure to obtain any financing necessary for our capital expenditure plans may result in a delay or indefinite postponement of exploration, development or production on any or all of our properties, including our potential plans to develop the Rosemont project.



We have a significant amount of indebtedness. As of December 31, 2016, our total debt was approximately \$1.23 billion, consisting primarily of the Senior Unsecured Notes. As a result, we have a substantial annual interest expense, including approximately \$75 million in respect of our Senior Unsecured Notes.

Specifically, our substantial level of indebtedness could have important consequences, including:

- limiting our ability to access capital to fund future working capital, capital expenditures, acquisitions or other general corporate requirements;
- requiring a substantial portion of our cash flows to be dedicated to debt service payments instead of other purposes, thereby reducing the amount of cash flows available for working capital, capital expenditures, acquisitions and other general corporate purposes;
- increasing our vulnerability to general adverse economic and industry conditions;
- exposing the Company to the risk of increased interest rates as certain of our borrowings are at variable rates of interest;
- limiting our flexibility in planning for and reacting to changes in the industry in which we compete;
- placing the Company at a disadvantage compared to other less leveraged competitors; and
- increasing our cost of borrowing.

Subject to the limits contained in the indenture governing the Senior Unsecured Notes and any limits under our other debt instruments existing from time to time, we may incur additional debt (including under our Facilities) to finance working capital, capital expenditures, investments or acquisitions or for other purposes. If we do so, the risks related to our high level of indebtedness could intensify.

Our ability to make scheduled payments on, repay in full or refinance our debt obligations, including the Senior Unsecured Notes, depends on our financial condition and operating performance, which are subject to prevailing economic and competitive conditions and to certain financial, business, legislative, regulatory and other factors beyond our control, most importantly, metals prices. We may be unable to maintain a level of cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness, including the Senior Unsecured Notes.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we could face substantial liquidity problems and could be forced to reduce or delay investments and capital expenditures or to dispose of material assets or operations, seek additional debt or equity capital or restructure or refinance our indebtedness, including the Senior Unsecured Notes. We may not be able to effect any such alternative measures on commercially reasonable terms or at all and, even if successful, those alternatives may not allow us to meet our scheduled debt service obligations. The indenture governing the Senior Unsecured Notes restricts our ability to dispose of assets and use the proceeds from those dispositions and may also restrict our ability to raise debt or equity capital to be used to repay other indebtedness when it becomes due. We may not be able to consummate those dispositions or to obtain proceeds in an amount sufficient to meet any debt service obligations then due.

In addition, the indenture governing the Senior Unsecured Notes contains a number of restrictive covenants that impose significant operating and financial restrictions on us and may limit our ability to engage in acts that may be in our long-term best interest, including restrictions on our ability to:

- incur additional indebtedness:
- pay dividends or make other distributions or repurchase or redeem capital stock;
- prepay, redeem or repurchase certain debt;
- make loans and investments:
- sell assets:
- incur liens:
- enter into transactions with affiliates:
- alter the businesses we conduct:
- enter into agreements restricting our subsidiaries' ability to pay dividends; and
- consolidate, amalgamate, merge or sell all or substantially all of our assets.

If we cannot make scheduled payments on our debt, or we breach any of the covenants under the



indenture governing the Senior Unsecured Notes or our other debt instruments, we will be in default and holders of our debt could declare all outstanding principal and interest to be due and payable, causing a cross-acceleration or cross-default under certain of our other debt agreements (including our secured Facilities) and our other creditors could foreclose against the collateral securing our obligations and we could be forced into bankruptcy or liquidation.

#### **DEPLETION OF RESERVES**

Subject to any future expansion or other development, production from existing operations at our mines will typically decline over the life of the mine and, in the case of a maturing mine nearing the end of its life such as our 777 mine, the risk of the extraction of mineral reserves becoming uneconomic increases. As a result, our ability to maintain our current production or increase our annual production of base and precious metals and generate revenues therefrom will depend significantly upon our ability to discover or acquire new deposits, to successfully bring new mines into production and to expand mineral reserves at existing mines. Exploration and development of mineral properties involve significant financial 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 prices, which are highly cyclical; political and social stability; and government regulation, including regulations relating to prices, taxes, royalties, land tenure, land use, importing and exporting of minerals and environmental protection. Even if we identify and acquire an economically viable ore body, several years may elapse from the initial stages of development. We may incur significant expenses to locate and establish mineral reserves, to develop metallurgical processes and to construct mining and processing facilities. As a result, we cannot provide assurance that our exploration or development efforts will result in any new commercial mining operations or yield new mineral reserves to replace or expand current mineral reserves.

#### **POLITICAL AND SOCIAL RISKS**

The implementation of new, or the modification of existing, laws and regulations affecting our operations and other mineral properties could have a material adverse impact on us and our projects. Such laws or events could involve the expropriation of property, implementation of exchange controls and price controls, increases in production royalties and income and mining taxes, refusal to grant or renew required permits, licenses, leases or other approvals or requiring unfavourable amendments to or revoking current permits and licenses, and enacting environmental or other laws that would make contemplated operations uneconomic or impractical. The risk exists that further government limitations, restrictions or requirements, not presently foreseen, will be implemented. In addition, changes in policy that alter laws regulating the mining industry could have a material adverse effect on us.

Although we only operate in historically mining friendly jurisdictions in the Americas, there can be no assurance that our assets in these countries will not be subject to nationalization, requisition or confiscation, whether legitimate or not, by a government authority or other body.

In situations where we have acquired mineral rights, we may not be able to secure required surface rights. In addition, in situations where we possess surface rights, our land may be illegally occupied or access could otherwise be denied. Any inability to secure required surface rights or take possession of areas for which we hold surface rights could render us unable to carry out planned exploration, development and mining activities. We are at the highest risk of this occurring at our Constancia mine in Peru, where we need to acquire surface rights in order to develop the Pampacancha deposit and possess certain other surface rights that could be illegally occupied or challenged by the surrounding community.

Political or social unrest in Peru or instability could adversely affect our ability to operate the Constancia mine. Such adverse effects could result from positions or actions that may be taken by the national government or at the regional, community or local levels including encroaching on our land, challenging the boundaries of such land or our rights to possess and operate on such land, protesting against our project (including the environmental or social impacts of our project), impeding project activities through roadblocks or other public manifestations and attacking project assets or personnel. During the last



several years, certain mining projects in Peru have been the target of political and community protests. While there have been some initiatives in respect of the Constancia mine, including attempts to restrict access and trespassing by workers and members of the surrounding communities, those initiatives have been limited and have not significantly disrupted the project's development or operations. There is the risk that more significant opposition may be mounted that may affect our ability to operate the Constancia mine.

#### **COMMUNITY RELATIONS**

Our relationships and reputation, particularly with the communities in which we operate in Manitoba, Peru and Arizona, are critical to the future success of our existing operations and the construction and development of future projects. There is an increasing level of public concern relating to the perceived effect of mining activities on the environment and on communities impacted by those activities. Publicity adverse to us, our operations, or extractive industries generally, including as a result of anti-mining protests or publications, could have an adverse effect on us and may impact our reputation and relationship with the communities in which we operate, including the communities surrounding our key projects and other stakeholders. In addition, although we have entered into life of mine agreements with the two local communities directly affected by the Constancia mine, there can be no assurance that disputes will not arise with these communities or with other communities in the area. There is also a risk we will be unable to secure the community agreements required to ensure we have the necessary surface rights to successfully develop the Pampacancha deposit that forms a part of our plans for the Constancia mine. Relations with local communities may be strained by real or perceived detrimental effects associated with our activities or those of other mining companies and that those strains may impact our ability to enforce our existing community agreements or obtain necessary permits and approvals to operate the Constancia mine. While we are committed to operating in accordance with applicable laws and in a socially responsible manner. there can be no assurance that our efforts in this respect will mitigate this potential risk.

#### ABORIGINAL RIGHTS AND TITLE TO MINERAL PROPERTIES

Claimed rights of aboriginal peoples may affect our ability to operate our Lalor and Reed mines and other mineral properties. In the past this has given rise to temporary disruptions of our operations. There can be no assurance that other disruptions will not be initiated in the future, which initiatives may affect our ability to explore and develop our properties and conduct our operations.

Although we believe we have taken reasonable measures to ensure valid title to our properties, there can be no assurance that title to any of our properties will not be challenged or impaired. Third parties may have valid claims underlying portions of our interests, including prior unregistered liens, agreements, transfers or claims, and aboriginal land claims, and title may be affected by, among other things, undetected defects or unforeseen changes to the boundaries of our properties by governmental authorities.

In addition, a portion of the Rosemont property is located on unpatented mine and millsite claims located on U.S. federal public lands. The right to use such claims is granted under the United States General Mining Law of 1872. Unpatented mining claims are unique property interests in the United States, and are generally considered to be subject to greater title risk than other real property interests because the validity of unpatented mining claims is often uncertain. While we believe there are no material defects in title of the Rosemont project lands, any such defects could materially impact our ability to develop and operate the project.



#### MINING AND PROCESSING

Mining operations, including exploration, development and production of mineral deposits, generally involve a high degree of risk and are subject to conditions and events beyond our control. Our operations are subject to all of the hazards and risks normally encountered in the mining industry including: adverse environmental conditions; industrial and environmental accidents; metallurgical and other processing problems; unusual or unexpected rock formations; ground or slope failures; structural cave-ins or slides; flooding or fires; seismic activity; rock bursts; equipment failures; and periodic interruptions due to weather conditions. These risks could result in significant damage, including destruction of mines, equipment and other operations, resulting in partial or complete shutdowns, personal injury or death, environmental or other damage to our properties or the properties of others, delays in mining, monetary losses and potential legal liability. In addition, although we conduct extensive maintenance and incur significant costs to maintain and upgrade our fixed and mobile equipment and infrastructure, failures may occur that cause injuries or production loss.

Failure to achieve production, cost or life-of-mine estimates could have an adverse impact on our future cash flows, profitability, results of operations and financial condition. Our actual production, costs and the productive life of a mine may vary from estimates for a variety of reasons, including actual ore mined varying from estimates of grade, tonnage, dilution and metallurgical and other characteristics, short-term operating factors relating to the mineral reserves, such as the need for sequential development of ore bodies and the processing of new or different ore grades, revisions to mine plans, risks and hazards relating to mining and availability of and cost of labour and materials. As a mine matures and nears the end of its life, such as our 777 mine, the risks that may cause actual production to vary from previous estimates increases and the extraction of mineral reserves may become uneconomic.

Any inability to provide adequate feed to our processing facilities could adversely impact our profitability or impair the viability of our processing facilities.

# **GOVERNMENTAL AND ENVIRONMENTAL REGULATION**

Our activities are subject to various laws and regulations governing prospecting, development, production, taxes, labour standards, occupational health, mine safety, toxic substances, protection of the environment and other matters. Environmental regulation is evolving in a manner that will require stricter standards and enforcement, increased fines and penalties for non-compliance, and more stringent environmental assessments of proposed projects. There can be no assurance that existing or future environmental regulation will not materially adversely affect our business, financial condition and results of operations. There is contamination on properties that we own or owned or for which we have or have had care, management or control and, in some cases on neighbouring properties, that may result in remediation requirements, fines and personal injury or natural resource damage claims, which could result in material costs. We could be held responsible for investigative-cleanup cost relating to presently unknown contamination on our properties. We may also acquire properties with environmental risks. Any investigative and remediation costs for known or unknown contamination, or for future releases of hazardous or toxic substances at our properties or related to our activities, could be material.

Although we believe that our operations are currently carried out in material compliance with applicable laws and regulations, no assurance can be given that new laws and regulations will not be enacted or that existing laws and regulations will not be amended or applied in a manner that could have a material adverse effect on our business, financial condition and results of operations. Any failure to comply with such laws and regulations may result in enforcement actions, including orders issued by regulatory or judicial authorities causing operations to cease or be curtailed, and may include corrective measures requiring capital expenditures, installation of additional equipment, or remedial actions. We may be required to compensate those suffering loss or damage relating to mining activities, and we may have civil or criminal fines or penalties imposed for violations of applicable laws or regulations, which costs could be material.



#### **GOVERNMENT APPROVALS AND PERMITS**

Government approvals and permits are currently required in connection with all of our operations, and further approvals and permits will be required in the future. The success of our efforts to obtain and maintain permits is contingent upon many variables outside of our control. Obtaining and complying with governmental permits may increase costs and cause delays. There can be no assurance that all necessary permits will be obtained and, if obtained, that the time and costs involved will not exceed our estimates or that we will be able to maintain such permits as a result of, among other things, conditions imposed or legal challenges. To the extent such approvals are required and not obtained or maintained, our operations may be curtailed or we may be prohibited from proceeding with planned exploration, development, or operation of mineral properties. As discussed above, in particular, the development of our Rosemont project is contingent on receiving key permits and successfully resolving legal challenges, among other things.

#### **HUMAN RESOURCES**

The success of our operations and development projects depend in part on our ability to attract and retain geologists, engineers, metallurgists and other personnel with specialized skill and knowledge about the mining industry in the geographic areas in which we operate. The success of our operations in Snow Lake, Manitoba and southern Peru, in particular, depend in part on our ability to attract new skilled personnel to work for us in these geographic areas.

We also are dependent on a number of key management and operating personnel, and our success will depend in large part on the efforts of these individuals and our ability to retain them. We do not have any key person insurance on any of these individuals.

There can be no assurance that our business will not suffer from a work stoppage at any location where we operate. The collective agreements that we have with our employees at our Flin Flon and Snow Lake operations expire in December 2017 and there can be no assurance that we will be able to successfully negotiate new collective agreements. As is typical with large Peruvian mining operations following startup, some of the employees at Constancia have formed a labour union and we recently entered into a collective agreement with these employees to cover a one year period from November 2016 to November 2017. There can be no assurance that we will be able to successfully negotiate an extension to this agreement. From time to time we may temporarily suspend or close certain of our operations and we may incur significant labour and severance costs as a result of a suspension or closure. Further, temporary suspensions and closures may adversely affect our future access to skilled labour, as employees who are laid off may seek employment elsewhere.

#### **ANTI-BRIBERY LEGISLATION**

We are subject to the U.S. Foreign Corrupt Practices Act ("FCPA"), which prohibits corporations and individuals from paying, offering to pay, or authorizing the payment of anything of value to any foreign government official, government staff member, political party, or political candidate in an attempt to obtain or retain business or to otherwise influence a person working in an official capacity. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect their transactions and to devise and maintain an adequate system of internal accounting controls. We are also subject to Canada's Corruption of Foreign Public Officials Act ("CFPOA"), which prohibits corporations and individuals from giving or offering to give a benefit of any kind to a foreign public official, or any other person for the benefit of the foreign public official, where the ultimate purpose is to obtain or retain a business advantage.

Our international activities, including our Constancia mine and exploration activities elsewhere in South America, create the risk of unauthorized payments or offers of payments by our employees, consultants or agents to foreign persons. While we have implemented safeguards that are intended to prevent these practices, our existing safeguards and any future improvements to such safeguards may not be completely effective, and our employees, consultants or agents may engage in conduct for which we might be held responsible. Any failure to comply with the FCPA, the CFPOA and applicable laws and regulations in foreign jurisdictions could result in substantial penalties or restrictions on our ability to conduct business in



certain foreign jurisdictions, which may have a material adverse impact on us and our share price.

# **ENERGY PRICES AND AVAILABILITY**

Our mining operations and facilities are intensive users of electricity and carbon based fuels. Energy prices can be affected by numerous factors beyond our control, including global and regional supply and demand, political and economic conditions, and applicable regulatory regimes. The prices of various sources of energy we rely on may increase significantly from current levels and any carbon-based energy we use may become subject to a carbon tax; any such significant increase or punitive tax could have an adverse effect on our profitability.

#### TRANSPORTATION AND INFRASTRUCTURE

At our mines in northern Manitoba and Saskatchewan, we are dependent upon a single railway and certain short-line rail networks to transport products from the Flin Flon metallurgical complex for further processing or to our customers. In addition, concentrate production from the Constancia mine must travel approximately 450 kilometres by road to the Port of Matarani. The method and route of transportation of Constancia concentrates give rise to a number of risks, including road safety and community and environmental risks. We may have similar dependencies at future mining and processing operations. Inability to secure reliable and cost-effective transportation and other infrastructure, or disruption of these services due to community or political protests, weather-related problems, strikes, lock-outs or other events could have a material adverse effect on our operations. If transportation for our products is or becomes unavailable, our ability to market our products could suffer. In addition, increases in our transportation costs, relative to those of our competitors, could make our operations less competitive and could adversely affect our profitability.

#### COMPETITION

The mining industry is intensely competitive and we compete with many companies possessing greater financial and technical resources than us. Since mines have a limited life, we must compete with others who seek mineral reserves for attractive, high quality mining assets. In addition, we also compete for the technical expertise to find, develop, and operate such properties, the labour to operate the properties and the capital for the purpose of funding such properties. Existing or future competition in the mining industry could materially adversely affect our prospects for mineral exploration and success in the future.

#### MINERAL RESOURCE AND RESERVE ESTIMATES

There are numerous uncertainties inherent in estimating mineral reserves and mineral resources and the future cash flows that might be derived from their production. Estimates of mineral reserves and mineral resources, and future cash flows necessarily depend upon a number of variable factors and assumptions, including, among other things, ability to achieve anticipated tonnages and grade, geological and mining conditions that may not be fully identified by available exploration data or that may differ from experience in current operations, historical production from the area compared with production from other producing areas, the assumed effects of regulation by governmental agencies and assumptions concerning metals prices, exchange rates, interest rates, inflation, operating costs, development and maintenance costs, reclamation costs, and the availability and cost of labour, equipment, raw materials and other services required to mine and refine the ore. In addition, there can be no assurance that mineral recoveries in small scale laboratory tests will be duplicated in larger scale tests under on-site conditions or during production. For these reasons, estimates of our mineral reserves and mineral resources in our public disclosure, and any estimates of future cash flows may vary substantially from our actual results.

# **RECLAMATION AND MINE CLOSURE COSTS**

The ultimate timing of, and costs for, future removal and site restoration could differ from current estimates. Our estimates for this future liability are subject to change based on amendments to applicable laws and legislation, the nature of ongoing operations and technological innovations. In addition, regulatory



authorities in various jurisdictions require us to post financial assurances to secure, in whole or in part, future reclamation and restoration obligations in such jurisdictions. Changes to the amounts required, as well as the nature of the collateral to be provided, could significantly increase our costs, making the maintenance and development of existing and new mines less economically feasible, and any capital resources we utilize for this purpose will reduce the resources available for our other operations and commitments. Although we accrue for future closure costs, we do not necessarily reserve cash in respect of these obligations or otherwise fund these obligations in advance. As a result, we will have significant cash costs when we are required to close and restore mine sites, including our 777 mine and Flin Flon operations.

#### POST-RETIREMENT OBLIGATIONS

We have assets in defined benefit pension plans which accumulate through employer contributions and returns on investments made by the plans. The returns on investments are subject to fluctuations depending upon market conditions and we are responsible for funding any shortfall of pension assets compared to our pension obligations under these plans. Our liabilities under defined benefit pension plans are estimated based on actuarial and other assumptions. These assumptions may prove to be incorrect and may change over time and the effect of these changes can be material. We also have substantial commitments for post- retirement health and other benefits for which no specific funding arrangements are in place.

#### **CREDIT RISK**

We mitigate credit risk relating to customers of our copper, zinc and precious metals by carrying out credit evaluations on our customers, making a significant portion of sales on a cash basis and maintaining insurance on trade receivables. If customers default on the credit extended to them and our loss is not covered by insurance, results of operations could be materially adversely affected. Further, we may enter into offsetting derivative contracts for which we do not obtain collateral or other security. In the event of non-performance by counterparties in connection with such derivative contracts, we are further exposed to credit risk.

#### **INSURANCE**

Our insurance will not cover all the potential risks associated with our operations. In addition, although certain risks are insurable, we may be unable to maintain insurance to cover these risks at economically feasible premiums. Insurance against risks such as environmental pollution or other hazards as a result of exploration and production is not generally available to us on acceptable terms. Losses from uninsured events may cause us to incur significant costs.

#### **INFORMATION TECHNOLOGY SYSTEMS**

Our operations depend, in part, on information technology ("IT") systems. Our IT systems are subject to disruption, failure or damage from a number of threats, including, but not limited to, security breaches, computer viruses, cable cuts, natural disasters, terrorism, power loss, vandalism and theft. Although to date we have not experienced any material losses relating to IT system disruptions, failure or damage, cyber attacks or other information security breaches, there can be no assurance that we will not incur such losses in the future. Any of these and other events could result in IT system failures, operational delays, production downtimes, security breaches, destruction or corruption of data or other improper use of our IT systems and networks, any of which could have an adverse effect on our reputation, results of operations and financial performance. Our exposure to these risks cannot be fully mitigated because of, among other things, the evolving nature of these threats; as such threats continue to evolve, we may be required to expend additional resources to continue to change or improve protective measures and to investigate and remediate any security vulnerabilities.



#### **DIVIDEND PAYMENTS**

The Senior Unsecured Notes impose certain restrictions on our ability to make restricted payments, including common dividends. Our ability to make future dividend payments will be subject to compliance with the covenants contained in our debt agreements along with other liquidity considerations. At all times, the declaration of dividends is subject to the discretion of our board of directors.

#### MARKET PRICE OF COMMON SHARES

Our share price may be significantly affected by changes in commodity prices or in our financial condition or results of operations. Other factors unrelated to our performance that may have an effect on the price of our common shares include a lessening in trading volume and general market interest in our securities and the size of our public float. As a result of any of these factors, the market price of our common shares may fall and otherwise may not accurately reflect our long-term value. Securities class action litigation has been brought against companies following periods of volatility in the market price of their securities and issuers listed on U.S. stock exchanges (as we are), in particular, have been subject to increasing shareholder litigation. We may in the future be the target of similar litigation.

#### "PASSIVE FOREIGN INVESTMENT COMPANY" UNDER THE U.S. INTERNAL REVENUE CODE

We do not believe we are a "passive foreign investment company" under Section 1297(a) of the U.S. Internal Revenue Code ("PFIC") for the current taxable year. If we derive 75% or more of our gross income from certain types of "passive" income (such as rents, royalties, interest, dividends, and other similar types of income), or if the quarterly average value during a taxable year of our "passive assets" (generally, assets that generate passive income) is 50% or more of the average value of all assets held by us, then the PFIC rules may apply to U.S. taxpayers that hold our common shares (regardless of the extent of their ownership interest in us). Several "look-through" rules apply in determining PFIC status, including that a 25% or more owned subsidiary corporation's income and assets will be deemed those of its parent for purposes of the PFIC rules. Thus, a sufficiently active subsidiary may allow a parent corporation to avoid PFIC status, depending on the circumstances. Whether we are considered a PFIC for a specific taxable year is a factual determination that must be made annually at the end of that taxable year. As a result, our status in the current and future years will depend on the composition our gross income, our assets and activities in those years and our market capitalization as determined on the end of each calendar quarter, and there can be no assurance that we will or will not be considered a PFIC for any taxable year.

If we are classified as a PFIC during any portion of a U.S. taxpayer's holding period for our common shares, as determined for U.S. federal income tax purposes, such taxpayer would be subject to adverse U.S. federal income tax consequences under the PFIC rules. In such case (except as discussed below), any excess distribution (generally a distribution in excess of 125% of the average distribution over a three- year period or shorter holding period for our common shares) and realized gain on the sale, exchange or other disposition of our common shares will be treated as ordinary income and generally will be subject to tax as if (a) the excess distribution or gain had been realized rateably over the U.S. taxpayer's holding period, (b) the amount deemed realized in each year had been subject to tax in each such year at the highest marginal rate for such year (other than income allocated to the current period or any taxable period before we became a PFIC, which would generally be subject to tax at the U.S. taxpayer's regular ordinary income rate for the current year and would not be subject to the interest charge discussed in (c) below), and (c) the interest charge generally applicable to underpayments of tax had been imposed on the taxes deemed to have been payable in those years. Where a company that is a PFIC meets certain reporting requirements, a U.S. taxpayer may be able to mitigate certain adverse PFIC consequences described above by making a "qualified electing fund" ("QEF") election to be taxed currently on its proportionate share of the PFIC's ordinary income and net capital gains. If we determine that we are a PFIC for any taxable year, we will determine at that time whether we will comply with the necessary accounting and record keeping requirements that would allow a U.S. taxpayer to make a QEF election with respect to us. We have no obligation to determine whether we are a PFIC and may not make any such determination.



# **GROWTH STRATEGY**

We evaluate growth opportunities and continue to consider the acquisition and disposition of exploration and development properties and mineral assets to achieve our strategy. We, from time to time, engage in discussions in respect of both acquisitions and dispositions, and other business opportunities, but there can be no assurance that any such discussions will result in a successfully completed transaction.

#### FLUCTUATIONS IN THE VALUE OF EQUITY INVESTMENTS

We are exposed to market risk from the share prices of our equity investments in listed junior exploration companies. These investments are made to foster strategic relationships, in connection with joint venture agreements and for investment purposes. The share prices of these equity investments may be significantly affected by short-term changes in capital markets, commodity prices or in their financial condition or results of their operations, and as a result, will affect the value of our investments.

# DESCRIPTION OF CAPITAL STRUCTURE

#### **COMMON SHARES**

We are authorized to issue an unlimited number of common shares, of which there were 237,271,188 common shares issued and outstanding as of March 29, 2017.

Holders of common shares are entitled to receive notice of any meetings of our shareholders, to attend and to cast one vote per common share at all such meetings. Holders of common shares do not have cumulative voting rights with respect to the election of directors and, accordingly, holders of a majority of the common shares entitled to vote in any election of directors may elect all directors standing for election. Holders of common shares are entitled to receive, on a pro-rata basis, such dividends, if any, as and when declared by our board of directors at its discretion from funds legally available therefor. Upon our liquidation, dissolution or winding up, holders of common shares are entitled to receive, on a pro-rata basis, our net assets after payment of debts and other liabilities, in each case, subject to the rights, privileges, restrictions and conditions attaching to any other series or class of shares ranking senior in priority to or on a pro-rata basis with the holders of common shares with respect to dividends or liquidation. The common shares do not carry any pre-emptive, subscription, redemption or conversion rights, nor do they contain any sinking or purchase fund provisions.

#### **OPTIONS AND WARRANTS**

As of December 31, 2016, we have outstanding obligations to issue up to 23,861,867 common shares, as follows:

- Hudbay warrants to acquire an aggregate of 22,391,490 common shares of Hudbay were outstanding, which are governed by our Warrant Indenture dated as of July 15, 2014 with Equity Financial Trust Company. The Hudbay warrants entitle the holders to acquire a common share of Hudbay at a price of C\$15.00 per share on, but not prior to, July 20, 2018. Hudbay may, at its option, upon written notice to the Hudbay warrant holders, settle the exercise of warrants for the in-the-money value, in cash, shares or a combination thereof; and
- options to acquire an aggregate of 1,470,377 common shares outstanding, with a weighted average exercise price of C\$19.24.



#### PREFERENCE SHARES

We are authorized to issue an unlimited number of preference shares, none of which were issued and outstanding as of the date of this AIF. Preference shares may from time to time be issued and the directors may fix the designation, rights, privileges, restrictions and conditions attaching to any series of preference shares. Preference shares shall be entitled to preference over the common shares and over any other of our shares ranking junior to the preference shares with respect to the payment of dividends and the distribution of assets or return of capital in the event of our liquidation, dissolution or winding up or any other return of capital or distribution of our assets among our shareholders for the purpose of winding up our affairs. Preference shares may be convertible into common shares at such rate and upon such basis as the directors in their discretion may determine. No holder of preference shares will be entitled to receive notice of, attend, be represented at or vote at any annual or special meeting, unless the meeting is convened to consider our winding up, amalgamation or the sale of all or substantially all of our assets, in which case each holder of preference shares will be entitled to one vote in respect of each preference share held. Holders of preference shares will not be entitled to vote or have rights of dissent in respect of any resolution to, among other things, amend our articles to increase or decrease the maximum number of authorized preference shares, increase or decrease the maximum number of any class of shares having rights or privileges equal or superior to the preference shares, exchange, reclassify or cancel preference shares, or create a new class of shares equal to or superior to the preference shares.

#### **SENIOR UNSECURED NOTES**

On December 12, 2016, we issued \$1.0 billion aggregate principal amount of Senior Unsecured Notes, which are fully and unconditionally guaranteed, jointly and severally, on a senior unsecured basis, by substantially all of our existing and future subsidiaries other than our subsidiaries associated with the Rosemont project.

The proceeds from this offering were used, among other things, to redeem all \$920 million of our Redeemed Notes.

The Senior Unsecured Notes contain certain customary covenants and restrictions for a financing instrument of this type. Although there are no maintenance covenants with respect to our financial performance, there are transaction-based restrictive covenants that limit our ability to incur additional indebtedness and make restricted payments in certain circumstances.

At any time prior to July 15, 2019 (in the case of the 2023 Notes) or January 15, 2020 (in the case of the 2025 Notes), we may redeem the Senior Unsecured Notes, in whole but not in part, at a redemption price equal to 100.00% of the aggregate principal amount of the Senior Unsecured Notes plus an amount equal to the greater of (i) 1% of the principal amount of the Senior Unsecured Notes to be redeemed and (ii) the excess, if any, of (a) the present value as of the date of redemption of such Senior Unsecured Notes on July 15, 2019 (in the case of the 2023 Notes) or January 15, 2020 (in the case of the 2025 Notes) (as described below) plus required interest payments through July 15, 2019 (in the case of the 2023 Notes) or January 15, 2020 (in the case of the 2025 Notes) over (b) the then outstanding principal amount of such Senior Unsecured Notes, plus, in either case, accrued and unpaid interest.

On or after July 15, 2019 (in the case of the 2023 Notes) or January 15, 2020 (in the case of the 2025 Notes), we may redeem the Senior Unsecured Notes, at our option in whole or in part, at the redemption prices (expressed as percentages of the principal amount of such series of the Senior Unsecured Notes to be redeemed) set forth below, plus accrued and unpaid interest, if redeemed during the twelve-month period beginning on July 15 (in the case of the 2023 Notes) or January 15 (in the case of the 2025 Notes) of each of the years indicated below:



2023 Notes		2025 Notes		
Year	Year Percentage		Percentage	
2019	103.625%	2020	105.719%	
2020	101.813%	2021	103.813%	
2021 and thereafter	100.000%	2022 101.906		
		2023 and thereafter	100.000%	

#### **CREDIT RATINGS**

The following table sets out the credit ratings we received from Standard and Poor's Ratings Services ("S&P") on October 28 and November 28, 2016 and Moody's Investors Services ("Moody's") on August 19 and November 28, 2016.

	Credit Rating Organization	
	S&P	Moody's
Corporate Credit Rating	В	B2
Senior Unsecured Notes	В	B3

On October 28, 2016, S&P raised its long-term corporate credit rating to 'B' from 'B-'. On November 28, 2016, S&P assigned a 'B' issue-level rating and a '3' recovery rating to the Senior Unsecured Notes, reaffirmed its long-term corporate credit rating of 'B'. S&P's outlook on us is stable.

S&P's credit ratings are on a rating scale that ranges from AAA (highest quality) to D (lowest quality). 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. According to S&P's rating system, an obligor rated 'B' currently has the capacity to meet its financial commitments, but adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitments. A 'B' rating is the sixth highest of ten categories in S&P's rating system.

S&P's issuer credit ratings are based, in varying degrees, on its analysis of the following considerations: (i) likelihood of payment; (ii) nature of and provisions of the obligation; and (iii) protection afforded by, and relative position of, the obligation in the event of bankruptcy. S&P's recovery ratings focus solely on expected recovery in the event of a payment default of a specific issue, and utilize a numerical scale that runs from 1+ to 6. The recovery rating is not linked to, or limited by, the issuer credit rating or any other rating, and provides a specific opinion about the expected recovery. A '3' recovery rating indicates S&P's expectations of meaningful (50%-70%) recovery in the event of default.

S&P's issuer credit rating is a forward-looking opinion about an obligor's overall creditworthiness in order to pay its financial obligations. This opinion focuses on the obligor's capacity and willingness to meet its financial commitments as they come due. It does not apply to any specific financial obligation.

On August 19, 2016, Moody's upgraded our corporate family rating to 'B2' from 'B3', its speculative grade liquidity rating to 'SGL-2' from 'SGL-3', its probability of default rating to 'B2-PD' from 'B3-PD' and its outlook on us to stable from negative. On November 28, 2016, Moody's assigned a 'B3' rating to our the Senior Unsecured Notes and reaffirmed its corporate family rating of 'B2', speculative grade liquidity rating of 'SGL-2' and probability of default rating of 'B2-PD'.

Moody's credit ratings are on a rating scale that ranges from Aaa (highest quality) to C (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 rating category. Moody's speculative grade liquidity ratings are on a rating scale that ranges from SGL-1 (best liquidity) to SGL-4 (weakest liquidity).

According to Moody's credit rating system, obligations rated 'B' are considered speculative and are subject to high credit risk. A 'B' rating is the sixth highest of nine categories in Moody's rating system.

According to Moody's speculative grade liquidity rating system, an issuer with an 'SGL-2' rating possesses good liquidity and is likely to meet its obligations over the coming 12 months through internal resources but may rely on external sources of committed financing. According to the system, the issuer's ability to access committed sources of financing is highly likely based on Moody's evaluation of near-term covenant compliance.

Moody's corporate family ratings are long-term ratings that reflect the likelihood of a default on a corporate family's contractually promised payments and the expected financial loss suffered in the event of default. A corporate family rating is assigned to a corporate family as if it had a single class of debt and a single consolidated legal entity structure. A probability of default rating is a corporate family-level opinion of the relative likelihood that any entity within a corporate family will default on one or more of its long-term debt obligations.

Moody's long-term ratings are assigned to issuers or obligations with an original maturity of one year or more and reflect both on the likelihood of a default on contractually promised payments and the expected financial loss suffered in the event of default.

Moody's speculative grade liquidity ratings are opinions of an issuer's relative ability to generate cash from internal resources and the availability of external sources of committed financing, in relation to its cash obligations over the coming 12 months.

The credit ratings and stability ratings we received from S&P and Moody's are not a recommendation to buy, sell or hold our securities and may be subject to revision or withdrawal at any time by either such credit rating organization. S&P and Moody's each charged us a fee in respect of the credit ratings service they provided.

# DIVIDENDS

Since September 2013, we have paid a semi-annual dividend in March and September at C\$0.01 per share. On February 22, 2017, our board of directors approved the payment of a dividend of C\$0.01 per common share payable on March 31, 2017 to shareholders of record on March 10, 2017. At all times, the declaration of dividends is subject to the discretion of our board of directors.

# MARKET FOR SECURITIES

# PRICE RANGE AND TRADING VOLUME

Our common shares are listed on the TSX and the NYSE under the symbol "HBM". The volume of trading and the high and low trading price of our common shares on the TSX and NYSE during the periods indicated are set forth in the following table.



Trading of Common Shares on TSX			Trading of Common Shares on NYSE			
Period (2016)	High (C\$)	Low (C\$)	Volume (common shares)	High (\$)	Low (\$)	Volume (common shares)
January	5.70	2.26	55,491,765	4.07	1.56	3,495,572
February	4.06	2.39	42,631,708	3.00	1.71	4,373,574
March	5.94	3.85	43,437,432	4.43	2.85	5,569,219
April	6.63	3.77	51,463,070	5.29	2.88	6,907,228
May	6.42	4.75	39,273,895	5.13	3.67	6,061,625
June	6.81	4.82	42,437,546	5.33	3.68	6,813,341
July	7.25	6.02	32,078,139	5.57	4.63	5,123,533
August	6.63	5.27	31,769,479	5.10	4.02	5,029,034
September	5.59	4.74	33,119,300	4.35	3.57	5,192,169
October	5.65	4.85	31,696,949	4.35	3.67	3,055,445
November	9.75	5.43	70,942,539	7.10	4.05	9,424,641
December	9.73	7.45	35,577,838	7.35	5.50	7,538,979

On March 29, 2017, the closing prices of our common shares on the TSX and NYSE were C\$9.29 and \$7.00 per common share, respectively.

Our warrants are listed on the TSX and the NYSE under the symbols "HBM.WT" and "HBM/WS", respectively. The volume of trading and the high and low trading price of our warrants on the TSX and NYSE during the periods indicated are set forth in the following table.

	Trading of Wa	rrants on TSX	Trading	of Warrants o	n NYSE	
Period (2016)	High (C\$)	Low (C\$)	Volume	High (\$)	Low (\$)	Volume
January	0.32	0.12	714,015	0.23	0.08	33,490
February	0.29	0.15	242,887	0.21	0.10	16,217
March	0.46	0.27	647,302	0.44	0.17	79,731
April	0.46	0.25	597,697	0.36	0.13	36,064
May	0.36	0.30	145,536	0.56	0.19	63,770
June	0.41	0.31	290,624	0.36	0.19	51,385
July	0.42	0.30	651,094	0.31	0.22	53,385
August	0.37	0.26	196,669	0.29	0.22	30,284
September	0.27	0.18	2,624,432	0.29	0.13	49,569
October	0.21	0.19	187,990	0.20	0.12	35,569
November	0.75	0.20	2,475,658	0.60	0.13	96,541
December	0.76	0.39	510,344	0.65	0.30	87,351

On March 29, 2017, the closing prices of our warrants on the TSX and NYSE were C\$0.70 and \$0.47 per warrant, respectively.



# **DIRECTORS AND OFFICERS**

# **BOARD OF DIRECTORS**

Igor Gonzales Lima, Peru  Tom A. Goodman Denare Beach,	Director since: July 31, 2013 Committee memberships:	Mr. Gonzales has more than 30 years of experience in the mining industry. He joined Compañia de Minas Buenaventura S.A.A. in November 2014 as Vice President of Operations. Mr. Gonzales was with Barrick Gold Corporation from 1998 to 2013, most recently as Executive Vice President and Chief Operating Officer. Between 1980 and 1996, Mr. Gonzales served in various roles with Southern Peru Copper Corporation.  Mr. Goodman worked for Hudbay for over 34 years in a wide variety of operational, technical and management
Saskatchewan, Canada	EHSS Committee (Chair)     Audit Committee	positions, including his last two years as Senior Vice President and Chief Operating Officer. He retired as an executive officer effective June 1, 2012.
Alan Hair Toronto, Ontario, Canada	Director since: January 1, 2016	Mr. Hair has been Hudbay's President and Chief Executive Officer since January 2016. Previously, he served as Hudbay's Senior Vice President and Chief Operating Officer from 2012 to 2015 and he has held a number of senior leadership roles in business development and operations at Hudbay since 1996.
Alan R. Hibben Toronto, Ontario, Canada	Director since: March 23, 2009 Committee memberships: Compensation Committee (Chair) Corporate Governance and Nominating Committee	Mr. Hibben has held several senior positions with RBC Capital Markets, including most recently as Managing Director, which he held until his retirement in December 2014. He is currently the principal of Shakerhill Partners Ltd. which provides advice on restructurings, capital markets transactions, and corporate strategy. He also provides expert witness services. He is also a corporate director.
<b>W. Warren Holmes</b> Stratford, Ontario, Canada	Director since: March 23, 2009 Committee memberships: Corporate Governance and Nominating Committee (Chair)	Mr. Holmes is Hudbay's Chairman and was Hudbay's Executive Vice Chairman from November 2009 to July 2010 and its Interim Chief Executive Officer from January 2010 to July 2010. He has over 40 years of mining industry experience. During that time, Mr. Holmes held senior positions with Noranda Inc. and Falconbridge Ltd. He is now a corporate director.
Sarah B. Kavanagh Toronto, Ontario, Canada	Director since: July 31, 2013 Committee memberships:	Ms. Kavanagh is a corporate director and a former Commissioner at the Ontario Securities Commission, where she served from June 2011 through May 2016. Between 1999 and 2010, Ms. Kavanagh served in a number of senior investment banking roles at Scotia Capital Inc. She has also held senior financial positions in the corporate sector.
Carin S. Knickel Golden, Colorado, United States	Director since: May 22, 2015 Committee memberships:	Ms. Knickel served as Corporate Vice President, Global Human Resources of ConocoPhillips from 2003 until her retirement in May 2012. She joined ConocoPhillips in 1979 and held various senior operating, planning and business development positions throughout her career in the U.S. and Europe.



Alan J. Lenczner Toronto, Ontario, Canada	Director since: March 23, 2009 Committee memberships:	Mr. Lenczner has been a commercial litigator for over 40 years. He is Founding Partner and now Counsel at Lenczner Slaght Royce Smith Griffin LLP, a litigation-focused law firm. He is also a former Commissioner of the Ontario Securities Commission.
Kenneth G. Stowe Oakville, Ontario, Canada	Director since: June 24, 2010 Committee memberships: Technical Committee (Chair) EHSS Committee	Mr. Stowe was Chief Executive Officer of Northgate Minerals Corporation from 2001 until his retirement in 2011. He spent the first 21 years of his career with Noranda Inc. in various operational, research and development, and corporate roles. He is currently a corporate director.
Michael T. Waites Vancouver, British Columbia, Canada	Director since: May 8, 2014 Committee memberships:	Mr. Waites is the former President and Chief Executive Officer of Finning International Inc. He retired from Finning in June 2013 after serving as President and Chief Executive Officer for five years. Prior to that, Mr. Waites was Executive Vice President and Chief Financial Officer of Finning. He has also held senior positions with Canadian Pacific Railway and Chevron Canada Resources. Mr. Waites is now a corporate director.



The term of office for each director of the Company will expire upon the completion of the next annual meeting of shareholders of the Company. Our executive officers as at the date of this AIF are listed below.

# **EXECUTIVE OFFICERS**

For biographical information for Mr. Hair, refer above to the heading "Board of Directors".	
Mr. Bryson has been with Hudbay since August 2008. Mr. Bryson held senior finance positions with Skye Resources Inc. from March 2007 to August 2008 and prior to that worked for Terasen Inc., a Vancouver-based energy infrastructure	
firm, in various finance roles for 16 years.	
Prior to being appointed to his current role in January 2016, Mr. Meagher was Vice President, South America Business Unit and oversaw the development of	
the Constancia mine. Prior to joining Hudbay in 2008, Mr. Meagher held management positions with Vale Inco in exploration, technical services, business analysis and mine operations.	
Mr. Lei joined Hudbay in September 2012, after 11 years as an investment banker.	
Prior to joining Hudbay, Mr. Lei was Managing Director, Mining at Macquarie Capital Markets Canada, working as an advisor on global and domestic mergers and acquisitions and equity capital markets offerings. Prior to being appointed to his current role in January 2017, Mr. Lei was Vice President, Corporate Development.	
Prior to being appointed to his current role in January 2016, Mr. Caba was Director of Operations for the South America Business Unit. From 2001 to 2005, Mr. Caba worked as an Operations Manager at Hudbay's Manitoba Business Unit. Mr. Caba was the Area Operations Manager for Carmeuse Lime Ltd. from 2009 to 2013, and on rejoining Hudbay in 2013, assumed the role of Operational Readiness Manager for Constancia.	
Mr. Clarry joined Hudbay in February 2011. From June 2009 to January 2011 he worked through his own firm, Innotain Inc., providing consulting services to the mining and energy industries. Prior to that he spent 18 years with Hatch Ltd., an international engineering and consulting firm, ultimately as Director – Climate Change Initiatives.	
Prior to being appointed to his current role in July 2014, Mr. Donnelly was Vice President, Legal and Corporate Secretary for over three years. Prior to joining	
Hudbay in 2008, Mr. Donnelly practiced corporate and securities law at Osler, Hoskin & Harcourt LLP.	
Mr. Douglas joined Hudbay in January 2015. Prior to joining Hudbay, he was Chief Financial Officer of Barrick Gold Corporation's global copper business unit. Prior to	
that he was Senior Vice President and Chief Financial Officer of Northgate Minerals Corporation for over ten years.	



Elizabeth Gitajn Toronto, Ontario, Canada Vice President, Risk Management	Ms. Gitajn joined Hudbay in March 2015, prior to which she was the Corporate Controller for IAMGOLD Corporation since June 2012. From October 2007 to June 2012, she held various management positions within Barrick Gold Corporation in the finance areas of risk management, financial reporting and planning. Ms. Gitajn also spent 14 years in public accounting in the United States, nine of which were with Arthur Andersen LLP.
Andre Lauzon Sudbury, Ontario, Canada Vice President, Manitoba Business Unit	Mr. Lauzon joined Hudbay in August 2016. Prior to joining Hudbay, he held senior positions with Vale Inco in research and development, technical services and mine operations. Mr. Lauzon has direct leadership experience as a mine manager, acting general manager and director of technical services.
Terry Linde Phoenix, Arizona, United States  Vice President, Project and Technical Services	Prior to being appointed to his current role in July 2015, Mr. Linde was the Director of Projects in the South America Business Unit, where he led the successful engineering and construction of the Constancia mine. Prior to joining Hudbay in 2011, Mr. Linde was Director of Projects for North and South America for Freeport McMoRan and Vice President of Engineering and Project Development for Marcobre S.A.C. in Peru.
Patrick Merrin Tucson, Arizona, United States Vice President, Arizona Business Unit	Mr. Merrin was appointed to his current role in July 2014. He was previously Vice President, Business Development and Technical Services. Prior to rejoining Hudbay in 2012, he gained experience in a variety of mining and metals environments, including as Chief Operating Officer of Adex Mining from September 2011 to July 2012, owner of PJM Consulting, a consulting firm for the mining industry, from December 2010 to September 2011, and Managing Director of Lucas Milhaupt Europe from July 2007 to July 2010.
Mary-Lynn Oke Toronto, Ontario, Canada Vice President, Finance	Ms. Oke has been Vice President, Finance since July 2013 and she is also Chief Financial Officer, Manitoba Business Unit. Prior to this appointment, she was Director, Tax & Treasury. Before joining Hudbay in 2007, Ms. Oke worked at Ernst & Young, LLP in various roles for 10 years.

As of March 29, 2017, our directors and executive officers, as a group, beneficially owned, directly or indirectly, or exercised control or direction over, 501,431 common shares, representing less than 1% of the total number of common shares outstanding.

# CORPORATE CEASE TRADE ORDERS, BANKRUPTCIES, PENALTIES AND SANCTIONS

Mr. Holmes was a director of Campbell Resources Inc. ("Campbell") from 2006 to 2008. Mr. Holmes joined Campbell as a director while it was already under the protection of the Companies' Creditors Arrangement Act (Canada) (the "CCAA"). Mr. Holmes resigned from the board of directors of Campbell in November 2008. On January 28, 2009, Campbell once again obtained creditor protection under the CCAA. On December 10, 2009, a receiver was appointed over Campbell's assets with power to solicit offers for the sale of the assets.

Mr. Holmes was a director of Ferrinov Inc. ("Ferrinov"), a private technology company, from December 2008 to July 2012. In July 2012, Ferrinov filed for bankruptcy and was declared bankrupt under the Bankruptcy and Insolvency Act.



#### **CONFLICTS OF INTEREST**

To the best of our knowledge, there are no known existing or potential conflicts of interest among or between us, our subsidiaries, our directors, officers or other members of management, as a result of their outside business interests, except that certain of our directors, officers, and other members of management serve as directors, officers, promoters and members of management of other entities and it is possible that a conflict may arise between their duties as a director, officer or member of management of Hudbay and their duties as a director, officer, promoter or member of management of such other entities.

Our directors and officers are aware of the existence of laws governing accountability of directors and officers for corporate opportunity and requiring disclosures by directors of conflicts of interest and we 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 our directors or officers. All such conflicts are required to be disclosed by such directors or officers in accordance with the CBCA, and such individuals are expected to govern themselves in respect thereof to the best of their ability in accordance with the obligations imposed upon them by law. In addition, our Code of Business Conduct and Ethics requires our directors and officers to act with honesty and integrity and to avoid any relationship or activity that might create, or appear to create, a conflict between their personal interests and our interests.

# AUDIT COMMITTEE DISCLOSURE

The Audit Committee is responsible for monitoring our systems and procedures for financial reporting and internal control, reviewing certain public disclosure documents and monitoring the performance and independence of our external auditors. The Audit Committee is also responsible for reviewing our annual audited consolidated financial statements, unaudited consolidated quarterly financial statements and management's discussion and analysis of results of operations and financial condition for annual and interim periods prior to their approval by the full board of directors. There was no instance in 2016 where our board of directors declined to adopt a recommendation of the Audit Committee.

The Audit Committee's charter sets out its responsibilities and duties, qualifications for membership, procedures for committee appointment and reporting to our board of directors. A copy of the current charter is attached hereto as Schedule C.

### **COMPOSITION**

As at December 31, 2016, the Audit Committee consisted of Sarah B. Kavanagh (Chair), Tom A. Goodman, Alan J. Lenczner and Michael T. Waites.

# **Relevant Education and Experience**

Each member of the Audit Committee is independent and financially literate within the meaning of NI 52-110. Set out below is a description of the education and experience of each Audit Committee member that is relevant to the performance of his responsibilities as an Audit Committee member.

Sarah B. Kavanagh is an independent trustee and member of the Audit Committee at WPT Industrial Real Estate Investment Trust and a director and member of the Audit Committee of Valeant Pharmaceuticals International, Inc. Ms. Kavanagh is a director and Chair of the Audit Committee at American Stock Transfer and Canadian Stock Transfer, a director and Chair of the Audit Committee of Sustainable Development Technology Corporation and a director of Canadian Tire Bank. She is also a former Commissioner at the Ontario Securities Commission, where she served from June 2011 through May 2016. Between 1999 and 2010, Ms. Kavanagh served in a number of senior investment banking roles at Scotia Capital Inc. She has also held senior financial positions in the corporate sector. Ms. Kavanagh graduated from Harvard Business School with a Masters in Business Administration and received a Bachelor of Arts degree in



Economics from Williams College in Williamstown, Massachusetts.

Tom A. Goodman worked for Hudbay for over 34 years in a wide variety of operational, technical and management positions, including as Senior Vice President and Chief Operating Officer, until his retirement in 2012. Mr. Goodman's prior experience in Hudbay's management has given him significant expertise in the Company's operations, management systems and risk management processes.

Alan J. Lenczner has been a commercial litigator for over 40 years. During that time he has represented accounting firms with respect to accounting and auditing issues both in the Superior Court and before the Institute of Chartered Accountants of Ontario. He is also a former Commissioner at the Ontario Securities Commission.

Michael T. Waites is the former President and Chief Executive Officer of Finning International Inc. He retired from Finning in June 2013 after serving as President and Chief Executive Officer for five years. Prior to that, Mr. Waites was Executive Vice President and Chief Financial Officer of Finning, Mr. Waites is currently a director and member of the Audit Committees of Repsol Oil & Gas Canada Inc. (formerly Talisman Energy Inc.) and Western Forest Products Inc. He holds a Bachelor of Arts (Honours) in Economics from the University of Calgary, a Master of Business Administration from Saint Mary's College of California, and a Masters of Arts, Graduate Studies in Economics from the University of Calgary, He has also completed the Executive Program at The University of Michigan Business School.

#### POLICY REGARDING NON-AUDIT SERVICES RENDERED BY AUDITORS

We have adopted a policy requiring Audit Committee pre-approval of non-audit services. Specifically, the policy requires that proposals seeking approval by the Audit Committee for routine and recurring nonaudit services describe the terms and conditions and fees for the services and include a statement by the independent auditor and Chief Financial Officer that the provision of those services could not be reasonably expected to compromise or impair the auditor's independence. The Audit Committee may preapprove non-audit services without the requirement to submit a specific proposal, provided that any such pre-approval on a general basis shall be applicable for twelve months. The Chair of the Audit Committee has been delegated authority to pre-approve, on behalf of the Audit Committee, the provision of specific non-audit services by the independent auditor where (a) it would be impractical for the services to be provided by another firm; or (b) the estimated fees associated with such services are not expected to exceed C\$50,000. Any approvals granted under this delegated authority are to be presented to the Audit Committee at its next scheduled meeting.

#### **REMUNERATION OF AUDITOR**

The following table presents, by category, the fees billed by Deloitte LLP as external auditor of, and for other services provided to, the Company for the fiscal years ended December 31, 2016 and 2015.

Category of Fees	2016	2015
Audit fees	C\$1,970,314	C\$1,765,133
Audit-related fees	C\$198,660	C\$106,300
Tax fees	-	-
All other fees	-	-
Total	C\$2,168,974	C\$1,871,433

<sup>&</sup>quot;Audit fees" include fees for auditing annual financial statements and reviewing the interim financial statements, as well as services normally provided by the auditor in connection with our statutory and regulatory filings. "Audit-related fees" are fees for assurance and related services that are reasonably



related to the performance of the audit or review of our financial statements and are not reported under "Audit fees", including accounting advisory work, audit work related to our pension, benefit and profit sharing plans, and work related to acquisitions and offerings as needed. "All other fees" are fees for services other than those described in the foregoing categories. Management presents regular updates to the Audit Committee of the services rendered by the auditors as part of the Audit Committee's oversight regarding external auditor independence and pre-approved service authorizations.

# LEGAL PROCEEDINGS AND REGULATORY ACTIONS

#### **LEGAL PROCEEDINGS**

Hudbay is subject to three claims in the Ontario Superior Court in connection with its previous ownership of the Fenix project in Guatemala through its subsidiary at the time, Compañía Guatemalteca de Níquel S.A. ("CGN").

The first action was served in September 2010. The plaintiff, Angelica Choc, asserts a claim of negligence against Hudbay and wrongful death, among other claims, against CGN in connection with the death of her husband Adolfo Ich Chaman on September 27, 2009. The plaintiff claims that the head of CGN security shot and killed Mr. Chaman during a confrontation between members of local communities who were unlawfully occupying CGN property and CGN personnel. The aggregate amount of the claim is C\$12 million.

In the second action, served in March 2011, eleven plaintiffs claim that they were victims of sexual assault committed by CGN security and members of the Guatemalan police and army during court ordered and state implemented evictions in January 2007 (before the project was acquired by Hudbay). These claims are asserted against Hudbay and its subsidiary at the time HMI Nickel Inc. The aggregate amount of the claims is C\$55 million.

The plaintiff in the third action, German Chub Choc, claims that he was shot and permanently injured by the head of CGN security during the same events that gave rise to the claim brought by Ms. Choc. This action was served in October 2011. The aggregate amount of the claim is C\$12 million.

We believe that all of the claims with respect to the Fenix project are without merit.

We are not aware of any litigation outstanding, threatened or pending against us as of the date hereof that would reasonably be expected to be material to our financial condition or results of operations.

## **REGULATORY ACTIONS**

We have not: (a) received any penalties or sanctions imposed against us by a court relating to securities legislation or by a securities regulatory authority during the financial year; (b) received 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; and (c) entered any settlement agreements with a court relating to securities legislation or with a securities regulatory authority during the financial year.

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

Since January 1, 2014, none of our directors, executive officers or 10% shareholders and no associate or affiliate of the foregoing persons has or has had any material interest, direct or indirect, in any transaction that has materially affected or is reasonably expected to materially affect us.



# TRANSFER AGENT AND REGISTRAR

The transfer agent and registrar for our common shares is TSX Trust Company at its principal office in Toronto, Ontario.



# **MATERIAL CONTRACTS**

Except for those contracts entered into in the ordinary course of our business, the following are the material contracts we entered into (i) within the last financial year or (ii) between January 1, 2002 and the beginning of the last financial year, which are still in effect:

- 1. the Precious Metals Purchase Agreement dated August 8, 2012, as amended by amending agreements dated as of November 12, 2014 and March 27, 2017 with Silver Wheaton, whereby we agreed to sell a portion of the precious metals production from our 777 mine to Silver Wheaton.
- 2 the Amended and Restated Precious Metals Purchase Agreement dated November 4, 2013, as amended by amending agreements dated June 2, 2014, September 10, 2014 and December 31, 2016 with Silver Wheaton (Caymans) Ltd. ("SW Caymans"), whereby we agreed to sell 100% of the silver production and 50% of the gold production from our Constancia mine to SW Caymans.
- 3. the Amended and Restated Precious Metals Purchase Agreement, dated as of February 15, 2011 between HudBay Arizona (Barbados) SRL (previously Augusta Resource (Barbados) SRL), HudBay Arizona Corporation (previously Augusta Resource Corporation), SW Caymans and Silver Wheaton;
- 4. the Joint Venture Agreement dated September 16, 2010 between Rosemont Copper Company and UCM, which governs the joint venture in respect of the Rosemont project;
- 5. the Earn-In Agreement made as of September 16, 2010 between Rosemont Copper Company and UCM, pursuant to which UCM may earn up to a 20% interest in the Rosemont project;
- 6. the Indenture dated as of December 12, 2016 with U.S. Bank National Association, as trustee, governing the Senior Unsecured Notes. For additional details, refer above to the heading "Development of our Business – Three Year History – Senior Unsecured Notes Refinancing";
- 7. the Warrant Indenture dated as of July 15, 2014 with Equity Financial Trust Company, which provides for the issue of common share purchase warrants in connection with the Augusta Acquisition;
- the Third Amended and Restated Credit Facility with the lenders party thereto from time to time and The Bank of Nova Scotia, as administrative agent, dated as of March 30, 2016, as amended by amending agreements made as of June 17 and September 26, 2016, providing for a three year \$350 million revolving credit facility; and
- the Amended and Restated Credit Facility with the lenders party thereto from time to time and The Bank of Nova Scotia, as administrative agent, dated as of March 30, 2016, as amended by amending agreements made as of June 17 and September 26, 2016, providing for a three year \$200 million revolving credit facility.



# **QUALIFIED PERSONS**

The scientific and technical information contained in this AIF related to the Constancia mine and Rosemont project has been approved by Cashel Meagher, P.Geo., our Senior Vice President and Chief Operating Officer. The scientific and technical information related to all other sites and projects contained in this AIF has been approved by Robert Carter, P.Eng., our Lalor Mine Manager. Messrs. Meagher and Carter are qualified persons pursuant to NI 43-101. For a description of the key assumptions, parameters and methods used to estimate mineral reserves and resources, as well as data verification procedures and a general discussion of the extent to which the estimates may be affected by any known environmental, permitting, legal title, taxation, sociopolitical, marketing or other relevant factors, please see the technical reports for our material properties as filed by us on SEDAR at www.sedar.com.

# INTERESTS OF EXPERTS

Cashel Meagher, P.Geo. and Robert Carter, P.Eng. are experts who have prepared certain technical and scientific reports for us. As at the date hereof, to our knowledge, the aforementioned persons beneficially own, directly or indirectly, less than 1% of our outstanding securities and have no other direct or indirect interest in our company or any of its associates or affiliates.

The auditor of the Company is Deloitte LLP. Deloitte LLP is independent within the meaning of the Rules of Professional Conduct of the Chartered Professional Accountants of Ontario and the applicable rules and regulations thereunder adopted by the Securities and Exchange Commission (SEC) and the Public Company Accounting Oversight Board (United States) (PCAOB).

# ADDITIONAL INFORMATION

Additional information, including directors' and officers' remuneration and indebtedness, principal holders of our securities and securities authorized for issuance under equity compensation plans, as applicable, is contained in our management information circular dated April 14, 2016. Additional financial information is provided in our financial statements and management's discussion and analysis for the fiscal year ended December 31, 2016.

Additional information relating to the Company may be found on SEDAR at www.sedar.com and in the United States on EDGAR at www.sec.gov.



# SCHEDULE A: GLOSSARY OF MINING TERMS

The following is a glossary of certain mining terms used in this annual information form.

#### "mineral reserves"

That part of a measured or indicated mineral resource which could be economically mined, demonstrated by at least a preliminary feasibility study that includes adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A mineral reserve includes diluting materials and allowances for losses that may occur when the material is mined. Mineral reserves are those parts of mineral resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the qualified person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant processing, metallurgical, economic, marketing, legal, environment, socio-economic and government factors. Mineral reserves are inclusive of diluting material that will be mined in conjunction with the mineral reserves and delivered to the treatment plant or equivalent facility. The term "mineral reserve" need not necessarily signify that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals. Mineral reserves are subdivided into proven mineral reserves and probable mineral reserves. Mineral reserves fall under the following categories:

#### "proven mineral reserves"

That part of a measured mineral resource that is the economically mineable part of a measured mineral resource, demonstrated by at least a preliminary feasibility study that includes adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

## "probable mineral reserves"

That part of an indicated and in some circumstances a measured mineral resource that is economically mineable demonstrated by at least a preliminary feasibility study that includes adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

### "mineral resources"

A concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral resources fall under the following categories:

## "measured mineral resource"

That part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

## "indicated mineral resource"

That part of a mineral resource for which quantity, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters and to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

## "inferred mineral resource"

That part of a mineral resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.



# SCHEDULE B: MATERIAL MINERAL PROJECTS

#### **CONSTANCIA MINE**

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

We own a 100% interest in the Constancia mine in southern Peru. Constancia includes the Constancia and Pampacancha deposits and is located approximately 600 kilometres southeast of Lima at elevations of 4000 to 4500 metres above sea level. Geographic coordinates at the centre of the property are longitude 71° 47' west and latitude 14° 27' south.

We acquired Constancia in March 2011 through our acquisition of all of the outstanding shares of Norsemont. We own a 100% interest in the 36 mining concessions (covering an area of 22,516 hectares) that comprise Constancia, all of which are duly registered in the name of our wholly-owned subsidiary, HudBay Peru S.A.C.; HudBay Peru S.A.C. also has the required surface rights to operate the Constancia mine. Most of the known mineralization is located in the claims Katanga J, Katanga O, Katanga K, and Peta 7, though small mineralized outcrops are common throughout the area. All the mining concessions are currently in good standing. The annual concession fee payments of \$3.00 per hectare are due on June 30 each year.

The Constancia mine reached commercial production in the second quarter of 2015 and reached steady state design production in the second half of 2015.

Constancia is subject to the following taxes, royalties and other agreements concerning mineral production:

## 1. Peruvian Tax Regime

Constancia is subject to the Peruvian tax regime, which includes the mining tax, mining royalty, 8% labour participation, corporate tax and IGV/VAT. The Special Mining Tax ("SMT") and the Mining Royalty ("MR") were introduced in late-2011 for companies in the mineral extractive industries. Both the SMT and the MR are applicable to mining operating income based on a sliding scale with progressive marginal rates. The effective tax rate is calculated according to the operating profit margin of the Company. Based on Constancia's expected life-of-mine operating profit margin, the effective SMT and MR tax rates are projected to be 2.70% and 2.37% of operating income over the life of the mine. The MR is subject to a minimum of 1% of sales during a given month.

### 2. Precious Metals Stream Agreement

100% of Constancia's silver production and 50% of its gold production is subject to our agreement with Silver Wheaton, as described in this AIF.

# 3. Legacy NSR

We are required to pay a net smelter return royalty (NSR) of 0.5% to a maximum of \$10.0 million to the previous owners of the property.

#### Accessibility, Climate, Local Resources, Infrastructure and Physiography

Constancia is accessible from Lima by flying to either Arequipa or Cusco and then proceeding by paved and gravel highway to the mine site, which in each case takes approximately seven hours. The closest town is Yauri (population 23,000), which is approximately 80 kilometres by road from the mine site. Copper



concentrate is transported via Yauri to the Matarani port, which is approximately 460 kilometres by road from the mine site.

The climate of the region is typical of the Peruvian altiplano in which the seasons are divided into the wet season between October and March with slightly higher temperatures and a dry season during April to September with colder temperatures. Temperatures can dip below -10° Celsius and rise to 20° Celsius. The sun can be very strong with high ultraviolet readings being common during the mid-day period. There is a climate monitoring station installed at the mine site.

Elevations on the property range from 4,000 to 4,500 metres above sea level with moderate relief and grass-covered altiplano terrain. Slopes are typically covered with grasses at lower elevations. At higher elevations, talus cover is common with very little vegetation. The grasslands are used as pasture for animals and at lower elevations for some limited subsistence agriculture. Water resources are readily available from a number of year-round streams near the mine site.

Constancia's maximum demand for electricity is estimated to be 96 MW with an average load of 85 to 90 MW in the first 5 years. Electricity is supplied via the 220 kV Tintaya substation located about 70 kilometres from the mine site and a dedicated transmission line from this substation to Constancia.

Other operating infrastructure includes the tailings management facility, waste rock facility and water management systems.

We have entered into life-of-mine agreements with the neighbouring communities of Chilloroya and Uchuccarco. These agreements provide us the surface rights required for operations and specify our commitments to these local communities over the course of the mine life. In particular, the community agreements contemplated cash payments for the land access rights, as well as funds for facilitation of development projects and investment for local enterprises. The agreements also outline ongoing annual investments in community development including medical, educational and agricultural services and contemplate a bi-annual review of certain of the social development terms. While we have entered into the life-of-mine agreements, we need to acquire additional surface rights in order to mine the Pampacancha deposit, and there can be no assurance that we will be able to secure the agreements required to do so.

The nearby communities can provide unskilled labourers, but access to skilled mining talent must be obtained through training or enlisting personnel from outside the area.

#### History

The original Constancia property, consisting of 13 concessions, was obtained by Norsemont pursuant to an option agreement with Rio Tinto Mining and Exploration Ltd. ("Rio Tinto"). Norsemont acquired an initial 51% interest in the property from Rio Tinto in November 2007. Pursuant to the option agreement, in March, 2008 Norsemont acquired the remaining 19% interest in Constancia held by Rio Tinto. Norsemont acquired the remaining 30% interest in the project from Mitsui Mining and Smelting Company Limited Sucursal Del Peru ("Mitsui") and 23 additional concessions were obtained by Norsemont in 2007 and 2008.

The San Jose prospect (which forms part of the Constancia deposit) was explored by Mitsui during the 1980s. Exploration consisted of detailed mapping, soil sampling, rock chip sampling, and ground magnetic and induced polarization surveys with several drill campaigns. Drilling was mainly focused on the western and southern sides of the prospect. Mitsui completed 24 drill holes (4,200 metres) and Minera Katanga completed 24 shallow close-spaced drill holes at San Jose (1,200 metres).

In 1995, reconnaissance prospecting by Rio Tinto identified evidence for porphyry style mineralization exposed over an area 1.4 x 0.7 kilometres, open in several directions, with some copper enrichment below a widespread leach cap developed in both porphyry and skarn.



In May 2003, Rio Tinto revisited the area and the presence of a leached cap and the potential for a significant copper porphyry deposit were confirmed. Negotiations with Mitsui, Minera Livitaca and Minera Katanga resulted in agreements being signed on October 31, 2003 with the underlying owners. Rio Tinto renamed the prospect "Constancia".

The Rio Tinto exploration activities consisted of geological mapping, soil, and rock chip sampling, and surface geophysics (magnetics and induced polarization). Rio Tinto completed 24 diamond drill holes for a total of 7,500 metres.

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

The Constancia deposit is a porphyry copper-molybdenum system which includes copper-bearing skarn mineralization. This type of mineralization is common in the Yauri-Andahuaylas metallogenic belt where several porphyry Cu-Mo-Au prospects have been described but not exploited. Multiple phases of monzonite and monzonite porphyry have intruded a sequence of sandstones, mudstones and micritic limestone of Cretaceous age. Structural deformation has played a significant role in preparing and localising the hydrothermal alteration and copper-molybdenum-silver-gold mineralization, including skarn formation.

The Pampacancha deposit is a porphyry related skarn system, with copper-bearing skarn mineralization. This type of mineralization is common in the Yauri-Andahuaylas metallogenic belt where several skarn deposits have been developed, including Corocohuayco in the Tintaya District and Las Bambas.

The Constancia porphyry copper-molybdenum system, including skarn, exhibits five distinct deposit types of mineralization:

- 1. Hypogene fracture-controlled and disseminated chalcopyrite mineralization in the monzonite (volumetrically small);
- 2. Hypogene chalcopyrite (rare bornite) mineralization in the skarns (significant);
- 3. Supergene digenite-covellite-chalcocite (rare native copper) in the monzonite (significant);
- 4. Mixed secondary sulphides/chalcopyrite in the monzonite (significant); and
- 5. Oxide copper mineralization (volumetrically small).

Molybdenite, gold and silver occur within all these mineralization types.

Two areas of porphyry-style mineralization are known within the project area, Constancia and San José. At Constancia, mineralization is deeper than that observed at San José which occurs at surface. The mineralized zone extends about 1,200 metres in the north-south direction and 800 metres in the east- west direction.

The Pampacancha deposit is located approximately three kilometers southeast of the Constancia porphyry. The stratigraphy unit in the area is the massive, gray micritic limestone of Upper Cretaceous Ferrobamba Formation; this unit in contact with the dioritic porphyry generates a magnetite skarn, hosts economic mineralization of Cu-Au-Mo.

The intrusive rocks are Oligocene age unmineralized basement diorite. Diorite porphyry is recognized as the source for skarn mineralization, which in turn is cut by mineralized monzonite intrusions which provide minor local increases in Cu-Au mineralization. Skarn Cu-Au mineralization is best developed at the upper and lower margins of the limestone body.

Epithermal mineralization of the low sulphidation quartz-sulphides Au + Cu style, accounts for common supergene enriched Au anomalies, and along with other features such as hydrothermal alteration and



veins typical of near porphyry settings.

## **Exploration**

A geophysical Titan-24 survey was completed in July 2011 to the south of the Constancia deposit. In late 2013, an aeromag and radiometric helicopter geophysical survey was carried out over an area of 80 square kilometers near Constancia.

A mapping and geochemical sampling program was completed between 2007 to 2014, where 20,789 hectares were mapped. Of the 20,789 hectares, 8,905 were mapped on Hudbay mining concessions, which represent 80% of the mining rights in the area.

#### **Drilling**

Extensive drilling has been conducted at Constancia since the early 2000s. The two most recent drilling programs were completed by Hudbay, with prior drilling programs conducted by Rio Tinto and Norsemont Mining. The following Table summarizes the drill holes used to build the block model and the current mineral resource estimate.

	Time Period		<b>Drill Holes</b>	
Company		Number	Feet	Meters
Rio Tinto	2003-2004	24	24,551	7,483
NOM	2005	41	32,149	9,799
NOM	2006	66	66,939	20,403
NOM	2007	77	95,341	29,060
NOM	2008	219	206,850	63,048
NOM	2009	33	16,434	5,009
NOM	2010	93	86,060	26,231
Hudbay	2011	186	101,509	30,940
Hudbay	2012	46	18,501	5,639
Hudbay	2014 - 2015	26	14,281	4,353
Total		811	662,615	201,975

These drill holes were all drilled using a combination of reverse circulation (RC) and diamond drilling (coring) methods.

#### Sampling and Analysis and Security of Samples

The sample preparation, analysis, security procedures and data verification processes used in the exploration campaigns on the Constancia mine prior to our acquisition were reviewed through the documentation available in previously filed technical reports and we have been determined that the sampling methodology, analyses, security measures and data verification processes were adequate for the compilation of data at Constancia and Pampacancha and such processes continue to be used by us.

#### Constancia

At Constancia, a total of 1,247 bulk density measurements were taken by ALS Chemex from 145 drill holes using the paraffin wax coat method. Samples for density measurement in each major rock unit were extracted at approximately 50 metre intervals. Sample preparation and assaying used for the resource estimate in Norsemont's 2009 Definitive Feasibility Study was done by ALS Chemex. In July 2008, the primary lab was changed to SGS del Peru ("SGS") in Lima. Samples were prepared and analyzed using



standard procedures, including Fire Assay (for gold) and Inductively Coupled Plasma - Atomic Emission Spectroscopy and Atomic Absorption Spectrophotometry (for other elements). All samples with copper values above 0.2% were analyzed by a Sequential Copper Method (although sequential copper data was not available for Rio Tinto's exploration campaign).

All lithological, alteration, geotechnical and mineralization data was logged on paper logs that were later entered in spreadsheets from where they were imported into the database. It was noted that the data entry spreadsheets had a number of built-in logical checks to improve the validity of the database. As was mentioned in Norsemont's 2009 Definitive Feasibility Study, the geological and sample data was verified by a senior geologist before importing into a database.

Assay data was delivered in digital form by the main laboratory. Checks for inconsistent values were made by the senior geologist before data was uploaded.

We checked collar positions visually on plans for correctness in the data entry. Down-hole surveys were checked by examining coarse changes in the variables. Check runs were at regular intervals to check consistency of the drilling data.

Discrepancies were not identified between the log data and assay certificates and the drill hole database of text files used for the mineral resource estimate.

The quality control protocol during Norsemont's Constancia exploration campaigns from 2006 to 2010 included the insertion of the following control samples in the sample batches:

- Twin samples (Core) or field duplicates (RC): one in 20 samples.
- Certified Reference Materials (CRMs): one in 20 samples; four CRMs are inserted in alternate order.
- Blanks: one in 20 samples.

The twin samples, field duplicates, coarse blanks and CRMs were inserted on the drill site prior to submission to the laboratory and Acme acted as secondary laboratory for the 2006 and part of the 2007 campaigns to check samples.

#### **Pampacancha**

A total of 56 bulk density measurements were taken from actual core at the Pampacancha deposit. The density measurements were conducted by ALS Chemex and are representative of the different rock and mineralization domains recognized to date.

All samples were sent to SGS for preparation and assaying. The SGS laboratory conforms to ISO/IEC 17025 and ISO 9002 standards and all samples were analyzed through Inductively Coupled Plasma -Atomic Emission Spectrometry after multi-acid digestion and gold was determined by fire assay with Atomic Absorption Spectroscopy.

During the drilling, blanks were inserted into the sample stream as per geologist instruction at approximate intervals of every 30 samples. Standard references were prepared with material obtained from the Pampacancha deposit by us and were analyzed and certified by Acme labs. As part of the Pampacancha drilling, duplicates were obtained by splitting half core samples, obtaining two quarter core sub-samples, one quarter representing the original sample and the other quarter representing the duplicate sample.

We submitted a total of 26,927 samples from 175 drill holes to SGS's laboratory for analysis. In addition to these samples, 471 blanks, 336 reference standards and 486 duplicates were submitted.

Blanks: During the drilling, blanks were inserted into the sample stream as per geologist instruction at approximate intervals of every 30 samples.



- Reference Standards: The reference standards certified by Acme labs were assayed by SGS. Of the 336 copper standards submitted for assaying, 124 of the assays fell outside the lower standard deviation indicating possible sub-estimation of copper content.
- Duplicates: The geologist routinely inserted duplicate core samples to check the homogeneity of the mineralization and sampling precision; duplicates were inserted approximately every 30 samples.

An internal validation of the drill hole database against the original drill logs and assay certificate information was carried out by us. The validation included 100% of the assay values from the Pampacancha drilling. No significant discrepancies existed within the database and it is believed to be accurate and suitable for mineral resource estimation.

#### Mineral Processing and Metallurgical Testing

The metallurgical responses of Constancia ore (ex: Hypogene, Supergene, Skarn, Mixed and High Zinc) is acceptable in terms of treatment rate, recovery and molybdenum and copper concentrate grades. For example, the copper grade in the final concentrate is higher than 26%, with low levels of zinc, lead, iron, etc. The molybdenum concentrate produced is over 47% molybdenum with low contents of copper, lead, iron, etc. Metallurgical test work performed at laboratory and plant levels with Hypogene, Skarn, Supergene, High Zinc and Mixed ore from different polygons have enabled the operator to identify different reagents which show better performance according to each type of ore treated.

Pampacancha testwork is still at the prefeasibility level, so there are still several assumptions that have been made for Pampacancha ore recovery and throughput in the Constancia plant.

For the production year 2016 the Constancia plant achieved a copper recovery of 82%, over the next five years the copper recovery will gradually increase relative to the proportions of mineral type approaching 90% when the feed is predominantly hypogene to the end of mine life.

# **Mineral Resource and Mineral Reserve Estimates**

Resource estimation for Constancia was based on integrated geological and assay interpretations from the information recorded on diamond core logging and assaying. During the time the resource estimate was created, a total of 165,693 meters (581 holes) had been drilled. Multi pass ordinary kriging interpolation setup was used to interpolate the grades in the block model while honoring the geology. The component of the mineralization within the block model that meets the requirements for reasonable prospects of economic extraction was based on the application of a Lerchs-Grossman cone pit algorithm. The mineral resources are therefore contained within a computer generated open pit geometry.

The mine production plan contains 689 Mt of waste and 614 Mt of ore, yielding a waste to ore stripping ratio of 1.1 to 1.0. An average LOM mining rate of 67.5 Mt/a, with a maximum of 74 Mt/a, will be required to provide the assumed nominal process feed rate of approximately 29.5 Mt/a. The ore production schedule for the project shows average grades of 0.31% Cu, 0.009% Mo, 0.05 g/t Au and 3.0 g/t Ag.



# **Reconciliation of Reserves and Resources**

A year over year reconciliation of the estimated mineral reserves and resources at the Constancia mine is set out below.

## Constancia

Mineral	Reserve Reconciliation (Proven & Probable)	Tonnes <sup>1</sup>
Α	2016 Mineral Reserve	571,000,000
В	2016 Production (from Reserves)	27,000,000
С	(A - B)	544,000,000
D	Geology <sup>2</sup> Gain/(Loss)	-
E	Mine Planning <sup>3</sup> Gain/(Loss)	(2,800,000)
F	Economics <sup>4</sup> Gain/(Loss)	-
G	(D + E + F)	(2,800,000)
Н	2017 Mineral Reserve (C + G)	541,200,000

Min	neral Resource Reconciliation (Measured & Indicated)	Tonnes <sup>1</sup>
I	2016 Mineral Resource (Measured & Indicated)	361,000,000
J	2017 Mineral Resource (Measured & Indicated)	449,500,000
K	(J - I) Gain⁴/(Loss)	88,500,000

Mi	neral Resource Reconciliation (Inferred)	Tonnes <sup>1</sup>
L	2016 Mineral Resource (Inferred)	200,000,000
М	2017 Mineral Resource (Inferred)	138,100,000
N	(M - L) Gain <sup>34</sup> /(Loss)	(61,900,000)

# Pampacancha

Mineral	Reserve Reconciliation (Proven & Probable)	Tonnes <sup>1</sup>
Α	2016 Mineral Reserve	43,000,000
В	2016 Production (from Reserves)	-
С	(A - B)	43,000,000
D	2017 Mineral Reserve	43,000,000

Min	eral Resource Reconciliation (Measured & Indicated)	Tonnes <sup>1</sup>
Ι	2016 Mineral Resource (Measured & Indicated)	11,000,000
J	2017 Mineral Resource (Measured & Indicated)	22,700,000
K	(J - I) Gain⁴/(Loss)	11,700,000

#### Notes:

- Totals may not add up correctly due to number rounding
- Geology diamond drilling, interpretation, estimation (interpolation parameters)



- Mine Planning resultant change of mine plan design
- Economics mine operating and capital, commodity price and foreign exchange, concentrating, TC/RC, freight

#### **Mining Operations**

The Constancia mine is a traditional open pit shovel/truck operation with two deposits, Constancia and Pampacancha. The operation consists of an open pit mining and flotation of sulphide minerals to produce commercial grade concentrates of copper. Silver and a small quantity of payable gold reports to the copper concentrate. Commissioning of a molybdenum circuit is underway. The Pampacancha deposit exhibits higher grades of copper and gold and is scheduled to enter into production during 2018.

To match the production requirements, operations are conducted from 15 meters high benches using large-scale mine equipment, including: 10-5/8-inch-diameter rotary blast hole drills, 27 m3 class hydraulic shovel, 19 m3 front-end loader, and 240 ton off-highway haul trucks.

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

The processing plant processes a nominal throughput of 90,000 tpd of ore (31 Mtpa at 94% plant availability); however during 2016, it processed 27 Mtpa of ore from the Constancia and San José ore bodies and the shortfall was principally due to some one-off maintenance events.

The primary crusher, belt conveyors, thickeners, tanks, flotation cells, mills and various other types of equipment are located outdoors without buildings or enclosures. To facilitate the appropriate level of operation and maintenance, molybdenum concentrate bagging plant, copper concentrate filters and concentrate storage are housed in clad structural steel buildings.

The processing plant has been laid out in accordance with established good engineering practice for traditional grinding and flotation plants. The major objective is to make the best possible use of the natural ground contours to minimize pumping requirements by using gravity flows and also to reduce the height of steel structures.

#### Infrastructure, Permitting, and Compliance Activities

The infrastructure facilities include the waste rock facility, tailings management facility, water management, electrical power supply and transmission, and improvements to the roads and the port. The primary road to the site consists of a 70km sealed road (National Route PE-3SG) from Yauri to the Livitaca turn-off and approximately 10 km of unsealed road (CU-764) from the Livitaca turn-off to site. These roads (and bridges) have been upgraded, as necessary, to meet the needs for construction and life of mine use.

Copper concentrate is shipped from the Constancia Mine via road (~460km) and arrives at the Matarani port in trucks. These trucks are equipped with a hydraulically operated covered-box hinged at the rear, the front of which can be lifted to allow the concentrate to be deposited in the concentrate shed assigned to Hudbay by TISUR, the port operator. Pier C has been assigned to Hudbay and has a 75 Kt capacity. A chute from the shed will feed a conveyor system in a tunnel below. This feed conveyor has a 1,000 metric tonnes per hour capacity. The same conveyor and ship loading equipment will be shared with other copper concentrate exporters.

The Constancia Mine Environmental and Social Impact Assessment (ESIA) was approved by the Ministry of Energy and Mines (MINEM) in November 2010 and the first amendment to the ESIA (MOD I) was approved in August 2013; the amendment was to increase the processing capacity and to match the Detailed Design Feasibility Study.



On April 2015, the second amendment to the ESIA (MOD II) was approved to increase reserves through the expansion of the Constancia Pit, inclusion of the Pampacancha deposit, and the waste rock facility (WRF) and the tailings management facility (TMF) expansion, among others.

Hudbay secured all necessary permits and authorizations on time to start construction activities and operation of the mine.

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

The LOM Sustaining CAPEX is estimated to be \$786M (excluding capitalized stripping) and Pampacancha project capex is estimated to be \$54M (excluding the cost of acquiring the surface rights). All capex items are reported in real 2016\$ USD.

The total includes capital required for major mining equipment acquisition, rebuilds, and major repair. The cost also includes site linfrastructure expansion (Tailings Management Facility, Waste Rock Facility, etc.) and process plant infrastructure.

The operating costs are divided in three catagories: mine, process plant and G&A. The LOM operating costs are shown the below table.

Operating Costs	2017 <sup>(1)</sup>	2018 <sup>(1)</sup>	2019 <sup>(1)</sup>	2020 <sup>(1)</sup>	2021 <sup>(1)</sup>	2022- 2035 <sup>(1)</sup>	LOM <sup>(1)</sup>
Unit Costs							
Mining	2.89	2.85	2.66	2.78	2.96	2.71	2.74
Milling	4.06	4.00	4.01	4.01	4.01	4.03	4.03
G&A	1.48	1.24	1.24	1.24	1.24	1.08	1.14
Total Operating Costs (Before Capitalized Stripping)	8.43	8.09	7.92	8.03	8.22	7.82	7.91
Total Operating Costs (After Capitalized Stripping)	7.84	7.53	7.74	7.55	7.80	7.27	7.39

<sup>(1)</sup> US\$/tonne Milled

## **Exploration, Development and Production**

The Constancia mine commenced initial production in the fourth quarter of 2014 and achieved commercial production in the second quarter of 2015. Pampacancha is expected to be developed and mined commencing in 2018.

#### **LALOR MINE**

#### **Project Description and Location**

Lalor is a zinc, gold and copper mine near the town of Snow Lake in the province of Manitoba. Lalor is located approximately 208 kilometres by road east of Flin Flon, Manitoba of which 197 kilometres is paved highway. Lalor commenced initial ore production from the ventilation shaft in August 2012 and commenced commercial production from the main shaft in the second half of 2014.

We own a 100% interest in the property through one mineral lease and eight Order in Council ("OIC") Leases that total approximately 947 hectares with annual rental payments payable to the Manitoba government of C\$10,040. The mineral leases terminate in April and September of 2023 and March of 2033. There is no royalties payable other than those potentially payable to the province. Surface rights are held under general permits with total annual rental payments of C\$1,510 and are sufficient for purposes of our development plans.



The Lalor project was envisaged to utilize, to the greatest extent possible, existing infrastructure in the Snow Lake area from previous mining activities and currently operating facilities. As such, liabilities associated with each operational area have been addressed by the closure plans previously submitted to the regulators and financial assurance has been provided to cover total closure and remediation costs.

## Accessibility, Climate, Local Resources, Infrastructure and Physiography

The current project infrastructure includes a 3.5 kilometre main access road that was constructed in 2010 from provincial road 395 and provides access from the Chisel North mine site to the Lalor site. This access road includes a corridor with freshwater/discharge pipelines and a main hydro line. Access to the site is off of paved provincial highway 392, which joins the town of Snow Lake and provincial highway 39 and provides access to Flin Flon.

The Snow Lake area has a typical mid-continental climate, with short summers and long, cold winters. Climate generally has only a minor effect on local exploration and mining activities. The project area is approximately 300 metres above sea level, consisting of ridged to hummocky sloping rocks with depressional lowlands, and has gentle relief that rarely exceeds 10 metres. The area of Lalor and surrounding water bodies (Snow, File, Woosey, Anderson and Wekusko lakes) are located in the Churchill River Upland Ecoregion in the Wekusko Ecodistrict. The dominant soils are well to excessively drained dystic brunisols that have developed on shallow, sandy and stony veneers of water-worked glacial till overlying bedrock. Significant areas consist of peat-filled depressions with very poorly drained typic and terric fibrisolic and mesisolic organic soils overlying loamy to clayey glaciolacustrine sediments.

We commissioned a 2,000 US gpm water treatment plant in 2008 at Chisel Lake, approximately eight kilometres from Lalor, where water from the Lalor mine is treated in the Water Treatment Plant along with water from the Chisel Open Pit.

Tailings production associated with the Lalor mine is impounded in the Anderson Tailings Impoundment Area ("TIA").

Power for the site is being transmitted at 25 kV from the Lalor substation located at the Chisel North minesite via a 3.5 km transmission line.

### **History**

The Lalor deposit is situated in the Chisel Basin. Exploration in the Chisel Basin has been active since 1955. The Chisel Basin area has hosted three producing mines, namely, Chisel Lake, Chisel Open Pit and Chisel North. All three mines have very similar lithological and mineralogical features.

A Crone Geophysics survey in 2003 indicated a highly conductive shallow-dipping anomaly at a vertical depth of 800 metres. In early 2007, drill hole DUB168 was drilled almost vertically to test the anomaly and intersected a band of conductive mineralization between 781.74 metres and 826.87 metres (45.13 metres). Assay results include 0.30% Cu and 7.62% Zn over the 45.13 metres, including 0.19% Cu and 17.26% Zn over 16.45 metres.

# **Geological Setting**

The Lalor property lies in the eastern (Snow Lake) portion of the Paleoproterozoic Flin Flon Greenstone Belt and is overlain by a thin veneer of Pleistocene glacial/fluvial sediments. Located within the Trans-Hudson Orogen, the Flin Flon Greenstone Belt consists of a variety of distinct 1.92 to 1.87 Ga tectonostratigraphic assemblages including juvenile arc, back-arc, ocean-floor and ocean-island and evolved volcanic arc assemblages that were amalgamated to form an accretionary collage (named the Amisk Collage) prior to the emplacement of voluminous intermediate to granitoid plutons and generally subsequent deformation. The volcanic assemblages consist of mafic to felsic volcanic rocks with intercalated volcanogenic sedimentary rocks. The vounger plutons and coeval successor arc volcanics, volcaniclastic, and sedimentary successor basin rocks include the older, largely marine turbidites of the Burntwood Group and the terrestrial



metasedimentary sequences of the Missi Group.

The Snow Lake arc assemblage that hosts the producing and past-producing mines in the Snow Lake area is a 20 kilometres wide by 6 kilometres thick section that records a temporal evolution in geodynamic setting from 'primitive arc' (Anderson sequence to the south) to 'mature arc' (Chisel Basin sequence) to 'arcrift' (Snow Creek sequence to the northeast). The 'mature arc' Chisel Basin sequence that hosts the zinc rich Chisel Lake, Ghost Lake, Chisel North, and Lalor deposits typically contains thin and discontinuous volcaniclastic deposits and intermediate to felsic flow-dome complexes.

The Lalor deposit is similar to other massive sulphide bodies in the Chisel Basin sequence, and lies along the same stratigraphic horizon as the Chisel Lake and Chisel North deposits. It is interpreted that the top of the zone is near a decollement contact with the overturned hanging wallrocks.

#### **Drilling**

The Lalor mine was discovered by drilling a surface exploration hole testing an electromagnetic geophysical anomaly in March 2007, which intersected appreciable widths of zinc-rich massive sulphides in hole DUB168. Surface drilling continued to July 2012. A limited surface exploration drill program was conducted from August to October 2015 to explore for potential down plunge extensions of Zone 27 and to test near mine geophysical conductors that could not be drilled from underground workings. As of January 1, 2017, a total of 203,037 m of surface drilling was completed at Lalor.

Underground drilling began at Lalor with hole LP0001 in January 2012 and drilling has been continuous to date. Holes are drilled at all dips and azimuths needed to provide adequate coverage of the orebody for interpretation and mining purposes. Holes with dips steeper than +70° are preferably avoided due to poor ergonomics and the increased risk for the drill crews. Underground drilling at Lalor is divided into five different categories based on the primary planned purpose of the hole (project, engineering, exploration, definition, or delineation).

The drill hole database contains 1,707 assayed drill holes totaling approximately 420,310 metres that were used to support the mineral resource estimate. All diamond drilling completed from surface or underground retrieved whole core sizes of BQ and NQ with core recovery near 100%.

#### Mineralization

Lalor is interpreted as a gold enriched VMS deposit that precipitated at or near the seafloor in association with contemporaneous volcanism, forming a stratabound accumulation of sulphide minerals. VMS deposits typically form during periods of rifting along volcanic arcs, fore arcs, and in extensional back arc basins. Rifting causes extension and thinning of the crust, providing the high heat source required to generate and sustain a high-temperature hydrothermal system.

The location of VMS deposits are often controlled by synvolcanic faults and fissures, which permit a focused discharge of hydrothermal fluids. A typical deposit will include the massive mineralization located proximal to the active hydrothermal vent, footwall stockwork mineralization, and distal products, which are typically thin but extensive. Footwall, and less commonly, hanging wall semi-conformable alteration zones are produced by high temperature water-rockinteractions.

The depositional environment for the mineralization at Lalor is similar to that of present and past producing base metal deposits in felsic to mafic volcanic and volcaniclastic rocks in the Snow Lake mining camp. The deposit appears to have an extensive associated hydrothermal alteration pipe.

The Lalor VMS deposit is isoclinaly folded and flat lying, with zinc mineralization beginning at approximately 600 metres from surface and extending to a depth of approximately 1,100 metres. The mineralization trends about 320° to 340° azimuth and dips between 30° and 45° to the northeast. It has a lateral extent of about 900 metres in the north-south direction and 700 metres in the east-west direction.



Sulphide mineralization is pyrite, sphalerite and chalcopyrite. In the near solid (semi-massive) to solid (massive) sulphide sections, pyrite occurs as fine to coarse grained crystals ranging one to six millimetres and averaging two to three millimetres in size. Sphalerite occurs interstitial to the pyrite. A crude bedding or lamination is locally discernible between these two sulphide minerals. Near solid coarse grained sphalerite zones occur locally as bands or boudins that strongly suggest that remobilization took place during metamorphism. Disseminated blebs and stringers of pyrrhotite and chalcopyrite occur locally within the massive sulphides, adjacent to and generally in the footwall of the massive sulphides.

Notable gold and silver rich zones have also been intersected in the footwall of the zinc rich base metal mineral resources on the property. The precious metal mineralization begins at approximately 750 metres from surface and extends to a depth of approximately 1,480 metres. The current interpretation suggests the deeper copper-gold lens tends to have a much more linear trend to the north than the rest of the zones.

Gold and silver enriched zones occur near the margins of the sulphide lenses and in local silicified footwall alterations. These silicified areas often correlate with disseminated stringer chalcopyrite, pyrrhotite and pyrite, whether together or independent of each other. This footwall gold mineralization is typical of VMS footwall feeder zones with copper-rich disseminated and vein style mineralization overlain by massive zinc-rich zones.

Seven distinct stacked zinc rich mineralized zones, six stacked lens groups of gold mineralization of low sulphide either in contact with or entirely separate to the zinc rich base metal resources and one coppergold zone of mineralization were interpreted. The interpreted gold zones are generally co-paralleled and/or separate to the zinc rich base metal mineral resource zones. However, gold zones locally merge and are in direct contact with base metal resources.

The gold bearing lithologies remain open down plunge to the north and northeast.

## Sampling and Analysis: Sampling Methods

Drill core is logged, sample intervals selected and marked clearly on the core. The majority of exploration core is cut in half with a diamond saw and a representative portion of the hole is kept. Definition and delineation core is whole core sampled. All samples are placed in a plastic bag with its unique sample identification tag.

The bagged samples are placed in a plastic pail with a submittal sheet that was prepared by the geologist or technician. Samples were delivered to the Hudbay laboratory in Flin Flon or Bureau Veritas laboratory in Vancouver, British Columbia. All samples arriving at the laboratory are checked against the geologist's sample submission sheets.

From 2012 to 2016 a total of 104,024 drill core samples were analyzed at the Hudbay laboratory in Flin Flon. Copper, zinc, and silver were digested in aqua regia and analyzed by ICP-OES. Gold was determined by lead-collection fire assay fusion, for total sample decomposition, followed by atomic absorption spectroscopy (AAS) analysis. Fire assays were performed on 15 to 30g subsample pulps to avoid problems due to potential nuggetty gold. All samples with gold values (AAS) > 10 g/t were reassayed using a gravimetric finish. All analytical balances are certified annually by a third party. Check weights are used daily to verify calibration of balances. All metal standards used to make the calibration standards for the AAS and ICP are certified and traceable. Each is received with a certificate of analysis. Both the AAS and ICP are serviced twice per year by the instrument manufacturer's qualified service representative to ensure that the instruments meet original design specifications. The Hudbay laboratory has been participating in CANMET PTP/MAL round robin testing since 2000. PTP/MAL is a requirement for laboratories that are ISO 17025 certified. The laboratory has also been participating since 2002 in round robin testing conducted by GEOSTATS of Australia. Fine sample pulps are kept in secure storage at the laboratory after analysis. Pulps are only released after all data is validated.

Over the past five years, 2012 to 2016, a total of 23,822 drill core samples were analyzed at Bureau



Veritas laboratories. Copper, zinc, and silver were digested in agua regia and analyzed by inductively coupled plasma optical emission spectrometry (ICP-OES) and more recently in 2016 by inductively coupled plasma mass spectrometry (ICP-MS). Samples with copper and zinc over the upper limit of detection (ULD) were analyzed by titration, whereas those samples with silver values over the ULD were analyzed by fire assay and gravimetric finish. Gold was determined by lead-collection fire assay fusion, for total sample decomposition, followed by atomic absorption spectroscopy (AAS) instrumental analysis (Table 11 1). Fire assays were performed on 15 to 30g subsample pulps to circumvent problems due to potential nugget effect. Samples from selected holes were also submitted for determination of specific gravity using SPG02 method (volume determination by submersion followed by drying).

A total of 65,792 measurements collected by Hudbay and measured at Flin Flon laboratory, Bureau Veritas laboratory and at Hudbay logging facility, using a non-wax-sealed immersion technique to measure the weight of each sample in air and in water were completed...

A total of 112,732 samples from 3,396 drill holes were submitted to the Flin Flon assay laboratory for analysis as of the date of the most recent technical report. The average length for these sample intervals was 1.62 metres.

## Sampling and Analysis: Quality Assurance and Quality Control

As part of Hudbay quality assurance and quality control (QAQC) program, QAQC samples were systematically introduced in the sample stream to assess sub-sampling procedures, potential crosscontamination, precision, and accuracy. Hudbay commonly includes 5% certified reference materials (CRM), 2% certified blanks, and 5% coarse duplicates. Blanks and CRMs were prepared mostly by Ore Research and Exploration (OREAS). However, a few high-grade gold standards are from Rocklabs. All QAQC samples were analyzed following the same analytical procedures as those used for the drill core samples.

Certified OREAS blanks were inserted into the sample stream commonly one every fifty samples to monitor potential cross-contamination. Between 2012 and 2016, 841 blanks were analyzed representing 3.5% of the samples submitted to Bureau Veritas and 2,278 blanks were inserted, representing 2.2% of the total number of samples analyzed at the Hudbay laboratory.

From 2012 to 2016 a total of 1,601 OREAS and Rocklabs certified reference materials (CRMs) were analyzed at Bureau Veritas representing 6.7% of the sample stream and a total of 5,570 OREAS and Rocklabs CRMs were analyzed representing 5.4% of the total samples submitted to the Hudbay laboratory. Coarse duplicates, approximately one in every twenty samples, were submitted to Bureau Veritas laboratory and Hudbay laboratory in order to monitor sub-sampling precision.

A total of 304 representative pulp samples (1.5%) were selected and re-analyzed at SGS Canada Inc. (SGS) laboratory in Vancouver to assess the accuracy of assay results reported by Bureau Veritas and the Hudbay laboratory relative to the umpire laboratory SGS. Only samples with ≥0.5ppm gold were submitted for re-analysis at the secondary laboratory. Copper, zinc, and silver were digested in aqua regia and analyzed by ICP-OES. Gold was fire assayed and analyzed by AAS. These methods are comparable to those used by Bureau Veritas and the Hudbay laboratory.

# Sampling and Analysis: Data Verification

The performance of blanks indicates that there are no significant problems with contamination at the Bureau Veritas laboratories, samples were handled with care, and the assay results are free of contamination and adequate for the resource estimation. The accuracy and reproducibility of copper, zinc, silver, and gold assays, as indicated by the CRMs assayed at Bureau Veritas laboratories, is of good quality for resource estimation. In reviewing the coarse duplicates submitted to Bureau Veritas, it is concluded that the sub-sampling procedures were adequate for all metals used in the resource model.

Overall the performance of blanks indicates no significant issues with contamination at the Hudbay laboratory in Flin Flon. The contamination rates are generally low for copper, silver and gold, and high for



zinc but at grade levels that are not economic. Therefore the results are acceptable for the resource estimation. The analytical accuracy and reproducibility of copper, zinc, and silver as indicated by the CRM analysis, at the Hudbay laboratory is appropriate for resource estimation. Gold grades are being under assayed. This under assaying of gold standards will likely lead to an underestimation of gold in the resource estimate, since the proportion of samples assayed at the Hudbay laboratory is approximately 80% of the total samples assayed between 2012 and 2016. The duplicate pairs display failure rates of <5% for copper, zinc, and silver indicating that the sub-sampling procedures employed by the Hudbay laboratory are of good quality for base metals and silver. However an adequate sub-sampling variance for gold at the Hudbay laboratory is reached only for gold grades above 1ppm.

The duplicate analyses concluded the accuracy achieved by Bureau Veritas and Hudbay for copper, zinc, silver, and gold, during 2015 and 2016, is of good quality for resource estimation.

# **Security of Samples**

Security measures taken to ensure the validity and integrity of the samples collected consist of a chain of custody of drill core from the drill site to the core logging area. All facilities used for core logging and sampling located are on a secure mine site location. Core sampling is undertaken by Hudbay geologists and sample splitting and shipping conducted by technicians under the supervision of Hudbay geologists. Chain of custody for core cutting through to delivery of samples to laboratories is in place and a well documented and implemented receiving and processing procedures at the Hudbay and Bureau Veritas laboratories. The Hudbay laboratory samples results are stored on a secure mainframe based Laboratory Information Management System (LIMS). The diamond drill hole database is stored on the secure Hudbay network, using the acQuire database management system with strict access rights.

#### **Mineral Resource Estimates**

The mineral resources for Lalor are estimated either as base metal lenses or gold zones and classified as Measured, Indicated and Inferred resources, as of September 30, 2016.

The base metal grade shells were built using MineSight, from 2D cross sections linked to create solids and verified in plan, using approximate 4.1% zinc equivalency cut-off. The gold-rich grade shell were built with Leapfrog® version 4.0 and were constrained with the logging, lithogeological data and an approximate 2.4 g/t gold equivalency or an approximate 1.9% copper equivalency. The gold-rich mineralized envelopes interpretation was stretched to follow the geological continuity of the zones.

The resource is based on integrated geological and assay interpretation of information recorded from diamond drill core logging and assaying and underground mapping and is comprised of the following steps: exploratory data analysis, high-grade capping, high yield grade restrictions, and estimation and interpolation parameters consistent with industry standards. A total of 420,310 m in 1,707 holes have been drilled at Lalor deposit.

The Lalor block model was validated to ensure appropriate honouring of the input data by the following methods:

- · Visual inspection of the ordinary kriging (OK) block model grades in plan and section views in comparison to composites grade
- Metal removed via grade capping and high yield restriction methodology
- Comparison between the interpolation methods of nearest neighbour and inverse distance squared weighted to confirm the absence of global bias in the OK grade model
- Swath plot comparisons of the estimation methods to investigate local bias
- Review of block model ordinary kriging quality control parameters
- Comparison of grade tonnage curves and statistics by estimation method
- Third party review of the block model and estimation process



#### **Mineral Reserve Estimates**

The mineral reserves were estimated based on a life of mine (LOM) plan prepared; using Deswik mine design software that generated mining inventory based on stope geometry parameters and mine development sequences. Appropriate dilution and recovery factors were applied based on cut and fill and longhole open stoping mining methods with a combination of paste and unconsolidated waste backfill material.

The shallow dipping nature of the deposit and stacking of lenses results in multiple lenses being grouped together for mining purposes in the stope optimizer routines of Deswik so that they can be extracted as a single mining unit, based on stope mining parameters by mining method.

Internal dilution and external dilution are included as part of the optimized mining shape. Dilution, set at zero grade and a bulk density of 2.8 tonnes per cubic metre, is based on the full mining shape with internal and external dilution. Average dilution of the mineral resources that are in the LOM production plan is 18.9%. Mining recovery is defined as the ratio of mineral resource tonnes delivered to the concentrator to the in-situ mineral resource tonnes. Average recovery of the mineral resources that are in the LOM production plan is 81.1%.

Diluted and recovered mineral resources exceeding a Net Smelter Return (NSR) cut-off of \$88 per tonne for longhole open stoping and \$111 per tonne for cut and fill mining method are included in the mineral reserves. NSRs are based on metal grades from the stope optimizer and block model, long-term metal prices, concentrator recoveries, smelter treatment, refining and payabilities and a Hudbay Manitoba Business Unit administration cost. Metal prices of \$1.07 per pound zinc (includes premium), \$1,260/oz gold, \$3.00/lb copper, and \$18.00/oz silver with a CAD/US foreign exchange of 1.10 was used to estimate mineral reserves.

The orebody is polymetallic with economically significant metals being zinc, gold, copper and silver. There are two different ore types, both of which are assumed to be treated using conventional flotation at the Stall concentrator:

- · Base metals ores. Near solid to solid sulphide ores, with dominant pyrite and sphalerite with minor blebs and stringers of chalcopyrite and pyrrhotite.
- · Gold rich ores. Silicified gold and silver enriched ores with stringers to disseminated chalcopyrite and sphalerite mineralization.

Metallurgical performance at Stall concentrator indicates that the base metal and gold rich ores can be blended and two concentrates will be produced, a zinc concentrate that will be shipped to the Hudbay Flin Flon metallurgical complex for production of refined zinc, and a gold enriched copper concentrate that will be shipped to third party smelters.



#### Reconciliation of Reserves and Resources

A year over year reconciliation of our estimated mineral reserves and resources, exclusive of reserves at the Lalor mine is set out below.

	Lalor Mine		
Minera	al Reserve Reconciliation (Proven & Probable)	Tonnes	
Α	2016 Mineral Reserve	15,285,000	
В	2016 Production (from Reserves)	1,086,000	
С	(A - B)	14,199,000	
D	2017 Mineral Reserve	14,232,000	
Е	(D – C) Gain/(Loss)	33,000	

Mine	eral Resource Reconciliation – Base Metal (Measured and Indicated)	Tonnes
F	2016 Mineral Resource	-
G	2017 Mineral Resource	2,100,000
Н	(G -F) Gain/(Loss)	2,100,000

Min	Mineral Resource Reconciliation – Base Metal (Inferred)	
I	2016 Mineral Resource	3,300,000
J	2017 Mineral Resource	545,000
K	(J -I) Gain/(Loss)	(2,755,000)

Mi	Mineral Resource Reconciliation – Gold Zones (Measured and Indicated)	
L	2016 Mineral Resource	1,153,000
М	2017 Mineral Resource	1,750,000
N	(M - L) Gain/(Loss)	597,000

Mine	Mineral Resource Reconciliation – Gold Zones (Inferred)	
0	2016 Mineral Resource	3,522,000
Р	2017 Mineral Resource	4,124,000
Q	(P - Q) Gain/(Loss)	602,000

# **Mining Operations: Mine Planning**

Lalor mine is a multi-lens, flat lying orebody with ramp access from surface and shaft access to the 955 metre level. Internal ramps located in the footwall of the orebody provide access between mining levels. Stopes are accessed by cross cuts from the major mining levels.

Power is provided to the mine via power cables located in the production shaft, electrical distribution to the mine workings consist of 13.8 kV that is further stepped down to 600 V. The Chisel North mine



ventilation system in sequence with the Lalor mine Downcast Raise, provide 400,000 cfm down the Lalor mine Access Ramp, with 150,000 cfm exhausting to surface via the Chisel North mine Ramp. An additional 555,000 cfm is downcast via the Lalor mine Production Shaft for a total of 955,000 cfm exhausting up the Main Exhaust Shaft. Mine ventilation air is heated by direct fired propane heaters located at each of the intakes. Lalor mine's fresh water source is Chisel Lake. Water is pumped from Chisel Lake to Lalor via heat traced pipeline. Fresh water pipe lines are located in the production shaft, with secondary water from natural ground water in the Lalor ramp. Mine water reports to the water treatment plant at Chisel Lake where it is treated and released. The main collection areas feeding the water treatment plant are the 140 metre level Pump Station at Photo Lake mine via the main ramp, surface portal and Photo Lake Pump House; the 840 metre level Sump via the Lalor mine Ventilation Raise and Lalor mine Lift station; and the 955 metre level main pumps via the Lalor mine Production Shaft and Lalor mine Lift Station. The Chisel North mine water is collected and that water is pumped to the 410 metre level sump where it continues to the 955 metre level main pumps at Lalor mine. All water within the mine is collected in intermediary collection sumps and proceeds to the main collection areas via drain lines, drain holes or drainage ditches.

In 2016, we mined 1,086,362 tonnes of ore via the production shaft at Lalor and ore was trucked to the Stall concentrator for processing.

Mining is done using mobile rubber tired diesel equipment. Load haul dump ("LHD") units vary from 8 to 10 cubic vards. Trucks are currently 42 to 60 tonne units that haul both ore and waste. Ore is directed to rock breakers located near the production shaft at the 910 metre level, where it is sized to 0.55 metre and conveyed to the shaft for hoisting to surface by two 16 tonne capacity bottom dump skips in balance. Hoisted ore is hauled by truck to the Chisel North mine site, crushed to less than 0.15 metre and stockpiled. Crushed ore is loaded by front end loader to tractor trailers and hauled to the Hudbay concentrator at Stall Lake. Waste rock is disposed of as backfill underground.

Lateral advance is made in 4 m long segments (rounds), with typical dimensions of 6 metre wide by 5 metre high. Lateral drilling is completed with two boom electric hydraulic jumbo drills, each round requires approximately 80 holes. Ore and waste are mucked using LHDs. Following mucking, standard ground support, consisting of resin grouted rebar and welded wire mesh to within 1.8 metre of the sill, is installed. Mine services, including compressed air, process water and discharge water pipes, paste backfill pipeline, power cables, leaky feeder communications antenna and ventilation duct are installed in main levels and stope entrances.

Two main mining methods are used at Lalor mine, cut and fill and longhole open stoping. Cut and fill methods include: mechanized cut and fill, post pillar cut and fill and drift and fill. Longhole open stoping methods include: transverse, longitudinal retreat and uppers retreat. Each mining area is evaluated to determine the most economic stoping method. In general where the dip exceeds 35° and the orebody is of sufficient thickness, longhole open stoping is used and lateral based cut and fill mining methods are used in flatter areas. Approximately 65% of the mineral reserves are mined using the longhole open stoping methods and 35% are mined with cut and fill methods. All stope mining is done using emulsion explosives.

Current production rates are approximately 3,000 to 3,500 tonnes per day and the mine is ramping up production to 4,500 tonnes per day by 2018. The production ramp-up is supported by the underground ore handling circuit capable of 4,500 tonnes per day, transitioning to more bulk mining methods (65% of reserves) with additional mining fronts and design changes to improve mining efficiencies, developing ore passes and transfer raises to reduce truck haulage cycle times from the upper portions of the mine and commissioning of a paste backfill plant in the first guarter of 2018.

Autonomous operation of a LHD loader underground is currently being trialed from surface by tele-remote monitoring with changes to standard designs to allow isolation of autonomous areas and buffer storage for in-between shift mucking.

Ore is received at the Stall concentrator, approximately 16 kilometres east of Lalor mine, and placed in coarse ore bins or on a stockpile at the mill. Ore is conveyed to a three stage crushing plant and crushed



to 19mm. Crushed ore is conveyed to two sequential rod and ball mill combinations operating parallel with each other. The mills feed a sequential flotation process where a bulk rougher copper concentrate is floated first. The copper rougher concentrate is reground, followed by three stages of cleaning producing a concentrate grading approximately 21% copper. The copper concentrate is thickened and filtered to remove water, and is conveyed to concentrate storage. Copper concentrate is loaded to semi tractor trailer trucks for transport to Flin Flon for transport to third party smelters.

The tails from the copper circuit feed the zinc flotation circuit which produces a zinc rougher concentrate. This is followed by three stages of zinc cleaning which produces a concentrate grading approximately 51% zinc. Zinc concentrate is thickened and filtered and is conveyed to concentrate storage. Zinc concentrate is loaded to semi tractor trailer trucks for transport to Flin Flon where it is processed into refined zinc. Final tails from the Stall concentrator are currently pumped to the Anderson TIA for permanent disposal.

The increase in production to 4,500 tonnes per day at Lalor is complemented by the Stall concentrator expansion to 4,500 tpd, which is currently underway and is expected to be commissioned in the third quarter of 2018. The expansion addresses the following areas: crushing, copper and zinc flotation, thickening, dewatering, electrical power distribution, compressed air systems and water distribution systems that will enable the concentrator to operate at 4,500 tpd.

The Lalor paste plant project, which was approved in February 2017, is critical for the sustainability of the mine production plan. The paste plant will be located northeast of the existing headframe complex at Lalor mine and delivery capacity of the paste is 165 tonnes per hour solids (tails) or 93 cubic metres per hour paste. The paste plant is designed to fill voids left by mining of approximately 4,500 tonnes per day. Taking into account waste generated from development in the LOM and the plan not to hoist waste from underground the combined paste/waste backfilling capacity is approximately 6,000 tonnes per day. The paste plant will be capable of varying the binder content in the paste to provide flexibility in the strength gain of the paste where higher and early strength may be required depending on mining method.

Tails that are currently pumped from the Stall concentrator to the Anderson TIA will be diverted to the Anderson booster pump station. Capacity of the pumping station will range from 110 to 130 tonnes per hour to allow for some variation in the output of tailings from the concentrator. The tailings will be directed into the Anderson TIA when not required for the paste plant.

Two pipelines will be installed between the Anderson booster pump station and the paste plant located at Lalor mine site, approximately a 13 kilometre distance. Paste will be delivered underground via one of two - nominal 8 inch diameter, cased boreholes from surface to the 780 metre level the mine. Only one borehole is required during normal operation, with the second borehole available as a spare in the event of a plug or excessive wear on the primary hole. The boreholes were drilled and cased in 2016.

A network of underground lateral piping and level to level boreholes will transfer the paste from the base of the discharge hopper to the required underground locations. Underground development is required to extend an existing drift on the 780 metre level to intersect the surface boreholes and short cross-cuts on several levels for level to level boreholes. The majority of the underground distribution system will utilize existing drifts or planned future development.

## **Permitting and Environmental**

In March 2014, we received the Environment Act Licence ("EAL") for the Lalor mine which allowed the mine to move into full production and skip tonnes up the main production shaft after construction and commissioning was completed in the third guarter of 2014.

Commencing in 2007, AECOM carried out extensive environmental baseline investigations needed to conclude an environmental impact assessment for the Lalor project, including all necessary terrestrial and aquatic field studies. This baseline work was utilized in the Lalor Paste Plant Notice of Alteration (NoA) which was submitted to Manitoba Sustainable Development in the fourth guarter of 2016 and was approved in January 2017. Additional baseline work and studies was completed for the Anderson Tailings



Impoundment Area (TIA) expansion NoA submitted in the third guarter of 2016 to Manitoba Sustainable Development for approval. Due to the extensive work already completed and other existing studies as part of Environmental Effects Monitoring (EEM) programs at the various operations in the Snow Lake area, it is contemplated that no additional baseline studies are necessary for potential future improvement projects. There is no present indication that future approvals will not be obtained to meet potential future construction schedules.

Presently the New Britannia site inclusive of the Birch Lake Tailings Management Facility (BLTMF), in Snow Lake, although currently on care and maintenance, has a current EAL and the seasonal discharge from BLTMF is regulated under the Metal Mines Effluent Regulation. Hudbay is currently in the process of applying for a new water withdrawal licence for this site which is anticipated to be obtained before potential operational needs. Potential future use of the New Britannia site will require the submission of a NoA in order to process material from the Lalor mine.

As a requirement of the Lalor mine EAL, an updated closure plan was submitted for approval in September 2014 and is currently under review by the regulatory authorities. NoA applications for the paste plant, expansion of the Anderson TIA, and potential upgrades to the New Britannia site also will require the submission of updated closure plans and financial assurance.

# **Exploration and Development**

Since 2014, one exploration drift and one exploration ramp were developed at Lalor for a total of 1,891 metres. The development was undertaken to establish underground platforms to conduct exploration drilling on targets that could not be drilled from existing mine infrastructure. Prudent care was taken in the placement and size of both the exploration ramp and drift to assure the selected locations can accommodate future mining equipment and related infrastructure.

In 2015, thirty-one drill holes were completed for a total of 10,395 metres focusing on the copper-gold, Zone 27. Exploration drilling continued on Zone 25 from March to July of 2016 for a total of sixty-nine drill holes and 16,098 metres. The purpose of the exploration programs was to upgrade inferred resources, specifically focused on identifying areas of enriched gold and copper-gold mineralization. Due to the low angle and stacking nature of the mineralization at Lalor, holes were extended beyond the gold target depths to explore the on-strike and plunge potential of known base metal lenses, which led to increases in mineral resource inventory.

In the fourth quarter of 2016, Hudbay developed 37 drift rounds at Lalor to assess the continuity and variability of non-contact gold mineralization within discrete areas of Zones 21 and 25. Approximately 10,000 tonnes of bulk sample material was mined and hauled to surface. The material was primary crushed and processed through a sample tower to collect a representative subsample of each development round. The integrity of the material was maintained at all times through a rigorous chain of custody process. The mined material, stored on surface, is available for milling pending the potential economic viability of refurbishing the New Britannia gold mill in Snow Lake by Hudbay.

The preliminary results indicate that the gold grades from the bulk sample program are as expected with minor variations when compared to those modeled based on diamond drill data. The bulk sample program has increased the confidence and the understating of the gold zones and gold mineralization at Lalor.

#### **777 MINE**

#### **Project Description and Location**

The 777 mine is an underground copper and zinc mine with significant precious metals credits located in Flin Flon, Manitoba. Unless the context indicates otherwise references to the 777 mine include the 777 North expansion.



We own a 100% interest in the properties that comprise the 777 mine through mineral leases, Order in Council ("OIC") leases and mineral claims in Manitoba and Saskatchewan. The properties cover approximately 3,800 hectares, including approximately 500 hectares in Manitoba and approximately 3,300 hectares in Saskatchewan. Annual lease rental payments are C\$6,913 and C\$1,600 to the Manitoba and Saskatchewan governments, respectively, and the annual work expenditure requirement for the Saskatchewan properties is C\$257,025. Individual leases have different term expiry dates that range from 2017 to 2036. Our surface rights and permits are sufficient for purposes of our current mining operations.

Liabilities associated with the 777 mine are addressed by the closure plans that have been submitted to regulators in both Saskatchewan and Manitoba and financial assurance has been provided to cover the demolition and remediation activities outlined in such closure plans. The closure and remediation liability in respect of the property is estimated at C\$1.8 million as of December 31, 2016. In addition, closure plans have been submitted and are backed with financial assurance for the associated Flin Flon Metallurgical Complex ("FFMC"), which includes the Flin Flon Tailings Impoundment System ("FFTIS") utilized by the 777 mine.

Mineral production from the 777 mine property is subject to a 4% net smelter returns royalty and a 27.56 cents (Canadian) per tonne production royalty pursuant to a Royalty Agreement (the "Royalty Agreement") dated as of January 1, 2015 between HBMS and Callinan Royalties Corporation ("Callinan"). The Royalty Agreement replaces the previous Net Profits Interest and Royalty Agreement, which was terminated in conjunction with the execution of the Royalty Agreement.

Precious metals production from the 777 mine is subject to our agreement with Silver Wheaton, as described in this AIF.

### Accessibility, Climate, Local Resources, Infrastructure and Physiography

The 777 mine is located in Flin Flon, Manitoba, which has a population of approximately 6,000 people, and is accessible by paved highway. Flin Flon is the site of our principal concentrator and zinc plant and has well developed access to rail and air transportation. Personnel requirements for our 777 mine and processing facilities are largely drawn from the immediate area.

Electrical power is supplied from the Manitoba Hydro and Saskatchewan Power Corporation power grids, which are fed by three hydroelectric generating stations. No issues are foreseen for securing additional electrical power in the future if required.

Water for mining activities is supplied from a reservoir located adjacent to the 777 mine site and is sufficient for operations.

Tailings from milling are sent to the Paste Backfill Plant located at the lower level of the mill building. Mixed paste backfill is pumped to one of two lined boreholes adjacent to the mill, where paste is gravity fed to 1,082 metre level for distribution to mined out stopes. Tailings not used in paste production are pumped to the FFTIS. The FFTIS is located in Saskatchewan approximately 500 metres to the west of our Flin Flon Metallurgical Complex.

The 777 mine site is 311 metres above sea level. The geographical area has cool summers and very cold winters with a mean annual temperature of 0.6° C. Operating costs in the first and fourth guarters are typically higher due to additional heating and other seasonal costs.

#### **History**

In 1993, the 777 deposit was discovered by an underground exploration hole that intersected the mineralization at a depth of 1,000 metres. In 1995, a drilling program delineated the ore body and by 1997, this ore body was defined. In 1999, development of the 777 mine began as part of the "777 Project" and commercial production from the mine commenced in January 2004. By this time, Minorco S.A. had



merged with Anglo American Corporation of South Africa to form Anglo American plc ("Anglo American"). In December 2004, we acquired HBMS and the 777 mine from Anglo American.

HBMS took a working option on the 777 property in 1967 from Callinan. In 1988, HBMS acquired Callinan's remaining interest in the property and in return granted Callinan a production royalty and a net profit interest, which net profit interest has since been converted to a net smelter return royalty, as described above.

#### **Geological Setting**

The 777 deposit lies in the western portion of the Paleoproterozoic Flin Flon Greenstone Belt. The Greenstone Belt is interpreted to be comprised of a variety of distinct 1.92 to 1.87 Ga tectonostratigraphic assemblages including juvenile arc, back-arc, ocean floor and ocean island, and evolved volcanic arc assemblages that were amalgamated to form an accretionary collage prior to the emplacement of voluminous intermediate to granitoid plutons and generally subsequent deformation. The volcanic assemblages consist of mafic to felsic volcanic rocks with intercalated volcanogenic sedimentary rocks. The younger plutons and coeval successor arc volcanics, volcaniclastic, and sedimentary successor basin rocks include the older, largely marine turbidites of the Burntwood Group and the terrestrial metasedimentary sequences of the Missi Group (which includes the Flin Flon formation).

The Flin Flon formation is subdivided into three mappable members containing units of heterolithic and monolithic breccias, rhyolite flows and domes, and massive and pillowed basalt flows and flow-top breccias. It is comprised of the Millrock member, which contains the 777 and Callinan mineralization, and in footwall to it the Blue Lagoon and Club members.

A complex succession of felsic and basalt-dominated heterolithic volcaniclastic rocks host the Flin Flon Main, Callinan and 777 volcanogenic massive sulphide ("VMS") deposits within the Greenstone Belt. The north-trending, VMS-hosting, 30 to 700 metre thick volcanic/volcaniclastic succession is recognized for at least 5 kilometres along strike and has an average dip of 60°E. The volcaniclastic rocks have been interpreted to occupy a volcano-tectonic depression within a basaltic footwall succession.

#### **Exploration: Drilling**

Diamond drilling is the only drilling type carried out for the purposes of exploration, ore zone definition and sampling of our 777 mine mineralization. The modern 777 drilling program began in the early 2000's and, as at September 30, 2016, a total of 2,572 holes and 359,347 metres had been drilled. All holes, except a geotechnical shaft pilot hole and surface North expansion exploration holes, were drilled from underground by a contractor using AW-34, AQTK, BQ and NQ core sizes. Drill hole spacing along the 777 deposit is generally 30 to 50 metres. Core recovery is near 100% for all holes. Drilling was categorized as definition, exploration, or geotechnical. Geotechnical drilling was completed in areas of planned underground infrastructure to ensure competency.

Standard procedure is that the core is initially logged for lithology then descriptively for grain size, foliation, minor units, alteration minerals and intensity, faults, RQD, joints and contacts. Sample intervals are determined by both lithology and a visual estimate of the sulphide mineralization. As a general rule, sample intervals are approximately one metre, though the length varies depending on lithology or type of mineralization. However, as many of the assays are historic in nature, several were split when they overlapped lithological boundaries in the resource block model and resulted in shorter sample intervals.

#### **Exploration: Surveying**

We routinely conduct time-domain borehole electromagnetic surveys with three dimensional probes on drill holes. These probes used are induction coil probes which measure the secondary magnetic field induced by the primary field created by a loop. These electronic methods can generally detect off hole targets up to 150 metres or more from the hole depending on the size and conductivity of the target. The sample quality can be affected by active mine workings and the proximity of the geophysical apparatus to a large ore body.



such as 777, which can leave an imprint of the mine itself on the data.

After the initial aggressive exploration program that defined the 777 deposit, fewer holes were downhole geophysical surveyed. The first modern exploration drill hole at the 777 mine, T7X-001, was pulsed in late 2004. Following that hole, little exploration work was conducted between 2005 and 2008 with only 56 holes being drilled during that four year period. Since 2009, exploration efforts have increased along with the use of downhole geophysical surveying.

In 2007 a total of 75 kilometres of high resolution 2D seismic profiles as well as a 3D survey covering approximately 10 square kilometres was completed. Results were hampered by the significant challenges posed by the complex crystalline geology of the area, proximity to an active town, active mining operations, and the highly variable terrain.

The survey resulted in a greater understanding of the area geology. Also, the discovery of Zone 33 at the 777 Mine was attributed to this survey as it showed a seismic reflector in the footwall, which was later followed up with drilling and downhole pulsing. Previous downhole geophysical surveys had noted this anomaly, but it was previously discounted as a shadow effect from the 777 Mine.

#### Mineralization

The 777 and Callinan deposits occur within an east-facing sequence of volcanic rocks documented as tholeiitic and basalt-dominated, and dated around 1888 Ma. The rocks immediately hosting the mineralization, however, consist of quartz-phyric ("QP") and quartzfeldspar-phyric rhyolite flows and quartz-feldspar crystal-lithic volcaniclastic rocks of rhyolitic composition.

The 777 deposit can be divided into two main southeast plunging trends, the North Limb and the South Limb, as well as the West Zone. All three zones lie within the same stratigraphic sequence with the same lithofacies as described above. The West Zone lies in the footwall in what is interpreted to be a lower thrust slice and both limbs have the same stratigraphic sequence. On average the lenses strike at 010° and dip to the east at 45°. All zones have a relatively shallow plunge trending at -35° towards 140°. Horizontal widths throughout the deposit range from 2.5 metres to 70 metres in thickness, and can be thicker when two or more zones overlap.

There are a total of nine distinct sulphide lenses contained within the 777 deposit. Each of the zones is distinguished based on grade and mineralization type as well as their spatial location. The 777 deposit encompasses an area approximately 1,300m downplunge by 550 metres across and varying in depth from approximately 870 to 1,600 metres below surface. Lenses in general are fairly continuous with the exception of scattered diorite intrusions.

The Callinan deposit is subdivided into two rhyolite horizons termed the East-QP and the West-QP. The East-QP is host to the lenses of the North Zone (northern portion), and the East Zone (southeast portion), and is on the same horizon as the 777 mineralization. The West-QP hosts the South Zone (southwest portion) and its associated lenses. Each of these zones is further subdivided into a number of mineralized lenses. The subdivision of Zones into lenses was based on the spatial distribution of the mineralization. The South Zone lenses generally strikes to the north and dip at 50° to the east with a plunge trending at -50° towards 135°. The North and East Zones generally strike at 020° with a 50° dip to the east with a shallow plunge trending at -30° towards 145°.

There are a total of 20 sulphide lenses contained within the three broad zones of the Callinan deposit. The Callinan mineralization is a distal deposit that has a matrix supported breccia with variable amounts of wallrock fragments in a fine to medium grained sulphide matrix. The wallrock fragments are intensely altered with chlorite, talc and sericite with some degree of pyritization and carbonation. These lenses contain variable amounts of pyrite, sphalerite, chalcopyrite and minor pyrrhotite.

Mineralization is generally medium to coarse grained disseminated to solid sulphides consisting of pyrite,



chalcopyrite, sphalerite, pyrrhotite, and magnetite. The principle gangue minerals are chlorite and quartz. Alteration minerals include biotite, epidote and actinolite.

# Sampling and Analysis: Sampling Methods

The majority of sample intervals from definition and exploration drilling were whole rock sampled with the core placed in a plastic bag with its unique sample identification tag. Typically when exploration drilling in new areas, all samples are either split or cut in half with a diamond saw and a representative portion of the hole is kept.

The bagged samples were placed in either a burlap bag or a plastic pail with a submittal sheet that was prepared by the geologist or technician. Samples were delivered to the Flin Flon assay laboratory, located in the Flin Flon Metallurgical Complex, which is owned and operated by us. Samples are checked by laboratory personnel to ensure that they match the submittal sheet.

The samples were analyzed for the following elements: gold, silver, copper, zinc, lead, iron, arsenic and nickel. Base metal and silver assaying was completed by aqua regia digestion and read by a simultaneous ICP unit. The gold analysis was completed on each sample by AAS after fire assay lead collection. Gold values greater than 10g/t were re-assayed using a gravimetric finish. All analytical balances are certified annually by a third party. Check weights are used daily to verify calibration of balances. All metal standards used to make the calibration standards for the AAS and ICP are certified and traceable. Each is received with a certificate of analysis. The Flin Flon assay laboratory is certified to the ISO 9001 quality management system and pertinent methods are accredited to ISO 17025 for gold AAS, base metal ICP and environmental methods to help ensure it meets our needs as well as those of other stakeholders.

A total of 112,732 samples from 3,396 drill holes were submitted to the Flin Flon assay laboratory for analysis as of the date of the most recent technical report. The average length for these sample intervals was 1.62 metres.

Bulk density measurements were taken on 2,982 of the mineralized samples selected for assaying as of the date of the most recent technical report. The measurement methodology consisted of first weighing the core sample in air, then, the sample was suspended in a tub filled with water by a chain on the underside of the scale in such a way that it did not touch the sides of the water-filled tub and the weight of the submerged sample was recorded.

## Sampling and Analysis: Quality Assurance and Quality Control

As part of our Quality Assurance and Quality Control ("QAQC") measures, a portion of the pulp duplicates has been sent to Bureau Veritas Commodities Canada Ltd. ("Bureau Veritas") in Vancouver, British Columbia, formerly Acme Analytical Laboratories Ltd., for comparison and verification purposes since early 2006. Our QAQC measures also involve the use of blank materials, reference standards, internal duplicates, and repeats.

During the drilling programs at 777 a total of four different types of blanks were inserted into the sample stream between early 2000 and September 2011. Blanks were inserted at a rate of one for every twenty assays until the fall of 2003, when this was reduced to one for every fifty assays as a means of cost reduction. Since our assay laboratory runs batches of 50-60 samples at a time this should place at least one blank in every batch.

The use of reference standards has become increasingly systematic and they are now inserted into the sample stream at every 20th assay interval.

Duplicates are used as a check to verify the repeatability of the assay data. Duplicates are run at our laboratory at a frequency of one in twenty samples, and also at Bureau Veritas as an independent check. Repeats, typically referred to as 'blinds', are run on a monthly basis on one sample out of every four or five duplicates that were analyzed during that month. The results are considered an internal independent check



on our assay laboratory results.

## Sampling and Analysis: Data Verification

Examination and mapping of the underground drifting visually confirmed the geology and VMS style of mineralization. As well, the examination of drill core for several holes has also confirmed the mineralization and geology and compared well to underground mapping with drill logs and assays.

A visit was conducted to the 777 core logging and storage area, exploration core storage facility, and our assay facility and each was deemed to be secure and in reasonable condition. In addition, the qualified person has had several discussions with current and former geologists as well as other personnel that have worked at the deposit to verify various details of the mining, infrastructure, geology, drilling and sampling.

Full verification of the data was not able to be completed as a small portion of the data from the Callinan portion of the deposit is considered historic in nature.

# Security of Samples

For security purposes, all sample preparation, splitting, handling, and storage was in the control of our personnel at all times in accordance with then applicable chain of custody policies which were consistent with industry standards at the time. We implemented a documented full chain of custody procedure in August 2011. This involves the creation of a submittal sheet with all batches of drill core sent for assay by the geologist daily. The sheet is signed both by the geologist, to verify the samples were stored securely, and by the laboratory personnel, to verify it was in their control from the time it left the core logging and sampling facility and is consistent with the current industry standards.

# Mineral Resource and Mineral Reserve Estimates

#### 1. Mineral Resources

Mineral resources were separated into the 777 and Callinan portions of the deposit. This was done for mining and planning purposes as the Callinan lenses represent the upper, and more historic, portion of the mineralization and the 777 zones represent the lower more recently drilled and identified mineralization. The interpreted lenses of the 777 zones and certain Callinan lenses were built by digitizing polylines around the mineralization. Polylines were then linked with tag strings and triangulated in order to create three dimensional wireframe solids. The remainder of the mineralization was interpreted by digitizing polylines in a 2D plane around mineralized intercepts. The average strike and dip of the zone was estimated and utilized to calculate the horizontal width of the mineralization for both the 2D Gridded Seam Model and the polygonal interpretations.

The mineral resource estimate, effective as of a September 30, 2016 cut-off date for diamond drilling, was completed using MineSight 11.5 software in mine coordinates, and for the Callinan lenses, the current version of MineSight at the time of estimation. The block model was constrained by interpreted 3D wireframes of the mineralization. Gold, silver, copper, zinc, iron, specific gravity and in some cases dilution variables and horizontal width were estimated into blocks using either ordinary kriging or relative co-ordinate kriging for most lenses. Lens intersections were generally selected based on a metal grade of 3.3% zinc equivalent over 2 metres. Intersections were modelled as low as 0.3m to provide additional information for statistical and mine planning purposes.

#### 2. Mineral Reserves

Mining, processing and economic parameters were applied to the block model to form the basis of the reserve estimate with an effective date of January 1, 2017. The measured resources were used to estimate the proven mineral reserves and the indicated resources were used to estimate the probable mineral reserves. For mining purposes, there are eight active mining areas in the mine to allow for a blended product with the end goal to send a blended grade to the mill. Mining methods were established for each mining



area and a net smelter return ("NSR") was calculated to determine the economic viability. NSR revenues were calculated for each mining area comprised of blocks from the block model assuming metallurgical recoveries and our four year average metal prices and exchange rates. To determine the economic viability and NSR margin of each mining block, onsite operating costs, capital development and offsite costs were estimated and applied against copper and zinc concentrate produced for each mining block. The final step of the reserving process involved developing an annualized life-of-mine production plan and supporting cash flow analysis to determine the mineral reserves.

#### **Reconciliation of Reserves and Resources**

A year over year reconciliation of our estimated mineral reserves and resources at the 777 mine is set out below.

	777 Mine	
Miner	ral Reserve Reconciliation (Proven & Probable)	Tonnes <sup>4</sup>
Α	2016 Mineral Reserve	6,302,000
В	2016 Production (from Reserves)	1,302,000
С	(A - B)	5,000,000
D	Geology <sup>1</sup> Gain/(Loss)	(117,000)
Е	Mine Planning <sup>2</sup> Gain/(Loss)	(442,000)
F	Economics <sup>3</sup> Gain/(Loss)	25,000
G	(D + E + F)	(534,000)
Н	2017 Mineral Reserve (C + G)	4,466,000

	777 Mine	
Mineral Resource Reconciliation (Indicated)  Tonn		
I	2016 Mineral Resource	728,000
J	2017 Mineral Resource	736,000
K	(J - I)	8,000

	777 Mi	ne
Mineral Resource Reconciliation (Inferred)  Tonn		
L	2016 Mineral Resource	683,000
М	2017 Mineral Resource	673,000
N	(M - L)	(10,000)

#### Notes:

- Geology diamond drilling, interpretation, estimation (interpolation parameters)
- Mine Planning resultant change of mine plan design, dilution and recovery
- Economics mine operating and capital, commodity price and CDN\$/US\$ exchange, concentrating, TC/RC, freight 3.
- Totals may not add up currently due to rounding



# **Mining Operations**

The 777 mine is a multi-lens orebody with shaft access down to the 1508 metre level. The mine consists of an internal ramp that provides access to each mining level. Mobile tired diesel equipment is utilized. Load haul dump ("LHD") units vary from 8 to 10 cubic yard. Trucks are 40 to 50 ton units feeding an ore pass system or direct to rock-breakers which feed an underground crusher and ore is skipped to surface via the shaft.

Long-hole open stope is the mining method used at the 777 mine. Mine sequencing involves primary, secondary, chevron and longitudinal retreat stopes that are either paste or unconsolidated loose waste rock backfilled. Long-hole stopes are mined at 15 to 17 metre vertical sill to sill intervals. Stope strike lengths are generally 16 metres with widths of 3 to 100 metres, with an average of approximately 20 metres. The ore is undercut at the top and bottom of the block, providing access for drilling and mucking. Drilling is done by top hammer long-hole drills with holes varying in length between 10 metres and 20 metres long and a hole diameter of 3 inches. Mucking is accomplished by remote LHD units and then loaded to haul trucks. Ore at 777 mine is loaded by LHDs to underground haul trucks, which dump to a series of ore passes that feed three chutes on 1412 metre level. Haul trucks are loaded from the chutes and haul the ore directly to the main ore pass system on 1412 metre level. The ore is temporarily stored in a 1,725 tonne coarse ore bin that feeds the crusher. From the crusher it is conveyed to a 1,600 tonne fine ore bin, where it is conveyed to a loading pocket at the 1508 metre level and placed into two 15 tonne skips and hoisted to surface. The ore on surface is hauled by 53 to 63 tonne haulage trucks directly to the Flin Flon concentrator or is dumped on a stockpile close to the concentrator.

Ore from 777 North expansion is loaded onto haul trucks by LHDs and transported up the ramp to surface. The ore is dumped on the ground prior to being sent through a surface crusher operated by a contractor. The ore is then loaded and transported for processing at the Flin Flon concentrator or stockpiled nearby.

Our Flin Flon concentrator processes 777 ore into copper and zinc concentrates. Copper concentrate is sold to third party purchasers and zinc concentrate is sent to our Flin Flon zinc plant where it is further processed into special high grade zinc before being sold to third party purchasers. See "Description of our Business - Other Assets - Processing Facilities" and "Description of our Business - Other Information -Products and Marketing".

Production from 777 is subject to federal and provincial income taxes, as well as the Manitoba mining tax. The combined federal and provincial income tax rates are assumed to be approximately 27% for the life of the mine.

The 777 mine has been in commercial production since 2004 and the original project capital has already been paid back and ongoing capital is defined as sustaining capital.

### **Exploration and Development**

2011 marked the first year that a concentrated effort on exploration drilling was conducted from underground at the 777 mine. Much of the drilling to that date had been focused on converting resources to reserves. In excess of 113,700 metres of underground exploration drilling has been drilled at the 777 mine targeting additional resources in the hanging wall, footwall, along strike and in upgrading inferred resources.

An extensive exploration program was conducted from 2014 to 2015 to extend the mine life of 777. Specific work included the analysis of 7,696 lithogeochemistry samples to determine rock types and ore associated signatures, 18 select historical drill holes were geophysically re-surveyed and geology from more than 6,000 drill holes in the area were collated and reviewed. The drilling program included 18 holes from surface for 15,466 metres and 55 holes from underground for 34,564 metres. No new mineable zones were added to the mine life as the result of the program and all high priority targets have been followed up with drilling as well as most of the lesser category targets.



The War Baby claim prospect, defined as the area down plunge from the high grade 777 mine 30 and 60 lenses, was optioned from Callinan Royalties in late 2014. Callinan Royalties had drilled several wedges in the late 1990's from one surface hole that showed sporadic near ore grade intersections. The 777 mine geology team reviewed the information provided by Callinan Royalties and drilled seven drill holes from December 2014 to November 2015 from existing underground development to confirm historical mineralized intersections and also to provide step-out geological information. Results of this drilling indicated the sporadic mineralization was stringer type material within an intense chlorite alteration zone associated with the Second Panel, and the Upper Panel rhyolite that hosts the 777 mine lenses was almost barren of economic sulphides. As a result, Hudbay has allowed the War Baby option to terminate. The down plunge extents of 777 mine 30 and 60 lenses were not entirely defined by this drilling, however geophysical information and previous testing suggests that no significant mineralization remains at depth.

The majority of the exploration holes drilled during the 2014 to 2015 program had time domain electromagnetic surveys completed. All high priority geophysical targets were tested during the program and no further work is warranted. In total, 36 borehole electromagnetic surveys from surface and 74 from underground have been completed to date at 777 mine.

#### ROSEMONT PROJECT

# **Project Description, Location and Access**

The Rosemont project is located on the eastern flanks of the Santa Rita Mountain range approximately 50 kilometres southeast of Tucson, in Pima County, Arizona. Existing graded dirt roads provide good access into and around the Project and connect the property with State Route 83. The city of Tucson, Arizona, provides the nearest major railroad and air transport services to support the Project. The Rosemont project's geographical coordinates are approximately 31° 50'N and 110° 45'W.

The lands are under a combination of private ownership by Rosemont Copper Company, a subsidiary of Hudbay, and Federal ownership. The lands occur within Townships 18 and 19 South, Ranges 15 and 16 East, Gila & Salt River Meridian. The core of the Rosemont project mineral resource is contained within the 132 patented mining claims that in total encompass an area of approximately 2,000 acres (809 hectares). Surrounding the patented claims is a contiguous package of 1,064 unpatented mining claims with an aggregate area of more than 16,000 acres (6,475 hectares). Unpatented claims Agave 7, 8 and 9 and a small fraction named the Recorder Fraction were staked in 2014. Associated with the mining claims are 38 parcels of fee (private) land consisting of approximately 2,300 acres (931 hectares) (the Associated Fee Lands). The area covered by the patented claims, unpatented claims and Associated Fee Lands totals approximately 20,300 acres (8,215 hectares). The patented mining claims are considered to be private lands that provide the owner with both surface and mineral rights. The patented mining claim block, including the core of the mineral resource, is monumented in the field by surveyed brass caps on short pipes cemented into the ground. The fee lands are located by legal description recorded at the Pima County Recorder's Office. The patented claims and Associated Fee Lands are subject to annual property taxes amounting to a total of approximately \$8,800.

Mineral Rights on US Forest Service and Bureau of Land Management ("BLM") lands have been reserved to Rosemont Copper Company, via the unpatented claims that surround the patented claims. Wooden posts and stone cairns mark the unpatented claim corners, end lines and discovery monuments, all of which have been surveyed. The unpatented claims are maintained through the payment of annual maintenance fees of \$155.00 per claim, for a total of approximately \$165,000 per year, payable to the BLM.

There is a 3% Net Smelter Return ("NSR") royalty on all 132 patented claims, 603 of the unpatented claims, and one parcel of the Associated Fee Lands with an area of approximately 180 acres.



As discussed in the body of this AIF, Hudbay's ownership in the Rosemont project is subject to an earn-in agreement with United Copper & Moly LLC ("UCM") and a precious metals stream agreement with Silver Wheaton.

As discussed in this AIF, the permitting process for Rosemont is well advanced and continues to progress. The remaining key federal permits are the final Record of Decision from the U.S. Forest Service and the Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers.

## **History**

By the late 1950s, the Banner Mining Company ("Banner") had acquired most of the claims in the area and had drilled the discovery hole into the Rosemont deposit. In 1963 Anaconda Co. acquired options to lease the Banner holdings and over the next ten years they carried out an extensive drilling program on both sides of the mountain. The exploration program demonstrated that a large scale porphyry/skarn existed at Rosemont.

In 1973 Anaconda Mining Co. and Amax Inc. formed a 50/50 partnership to form the Anamax Mining Co. (the "Anamax"). In 1977, following years of drilling and evaluation, the Anamax Joint Venture commissioned the mining consulting firm of Pincock, Allen & Holt, Inc. to estimate a resource for the Rosemont Deposit. Their historical resource estimate of about 445 million tons of sulfide mineralization averaged 0.54% copper using a cut-off grade of 0.20% copper. In addition to the sulfide material, 69 million tons of oxide mineralization averaging 0.45% copper was estimated. Hudbay considers the estimate done by Anaconda to be historical in nature since no work has been done by a Hudbay Qualified Person to verify the estimate, and the estimate should not be relied upon by investors.

ASARCO purchased the patented and unpatented mining claims in the Helvetia-Rosemont mining district in August 1988 and renewed exploration of the Peach-Elgin and initiated engineering studies on Rosemont. In 1995, ASARCO succeeded in acquiring patents on 21 mining claims in the Rosemont area just prior to the moratorium placed on patented mining claims in 1996. In 1999, Grupo Mexico acquired the Helvetia-Rosemont property through a merger with ASARCO. In 2004 Grupo Mexico sold the Rosemont property to a Tucson developer.

In April 2005 Augusta purchased the property from Triangle Ventures LLC. Over the next several years, Augusta continued to evaluate the mineral potential at Rosemont and refine the economics of developing this resource.

Hudbay acquired all of the issued and outstanding common shares of Augusta pursuant to take-over bid, which expired July 29, 2014, and a subsequent acquisition transaction, which closed on September 23, 2014. Hudbay completed a 43-hole, 92,909 feet (28,319 meters) drill program from September to December 2014 and a 46-hole, 75,164 feet (22,910 meters) drill program from August to November 2015 in further efforts to gain a better understanding of the geological setting and mineralization of the deposit and to collect additional metallurgical and geotechnical information.

# Geological Setting, Mineralization, and Deposit Types

The Rosemont deposit consists of copper-molybdenum-silver-gold mineralization primarily hosted in skarn that formed in the Paleozoic rocks as a result of the intrusion of quartz latite to quartz monzonite porphyry intrusions. Bornite-chalcopyrite-molybdenite mineralization occurs as veinlets and disseminations in the skarn.



Three mineralization domains (oxide, mixed and sulfide) were defined based on the soluble to total copper ratio (ASCu/TCu) collected in the Augusta (2005 to 2012) and Hudbay (2014 and 2015) drilling programs. The oxidation and mixed mineralization occurs mainly above a low angle fault defining the contact between the Palozoic and Mesozoic rocks as chrysocolla, copper carbonates and supergene chalcocite.

Drilling to date has defined mineralized zones of approximately 1,100 meters in diameter that extends to a depth of at least 600 meters below the surface. The north-trending, steeply dipping Backbone Fault juxtaposes marginally mineralized Precambrian granodiorite and Lower Paleozoic quartzite and limestone to the west against a block of younger, well-mineralized Paleozoic limestone units to the east.

Most of the copper sulfide resource is contained in the eastern block of the Backbone Fault. Structurally overlying the sulfide resource is a block of Mesozoic sedimentary and volcanic rocks that contains lower grade copper mineralization (predominantly as oxides). These two blocks are separated by the shallowly dipping Low Angle Fault ("LAF"). Other post-mineral features include a deep, gravel-filled Tertiary paleochannel on the south side of the deposit and a significant thickness of Cretaceous and Tertiary volcaniclastic material to the northeast of the deposit.

Sulfide mineralization on the east side of the Backbone Fault and below the LAF is hosted in an eastdipping package of Paleozoic-age sedimentary rocks that includes the Escabrosa Limestone, Horquilla Limestone, Earp Formation and Epitaph Formation. The Horquilla Limestone is the most significant, accounting for almost half of the sulfide resource.

Relatively minor mineralization occurs in the other Paleozoic units. To the south, the mineralization in this block appears to weaken and eventually die out. To the north, mineralization appears to narrow but continues under cover amid complex faulting. Mineralization is locally open to the east of the defined resource, beyond the limit of drilling and beneath an increasingly thick block of Mesozoic sediments.

The Mesozoic rocks of the structural block above the LAF consist predominantly of arkosic siltstones, sandstones, and conglomerate. Within the Arkose are subordinate andesite flows or sills that range from a few tens of feet to several hundred feet thick. Also structurally wedged into the upper plate block at the base of the Arkose are the Glance Conglomerate, a limestone-cobble conglomerate, and some occurrences of relatively fresh Paleozoic formations.

## **Exploration**

A Titan 24 induced polarization/resistivity (DCIP) survey over the Rosemont deposit, performed in 2011, discovered significant chargeability anomalies which are partially-tested. These anomalies appear to define mineralization and also certain unmineralized lithologic units. A regional scale airborne magnetics survey was also completed in 2008. A mapping and geochemical sampling program was completed in the latter half of 2015 on the Rosemont property to reassess the interpretation of the regional geology and deposit setting.

#### **Drilling**

Extensive drilling has been conducted at the Rosemont deposit by several successive property owners. The most recent drilling was by Hudbay, with prior drilling campaigns completed by Banner Mining Company, Anaconda Mining Co., Anamax, ASARCO and Augusta. Table 0-1 summarizes the drill holes used to estimate the current mineral resource estimate, with regional exploration holes excluded.



TABLE 0-1: ROSEMONT DEPOSIT DRILLING SUMMARY

	Time Period	Drill Holes		
Company		Number	Feet	Meters
Banner Mining	1950s to 1963	3	4,300	1,311
Anaconda Mining	1963 to 1973	113	136,838	41,708
Anamax	1973 to 1986	52	54,350	16,566
ASARCO	1988 to 2004	11	14,695	4,479
Augusta	2005 to 2012	87	132,525	40,394
Hudbay	2014 to 2015	90	168,286	51,294
Total		355	510,780	155,686

These drill holes were all drilled using diamond drilling (coring) methods. In some cases, the top portion of the older holes were drilled using a rock bit to set the collar or by rotary drilling methods and switching to core drilling before intercepting mineralization.

In all of the drilling campaigns, efforts were consistently made to obtain representative samples by drilling either H-size (2.5 inch or 63.5 mm diameter) or N-size (1.9 inch or 47.6 mm diameter) core. Generally, drill programs were on east-west grid lines spaced approximately 200 feet (61 meters) apart.

#### Sampling, Analysis, and Data Verification

Prior to Hudbay and Augusta, significant diamond drilling, drill core sampling, and assaying programs were executed by the previous property owners. Records are not available that detail the sampling and security protocols used by these property owners. There are no available QA/QC records for sample preparation and assaying methodologies for Banner, Anaconda, and Anamax. Copper, molybdenum, silver, and soluble copper were analyzed by Anaconda and Anamax at their in-house laboratories. Silver was regularly analyzed by Anamax, but not commonly assayed by Banner and Anaconda. Asarco assayed drill core samples for total copper, molybdenum, and acid soluble copper at Skyline laboratory.

The drill core was generally sampled continuously down the hole, at a nominal five-foot sample length. In taking a sample, the core is generally halved (split) along the long axis, taking care to evenly distribute veinlets and other small-scale mineralized features where present, into both halves of the core.

The core samples from the Augusta drilling programs from 2005 to 2012 were transported to Skyline Assayers and Laboratories (Skyline), Tucson, Arizona, USA for preparation and analysis. In total, 21,197 samples were analyzed for total copper and 16,619 samples for molybdenum. Total copper and molybdenum were dissolved using a hot 3-acid digestion at 482°F and subsequently analyzed by AAS and ICP-OES, respectively. The lower detection limits for molybdenum are high relative to the average molybdenum grade of the Rosemont deposit. Silver was determined in 15,334 samples, which were digested using an aqua regia leach in 0.25 g subsample pulp and analyzed by AAS. A total of 391 drill core samples across the Rosemont deposit were measured for specific gravity at Skyline.

Augusta conducted its own internal QA/QC program to independently evaluate the quality of the assays reported by Skyline. Augusta verified the accuracy and precision of its geochemical analyses by inserting



standards of known metal content in the sample stream at periodic intervals and by reanalyzing approximately 5% of all samples to check the repeatability of results. Standards were submitted with a frequency of one per 20 samples. The inserted standards were chosen to be similar in grade to the drill holes samples that they accompanied whenever possible. Blank samples were submitted with a frequency of one per 40 samples. Approximately 5% of all samples were reanalyzed in what was called their check assay program.

Under Hudbay ownership, private 24-hour per day security guards administered by Securitas Inc., controlled site access and oversaw sample security at each camp and drill site. Drill core samples from Hudbay's 2014 and 2015 drill programs were picked up at the core processing facilities and transported to Inspectorate America Corporation's preparation facility at Sparks, Nevada, USA. Samples were weighed upon arrival, dried at 60°C, and crushed in jaw crushers to ≥70% passing through 10 mesh (2 mm). The entire crushed sample was homogenized, riffle split, and a 1,000 g subsample was pulverized to ≥85% passing through 200 mesh (75 µm) using Essa standard steel grinding bowls. Jaw crushers, preparation pans, and grinding bowls were cleaned by brush and compressed air between samples. Cleaning with a guartz wash was conducted between jobs and between highly mineralized samples.

Once samples were pulverized a 150 g subsample pulp was collected and air freighted to Bureau Veritas Commodities Canada Ltd., (Bureau Veritas) in Vancouver, Canada, for analysis. The remaining 850 g master pulps and the coarse rejects were stored at the Inspectorate laboratory in Nevada.

Bureau Veritas has a quality system that is compliant with the International Standards Organization 9001 Model for Quality Assurance and ISO/IEC 17025 General Requirements for the Competence of testing and Calibration. As part of Hudbay's quality control and quality assurance (QA/QC) program, QA/QC samples were systematically introduced in the sample stream to assess adequate sub-sampling procedures, potential cross-contamination, precision, and accuracy. A total of 1,000 representative pulp samples (5.4%) from 2014 drilling and 742 representative pulp samples (5.0%) from 2015 drilling were selected and re-analyzed at SGS Canada Inc., laboratory in Vancouver. The blanks, CRM and duplicates samples all indicated the laboratory used did not have contamination issues and produced accurate and precise results.

Hudbay built an entirely new drill hole database from all pre-Hudbay drilling and assaying information. Orix Geoscience Inc. was employed to digitally enter collar, downhole surveys and assay information from scanned drill logs and assay certificates for all holes drilled prior to Augusta.

#### Mineral Processing and Metallurgical Testing

Recorded metallurgical testwork on Rosemont ores comprises work beginning as early 1974 by Anamax Mining Company. Augusta continued the work and concluded it with the publication of NI 43-101 Technical Reports, the first in 2007, followed by a NI 43-101 report dated August 28, 2012. These historical metallurgical testwork programs were undertaken by reputable companies such as Mountain State R&D International (MSRDI), SGS and G&T Metallurgical Services, with dewatering and rheology testing undertaken by Pocock, Outotec and FLSmidth.

Following the acquisition of Rosemont in 2014, Hudbay completed two drilling programs (years 2014 and 2015) and initiated a series of phased metallurgical testing programs, each designed to advance its understanding of the deposit and metallurgical performance in response to treatment. In 2014, Hudbay engaged XPS Consulting & Testwork Services (XPS) to undertake mineral characterization and metallurgical testwork. Base Met Laboratory (BML) was engaged in late 2015 to provide confirmation testwork of the XPS testwork and additional process optimization.



The principal objectives of the 2014 and 2015 phased metallurgical testing programs were to:

- Confirm the quality of the prior metallurgical testwork
- Identify downstream processing methods, forecast recoveries and quality of final products
- Evaluate characteristics of tailing products
- Derive a required ore processing flowsheet and size process equipment

Three composite samples were prepared for metallurgical testing in 2015, and among these were a set of three samples that corresponded to ore that was projected to report from the mine during the first five years of operation, the second five years, and a third sample for the balance of operations.

As reporting from the first phase of metallurgical testwork programs became available, a revised set of composites was prepared to further enhance our the understanding of the orebody, more particularly as it related to metallurgical performance in the presence of clays, as well as process equipment sizing and selection (principally flotation and dewatering equipment).

Through the course of all the mineral processing and metallurgical testing, no deleterious elements were found to have a negative impact on plant performance or on the marketable value of the copper and molybdenum concentrates to be produced at Rosemont.

On the basis of the body of testwork that exists, including both the historical testwork, and the testing programs completed by Hudbay since the acquisition of Rosemont, forecasts of recovery, concentrate grade and quality, as well as characteristics of the resultant tailing product have been developed. The following summarizes LOM average recoveries expected.

#### Average LOM recoveries

Copper (Cu): 80.4% Molybdenum (Mo): 53.4% Silver (Ag): 74.4% Gold (Au): 65.1%

#### Mineral Reserves and Mineral Resources Estimates

Mineral reserves for the Rosemont deposit were classified under the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves<sup>1</sup> by application of a NSR that reflects the combined benefit of producing copper, molybdenum and silver in addition to mine operating, processing and off-site costs.

Proven and probable mineral reserves within the designed final pit total 592 million tons (537 million tonnes) grading 0.45% Cu, 0.012% Mo and 4.58 g/t Ag. There are 1.25 billion tons (1.13 billion tonnes) of waste materials, resulting in a stripping ratio of 2.1:1 (tonnes waste per tonne of ore). Total material in the pit is 1.66 billion tonnes. Contained metal in proven and probable mineral reserves is estimated at 5.30 billion pounds of copper, 142 million pounds of molybdenum and 79 million ounces of silver. Nearly 80% of the mineral reserves in the Rosemont ultimate pit are classified as proven with the remaining 20% identified as probable. The Rosemont ultimate pit contains approximately 10 million tons of inferred mineral resources that are above the \$6.00/ton NSR cut-off value for ore. Inferred mineral resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves.



Multi pass ordinary kriging interpolation setup was used to interpolate the grades in the block model while honoring the geology. The component of the mineralization within the block model that meets the requirements for reasonable prospects of economic extraction was based on the application of a Lerchs-Grossman cone pit algorithm. The mineral resources are therefore contained within computer generated open pit geometry.

The following assumptions were applied to the determination of the mineral resources:

- Economic benefit was applied to measured, indicated and inferred classified material within the resource cone.
- No effort was made to establish a pit with maximum return on investment; consequently, the mineral resource cone was the direct result of the following metal prices: \$3.15/lb copper, \$11.00/lb molybdenum, \$18.00/oz silver with a revenue ratio of 1.0, i.e. break-even logic.
- A constant 45-degree pit slope was used for the resource estimate.

All of the mineral reserve estimates presented in this report are dependent on market prices for the contained metals, metallurgical recoveries and ore processing, mining and general/administration cost estimates. Mineral reserve estimates in subsequent evaluations of the Rosemont Deposit may vary according to changes in these factors. As of the effective date of this report, there are no other known mining, metallurgical, infrastructure or other relevant factors that may materially affect the mineral reserve estimates.

# **Mining Operations**

The Rosemont project will be a traditional open pit shovel/truck operation. To match the production requirements, the proposed pit operations will be conducted from 50-foot-high benches using large-scale mine equipment, including: 10-5/8-inch-diameter rotary blast hole drills, 60 yd3 class electric mining shovels, 46 yd3 class hydraulic shovels, 25 yd3 front-end loaders, and 260 ton off-highway haul trucks.

Mine operations are scheduled for 24 hours per day, 365 days per year. A mining rate of 132 million tons per year through year 11 will be required to provide the assumed nominal process feed rate of 32.9 million tons of ore per year. From year 12 through year 18, the annual mining rate decreases due to lower stripping ratios, starting with an average of 50 million tons per year and ending with approximately 33 million tons in production year 18. Ore shortfall will be made up from ore stockpiles.

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

The process plant design is based on a combination of metallurgical testwork, Rosemont Copper production plan and in-house information. The flowsheet has been developed from previous feasibility study work, value engineering studies and the recent testwork. Benchmarking has been used to define and support the design parameters. This includes the copper-molybdenum separation circuit where testwork has been limited to a few tests. This is due to the relatively large sample mass required for a more detailed molybdenum testwork program and analysis. The molybdenum plant design is based primarily on projected mass flows, grades and densities as well as the recent Constancia Plant design.

The flowsheet consists of primary crushing, followed by two parallel SAG, ball milling and pebble crushing (SABC) circuits, copper flotation with regrinding ahead of cleaning, a moly separation circuit, concentrate thickening and filtering and tailings thickening, filtering and dry stacking. With minor modifications, the process plant is designed to treat on average 90,000 tons/d (or 32.8 million tons/y).



# **Capital and Operating Costs**

Initial project capital costs are estimated to be \$1,921 million including 15% contingency on all items. The LOM sustaining capital costs are estimated to be \$387 million excluding capitalized stripping and \$1,168 million including capitalized stripping. The capital cost estimate is considered to be a Class 3 estimate as defined by AACE Recommended Practice 47R-11 for the mining and mineral process industry.

The average LOM operating costs (mining, milling and G&A) are estimated to be \$9.24/ton milled (before deducting capitalized stripping) and \$7.92/ton milled (after deducting capitalized stripping). Over the first 10 years, C1 cash costs (net of by-product credits at stream prices) are estimated to average \$1.40 per pound of copper before deducting capitalized stripping and \$1.14 per pound of copper after deducting capitalized stripping. LOM C1 cash costs are estimated to be \$1.47 per pound of copper before deducting capitalized stripping and \$1.29 per pound of copper after deducting capitalized stripping. Including royalties and sustaining capital, sustaining cash costs estimated to be \$1.59 per pound of copper over the first 10 years and average \$1.65 over the LOM.

The economic viability of the Project has been evaluated using the metal prices outlined below. The metal prices used in the economic analysis are based on a blend of consensus metal price forecasts from over 30 well known financial institutions and Wood Mackenzie.

Metal Price Assumptions:

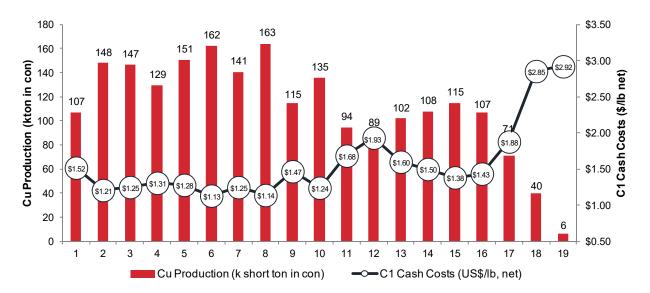
Spot Copper: \$3.00 (US\$/lb) Spot Molybdenum: \$11.00 (US\$/lb) Spot Silver: \$18.00 (US\$/oz) Streamed Silver<sup>1</sup>: \$3.90 (US\$/oz) (1) Subject to a 1% escalation after 3 years

At the effective realized prices including the impact of the stream, the revenue breakdown at Rosemont is approximately 92% copper, 6% molybdenum, and 2% silver.

Rosemont's annual copper production (contained copper in concentrate) and C1 cash costs (net of byproducts at stream prices after deducting capitalized stripping) are shown in the figure below. Over the first 10 years, annual production is expected to average 140 thousand tons of copper at an average C1 cash cost of \$1.14/lb. Over the 19 year LOM, annual production is expected to average 112 thousand tons of copper at an average C1 cash cost of \$1.29/lb.



FIGURE 0-1 ROSEMONT ANNUAL COPPER PRODUCTION AND C1 CASH COSTS



Rosemont has an unlevered after-tax NPV8% of \$769 million and a 15.5% after-tax IRR using a copper price of \$3.00/lb as summarized below. The Project NPV and IRR are calculated using end of period quarterly discounting in the quarter immediately before development capital is spent.

Metric	Units	LOM Total
Gross Revenue (Stream Prices)	\$M	\$13,377
TCRCs	\$M	(\$1,837)
On-Site Operating Costs (after deducting of capitalized stripping)	\$M	(\$4,691)
Royalties	\$M	(\$368)
Operating Margin	\$M	\$6,480
Development Capital	\$M	(\$1,921)
Stream Upfront Payment	\$M	\$230
Sustaining Capital (excludes capitalized stripping)	\$M	(\$387)
Capitalized Stripping	\$M	(\$781)
Pre-Tax Cash Flow	\$M	\$3,622
Cash Income Taxes	\$M	(\$718)
After-Tax Free Cash Flow	\$M	\$2,903
After-Tax NPV8%	\$M	\$769
After-Tax NPV10%	\$M	\$496
After-Tax IRR	%	15.5%
After-Tax Payback Period	Years	5.5

The NPV8% (100% project basis) was sensitized based on percentage changes in various input assumptions above or below the base case. Each input assumption change was assumed to occur independently from changes in other inputs. The Project is most sensitive to the copper price, followed by initial capital costs, on-site operating costs and the molybdenum price. The table below reports the aftertax NPV8%, NPV10%, IRR and Payback of the Project at various flat copper prices assuming all other inputs remain constant.



	Flat Copper Price (\$/lb)				
	\$2.50	\$2.75	\$3.00	\$3.25	\$3.50
After-Tax NPV8% (\$M)	\$45	\$412	\$769	\$1,115	\$1,448
After-Tax NPV10% (\$M)	(\$122)	\$192	\$496	\$792	\$1,076
After-Tax IRR (%)	8.5%	12.2%	15.5%	18.5%	21.2%
After-Tax Payback (years)	6.9	5.9	5.2	4.7	4.3

The existing Joint Venture Agreement requires cash payments from UCM totaling \$106 million to the Joint Venture in order for UCM to complete its earn-in for 20% ownership of the Project. The payments will be made on an installment basis to fund the initial development capital and payments will commence once certain milestones are achieved. The NPV attributable to Hudbay is improved beyond 80% of the standalone project NPV due to the Joint Venture payments, and the IRR attributable to Hudbay is improved beyond the standalone project IRR as a result of the reduced time period between development capital spending and positive project cash flow. Below are the adjusted key financial metrics attributable to Hudbay.

Metric	Units	LOM Total
Development Capital (100% Basis)	\$M	\$1,921
Stream Upfront Payment	\$M	(\$230)
Joint Venture Earn-in Payment	\$M	(\$106)
JV Share of Remaining Capital (20%)	\$M	(\$317)
JV Loan Repayment to Hudbay <sup>1</sup>	\$M	(\$20)
Hudbay's Share of Development Capital	\$M	\$1,248
After-Tax NPV8% to Hudbay	\$M	\$719
After-Tax NPV10% to Hudbay	\$M	\$499
After-Tax IRR to Hudbay	%	17.7%
After-Tax Payback Period to Hudbay	Years	4.9

<sup>1.</sup> Hudbay is funding the JV's share of project expenditures until receipt of material permits and approximately \$20M in principal and accrued interest is due to Hudbay

# **Exploration, Development, and Production**

Major exploration work has not been completed outside the current resource pit. Hudbay has no plans to conduct any additional exploration work at the moment.



# SCHEDULE C: AUDIT COMMITTEE CHARTER

# **HUDBAY MINERALS INC.** (THE "COMPANY") **AUDIT COMMITTEE CHARTER**

# **PURPOSE**

The Audit Committee is appointed by the Board of Directors to assist the Board of Directors in its oversight and evaluation of:

- the quality and integrity of the financial statements of the Company,
- the compliance by the Company with legal and regulatory requirements in respect of financial disclosure,
- the qualification, independence and performance of the Company's independent auditor,
- the appointment, independence and performance of the Company's head of the internal audit function,
- the assessment, monitoring and management of the strategic, operational, reporting and compliance risks of the Company's business (the "Risks"), and
- The performance of the Company's Chief Financial Officer.

In addition, the Audit Committee provides an avenue for communication among the independent auditor, the internal audit function, the Company's Chief Financial Officer and other financial senior management, other employees and the Board of Directors concerning accounting, auditing and Risk management matters.

The Audit Committee is directly responsible for the recommendation of the appointment and retention (and termination) and for the compensation and the oversight of the work of the independent auditor (including oversight of the resolution of any disagreements between senior management and the independent auditor or the internal audit function regarding financial reporting) for the purpose of preparing audit reports or performing other audit, review or attest services for the Company. Also, the Audit Committee is directly responsible for the approval of the appointment and retention (and termination) and the oversight of the work of the internal audit function.

The Audit Committee is not responsible for:

- planning or conducting audits,
- certifying or determining the completeness or accuracy of the Company's financial statements or that those financial statements are in accordance with generally accepted accounting principles.

Each member of the Audit Committee shall be entitled to rely in good faith upon:

- financial statements of the Company represented to him or her by senior management of the Company or in a written report of the independent auditor to present fairly the financial position of the Company in accordance with generally accepted accounting principles; and
- any report of a lawyer, accountant, engineer, appraiser or other person whose profession lends credibility to a statement made by any such person.

The fundamental responsibility for the Company's financial statements and disclosure rests with senior management.



# REPORTS

The Audit Committee shall report to the Board of Directors on a regular basis and, in any event, before the public disclosure by the Company of its quarterly and annual financial results. The reports of the Audit Committee shall include any issues of which the Audit Committee is aware with respect to the quality or integrity of the Company's financial statements, its compliance with legal or regulatory requirements, the performance and independence of the Company's independent auditor, the performance and independence of the Company's internal audit function and changes in Risks.

The Audit Committee also shall prepare, as required by applicable law, any audit committee report required for inclusion in the Company's publicly filed documents.

# COMPOSITION

The members of the Audit Committee shall be three or more individuals who are appointed (and may be replaced) by the Board of Directors on the recommendation of the Company's Corporate Governance and Nominating Committee. The appointment of members of the Audit Committee shall take place annually at the first meeting of the Board of Directors after a meeting of shareholders at which directors are elected, provided that if the appointment of members of the Audit Committee is not so made, the directors who are then serving as members of the Audit Committee shall continue as members of the Audit Committee until their successors are appointed. The Board of Directors may appoint a member to fill a vacancy that occurs in the Audit Committee between annual elections of directors. Any member of the Audit Committee may be removed from the Audit Committee by a resolution of the Board of Directors. Unless the Chair is elected by the Board of Directors, the members of the Audit Committee may designate a Chair by majority vote of the members of the Audit Committee.

Each of the members of the Audit Committee shall meet the Company's Categorical Standards for Determining Independence of Directors and shall be financially literate (or acquire that familiarity within a reasonable period after appointment) in accordance with applicable legislation and stock exchange requirements. No member of the Audit Committee shall:

- accept (directly or indirectly) any consulting, advisory or other compensatory fee from the Company or any of its subsidiaries1 (other than remuneration for acting in his or her capacity as a director or committee member) or be an "affiliated person" of the Company or any of its subsidiaries, or
- concurrently serve on the audit committee of more than three other public companies without the prior approval of the Audit Committee, the Corporate Governance and Nominating Committee and the Board of Directors and their determination that such simultaneous service would not impair the ability of the member to effectively serve on the Audit Committee (which determination shall be disclosed in the Company's annual management information circular).

A majority of the members of the Audit committee shall be "resident Canadians", as contemplated by the Canada Business Corporations Act.

<sup>1</sup>A company is a subsidiary of another company if it is controlled, directly or indirectly, by that other company (through one or more intermediaries or otherwise).

<sup>&</sup>lt;sup>2</sup> An "affiliate" of a person is a person that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with the first person.



# RESPONSIBILITIES

#### INDEPENDENT AUDITOR

The Audit Committee shall:

- Recommend the appointment and the compensation of, and, if appropriate, the termination of the independent auditor, subject to such Board of Directors and shareholder approval as is required under applicable legislation and stock exchange requirements.
- Obtain confirmation from the independent auditor that it ultimately is accountable, and will report directly, to the Audit Committee and the Board of Directors.
- Oversee the work of the independent auditor, including the resolution of any disagreements between senior management and the independent auditor regarding financial reporting.
- Pre-approve all audit and non-audit services (including any internal control-related services) provided by the independent auditor (subject to any restrictions on such non-audit services imposed by applicable legislation, regulatory requirements and policies of the Canadian Securities Administrators).
- Adopt such policies and procedures as it determines appropriate for the pre-approval of the retention of the independent auditor by the Company and any of its subsidiaries for any audit or non-audit services, including procedures for the delegation of authority to provide such approval to one or more members of the Audit Committee.
- Provide notice to the independent auditor of every meeting of the Audit Committee.
- Approve all engagements for accounting advice prepared to be provided by an accounting firm other than independent auditor.
- Review quarterly reports from senior management on tax advisory services provided by accounting firms other than the independent auditor.
- Review expense reports of the Chairman and the Chief Executive Officer.

### INTERNAL AUDIT FUNCTION

The Audit Committee shall:

- Approve the appointment and, if appropriate, the termination of the head of the internal audit function.
- Obtain confirmation from the head of the internal audit function that he or she is ultimately accountable, and will report directly, to the Audit Committee.
- Oversee the work of the internal audit function, including the resolution of any disagreements between senior management and the internal audit function.
- Approve the internal audit function annual plan.
- Review quarterly reports from the head of the internal audit function.



# THE AUDIT PROCESS, FINANCIAL STATEMENTS AND RELATED DISCLOSURE

The Audit Committee shall:

- Meet with senior management and/or the independent auditor to review and discuss.
  - the planning and staffing of the audit by the independent auditor,
  - before public disclosure, the Company's annual audited financial statements and quarterly financial statements, the Company's accompanying disclosure of Management's Discussion and Analysis and earnings press releases and make recommendations to the Board of Directors as to their approval and dissemination of those statements and disclosure,
  - financial information and earnings guidance provided to analysts and rating agencies: this review need not be done on a case by case basis but may be done generally (consisting of a discussion of the types of information disclosed and the types of presentations made) and need not take place in advance of the disclosure,
  - any significant financial reporting issues and judgments made in connection with the preparation of the Company's financial statements, including any significant changes in the selection or application of accounting principles, any major issues regarding auditing principles and practices, and the adequacy of internal controls that could significantly affect the Company's financial statements,
  - all critical accounting policies and practices used,
  - all alternative treatments of financial information within IFRS that have been discussed with senior management, ramifications of the use of such alternative disclosures and treatments, and the treatment preferred by the independent auditor,
  - the use of "pro forma" or "adjusted" non-IFRS information,
  - the effect of new regulatory and accounting pronouncements,
  - the effect of any material off-balance sheet structures, transactions, arrangements and obligations (contingent or otherwise) on the Company's financial statements,
  - any disclosures concerning any weaknesses or any deficiencies in the design or operation of internal controls or disclosure controls made to the Audit Committee in connection with certification of forms by the Chief Executive Officer and/or the Chief Financial Officer for filing with applicable securities regulators, and
  - the adequacy of the Company's internal accounting controls and management information systems and its financial, auditing and accounting organizations and personnel (including any fraud involving an individual with a significant role in internal controls or management information systems) and any special steps adopted in light of any material control deficiencies.
- Review disclosure of financial information extracted or derived from the Company's financial statements.
- Review with the independent auditor,
  - the quality, as well as the acceptability of the accounting principles that have been applied,
  - any problems or difficulties the independent auditor may have encountered during the provision of its audit services, including any restrictions on the scope of activities or access to requested information and any significant disagreements with senior management, any management letter provided by the independent auditor or other material communication (including any schedules of unadjusted differences) to senior management and the Company's



response to that letter or communication, and

any changes to the Company's significant auditing and accounting principles and practices suggested by the independent auditor or other members of senior management.

#### **Risks**

The Audit Committee shall:

- Recommend to the Board of Directors for approval a policy that sets out the Risks philosophy of the Company and the expectations and accountabilities for identifying, assessing, monitoring and managing Risks (the "ERM Policy") that is developed and is to be implemented by senior management.
- Meet with senior management to review and discuss senior management's timely identification of the most significant Risks, including those Risks related to or arising from the Corporation's weaknesses, threats to the Corporation's business and the assumptions underlying the Corporation's strategic plan ("Principal Risks").
- Approve a formalized, disciplined and integrated enterprise risk management process (the "ERM Process") that is developed by senior management and, as appropriate, the Board and its Committees, to monitor, manage and report Principal Risks.
- Recommend to the Board of Directors for approval policies (and changes thereto) setting out the framework within which each identified Principal Risks of the Corporation shall be managed.
- At least semi-annually, obtain from senior management and, as appropriate, with the input of one or more of the Board's Committees, a report specifying the management of the Principal Risks of the Corporation including compliance with the ERM Policy and other policies of the Corporation for the management of Principal Risks.
- Review with senior management the Company's tolerance for financial Risk and senior management's assessment of the significant financial Risks facing the Company.
- Discuss with senior management, at least annually, the guidelines and policies utilized by senior management with respect to financial Risk assessment and management, and the major financial Risk exposures and the procedures to monitor and control such exposures in order to assist the Audit Committee to assess the completeness, adequacy and appropriateness of financial Risk disclosure in Management's Discussion and Analysis and in the financial statements.
- Review policies and compliance therewith that require significant actual or potential liabilities, contingent or otherwise, to be reported to the Board of Directors in a timely fashion.
- Review the adequacy of insurance coverages maintained by the Company.
- Discharge the Board's oversight function in respect of the administration of the pension and other retirement plans of the Company and its affiliates.



# Compliance

The Audit Committee shall:

- Obtain reports from senior management that the Company's subsidiary/foreign affiliated entities are in conformity with applicable legal requirements and the Company's Code of Business Conduct and Ethics including disclosures of insider and affiliated party transactions and environmental protection laws and regulations.
- Review with senior management and the independent auditor any correspondence with regulators or governmental agencies and any employee complaints or published reports, which raise material issues regarding the Company's financial statements or accounting policies.
- Review senior management's written representations to the independent auditor.
- Advise the Board of Directors with respect to the Company's policies and procedures regarding compliance with applicable laws and regulations and with the Company's Code of Business Conduct and Ethics.
- Review with the Company's General Counsel legal matters that may have a material impact on the financial statements, the Company's compliance policies and any material reports or inquiries received from regulators or governmental agencies.
- Establish procedures for,
  - the receipt, retention and treatment of complaints regarding accounting, internal accounting controls or auditing matters, and
  - the confidential, anonymous submission by employees of the Company with concerns regarding any accounting or auditing matters.

### Delegation

To avoid any confusion, the Audit Committee responsibilities identified above are the sole responsibility of the Audit Committee, unless otherwise directed by the Board of Directors.

# INDEPENDENT ADVICE

In discharging its mandate, the Audit Committee shall have the authority to retain (and authorize the payment by the Company of) and receive advice from special legal, accounting or other advisors as the Audit Committee determines to be necessary to permit it to carry out its duties.