SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 40-F
[ ] REGISTRATION STATEMENT PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

[X] ANNUAL REPORT PURSUANT TO SECTION 13(a) OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018 Commission File Number 000-13727

Pan American Silver Corp.
(Exact name of Registrant as specified in its charter)

British Columbia	**1044**	**Not Applicable**
(Province or other Jurisdiction of Incorporation or Organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

1500 – 625 Howe Street
Vancouver, British Columbia
V6C 2T6
(604) 684-1175
(Address and telephone number of Registrant's principal executive offices)

CT Corporation
28 Liberty St.
New York, NY 10005
(212) 894-8940
(Name, address (including zip code) and telephone number (including area code) of agent for service in the United States)

Securities registered or to be registered pursuant to Section 12(b) of the Act.

Title of Each Class	Name of Each Exchange on Which Registered
Common Shares, No Par Value	The Nasdaq Stock Market

Securities registered or to be registered pursuant to Section 12(g) of the Act.

Title of Each Class
Contingent Value Rights

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.
None

For annual reports, indicate by check mark the information filed with this Form:

[**X**] Annual information form [**X**] Audited annual financial statements

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by this annual report:

The Registrant had 153,448,356 Common Shares outstanding as at December 31, 2018.

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.
Yes __X__ No __
Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this Chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files).
Yes __X__ No __

Indicate by check mark whether the Registrant is an emerging growth company as defined in Rule 12b-2 of the Exchange Act.

Emerging growth company Yes _____ No __X___

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards* provided pursuant Section 13(a) of the Exchange Act.

Yes ____ No __X___

NOTE TO UNITED STATES INVESTORS CONCERNING
ESTIMATES OF MEASURED, INDICATED AND INFERRED MINERAL RESOURCES

Unless otherwise indicated, all reserve and resource estimates included in this Annual Report on Form 40-F have been prepared in accordance with Canadian National Instrument 43-101 — *Standards of Disclosure for Mineral Projects* ("NI 43-101") and the Canadian Institute of Mining, Metallurgy and Petroleum classification system. NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects. Canadian standards, including NI 43-101, differ significantly from the requirements of the United States Securities and Exchange Commission (the "SEC"), and reserve and resource information included herein may not be comparable to similar information disclosed by U.S. companies. In particular, and without limiting the generality of the foregoing, this Annual Report on Form 40-F uses the terms "measured resources," "indicated resources" and "inferred resources." U.S. investors are advised that, while such terms are recognized and required by Canadian securities laws, the SEC does not recognize them. The requirements of NI 43-101 for the identification of "reserves" are also not the same as those of the SEC, and reserves reported by the Registrant in compliance with NI 43-101 may not qualify as "reserves" under SEC standards. Under U.S. standards, 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 the reserve determination is made. U.S. investors are cautioned not to assume that any part of a "measured resource" or "indicated resource" will ever be converted into a "reserve." U.S. investors should also understand that "inferred resources" have a great amount of uncertainty as to their existence and as to their economic and legal feasibility. It cannot be assumed that all or any part of "inferred resources" exist, are economically or legally mineable or will ever be upgraded to a higher category. Under Canadian rules, estimated "inferred resources" may not form the basis of feasibility or pre-feasibility studies except in rare cases. In addition, disclosure of "contained ounces" in a mineral resource is permitted disclosure under Canadian regulations. However, the SEC normally only permits issuers to report mineralization that does not constitute "reserves" by SEC standards as in place tonnage and grade, without reference to unit measures. Accordingly, information concerning mineral deposits set forth in this Annual Report on Form 40-F may not be comparable with information made public by companies that report in accordance with U.S. standards.

A. Disclosure Controls and Procedures

Disclosure controls and procedures are defined in Rules 13a-15(e) and 15d-15(e) under the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), as those controls and other procedures that are designed to ensure that information required to be disclosed by the Registrant in reports filed or submitted by it under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Rules 13a-15(e) and 15d-15(e) also provide that disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by the Registrant is accumulated and communicated to the Registrant's management as appropriate to allow timely decisions regarding required disclosure.

As of December 31, 2018, the end of the period covered by this Annual Report on Form 40-F, the Registrant carried out an evaluation, under the supervision and with the participation of the Registrant's management, including the Registrant's Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Registrant's disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that, as of December 31, 2018, the Registrant's disclosure controls and procedures were effective. See "Disclosure Controls and Procedures" in Management's Discussion and Analysis for the fiscal year ended December 31, 2018, filed as Exhibit No. 1.2 to this Annual Report on Form 40-F.

B. Management's Annual Report on Internal Control Over Financial Reporting

See "Management's Report on Internal Control over Financial Reporting" in Management's Discussion and Analysis for the fiscal year ended December 31, 2018, filed as Exhibit 1.2 to this Annual Report on Form 40-F.

C. Attestation Report of the Independent Registered Public Accounting Firm

The attestation report of Deloitte LLP, the Registrant's Independent Registered Public Accounting Firm, on management's assessment of the Registrant's internal control over financial reporting is included in the "Report of Independent Registered Public Accounting Firm" filed with the Registrant's Audited Consolidated Financial Statements for the fiscal years ended December 31, 2018 and 2017, as Exhibit 1.3 to this Annual Report on Form 40-F.

D. Changes in Internal Control Over Financial Reporting

There was no change in the Registrant's internal control over financial reporting that occurred during the period covered by this report that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting.

E. Notice of Pension Fund Blackout Period

The Registrant was not required by Rule 104 of Regulation BTR to send any notice to any of its directors or executive officers during the fiscal year ended December 31, 2018.

F. Audit Committee Financial Expert

The Registrant's board of directors has determined that Michael Carroll, an individual serving on the Audit Committee of the Registrant's board of directors, is an audit committee financial expert, as that term is defined in General Instruction B(8)(b) of Form 40-F and is independent under Rule 10A-3 under the Exchange Act and the rules and regulations of the Nasdaq Stock Market.

The Commission has indicated that the designation of a person as an audit committee financial expert does not make such person an "expert" for any purpose, impose any duties, obligations or liabilities on such person that are greater than those imposed on members of the audit committee and the board of directors who do not carry this designation or affect the duties, obligations or liability of any other member of the audit committee or board of directors.

G. Code of Ethical Conduct

The Registrant has adopted a global code of ethical conduct (the "Code") that applies to all directors, officers and employees. A copy of the Code may be obtained at www.panamericansilver.com. No waivers from the requirements of the Code were granted in the fiscal year ended December 31, 2018.

H. Principal Accountant Fees and Services and Audit Committee Pre-Approval Policies

Information about the Registrant's principal accountant fees and services and a description of the Registrant's pre-approval policies and procedures is included under the heading "External Auditor Service Fees" of the Registrant's Annual Information Form for the fiscal year ended December 31, 2018, filed as Exhibit 1.1 to this Annual Report on Form 40-F.

I. Off-Balance Sheet Arrangements

The Registrant is not a party to any off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on its financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that is material to investors.

J. Tabular Disclosure of Contractual Obligations

The required disclosure can be found under the heading "Commitments" of Management's Discussion and Analysis for the fiscal year ended December 31, 2018, filed as Exhibit 1.2 to this Annual Report on Form 40-F.

K. Nasdaq Stock Market Exemptions

On March 21, 2018, the Registrant informed the Nasdaq Stock Market that as permitted by Rule 4350(a)(1) of the Nasdaq Marketplace Rules, it intended to follow Canadian law with respect to independence requirements for members of its Human Resources and Compensation Committee (the "Compensation Committee") and its Nominating and Governance Committee (the "Nominating Committee") in lieu of those required by Rules 5605(d)(2)(A) and 5605(e)(1)(B) of the Nasdaq Marketplace Rules, respectively. Rules 5605(d)(2)(A) and 5605(e)(1)(B) require members of compensation committees and nominations committees be independent pursuant to Rule 5605(a)(2)(E) of the Nasdaq Marketplace Rules. The Corporate Governance Guidelines in *Canadian National Instrument 58-201* recommend that a company's board of directors appoint a compensation committee composed entirely of independent directors and the Disclosure of Corporate Governance Practices in *Canadian National Instrument 58-101* requires (a) disclosure whether or not a company's board of directors has a compensation committee composed entirely of independent directors, and, if not, (b) a description of what steps the board takes to ensure an objective process for determining such compensation. There is no equivalent independence guidance with respect to a nominating committee, but *Canadian National Instrument 58-101* requires (a) disclosure whether or not a company's board of directors has a nominating committee composed entirely of independent directors, and, if not, (b) a description of what steps the board takes to encourage an objective nomination process. Mr. Christopher Noel Dunn, a member of both the Compensation Committee and the Nominating Committee until the Registrant's Board of Directors accepted his resignation from each of these committees on March 22, 2018, was not considered independent as he served as an executive officer of another publicly listed company where, for an approximate ten month period from May 2017 to March 2018, an executive officer of the Registrant served on its compensation committee. The Registrant's executive officer stepped down and no longer serves on that listed company's compensation committee. The Registrant provided relevant disclosure required by *Canadian National Instrument 58-101* in its Management Information Circular dated April 4, 2018. Mr. Dunn was replaced on those committees by an independent director pursuant to Rule 5605(a)(2)(E) of the Nasdaq Marketplace Rules and the Registrant now fully complies with Rules 5605(d)(2)(A) and 5605(e)(1)(B) of the Nasdaq Marketplace Rules. Mr. Dunn did not stand for re-election at Pan American's annual general and special meeting of its shareholders on May 9, 2018.

On March 16, 2005, the Registrant informed the Nasdaq Stock Market that as permitted by Rule 4350(a)(1) of the Nasdaq Marketplace Rules, it intended to follow British Columbia practice with respect to quorum requirements in lieu of those required by Rule 4350(f) of the Nasdaq Marketplace Rules (which provides that a quorum for a shareholder meeting of a Nasdaq-listed company must be at least 33-1/3% of the outstanding common shares of the company). The Registrant's by-laws provide that the minimum quorum for a meeting of holders of Common Shares is two individuals who are shareholders, proxy holders or duly authorized representatives of corporate shareholders personally present and representing shares aggregating not less than 25% of the issued shares of the Registrant carrying the right to vote. The Registrant's quorum requirements are not prohibited by the requirements of the *Business Corporations Act* (British Columbia) and the Registrant intends to continue to comply with the requirements of the *Business Corporations Act* (British Columbia). The rules of the Toronto Stock Exchange, upon which the Common Shares are also listed, do not contain specific quorum requirements.

L. Identification of the Audit Committee

The Registrant has a separately-designated standing Audit Committee established in accordance with Section 3(a)(58)(A) of the Exchange Act. The members of the Audit Committee are Gillian D. Winckler, Neil de Gelder and Michael Carroll. Gillian D. Winckler, Neil de Gelder and Michael Carroll are independent as such term is defined under Rule 10A-3 under the Exchange Act and the rules and regulations of the Nasdaq Stock Market. Further information about the Registrant's Audit Committee can be found under the heading "Audit Committee" of the Registrant's Annual Information Form for the fiscal year ended December 31, 2018, filed as Exhibit 1.1 to this Annual Report on Form 40-F.

M. Mine Safety

The Registrant is not currently required to disclose the information required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

UNDERTAKING AND CONSENT TO SERVICE OF PROCESS

A. Undertaking

The Registrant undertakes to make available, in person or by telephone, representatives to respond to inquiries made by the Commission staff, and to furnish promptly, when requested to do so by the Commission staff, information relating to the securities in relation to which the obligation to file an annual report on Form 40-F arises; or transactions in said securities.

B. Consent to Service of Process

The Registrant has previously filed with the Commission a Form F-X in connection with its Common Shares. Any change to the name and address of the agent for service of process shall be communicated promptly to the Commission by an amendment to Form F-X.

EXHIBITS

The following exhibits are filed as part of this report:

Exhibit Number	Title
1.1	Annual Information Form for the fiscal year ended December 31, 2018.
1.2	Management's Discussion and Analysis for the fiscal year ended December 31, 2018.
1.3	Audited Consolidated Financial Statements for the fiscal years ended December 31, 2018 and 2017.
23.1	Consent of Deloitte LLP.
23.2	Consent of Martin Wafforn.
23.3	Consent of Michael Steinmann.
23.4	Consent of Pamela De Mark.
23.5	Consent of Americo Delgado.
23.6	Consent of Christopher Emerson.
31.1	Certification of CEO pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of CFO pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of CEO and CFO pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	Interactive Data File.

Exhibits 1.1, 1.2 and 1.3 are incorporated by reference into the Registrant’s Registration Statement on Form F-10 (File No. 333-212468) and Registration Statements on Form S-8 (File Nos. 333-180494, 333-180495, 333-206162 and 333-229795).

SIGNATURE

Pursuant to the requirements of the Exchange Act, the Registrant certifies that it meets all of the requirements for filing on Form 40-F and has duly caused this annual report to be signed on its behalf by the undersigned, thereto duly authorized.

PAN AMERICAN SILVER CORP.

Dated: March 12, 2019		*/s/ Delaney Fisher*
	By:	Delaney Fisher
	Title:	Vice President Legal Affairs and Corporate Secretary

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Annual Information Form

For the Year Ended December 31, 2018

March 12, 2019

1500-625 Howe Street
Vancouver, British Columbia
V6C 2T6

www.panamericansilver.com

PAN AMERICAN SILVER CORP.
ANNUAL INFORMATION FORM

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IMPORTANT INFORMATION ABOUT THIS DOCUMENT

This annual information form ("AIF") provides important information about Pan American Silver Corp. It describes our business, including our history, our operations and development projects, our mineral reserves and mineral resources, sustainability, the regulatory environment that we operate in, the risks we face, and the market for our products and shares, among other things.

We have prepared this document to meet the requirements of Canadian securities laws, which are different from what US securities laws require.

Throughout this document, the term Pan American means Pan American Silver Corp. and the terms we, us, and our mean Pan American and its subsidiaries.

Reporting Currency and Financial Information

Unless we have specified otherwise, all references to dollar amounts or $ or USD are United States dollars. Any references to CAD or CAD$ are Canadian dollars.

All financial information presented in this AIF was prepared in accordance with international financial reporting standards ("IFRS") as issued by the International Accounting Standards Board.

Non-GAAP Measures

This AIF refers to various non-generally accepted accounting principles ("non-GAAP") measures, such as cash costs per ounce of silver, net of by-product credits ("cash costs"), all-in sustaining costs per silver ounce sold ("AISCSOS"), working capital and total debt.

Cash Costs

This AIF presents information about our cash costs for our operating mines. Except as otherwise noted, cash costs is calculated by dividing total cash costs net of by-product credits by total payable silver ounces produced at the relevant mine or mines. Total cash costs include mine operating costs such as mining costs, processing costs, administration costs and royalties, but exclude amortization, reclamation costs, financing costs and capital costs for development and exploration. Certain amounts of stock-based compensation are excluded as well.

Cash costs is included in this AIF because certain investors use this information to assess our performance and also to determine our ability to generate cash flow for use in investing and other activities. The inclusion of cash costs may enable investors to better understand year-over-year changes in our production costs, which in turn affect profitability and cash flow. Cash costs does not have a standardized meaning or a consistent basis of calculation prescribed by IFRS. Investors are cautioned that cash costs should not be considered in isolation or construed as a substitute to costs determined under IFRS as an indicator of performance. Our method of calculating cash costs may differ from the methods used by other entities and, accordingly, our cash costs may not be comparable to similarly titled measures used by other entities. Readers should refer to our management's discussion and analysis for the year ended December 31, 2018 (the "2018 MD&A") for a detailed description and reconciliation of this non-GAAP measure.

All-In Sustaining Costs Per Silver Ounce Sold

This AIF includes information about our calculation of AISCSOS. We believe that AISCSOS reflects a comprehensive measure of the full cost of operating our consolidated business given that it includes the cost of replacing ounces through exploration, the cost of ongoing capital investment (sustaining capital), general and administrative expenses, direct operating costs, as well as other items that affect our consolidated earnings and cash flow. AISCSOS does not have a standardized meaning or a consistent basis of calculation prescribed by IFRS. Our method of calculating AISCSOS may differ from the methods used by other entities and, accordingly, our AISCSOS may not be comparable to similarly titled measures used by other entities. Readers should refer to the 2018 MD&A for a detailed description and reconciliation of this non-GAAP measure.

Working Capital

Working capital is a non-GAAP measure calculated as current assets less current liabilities. Working capital does not have any standardized meaning prescribed by IFRS and is therefore unlikely to be comparable to similar measures presented by other companies. Pan American and certain investors use this information to evaluate whether Pan American is able to meet its current obligations using its current assets.

Total Debt

Total debt is a non-GAAP measure calculated as the total current and non-current portions of long-term debt, finance lease liabilities, and loans payable. Total debt does not have any standardized meaning prescribed by GAAP and is therefore unlikely to be comparable to similar measures presented by other companies. Pan American and certain investors use this information to evaluate the financial debt leverage of Pan American.

Glossary of Terms

The glossary of terms under "Glossary of Terms" of this AIF contains definitions of certain scientific or technical terms used in this AIF that might be useful for your understanding.

Caution About Forward-Looking Information

This AIF includes statements and information about our expectations for the future. When we discuss our strategy, plans and future financial and operating performance, or other things that have not yet taken place, we are making statements considered to be forward-looking information or forward-looking statements under Canadian securities laws and the United States Private Securities Litigation Reform Act of 1995. We refer to such forward-looking information and forward-looking statements together in this AIF as forward-looking information.

Key things to understand about the forward-looking information in this AIF are:

- It typically includes words and phrases about the future, such as *believe*, *estimate*, *anticipate*, *expect*, *plan*, *intend*, *predict*, *goal*, *target*, *forecast*, *project*, *scheduled*, *potential*, *strategy* and *proposed* (see examples starting on page 3).
- It is based on a number of material assumptions, including, but not limited to, those we have listed below, that may prove to be incorrect.
- Actual results and events may be significantly different from what we currently expect, because of, among other things, the risks associated with our business. We list a number of these material risks below under “Material Risks and Assumptions”. We recommend you also review other parts of this AIF, including "Risks Related to Our Business" starting on page 75, and our 2018 MD&A, which includes a discussion of other material risks that could cause our actual results to differ from our current expectations.

Forward-looking information is designed to help you understand management’s current views of our near and longer term prospects. It may not be appropriate for other purposes. We do not intend to update forward-looking information unless we are required to do so by applicable securities laws.

Examples of Forward-Looking Information in this AIF:

- the price of silver and other metals;
- the sufficiency of our current working capital, anticipated operating cash flow or our ability to raise necessary funds;
- the accuracy of mineral reserve and mineral resource estimates, estimates of future production and future cash, and total costs of production, as applicable, at La Colorada, Dolores, Huaron, Morococha, San Vicente, Manantial Espejo, Navidad, Joaquin or other properties;
- estimated production rates for silver and other payable metals we produce, timing of production and estimated cash and total costs of production, including forecast cash costs of production;

- the estimated cost of and availability of funding for working capital requirements and capital replacement, improvement or remediation programs, and for future construction and development projects;
- estimated costs of construction, development and ramp-up of our projects;
- the outcome of the ILO 169 consultation process in Guatemala with respect to the Escobal mine, the resolution of other matters ordered by the Courts in Guatemala, and our anticipated engagement with local communities and the Xinka population in Guatemala;
- our ability to successfully restart the Escobal mine and begin production and export therefrom;
- our ability to successfully integrate the operations and employees of Tahoe Resources Inc. ("Tahoe");
- the ability to obtain necessary permits and licenses, including for current or future operations, project development and expansion;
- future successful development of the Cap-Oeste Sur Este ("COSE"), Joaquin, Navidad and other development projects;
- the effects of laws, regulations and government policies affecting our operations, including, without limitation, expectations relating to or the effect of certain highly restrictive laws and regulations applicable to mining in the Province of Chubut, Argentina;
- the estimates of expected or anticipated economic returns from a mining project, as reflected in preliminary economic assessments, pre-feasibility, and feasibility studies or other reports prepared in relation to development of projects;
- estimated exploration expenditures to be incurred on our various silver exploration properties;
- compliance with environmental, health, safety and other regulations;
- estimated future closure, reclamation and remediation costs;
- forecast capital and non-operating spending;
- estimates of foreign exchange rates and future income tax rates;
- future sales of the metals, concentrates or other products produced by us;
- our ability to maintain relationships of trust with our stakeholders and community support for our activities;
- continued access to necessary infrastructure, including, without limitation, access to power, water, lands and roads to carry on activities as planned;
- that we will be, or will continue to be, the world's premier silver producer and one of the world's leading silver mining companies;
- our plans and expectations for our properties and operations, including, without limitation, production estimates, forecasts regarding investment activities, and other matters discussed under the heading "Outlook for 2019" and under the headings "Capital and Operating Costs" and "Exploration, Development, and Production" with respect to each of our material properties; and
- the results of investment and development activities at the La Colorada and Dolores mines.

Material Risks and Assumptions:

The forward-looking information in this AIF reflects our current views with respect to future events and is based upon a number of assumptions and estimates that, while considered reasonable by us, are inherently subject to significant business, economic, competitive, political and social uncertainties and contingencies. Many factors, both known and unknown, could cause actual results, performance or achievements to be materially different from the results, performance or achievements that are or may be expressed or implied by forward-looking information in this AIF and documents incorporated by reference herein, and we have made assumptions based on or related to many of these factors.

Such factors include, without limitation:

- fluctuations in spot and forward markets for silver, gold, base metals and certain other commodities (such as natural gas, fuel oil and electricity);

- restrictions on mining in the jurisdictions in which we operate;
- laws and regulations governing our operation, exploration and development activities;
- our ability to obtain or renew the licenses and permits necessary for the operation and expansion of our existing operations and for the development, construction and commencement of new operations, including the license and export permits necessary to operate the Escobal mine which are currently suspended or have not been renewed;
- risks and hazards associated with the business of mineral exploration, development and mining (including environmental hazards, potential unintended releases of contaminants, industrial accidents, unusual or unexpected geological or structural formations, pressures, cave-ins and flooding);
- inherent risks associated with tailings facilities and heap leach operations, including failure or leakages;
- relations with and claims by indigenous populations;
- relations with and claims by local communities and non-governmental organizations;
- the speculative nature of mineral exploration and development;
- diminishing quantities or grades of mineral reserves as properties are mined;
- the inability to determine, with certainty, the production of metals or the price to be received before mineral reserves or mineral resources are actually mined;
- the inability to determine, with certainty, production and cost estimates;
- inadequate or unreliable infrastructure (such as roads, bridges, power sources and water supplies);
- environmental regulations and legislation;
- our ability to maintain or obtain additional surface rights or other access that are necessary for future operations and planned mine developments;
- reclamation and ongoing post-closure monitoring and maintenance requirements;
- the effects of climate change, extreme weather events, water scarcity, and seismic events, and the effectiveness of strategies to deal with these issues;
- risks relating to our operations in Mexico, Peru, Bolivia, Argentina, Guatemala and other foreign jurisdictions where we may operate;
- risks relating to the creditworthiness and financial condition of our suppliers, refiners and other parties;
- fluctuations in currency markets (such as the Peruvian nuevo sol ("PEN"), Mexican peso ("MXN"), Argentine peso ("ARS"), the Bolivian boliviano ("BOB"), and the Guatemalan quetzal ("GTQ") versus the USD and CAD);
- the volatility of the metals markets, and its potential to impact our ability to meet our financial obligations;
- the inability to recruit and retain qualified personnel, or maintain positive relationships with our employees;
- disputes as to the validity of mining or exploration titles or claims or rights, which constitute most of our property holdings;
- our ability to complete and successfully integrate acquisitions;
- increased competition in the mining industry for properties and equipment;
- limited supply of materials and supply chain disruptions;
- the effectiveness of our internal control over financial reporting;
- claims and legal proceedings arising in the ordinary course of business activities; and
- those factors identified under the caption "Risks Related to our Business" in this AIF and the documents incorporated by reference herein, if any.

You should not attribute undue certainty to forward-looking information. Although we have attempted to identify important factors that could cause actual results to differ materially, there may be other factors that cause results not to be as described. We do not intend to update forward-looking information to reflect changes in

assumptions or changes in circumstances or any other events affecting such information, other than as required by applicable law.

Please see “Cautionary Note to U.S. Investors Concerning Estimates of Mineral Reserves and Mineral Resources” on page 7 of this AIF.

Conversion Table

In this AIF, metric units are used with respect to mineral properties located in Mexico, Peru, Bolivia, Argentina and elsewhere, unless otherwise indicated. Conversion rates from imperial measures to metric units and from metric units to imperial measures are provided in the table set out below.

Imperial Measure = Metric Unit		Metric Unit = Imperial Measure	
2.47 acres	1 hectare	0.4047 hectares	1 acre
3.28 feet	1 metre	0.3048 metres	1 foot
0.62 miles	1 kilometre	1.609 kilometres	1 mile
0.032 ounces (troy)	1 gram	31.1 grams	1 ounce (troy)
1.102 tons (short)	1 tonne	0.907 tonnes	1 ton (short)
0.029 ounces (troy)/ton (short)	1 gram/tonne	34.28 grams/tonne	1 ounce (troy)/ton (short)
2205 pounds	1 tonne		

Scientific and Technical Information

Mineral reserve and mineral resource estimates in this AIF relating to La Colorada, Dolores, Huaron, Morococha, San Vicente, Manantial Espejo, and Joaquin are based on information prepared under the supervision of, or have been reviewed by, Christopher Emerson, FAusIMM, Vice President of Business Development and Geology of Pan American, and Martin Wafforn, P. Eng., Senior Vice President, Technical Services and Process Optimization of Pan American. Scientific or technical information in this AIF relating to La Colorada and Manantial Espejo is based on information prepared under the supervision of, or has been reviewed by, Michael Steinmann, P. Geo., President and Chief Executive Officer of Pan American, and Martin Wafforn. Scientific and technical information relating to Huaron, Morococha, and San Vicente is based on information prepared and reviewed by Michael Steinmann, Martin Wafforn and Americo Delgado, P. Eng., Director of Metallurgy of Pan American. Scientific and technical information relating to Dolores and Joaquin is based on information prepared and reviewed by Martin Wafforn, Christopher Emerson, and Americo Delgado. Scientific or technical information relating to the geology of particular properties, and the current and planned exploration programs described in this AIF, are prepared and/or designed and carried out under the supervision of, or have been reviewed by, Christopher Emerson. Scientific and technical information herein relating to the Navidad property is based on information contained in the Navidad Report (as defined below) and the disclosure in this AIF about the Navidad property has been reviewed and consented to by Michael Steinmann, Martin Wafforn and Pamela De Mark, P.Geo., Director of Resources of Pan American, the experts involved in the preparation of the applicable sections of the Navidad Report. In particular, scientific or technical information in this AIF relating to the estimation of mineral resources for the Navidad property was prepared by Pamela De Mark. All other disclosures of scientific and technical information contained in the descriptions of our mineral properties were prepared under the supervision of or have been reviewed by Christopher Emerson and Martin Wafforn. Each of Christopher Emerson, Michael Steinmann, Martin Wafforn, Pamela De Mark, and Americo Delgado is a “Qualified Person” as defined in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (“NI 43-101”). A “Qualified Person” means an engineer or geoscientist with a university degree, or equivalent accreditation, in an area of geoscience, or engineering, relating to mineral exploration or mining, with at least five years of experience in mineral exploration, mine development or operation or mineral project assessment, or any combination of these, that is relevant to his or her professional degree or area of practice, has experience relevant to the subject matter of the mineral project, and is a member in good standing of a professional association.

Scientific and technical disclosure in this AIF for our material properties is based on technical reports prepared for those properties in accordance with NI 43-101 (collectively, the “Technical Reports”). The Technical Reports have

been filed on SEDAR at www.sedar.com. The technical information in this AIF has been updated with current information where applicable. The Technical Reports are as follows:

- a report entitled “Technical Report – Preliminary Economic Analysis for the Expansion of the La Colorada Mine, Zacatecas, Mexico”, dated effective December 31, 2013 (the “La Colorada Report”) relating to the La Colorada mine;
- a report entitled “Technical Report for the Dolores Property, Chihuahua, Mexico”, dated effective December 31, 2016 (the “Dolores Report”) relating to the Dolores mine;
- a report entitled “Technical Report for the Huaron Property, Pasco, Peru” dated effective June 30, 2014 (the “Huaron Report”) relating to the Huaron mine;
- a report entitled “Technical Report for the Morococha Property, Yauli, Peru” dated effective June 30, 2014 (the “Morococha Report”) relating to the Morococha mine;
- a report entitled “Technical Report for San Vicente Property, Potosi, Bolivia” dated effective December 31, 2014 (the “San Vicente Report”) relating to the San Vicente mine;
- a report entitled “Manantial-Espejo Project Canadian Standard NI 43-101, Santa Cruz Province, Argentina” dated March 2006 (the “Manantial Report”) relating to the Manantial Espejo mine;
- a report entitled “Pan American Silver Corp.: Navidad Project, Chubut Province, Argentina: Preliminary Assessment” dated January 14, 2011 (the “Navidad Report”) relating to the Navidad property; and
- a report entitled “Technical Report for the Joaquin Property, Santa Cruz, Argentina – Pre-feasibility Study” dated effective November 30, 2017 (the “Joaquin Report”) relating to the Joaquin property.

Cautionary Note to U.S. Investors Concerning Estimates of Mineral Reserves and Mineral Resources

This AIF and the documents incorporated by reference herein have been prepared in accordance with the requirements of Canadian securities laws that differ from the requirements of United States securities laws. Unless otherwise indicated, all mineral reserve and mineral resource estimates included in this AIF and the documents incorporated by reference herein have been disclosed in accordance with NI 43-101 and the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) - Definition Standards adopted by the CIM Council. NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects.

Canadian public disclosure standards, including NI 43-101, differ significantly from the requirements of the U.S. Securities and Exchange Commission (the “SEC”), and information with respect to mineralization and mineral reserves and mineral resources contained or incorporated by reference herein may not be comparable to similar information disclosed by U.S. companies. In particular, and without limiting the generality of the foregoing, these documents use the terms ‘‘Measured Resources’’, ‘‘Indicated Resources’’ and ‘‘Inferred Resources’’. U.S. investors are advised that, while such terms are recognized and required by Canadian securities laws, the SEC does not recognize them. The requirements of NI 43-101 for identification of ‘‘reserves’’ are not the same as those of the SEC, and reserves reported by Pan American in compliance with NI 43-101 may not qualify as ‘‘reserves’’ under SEC standards. Under U.S. standards, 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 the reserve determination is made. **U.S. investors are cautioned not to assume that any part of a ‘‘Measured Resource’’ or ‘‘Indicated Resource’’ will ever be converted into a ‘‘reserve’’.** U.S. investors should also understand that ‘‘Inferred Resources’’ have a great amount of uncertainty as to their existence and as to their economic and legal feasibility. **It cannot be assumed that all or any part of ‘‘Inferred Resources’’ exist, are economically or legally mineable or will ever be upgraded to a higher category.** Under Canadian securities laws, ‘‘Inferred Resources’’ may not form the basis of feasibility or pre-feasibility studies except in certain cases. Disclosure of ‘‘contained ounces’’ in a mineral resource is a permitted disclosure under Canadian securities laws, however, the SEC normally only permits issuers to report mineralization that does not constitute ‘‘reserves’’ by SEC standards as in place tonnage and grade, without reference to unit measures. Accordingly, information concerning mineral deposits set forth in this AIF and the documents incorporated by reference herein may not be comparable with information made public by companies that report in accordance with U.S. standards.

CORPORATE STRUCTURE

Incorporation

Pan American is the continuing corporation of Pan American Energy Corporation, which was incorporated under the *Company Act* (British Columbia) on March 7, 1979. Pan American underwent two name changes, the last occurring on April 11, 1995, when the present name of Pan American Silver Corp. was adopted. Amendments to the constating documents of Pan American to that date had been limited to name changes and capital alterations. In May 2006, we amended our memorandum and articles in connection with Pan American's required transition under the Business Corporations Act (British Columbia), and in January 2019, we obtained shareholder approval to increase our authorized share capital from 200,000,000 to 400,000,000 common shares without par value ("Common Shares").

Pan American's head office is situated at 1440 - 625 Howe Street, Vancouver, British Columbia, Canada, V6C 2T6 and our registered and records offices are situated at 1200 Waterfront Centre, 200 Burrard Street, Vancouver, British Columbia, Canada, V7X 1T2. Our website is www.panamericansilver.com.

Capital Structure

Pan American's authorized share capital consisted of 200,000,000 Common Shares as at December 31, 2018, but has subsequently increased its authorized capital to 400,000,000 Common Shares. The holders of Common Shares are entitled to: (i) one vote per Common Share at all meetings of shareholders; (ii) receive dividends as and when declared by the directors of Pan American; and (iii) receive a pro rata share of the assets of Pan American available for distribution to the shareholders in the event of the liquidation, dissolution or winding-up of Pan American. There are no pre-emptive, conversion or redemption rights attached to the Common Shares.

Subsequent to December 31, 2018, pursuant to the Arrangement (defined below) Pan American issued 313,887,490 contingent value rights (each, a "CVR") to Tahoe shareholers. The CVRs are subject to a ten year term and will be exchanged for 0.0497 of a Pan American Share upon first commercial shipment of concentrate following the restart of the Escobal mine. The CVRs are not entitled to any voting or dividend rights and the CVRs do not represent any equity or ownership interest in Pan American or any of its affiliates.

Subsidiaries

A significant portion of our business is carried on through various subsidiaries. The table below lists our significant subsidiaries and their jurisdiction of organization, and the chart following shows the structure of our organization as it relates to the country of our material mineral properties. This information is provided as at December 31, 2018.

Name of Subsidiary	Jurisdiction
Corner Bay Silver Inc. ("Corner Bay")	Canada
Aquiline Resources Inc. ("Aquiline")	Ontario
Minefinders Corporation Ltd. ("Minefinders")	Ontario
Absolut Resources Inc.	Yukon
Pan MacKenzie Resources Inc.	Delaware
Pan American Silver (Barbados) Corp.	Barbados
Aquiline Holdings Inc.	Barbados
PASCAP Insurance (Barbados) Ltd. ("PASCAP")	Barbados
Pico Machay Cayman Ltd.	Cayman Islands[1]
Minera Triton Argentina S.A. ("MTA")	Argentina
Minera Argenta S.A. ("MASA")	Argentina

Name of Subsidiary	Jurisdiction
Minera Joaquín S.R.L.	Argentina
PASMEX, S.A. de C.V.	Mexico
Minera Corner Bay S.A. de C.V.	Mexico
Plata Panamericana S.A. de C.V. (“Plata Panamericana”)	Mexico
Compañía Minera Dolores, S.A. de C.V. (“CMD”)	Mexico
Minera Minefinders S.A. de C.V.	Mexico
Pan American Silver (Peru) S.A.C. (“Pan American Peru”)	Peru
Pan American Silver Huaron S.A. (“PAS Huaron”)	Peru
Compañía Minera Argentum S.A. (“Argentum”)	Peru
Minera Calipuy S.A.C.	Peru
Pan American Silver (Bolivia) S.A. (“PASB”)	Bolivia

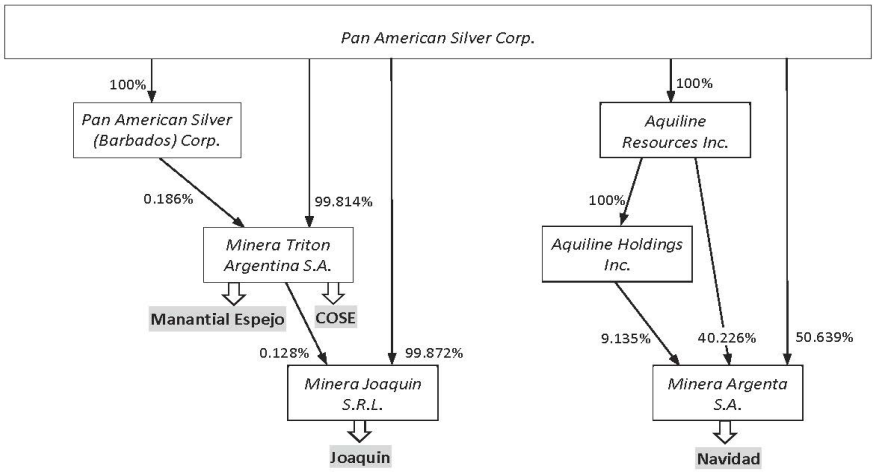
Note:

Pico Machay Cayman Ltd. continued into Canada in January 2019.

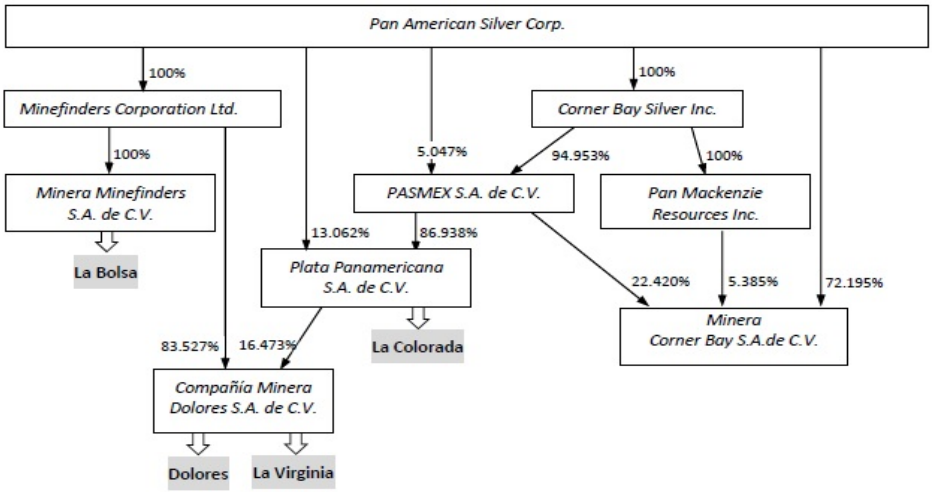
Corporate Organization by Material Mineral Property Location

The following charts depict the corporate organizational structure of our significant subsidiaries as they relate to the country of our material mineral properties as at December 31, 2018, and identifies the main property asset interests held by the respective entities1.

Argentina Properties

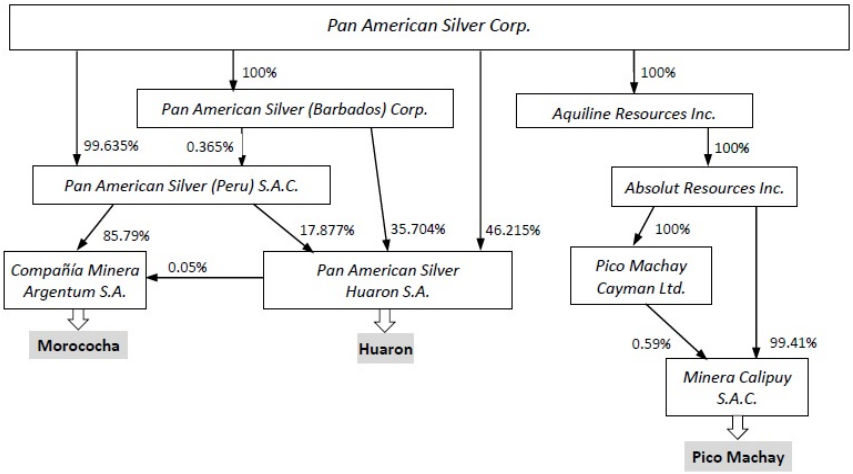


Mexico Properties

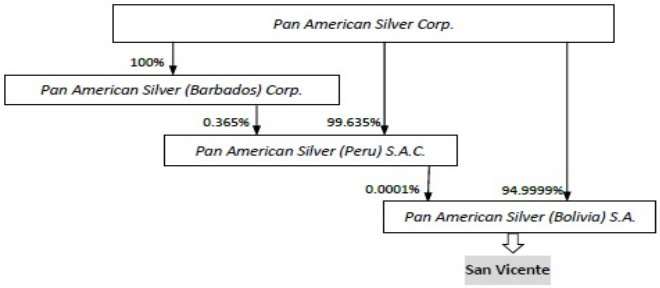


Peru Properties

Peru Properties



Bolivia Properties

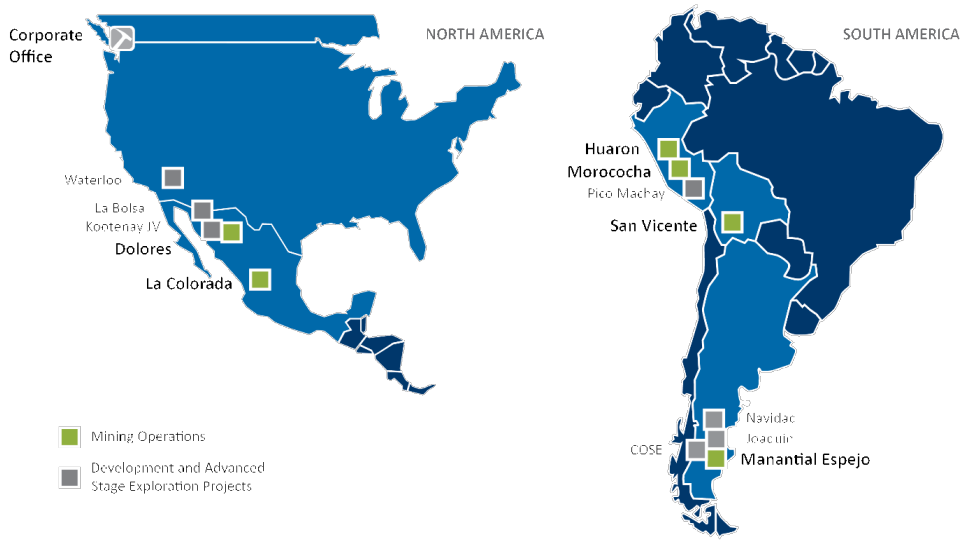


Note:

In some jurisdictions in which we operate, laws require that a company operating mineral properties must have more than one shareholder. For those jurisdictions, a nominal interest may be held by an individual or other affiliated entity and this may not be represented on the charts. Percentages shown indicate ownership of common shares and other voting interests and do not include holdings of investment shares in Peru or other non-voting shares. Percentages are rounded (in most cases, to a maximum of two decimal places).

Business of Pan American

We are principally engaged in the operation and development of, and exploration for, silver producing properties and assets. Our principal product is silver, although we also produce and sell gold, zinc, lead, and copper. As at December 31, 2018, we carried on mining operations and were developing mining projects in Mexico, Peru, Argentina and Bolivia, and had control over non-producing silver assets in each of those jurisdictions and in the United States. Exploration work is carried out in all of those countries, as well as elsewhere throughout the world. . In February 2019, we acquired Tahoe, which has additional operating mines in Peru and Canada, along with a mine in Guatemala whose operation is currently suspended. The following map depicts the location of our operating mines and certain of our exploration projects as at December 31, 2018.



Corporate Strategy and Objectives

Our mission is to be the world's premier silver producer with a reputation for excellence in discovery, engineering, innovation and sustainable development. We will continue to strengthen our position as one of the world's leading primary silver mining companies by acquiring or discovering silver resources that have the potential to be developed economically and to add meaningfully to our production profile while lowering consolidated unit costs of production.

The key objectives of our strategy are to:

Strategy Objective	Implementation
Increase production	After acquiring our first operating mine (Quiruvilca in Peru) in 1995, we have increased annual silver production almost every year. In 2018, we produced 24.8 million ounces of silver, slightly less than the 25.0 million ounces produced in 2017. We also increased gold production to a record high 183,900 ounces in 2016 and continue to maintain strong production of gold, producing 178,900 ounces in 2018. This long-term growth has been accomplished through a combination of acquisition, development and expansion efforts. In 2019, Pan American expects to produce between 26.5 and 27.5 million ounces of silver and between 162,500 and 172,500 ounces of gold from its existing portfolio of assets prior to the Tahoe acquisition, and expect to provide updated guidance in May 2019 that will take into account the newly acquired Tahoe assets.
Increase mineral reserves and mineral resources	Historically, we have achieved annual increases in our mineral reserves and mineral resources through exploration and acquisitions. In 2018, we added about 21.1 million ounces of new silver mineral reserves, which partially offset the 29.7 million ounces depleted through mining. Pan American's history of replacing silver ounces mined reflects our ability to invest in mine and near-mine exploration programs throughout the silver price cycle and the exploration potential of our asset portfolio. At December 31, 2018, our proven and probable silver and gold mineral reserves were approximately 279.8 million and 1.7 million ounces, respectively, down from the 288.4 million ounces of silver and the 1.9 million ounces of gold at the end of 2017. Our measured and indicated mineral resources were approximately 682.1 million ounces of silver and 478.5 thousand ounces of gold as at the end of 2018. Please refer to the complete mineral resource and mineral reserve information under each of our material properties contained in this AIF, and to the "Reserves & Resources" page of our website at www.panamericansilver.com for additional information.
Continue to be a "Low Cost Producer"	Full year 2018 consolidated cash costs[1] to produce an ounce of silver were $3.35, net of by-product credits, which was lower than 2017 full year cash costs of $4.55. AISCSOS[1] for the full year 2018 was $10.73, slightly lower than the full year 2017 AISCSOS of $10.79. Our strategy continues to emphasize maintaining low overall unit production costs. For the full year 2019 (without taking into consideration the newly acquired Tahoe assets), consolidated cash costs are forecast to be between $6.50 and $7.50 per ounce of silver, net of by-product credits, while AISCSOS is expected to be between $10.80 and $12.30.
Acquire additional silver properties	We actively investigate and evaluate strategic opportunities to acquire promising silver production, development and exploration properties in those jurisdictions where we are presently active as well as elsewhere throughout the world. In February 2019, we acquired all of the issued and outstanding shares of Tahoe by way of plan of arrangement (the "Arrangement"). Among other assets, Tahoe owned two mines in each of Peru and Canada, as well as the Escobal mine in Guatemala. The Escobal mine is currently suspended pending the completion of an ILO 169 consultation process and further engagement with local communities and indigenous groups, as well as the renewal of certain other permits. In addition to the recent acquisition of Tahoe, we also acquired the Joaquin and COSE projects in 2017, the Dolores mine and the La Bolsa property by virtue of acquiring Minefinders in 2012, and the Navidad property pursuant to our acquisition of Aquiline in 2010. Please refer to the section of this AIF entitled "Risks Related to Our Business" starting on page 75 for more information about the risks relating to our business and our mining properties, particularly with respect to the Escobal mine, and to our website at www.panamericansilver.com for additional information.
Maintain strong financial performance from mining operations	In an effort to ensure we continue to have a strong and prosperous business, financial performance is monitored against targets for operating earnings and cash flow from operations, as well as against operating measures such as production and cash costs.

Strategy Objective	Implementation
Continue to be a responsible company, committed to sustainable development	We are committed to operating our business in accordance with the highest standards of governance and ethics, and the principles of sustainable development. We also place a high priority and particular emphasis on the health and safety of our personnel. We have operations in a number of countries and across diverse cultures that have the potential to both positively and negatively impact their host communities and nearby populations. Our goal is to minimize the negative impacts and maximize the benefits garnered to local populations, while at the same time achieving success from a business perspective. We conscientiously strive to operate within a framework of moral principles and values and to engage and interact regularly, and in an open and honest way, with governments, shareholders, employees, local communities, business partners and other stakeholders affected by our operations. We have initiated the implementation of the Mining Association of Canada's ("MAC") "Towards Sustainable Mining" ("TSM"), a project designed to enhance our community engagement processes, drive industry-leading environmental practices and reinforce our commitment to the safety and health of our employees and surrounding communities. We have adopted, among other things, a Global Code of Ethical Conduct and a Global Anti-Corruption Policy, an Environmental Policy and a Corporate Social Responsibility Policy, that formalize how we must conduct our business and interact with stakeholders and others. We are aware that our business is in many ways dependent on these various stakeholders and we view establishing relationships of mutual trust and respect as important. By building such relationships and conducting ourselves in a transparent manner, we can further the exchange of information, address specific concerns of stakeholders and work cooperatively and effectively towards achieving mutual goals. We report annually on our sustainable development performance according to the Global Reporting Initiative Framework, with the current report available on Pan American's website.

Note:

1 Cash costs and AISCSOS are non-GAAP measures and do not have standardized meanings prescribed by IFRS. For additional information, please see "Non-GAAP Measures" on page 2 of this AIF.

Key Developments Over the Last Three Financial Years

Year	Key Developments
2016	• Produced 25.4 million ounces of silver and achieved record annual gold production of 183,900 ounces. La Colorada was our largest silver producer at approximately 5.8 million ounces for the year, followed by San Vicente with 4.4 million ounces of silver. • Completed the divestiture of 13 non-core royalties, streams and payment agreements to Maverix Metals Inc. ("Maverix") in exchange for shares and warrants in Maverix (the "Maverix Transaction"). • Commissioned the new Beaty Cimarron mine shaft and sulphide plant at La Colorada, and made significant advancements at the Dolores mine expansion project. • Sold 75% of our interest in the Shalipayco project in Peru to Votorantim Metais – Cajamarquilla S.A. for $15 million cash, a free carried interest of our remaining 25% to commercial production, and a one percent (1%) net smelter returns ("NSR") royalty (which we subsequently sold to Maverix).
2017	• Produced 25.0 million ounces of silver and 160,000 ounces of gold. La Colorada was our largest silver producer at approximately 7.1 million ounces for the year, followed by Dolores with 4.2 million ounces of silver. Dolores also produced 103,000 ounces of gold. • Completed the acquisition of the Joaquin and COSE projects in Santa Cruz, Argentina. These projects will utilize the processing facilities of Manantial Espejo, and both are currently expected to begin production in 2019. • Construction of the La Colorada mine expansion was completed. Full design processing rates of 1,800 tonnes per day were achieved in mid-2017, about six months ahead of schedule. Average throughput exceeded design rates by about 5% during the last six months of 2017. • Construction of the Dolores pulp agglomeration plant was completed and commissioning commenced. Heap leach pad stacking rates achieved 97% of the expanded capacity of 20,000 tonnes per day during the last four months of 2017. • Acquired an approximate 12% interest in New Pacific Metals Corp. (approximately 16% fully diluted), providing exposure to the Silver Sand project in Bolivia. • Final production from Alamo Dorado occurred in 2017 and mining activities concluded. The mine transitioned into the reclamation phase.
2018	• Produced 24.8 million ounces of silver and 178,900 ounces of gold. La Colorada continued to be our largest silver producer at approximately 7.6 million ounces for the year, followed by Dolores with 4.1 million ounces of silver. Dolores also produced 136,600 ounces of gold. • Advanced the Joaquin and COSE project development in Santa Cruz, Argentina, towards expected initial production in 2019. • Made a major exploration discovery at the La Colorada mine. • Announced the proposed acquisition of Tahoe, which subsequently completed in February 2019. • Substantially completed active reclamation at the Alamo Dorado site.

Outlook for 2019

On November 14, 2018, we entered into a definitive agreement for Pan American to acquire all of the outstanding shares of Tahoe pursuant to a plan of arrangement (the “Arrangement”). Pursuant to the terms of the Arrangement, Tahoe shareholders had the right to elect to receive either $3.40 in cash or 0.2403 of a Pan American share for each Tahoe share, subject in each case to proration based on a maximum cash consideration of $275 million and a maximum number of Pan American shares issued of 56.0 million. In addition, Tahoe shareholders would also receive contingent consideration in the form of one CVR for each Tahoe share, each CVR having a term of ten years and being exchangeable for 0.0497 of a Pan American share upon first commercial shipment of concentrate following restart of operations at the Escobal mine. Tahoe was also entitled to nominate two directors to Pan American‘s board of directors (the “Board of Directors”).

We completed the Arrangement on February 22, 2019. In aggregate, we paid $275 million in cash and issued 55,990,512 Pan American shares and 313,887,490 CVRs to Tahoe shareholders under the Arrangement. Upon closing of the Arrangement, existing Pan American and former Tahoe shareholders own approximately 73% and 27% of Pan American, respectively. Upon satisfaction of the payment conditions of the CVRs within their ten year term, Pan American and Tahoe shareholders will own approximately 68% and 32%, respectively, of the combined company (based upon the number of Pan American shares outstanding as at February 22, 2019). With the completion of this transaction, we acquired four operating mines in Peru and Canada, as well as the Escobal mining property and facilities in Guatemala. The Escobal mine is one of the most attractive silver assets in the world, but is currently not operating primarily as a result of the suspension of its mining license in July 2017, pending, among other things, the completion of an ILO 169 consultation process with Xinka indigenous communities to be undertaken by Guatemala’s Ministry of Energy and Mines. In addition to supporting the consultation process, we also intend to engage with local communities and Xinka populations in an effort to build long-lasting, trusting relationships for the benefit of all stakeholders.

In 2019, we expect to produce between 26.5 and 27.5 million ounces of silver at consolidated cash costs of between $6.50 and $7.50 per ounce of silver, net of by-product credits, from our pre-Tahoe acquisition assets. In addition, we expect to produce between 162,00 and 172,500 ounces of gold without taking into account any production from Tahoe. Consolidated AISCSOS relative to our pre-existing assets are expected to be between $10.80 and $12.30 for 2019. Pan American has assumed prices of Ag $14.50/oz, Au $1,250/oz, Zn $2,600/tonne, Pb $1,950/tonne and Cu $6,150/tonne in the calculation of the forecast 2019 cash costs and AISCSOS.

Pan American's 2019 capital budget is targeting a total spend of $115.0 to $120.0 million on our pre-existing assets, comprised of $85.0 to $90.0 million in sustaining capital and approximately $30.0 million in project capital. We anticipate spending approximately $20.0 million on near-mine and regional exploration in 2019, drilling a total of approximately 122,000 metres.

Cash costs and AISCSOS are non-GAAP measures and do not have standardized meanings prescribed by Canadian accounting standards. For additional information, please see “Non-GAAP Measures” on page 2 of this AIF.

Please refer to the section of this AIF entitled "Risks Related to Our Business" starting on page 75 for more information about the risks relating to our business and our mining properties, particularly with respect to the Escobal mine.

Principal Products and Operations

Our principal products and sources of sales are silver and gold doré and silver bearing zinc, lead, and copper concentrates. In 2018, the La Colorada, Dolores, Huaron, Morococha, Manantial Espejo and San Vicente mines accounted for all of our production of concentrates and doré.

Consolidated production for the year ended December 31, 2018 was as follows:

	La Colorada	Dolores	Huaron	Morococha[1]	San Vicente[2]	Manantial Espejo	Total[3]
Tonnes Milled[4]	726,000	6,903,000	935,000	672,000	333,000	804,000	10,374,000
Grade							
Silver - g/t	358	31	142	149	362	135	
Gold - g/t	0.33	0.85	0.17	0.27		1.42	
Zinc %	2.83		2.44	3.80	2.77		
Lead %	1.40		1.18	0.92	0.34		
Copper %			0.76	0.66	0.40		
Production							
Ounces Silver[4]	7,617,000	4,081,000	3,561,000	2,881,000	3,544,000	3,092,000	24,776,000
Ounces Gold[5]	4,400	136,560	790	2,090	500	34,550	178,890
Tonnes Zinc[5]	17,790		17,380	22,170	7,470		64,810
Tonnes Lead[5]	8,840		8,050	4,690	780		22,360
Tonnes Copper[5]			5,440	3,300	1,020		9,760

Notes:

1 Morococha data represents our 92.3% interest in mine production based on ownership of the operating entity.
2 San Vicente data represents our 95% interest in mine production based on ownership of the operating entity.
3 Totals may not add due to rounding.
4 Rounded to the nearest thousand.
5 Rounded to the nearest ten.

Our approximate revenue by product category for the financial years ended December 31, 2018 and December 31, 2017 was as follows:

Product Revenue	**2018**	**2017**
	($000's)	($000's)
Silver and Gold Doré	348,717	345,756
Zinc Concentrate	155,412	140,315
Lead Concentrate	150,832	161,981
Copper Concentrate	86,599	114,564
Silver Concentrate	42,935	54,212
Total	**784,495**	**816,828**

Additional segmented information is set forth in Note 26 to Pan American's Audited Consolidated Financial Statements for the year ended December 31, 2018, and further information on individual mine performance and other metrics is presented in the 2018 MD&A under the heading "Individual Mine Performance".

Silver and Gold Doré

Our principal buyers of silver and gold doré produced from our La Colorada, Dolores, and Manantial Espejo mines, once refined, are international bullion banks and traders, except for the gold produced from La Colorada, which is sold to Maverix pursuant to the Maverix Gold Stream as discussed on page 21 herein. Silver and gold doré is delivered to refineries in Mexico, Germany, and the United States, and subsequently transferred to the accounts of our buyers.

Zinc, Lead, Copper and Silver Concentrates

The majority of our concentrate production is sold to international concentrate traders and smelters. Concentrate production from La Colorada is delivered to the buyers at the Manzanillo, Mexico, port. Concentrate production from Huaron and Morococha is delivered to the buyers at the port of Callao, Peru, with the exception of a portion of the zinc concentrate which is delivered to the Cajamarquilla smelting facility in Peru. Concentrate production from San Vicente is delivered to the buyers at the port of Antofagasta, Chile, with the exception of a portion of the silver concentrate which is delivered to the Altonorte smelting facility near Antofagasta. From these ports, the concentrates are shipped by the buyers to various international locations.

Please see the discussion under “Risks Relating to Our Business – Trading Activities and Credit Risk”.

Employees and Contractors

At the end of 2018, we had approximately 4,530 employees and about 2,670 contractors. The majority of those employees and contractors were working at our operations in South America and in Mexico. Our Mexican operations had just over 2,880 total employees and contractors, our Bolivian operations had over 620 employees and contractors, and our operations in Argentina had approximately 700 employees and contractors. Our Peruvian operations had the largest workforce with approximately 2,950 employees and contractors. Pan American also had 47 employees and 1 contractor at our head office in Vancouver as at December 31, 2018.

Research and Development

While we conduct feasibility work and operational enhancement evaluations in order to improve production processes and exploration and mining operations, we do not, in the normal course, embark on any research and development activities in relation to products or services. Costs associated with this work would usually be expensed as incurred. As such, we did not incur any significant research and development costs during 2016, 2017 or 2018.

Working Capital and Liquidity Position

As at December 31, 2018, we had cash and cash equivalents and short-term investment balances of $212.5 million and working capital of $397.8 million, and our total debt outstanding was $6.7 million, comprised of capital leases.

On April 15, 2015, we entered into a senior secured revolving credit facility (the "Facility") with a syndicate of eight lenders. The Facility was a $300 million secured revolving line of credit available for general corporate purposes, including acquisitions, and originally had a four year term. In 2016, we amended the Facility to extend the term by an additional year. The terms of the Facility provided Pan American with the flexibility of various borrowing and letter of credit options. As of December 31, 2018, no amounts were outstanding under the Facility.

Subsequent to year-end 2018, the Facility was increased by $200 million to $500 million, and extended to mature on February 1, 2023. At our option, amounts can be drawn under the revolving facility and will incur interest based on Pan American's leverage ratio at either (i) LIBOR plus 1.875% to 2.750%; or (ii) The Bank of Nova Scotia's Base Rate on U.S. dollar denominated commercial loans plus 0.875% to 1.750%. Undrawn amounts under the revolving facility are subject to a stand-by fee of 0.4219% to 0.6188% per annum, dependent on the Pan American's leverage ratio. We drew down $301 million under the Facility under LIBOR-based interest rates to fund, in part, the cash purchase price under the Arrangement and to repay, in full, and cancel Tahoe's second amended and restated revolving facility, under which $125 million had been drawn.

Our financial position at December 31, 2018, and the operating cash flows that are expected over the next twelve months lead management to believe that our liquid assets are sufficient to satisfy our 2019 working capital requirements, fund currently planned capital expenditures (including both sustaining and project capital) for existing operations, and to discharge liabilities as they come due. We also remain well positioned to take advantage of further strategic opportunities as they become available.

Environment, Community and Sustainability

All phases of our operations are subject to environmental regulation in the various jurisdictions in which we operate. To the best of management's knowledge, our activities in 2018 were, and continue to be, in compliance in all material respects with such environmental regulations applicable to our mining operations, development, and exploration activities. We have implemented an environmental policy, a corporate social responsibility policy, and a health and safety policy in which we accept our corporate responsibility to practice environmental stewardship, community engagement and development, and provide a safe and healthy workplace for our employees. We also commit to complying with all relevant industry standards, legislation and regulations in the countries where we carry on business and have begun implementation of the best practice TSM program at all our operations.

During 2018, reviews of the environmental and social performance of all our operations were led by Pan American's Vice President, Environment and Sustainability. The reviews included inspections of our mine sites and surrounding areas with key operations personnel, review of monitoring programs and operating procedures and evaluation of the principal environmental and social issues related to each of these operations. The key observations and recommendations from the reviews are reported monthly to senior management and quarterly to the Board of Directors and its Health, Safety, Environment and Communities Committee (the "HSEC Committee"). In addition to the periodic reviews, detailed Corporate Environmental Audits and Social Reviews are conducted at each mine at least once every two years, in accordance with the charter of the HSEC Committee. These audits review environmental compliance and implementation of best practice procedures and management systems. During 2017, audits were undertaken at the La Colorada, Dolores, and Manantial Espejo mines, and in 2018, the Morococha and Huaron mines were audited. In intervening years between audits, the implementation of the corrective actions required by each audit is checked. The La Colorada, Dolores, and Manantial Espejo mines' corrective actions were found to be satisfactory in 2018. Social reviews were completed at the Manantial Espejo and San Vicente mines in 2018 and no material issues were identified.

Our Huaron, Morococha, La Colorada, Alamo Dorado, Dolores, San Vicente and Manantial Espejo operations were all inspected by government agencies in 2018 and no material environmental issues were recorded as a result of these inspections.

The Peruvian government modified its receiving water quality limits in December 2015. The new limits remove a controversial sulphate limit which was previously proposed, bringing the limits in line with current international standards and significantly reducing potential cost impacts to our Peruvian operations. We continue to comply with a modified "Adaptation Plan" process to ensure any discharges at our Peruvian operations remain in compliance with the water quality limits. We do not expect that any future water treatment upgrades necessary to meet the limits will have a material impact on either of our Peruvian mines.

We completed our comprehensive Sustainability Report for 2017 in accordance with the Global Reporting Initiative G4 guidelines and improved our disclosure and report quality. The report includes detailed information on our environmental, social, economic, and health and safety performance. The complete Sustainability Report is available on our website at www.panamericansilver.com.

In the financial year-end dated December 31, 2018, our environmental expenditures for concurrent reclamation were approximately $7.8 million. The closure and decommissioning liabilities were prepared using the standard reclamation cost estimator methodology developed in the State of Nevada, USA, using quantity estimates and cost data obtained at each mine site. Our estimate with respect to Alamo Dorado reflects the final stage of implementing the closure plan at that property. We currently estimate the aggregate present value of expenditures required for future closure and decommissioning costs in respect of the Huaron, Morococha, Alamo Dorado, La Colorada, Dolores, Manantial Espejo, and San Vicente mines, along with our pre-existing development properties, to be approximately $70.6 million.

Other than specific environmental and social concerns discussed in more detail elsewhere in this AIF, we are not aware of any material environment or social related matter requiring significant capital or operating outlays in the immediate future. Closure and reclamation costs and actual costs may vary, perhaps materially, from estimates and investors are cautioned against attributing undue certainty to these estimates. The reclamation and closure costs estimate for each of the operating mines and development projects was updated to reflect the conditions as of December 31, 2018.

Health and Safety

We have implemented a health and safety policy in which we accept corporate responsibility to provide a safe and healthy workplace for our employees and contractors, and commit to comply with all relevant industry standards, legislation, and regulations in the countries where we carry on business. The policy is reviewed annually to ensure that we remain current, if not ahead, of industry standards and best practices.

Periodically, both formal and informal corporate health and safety audits are conducted at our operating mines and active development properties. In 2018, three of our operating mines were subject to internal safety audits conducted by a team of safety managers and operations supervisors from some of our other operations and led by Pan American's Director of Health and Safety. Management reports health and safety findings and mitigation progress to our Board of Directors on a regular basis.

During 2018, we continued to focus on introducing new safety programs and training at our operating mines, as well as maintaining excellent safety records at our development projects. The total hours worked at operating mines and active development and exploration projects was 17.7 million, lower than the 18.3 million hours worked during 2017 due primarily to fewer hours worked on the Dolores expansion projects and Alamo Dorado, but partially offset by more hours worked at La Colorada as mine production increased there. The number of lost time injuries ("LTIs") increased to 25, which resulted in a lost time injury frequency ("LTIF") of 1.41 during 2018, compared to 1.26 during 2017 and 0.74 during 2016. LTIF is calculated as follows:

$$LTIF = \frac{(\#\ of\ accidents) * (1{,}000{,}000)}{Total\ hours\ worked}$$

During 2018, the Company continued efforts on mine safety and continued with the implementation of a fatal accident reduction initiative to bolster existing programs and to create even greater awareness amongst our personnel in order to significantly reduce the occurrences of unpredictable events that are often at the root of serious incidents. Unfortunately, despite these efforts, there was a fatality at our Dolores mine during the year.

In 2005, we introduced the "Chairman's Safety Award" which is presented to our mine with the best overall safety performance. In 2018, our Huaron mine was the recipient of the Chairman's Safety Award.

Operating and Development Properties

Pursuant to National Instrument 51-102 – *Continuous Disclosure Obligations*, ("NI 51-102"), we have identified the following properties and projects as being material as at December 31, 2018: the La Colorada mine, the Dolores mine, the Huaron mine, the Morococha mine, the San Vicente mine, and the Manantial Espejo mine. We have also identified the Navidad property and Joaquin property as material properties for 2018. Since the Tahoe assets were acquired in late February 2019, they have not been considered or presented herein. We do not consider any of our other development or investment properties to be material properties for the purposes of NI 51-102.

Certain statements in the following property summaries are based on and, in some cases, extracted directly from the relevant Technical Reports identified under the heading "Scientific and Technical Information" beginning on page 6.

Mineral Reserve and Mineral Resource Estimate Information

The process for estimating mineral reserves and mineral resources at our properties is described below in each property section. Although we believe that our mineral reserve and mineral resource estimates will not be materially impacted by external factors such as metallurgical, safety, environmental, permitting, legal, taxation, and other factors disclosed in this AIF, there can be no assurance that these factors will not have an impact. There are numerous uncertainties inherent in estimating mineral reserves and mineral resources. The accuracy of any mineral reserve and mineral resource estimate is the function of the quality and quantity of available data and of engineering and geological interpretation and judgment. Results from drilling, testing, and production, as well as a material change in metal prices or a change in the planned mining method, subsequent to the date of the estimate, may justify revision of such estimates and may differ, perhaps materially, and investors are cautioned against attributing undue certainty to mineral reserves and mineral resources.

I. Operating Properties

A. Mexico

(i) La Colorada Mine

Project Description, Location, and Access

The La Colorada underground silver mine is located in the Chalchihuites district in Zacatecas State, Mexico, approximately 99 kilometres south of the city of Durango and 156 kilometres northwest of the city of Zacatecas. The La Colorada mine is accessed primarily from the cities of Durango and Zacatecas by paved highway and all weather gravel roads.

Our wholly-owned subsidiary, Plata Panamericana, owns and operates the mine. The La Colorada property, including certain exploration concessions outside the mining area, is comprised of 56 mining claims totalling approximately 8,800 hectares. We pay an annual fee to maintain the claims in good standing, and to our knowledge, we have met all of the necessary obligations to retain the property.

We have control over or rights in respect of approximately 1,300 hectares of surface rights covering the main workings. All of the La Colorada mineral reserves and mineral resources and all of the known mineralized zones, mine workings, the processing plant, effluent management and treatment systems, and tailings disposal areas are located within the mining claims controlled by us.

In 2016, as part of the Maverix Transaction, Maverix acquired a gold stream equivalent of one hundred percent (100%) of the payable gold production from the La Colorada mine, less a fixed price of USD$650 per ounce for the life of the mine (the “Maverix Gold Stream”). In 2018, the Maverix Gold Stream resulted in Maverix acquiring 3,968 ounces of gold (2017 – 2,347).

To the best of our knowledge, La Colorada is not subject to any other royalties, overrides, back-in rights, payments, or other agreements and encumbrances, other than governmental taxes, fees and duties. Our Mexican operations are subject to governmental taxes, fees and duties, including: (i) a special mining duty (“SMD”) of 7.5% applied to taxable earnings before interest, inflation, taxes, depreciation, and amortization; and (ii) a deductible extraordinary mining duty (“EMD”) of 0.5% that is applied to the sale of gold, silver, and platinum.

In late December 2016, the Zacatecas state government also enacted a new set of ecological taxes which took effect on January 1, 2017 (the “Zacatecas Tax”). The Zacatecas Tax applies broadly across a number of industries in the State of Zacatecas that involve extraction, emissions to the air, soil or water, and deposits of residue or waste. The Zacatecas Tax primarily affects the La Colorada mine in respect of the materials placed in its tailings storage facility. We paid approximately $1.2 million in respect of the Zacatecas Tax in 2018, however the validity of the Zacatecas Tax has been challenged on constitutional grounds.

While there are no known significant factors or risks that we currently anticipate will affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

In 1925, the Dorado family operated mines at two locations on the La Colorada property. From 1929 to 1955, Candelaria y Canoas S.A., a subsidiary of Fresnillo S.A., installed a 100 tonne per day (“tpd”) flotation plant and worked the old dumps of two previous mines on the La Colorada property. From 1933 to the end of World War II, La Compañía de Industrias Peñoles also conducted mining operations on the property. From 1949 to 1993, Compañía de Minas Victoria Eugenia S.A. de C.V. operated a number of mines on the La Colorada property. In 1994, Minas La Colorada S.A. de C.V. (“MLC”) acquired the exploration and exploitation claims and surface rights of Compañía de Minas Victoria Eugenia S.A. de C.V. Until 1997, MLC conducted mining operations on three of the old mines on the La Colorada property at a rate of approximately 150 tpd.

Historically, exploration has been in the form of development drifting on the veins. Prior to our ownership, 131 diamond drill holes had been drilled. In 1997, we entered into an option agreement with MLC, during which time we conducted exploration and diamond drilling programs as part of our due diligence reviews. We acquired the La Colorada mine from MLC in April 1998 and have focussed our production on the Candelaria, Estrella, and Recompensa mines. No activity takes place at the Campaña mine.

Geological Setting, Mineralization, and Deposit Types

The La Colorada property is located on the eastern flanks of the Sierra Madre Occidental mountain range at the contact between the Lower Volcanic Complex and the Upper Volcanic Supergroup. The oldest rocks exposed in the mine area are carbonates and calcareous clastic rocks overlain by a conglomerate unit. Most of the outcrop in the mine area is altered dacite of the regional Lower Volcanic Complex. The stratigraphically highest rocks in the mine area are felsic tuffs correlated with the Upper Volcanic sequence.

Thirteen breccia pipes up to 100 metres in diameter have been identified on the property, which can extend vertically more than 400 metres below the surface. The breccias contain clasts of limestone and trachyte, often mineralized, in an altered trachyte matrix. Clasts of vein material have been found in the breccias, suggesting that the pipes postdate the vein emplacement.

East to northeast striking faults dipping mostly moderately to steeply to the south form the dominant structures in the property area and controlled the deposition of mineralization by acting as conduits for mineralizing hydrothermal fluids.

La Colorada is a typical epithermal silver-gold deposit, with a transition in the lower reaches of the deposit to a more base metal predominant system. There are three separate active mining areas on the property, including the Candelaria, Estrella, and Recompensa areas. The main structure at Candelaria strikes generally east west. The west part of the vein is referred to as HW and the east part is referred to as NC2, and there are a number of off-splits from these veins. The Estrella area includes the Amolillo vein, which is a split from the HW vein, and the Palomas vein, which is a split from Amolillo. The Recompensa zone produces or has produced from three areas: the Recompensa vein; Erika, which is a split from the Recompensa vein; and the Yuri replacement body, which lies between Erika and Recompensa.

Four dominant styles of mineralization are present at La Colorada, including breccia pipes, vein-hosted mineralization, replacement mantos within limestone, and deeper seated transitional mineralization. On October 23, 2018, we announced a discovery of wide zones of skarn type mineralization below the current production levels, as well as limestone replacement mantos.

Mineralization in the breccia pipes generally has lower silver values and elevated base metal values. Mineralization is associated with intense silicification and occurs as disseminated galena and sphalerite with minor chalcopyrite and bornite. Sulphides are found in the clasts and the matrix.

Most mineralized veins on the property strike east to northeast and dip moderately to steeply to the south and are generally less than two metres in width. The HW Corridor at the Candelaria mine strikes east-west and dips moderately to the south, with true widths of approximately up to 15 metres, but most of the economic mineralization is located in quartz veins, which are on average one to two metres wide. Where the veins are unoxidized, galena, sphalerite, pyrite, native silver, and silver sulphosalts are present. The major mineralized veins are strongly brecciated and locally oxidised.

Manto style mineralization is found near vein contacts where the primary host rock is limestone. This style of mineralization was previously mined at Recompensa and is also present in areas of the Candelaria zone. The mantos can form bodies up to six metres wide. The mineralogy of the mantos is characterized by galena and sphalerite with minor pyrite and chalcopyrite.

The deep seated transition mineralization, also known as NC2 Deep at the Candelaria mine, consists of both vein type mineralization and more diffuse stockwork and breccia zones.

Deep drilling has defined a restricted manto replacement body with lower silver-gold grades and higher lead and zinc grades at the 1,000 metre level and remains open to depth. It is adjacent to the known vein system which continues at that depth.

In 2018, we discovered a deep skarn-style mineralisation below the NC6 and NC2 veins. With nearly 13,000 metres drilled into the manto and skarn zone during the year, the skarn footprint has now been defined over a 400 metre by 400 metre area and remains open in all directions. The new exploration discovery of skarn mineralization comprises coarse sphalerite, galena, and chalcopyrite within a classic skarn mineral assemblage, which has similar characteristics to mineralization at other large Mexican skarn deposits, such as the nearby San Martin and Sabinas mines.

The current mineral resource and mineral reserve is comprised of vein and manto hosted mineralization. The economically most important veins are the NC2 and NCPHW veins at the Candelaria mine, and the Amolillo vein at the Estrella mine. The majority of the silver mineralization is found in quartz veins that range from 2.0 to 2.9 metres wide.

The NC2 vein is a narrow, one to seven metre wide, mainly sulphide and partly oxide, vein with a strike length of over 900 metres. It is open to the east where it is cut by a trachyte dyke, and has been confirmed by drilling and drifting to continue in both width and grade on the other side of the dike. We drilled a hole that intersected the vein 300 metres below the current mineral reserves and believe the down-dip exploration potential is significant. There are a number of other splits from this vein numbered NC1 to NC11 that, including NC2, contain a significant proportion of the mineral resource and mineral reserve ounces of silver.

The HW vein, also at the Candelaria mine, is a one to two metre thick vein with a strike length of over 1.1 kilometres. The HW Corridor consists of four structures. The majority of the silver mineralization is found in quartz veins which average two metres wide but can widen up to six to seven metres at the intersections with the HW vein.

At the Estrella mine, the Amolillo oxide/sulphide vein is located 500 metres north of the NC2 and HW vein complex and approximately along strike to the east of the Recompensa vein. The vein has an average width of 1.8 metres and a strike length of approximately 1,300 metres. Our drilling results indicate that the Amolillo vein could be key to a possible mine expansion. Diamond drilling has intersected the vein 300 metres below the deepest mining level, and expanded the lateral extension to the east and west by 900 metres for a total of 1,300 metres of current strike length.

The Recompensa mine contributes the fewest silver ounces to the mineral resources and mineral reserves. The main zones being exploited are the Recompensa and Erika veins and the Yuri manto replacement body located between the two veins. The Recompensa and Yuri are located more than a kilometre northwest of the NC2 and HW vein complex. The vein mineralization averages about 1.6 metres wide in the economically mineable zones, and contains a minor amount of oxide but mostly sulphide material. Erika is a hanging wall split from the Recompensa vein and is relatively narrow at an average width of 0.7 metres in the economically mined zone. It contains only sulphide material.

Exploration

Mining had taken place at La Colorada for several decades prior to any modern exploration work, which identified most of the major structures. For this reason there has been little surface sampling, geophysics, or other surveys. For the past several years we have typically drilled on the order of 25,000 - 30,000 metres each year from surface and underground.

Drilling

The mine undertakes drilling on an annual basis for mineral resource and reserve definition. The drilling database contains approximately 1,600 drillholes. All drilling at La Colorada is diamond core drilling and is performed from both surface and underground by either mine employees using a Company owned drill or by specialized drilling contractors under the supervision of the mine geology department. In the past, underground holes were drilled BQ size until 2000 when the drillhole diameter in the HW corridor was increased to HQ size to improve core recovery. From 2008 to present the surface hole size has been increased to HQ and underground holes are drilled either at HQ, NQ or BQ sizes depending on the location and/or depth of the holes.

Sampling, Analysis, and Data Verification

Channel sampling is performed in ore development areas and stopes by sampling crews under the supervision of the mine geologist. Both channel and drill core sample intervals are approximately a metre in width. There are no known drilling, sampling, or recovery issues that could materially impact the reliability of the sample results. Underground channel samples are brought directly to the on-site laboratory at the end of each shift. Underground drill cores are brought to the core shed, which is fenced and locked when there are no geology department employees present. After the drillhole has been logged and sampled, the samples are transported to the on-site laboratory. We have no reason to believe that the integrity of the samples has been compromised.

We have used four commercial labs in the past for exploration assaying at La Colorada, including Bondar Clegg (Vancouver, B.C.), ALS Chemex (Vancouver, B.C.), Luismin (Durango, Mexico) and ALS Chemex de México (Guadalajara, México). All gold and silver assays by the commercial labs have been done using fire assay with either an atomic absorption (“AA”) or gravimetric finish. Base metals were assayed using acid digestion and AA determination. All samples except for the new skarn mineralization drillholes are now prepared at the La Colorada mine laboratory, which is ISO9001:2008 certified and operated by our employees. Samples are analyzed for gold and silver using fire assay with gravimetric finish, and for lead, zinc, and copper by acid digestion followed by AA. Samples from the first 16 drillholes in the new skarn mineralization were analyzed by the La Colorada mine laboratory. The majority of the subsequent drillholes were prepared and analyzed by Activation Laboratories Ltd (“Actlabs”) of Zacatecas, Mexico, using fire assay with gravimetric finish for gold and silver, and by acid digestion with atomic absorption finish for lead, zinc, and copper.

The mine geology department conducts a quality assurance/quality control (“QAQC”) program that is independent from the laboratory. The program includes the insertion of certified standards, blanks and duplicate samples. The results of the QAQC samples demonstrate acceptable accuracy and precision and that no significant contamination is occurring at the mine or external laboratories.

Mineral Processing and Metallurgical Testing

As part of normal plant operation procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess mill performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the historical performance of the plant operations and the tonnes and grade of material that is planned to be mined.

Mineral Resource and Mineral Reserve Estimates

Management estimates that mineral reserves at La Colorada, as at December 31, 2018, are as follows:

La Colorada Mineral Reserves [1, 2, 3]					
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**	**% Zinc**	**% Lead**
Proven	4.3	387	0.31	2.92	1.66
Probable	4.3	346	0.27	2.13	1.21
TOTAL	8.6	366	0.29	2.52	1.44

Notes:

1 Estimated using a price of $18.50 per ounce of silver, $1,300 per ounce of gold, $2,400 per tonne of zinc and $2,100 per tonne of lead. Totals may not add due to rounding.

2 Mineral reserve estimates for La Colorada have been prepared under the supervision or were reviewed by Christopher Emerson, FAusIMM, and Martin Wafforn, P. Eng., as Qualified Persons as that term is defined in NI 43-101.

3 Lead and zinc grades shown are the average for the deposit. However, the base metals are only payable in the concentrates produced from the sulphide ores and not in the doré produced from the oxide ores.

Management estimates that mineral resources at La Colorada, as at December 31, 2018, are as follows:

La Colorada Mineral Resources [1, 2, 3]					
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**	**% Zinc**	**% Lead**
Measured	0.6	193	0.22	1.00	0.60
Indicated	2.0	156	0.15	1.11	0.54
Inferred	6.2	185	0.20	4.09	2.08

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using a price of $18.50 per ounce of silver, $1,300 per ounce of gold, $2,400 per tonne of zinc and $2,100 per tonne of lead.

2 Mineral resource estimates for La Colorada have been prepared under the supervision, or were reviewed by Christopher Emerson, FAusIMM, and Martin Wafforn, P. Eng., as Qualified Persons, as that term is defined in NI 43-101.

3 Lead and zinc grades shown are the average for the deposit. However, the base metals are only payable in the concentrates produced from the sulphide ores and not in the doré produced from the oxide ores.

Mineral resources are estimated using an averaging method based on the data collected from both diamond drilling and underground channel samples. A long section is produced of each structure and then divided into mineable blocks. The volume of the block is estimated from the average width of the vein or mineralization intersection of each drillhole or channel located within a 30 metre radius of the mining block. The grade of each block is estimated by the length weighted average of the grade of the vein or mineralization of each intersection within a 30 metre radius of the block. The samples are assessed and treated for extreme sample grades prior to averaging. Average bulk density values from samples selected from spatially and geologically representative locations are applied to each mining block volume to estimate the tonnes of each block. The mineral resource estimates are updated annually with new information and updated geological interpretations and depleted annually for mining in the previous year.

Planned dilution is applied to each intersection to achieve a minimum mining width and to account for backfill, some of which is mucked each lift during the cut and fill stoping. Additional unplanned dilution is also applied in order to correlate with the reconciliation between the mineral reserve and the plant results. Mining recovery is estimated depending on vein width and based on experience and observation at each mining area. A value per tonne is calculated in each block considering the value paid for each metal, the expected metallurgical recovery of each metal to concentrate or to doré, and costs including insurance, penalties, refining, and transport.

Mineral resource confidence classifications are based on the proximity and density of sample information in each block, as well as the interpretation and the experience of the mine geologist. Mineral resources are then converted to mineral reserves depending on the resource classification and whether they can be economically mined.

Mineral reserve estimates are based on a number of assumptions that include metallurgical, taxation, and economic parameters. Increasing costs or increasing taxation could have a negative impact on the estimation of mineral reserves. There are currently no known factors that may have a material negative impact on the estimate of mineral reserves or mineral resources at La Colorada.

Mining Operations

The mining method used at all three mines is cut and fill stoping. Ground support is provided by rock bolts, with screen and shotcrete as required, as well as by backfilling the voids created by mining with development rock or mill tailings as the ore extraction advances. Either hand-held drills or electric hydraulic jumbo drills are used for development mining to access the ore, depending on the size of the excavation required.

Ore extracted from the Candelaria and Estrella mines is hoisted through the Beaty Cimarron Shaft, which has a capacity in excess of 2,300 tpd from the current hoisting horizon, and hauled to the mill crusher stockpile. When required, Candelaria and Estrella ore can be hauled up to the surface using one of the mine access ramps. Ore extracted from the Recompensa mine is hauled by truck up a ramp and to the mill crusher stockpile.

Processing and Recovery Operations

The operation produces both oxide and sulphide ore, which is processed through separate circuits. The total nominal plant capacity is 1,800 tonnes per day with the current life of mine plan projecting the processing of 1,400 tonnes per day of sulphide ore and 400 tonnes per day of oxide ore.

The oxide plant comprises a conventional cyanide leach plant consisting of crushing, grinding, leaching, Merrill Crowe zinc precipitation, and on-site refining to produce precious metal doré. The sulphide plant is a conventional flotation plant comprised of crushing, grinding and selective lead and zinc froth flotation circuits to recover precious and base metals into separate lead and zinc concentrates. Tailings from both plants are delivered as slurry to separate lined tailings storage facilities. Tailings from the sulphide plant are directed, as required, to a hydraulic backfill plant for re-use underground as backfill in the stopes.

During 2018, we processed 183,000 tonnes in the oxide plant and 543,000 tonnes in the sulphide plant, producing 7.6 million ounces of silver, 4,400 ounces of gold, 17,800 tonnes of zinc, and 8,800 tonnes of lead. In 2018, silver recovery averaged approximately 84% from the oxide processing circuit and 93% from the sulphide processing circuit.

All precious metal doré produced at La Colorada is sent to one of two arm's length precious metals refineries for refining under fixed-term contracts. After refining, the silver is sold on the spot market to various bullion traders and banks, and the gold is sold to Maverix pursuant to the Maverix Gold Stream. All lead and zinc concentrates produced at La Colorada are sold to arm's length smelters and concentrate traders under negotiated fixed-term contracts, which consider the presence of any deleterious elements. To date, we have not experienced difficulty with renewing existing or securing new contracts for the sale of the La Colorada doré or concentrates, however, there can be no certainty that we will always be able to do so or what terms will be available in the future. We regularly review the terms of smelting and refining agreements and the terms are considered to be within industry norms. Please see "Risks Related to our Business – Trading Activities and Credit Risk".

The revenues per type of concentrate and doré produced by the La Colorada mine for the past three years were as follows:

2018	Revenue[1, 2]	Quantity Sold
Silver and Gold in Doré	$21.0 million	1,440,000 ounces of silver
		757 ounces of gold
Lead Concentrate[3]	$100.1 million	18,611 tonnes
Zinc Concentrate[3]	$42.9 million	30,799 tonnes
2017		
Silver and Gold in Doré	$21.7 million	1,365,000 ounces of silver
		632 ounces of gold
Lead Concentrate[3]	$112.1 million	20,688 tonnes
Zinc Concentrate[3]	$37.9 million	26,749 tonnes
2016		
Silver and Gold in Doré	$21.0 million	1,310,000 ounces of silver
		540 ounces of gold
Lead Concentrate[3]	$78.0 million	13,940 tonnes
Zinc Concentrate[3]	$19.3 million	19,270 tonnes

Notes:

1 Consists of sales to arm's length customers.

2 Calculated as gross revenue plus export credit incentives (as applicable), less treatment and refining charges and export taxes.

3 Lead concentrates contain payable silver and gold. Zinc concentrates contain payable silver.

Infrastructure, Permitting, and Compliance Activities

The mine workings, processing plant, tailings storage facilities, waste disposal areas, effluent management and treatment facilities, roads, and power and water lines have already been constructed and are located within the boundaries of the mining leases and surface rights controlled by us. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing.

The mine purchases electrical power from the Mexican national power utility and back up diesel power is also available. Water for the mining operation is supplied from the underground mine dewatering systems and is adequate for the existing and planned future requirements of the mine.

An environmental impact statement ("EIS") and risk assessment on the La Colorada property was submitted to the Mexican environmental authorities in early March 1999. The EIS described the impact of proposed development and mining activities and provided conceptual plans for closure and remediation. The EIS was approved by the Mexican authorities in November 1999 and renewed in late 2010. In 2013, the Mexican authorities approved a modification to the existing environmental permits that allowed the expansion of the mine and process plant up to 2,000 tpd. A modification application to the plant expansion permit was approved in early 2015.

La Colorada has voluntarily participated in the Mexican Environmental Protection Authority's ("PROFEPA") "Clean Industry" Program, which involves independent verification of compliance with all environmental permits and the implementation of good practice environmental management procedures and practices. The mine obtained its first certification in 2008 and has been re-certified periodically, with the most recent certificate awarded in 2014. As of December 31, 2018, the mine continued in the re-certification process due to administrative delays.

The main environmental projects at La Colorada focus on the stability and revegetation of historic tailings facilities and an upgrade to the existing mine water treatment infrastructure completed in 2016.

A closure cost estimate for La Colorada was prepared according to State of Nevada approved SRCE methodology in 2011 and is updated every year. Pan American has estimated the present value of the final site reclamation costs for the La Colorada property to be approximately $6.6 million as at December 31, 2018. See “Narrative Description of the Business – Environmental Protection” for further disclosure regarding forward-looking statements related to reclamation costs.

Safety audits are conducted by Pan American’s Director of Health and Safety and safety managers from some of our other mines.

La Colorada was the recipient of the prestigious “Casco de Plata” award for 2007, 2009, 2013, 2014, and 2015 for the best safety record for underground mines in Mexico with in excess of 500 employees, and took second place in the same category in 2013. In 2009 and in 2014, La Colorada was awarded our Chairman’s Safety Award. During 2018, personnel employed at the mine attended over 86,000 hours of training.

Capital and Operating Costs

In 2018, total capital additions at La Colorada were approximately $24.0 million, with $7.1 million invested in expenditures related to the expansion activities, including exploration on the newly discovered skarn mineralization.

Capital investments in 2019 will total between $14 million to $14.5 million. In addition to sustaining capital investments of between $6.5 million and $7.0 million relating to underground equipment refurbishments, underground ventilation infrastructure expansions and near mine exploration, we also expect to have approximately $7.5 million in project capital spending for continued exploration drilling on the newly discovered skarn deposit.

In 2018, direct operating costs at La Colorada were $70.2 million.

Exploration, Development, and Production

In 2019, we anticipate producing between 8.0 million and 8.2 million ounces of silver, between 4,100 and 4,800 ounces of gold, between 18,700 and 19,500 tonnes of zinc, and between 9,500 and 9,800 tonnes of lead. We plan to undertake approximately 60,000 metres of exploration drilling in 2019.

(ii) Dolores Mine

Project Description, Location, and Access

The Dolores open pit and underground silver-gold mine is located in the Sierra Madre Occidental mountain range in the state of Chihuahua, in the municipality of Madera, approximately 250 kilometres west of the city of Chihuahua. The main road access to the property is by maintained dirt access road from Yepachic, Chihuahua. Access is also possible by light aircraft landing on a dirt strip located about eight kilometres from the mine.

In 2012, Pan American acquired all of the issued and outstanding shares of Minefinders and assumed control of the Dolores mine which was held by CMD, a Mexican subsidiary of Minefinders. There are three mineral concessions comprising the mine and the area of the concessions is 27,700 hectares. We make the required payments to maintain the concessions in good standing, and to our knowledge, we have met all of the necessary obligations to retain the property. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing.

Much of the surface rights on the property are comprised in communal land registered with the National Agrarian Registry of Mexico (such communal land areas are referred to as “ejidos”). We have surface rights agreements with the local ejido community, Ejido Huizopa, and with several individual members of the Ejido allowing us irrevocable access and the right to carry out exploration and mining activities for a term of 15 years with a right to extend for a further 15 years. These surface rights provide us with access to our mining operations, waste storage areas, heap leach pad areas, and other facilities.

All of the known mineralized zones, mineral resources and mineral reserves, mine workings, processing plant, effluent management and treatment systems, and heap leach pad areas relating to Dolores are located within the boundaries of the concessions and surface rights.

An NSR royalty of 2% payable on all metal production, plus an additional NSR royalty of 1.25% on gold production, is payable to RG Mexico Inc., a subsidiary of Royal Gold Inc. These royalties are only on the portion of the deposit contained within one of the three concessions. To the best of our knowledge, the Dolores mine is not subject to any other royalties, overrides, back-in rights, payments or other agreements and encumbrances. Our Mexican operations are subject to governmental taxes, fees and duties, including the SMD and the EMD, as described in more detail under “La Colorada – Project Description, Location and Access”.

While there are no known significant factors or risks that we currently anticipate will affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

Placer mining began in the region of the Dolores mine in the 1860s and was followed by lode mining in 1898. A 25 tpd stamp mill began treating the Dolores ore from 1915 until early 1929, when it was destroyed by fire. Only sporadic production occurred from 1929 to 1931, after which there are no records of any historical production. Incomplete mining records from between 1922 and 1931 indicate that approximately 372,000 tonnes of ore containing over 116,000 ounces of gold and six million ounces of silver were produced from several underground mine operations, including Dolores.

The property lay idle until 1993 when Minefinders began acquiring a land position in the district. Minefinders began a full exploration program in 1995 and commenced diamond drilling and reverse circulation drilling programmes in 1996. In July 1996, Minefinders granted Echo Bay Mines (“Echo Bay”) an option in the property and Echo Bay commenced drilling, sampling, environmental data collection, and metallurgical testing. Minefinders bought back the option, including the technical information collected by Echo Bay, in 1997.

Following construction, Minefinders commenced mining in 2008. During the 2008 to 2011 period, Minefinders mined 25.5 million tonnes and stacked 18.3 million tonnes of ore on the leach pads, producing 210,660 ounces of gold and 6.2 million ounces of silver.

We acquired the Dolores mine at the end of March 2012 and began to operate the mine in April 2012.

Geological Setting, Mineralization, and Deposit Types

Dolores is located in the Sierra Madre Occidental volcanic belt, a metallogenic terrane well known for its epithermal precious metal deposits. The lower part of the arc comprises calc-alkaline batholiths and equivalent volcano sedimentary rocks referred to as the 'Lower Volcanic Series'. This magmatic activity was followed by two periods of major ignimbrite eruptions, collectively referred to as the 'Upper Volcanic Series'.

The most important faults, from west to east, are the Chupacabras, San Francisco, and East faults. The San Francisco fault and its footwall host most of the mineralization at Dolores. The immediate footwall and hanging wall of the San Francisco fault form a 500 metre wide northwest-striking corridor of igneous intrusions broadly following the fault.

Silver and gold mineralization at Dolores is hosted in north-northwest trending hydrothermal breccias and sheeted vein zones in the order of 5 metres to 10 metres wide. Most high grade mineralization occurs along three major structures that provided the conduit for metal-bearing hydrothermal fluids. Silver and gold mineralization identified on the surface at Dolores lies over an area 4,000 metres long and up to 1,000 metres wide. The extent of mineralization at depth and along strike has not yet been fully defined.

The highest grade mineralization occurs within the San Francisco Breccia, a well-defined and continuous hydrothermal breccia and stockwork zone that occurs in the immediate footwall of the post-mineral San Francisco

Fault. The breccia trends further away from the fault towards the north until it joins a second major breccia zone known as the Alma Maria Breccia.

Hydrothermal breccias carry the highest silver and gold grades and pass outward into vein stock works. The veins are thin, rarely over 30 mm, and tend to occur as sheeted swarms. Economically mineable grades occur where the veins are sufficiently closely spaced.

Exploration

Minefinders carried out reconnaissance geological mapping, detailed mapping, and geophysical surveys including induced polarization surveys, resistivity surveys, and magnetic surveys. Minefinders also collected rock chip samples from the surface and underground, and followed up on promising targets with both reverse circulation and diamond drilling. Since we acquired the Dolores property, we have continued with a program of near mine geological mapping and diamond drilling.

Drilling

The mine undertakes surface and underground drilling on an annual basis for mineral resource and reserve definition. Since we acquired the property in 2012, diamond drilling has been performed using PQ, HQ, and NQ sized diamond drill rigs by Rock Drill of Aguascalientes, Mexico, and other contractors. Approximately 1,600 drillholes have been completed at the property, mostly focussed on a pattern over the mineral resources and mineral reserves, and roughly spaced 25 metres along strike. The majority of the drillholes were drilled from surface. In 2018, we completed 7,400 metres of underground drilling.

Sampling, Analysis, and Data Verification

Reverse circulation drillholes were drilled either wet or dry, depending on ground conditions, and a sample was selected from the length of each drill rod. Diamond drillhole samples are selected according to geological features by the mine geologist after logging. Most drill core samples have been taken at 2 metre intervals. There are no known drilling, sampling, or recovery issues that could materially impact the reliability of the results.

All samples are transported to the core logging shed by mine employees and the shed is locked when no geological staff is present. Samples are collected from the mine by the commercial laboratory where they are maintained under the control of the laboratory. We have no reason to believe that the integrity of the samples has been compromised.

Minefinders sent samples to Bondar Clegg, ALS Chemex, or Inspectorate laboratories for preparation and analysis. Silver assays were mostly prepared using a multi-acid digestion technique and AA spectrometry. Any sample with an assay greater than 100 or 200 grams per tonne silver was re-assayed using fire assay with gravimetric finish. Gold was analyzed using fire assay with AA finish and with gravimetric finish if the assay was greater than one or two grams per tonne, depending on which laboratory was used. Since acquiring the project, we have sent samples to SGS Laboratories in Durango, Mexico. Samples are assayed for gold using fire assay with AA finish, and by fire assay with gravimetric finish for samples greater than 10 grams per tonne of gold. Silver is analysed by three acid digestion with ICP-AES finish for trace silver values, by three acid digest with AA finish for samples less than 300 grams per tonne silver, and by fire assay with gravimetric finish for samples containing greater than 300 grams per tonne silver.

Since acquiring the Dolores mine, we have implemented an industry standard QAQC program including the submission of certified standards, blanks, and duplicate samples to the laboratory and review the results regularly to ensure the appropriate action is taken in the event of a QAQC failure.

Mineral Processing and Metallurgical Testing

As part of normal plant operation procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess mill performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the recovery model, historical performance of the plant operations and the tonnes, grade and type of material that is planned to be mined.

Mineral Resource and Mineral Reserve Estimates

Management estimates that mineral reserves for the Dolores mine, as at December 31, 2018, are as follows:

Dolores Mineral Reserves [1, 2]			
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Proven	35.8	27	0.86
Probable	8.7	27	0.79
TOTAL	44.5	27	0.85

Notes:

1 Estimated using a price of $18.50 per ounce of silver and $1,300 per ounce of gold. Totals may not add due to rounding.

2 Mineral reserve estimates for Dolores were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Management estimates that mineral resources at Dolores, as at December 31, 2018, are as follows:

Dolores Mineral Resources [1, 2]			
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Measured	4.5	20	0.25
Indicated	1.6	27	0.53
Inferred	4.3	45	1.15

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using metal prices of $24.00 per ounce of silver and $1,400 per ounce of gold.

2 Mineral resource estimates for Dolores were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Mineral resource estimates were prepared using kriging methods within three dimensional geological interpretations using industry standard mining software. The block model was classified for measured, indicated, and inferred confidence categories depending on the location of the block relative to the number of drillhole intersections available to estimate each block, as well as other factors affecting confidence in the estimate.

The mineral resource estimate was then depleted for previous surface and underground mining. Planned dilution was applied to the block model and a value per tonne was estimated and applied to each block based on estimated gold and silver grades, estimated metallurgical recoveries, resource and reserve metal prices as given in the tables above, and mining and processing costs. A reserve pit design and underground stope shapes were prepared using reserve metal prices on measured and indicated blocks above the economic cut-off. Resources and reserves are reported separately within the reserve pit design and stope shapes.

Mineral reserve estimates are based on a number of assumptions that include metallurgical, taxation and economic parameters. Increasing costs, lower metal prices or increasing taxation could have a negative impact on the estimated mineral reserves. There are currently no known factors that may have a material negative impact on the estimated mineral reserves or mineral resources at Dolores.

Mining Operations

Mining at Dolores is by standard open pit methods using shovels, loaders, and haul trucks. Each bench is 7.5 metres high. Reverse circulation drill holes are used for grade control to provide high-quality data for interpreting the ore/waste contacts in advance of mining.

A new underground mine is in development to exploit the ore to the south and below the current open pit mining limit to supplement production of high grade feed to the pulp agglomeration plant. The underground mining method is fully mechanized sub level open stoping with waste rock placed as backfill, with some cemented rockfill as required in the wider sections.

The mine schedule indicates a mine life that extends until 2025. The projected mine life of the mining operations may increase if additional mineral resources are defined and can be converted to mineral reserves.

Processing and Recovery Operations

The mine uses conventional cyanide heap leaching technology to produce gold and silver doré. Broken ore is trucked from the open pit to the crushing plant, where it is crushed, conveyed to the leach pads, and placed on the pads using conveyors and a radial stacking system. A distribution piping and nozzle system is used to irrigate the heaps with cyanide solution. The leaching period can cover years, and continues as subsequent lifts are placed on the pads. The pregnant solution is collected in a pond, clarified, and processed through a Merrill-Crowe circuit to precipitate gold and silver from solution onto zinc dust. The solution is pumped to filter presses, where the resulting material containing gold, silver and zinc is dried in a retort oven. The dried material is then melted in a furnace to form doré bars.

The high grade portion of the mined material is processed through the pulp agglomeration treatment plant and is conveyed with the crushed lower grade portion of the mined material to the heap leach pads for leaching. The pulp agglomeration plant is comprised of crushing, grinding, particle size classification, filtration, agglomeration, and reagent facilities.

During 2018, we stacked 6.9 million tonnes on the leach pads and produced approximately 4.1 million ounces of silver and 136,600 ounces of gold.

All production from Dolores is in the form of doré bars, which is refined at arm's length refineries prior to the sale of refined silver and gold to bullion banks and traders. Pan American currently has refining contracts in place with refineries in the USA and Mexico. We have not had any difficulty in securing contracts for the sale of Dolores doré, however, there can be no certainty that we will always be able to do so or what terms will be available at the time. Please see "Risks Related to Our Business – Trading Activities and Credit Risk".

Pan American's revenue from the doré produced by the Dolores mine was as follows:

2018	**Revenue[1,2]**	**Quantity Sold**
Silver and Gold in Doré	$236.8 million	4,205,000 ounces of silver 134,061 ounces of gold
2017		
Silver and Gold in Doré	$197.7 million	4,088,900 ounces of silver 102,045 ounces of gold
2016		
Silver and Gold in Doré	$189.3 million	3,839,000 ounces of silver 98,590 ounces of gold

Notes:

1 Consists of sales to arm's length customers.

2 Calculated as gross revenue plus export credit incentives (as applicable), less treatment and refining charges and export taxes.

Infrastructure, Permitting, and Compliance Activities

The mine workings, processing facilities, leach pads, waste disposal areas, effluent management and treatment facilities, roads, and power and water lines have already been constructed and are located within the boundaries of the mining leases and surface rights controlled by us. Water for the operations is sourced from wells, pit and underground ramp dewatering, the nearby Rio Tutuaca, and from the Chabacan dam.

Pan American holds all necessary environmental and operating permits for the development and operation of the existing mine and is in compliance with Mexican law in all material respects. The Mexican Secretariat of Environment and Natural Resources ("SEMARNAT") approved permit applications for the construction and operation of Dolores, including an Environmental Impact Study or Manifestation ("MIA"), a Technical Justification Study for Change of Land-Use, and an Environmental Risk Study. These studies include a full assessment of the environmental and social impacts of the mine and environmental management plans, which describe the ongoing management and environmental monitoring programs. Other principal permits include an Accident Prevention Program, a Surface Water Extraction Authorization, MIAs for the pulp agglomeration plant and underground mine, and a Waste Management Plan. Permits required for a future waste facility that are included in the current mine plan were awarded ahead of schedule in January 2019. These permits are renewed regularly and as far as Pan American is aware, all of the permits required for the mine and processing operations are in good standing.

The most significant environmental liabilities associated with Dolores include surface disturbance and reclamation liabilities and issues related to the stability and containment system of heap leach Pad 1, which developed prior to Pan American's acquisition of the Property. A tear in the liner of Pad 1 developed in June 2010 following movement in the stability berm and significant leakage was collected by the leak collection system. Minefinders ceased stacking and irrigation on Pad 1 and relocated approximately 2 million tonnes of ore to heap leach Pad 2. The pad under the excavated material was examined and stabilized with an additional retaining wall structure, and the damaged liner was repaired. No sodium cyanide was detected in the downstream surface and ground water sampling points as a result of the failure, and continued soil and water sampling below Pad 1 has confirmed that no residual cyanide is present.

Approximately 5.0 million tonnes of ore remain in a stable state on Pad 1, awaiting transfer to another operational pad. Full remediation of the Pad 1 liner system will be required as the life of mine plan and leach pad capacity estimates indicate that the pad will be required for use in the future. The additional costs associated with moving the ore and reconstructing the pad, as well as the additional metal production from the partially spent ore currently on Pad 1, have been accounted for in the life of mine plan.

Pan American has implemented additional contingency measures in and around the heap leach pads, including the installation of well riser type over-liner solution collection systems, additional under drain and leak collection systems, and a network of containment, monitoring, and demonstration wells. Pan American also engages in construction and expansions to the pads after application of rigorous quality control to both the design and construction of the facilities.

A closure cost estimate for Dolores was prepared according to State of Nevada approved SRCE methodology in 2012 and is updated every year. We have estimated the present value of reclamation costs for the Dolores property at December 31, 2018 to be approximately $25.8 million. See "Narrative Description of the Business – Environmental Protection" for further disclosure regarding forward-looking statements related to reclamation costs.

Safety audits are conducted by Pan American's Director of Health and Safety and safety managers from some of our other mines. As of the end of December, 2018 the mine has accumulated more than 4.2 million hours of work without an LTI. During 2018, personnel employed at Dolores attended more than 210,000 hours of safety-related training. Dolores was the recipient of the Chairman's Safety Award for safety performance during 2013. In 2015, Dolores was the recipient of the prestigious "Casco de Plata" award for the best 2014 safety record for open pit mines in Mexico with in excess of 500 employees.

Capital and Operating Costs

In 2018, total capital additions at Dolores were approximately $57.3 million, including $48.5 million of sustaining capital, primarily for capitalized pre-stripping and leach pad expansions, as well as $8.8 million invested for completion of the expansion project, the majority of which was spent on the construction of the underground mine maintenance shop and the acquisition of additional underground mobile equipment units.

Capital investments in 2019 will total between $53.0 million to $54.0 million. The major components of these investments include: approximately $26.0 million for pre-stripping activities; $23.0 million in leach pad expansions; and $2.0 million for underground equipment and infrastructure.

In 2018, direct operating costs at Dolores were $154.6 million.

Exploration, Development, and Production

In 2019, we anticipate producing between 5.2 and 5.5 million ounces of silver and between 114,500 and 120,000 ounces of gold from the Dolores mine. Our goal is to ramp up the underground mine to 1,500 tpd. We do not plan to undertake any exploration drilling in 2019.

B. Peru

(i) Huaron Mine

Project Description, Location, and Access

Huaron is an underground silver mine located 320 kilometres northeast of Lima in the province of Pasco in the Central Highlands of Peru. The nearest town is Cerro de Pasco, a major mining center, and is connected to Lima by road and rail. Access to the mine is by a paved highway.

Huaron is 100% owned and operated by PAS Huaron, a Peruvian entity which is approximately 99.94% held (99.8% including investment shares), directly or indirectly, by Pan American. The area of the PAS Huaron concessions spans approximately 29,344 hectares. The concessions owned by us give us exclusive right to explore, develop, exploit, and market all of the products. Mining concession titles have been granted by and are registered with the Institute of Geology, Mining, and Metallurgy of Peru, and we pay an annual fee to keep the licenses in good standing.

The known mineralized zones, mineral resources, mineral reserves, mine workings, the processing plant, existing tailing storage facilities, effluent management and treatment systems, and waste rock storage facilities are located within our concessions.

To the best of our knowledge, Huaron is not subject to any overrides, back-in rights, payments, or other agreements and encumbrances. Our Peruvian operations are subject to governmental taxes, fees and duties, including a mining royalty tax and a special mining tax (“SMT”). The royalty is applied on a company’s operating income and is based on a sliding scale with marginal rates ranging from 1% to 12% with a minimum royalty rate of 1% of sales regardless of its profitability.

While there are no known significant factors or risks that we currently anticipate will affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

The underground mine, mill, and supporting villages were originally built in 1912 by a subsidiary of the French Penarroya Company. In 1987, the mine was sold to Mauricio Hochschild and Cia Ltda ("Hochschild"). In April, 1998, a portion of the bed of the nearby Lake Naticocha collapsed and flooded the neighbouring Animon underground mine. Through interconnected tunnels, the lake water entered and flooded the Huaron mine, causing its closure.

After the April 1998 flooding, the Huaron mine operations were shut down, the labour force was terminated, the camp closed, and work was undertaken to clean up the flood damage, drain the workings, and prepare for an eventual mine re-opening. The water level in the lake, which provided the source of floodwater, is currently maintained well below the level where it flooded into the old workings and we do not expect further flooding. In September 2000, the operators of the Animon mine, in accordance with a settlement agreement reached with Cía. Minera Huaron S.A., constructed a channel to route water around the lake to provide water for the Huaron mine operation.

We acquired a majority interest in the Huaron mine from Hochschild in 2000 and began full-scale operations in 2001. We subsequently acquired the remaining interest in the mine and, following a demerger from Pan American Silver Mina Quiruvilca S.A. in connection with the sale of the Quiruvilca mine in 2013, Pan American now holds, directly or indirectly, approximately 99.94% of PAS Huaron.

Prior to our acquisition of the mine, approximately 22 million tonnes of silver-rich base metal sulphide ore were produced at the property. Ore from the mine was processed on site by crushing, grinding, and flotation to produce copper, lead, and zinc concentrates, as it is today.

Geological Setting, Mineralization, and Deposit Types

The Huaron property is located within the Western Cordillera of the Andes Mountains and the regional geology is dominated by Machay Group limestones and Pocobamba continental sedimentary rocks. These groups have been deformed by the Huaron anticline, the dominant structural feature of the area. The limestones and sedimentary rocks are strongly folded and intruded by quartz monzonites and quartz monzonite dikes with associated fracturing. Following the intrusion of the dikes, the sedimentary rocks were further compressed and fractured, and the fractures were subsequently mineralized by hydrothermal fluids.

The main lithology in the area of Huaron is a sequence of continental redbeds which unconformably overlie massive marine limestones. North-south trending sub-vertical porphyritic quartz monzonite dykes cross cut the mine stratigraphy. Huaron is located within an anticline with an axis striking approximately north-south and plunging gently to the north. There are two main fault systems. One system comprises north-south striking thrust faults, parallel to the axis of the anticline, and the other comprises east-west striking tensional faults.

Huaron is a hydrothermal polymetallic deposit of silver, lead, zinc, and copper mineralization hosted within structures likely related to the intrusion of monzonite dikes, principally located within the Huaron anticline. Mineralization is encountered in veins parallel to the main fault systems, in replacement bodies known as "mantos" associated with the calcareous sections of the conglomerates and other favourable stratigraphic horizons, and as dissemination in the monzonitic intrusions at vein intersections.

The mineralized veins vary from a few centimetres to up to 10 metres wide, and may extend along strike for up to 1,800 metres. Most of the structures are open at depth and along strike and have excellent exploration potential. Vein orientations vary but generally trend east-west or north-south. The current mineral reserves are based on approximately 100 different structures which have been grouped into families of mineralized trends according to location and orientation.

The most important economic minerals are tennantite-tetrahedrite, sphalerite, and galena, but more than 90 other minerals have been identified. The principal gangue minerals are pyrite, quartz, calcite, and rhodochrosite. Enargite and pyrrhotite are common in the central copper core of the mine and zinc oxides and silicates are encountered in structures with deep weathering. Silver is also found in pyrargyrite, proustite, polybasite, and pearceite.

Exploration

Since Huaron is an active mining operation, current exploration is conducted using a combination of underground diamond drilling and channel sampling from drifts excavated along the mineralized zones. Vein intersections and sample grade information from both the channel samples and the diamond drillholes are used to estimate mineral resources and mineral reserves. Underground diamond drilling is undertaken by an external drilling contractor supervised by us.

Drilling

The mine undertakes drilling on an annual basis for mineral resource and mineral reserve definition. All underground holes are drilled by an external drilling contractor under our supervision using BQ, NQ, and HQ diameter industry standard underground diamond drill rigs.

Sampling, Analysis, and Data Verification

Diamond drillhole samples are split in half with a diamond bladed saw after the core has been logged and the sample intervals have been marked by the geologist. Channel samples weighing between 4 kilograms and 6 kilograms are collected with a hammer and chisel every 4 metres across the vein in stoping areas, every 2 metres across the vein in sublevels and drifts, and every 1 metre in vertical developments. Samples from both channel samples and diamond drillholes vary between 0.1 metres and 1.5 metres in length. There are no known drilling, sampling, or recovery issues that could materially impact the reliability of the results.

The samples are prepared and analysed within the confines of the general mine security enclosures, and there is no reason to believe that the validity and integrity of the samples have been compromised.

Both the channel and the underground diamond drillhole samples are sent to the on-site laboratory, which is not certified by any standards association but is managed and operated by the international commercial laboratory firm, SGS. Assays for silver, zinc, lead, and copper are performed using acid digestion and AA spectroscopy.

The laboratory conducts a routine internal QAQC program. For each batch of samples at least one blank sample and one certified standard is submitted by the laboratory. A QAQC program supervised by the geology department is also implemented which includes the submission of certified standards, duplicates, and blanks on a daily basis to the onsite laboratory. Duplicate samples are also submitted to a second laboratory to act as a check on the onsite laboratory.

Mineral Processing and Metallurgical Testing

As part of normal plant operation procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess mill performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the historical performance of the plant operations and the tonnes and grade of material that is planned to be mined.

Mineral Resource and Mineral Reserve Estimates

Management estimates that mineral reserves at the Huaron mine, as at December 31, 2018, are as follows:

Huaron Mineral Reserves [1, 2]					
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Proven	6.3	156	2.84	1.36	0.55
Probable	4.1	163	2.84	1.49	0.42
TOTAL	10.4	159	2.84	1.41	0.50

Notes:

1 Estimated using a price of $18.50 per ounce of silver, $2,400 per tonne of zinc, $2,100 per tonne of lead and $6,000 per tonne of copper. Totals may not add due to rounding.

2 Mineral reserve estimates for Huaron were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Management estimates that mineral resources at the Huaron mine, as of December 31, 2018, are as follows:

Huaron Mineral Resources [1, 2]					
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Measured	2.1	155	2.91	1.56	0.19
Indicated	1.7	151	2.76	1.47	0.30
Inferred	6.2	157	2.75	1.50	0.37

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using a price of $18.50 per ounce of silver, $2,400 per tonne of zinc, $2,100 per tonne of lead and $6,000 per tonne of copper.

2 Mineral resource estimates for Huaron were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Mineral resource estimates are prepared on an annual basis and updated with the additional diamond drilling and channel samples collected during the year, using a variation of the polygonal method in AutoCAD and Excel software. Each vein structure is projected onto a longitudinal section and divided into a series of geometrical blocks. The average true width of the vein intersections is applied to the block area to determine the volume. Sample grades are reviewed and treated for extreme values if necessary, and then the average grade of the intersections within each block is assigned to the block. Bulk density values are applied to the volume of the block to estimate the tonnes of each block, based on the average of bulk density measurements.

The blocks are then depleted for previous mining. Planned mining dilution is applied to each block considering the width, dip angle, mining method, and expected ground conditions of each vein and an allowance is made for expected mining losses. A value per tonne is applied to each block based on metal grades, metal prices, concentrate sales terms, concentrate quality, processing recovery, transportation, refining, and other selling costs such as storage fees, port fees, etc. Metallurgical recoveries are determined separately for each group of veins or structures to account for variability in the recovery. Any blocks that do not meet the criteria of resources are removed. Each block is classified for measured, indicated, and inferred confidence categories depending on the location of the block relative to mine workings, the type of sample available in each block, and the number of samples available to estimate each block. Mineral resources are then converted to mineral reserves depending on the resource classification and whether they can be economically mined.

Mineral reserve estimates are based on a number of assumptions that include metallurgical, taxation and economic parameters. Increasing costs or increasing taxation could have a negative impact on the estimation of mineral reserves. There are currently no known factors that may have a material negative impact on the estimate of mineral reserves or mineral resources.

Mining Operations

Mining is undertaken using a combination of conventional cut and fill, mechanized cut and fill, and mechanized sub-level long hole stoping methods, using unconsolidated development waste and mill tailings for back fill. Mechanized sub-level long hole stoping is the primary mining method at the mine. Both haul trucks and electric locomotives are in place for haulage from the upper parts of the mine. A shaft with a hoist is used for hoisting ore and occasionally waste to the surface. Ore sourced from below the 500 level is hauled to the surface crusher using diesel haul trucks and hoisting in the mine shaft. Over the past several years, the mining operations of the veins and ore bodies has been mechanized, with the aim of improving efficiency and operating costs.

Processing and Recovery Operations

Huaron operates an 870,000 tonne per year nominal capacity mill using froth induced flotation technology to produce silver in copper, lead, and zinc concentrates. The mill flowsheet consists of three-stage crushing, ball mill grinding, and selective flotation of the ore to concentrates, followed by thickening and filtering of the concentrates. Tailings from the processing plant are either returned underground hydraulically to act as backfill material in the cut and fill mining areas or delivered to a tailings storage facility area via a pipeline.

In 2018, the mill processed approximately 935,000 tonnes of ore with metallurgical recoveries averaging approximately 83% for silver, 76% for zinc, 73% for lead, and 77% for copper. Metal production during the year was approximately 3.6 million ounces of silver, 17,400 tonnes of zinc, 8,000 tonnes of lead, and 5,400 tonnes of copper.

The silver rich zinc, lead, and copper concentrates from Huaron are sold under contracts with arm's length smelters and concentrate traders, which consider the presence of any deleterious elements. Huaron receives payment for an agreed percentage of the silver, zinc, lead, or copper contained in the concentrates it sells after deduction of smelting and refining costs, based on average spot prices over defined 30-day periods that may differ from the month in which the concentrate was produced. Under these circumstances, we may, from time to time, fix the price for a portion of the payable base metal content during the month that the concentrates are produced. To date, we have been able to secure contracts for the sale of all Huaron concentrates produced, however, there can be no certainty that we will always be able to do so or what terms will be available at the time. Please see "Risks Related to Our Business – Trading Activities and Credit Risk".

The revenue per type of concentrate produced by the Huaron mine for the past three years were as follows:

2018	Revenue[1, 2]	Quantity Sold (Tonnes)
Zinc Concentrate[3]	$39.1 million	38,374
Lead Concentrate[3]	$29.6 million	15,466
Copper Concentrate[3]	$46.0 million	22,944
2017		
Zinc Concentrate[3]	$45.6 million	42,418
Lead Concentrate[3]	$34.0 million	17,183
Copper Concentrate[3]	$49.5 million	24,839
2016		
Zinc Concentrate[3]	$30.6 million	42,558
Lead Concentrate[3]	$35.7 million	19,896
Copper Concentrate[3]	$39.4 million	25,219

Notes:

1 Consists of sales to arm's length customers.

2 Calculated as gross revenue plus export credit incentives (as applicable), less treatment and refining charges and export taxes.

3 Zinc and lead concentrates contain payable silver. Copper concentrates contain payable silver and gold.

Infrastructure, Permitting, and Compliance Activities

The mine workings, processing plant, tailings and waste disposal areas, effluent management and treatment facilities, roads, and power and water lines have already been constructed and are located within the boundaries of the mining leases and surface rights controlled by us. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing. We are authorized to source the water necessary for our operations from a system of nearby lakes. The primary source of power for the mine is the Peruvian national power grid and is sufficient for the mine's current requirements.

In October 2003, the Peruvian government passed legislation requiring active mining operations to file closure plans. In October 2005, administrative rules associated with this legislation were promulgated, which laid out detailed closure requirements and required that detailed closure plans and cost estimates be filed by October 2006.

The original closure plan for Huaron was filed by mid-year 2004, and in August of 2006, we submitted a comprehensive closure plan for Huaron to the Ministry of Energy and Mines ("MEM") in accordance with that ministry's regulations and the updated rules. The closure plan was prepared by third party consultants registered with the Peruvian authorities as qualified to present closure plans to the MEM and is updated every five years or whenever new infrastructure or modifications are permitted. The closure plan includes a summary of the proposed closure scheme for each of the major areas of impact such as mine water, tailings areas, waste rock storage facilities, plant site infrastructure, and underground mine. A detailed cost estimate was prepared based on our and the consultant's shared experience with closure works and experience with other projects in Peru. As required by the MEM, the costs were summarized in three phases: concurrent closure, final closure, and post closure. Updated closure plans are filed as required.

The most significant environmental issue currently associated with the mine is relatively high sediment and metal concentrations in the waters discharged from the mine and the mine's tailings storage facilities. All waters are captured and treated in a treatment plant to achieve compliance with discharge limits. In December 2017, an unintended release of a small amount of water with tailings fines occurred due to a piping leak in the water decant system of the Huaron tailings facility. The incident was reported to the Peruvian Environmental Evaluation and Fiscalization Organization and the local Huayllay community authorities, and cleaned up within 24 hours.

An agreement signed in 2000 allows Volcan Compañia Minera S.A.'s ("Volcan") Chungar mine, which neighbours Huaron, to discharge water from its mine dewatering into the Huaron drainage tunnel. The agreement also requires Volcan to contribute to the costs of tunnel maintenance and water treatment and discharge, however provisions of the agreement that would enable water quality and flow measurement between the mines were not implemented and no payments have been made. In 2014, an independent consultant engaged jointly by both companies concluded that the flow from Chungar to Huaron represents 19% of the total flow in the drainage tunnel and recommended the installation of a permanent monitoring system for ongoing verification. We continue to negotiate the details of the joint monitoring and any responsibility for costs with Volcan.

A closure cost estimate for Huaron was prepared according to State of Nevada approved Standard Reclamation Cost Estimator methodology in 2011 and is updated every year. The current present value of closure expenditures at Huaron as at December 31, 2018, is estimated at $12.2 million. See "Narrative Description of the Business – Environmental Protection" for further disclosure regarding forward-looking statements related to reclamation costs.

Safety audits are conducted by Pan American's Director of Health and Safety and safety managers from some of our other mines. During 2018, personnel at Huaron attended nearly 222,000 hours of training. The Huaron mine was the recipient of the Chairman's Safety Award for 2017 and 2018.

Capital and Operating Costs

Since the mine is in operation, any sustaining capital expenditures are justified on an on-going basis. Capital additions at Huaron during 2018 totalled $15.9 million, primarily on mining equipment, plant and infrastructure upgrades, and exploration drilling.

We have forecast sustaining capital investments of between $6.5 million and $7.5 million for 2019, primarily related to mine deepening, near mine exploration and equipment replacements.

In 2018, direct operating costs at Huaron were $75.4 million.

Exploration, Development, and Production

In 2019, Huaron is forecast to produce between approximately 3.6 and 3.7 million ounces of silver and 500 ounces of gold. Base metal production is expected to be between 17,700 and 18,000 tonnes of zinc, between 8,500 and 8,800 tonnes of lead, and between 5,700 and 5,900 tonnes of copper. We plan to undertake 14,000 metres of exploration drilling in 2019.

(ii) Morococha Mine

Project Description, Location, and Access

The Morococha mine is an underground silver mine located 137 kilometres east of Lima in the province of Yauli. The nearest city is La Oroya, approximately 38 kilometres to the east. Morococha is accessible via Peru's paved central highway and an all-weather gravel road. Rail service from Lima is also available via a national rail line that passes adjacent to the operations.

Morococha is owned and operated by Argentum, a Peruvian company in which Pan American, through our subsidiary Pan American Peru, has a 92.01% voting common share interest (the remaining interest is held by Alejandro Gubbins and Compañía Minera Casapalca S.A.). In addition, we have, directly or indirectly, the majority of the non-voting investment shares resulting in a total ownership interest of approximately 92.3% as at December 31, 2018 (excluding certain investment shares held by Argentum itself).

Morococha is comprised of three economic administrative units ("UEAs") and various concessions held outside of these UEAs, for a total of 541 mining concessions with an area of approximately 10,522 hectares, as well as two processing concessions. The three UEAs contain 454 mining concessions and two processing concessions owned outright by Argentum and 11 concessions transferred to Argentum from Silver Lead Mining Company S. A. There are also 36 concessions under a lease agreement with Corporación Minera Sacracancha S.A.C., 31 concessions under

option from Minera Chinalco Peru ("MCP"), and nine concessions held by agreement with different third parties. The majority of the mining concessions comprising Morococha are contiguous.

The known mineralized zones, mineral reserves and mineral resources, mine workings, processing plants, effluent management and treatment systems, and the mine's tailings and waste storage facilities are contained within the boundaries of these concessions. These mining concessions give us the exclusive right to explore, develop, and exploit, as well as the right to market all of the products. Mining concession titles for these properties have been granted by and are registered with the Public Registry of Peru, and we pay an annual fee to keep the licenses in good standing, and to our knowledge, we have met all of the necessary obligations to retain the property. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing.

Argentum did not hold registered legal title to most of the surface lands that overlie the mining concessions which comprise Morococha when we acquired Morococha in 2004, including lands on which Morococha's process plants, shafts and access roads were located. These rights were all formerly owned by Centromin. Centromin granted Argentum a right to use certain of Centromin's surface lands throughout the useful life of its mining operations, provided such use does not interfere with the development of a mine in respect of the Toromocho disseminated copper system, which overlies certain of Argentum's mining concessions and underground mining operations. Argentum had an obligation to pay Centromin $60,000 (adjusted annually for inflation) quarterly commencing May 28, 2003 as consideration for this right. Argentum's and its predecessors' use of these surface lands have been exercised for decades with Centromin's knowledge and Argentum's claim to its continued use of these surface rights was based on concepts of rights acquired through long term use often referred to as adverse possession.

Peru Copper Inc. ("Peru Copper"), a copper mining company carrying on business in Peru, acquired mining concessions and surface rights to the Toromocho property from Centromin. In June 2007, Aluminum Corporation of China ("Chinalco") purchased 100% of the outstanding shares in Peru Copper and formed MCP.

In 2005, Argentum, with the opposition of Centromin, engaged in a number of administrative and judicial proceedings to obtain legal title to surface lands and underground access that comprise part of the rights that were acquired by Peru Copper from Centromin. Following Peru Copper's acquisition of Centromin's rights, we began preliminary discussions with Peru Copper, and later with Chinalco and MCP, in respect of negotiating a resolution to the surface rights issues between the parties.

In May 2008, MCP acquired certain surface rights from Centromin (currently, Activos Mineros S.A.) covering the main Morococha area that had been reserved for the Toromocho project by the Government of Peru. In addition, MCP acquired rights including surface lands in the Morococha area where the Morococha mine administration and operations are taking place, as well as certain underground areas. Certain of the underground areas acquired by MCP would also provide Pan American with easier and less costly underground access to some areas of the Morococha concessions.

In June 2010, we reached an agreement with MCP that defined each party's long term surface rights and therefore provides certainty to the land situation for the Morococha property. The primary focus of the agreement is on the lands and concessions around the Morococha mine and MCP's Toromocho copper project. Under the terms of the agreement, Argentum is required to relocate the core Morococha facilities, including the administration offices, warehouse, maintenance facilities, mine compressors, and some camp facilities and construct a new concentrator over a five-year period and transfer certain mineral concessions and access rights to MCP that it needs in order to proceed with the development of Toromocho, including the surface lands within the planned open pit mining area of the Toromocho project. In exchange, Argentum is to receive a package of surface rights, easements, and other rights to relocate the facilities and to continue uninterrupted operations, and would also obtain rights to a number of mineral concessions outside the planned Toromocho pit area where high grade silver veins have been identified. Lastly, Argentum is to receive periodic cash payments from MCP totalling $40 million, which would offset a portion of the capital required for the facility relocation. Pursuant to the agreement, the transfer of lands and rights and the cash payments will occur over a period of time and are dependent on meeting certain milestones. In addition to the foregoing, the parties agreed to dismiss the judicial and administrative claims between them. To date, Minera Argentum has received a total of $24.0 million (pre-tax) from MCP and has completed a number of phases of the relocation effort. We have completed the abandonment and demolition of all buildings in the Central Shaft area, the construction

of the replacement facilities located north of the central highway, but have not yet relocated the plant. We continue to operate the plant, the location of which is projected to eventually interfere with the advance of the Toromocho open pit. Depending on economic justification, mineral reserve growth, and the advance of the Toromocho open pit, the plant will need to be replaced or relocated. Although no up-to-date engineering studies are available, the estimated cost of a new 800,000 tonne per annum processing plant could be significant. This cost might be partially offset by the remaining payments due from MCP in relation to the June 2010 agreement. Please see “Risks Related to Our Business – Title to Assets”.

To the best of our knowledge, and other than as described above, Morococha is not subject to any overrides, back-in rights, payments, or other agreements or encumbrances. Our Peruvian operations are subject to governmental taxes, fees and duties, including the mining royalty tax and the SMT, as described under “Huaron – Project Description, Location and Access”.

While there are no known significant factors or risks that we currently anticipate might affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, other than as described above, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

Mining began in the region around Morococha before the 1500s, and production has been continuous in the district since the late 1800s. Most of the exploration undertaken by former owners of Morococha was limited to underground development along strike of known structures. The Morococha District has excellent exploration potential owing to the prevalence of carbonate units favourable for replacement mineralization as well as the significant vertical extents of known mineralization. As a result, drilling was not typically part of the exploration efforts. Prior to our acquisition of Morococha, little effort was given to the exploration and economic evaluation of areas that were not immediately adjacent to the existing mine workings. Previous operators utilized both surface and underground diamond drilling only to test for potential economic mineralization. Once the presence of economic mineralization was confirmed, the vein or manto was accessed underground for further exploration.

Between 1915 and 1918, much of the district was reorganized and incorporated into Cerro de Pasco Mining Company (“Cerro de Pasco”). By 1924, Cerro de Pasco was producing at a rate of 1,500 tpd from primarily copper ores. Between 1929 and 1934, Cerro de Pasco excavated the 11.5 kilometre long Kingsmill Tunnel, successfully dewatering all of the Morococha District mine workings above the 4,020 metre elevation of the tunnel. The Kingsmill Tunnel is still in use and is a vital feature of the Morococha mining district.

In the 1940s, the Gubbins family began operating mines in the Morococha District through Minera Santa Rita S.A. and Minera Yauli S.A., which were subsequently consolidated in the late 1990s into Sociedad Minera Corona S.A. (“SMC”). Cerro de Pasco continued to operate in other areas around the Morococha District until 1974, when its mines were nationalized by the Peruvian government. Production from the Cerro de Pasco mines in the district continued under the Peruvian national mining company, Centromin, until 2003, when SMC acquired these operations from Centromin through privatization.

On January 20, 2004, we entered into an agreement with 14 individuals, estates and companies, all of whom were arm’s length to us and are members of the Gubbins family or entities in which members of the Gubbins family hold beneficial interests (the “Morococha Vendors”), to purchase 92.014% of the voting shares of Argentum, a sociedad anónima organized under Peruvian company law, for approximately $35.4 million in cash. Argentum acquired, through a corporate restructuring undertaken under Peruvian company law, the Anticona and Manuelita mining units and related infrastructure and processing assets from SMC. At the time of acquisition, Argentum held in its treasury as cash all profits earned by SMC’s Anticona and Manuelita mining operations since November 1, 2003. The transaction was subject to regulatory approval and a number of conditions, including: (i) the completion of the corporate restructuring; (ii) the listing on the Lima Stock Exchange of 100% of the shares of Argentum, including those issued in connection with the corporate restructuring; and (iii) our successfully undertaking a public bid for not less than 92.014% of the voting shares of Argentum through the Lima Stock Exchange.

On February 24, 2004, we entered into a further agreement with the Morococha Vendors to purchase all of the issued and outstanding shares of Empresa Minera Natividad S.A. (“Natividad”), a corporation organized under Peruvian company law which holds mining concessions and operations that are complementary to the Anticona and Manuelita mining units, for $1.5 million in cash. Closing of the acquisitions of Argentum and Natividad occurred contemporaneously in August 2004, with effect as of July 1, 2004 and in 2005, Argentum amalgamated with Natividad. Argentum made all necessary applications for delisting its shares from the Lima Stock Exchange and the delisting process was completed in 2006. In addition, Pan American Peru continues to acquire the labour shares in Argentum when able to do so. The labour shares were created as a means through which workers would be able to take part in our success (but do not afford the holders of such shares influence over our decision-making, as they are non-voting), and are held either by current workers, former workers or by third parties who have bought labour shares in the free market.

Extensive mining has taken place at the property prior to Pan American’s acquisition in 2004, but there are no known reliable historical production figures. For the 15 years between 1989 and 2003, approximately 7.9 million tonnes of ore was mined at a grade of 227 ppm Ag, 0.5% Cu, 1.7% Pb, and 4.6% Zn.

Geological Setting, Mineralization, and Deposit Types

Morococha is located on the eastern side of the Western Cordillera of the Andes. The host rocks for the mineralization in the Morococha district comprise schists, volcanic rocks, and predominantly carbonate sediments cut by a series of intrusions. The structures that account for the majority of the vein mineralization in the Morococha district trend predominantly northeast to east-northeast.

The structural setting of the area is dominated by shallowly northwest plunging folds, the most important of which is the anticlinal feature referred to as the Yauli Dome, which trends north-northwest and divides the district roughly in half. Compression gave rise to early northwest trending shears, and the uplifting effect of the intrusion of quartz monzonite stocks produced an arching of the Yauli Dome and an associated phase of tension faulting generally trending perpendicular (northeast-southwest) to the axis of the anticline. This latter set is the most heavily mineralized set of fractures and accounts for the majority of fault hosted mineralization in the Morococha District.

Vein mineralization formed along the dominant system of northeast trending tensional faults. Mineralization associated with the veins is mostly fracture filling in nature. Replacement manto mineralization is generally restricted to receptive stratigraphic horizons where favourable lithologies are intersected by mineralized veins or are proximal to pre-mineral intrusives. Some of the replacement mineralization occurs as structurally controlled irregular chimneys within generally favourable stratigraphic horizons.

Mineralization at Morococha includes epi-mesothermal silver-zinc-lead-copper veins, bedded silver-base metal replacements or mantos, intrusive-sediment contact skarns, and the quartz porphyry-hosted Toromocho disseminated copper system. Shoots range up to 400 metres in length with some traced for over 800 metres down plunge. Economic vein widths range from 0.5 metres to more than 6.0 metres. Vein width averages in the district are on the order of 1.2 metres.

Replacement manto mineralization is generally restricted to receptive stratigraphic horizons where favourable lithologies, especially carbonates, are intersected by mineralized veins or are proximal to pre-mineral intrusive rocks. Mantos can have a significant strike extent where the veins are closely spaced, and can range from less than one metre to up to 12 metres in width.

Sphalerite, galena, and chalcopyrite are the most important primary minerals for zinc, lead, and copper while silver is generally present as freibergite (silver-tetrahedrite) or argentiferous galena.

Exploration

Since Morococha is an active mining operation, exploration is conducted using a combination of underground diamond drilling and channel sampling from drifts excavated along the mineralized zones. Vein intersections and sample grade information from both the channel samples and the diamond drillholes are used to estimate mineral resources and mineral reserves.

Drilling

The mine undertakes drilling on an annual basis for mineral resource and reserve definition. Both surface and underground holes are drilled by external drilling contractors under Pan American supervision using BQ, NQ, and HQ diameter industry standard underground diamond drill rigs.

Sampling, Analysis, and Data Verification

Diamond drill hole sample intervals within the veins vary in length between 0.10 and 1.5 metres. The channel samples weigh between 4 kilograms and 6 kilograms and are taken every two metres across the veins or mantos in exploration drifts and the stopes are sampled on two metre centres along strike. Sample intervals are usually between 0.2 metres and 2.0 metres wide. There are no known drilling, sampling, or recovery issues that could materially impact the reliability of the results.

The samples are prepared and analysed within the confines of the general mine security enclosures, and there is no reason to believe that the validity and integrity of the samples have been compromised.

Both the channel and underground diamond drillhole samples are prepared by the on-site laboratory, which is not certified by any standards association but is managed and operated by the international commercial laboratory firm, SGS. Assays for silver, zinc, lead, and copper are performed using acid digestion and AA spectroscopy.

Mineral Processing and Metallurgical Testing

As part of normal plant operation procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess mill performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the historical performance of the plant operations and the tonnes and grade of material that is planned to be mined.

Mineral Resource and Mineral Reserve Estimates

Management estimates that mineral reserves for the Morococha mine, as at December 31, 2018, are as follows:

Morococha Mineral Reserves [1, 2, 3]					
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Proven	3.7	160	4.17	1.36	0.44
Probable	3.1	150	3.32	1.26	0.32
TOTAL	6.8	155	3.78	1.31	0.38

Notes:

1 Estimated using a price of $18.50 per ounce of silver, $2,400 per tonne of zinc, $2,100 per tonne of lead and $6,000 per tonne of copper. Totals may not add due to rounding.

2 Mineral reserve estimates for Morococha were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons, as that term is defined in NI 43-101.

3 Tonnes are shown for 92.3% of the Morococha property. Through our subsidiary, Pan American Peru, we have a 92.3% interest in the Morococha property.

Management estimates that mineral resources at the Morococha mine, as at December 31, 2018, are as follows:

Morococha Mineral Resources [1, 2, 3]					
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Measured	0.3	145	2.15	0.87	0.21
Indicated	0.5	151	2.93	0.98	0.26
Inferred	4.7	140	4.30	1.08	0.38

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using a price of $18.50 per ounce of silver, $2,400 per tonne of zinc, $2,100 per tonne of lead and $6,000 per tonne of copper.

2 Mineral resource estimates for Morococha were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

3 Tonnes are shown for 92.3% of the Morococha property.

Mineral resource estimates are prepared on an annual basis and updated with the additional diamond drilling and channel samples collected during the year, using either a variation of the polygonal method in AutoCAD and Excel software or a three dimensional interpretation using mining software. Using the polygonal method, each vein structure is projected onto a longitudinal section and divided into a series of geometrical blocks. The average true width of the vein intersections is applied to the block area to determine the volume. Sample grades are reviewed and treated for extreme values if necessary, and then the average grade of the intersections within each block is assigned to the block. Using the three dimensional method, a block model is created and grade is estimated using ordinary kriging. The samples are composited to equal lengths and treated for extreme grade values if necessary. Bulk density values are applied to the volume of the block to estimate the tonnes of each block, based on the average of bulk density measurements.

The blocks are then depleted for previous mining. Planned mining dilution is applied to each block considering the width, dip angle, mining method, and expected ground conditions of each vein, and an allowance is made for expected mining losses. A value per tonne is applied to each block based on metal grades, metal prices, concentrate sales terms, concentrate quality, processing recovery, transportation, refining, and other selling costs such as storage

fees, port fees, etc. Any blocks that are considered uneconomic after these parameters are applied either remain as mineral resources or may be removed from the inventory completely if they do not meet the criteria of mineral resources. The mineral reserves are classified as proven or probable depending on the resource classification.

Mineral reserve estimates are based on a number of assumptions that include metallurgical, taxation, and economic parameters. Increasing costs or increasing taxation could have a negative impact on the estimation of mineral reserves. There are currently no known factors that may have a material negative impact on the estimate of mineral reserves or mineral resources.

Mining Operations

Underground mining methods at Morococha consist primarily of long hole open stoping with mechanized overhand cut and fill in the shallower dipping veins and orebodies. Classified tailings pumped hydraulically to stopes and waste rock are used for backfill where needed. Drilling is undertaken with electric hydraulic long hole drills in the long hole stopes and hand held drills or electric hydraulic jumbo drills in development and cut and fill mining. The broken ore is removed using scoop trams. Mining of the veins and ore bodies has been mechanized with the aim of improving efficiency and operating costs.

The Manuelita shaft is equipped with two 2.6 tonne skips which feed into chutes at an underground adit level from where material is transported in rail cars by a small locomotive to an adjacent surface truck loading facility. Ore is then trucked to the processing plant. In the Codiciada and Alapampa areas of the mine, ore is transported to underground stockpiles using scoop trams and then loaded onto haul trucks for transportation to surface via a haulage ramp.

Processing and Recovery Operations

Morococha operates an 803,000 tonne per year capacity mill, known as the Amistad mill, using froth induced selective flotation technology to produce silver in zinc, lead, and copper concentrates. Mill processing consists of two-stage crushing, ball mill grinding, selective flotation of the ore to concentrates, followed by thickening and filtering of the concentrates. About half of the tailings from the concentrator are pumped to the Huascacocha tailings storage facility and the other half is transported back underground where it is used for backfill.

The life of mine plan is based on the mineral reserves and contemplates, on a 100% basis, an annual processing rate of 1,726 tpd and then gradually increasing as more mining areas become available. The Morococha deposit is extensive and if current mineral resources can be converted to mineral reserves and/or if new mineral resources are defined and can be converted to mineral reserves, then a new plant may be required to replace the current Amistad plant. The future economic justification of a new plant will rely primarily on mineral reserve growth and metal prices. Although no up-to-date engineering studies are available, the estimated cost of a new 800,000 tonne per annum processing plant could be significant. This cost might be partially offset by the remaining payments due from MCP to honour the June 2010 agreement.

In 2018, the mill processed approximately 728,000 tonnes of ore with metallurgical recoveries of 91% for silver, 87% for zinc, 76% for lead, and 76% for copper. Total metal production for the year, on a 100% basis, was approximately 3.1 million ounces of silver, 2,300 ounces of gold, 24,000 tonnes of zinc, 5,100 tonnes of lead, and 3,600 tonnes of copper.

The silver-rich zinc, lead, and copper concentrates from Morococha are sold under contracts with arm’s length smelters and concentrate traders, which consider the presence of any deleterious elements. Morococha receives payment for an agreed percentage of the silver, zinc, lead, and copper contained in the concentrates it sells, after the deduction of smelting and refining costs. We have not had any difficulty securing contracts for the sale of Morococha concentrates; however, there can be no certainty that we will always be able to do so or what terms will be available at the time. Please see “Risks Related to Our Business - Trading Activities and Credit Risk”.

The revenue per type of concentrate produced by Morococha for the past three years were as follows:

2018	Revenue[1, 2]	Quantity Sold (Tonnes)
Zinc Concentrate[3]	$55.8 million	46,280
Lead Concentrate[3]	$21.1 million	9,199
Copper Concentrate[3]	$40.6 million	17,018
2017		
Zinc Concentrate[3]	$42.6 million	34,769
Lead Concentrate[3]	$15.8 million	7,019
Copper Concentrate[3]	$61.8 million	35,659
2016	**Revenue[1, 2]**	**Quantity Sold (Tonnes)**
Zinc Concentrate[3]	$26.6 million	35,280
Lead Concentrate[3]	$11.5 million	5,948
Copper Concentrate[3]	$54.9 million	43,820

Notes:
1 Consists of sales to arm's length customers.
2 Calculated as gross revenue plus export credit incentives (as applicable), less treatment and refining charges and export taxes.
3 Zinc and lead concentrates contain payable silver. Copper concentrates contain payable silver and gold.

Infrastructure, Permitting, and Compliance Activities

The mine workings, processing plant, tailings and waste disposal areas, effluent management and treatment facilities, roads, and power and water lines have already been constructed and are located within the boundaries of the mining leases and surface rights controlled by us. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing. The mine is authorized to source the water necessary for operations from nearby lakes. Several mine development waste disposal and tailings storage facilities exist and are sufficient to meet the needs of mining operations. The primary source of power for the mine is the Peruvian national power grid and is sufficient for the mine's current requirements.

In October 2003, the Peruvian government passed legislation requiring active mining operations to file closure plans. In October 2005, administrative rules associated with this legislation were promulgated, which laid out detailed closure requirements and required that detailed closure plans and cost estimates be filed by October 2006.

The original closure plan for Morococha was filed by mid-year 2004, and in August of 2006, we submitted a comprehensive closure plan for Morococha to the MEM in accordance with that ministry's regulations and new rules. The closure plan was prepared by third party consultants registered with the Peruvian authorities as qualified to present closure plans to the MEM and is updated every five years or whenever new infrastructure or modifications are permitted. The closure plan includes a summary of the proposed closure scheme for each of the major areas of impact such as mine water, tailing storage facilities areas, waste rock facilities, plant site infrastructure, and the underground mine. A detailed cost estimate was prepared based on Pan American's and the consultant's shared experience with closure works and experience with other projects in Peru. As required by the MEM, the costs were summarized in three phases: concurrent closure, final closure, and post closure. Updated closure plans are filed as required.

The most significant environmental liability identified at the Morococha mine is the mine's potential share of the cost to operate the Kingsmill Tunnel water treatment plant. The Kingsmill Tunnel is an 11.5 kilometre long underground opening excavated between 1929 and 1934 to dewater the Morococha district mine workings above 4,020 metres above sea level. The water treatment plant was built and is currently being operated by MCP to treat the 1.5 to 1.8 cubic metres per second of water draining from the Kingsmill Tunnel into the Rio Yauli. Morococha's share of the cost was defined by a hydrogeological study completed in 1997 which apportioned responsibility for the costs of constructing and operating the treatment plant as follows: (i) Centromin (72.2%); (ii) our Morococha operations

(12.3%); (iii) Soc. Minera Puquiococha (8.5%); (iv) Soc. Minera Austria Duvaz (4.9%); and (v) Minera Centrominas (2.1%). Subsequent to the apportionment of costs, it appears that in connection with the acquisition by MCP of the mining concessions near Morococha, MCP assumed the cost of the construction of the Kingsmill water treatment plant.

The treatment and operating costs for the water treatment facility are directly proportional to both constituent load and flow determined in the 1997 study. The distribution of responsibility stated in the 1997 study was accepted by all involved parties. Our potential share of the responsibility for treatment of the baseline flows, 12.3%, was included in the terms of its purchase of the applicable mining concessions. As a purchase contract entered into during 2003 between Natividad and Argentum establishes that the purchaser is responsible for incremental flows in those concessions, subsequent studies in 2004 were carried out to further characterize the baseline flow conditions in order to establish benchmarks for the determination of responsibility for potential future increases. The results of this 2004 study estimated that 38.46% of the baseline flows were derived from Natividad and Corona concessions now under our control. We challenged this estimate but our challenge was not accepted. The scope of the 2004 study and the resulting recommendations exceeded the terms of the study and presented conclusions that conflicted with previous conclusions and the terms of our purchase of the applicable concessions.

A closure cost estimate for Morococha was prepared according to State of Nevada approved SRCE methodology in 2011 and is updated every year. The current present value of closure expenditures at Morococha as at December 31, 2018, is approximately $7.4 million. See “Narrative Description of the Business – Environmental Protection” for further disclosure regarding forward looking statements related to reclamation costs.

Safety audits are conducted by Pan American’s Director of Health and Safety and safety managers from some of our other mines. During 2018, personnel employed at Morococha attended a total of over 152,500 hours of training. The Morococha mine was the recipient of the Chairman’s Safety Award for 2015. During 2015, the Morococha mine was also awarded first place in the underground mining category by the mining safety institute (ISEM) in Peru for safety performance.

Capital and Operating Costs

Capital additions at Morococha during 2018 totalled $14.1 million, primarily on expanded near-mine exploration drilling, equipment replacements and refurbishments, mine ventilation, and plant and infrastructure upgrades.

In 2019, we anticipate investing between approximately $11.0 million and $12.0 million in sustaining capital and $2.5 million in project capital. The sustaining capital expenditure forecast includes underground ventilation infrastructure expansions, mine equipment additions, replacements and refurbishment, and near mine exploration, while project capital primarily relates to the construction of a new powerline and to advance engineering and plant design for the future plant relocation.

In 2018, direct operating costs at Morococha were $68.1 million.

Exploration, Development, and Production

In 2019, based on an ownership interest of approximately 92.3% of Argentum, our proportionate interest in Morococha’s production is forecast to be between 2.8 and 2.9 million ounces of silver, between 1,200 and 1,500 ounces of gold, between 22,600 and 23,000 tonnes of zinc, between 5,300 and 5,700 tonnes of lead, and between 2,800 and 3,100 tonnes of copper. We plan to undertake approximately 33,000 metres of exploration drilling in 2019.

C. Bolivia

(i) San Vicente

Project Description, Location, and Access

The San Vicente underground silver-zinc mine is located in the south of Bolivia in the Province of Sud-Chichas, Department of Potosí. San Vicente is located 100 kilometres west of the town of Tupiza and 120 kilometres south of the town of Uyuni. The property is accessible by gravel road from Tupiza and Uyuni. Daily commercial flights operate between Uyuni and La Paz. Both Uyuni and Tupiza are connected through the Bolivian rail system to the ports of Arica and Antofagasta in Chile.

Pan American holds a 95% interest in PASB. The remaining 5% of PASB is owned by Urion Holdings (Malta) Ltd. ("Urion"), an affiliate of Trafigura Baheer B.V. ("Trafigura"). PASB has a joint venture agreement (Contrato de Riesgo Compartido) with Corporación Minera de Bolivia ("COMIBOL") the state mining company of the Plurinational State of Bolivia, pursuant to which PASB holds a 62.5% interest in the cash flow from the operations and is the operator of the San Vicente property.

The mine property concessions cover an area of 7,370 hectares and consist of six concessions, all of which are held by COMIBOL, and PASB is contractually responsible for paying the annual mining tenure tax to maintain the concessions. All of the concessions include the rights for mining, water, and surface usage. As far as we are aware, all of the concessions are in good standing, and to our knowledge, we have met all of the necessary obligations to retain the property.

The known mineralized zones, mineral resources and mineral reserves, mine workings, the processing plant, tailings and waste rock storage facilities, and effluent management and treatment systems are located within the concessions held by COMIBOL which are subject to the agreement between PASB and COMIBOL.

Pursuant to a joint venture agreement entered into with COMIBOL in June 1999 (as subsequently amended) with respect to the development of the San Vicente property, PASB became obligated to pay COMIBOL a participation fee of 37.5% (the "Participation Fee") of the operations cash flow and to fund additional development of the mine. Once full commercial production of the expanded San Vicente mine began in 2009, the Participation Fee was reduced to approximately 9.4% until PASB recovered its investment in the San Vicente property, which occurred in December 2012. Thereafter, the Participation Fee reverted back to its original 37.5%. In 2018, the royalties to COMIBOL amounted to approximately $4.8 million (2017 - $8.5 million).

A 2% royalty on 80% of the NSR is also payable to Empresa Minera Unificada S.A. ("EMUSA"), a former partner of PASB on the project. The royalty became payable only after PASB recovered its capital investment in the project and applies only when the average price of silver in a given financial quarter is $9.00 per ounce or greater. The first royalty payment was made in 2012 and payments have been made annually since then. $0.7 million was paid in respect of this royalty in 2018.

A Bolivian state mining royalty is applied to gross metal value of sales before smelting and refining deductions, and the royalty percentage is a sliding scale of 1% to 6% depending on metal prices. The royalty is deductible from our taxable income only when the metal price of silver is above $5.50 per ounce. If the metal price is below $5.50 per ounce of silver, the royalty is creditable against corporate income tax otherwise payable. For the year ended December 31, 2018, the royalty amounted to $4.4 million (2017 - $5.0 million).

To the best of our knowledge, the San Vicente mine is not subject to any other royalties, overrides, back-in rights, payments, or other agreements and encumbrances. PASB is subject to Bolivian taxes, fees and duties.

On May 28, 2014, the Bolivian government enacted Mining Law No. 535 (the "New Mining Law"). Among other things, the New Mining Law established a new Bolivian mining authority to provide principal mining oversight (varying the role of COMIBOL) and sets out a number of economic and operational requirements relating to state participation in mining projects. Further, the New Mining Law provides that all pre-existing contracts are to migrate to one of several new forms of agreement within a prescribed period of time. As a result, we anticipate that the

current joint venture agreement with COMIBOL relating to the San Vicente mine will be subject to migration to a new form of agreement and may require renegotiation of some terms in order to conform to the New Mining Law requirements. We are assessing the potential impacts of the New Mining Law and are awaiting further regulatory developments, but the primary effects on the San Vicente operation and our interest therein will not be known until such time as we have, if required to do so, renegotiated the existing contract, and the full impact may only be realized over time.

On June 25, 2015, the Bolivian government further enacted the new Conciliation and Arbitration Law No. 708 (the "New Conciliation and Arbitration Law"), which endeavors to set out newly prescribed arbitral norms and procedures, including for foreign investors. However, whether the New Conciliation and Arbitration Law applies specifically to pre-existing agreements between foreign investors and COMIBOL, and how this new legislation interacts with the New Mining Law, remains unclear. As a result, we await clarification by regulatory authorities and will continue to assess the potential impacts of the New Conciliation and Arbitration Law on our business.

Additional risks of doing business in Bolivia include being subject to new higher taxes and mining royalties, some of which have already been proposed or threatened, and threatened expropriation of assets, all of which could have a material adverse effect on the mine and the mine's profitability. Please see the discussion under "Risks Relating to Our Business - Foreign Operations" for a further discussion of this risk.

While there are no known significant factors or risks that we currently anticipate might affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, other than as described above, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

Surface mining of veins in the area of San Vicente has occurred sporadically since colonial times. Several different owners operated the mine from 1911 through 1950. From 1950 to 1952, the mine was operated by the Aramayo Mining Company. In 1952, the Bolivian government nationalized the mine and placed it under the control of COMIBOL. Following the discovery of new silver and zinc veins in the late 1960's, COMIBOL constructed the 400 tpd Vetillas concentrating plant in 1972, which produced a silver rich zinc concentrate.

The mine was operated by COMIBOL until 1993, at which time mining was suspended pending the privatization of mining in Bolivia. In 1995, the San Vicente mine was made available as part of a joint venture arrangement with COMIBOL. On June 21, 1999, PASB, at that time a wholly-owned subsidiary of Pan American, signed a joint venture agreement with COMIBOL. Under the original terms of the agreement, COMIBOL was entitled to a participation fee equal to 20% to 30% of cash flow for each financial term once the recovery period for PASB's initial investment ended. The contract had a term of 30 years and required a minimum investment by PASB of $20 million.

Between late 2001 and early 2009, PASB and COMIBOL entered into a number of toll mining agreements with EMUSA to process San Vicente's ore at EMUSA's nearby Chilcobija mill. In 2003, PASB entered into a share purchase agreement with EMUSA, whereby EMUSA could acquire up to 49% of the outstanding shares of PASB. This agreement required EMUSA to fund feasibility and development related expenses to an aggregate of $2.5 million by May 1, 2005. EMUSA subsequently met the funding requirement and acquired the 49% interest.

In the fourth quarter of 2005, Pan American negotiated a shareholders' agreement with EMUSA and Trafigura (a minority stakeholder of EMUSA), which agreement contemplated an increase in our shareholding in PASB from 50% to 55%. Pursuant to this shareholders' agreement, which was signed in January 2006, EMUSA would hold 40% of the shares of PASB and Trafigura would hold the remaining 5%.

In July 2006, PASB and COMIBOL renegotiated the terms of the main joint venture contract, changing COMIBOL's participation fee to a fixed percentage participation fee of 37.5% of the operating cash flow, subject to certain deductions in respect of development costs and a reduction in the rate during the recovery period of PASB's investment. Pursuant to an amendment to the contract signed in June 2006, PASB committed to build a new mill, tailings storage facilities and other civil works at San Vicente during an 18-month time period which began in June 2007. The total investment to expand San Vicente and build the new processing facilities was approximately $72 million, excluding recoverable value-added tax. As part of the 2007 amendments, certain other terms were

renegotiated, including changing COMIBOL's participation fee to a fixed percentage of 37.5% of the operating cash flow, subject to certain deductions in respect of development costs.

In 2007, Pan American purchased EMUSA's 40% interest in PASB, increasing our share ownership from 55% to the current 95%, and Trafigura continued to hold its 5% interest in PASB. Between 2008 and 2009, we completed construction of a new 750 tpd capacity selective flotation plant and infrastructure as well as continued mining and toll treating ores under an agreement with COMIBOL. Commercial production from the flotation plant commenced at the end of the first quarter of 2009. Pan American and Trafigura entered into a new shareholders' agreement in 2010 to reflect the new shareholder relationship. Trafigura assigned its 5% interest in PASB to its affiliate, Urion, in 2013.

Geological Setting, Mineralization, and Deposit Types

San Vicente is located 2.5 kilometres west of the prominent north-south striking San Vicente thrust fault, which forms the eastern limit of the Bolivian Altiplano basin. Mineralization at the property is hosted by conglomerates over-thrusted by a turbidite sequence which outcrops on the east side of the mine.

The regional sedimentary sequence consists of a basement of marine siliciclastic sediments that was folded and later unconformably overlain by continental sediments and a thick sequence of continental clastic sediments (the Potoco and San Vicente formations).

San Vicente is a polymetallic vein deposit formed by hydrothermal systems forming vein type and disseminated polymetallic deposits. Mineralization in the district is known to cover an area of three by four kilometres to a depth of 300 metres. It consists of replacement veins filling pre-existing faults, replacements in brecciated conglomerates in the San Vicente fault, and mineralization in dacitic dykes. Wide veins form in the west-northwest trending structures, with widths of between two and six metres, while veins present in the northwest structures are thinner and shorter. The widest and highest grade veins form in northeast trending faults.

The minerals of economic importance are sphalerite, tetrahedrite, chalcopyrite, and galena. Cassiterite, covellite, and bornite are found in some veins. The primary gangue minerals are quartz, pyrite, marcasite, and barite.

Exploration

Prior to our involvement in the property, there was no known modern exploration on the property other than the exploitation of silver from exposed veins. Our exploration program began in 1999 following the execution of the joint venture agreement with COMIBOL. Surface diamond drilling was undertaken using HQ sized drill rigs and underground diamond drilling was done using NQ sized drill rigs. In addition to the diamond drilling, an extensive channel sampling program was undertaken in the mine, initially by COMIBOL and later by PASB.

The results of the underground channel samples and the surface and underground drillholes are used for the estimation of mineral resources and mineral reserves. Channel sampling was originally partially done by COMIBOL and later by PASB employees under the supervision of PASB geologists. Diamond drilling is executed by third party contractors under the supervision of PASB geologists.

Drilling

The mine undertakes drilling on an annual basis for mineral resource and reserve definition. Diamond drilling at the mine has been undertaken using a combination of HQ sized drill rigs at the surface and NQ sized drill rigs from underground. Drillhole spacing is variable and ranges from between 35 to 100 metres, depending on the vein.

Sampling, Analysis, and Data Verification

Channel samples are taken by PASB staff from the backs of drifts, the ribs of crosscuts, the backs of stopes, and the ribs of raises, every four metres across the veins in 20 centimetre wide channels approximately three centimetres deep. Stopes are channel sampled every 1.6 metres vertical cut on two metre centres along strike. The sample interval varies from 0.2 to 10.8 metres.

During the entire procedure from drilling, sampling, and analysis, sample security is controlled by PASB employees or by the commercial laboratories once the samples have been delivered to the sample preparation facilities. We have no reason to believe that the validity and integrity of the samples have been compromised.

In the past, the channel samples were prepared by Bondar-Clegg laboratories (now ALS Chemex) in Oruro, Bolivia or by SGS in La Paz, and then sent to their respective Lima facilities for analysis of silver, zinc, lead, and copper content using AA spectroscopy. The samples are now analyzed at the on-site laboratory operated by Pan American staff. The drill core samples are crushed, split, and pulverised by ALS Chemex, then analysed for silver, zinc, lead, and copper content using AA spectroscopy. Any sample with a silver grade greater than 500 grams per tonne is re-assayed by fire assay, and samples with greater than 10% zinc are performed using titrimetric analysis.

The QAQC program includes the submission of blanks, standards, and duplicate samples to the primary laboratory and the submission of check samples to a secondary laboratory. The results of the QAQC programs indicate that the sample assays are reliable for the estimation of mineral resources and mineral reserves.

Mineral Processing and Metallurgical Testing

As part of normal plant operation procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess mill performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the historical performance of the plant operations and the tonnes and grade of material that is planned to be mined.

Mineral Resource and Mineral Reserve Estimates

Management estimates that mineral reserves at the San Vicente mine, as at December 31, 2018, are as follows:

San Vicente Mineral Reserves [1, 2, 3]					
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Proven	1.5	396	3.00	0.34	0.43
Probable	0.7	383	2.90	0.37	0.40
TOTAL	2.2	392	2.97	0.35	0.42

Notes:

1 Estimated using a price of $18.50 per ounce of silver, $2,400 per tonne of zinc, $2,100 per tonne of lead, and $6,000 per tonne of copper. Totals may not add due to rounding.

2 Mineral reserve estimates for San Vicente were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

3 Tonnes are shown for 95% of the San Vicente property as Pan American holds a 95% interest in PASB.

Management estimates that mineral resources at the San Vicente mine, as at December 31, 2018, are as follows:

San Vicente Mineral Resources [1, 2, 3]					
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Measured	0.8	154	2.23	0.17	0.21
Indicated	0.2	148	1.73	0.22	0.22
Inferred	2.5	322	3.44	0.33	0.27

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using a price of $18.50 per ounce of silver, $2,400 per tonne of zinc, $2,100 per tonne of lead, and $6,000 per tonne of copper.

2 Mineral resource estimates for San Vicente were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

3 Tonnes are shown for 95% of the San Vicente property as Pan American holds a 95% interest in PASB.

Mineral resource estimates are prepared annually and updated with the additional drillhole and channel samples collected during the year, using industry standard mining software. The samples are composited to equal lengths and treated for extreme grade values if necessary. A block model for each vein is constructed based on the interpretations from mapping, channel and drillhole logs, and assay values. Silver, lead, and zinc grades are estimated into the blocks using ordinary kriging, and bulk density assigned to each block based on the average of density measurements. The estimate is validated and classified for confidence categories depending on the number of samples available to the estimate. Any vein with a width of less than the minimum mining width is diluted with waste to the minimum mining width, and mining dilution and recovery factors are applied to each block. The dilution and loss applied to each vein is assessed each year and adjusted according to the actual dilution experienced during mining. The estimate is depleted annually to account for production occurring during the previous year.

Following the estimation of diluted tonnes and grade in each block, a value per tonne is applied to each block based on metal grades, metal prices, concentrate sales terms, concentrate quality, metallurgical recovery, transportation, refining, and other selling costs such as storage fees, port fees, etc., as well as operating costs and mining costs dependent upon the mining method. Any blocks which are considered uneconomic after these parameters are applied either remain as mineral resources or may be removed from the inventory completely if they do not meet the criteria of mineral resources. The mineral reserves are classified as proven or probable depending on the resource classification.

Mineral reserve estimates are based on a number of assumptions that include metallurgical, taxation, and economic parameters. Increasing costs or increasing taxation could have a negative impact on the estimation of mineral reserves. There are currently no known factors that may have a material negative impact on the estimate of mineral reserves or mineral resources at San Vicente.

Mining Operations

The underground mining method used at San Vicente is primarily long hole open stoping with waste backfill as well as conventional shrinkage stoping. Access to the mine for workers and equipment is provided by ramps and the Pelayo shaft while waste and ore material is brought to the surface using both haul trucks on the ramp and hoisting at the Pelayo shaft. Locomotives are used to move broken ore and waste on the levels in the conventional areas of the mine.

Processing and Recovery Operations

San Vicente operates a 750 tpd nominal capacity plant using a standard flotation process to produce a silver-zinc concentrate and a silver-lead concentrate. Ore passes through a jaw crusher at the plant, and then is fed into a semi-autogenous mill/ ball mill grinding circuit. Following the concentration process in the flotation circuit, the

concentrates are thickened and dewatered in filter presses prior to shipping. Tailings are stored in a tailings storage facility located approximately 1.5 kilometres from the concentrator. In 2018, a total of 350,000 tonnes of ore were processed with metallurgical recoveries of 93% for silver, 80% for zinc, 80% for copper, and 65% for lead. Total metal production for the year, on a 100% basis, was approximately 3.7 million ounces of silver, 500 ounces of gold, 7,900 tonnes of zinc, 800 tonnes of lead, and 1,100 tonnes of copper.

The silver-zinc and silver-lead concentrates from San Vicente are sold under contracts with arm's length smelters and concentrate traders, which consider the presence of any deleterious elements. Both the silver-zinc and the silver-lead concentrates are taken by truck and rail to ports in Chile for shipment. We have not had any difficulty in securing contracts for the sale of the San Vicente concentrates, however, there can be no certainty we will always be able to do so or what terms will be available at the time. Please see "Risks Related to our Business – Trading Activities and Credit Risk".

The revenues per type of concentrate produced at San Vicente for the past three years were as follows:

2018	**Revenue[1, 2]**	**Quantity Sold (Tonnes)**
Zinc Concentrate[3]	$18.2 million	12,150
Silver Concentrate[3]	$42.3 million	7,284
2017	**Revenue[1, 2]**	**Quantity**
Zinc Concentrate[3]	$14.3 million	9,204
Silver Concentrate[3]	$54.2 million	8,656
2016	**Revenue[1, 2]**	**Quantity**
Zinc Concentrate[3]	$16.8 million	13,177
Lead Concentrate[3]	$62.0 million	8,689

Notes:

1 Consists of sales to arm's length customers.

2 Calculated as gross revenue plus export credit incentives (as applicable), less treatment and refining charges and export taxes.

3 Zinc concentrates contain payable silver. Lead concentrates contain payable silver and gold. Silver concentrates contain payable gold, lead, and copper.

Infrastructure, Permitting, and Compliance Activities

The mine workings, processing plant, tailings and waste storage facilities, effluent management and treatment facilities, roads, and power and water lines have already been constructed and are located within the boundaries of the mining leases and surface rights controlled by us. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing. We have agreements in place to obtain the water required for mining and processing from a combination of water wells and surface water. A power transmission line connects the mine to the Bolivian national power grid and supplies sufficient power for the plant and mining operations.

In compliance with the Environmental Regulation for Mining Activities, PASB commissioned MINCO SRL, a Bolivian consulting firm, to conduct a base line environmental audit ("ALBA") of the San Vicente mine, as well as other environmental studies in satisfaction of Bolivian laws and regulations. The ALBA sets out the present situation of the environment at the property and identifies environmental liabilities regarding pre-existing waste rock storage facilities and the environmental impact on soil, water, vegetation and solid residues caused by previous mining activities conducted on the property.

Construction of the new processing plant, tailings storage facility and ancillary facilities at San Vicente required another update to the environmental licence that was originally issued in 2002. To this end, PASB presented the application in 2007 and was advised by the Bolivian authorities that a comprehensive environmental impact assessment ("EIA") would be required for the proposed projects due to the scope and nature of the proposed changes to the operations. After a public consultation period, PASB submitted a comprehensive EIA in December 2007. A review of the EIA was initiated by the Bolivian authorities and the environmental license was granted for the San Vicente mine in May 2008.

The most significant environmental issues currently associated with the San Vicente mine are related to the waste storage facilities, acidic water from mine dewatering, acid drainage from the Pelayo waste rock storage facilities that runs into the San Vicente River, and water discharge from the San Juan and San Francisco adits. PASB constructed and operates an active chemical treatment system to improve the water quality and comply with its environmental permits. Improvements to the historic Pelayo waste rock storage facilities were implemented in 2013, 2015, and 2017 to reduce contact with the San Vicente River.

In order to remediate environmental hazards or concerns caused by previous operators of the San Vicente mine, PASB has focused on the recommendations outlined in the EIA, together with the complementary studies of Health and Industrial Safety, the Handling of Solid Residues procedures, the Closure and Rehabilitation Plan and the Contingency Plan. As per the joint venture agreement between COMIBOL and PASB, the equipment, facilities and infrastructure become the property and responsibility of COMIBOL upon the cessation of operations.

A closure cost estimate for San Vicente was prepared according to State of Nevada approved SRCE methodology in 2011 and is updated every year. We have estimated the present value of reclamation costs for the San Vicente property to be approximately $4.0 million at December 31, 2018. Pan American has not accrued any amounts for any prior existing environmental liabilities. See "Narrative Description of the Business – Environmental Protection" for further disclosure regarding forward-looking statements related to reclamation costs.

Safety audits are conducted by Pan American's Director of Health and Safety and safety managers from some of our other mines. During 2018, personnel employed at the mine attended more than 8,000 hours of safety training.

Capital and Operating Costs

In 2018, capital additions at San Vicente totalled $7.0 million and consisted primarily of investments in mining equipment and overhauls, mine infrastructure upgrades, tailings storage facility expansion, and exploration drilling.

The expected sustaining capital budget for 2019 at San Vicente totals between $6.5 million and $7.5 million, the major components of which include mine equipment refurbishment and replacements, near mine exploration, underground ventilation infrastructure expansion, and camp improvements.

In 2018, direct operating costs at San Vicente were $33.5 million.

Exploration, Development, and Production

In 2019, based on an ownership interest of approximately 95% of PASB, we anticipate producing between 3.5 million and 3.7 million ounces of silver, 300 ounces of gold, between 6,000 and 6,500 tonnes of zinc, 700 tonnes of lead, and 1,300 tonnes of copper. We plan to undertake approximately 11,500 metres of exploration drilling in 2019.

D. Argentina

(i) Manantial Espejo

Project Description, Location, and Access

The Manantial Espejo open pit and underground silver-gold mine is located in the Province of Santa Cruz, Argentina. Puerto San Julian is located 160 kilometres to the east on the Atlantic coast and Gobernador Gregores is located 60 kilometres to the west. The main access is via a gravel secondary road that connects the property with Puerto San Julian and Gobernador Gregores, the nearest major urban centers to the mine. Puerto San Julian has a population of approximately 5,500.

The mine is held 100% by our wholly owned Argentine subsidiary, MTA. The Manantial Espejo mine consists of 17 mineral concessions covering a total of approximately 25,000 hectares. The mineral concessions forming Manantial Espejo are, by law, subject to minimum expenditure requirements with respect to which we had entered into an agreement with the government of Argentina. We believe that MTA has continuously been in compliance with such agreement, and to our knowledge, we have met all of the necessary obligations to retain the property. The property includes ownership of three surface properties purchased by MTA to facilitate support and to improve the performance of its mining and exploration activities. These surface rights cover an area of 43,207 hectares and all mining and processing related activities occur within these properties. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing. All of the mineral resources and mineral reserves, mine workings, plant facilities, and tailings and waste storage facilities are contained within the leases controlled by MTA.

Production from the Manantial Espejo property is subject to royalties to be paid to Barrick Exploraciones Argentina S.A. (“Barrick”) according to the following: (i) $0.60 per metric tonne of ore mined from the property and fed to process at a mill or leaching facility to a maximum of 1 million tonnes; and (ii) one-half of one percent (0.5%) of the NSR derived from the production of minerals from the property. In addition, MTA has negotiated a royalty equal to 3.0% of operating cash flow payable to the Province of Santa Cruz.

To the best of our knowledge, the mine is not subject to any other royalties, overrides, back-in rights, payments or other agreements and encumbrances. Our operations in Argentina are subject to taxes, fees and duties.

While there are no known significant factors or risks that we currently anticipate will affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

Reconnaissance exploration on the Manantial Espejo property was first carried out in the 1970s by the Argentinean government and in 1989, ownership of the original interest in the mineral properties constituting the Manantial Espejo property was acquired by Mr. Roberto Schupbach. Pursuant to an agreement entered into in 1991 between Mr. Schupbach and Compañía Minera San Jose S.A. (a wholly owned subsidiary of St. Joe Minerals), Mr. Schupbach sold his mineral property rights to Minera San Jose. Later in the same year, St. Joe Minerals was acquired by Lac Minerals Ltd., and then in 1994, Barrick acquired Lac Minerals Ltd. and assumed ownership.

In 1996, Triton Mining Corporation (“Triton”) entered into an option agreement with Barrick to earn the right to acquire an 80% interest in the property for a total cost of $2.5 million, which right Triton then assigned to its wholly owned subsidiary MTA. Exploration on the property was advanced in 1996 by Barrick, which completed 62 diamond drill holes on the Maria Vein. In 1997, an additional 42 diamond drill holes were completed and a pre-feasibility study commenced for the construction of an open pit mine and cyanidation mill processing facility to treat and recover silver and gold from the Maria Vein.

In 1998, MTA completed making the required payments under the option agreement. Barrick and MTA subsequently incorporated Compañía Minera Alto Valle (“Alto Valle”) for the purpose of holding beneficial title to the

properties, and pursuant to a shareholders' agreement, Barrick held 20% and MTA held 80% of the shares of Alto Valle, respectively, and MTA was designated operator of the property.

In 1998, Blackhawk Mining Inc. ("Blackhawk") purchased all of the issued shares of Triton. Also, in 1998, Silver Standard Resources ("SSR") entered into an option agreement with Triton to acquire a 50% interest in MTA. Then, in April of 2001, SSR acquired Barrick's 20% interest in Alto Valle (2,400 shares), half of which it agreed to sell to Blackhawk in consideration for an interest in an unrelated mining venture.

In 2002, SSR acquired Triton's remaining 50% interest in MTA, as well as Blackhawk's 1,200 shares in Alto Valle. Concurrently, SSR agreed to sell to us 50% of the shares of MTA and half of the shares (1,200) it held in Alto Valle directly. Pan American acquired this 50% interest in the property for a purchase price of $1,912,433, which consisted of a cash payment in the amount of $662,433 and a transfer of 231,511 of our Common Shares valued at $1,250,000. In addition, we agreed to pay 50% of $200,000 in order to eliminate a 1.2% NSR royalty payable by SSR to Blackhawk and agreed to fund the first $3 million of joint venture expenditures following the issuance of a production notice. In March 2006, we negotiated and entered into a purchase agreement with SSR to acquire SSR's 50% interest in MTA and Alto Valle, respectively, thus becoming a 100% owner of the Manantial Espejo property.

In March 2006, we received approval of the EIS from the Santa Cruz Province of Argentina and signed an agreement with the Federal Government of Argentina and the Province of Santa Cruz to bring grid electrical power to the town of Gobernador Gregores with a sub-connection to Manantial Espejo. In April 2006, mine development activities were initiated and by 2008, mining operations in two open pits and two underground mines and the mills, leach circuits, counter-current-decantation, Merrill Crowe, and refinery commenced operations. The primary crusher, recycle pebble crusher and concentrate circuits were completed by early 2009.

In 2010, we completed a merger of MTA with Alto Valle.

In October 2017, we finished mining in the open pit, and continued producing only from the underground mine and surface stockpiles.

Geological Setting, Mineralization, and Deposit Types

Manantial Espejo lies near the southwestern end of the Deseado Massif, a large igneous province dominated by ignimbrites of the Chon Aike and La Matilde Formations and minor andesites and basaltic andesites of the Bajo Pobre Formation. The property area consists of a volcanic complex related to a collapsed caldera. The lithologies of the area consist mostly of sub-aerial volcanic extrusive sequences.

Silver and base metal mineralization in the Manantial Espejo district is spatially and genetically related to the Deseado Massif, where mineralization is hosted by the Chon Aike and La Matilde Formations.

The styles of mineralization predominantly include massive quartz veins, as well as vein breccias, sheeted and stockwork veining, and minor dissemination. Gold occurs mainly as electrum in pyrite while the silver occurs in a number of forms including argentiferous galena and silver sulphosalts. Sulphides account for up to 3% to 5% of the rock mass as veinlets and disseminations.

Mineralization at Manantial Espejo is hosted in four main veins known as María, Karina/Unión, Melissa, and Concepción. The majority of the mineralization outlined to date is in the María Vein. The vein is a thick silica vein exposed on surface for more than one kilometre and has been intersected at a depth of up to 275 metres. This vein averages 7.8 metres in true width and ranges from 0.63 metres to 20 metres and is open to the east and at depth. Economic grade mineralization of the vein is less continuous. Underground economic grade zones measure tens of metres, with over 100 metres of vertical extent in the María West area.

The Karina/Unión Vein is exposed on surface for a distance of 850 metres and has been drilled to a depth of 150 metres. Several interconnected high grade silver-gold epithermal veins in excess of 20 metre true widths have been observed in drillhole intersections.

The Melissa vein is thought to be the extensional component to the María shear system. The Melissa Vein has been defined by drill holes along a 300 metre strike length and 200 metres down dip and averages from between 1.5 metres and 2.5 metres wide.

The Concepción Vein is a single quartz vein. Mineralization occurs over a strike length of 600 metres and is open at depth and at both ends.

Exploration

Reconnaissance exploration on the Manantial Espejo mine was first carried out in the 1970s by the Argentinean government. Exploration on the property was advanced in 1996 and 1997 by Barrick, which drilled 104 diamond holes on the María vein. In 1998, Triton, with SSR as the operator, drilled 18 diamond drillholes on the María vein, and in 1999, Triton completed some additional prospecting, soil sampling, mapping, and a further 17 holes on other targets. In 2000, a reverse circulation and diamond drilling campaign was completed to sample the newly defined Karina, Unión, and Melissa deposits. In 2001, a reconnaissance campaign was conducted with the goal of expanding the mineral resources by drilling the María, Melissa, and Karina-Unión veins.

We began exploration efforts in 2002 by collecting surface trench samples and have completed diamond drilling programs on an annual basis to estimate mineral resources and mineral reserves. All of the property exploration has been carried out by Company geologists or contractors under the supervision of Company geologists.

Drilling

The mine undertakes diamond drilling on an annual basis for mineral resource and reserve definition. Previous drilling methods included reverse circulation and wagon-mounted percussion drilling. All MTA core has been HQ diameter with the exception of re-entry into Barrick holes for deepening, for which NQ diameter was used.

Sampling, Analysis, and Data Verification

All drill core is delivered from the drill rigs to the core shed at the property by mine personnel and transported by mine personnel to Puerto San Julian, where they are then transported by bus or truck to Mendoza. Once the samples are received by ALS Chemex, they are maintained under the control of the laboratory. There is no reason to believe that the validity and integrity of the samples has been compromised.

Samples average approximately 1.0 metres in length. There are no known drilling, sampling, or recovery factors that could materially impact the accuracy of reliability of the results.

ALS Chemex assays the sample for gold using fire assay with AA finish and for silver by four acid digest with AA finish. Any samples with assays greater than 100 grams per tonne silver and/or 10 grams per tonne gold are re-assayed by fire assay with gravimetric finish. MTA geologists submit certified standard samples and blanks to the primary laboratory and approximately 10% of the samples are sent to Acme Analytical Laboratories S. A. of Santiago for check assays.

Mineral Processing and Metallurgical Testing

As part of normal plant operation procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess mill performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the historical performance of the plant operations and the tonnes and grade of material that is planned to be mined.

Mineral Resource and Mineral Reserve Estimates

Management estimates that mineral reserves at Manantial Espejo, as at December 31, 2018, are as follows:

Manantial Espejo Mineral Reserves [1, 2]			
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Proven	1.2	156	1.26
Probable	0.1	204	3.64
TOTAL	1.3	161	1.51

Notes:

1 Estimated using prices of $16.50 per ounce of silver and $1,250 per ounce of gold for planned 2019 production, then using $18.50 per ounce of silver and $1,300 per ounce of gold. Totals may not add due to rounding.

2 Mineral reserve estimates for Manantial Espejo were prepared under the supervision of, or were reviewed by Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Management estimates that mineral resources at Manantial Espejo, as at December 31, 2018, are as follows:

Manantial Espejo Mineral Resources [1, 2]			
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Measured	0.1	169	1.66
Indicated	0.2	241	2.86
Inferred	0.5	194	2.71

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using prices of $24 per ounce of silver and $1,400 per ounce of gold.

2 Mineral resource estimates for Manantial Espejo were prepared under the supervision of, or were reviewed by Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Mineral resource estimates are prepared on an annual basis using industry standard mining software and based on the additional information collected during drilling in the previous year. Three dimensional interpretations of lithology, grade estimation domains, clay alteration, disseminated pyrite content, and bulk density are prepared and applied to the block model. The samples are composited to a common length and treated for extreme grades. Ordinary kriging is used to estimate gold and silver grades into the block model. The mineral resource estimate is then classified for confidence categories based on the density of available drillholes. The mineral resource estimate is diluted with respect to the anticipated mining method in each area, and depleted for the previous year's mining. Metal prices, cost, revenue, and metal extraction parameters are estimated on an annual basis to define a silver equivalent cut-off grade.

Mineral reserves are estimated by discounting the mineral resources for mining losses associated with pillars left behind for stability and safety reasons. Geometries are prepared for underground mining panels. Any blocks which are considered uneconomic after these parameters are applied either remain as mineral resources or may be removed from the inventory completely if they do not meet the criteria of mineral resources. The mineral reserves are classified as proven or probable depending on the resource classification.

Mineral reserve estimates are based on a number of assumptions that include metallurgical, taxation, and economic parameters. Increasing costs or increasing taxation could have a negative impact on the estimation of mineral reserves. There are currently no known factors that may have a material negative impact on the estimate of mineral reserves or mineral resources at Manantial Espejo.

Mining Operations

Ore was mined at Manantial Espejo using a combination of conventional open pit and underground mining methods until October 2017, when open pit mining ceased. All production now is from the underground mine and surface stockpiles. The underground mining operations consist primarily of long-hole and mechanized cut and fill mining methods utilizing development waste as backfill. The underground mine is expected to operate into 2021.

Processing and Recovery Operations

Ore is treated by conventional crushing, semi-autogenous/ball mill grinding, bulk gravity concentration, intensive gravity concentrate agitation leaching, thickening, agitated cyanide leaching of the gravity tailings slurry, counter current decantation thickening, Merrill Crowe zinc precipitation, sulphur dioxide cyanide neutralization, conventional pulp tailings disposal, and conventional silver and gold doré bar production from melting of the Merrill Crowe precipitate. The nominal treatment rate at design capacity is 2,000 tpd of ore.

In 2018, we processed approximately 804,000 tonnes of ore with metallurgical recoveries of 88% silver and 93% gold, producing 3.1 million ounces of silver and 34,600 ounces of gold.

All production from the Manantial Espejo mine is in the form of doré bars, which is refined at arm's length refineries prior to the sale of refined silver and gold to bullion banks and traders. We have entered into multi-year refining contracts with two refineries for the production from Manantial Espejo. We have not had any difficulty in securing contracts for the sale of Manantial Espejo doré, however, there can be no certainty that we will always be able to do so or what terms will be available at the time. Please see "Risks Related to our Business – Trading Activities and Credit Risk".

During the past three years, the revenue produced by the Manantial Espejo mine was as follows:

2018	**Revenue[1, 2]**	**Quantity Sold**	
Silver and Gold in Doré	$90.9 million	3,085,989	ounces of silver
		34,746	ounces of gold
2017	**Revenue[1, 2]**	**Quantity Sold**	
Silver and Gold in Doré	$111.6 million	3,170,713	ounces of silver
		46,532	ounces of gold
2016	**Revenue[1, 2]**	**Quantity Sold**	
Silver and Gold in Doré	$144.0 million		

Notes:

1 Consists of sales to arm's length customers.

2 Calculated as gross revenue plus export credit incentives (as applicable), less treatment and refining charges and export taxes.

Infrastructure, Permitting, and Compliance Activities

The mine workings, processing plant, tailings and waste storage facilities areas, effluent management and treatment facilities, roads, and power and water lines have already been constructed and are located within the boundaries of the mining leases and surface rights controlled by us. To the best of our knowledge, all permits and licenses required to conduct our activities on the property have been obtained and are currently in good standing. Power is sourced from a diesel generating plant at the site. Water is sourced from underground mine water and surface mine dewatering wells.

An EIA for the project, as required under provincial and federal laws, was prepared including mine design, tailing storage facility design, utility supply, water development studies, impact assessment, and records of extensive public consultation. In March 2006, we obtained approval of the EIA from the Province of Santa Cruz. The EIA is updated every two years. EIA updates have included activities at the COSE and Joaquin projects and approvals have been received on schedule. No material delays to advancement of these projects is anticipated due to permitting.

No reclamation bond is currently required for mining operations in Argentina, however environmental reclamation insurance is required and we hold a policy for Manantial Espejo. A preliminary reclamation plan was developed for the property and included in the EIS submitted to the Argentine government during 2006. An updated EIA approved in December 2015 included an update to the reclamation plan and fulfills all closure planning requirements under Argentine law. A further update to the closure plan was approved in 2017. In 2017, we established a $40 million Argentine peso fund in relation to the period up to 2019 to be controlled by Pan American and used for social closure and infrastructure activities in Gobernador Gregores.

A closure cost estimate for Manantial Espejo was prepared according to State of Nevada approved SRCE methodology in 2011 and is updated every year. Pan American has estimated the present value of reclamation costs for the Manantial Espejo mine to be approximately $10.9 million as at December 31, 2018. See “Narrative Description of the Business – Environmental Protection” for further disclosure regarding forward-looking statements related to reclamation costs.

Safety audits are conducted by Pan American’s Director of Health and Safety and safety managers from some of our other mines. Manantial Espejo was the recipient of the Chairman’s Safety Award for safety performance in 2010 and in 2011, years in which Manantial Espejo went without any LTIs, and also worked all of 2013 without an LTI. Personnel at Manantial Espejo attended nearly 14,000 hours of training during 2018.

Capital and Operating Costs

Capital additions at Manantial Espejo during 2018 totalled $2.8 million, and consisted mainly of near mine exploration drilling.

Capital investments in 2019 include between $1.5 million and $2.0 million in sustaining capital, primarily for near mine exploration and upgrades to the process plant.

In 2018, direct operating costs at Manantial Espejo were $85.7 million.

Exploration, Development, and Production

In 2019, we anticipate producing between 3.4 and 3.6 million ounces of silver, and between 42,000 and 45,000 ounces of gold. We plan to undertake approximately 3,800 metres of exploration drilling in 2019.

II. Development Properties

(i) Navidad Property

Project Description, Location, and Access

The Navidad silver development property is located in Gastre Department in the Province of Chubut, southern Argentina, 1,580 kilometres southwest of Buenos Aires and 360 kilometres west of Puerto Madryn. The Navidad property is accessible year round by road from the small communities of Gastre and Gan Gan, which are located on a provincial highway. The nearest airport is located in Esquel, about four hours’ drive to the southwest by gravel road.

We are the operators of the development project through our wholly owned subsidiary, MASA. The main Navidad property block containing all of the current mineral resources is comprised of four 2,500 ha blocks granted with Manifestación de Descubrimiento (“MD”) permits. MASA also holds the rights to additional MDs in the Province of Chubut. All of these MDs are in good standing with the mining authorities of the Province of Chubut, and to our knowledge, we have met all of the necessary obligations to retain the property. Our tenements are subject to

Argentinean law and policy, which may in the future result in surrender of certain of its tenements outright and/or the reduction in area of our holdings.

Access to land for drilling and other exploration activities is allowed through outright surface ownership as well as through a series of easement contracts with neighbouring surface owners. We hold large surface land rights covering all known mineral resources through MASA. The remaining surface rights belong to several other land holders and access is either in negotiation or has been granted through agreements with the owners.

All of the known mineralized zones and planned mine workings, processing plant, effluent management and treatment systems, and tailings storage areas relating to the property are located within the boundaries of the concessions and surface rights.

Wheaton Precious Metals Corp. (formerly Silver Wheaton Corp.), through its subsidiary, Silverstone Resources (Barbados) Corp., has the right to purchase 12.5% of the life of mine payable silver produced at the Loma de La Plata deposit pursuant to a convertible debenture that, upon conversion, committed Aquiline to a future “silver stream” agreement. This agreement remains to be negotiated.

There is a provincial royalty of 3% of the “Operating Income” in the Province of Chubut. Operating Income is defined as revenue minus production cost (not including mining costs), treatment and transportation charges.

To the best of our knowledge, the property is not subject to any other royalties, overrides, back-in rights, payments or other agreements and encumbrances. Our operations in Argentina are subject to government taxes, fees and duties.

The Province of Chubut passed a law in 2003 (“Law 5001”) that prohibits open pit mining and the use of cyanide in mineral processing in the entire province, effectively preventing the development of Navidad. To date, this law remains in place. Please see the discussion below under “Risks Relating to Our Business – Government Regulation”.

There are material governmental and legal factors that affect the mineral resources at Navidad and the conversion of the mineral resources to mineral reserves. Legislation in place in the Province of Chubut currently prohibits open pit mining and the use of cyanide in the entire province. No cyanide will be used to process the material anticipated to be mined at Navidad, but given the depth and orientation of the deposits, the economic mine plan involves open pit mining. Because of these governmental and legal factors, the otherwise economically viable portions of the deposit cannot be estimated as mineral reserves at this time.

Since 2011, the Federal Government of Argentina increasingly controlled foreign exchange, imports and exports and the inflow and outflow of capital in response to unfavourable domestic economic trends. With the election of a new Federal Government in Argentina in late 2015, certain of these restrictions have been eased, but it remains uncertain as to whether such changes will be lasting, whether additional changes will be made or how our business will be impacted. See “Risks Related to Our Business – Foreign Operations”.

While there are no other known significant factors or risks that we currently anticipate will affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

The first known exploration program that included the Navidad property area consisted of a preliminary regional geochemical sampling program conducted by Normandy Argentina (“Normandy”) in mid-2000 to locate additional deposits to supplement those known at its Calcatreu Property, a gold and silver deposit located approximately 80 kilometres from Navidad. The program consisted of 1,200 bulk leach extractable gold (BLEG) stream sediment samples taken from what was then considered open exploration ground, and resulted in the identification of Navidad.

In January and February 2002, Newmont Mining (“Newmont”) purchased Normandy’s worldwide mining interests. In September 2002, IMA Exploration Inc. (“IMA”) signed a confidentiality agreement in order to obtain a

copy of the information brochure and technical data related to Newmont's Argentinean interests, which included the Calcatreu property. In December 2002, IMA applied for exploration concessions over the Navidad area, utilizing and relying upon the Normandy BLEG data, and began undertaking a regional exploration program including regional mapping and sampling. From December 2002 to July 2006, IMA conducted diamond drilling, geochemical sampling, geophysical exploration, and mineral resource estimates at Navidad.

In January 2003, Aquiline entered into an agreement with Newmont, which was completed in July 2003, to purchase all of the shares of Normandy and Newmont's 100% interest in Calcatreu, and acquired all of Newmont's assets including the BLEG data. In May 2003, Aquiline reviewed the BLEG data and found that the ground covered by the BLEG data had already been claimed by IMA. After failure to receive a credible response from IMA as to how they could otherwise have made a legitimate discovery at Navidad without having breached the terms of the confidentiality agreement, Aquiline went on to file suit in the Supreme Court of British Columbia in March 2004.

The Supreme Court of British Columbia awarded ownership of the Navidad property to Aquiline on July 14, 2006, following a court case with IMA where IMA was found to have breached the confidentiality agreement. IMA subsequently appealed to the Court of Appeal of British Columbia, but lost the appeal in June 2007. An application for leave to appeal to the Supreme Court of Canada was filed by IMA in September 2007. Sole ownership rights were granted to Aquiline by the Supreme Court of Canada on December 20, 2007, subject to Aquiline making payment to IMA which would reimburse the latter for its accrued exploration expenditures up to the July 2006 court decision. Aquiline's final payment to IMA was made on February 8, 2008, giving Aquiline full ownership of the Navidad property.

From October 2006, Aquiline undertook diamond drilling, geophysical and geochemical exploration, metallurgical test work, resource estimates, and a preliminary economic assessment for Loma de La Plata.

On October 14, 2009, we announced a friendly offer to acquire all of the issued and outstanding shares of Aquiline. On December 7, 2009, we acquired approximately 85% of the issued and outstanding shares of Aquiline and extended our bid to December 22, 2009, and on that later date, we took up approximately an additional 7% of the issued and outstanding shares in the capital of Aquiline. Since the offer to acquire the Aquiline shares was accepted by holders of more than 90% of the Aquiline shares, on December 23, 2009, we provided notice to the remaining shareholders of our intention to exercise our right to acquire the remaining issued and outstanding Aquiline shares pursuant to the compulsory acquisition provisions of the Business Corporation Act (Ontario). Pursuant to the compulsory acquisition, we acquired the balance of the Aquiline shares on or about January 22, 2010.

Early in 2010, we took possession of the Navidad property. We continued with a drilling campaign, metallurgical testing, hydrologic analysis, environmental studies, and several other works on the Navidad property site during 2011. A preliminary economic assessment of the Navidad property deposits was completed in January 2011.

Geological Setting, Mineralization, and Deposit Types

The Navidad property is located on the southwest edge of the Northern Patagonia Massif in southern Argentina. This boundary of the massif is coincident with the Gastre Fault System, one of a series of northwest to southeast trending half grabens and tectonic basins. Granitoid rocks of the basement in the northern part of the Province of Chubut belong to the Mamil Choique and Lipetren formations. At Navidad the sequence consists of ignimbrites, volcanic agglomerates, and lavas of the Lonco Trapial Formation and sandstones, mudstones, and limestones of the Cañadón Asfalto Formation. The latter of these formations hosts the Navidad mineralization.

The basin includes, and is defined by, three northwest-striking major fault zones, generally referred to as 'trends'. These comprise the Argenta, Esperanza, and Navidad trends. The Navidad Trend, which includes the bulk of the silver mineralization, occurs in the immediate hanging wall of a major northeast-striking fault known as the Sauzal Fault. Most of the economic mineralization is hosted by the upper of two trachytic andesite lava flows referred to as latite.

To date, the Navidad property comprises eight individual epithermal mineral deposits in the Navidad, Esperanza, and Argenta trends. The six deposits of the Navidad Trend occur along strike over a distance of about 5.8 kilometres and are essentially continuous. They comprise, from northwest to southeast: Calcite NW, Calcite Hill, Navidad Hill, Connector Zone, Galena Hill, and Barite Hill. The Valle Esperanza deposit occurs on the east flank of the

Esperanza Trend and is found approximately 400 metres south-southwest of Galena Hill. The Loma de La Plata deposit occurs in the north part of the Argenta Trend, approximately 2.2 kilometres southwest from Calcite Hill.

Silver and base metal mineralization includes native silver, clots of black sulphide comprising argentite/acanthite, discrete grains of sphalerite, galena, chalcopyrite, cuprite, bornite, native copper, and copper carbonates (malachite, azurite). Similar styles of mineralization and a similar paragenesis occur in most of the deposits, however, the proportion of sulphides varies considerably. Loma de La Plata is silver-rich, but is sulphide-poor and contains very low levels of lead, zinc, and copper. Various pulses of mineralization are observed, principally at Galena Hill.

The principal metal association is Ag-Pb. Other associations include Ag-Pb-Cu and Cu-Ag and, more rarely, Ag-Zn. Occasionally there is Ag only, or Cu-Pb-Zn or simply isolated occurrences of these base metals. Gold appears to be totally absent from the system.

Exploration

The first exploration on the Navidad property area consisted of a preliminary regional geochemical sampling program conducted by Normandy in mid-2000. The program consisted of 1,200 BLEG stream sediment samples taken from drainage systems overlying volcanic rocks in the Province of Chubut in the general vicinity of Calcatreu, Mina Angela, Gastre, Lagunita Salada, Gan Gan, and other areas. This program resulted in the identification of various anomalies, including the Flamingo Prospect and the Navidad property.

IMA commenced initial detailed outcrop mapping of the Navidad property along the Navidad Trend in 2003 and expanded the mapping in 2004 to cover a wider portion of the mineral tenement at larger scales. Commencing in 2002 and continuing through 2006, IMA collected soil, rock chip and stream silt samples over the Navidad property. Collectively the anomalous rock chip samples clearly delineate the Navidad, Esperanza and Argenta trends, as does the soil geochemistry. Between 2003 and 2006, IMA completed 367 drillholes on the property.

Between October 2006 and June 2009, Aquiline focused exploration efforts on identifying new exploration targets with diamond drilling, with delineation and infill drilling at the Loma de La Plata deposit, and with minor infill drilling of the other previously identified mineralized zones. Exploration for additional deposits through the use of fence drilling across prospective covered areas was also undertaken. Geological mapping and geophysical and geochemical exploration also progressed to provide data for structural interpretation. Prior to our acquisition of the property, 950 drillholes had been drilled on the property.

We continued exploration drilling on several open or new targets along the mineralized trends as well as infill drilling at Loma de La Plata, Valle Esperanza, Barite Hill, Calcite Hill, Calcite NW, Connector Zone, and Galena Hill during 2010 and 2011, completing approximately 129,500 metres of diamond drillholes. These infill drillholes also provided new samples for metallurgical analysis. In addition, condemnation and geotechnical drilling was conducted in the various planned facility areas during 2010.

All exploration work on the property has been undertaken by employees of IMA, Aquiline, or MASA, or by contractors under the supervision of these employees.

All of the samples collected during surface exploration have been used to guide the location of diamond drillholes.

Drilling

All diamond drilling has been completed by Boart Longyear Connors Argentina S.A. of Mendoza, Argentina, which was acquired by Boart Longyear in 2007. Nearly all holes have been drilled at HQ3 diameter with 3 metre long rods. Approximately 320,000 metres of drilling have been completed on the Navidad property, mostly on 25 metre centres across the eight deposits. The results of these drilling campaigns are used to estimate mineral resources at Navidad.

Sampling, Analysis, and Data Verification

Sample intervals vary from between 1 metre and 3 metres long. There are no known drilling, sampling, or drill core recovery factors that could materially impact the accuracy and reliability of the results and the data is considered suitable for use in mineral resource estimates. Drill core logging, cutting, sampling, and sample preparation and analytical techniques at the Navidad property follow industry practices. There are no known drilling, sampling, or recovery issues that could materially impact the reliability of the results.

Sample security is a low risk considering the remote nature of the property and the core storage facilities. There is no reason to believe that the validity and integrity of the samples have been compromised.

All diamond drill core samples at the Navidad property have been analysed by Alex Stewart Assayers Argentina S.A. of Mendoza, Argentina, using fire assay with gravimetric finish for silver and with AAS finish for gold, and ICP-ES for 19 elements using the ICP ORE technique. The QAQC protocol employed by Alex Stewart consisted in batches of 50 samples for fire assay and up to 100 samples for ICP. Fire assay batches included one preparation blank, one analytical blank, one coarse duplicate, four pulp duplicates, one international certified standard for base metal and silver, one uncertified in-house standard, and two standards made from pure silver to calibrate losses in cupellation. ICP batches included two blanks, four standards, and 10% duplicates.

Certified standards, blanks, and field duplicates were routinely inserted by the mine geologist with sample submissions as part of the sample assay QAQC program. Analysis of the QAQC samples submitted with the geological samples used to estimate mineral resources at Navidad indicates that there is no significant source of bias, cross contamination, or inaccuracy.

Mineral Processing and Metallurgical Testing

Extensive metallurgical testing has taken place on the Navidad mineralization, including mineralogical studies, flotation and recovery test work, grinding test work, and variability test work. The results indicate that the material responds well to flotation with acceptable recoveries and concentrate grades. The expected metallurgical performance for the Navidad mineralization was determined by laboratory bench-scale flotation test methods and a pilot plant test on one feed type. There are two distinct feed types that have been defined as copper-silver feed and lead-silver feed. The metal recoveries and the concentrate tonnage for both the silver-copper feed and the lead-silver feed vary by the degree of oxidation, lithology, and grade. Recovery algorithms have been constructed for each feed type using an analysis of the laboratory and pilot test results. The algorithms are used to project recoveries by feed type, oxidation state, lithology, and grade. Average recoveries of 77.8% for silver, 51.9% for copper, and 56.6% for lead were estimated for the silver-copper feed and average recoveries of 33.6% for silver, 32.6% for copper, and 76.6% for lead were estimated for silver-lead feed.

Mineral Resource Estimates

Management estimates that mineral resources at the Navidad property, as at April, 2009, are as follows:

Navidad Mineral Resource [1, 2]

Resource Category	Tonnes (Mt)	Grams of Silver per tonne	% Lead	% Copper
Measured	15.4	137	1.44	0.10
Indicated	139.8	126	0.79	0.04
Inferred	45.9	81	0.57	0.02

Notes:

1 Estimated and reported above a 50 g/t AgEQ using a silver equivalence formula of AgEQ = Ag + (Pb × 10,000/365) and a price of $12.52 per ounce of silver and $1,100 per tonne of lead. The most likely cut-off grade for these deposits is not known at this time and must be confirmed by the appropriate economic studies. The estimated metal content does not include any consideration of mining, mineral processing, or metallurgical recoveries.

2 Mineral resource estimates for Navidad were prepared by Pamela De Mark, P. Geo., as a Qualified Person as that term is defined in NI 43-101.

Mineral resource estimates were prepared as of April 2009 using industry standard mining software. Geological interpretations and modelling of lithological and mineralization domains were completed based on the drillhole data. A three dimensional block model was prepared and bulk density values were applied to the blocks according to the mean of bulk density measurements. Silver and lead grades were estimated into the blocks using multiple indicator kriging and copper grades were estimated using ordinary kriging. The mineral resources were classified for confidence categories with respect to the confidence in the data and the interpretation, and the drillhole density. Mineral resources were reported above a cut-off grade of 50 grams per tonne silver equivalent, using metal prices of $12.52 per ounce of silver and $1,100 per tonne of lead.

Mineral resource estimates are based on a number of assumptions that include metallurgical, taxation, and economic parameters. Increasing costs or increasing taxation could have a negative impact on the estimation of mineral reserves. Aside from the previously mentioned factors, there are currently no other known factors that may have a material negative impact on the estimate of mineral resources at Navidad.

Mining Operations

A preliminary economic assessment completed in 2011 anticipated a daily production rate of 15,000 tpd from open pit mines at the eight deposits using shovels and 150 tonne trucks. The mine schedule, based on the current mineral resources, was anticipated to last nearly 15 years after a pre-production and construction period with an additional 18 months of re-handling feed from a low grade stockpile for plant feed after mining is completed.

Processing and Recovery Operations

The process plant was anticipated to consist of a gyratory crusher, stockpile, and a 15,000 tpd capacity semi-autogenous/ball mill with flotation and filtration, producing a copper silver concentrate and a lead silver concentrate. There are no contracts in place for the sale of the concentrates.

Infrastructure, Permitting, and Compliance Activities

The planned mine workings, processing plant, tailings and waste storage facilities, effluent management and treatment facilities, roads, and power and water lines are expected to be located within the boundaries of the mining leases and surface rights controlled by us. Permit applications for any future mine at Navidad have not been submitted. To the best of our knowledge, all permits and licenses required to conduct our care and maintenance activities on the property have been obtained and are currently in good standing. Electrical power is provided by several small generators. We are authorized to use water from several bore holes for camp use.

Drilling at the Navidad property requires a separate permit for each affected tenement valid for one year, subject to the submission of an EIS update within a one year period from the date of granting each successive permit. An updated EIS is required to cover the exploration activities, environmental impacts, and mitigation/monitoring actions implemented in the period following the last permit. The level of the exploration activity dictates the level of study required.

Environmental and social baseline studies have been completed for the Navidad property. The most recent EIS update was submitted in 2011 and is currently held under administrative review by the Chubut Ministry for the Environment and Control of Sustainable Development. This drilling permit in connection with the EIS would allow for the operation of up to eight drill rigs, however no drilling is planned in the immediate future. Rehabilitation of the drilling platforms and impacted areas is carried out continuously, and we maintain an environmental management and monitoring program on site.

Water rights are treated separately from environmental permits. Two extraction wells have been permitted for use in exploration or reclamation activities.

Currently, Chubut's Law 5001 prohibits open pit mining and the use of cyanide in mineral processing in the entire province. Law 5001 banning open pit mining methods would need to be changed, or rezoning enacted, before permits for the development of Navidad can be obtained.

A closure cost estimate for Navidad was prepared according to State of Nevada approved SRCE methodology in 2011 and is updated every year. We have estimated the present value of reclamation costs for the Navidad development property to be approximately $0.3 million at December 31, 2018. Minera Argenta holds environmental reclamation insurance for the Navidad property in accordance with Argentinean law. See "Narrative Description of the Business – Environmental Protection" for further disclosure regarding forward-looking information related to reclamation costs.

Capital and Operating Costs

In 2018, $3.6 million was spent on activities at Navidad, including work on updating the project's EIA and supplementary environmental baseline monitoring. In 2017, $2.9 million was spent on activities at Navidad. Over the past year, the Navidad property budget assumed that the law in the Province of Chubut would not be amended in a manner that would encourage further investment at this stage and hence, our activities at Navidad were guided by an investment plan that focussed primarily on satisfying the legal requirements necessary to maintain our property interests under the current mining law. We plan to continue with such maintenance requirements. All expenditures will be expensed as incurred.

Exploration, Development, and Production

We plan to continue with our maintenance requirements, and have no plans to undertake any exploration drilling in 2019. All expenditures will be expensed as incurred.

(ii) Joaquin Property

Project Description, Location, and Access

Joaquin is an advanced stage silver-gold property located in Santa Cruz Province, approximately 100 kilometres northeast of the town of Gobernador Gregores. The property is accessed from Provincial Route 25, either from Gobernador Gregores 40 kilometres to the east or from Puerto San Julian 170 kilometres to the west, and then via Provincial Route 12 leading north for 120 kilometres to the Las Vallas estancia. From Las Vallas, the property and camp are accessed by a local road leading west for 15 kilometres. All of the roads are gravel. Commercial air services are available in El Calafate, Argentina, approximately 330 kilometres to the southwest of Gobernador Gregores.

On February 10, 2017, Pan American acquired 100% of the property from Coeur Mining Inc. ("Coeur"). The consideration for the acquisition was $25.0 million, comprised of $15.0 million in cash and $10.0 million of Pan American's common shares valued as of January 13, 2017 (525,654 total common shares), plus a 2.0% NSR royalty on the property. Duties and royalties payable to the government include a Santa Cruz Provincial Royalty of 3% on margin

and an export duty on silver and gold doré. There are no other known back-in rights, payments, agreements, or encumbrances in place. Our operations in Argentina are subject to government taxes, fees and duties.

The property mineral rights are held under seven contiguous concessions with a total area of approximately 12,000 hectares covering the entire mineral resource and mineral reserve, and proposed underground mine and surface infrastructure. Pan American has acquired responsibility for the annual payments required to maintain the concessions and has agreements in place granting it surface rights and access to the property, and to Pan American's knowledge, all obligations required for the conduct of activities at the property are currently in good standing.

While there are no known significant factors or risks that we currently anticipate will affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, please refer to "Risks Related to Our Business" starting on page 75 for a general discussion of the risks relating to our operations.

History

Mirasol Resources Ltd ("Mirasol"), which had a 100% interest in the property, discovered mineralization in the Joaquin area, including the La Morocha, La Negra, Joaquin Main, and La Morena prospects, during an evaluation of regional targets in 2004. Following reconnaissance work and sampling of the prospects in 2005, Mirasol and Coeur signed an agreement for the property in November 2006, granting Coeur an option to earn up to a 71% managing interest in a joint venture, subject to certain conditions. The first diamond drilling programs on the property began in late 2007 and continued annually until 2013. Coeur disclosed the results of mineral resource estimates at the La Morocha and La Negra deposits in 2011, 2012, and 2013, using open pit mining and on-site agitated leach and heap leach processing assumptions. Additionally, Coeur carried out geological mapping, surface sampling, geophysical surveys, spectral studies, and metallurgical studies. On December 21, 2012, Coeur acquired 100% ownership of the property through the acquisition of Mirasol's remaining 49% interest in the property. Coeur's activity on the property significantly decreased from 2014.

We acquired the Joaquin property in February 2017 and are proceeding with an approximately $37.8 million capital investment, excluding $3.6 million in recoverable value added tax ("VAT"), to construct an underground mine at La Morocha.

Geological Setting, Mineralization, and Deposit Types

The property is located within the Deseado Massif geological province. Regional bedrock comprises ignimbrites and tuffs of the Chon Aike Formation, which hosts silver and gold mineralization on the property within a northwest trending structure that dips 45° to the northeast and trends for 375 metres, between 110 metres and 310 metres below surface. The majority of the mineralization is hosted within a silicified breccia. Silver is present as native silver, bromargyrite, and acanthite/argentite, with lesser stromeyerite, freibergite, and pyrargyrite/stephanite. The sulphide content is low and consists principally of pyrite and galena.

Exploration in the property area was focussed principally on the discovery and delineation of low sulphidation, silver-gold epithermal mineralization of the type well documented throughout the Deseado Massif. Mineralization at Joaquin is classified as low sulphidation hydrothermal breccia.

Exploration

The first geological reconnaissance and geochemical sampling at the property was undertaken by Mirasol during 2005 and 2006. Following the agreement between Coeur and Mirasol, exploration was undertaken in the form of geological mapping, rock chip geochemical sampling, ground and aerial geophysical surveys, clay studies, mineralogical studies, and diamond drilling. This work resulted in the identification of the La Morocha, La Negra, Joaquin Main, Joaquin Norte, and La Morena prospects. A program of geological mapping at 1:20,000 scale, ASTER alteration mapping, and structural interpretation was carried out over these prospects, as well as geological mapping and rock chip geochemical sampling over the majority of the concessions.

Three ground magnetic surveys undertaken in 2009 by Akubra S.A. of Mendoza, Argentina, showed a clear magnetic response at La Morocha and a low magnetic response at La Negra. In 2010, an airborne magnetic survey

covering 3,420 line kilometres over the property area, in north-south lines spaced every 200 metres, was carried out by Geodatos Limitada of Mendoza, Argentina, which produced magnetic lineaments over La Morocha and La Negra.

Exploration potential exists at the La Negra deposit, where two steeply dipping trends of mineralization located 350 metres apart along strike have been defined by wide spaced drilling (60 metres along strike) but is currently uneconomic by either open pit or underground methods, assuming transport to Manantial Espejo for processing. The northern zone is 170 metres long and 20 metres in depth, and defined by 16 drillhole intersections with average downhole widths of 5.2 metres and average grades of 1,497 ppm Ag and 0.45 ppm Au. The southern zone is 300 metres long and 125 metres in depth, and defined by 24 drillhole intersections with average downhole intersection widths of 2.0 metres and average grades of 454 ppm Ag and 1.06 ppm Au.

Drilling

Diamond drilling on the property was completed by Coeur with a program of 54,811 metres in 348 holes between 2007 and 2013 and by Pan American with a program of 6,996 metres in 51 holes during 2017. Pan American's drilling included 39 holes for 6,479.4 metres at La Morocha and 12 holes at La Negra for 517 metres. Drillhole spacing at La Morocha is 25 metres along strike and between 30 metres and 60 metres down dip. At La Negra, drillhole spacing is 60 metres along strike.

Sampling, Analysis, and Data Verification

All drill core has been split with a diamond saw for sampling by Coeur or Pan American geologists. Samples are transported to the laboratory using a third party commercial transportation company. The sample chain of custody follows standard industry practice.

Coeur used Alex Stewart laboratories in Mendoza, Argentina, as the primary laboratory from 2007 until the end of 2009, with another approximately 1,100 samples assayed at ALS Chemex in Lima, Peru. The laboratory was then switched to ALS, with sample preparation in Mendoza, Argentina and geochemical analysis in La Serena, Chile. The samples were dried if necessary, then crushed in a jaw crusher, riffle split to obtain a 300 gram subsample, and pulverized to 75 microns. All samples were assayed for silver and gold using fire assay with gravimetric finish, using a 50 gram charge at Alex Stewart and a 30 gram charge at ALS.

Pan American used Alex Stewart laboratories in Mendoza, Argentina. The samples were dried, crushed to 80% passing #10 mesh, riffle split to obtain a 600 gram sub-sample, then pulverized to 95% passing #140 mesh. Samples were assayed for silver and gold using fire assay with AA finish with a 50 gram charge.

Quality control measures implemented during the drilling programs included the submission of blanks, certified standards, and duplicate samples dispatched with the drill samples. We believe that the preparation, analytical, and security procedures followed for the samples are sufficient and reliable for the purpose of the mineral resource and mineral reserve estimates.

Mineral Processing and Metallurgical Testing

The available metallurgical test work includes cyanide leaching, flotation, sulphuric acid leaching followed by cyanide leaching, bottle roll tests with particle size and cyanide concentration optimization, and grinding and thickening tests. This work has shown that the silver and gold in the La Morocha ore is recoverable by agitated cyanide leaching in tanks at the Manantial Espejo processing facilities. The metallurgical recovery of both gold and silver is estimated to average 81%.

There are no known material issues or deleterious elements that could have a significant effect on the economic extraction of the Joaquin ore.

Mineral Resource and Mineral Reserve Estimates

Management estimates that mineral reserves at Joaquin, as at December 31, 2018, are as follows:

Joaquin Mineral Reserves [1, 2]			
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Probable	0.47	721	0.41
TOTAL	0.47	721	0.41

Notes:

1 Estimated using prices of $18.50 per ounce of silver and $1,300 per ounce of gold. Totals may not add due to rounding.

2 Mineral reserve estimates for Joaquin were prepared under the supervision of, or were reviewed by Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Management estimates that mineral resources at Joaquin, as at December 31, 2018, are as follows:

Joaquin Mineral Resources [1, 2]			
Resource Category	**Tonnes**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Indicated	58000	385	0.58
Inferred	6000	389	1.29

Notes:

1 Mineral resources are in addition to mineral reserves. Estimated using prices of $25 per ounce of silver and $1,400 per ounce of gold.

2 Mineral resource estimates for Joaquin were prepared under the supervision of, or were reviewed by Christopher Emerson, FAusIMM, and Martin G. Wafforn, P.Eng., as Qualified Persons as that term is defined in NI 43-101.

Mineral resource estimates were prepared using ordinary kriging within three dimensional geological interpretations using industry standards software. The block model was classified for measured, indicated, and inferred confidence categories depending on the location of the block relative to the number of drillhole intersections available to estimate each block, as well as other factors affecting confidence in the estimate.

Dilution was applied to the estimate using the estimated grade of the waste material. For mineral resources, an NSR value was applied to each block based on grade, metallurgical recovery, mineral resource metal prices, and estimated costs. Potentially mineable stope shapes were generated around the diluted mineralized zones based on geometrical, geotechnical, and economic NSR cut-off value constraints. No mining recovery factors were considered for the estimation of mineral resources.

For mineral reserves, an NSR value was applied to each block based on grade, metallurgical recovery, mineral reserve metal prices, and estimated costs. The same dilution parameters used for mineral resources were applied for mineral reserves. Additionally, mining recovery assumptions account for expected losses during mining based on mining method. Stope designs were created around the diluted mineralized zones based on geometrical, geotechnical, and economic NSR cut-off value constraints. The inventory within these stopes was further refined to exclude material in pillars, in spatial outliers, within poor geometric stope shapes, and any other unmineable stopes. Resources and reserves are reported separately within the stope shapes.

Mineral reserve estimates are based on a number of assumptions that include metallurgical, taxation and economic parameters. Increasing costs, lower metal prices or increasing taxation could have a negative impact on the estimated mineral reserves. There are currently no known factors that may have a material negative impact on the estimated mineral reserves or mineral resources at Joaquin.

Mining Operations

Mining will be undertaken using underground methods with ore hauled by diesel trucks from underground to surface stockpiles. The deposit dips from 40° to 45° and has widths of less than one metre up to 40 metres. Three variants of underground cut and fill mining methods were selected to suit this geometry, including traditional cut and fill, drift and fill, and post pillar cut and fill, using mine development waste rock for backfill.

Processing and Recovery Operations

The Joaquin ore will be trucked to Manantial Espejo and processed at the existing cyanide leach plant using conventional crushing, semi-autogenous/ball mill grinding, concentration, leaching, thickening, counter current decantation thickening, Merrill Crow precipitation, cyanide neutralization, conventional pulp tailings disposal, and conventional silver and gold doré bar production from melting of the Merrill Crowe precipitate.

All production of Joaquin ore at the Manantial Espejo mine will be in the form of doré bars, which will be refined at arm's length refineries prior to the sale of refined silver and gold to bullion banks and traders. As with Manantial Espejo doré, we anticipate entering into multi-year refining contracts for the production from Joaquin. We have not had any difficulty in securing contracts for the sale of Manantial Espejo doré and similarly do not anticipate difficulties for Joaquin doré, however, there can be no certainty that we will always be able to do so or what terms will be available at the time. Please see "Risks Related to our Business – Trading Activities and Credit Risk".

Infrastructure, Permitting, and Compliance Activities

The planned mine workings, ore stockpiles, temporary waste rock stockpiles, roads, and power and water lines are expected to be located within the boundaries of the mining leases and surface rights controlled by us. Surface infrastructure, such as camps, offices, fuel and tanks, and maintenance facilities, will also be utilized. No processing facilities will be present on site. Road haulage trucks will transport the ore to the processing facilities at Manantial Espejo, located 145 kilometres by gravel road to the south of Joaquin.

Joaquin is located in the cold, semi-arid ecoregion of the Patagonian Steppe, more than 100 kilometres from the closest community, Gobernador Gregores. Environmental baseline studies have been completed to Argentine and international standards. Those studies show that the potentially impacted areas are relatively small in scale and hold environmental values that are well represented throughout the region. Permits have been approved for construction of camp and surface facilities. Operations permits were approved as an expansion of the Manantial Espejo EIA in order to allow commencement of the decline ramp. No material delays to the advancement of the project is anticipated due to permitting.

A closure cost estimate for Joaquin was prepared according to State of Nevada approved SRCE methodology and the estimated present value of reclamation costs for the Joaquin development property was de minimus. See "Narrative Description of the Business – Environmental Protection" for further disclosure regarding foward-looking information related to reclamation costs.

Capital and Operating Costs

Over the life of mine, the estimated initial capital cost is $37.8 million, excluding project acquisition costs, and including mine development and equipment, infrastructure, permitting and studies, general and administrative, and contingency costs. A $3.6 million allowance is estimated for recoverable VAT payments that are paid using capital funds prior to the commencement of production. Based on the underground mine schedule, the total life of mine operating cost is estimated to be $96.2 million, including all ore mining, transport, and processing costs. The transport of the ore from Joaquin to the processing facilities at Manantial Espejo is estimated at a total operating cost over the life of mine of $18.9 million.

Based on the results of the Joaquin Report completed in 2017, excluding the purchase price, the estimated life of mine cash flow of the project was $14.1 million, with project payback estimated to occur approximately 18 months after construction completion. The NPV stated in the Joaquin Report at a 5% discount rate was $9.1 million and $5.1 million at a 10% discount rate. The IRR of the project was anticipated to be 18%. However, the project economics are likely to be negatively impacted by certain recent developments, including the export duty on silver and gold doré introduced in September 2018.

Exploration, Development, and Production

During 2018, we constructed a 40 person modular camp, access roads, and infrastructure related to water supply, removed and preserved soil for the waste dump, purchased mining equipment, and began developing the decline access. We plan to continue to develop the decline and the associated mine infrastructure with ore production occurring between late 2019 and the end of 2021.

III. Non-Material Properties and Interests

Other Operations, Exploration, Resource and Investment Properties

We own interests in other investment and mineral properties in each of the jurisdictions in which we operate, including the COSE property in Argentina, the La Bolsa property in Mexico, the Pico Machay property in Peru, the Waterloo property in the United States, and certain other interests in Canada. Our Alamo Dorado mine in Mexico is now in the reclamation phase and mining activity has ceased. Pan American does not consider these properties to be material properties for the purposes of NI 51-102 or NI 43-101.

Mineral Property Expenditures

The following table sets out our acquisition, exploration and development expenditures (rounded, in thousands) for the periods indicated:

		2018	2017	2016
Acquisition	COSE	$ 7,500	$ 7,497	$ -
	Joaquin	-	12,722	-
	TOTAL[1]	7,500	20,219	-
Development	Huaron[2]	$ 14,551	$ 8,412	$ 8,854
	Morococha[2]	10,370	9,283	8,034
	Alamo Dorado	-	-	-
	Dolores	59,480	85,374	113,227
	La Colorada	22,473	21,963	64,519
	Manantial Espejo	29,881	8,590	2,868
	Navidad	39	27	5
	San Vicente	6,949	8,146	4,864
	Other	605	437	290
	TOTAL[1]	$ 144,348	$ 142,232	$ 202,661
Exploration	Huaron	$ 660	$ 1,713	$ 837
	Morococha	598	1,629	1,053
	Alamo Dorado	-	-	-
	Dolores	1,594	2,316	1,685
	La Colorada	880	251	186
	Manantial Espejo	744	4,588	-
	Navidad	3,832	2,894	3,377
	San Vicente	-	-	-
	Other[3]	2,830	4,466	4,196
	TOTAL[1, 4]	$ 11,138	$ 17,858	$ 11,334

Notes:

1 Numbers may not add due to rounding.

2 Net of lease advances.

3 Includes spending on the early stage exploration projects, including with respect to the La Negra option and Joaquin property, as well as other indirect exploration spending

4. The amounts for 2017 exclude $1.9 million from non-cash project development write-downs.

Metals Trading

We take the view that our precious metals production should not be hedged, thereby allowing the maximum exposure to precious metal prices.

We have engaged in forward sales and hedging of base metals production from our mines over the past several years. The forward sales of base metals in 2016, 2017 and 2018 were as follows:

- During 2018, we had 1,200 tonnes of lead exercised at a strike price of $2,500 per tonne, resulting in a realized loss of $0.1 million, and 2,375 tonnes of lead exercised at a strike price of $2,200 per tonne, resulting in a realized gain of $0.5 million. We had 360 tonnes of copper exercised at a strike price of $6,960 per tonne, resulting in a realized loss of $nil, and 1,950 tonnes of copper exercised at a strike price of $6,400 per tonne,

resulting in a realized gain of $0.5 million. We had 1,300 tonnes of zinc exercised at a strike price of $3,350 per tonne, resulting in a realized loss of $0.2 million, and 6,600 tonnes of zinc exercised at an average strike price of $2,850 per tonne, resulting in a realized gain of $1.8 million.

- During 2017, we had 620 tonnes of lead exercised at a strike price of $1,965 per tonne, resulting in a realized loss of $0.2 million, and 5,090 tonnes of zinc exercised at an average strike price of approximately $2,187 per tonne, resulting in a realized loss of $3.0 million.
- During 2016, we had 930 tonnes of lead exercised at a strike price of $1,965 per tonne, resulting in a realized loss of $0.2 million, and 8,465 tonnes of zinc exercised at an average strike price of approximately $2,098 per tonne, resulting in a realized loss of $2.6 million.

Please see the discussion below under “Risks Related to Our Business – Trading Activities and Credit Risk”.

RISKS RELATED TO OUR BUSINESS

The risk factors described below could materially affect Pan American's future operating results and could cause actual events to differ materially from those described in forward-looking statements and forward-looking information. Additional risks not presently known to us, or that we currently consider immaterial, may also impair our operations. Certain additional risk factors relating to the business of Tahoe are described in the Company's management information circular dated December 4, 2018, with respect to the Arrangement, which is available on SEDAR at www.sedar.com.

Metal Price Fluctuations

The majority of our revenue is derived from the sale of silver, gold, zinc, copper and lead, and therefore fluctuations in the price of these metals significantly affects our operations and profitability. Our sales are directly dependent on metal prices, and metal prices have historically shown significant volatility and are beyond our control. The Board of Directors continually assesses Pan American's strategy towards our base metal exposure, depending on market conditions.

The price of silver and other metals are affected by numerous factors beyond our control, including:

- global and regional levels of supply and demand;
- sales by government holders and other third parties;
- metal stock levels maintained by producers and others;
- increased production due to new mine developments and improved mining and production methods;
- speculative activities;
- inventory carrying costs;
- availability, demand and costs of metal substitutes;
- international economic and political conditions;
- interest rates, inflation and currency values;
- increased demand for silver or other metals for new technologies; and
- reduced demand resulting from obsolescence of technologies and processes utilizing silver and other metals.

Declining market prices for these metals could materially adversely affect our operations and profitability. A decrease in the market price of silver, gold and other metals could affect the commercial viability of our mines and production at some of our mining properties. Lower prices could also adversely affect future exploration and our ability to develop mineral properties and mines, including the development of capital intensive projects such as Navidad, all of which would have a material adverse impact on our financial condition, results of operations and future prospects. There can be no assurance that the market prices will remain at sustainable levels.

If market prices of gold and silver remain below levels used in Pan American's impairment testing and reserve prices for an extended period of time, Pan American may need to reassess its long-term price assumptions, and a significant decrease in the long-term price assumptions would be an indicator of potential impairment, requiring Pan American to perform an impairment assessment on related assets. Pan American further discusses key assumptions used in measuring the recoverable amounts of its mining assets in Note 12 of Pan American's Audited Consolidated Financial Statements for the year ended December 31, 2018. Due to the sensitivity of the recoverable amounts to long term metal prices, as well as to other factors including changes to mine plans and cost escalations, any significant change in these key assumptions and inputs could result in impairment charges in future periods.

From time to time, we mitigate the market price risk associated with our base metal production by committing some of our forecast base metal production to forward sales and options contracts. However, decisions relating to hedging may have material adverse effects on our financial performance, financial position, and results of operations. The Board of Directors continually assesses Pan American's strategy towards our base metal exposure, depending on

market conditions. As at December 31, 2018, the only put and call contract that we had outstanding was for 3,000 tonnes of lead, with a floor of $1,800 and a cap of $2,175 from January 2019 to June 2019.

We take the view that our precious metals production should not be hedged, thereby allowing the maximum exposure to precious metal prices. However, in extreme circumstances, the Board of Directors may make exceptions to this approach. Such decisions could have material adverse effects upon our financial performance, financial position, and results of operations.

Foreign Operations

In 2018, all of our production and revenues were derived from our operations in Peru, Mexico, Argentina and Bolivia, and, as a result, we are exposed to a number of risks and uncertainties, including:

- expropriation, nationalization, and the cancellation, revocation, renegotiation, or forced modification of existing contracts, permits, licenses, approvals, or title, particularly without adequate compensation;
- changing political and fiscal regimes, and economic and regulatory instability;
- unanticipated adverse changes to laws and policies, including those relating to mineral title, royalties and taxation;
- delays or inability to obtain or maintain necessary permits, licenses or approvals;
- opposition to mine development projects, which include the potential for violence, property damage and frivolous or vexatious claims;
- restrictions on foreign investment;
- unreliable or undeveloped infrastructure;
- labour unrest and scarcity;
- difficulty obtaining key equipment and components for equipment;
- regulations and restrictions with respect to imports and exports;
- high rates of inflation;
- extreme fluctuations in currency exchange rates and restrictions on foreign exchange, currencies and repatriation;
- inability to obtain fair dispute resolution or judicial determinations because of bias, corruption or abuse of power;
- abuse of power of foreign governments who impose, or threaten to impose, fines, penalties or other similar mechanisms, without regard to the rule of law;
- difficulties enforcing judgments, particularly judgments obtained in Canada or the United States, with respect to assets located outside of those jurisdictions;
- difficulty understanding and complying with the regulatory and legal framework with respect to mineral properties, mines and mining operations, and permitting;
- violence and the prevalence of criminal activity, including organized crime, theft and illegal mining;
- civil unrest, terrorism and hostage taking;
- military repression and increased likelihood of international conflicts or aggression; and
- increased public health concerns.

Certain of these risks and uncertainties are illustrated well by circumstances in Bolivia.

In early 2009, a new constitution was enacted in Bolivia that further entrenched the government's ability to unilaterally amend or enact laws, and which enshrined the concept that all natural resources belong to the Bolivian people. On May 28, 2014, the Bolivian government enacted the New Mining Law. Among other things, the New Mining Law established a new Bolivian mining authority to provide principal mining oversight (varying the role of COMIBOL) and set out a number of new economic and operational requirements relating to state participation in mining projects. Further, the New Mining Law provided that all pre-existing contracts were to migrate to one of several new forms of agreement within a prescribed period of time. As a result, we anticipate that our current joint venture agreement with COMIBOL relating to the San Vicente mine will be subject to such migration and possible renegotiation of key terms. The migration process is ongoing and has not yet been completed, and there is no guarantee that the government of Bolivia will facilitate the migration within the required time periods. The primary effects on the San Vicente operation and our interest therein will not be known until such time as we have, if required to do so, renegotiated the existing contract, and the full impact may only be realized over time. We will take appropriate steps to protect and, if necessary, enforce our rights under our existing agreement with COMIBOL. There is, however, no guarantee that governmental actions, including possible expropriation or additional changes in the law, and the migration of our contract will not impact our involvement in the San Vicente operation in an adverse way and such actions could have a material adverse effect on us and our business.

On June 25, 2015, the Bolivian government further enacted the New Conciliation and Arbitration Law, which endeavors to set out newly prescribed arbitral norms and procedures, including for foreign investors. However, its application is unclear and we await clarification by regulatory authorities in order to assess its impact on our business.

In most cases, the effect of these risks and uncertainties cannot be accurately predicted and, in many cases, their occurrence is outside of our control. Although we are unable to determine the impact of these risks on our future financial position or results of operations, many of these risks and uncertainties have the potential to substantially affect our exploration, development and production activities and could therefore have a material adverse impact on our operations and profitability.

Governmental Regulation

Our operations, exploration, and development activities are subject to extensive laws and regulations in the jurisdictions in which we conduct our business, including with respect to:

- environmental protection, including carbon emissions;
- permitting;
- management and use of toxic substances and explosives;
- management and use of natural resources, including water and energy supplies;
- management of waste and waste water;
- exploration, development, production, and post-closure reclamation of mines;
- imports and exports;
- transportation;
- price controls;
- taxation;
- mining royalties;
- labour standards, employee profit-sharing and occupational health and safety, including mine safety;
- human rights;
- social matters, including historic and cultural preservation, engagement and consultation, local hiring and procurement, development funds;
- anti-corruption and anti-money laundering; and
- data protection and privacy.

The costs associated with compliance with these and future laws and regulations can be substantial, and changes to existing laws and regulations (including the imposition of higher taxes and mining royalties) could cause additional expense, capital expenditures, restrictions on or suspensions of our operations and delays in the development of our properties. In addition, the regulatory and legal framework in some jurisdictions in which we operate are out-dated, unclear and at times, inconsistent. A failure to comply with these laws and regulations, including with respect to our past and current operations, and possibly even actions of parties from whom we acquired our mines or properties, could lead to, among other things, the imposition of substantial fines, penalties, sanctions, the revocation of licenses or approvals, expropriation, forced reduction or suspension of operations, and other civil, regulatory or criminal proceedings.

Many of the jurisdictions in which we operate also have certain laws or policies that impose restrictions on mining activities. For example, there are currently laws in the Province of Chubut, Argentina, which, among other things, prohibit open pit mining and the use of cyanide in mineral processing across the entire Province. As currently enacted, the laws in the Province of Chubut would likely render any future construction and development of the Navidad property uneconomic or not possible at all. There is no guarantee that these restrictions on mining will be removed or that they will not become more restrictive, or that new constraints will not be imposed, including those that might have significant economic impacts on our operations and profitability.

Unanticipated or drastic changes in laws and regulations have affected our operations in the past. For example, under the previous political regime in Argentina, the government intensified the use of severe price, foreign exchange, and import controls in response to unfavourable domestic economic trends. These included informal restrictions on dividend, interest, and service payments abroad and limitations on the ability to convert ARS into USD, exposing us to additional risks of ARS devaluation and high domestic inflation. The new federal government elected in 2015 has eased many of the previously instituted controls and restrictions, but in September 2018, it introduced a new export duty on silver and gold doré exported from Argentina. The duty is scheduled to expire on December 31, 2020. However, for the period from September to December 2018, we paid approximately $1.6 million in export duties, representing an average rate for the export duty of approximately 8%.

As governments continue to struggle with deficits and concerns over the effects of depressed economies, the mining and metals sector has been targeted to raise revenue. Taxation and royalties are often subject to change and are vulnerable to increases in both poor and good economic times, especially in many resource rich countries. The addition of new taxes, specifically those aimed at mining companies, could have a material impact on our operations and will directly affect profitability and our financial results.

In late December 2016, for example, the Zacatecas state government in Mexico enacted a new set of ecological taxes which took effect on January 1, 2017. The Zacatecas Tax applies broadly across a number of industries in the State of Zacatecas that involve extraction, emissions to the air, soil or water, and deposits of residue or waste. The Zacatecas Tax primarily effects the La Colorada mine in respect of the materials placed in its tailings storage facility. We paid approximately $1.2 million in respect of the Zacatecas Tax in 2018, however, the validity of the Zacatecas Tax has been challenged on constitutional grounds by various parties, including Pan American.

In addition to more targeted changes in taxation, we are also subject to broad-based changes. For example, in December 2017, the United States' *Tax Cuts and Job Act* (the "US Tax Reform") was enacted, which made significant changes to income tax law in the United States. Among the many provision included in the US Tax Reform, the most notable change was a reduction in the general corporate income tax rate from 35% to 21%, effective January 1, 2018.

Permits

We are required to obtain and renew governmental permits for the operation and expansion of existing operations or for the development, construction, and commencement of new operations. Obtaining or renewing the necessary governmental permits can be costly and involve extended timelines. We may not be able to obtain or renew permits that are necessary to our operations, or the cost to obtain or renew permits may exceed our expected recovery from a given property once in production.

Failure to obtain or maintain the necessary permits, or to maintain compliance with any permits, can result in fines, penalties, or suspension or revocation of the permits. Our ability to obtain and renew permits is contingent upon certain variables, some of which are not within our control, including, introduction of new permitting legislation, the interpretation of applicable requirements implemented by the permitting authority, the need for public consultation hearings or approvals, and political or social pressure.

In July 2017, the Minera San Rafael (Escobal mine) mining license was suspended as a result of a court proceeding initiated by a non-governmental organization (an “NGO”) in Guatemala. After several decisions and appeals on the matter, a decision of the Constitutional Court of Guatemala was rendered on September 3, 2018, that the Minera San Rafael mining license would remain suspended until Guatemala’s Ministry of Energy and Mines (“Guatemala MEM”) completes an ILO 169 consultation. The consultation process is proceeding and the mine remains shut down.

In addition, in June 2017, Minera San Rafael filed its annual request to renew the export credential with Guatemala MEM. However, Guatemala MEM did not renew the credential because its renewal had become contingent on the Supreme Court's reinstatement of the Escobal mining license. The credential therefore expired in August 2017 and has not been renewed.

Any unexpected delays, failure to obtain or renew permits, failure to comply with the terms of the permit, or costs associated with the permitting process could impede or prevent the development or operation of a mine, which could have material adverse impacts on our operations and profitability.

Operational Risks

The ownership, operation, and development of a mine or mineral property involves significant risks and hazards which even the combination of experience, knowledge, and careful evaluation may not be able to overcome.

These risks include:

- environmental and health hazards;
- industrial and equipment accidents, explosions and third party accidents;
- the encountering of unusual or unexpected geological formations;
- ground falls and cave-ins;
- flooding;
- labour disruptions;
- mechanical equipment, machinery, and facility performance problems;
- seismic events; and
- periodic interruptions due to inclement or hazardous weather conditions.

These risks could result in:

- damage to, or destruction of, mineral properties or production facilities;
- personal injury or death;
- environmental damage and liabilities;
- delayed production;
- labour disruptions;
- increased production costs;
- asset write downs;
- abandonment of assets;
- monetary losses;
- civil, regulatory or criminal proceedings, including fines and penalties, relating to health, safety and the environment;
- community unrest, protests, and legal proceedings at local or international levels;
- loss of social acceptance for our activities; and
- other liabilities.

Advancements in science and technology and in mine design, methods, equipment, and training have created the possibility of reducing some of these risks, but there can be no assurances that such occurrences will not take place and that they will not negatively impact us, our operations, and our personnel.

In addition to those other risks identified above, mining operations are also subject to ownership and operating risks relating to the valuable nature of the product being produced. Our Mexican operations have experienced armed robberies of doré within the past three years. We have instituted a number of additional security measures and a more frequent shipping schedule in response to these incidents. We have subsequently renewed our insurance policy to mitigate some of the financial loss that would result from such criminal activities in the future, however, a substantial deductible amount would apply to any such losses in Mexico.

Liabilities that we incur may exceed the policy limits of our insurance coverage or may not be insurable, in which case we could incur significant costs that could adversely impact our business, operations, profitability, or value.

Exploration and Development Risks

The long-term operation of our business and its profitability is dependent, in part, on the cost and success of our exploration and development programs. Mineral exploration and development is highly speculative and involves significant risks. Few properties that are explored are ultimately developed into producing mines. There is no assurance that our mineral exploration and development programs will result in discoveries of economic quantities of mineralization that are necessary for a property to be brought into commercial production. The commercial viability of a mineral deposit, once discovered, is also dependent upon a number of factors, including, among other things, (i) the particular attributes of the deposit, such as size, grade, and metallurgy; (ii) interpretation of geological data; (iii) feasibility studies; (iv) proximity to infrastructure and availability of labour, power, and water; (v) metal prices; (vi) foreign currency exchange rates; and (vii) government regulations, including regulations relating to development, taxation, royalties, import and export, and environmental protection.

The actual operating results of our projects may differ materially from those we had anticipated due to these and other factors, many of which are beyond our control. There can be no assurance that our acquisition, exploration, and development programs will yield new mineral reserves to replace or expand current mineral reserves, or that they will result in additional production. Unsuccessful exploration or development programs could have a material adverse effect on our operations and profitability.

Title to Assets

The validity of mining or exploration titles or claims or rights, which constitute most of our property holdings, can be uncertain and may be contested. Our properties may be subject to prior unregistered liens, agreements or transfers, indigenous land claims, or undetected title defects. In some cases, we do not own or hold rights to the mineral concessions we mine, including in Bolivia where the government has title to the concessions and our right to mine is contractual in nature. We have not conducted surveys of all the claims in which we hold direct or indirect interests and therefore, the precise area and location of such claims may be in doubt. No assurance can be given that applicable governments will not revoke or significantly alter the conditions of the applicable exploration and mining titles or claims, or that such exploration and mining titles or claims will not be challenged or impugned by third parties. We may be unable to operate our properties as expected, or to enforce our rights to our properties. Any defects in title to our properties, or the revocation of our rights to mine, could have a material adverse effect on our operations and financial condition.

We operate in countries with developing mining laws, and changes in such laws could materially impact our rights or interests to our properties. We are also subject to expropriation risk in a number of countries in which we operate, including the risk of expropriation or extinguishment of property rights based on a perceived lack of development or advancement. There is limited activity at our Navidad project, for example, as a result of legal restrictions relating to mining, and there is a risk that the federal or provincial governments in Argentina are dissatisfied with a lack of advancement. Expropriation, extinguishment of rights and any other such similar governmental actions would likely have a material adverse effect on our operations and profitability.

In many jurisdictions in which we operate, legal rights applicable to mining concessions are different and separate from legal rights applicable to surface lands. Accordingly, title holders of mining concessions in many jurisdictions must agree with surface land owners on compensation in respect of mining activities conducted on such land. We do not hold title to all of the surface lands at many of our operations and rely on contracts or other similar rights to conduct surface activities.

For example, we do not own most of the surface rights to the areas that overlie our mining concessions comprising the Morococha property, nor to the areas where administration and operations are taking place, but were used by us pursuant to a usufruct agreement. These surface rights have been the subject of various disputes over the many years of operation at Morococha. In June 2010, we reached an agreement with MCP that clearly defines each party's long-term surface rights and therefore provides more certainty to the land situation for our Morococha mine. The primary focus of the agreement is on the lands and concessions around the Morococha mine and MCP's Toromocho copper project. Under the terms of the agreement, Argentum is required to relocate the core Morococha facilities over a 5-year period and transfer certain mineral concessions and access rights to MCP that it needs in order to proceed with the development of the Toromocho project, including the surface lands within the planned open pit mining area of the Toromocho project. In exchange, Argentum is to receive a package of surface rights, easements, and other rights to relocate the facilities and to continue uninterrupted operations, and would also obtain rights to a number of mineral concessions outside the planned Toromocho pit area where high-grade silver veins have been identified. Lastly, Argentum is to receive periodic cash payments from MCP totalling $40 million, which would off-set a portion of the capital required for the facility relocation. In addition to the foregoing, the parties agreed to dismiss the judicial and administrative claims between them. Pursuant to the agreement, the transfer of lands and rights and the cash payments will occur over a period of time and are dependent on meeting certain milestones. During the course of the agreement, however, certain adjustments have been made by the parties with respect to the timing of achieving milestones, in some cases informally, and additional adjustments will be required going forward. As of December 31, 2018, the Morococha facilities had not been relocated within the time period originally established in the agreement, and the parties had not yet agreed on a revised milestone. Although this agreement has diminished the risks associated with the Morococha land situation, there is no certainty that amended milestones can be agreed upon or achieved by the parties, that the relationship will continue in an amicable fashion, and that the future relocation and other costs associated with the commitments in the agreement will not render continued operations at the Morococha mine uneconomic.

Community Action

Communities and non-governmental organizations (“NGOs”) have become more vocal and active with respect to mining activities at or near their communities. Some communities and NGOs have taken actions that could have a material adverse effect on our operations, such as setting up road closures and commencing lawsuits. In certain circumstances, such actions might ultimately result in the cessation of mining activities and the revocation of permits and licenses. These actions relate not only to current activities but are often in respect of past activities by prior owners of mining properties.

Since June 7, 2017, a group of protesters near the town of Casillas has blocked the primary highway that connects Guatemala City to San Rafael Las Flores and the Escobal mine that we recently acquired. Operations were reduced between June 8 and June 19, 2017 to conserve fuel, and on July 5, 2017, were ultimately ceased following the Supreme Court’s provisional decision to suspend the Escobal mining license while the case against MEM was heard on the merits. A second roadblock was initiated in 2018 near the community of Mataquescuintla. MSR representatives, under the direction of Tahoe, have been pursuing engagement with community leaders, government agencies, and international mediation experts to develop a dialogue process aimed at resolving the protracted dispute and reaching a peaceful and expeditious conclusion to the roadblocks, but there is no guarantee that a positive conclusion will be reached.

Pan American has initiated the implementation of the Mining Association of Canada’s “Towards Sustainable Mining” ("TSM"), a project designed to enhance our community engagement processes, drive world-leading environmental practices and reinforce our commitment to the safety and health of our employees and surrounding communities. However, there is no assurance that our efforts will be successful at mitigating all impacts of community actions to our operations, and we may suffer material negative consequences to our business.

Imprecision in Mineral Reserve and Mineral Resource Estimates

Our mineral reserves and mineral resources are estimates. No assurances can be given that the estimated levels of mineral reserves or mineral resources are accurate, or that the estimates will result in material being produced or processed profitably. These estimates are expressions of judgment based on knowledge and experience, and are based on assumptions and interpretation of available geological, geochemical and operational data and information. Valid estimates made at a given time may significantly change when new information becomes available. It may take many years from the initial phase of drilling before production occurs, and during that time, the economic feasibility of our projects may change and may ultimately prove unreliable.

Fluctuations in the market price of silver, gold and other metals, as well as increased capital or production costs or reduced recovery rates, may render our mineral reserves uneconomic to develop for a particular project or result in a reduction of mineral reserves. No assurances can be given that any resource estimate will ultimately be reclassified as proven or probable mineral reserves or that mineralization can be mined or processed profitably. Inferred mineral resources have a great amount of uncertainty as to their existence and as to their economic and legal feasibility. Resource estimate may also be recalculated based on actual production experience. The evaluation of mineral reserves or mineral resources is influenced by economic and technological factors, which may change over time. If our mineral reserve or mineral resource figures are reduced in the future, this could have an adverse impact on Pan American’s future cash flows, earnings, results of operations, and financial condition.

Production and Cost Estimates

We prepare estimates of future production and future production costs for our operations. No assurance can be given that production and cost estimates will be achieved. These production and cost estimates are based on many factors and assumptions, including: the accuracy of mineral reserve estimates; ground conditions and physical characteristics of ores, such as hardness and the presence or absence of particular metallurgical characteristics; equipment and mechanical availability; labour availability and productivity; access to the mine; facilities and infrastructure; sufficient materials and supplies on hand; and the accuracy of estimated rates and costs of mining and processing, including the cost of human and physical resources required to carry out our activities. Failure to achieve production or cost estimates, or increases in costs, could have an adverse impact on our future cash flows, earnings, results of operations, and financial condition.

Actual production and costs 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 orebodies and the processing of new or different ore grades; and risks and hazards associated with mining. In addition, there can be no assurance that silver recoveries or other metal recoveries in small scale laboratory tests will be duplicated in larger scale tests under on-site conditions or during production, or that the existing known and experienced recoveries will continue. Costs of production may also be affected by a variety of factors, including: changing stripping ratios, ore grade metallurgy, labour costs and productivity, costs of supplies and services (such as, for example, fuel and power), general inflationary pressures, and currency exchange rates. Failure to achieve production estimates could have an adverse impact on our future cash flows, earnings, results of operations, and financial condition.

Infrastructure

Mining, processing, development, and exploration activities depend, to one degree or another, on adequate infrastructure. Reliable roads, bridges, power, and water supply are important determinants for capital and operating costs, and sufficient and functional processing equipment and facilities are critical to our operations. The lack of availability or the delay in the availability of any one or more of these items could prevent or delay the development of our projects, result in the failure to achieve the anticipated production volume, and increase the construction costs and ongoing operating costs associated with our projects and operations. Similarly, continued improvements or replacement of existing infrastructure may require high capital investments and involve significant delays. In addition, unusual weather phenomena, sabotage, government, or other interference in the maintenance or provision of such infrastructure could adversely affect our operations and profitability.

Environmental Legislation, Regulations, and Hazards

We are subject to environmental laws and regulation in the various jurisdictions in which we operate that impose requirements or restrictions on our activities, such as mine development, water management, use of hazardous substances, reclamation, and waste transportation, storage and disposal. Compliance with environmental laws and regulations may require significant costs and may cause material changes or delays in our operations. There is no assurance that we will be in full compliance with environmental legislation at all times. Failure to comply with applicable environmental legislation could lead to adverse consequences, including expropriation, suspension or forced cessation of operations, revocation of or restrictions on permits, fines and other penalties, civil or regulatory proceedings, and, in certain circumstances, criminal proceedings. Furthermore, any such failures could increase costs and extend timelines, requiring additional capital expenditures and remedial actions. These negative consequences could significantly impact our financial condition, operations, and cash flow.

Future environmental legislation could also require stricter standards and mandate increased enforcement, 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.

Environmental hazards may exist on our properties which are currently unknown to us. We may be liable for losses associated with such hazards, or may be forced to undertake extensive remedial cleanup action or to pay for governmental remedial cleanup actions, even in cases where such hazards have been caused by previous or existing owners or operators of the property, or by the past or present owners of adjacent properties, or by natural conditions. The costs of such cleanup actions may have a material adverse effect on our operations and profitability.

We are subject to environmental reclamation requirements to minimize long-term effects of mining exploitation and exploration disturbance by requiring the operating company to control possible deleterious elements and to re-establish, to some degree, pre-disturbance land forms and vegetation. These environmental reclamation requirements vary depending on the location of the property and the managing governmental agency. We are actively providing for and carrying out reclamation activities on our properties as required. In 2017, we commenced full scale closure and reclamation of the Alamo Dorado property and have applied some of that experience to closure cost estimates for our other mines. Any significant environmental or social issues that may arise, however, could lead to increased reclamation expenditures and have a material adverse effect on our financial resources.

Our operations at Dolores involve heap leaching and this method of mineral processing may be employed in the future at other mines and projects. Heap leaching often employs sodium cyanide, a hazardous material, to leach metal-bearing ore and then collect the resulting metal-bearing solution. There is an inherent risk of unintended discharge of hazardous materials in the operation of leach pads. Should sodium cyanide escape from a leach pad and collection infrastructure or otherwise be detected in the downstream surface and ground water points, we could become subject to liability for remediation costs, which could be significant and may not be insured against. In addition, metal production could be delayed or halted to prevent further discharges and to allow for remediation. Such delays or cessations in production could be long-term or, in some cases, permanent, and any interference with production could result in a significant reduction in, or loss of, cash flow and value for us. While appropriate steps may be taken to prevent discharges of sodium cyanide and other hazardous materials into the ground water, surface water, and the downstream environment, there is inherent risk in the operation of leach pads and there can be no assurance that a release of hazardous materials would not occur.

We operate six tailings storage facilities, have one closed tailings facility at the Alamo Dorado mine, and operate a water dam at Dolores. In 2013 and 2014 we conducted internal safety reviews of all six tailings storage facilities. Those reviews, completed in August and September 2014, found that the storage facilities design, construction, operation and monitoring at our tailings storage facilities are generally in line with best practice and developed a risk-based prioritization of facilities for Independent Dam Safety Reviews (“IDSR”). An IDSR for the Huaron tailings storage facilities was commissioned to Newfields consultants of Denver, Colorado, and was completed during 2014 and 2015. Newfields also conducted an independent review of the tailings facility at San Vicente mine in 2017, the Dolores water dam, and tailings facilities at Morococha and Manantial Espejo in 2018. The reviews found that the storage facilities design, construction, operation and monitoring at the tailings and water storage facilities are generally in line with the Canadian Dam Safety Guidelines, MAC TSM Tailings Protocol and Guidelines, and best practice. Design of all of our tailings and water storage facilities includes detailed consideration of stability under static and dynamic (pseudostatic) seismic conditions to ensure exceedance of relevant safety factors. While we believe that appropriate steps have been taken to prevent safety incidents, there are inherent risks involved with tailings facilities, including among other things, seismic activity, particularly in seismically active regions such as Peru, and the ability of field investigations completed prior to construction to detect weak foundation materials. There can be no assurance that a dam or other tailings facility safety incident will not occur and such an incident could have a material adverse effect on our operations and profitability.

Responsibility for the operation of a water treatment plant for the Kingsmill Tunnel and the tailings mitigation program at Huascacocha Lake, near the Morococha mine, have been apportioned by Water Management Consultants Inc. in environmental studies among the Morococha mine and the mining companies operating neighbouring projects. The continued development of the Toromocho project by MCP may alleviate some of our funding requirements. There can be no guarantee, however, that our proportionate share of the costs of such environmental projects will not change and this may affect cash flow from the Morococha mine operations.

Developments Regarding Aboriginal and Indigenous Peoples

Some of our operations are near areas presently or previously inhabited or used by aboriginal and indigenous peoples, or have local communities nearby. There are many national and international laws, regulations, conventions, codes and other instruments dealing with the rights of aboriginal and indigenous peoples that impose obligations on governments and entities. Many of these are complex and interwoven in application. These may include a mandate that government consult with communities surrounding our projects and mines regarding actions affecting local stakeholders, prior to granting us mining rights, permits or approvals. Applicable conventions such as the ILO Convention 169, which has been ratified by Argentina, Peru and Guatemala, is an example of such an international convention. New or amended laws, regulations and conventions respecting the rights of these peoples, including with respect to the acquisition and use of lands, may alter decades old arrangements or agreements made by prior owners of our mines and properties, or even those made by us in more recent years. There can be no guarantee that we have entered into all agreements with aboriginal and indigenous people and with local communities in accordance with the laws governing aboriginal and indigenous peoples and local communities or that future laws and actions will not have a material adverse effect on our rights or ability to explore or mine, or on our financial position, cash flow, and results of operations. Furthermore, it is not uncommon for local communities and aboriginal and indigenous peoples to challenge agreements or arrangements previously entered into for various reasons. Public opposition,

including opposition by NGOs, to mining activities has also increased in recent years, in part due to the perceived effects of those activities on local communities and on aboriginal and indigenous peoples.

If we cannot maintain an agreement or positive relationship with aboriginal or indigenous peoples or with the communities where we operate, there may be significant disruptions in our operations and activities, we may be subject to legal or administrative proceedings, and we may be precluded from operating, or from continuing to operate, in such areas. There could also be significant harm to our reputation. The risks associated with operating or conducting activities in or near areas presently or previously inhabited by aboriginal or indigenous peoples could further impact our ability to acquire or advance development projects and complete, or realize benefits from, future acquisitions.

Replacement of Reserves

The La Colorada, Dolores, Huaron, Morococha, San Vicente and Manantial Espejo mines accounted for all of our production in 2018. Current life-of-mine plans provide for a defined production life for mining at each of our mines. For example, active mining at the Alamo Dorado mine ended in 2017 and the mine has transitioned to a reclamation phase. There is no assurance that any of our green field or near mine exploration projects will be successful, and substantial expenditures are required to establish mineral reserves. If our mineral reserves are not replaced either by the development or discovery of additional reserves and/or extension of the life-of-mine at our current operating mines or through the acquisition or development of additional producing mines, this could have an adverse impact on our future cash flows, earnings, results of operations, and financial condition, and this may be compounded by requirements to expend funds for reclamation and decommissioning.

Trading Activities and Credit Risk

The zinc, lead, and copper concentrates produced by us are sold through long-term supply arrangements to metal traders or integrated mining and smelting companies. The terms of the concentrate contracts may require us to deliver concentrate that has a value greater than the payment received at the time of delivery, thereby introducing us to credit risk of the buyers of our concentrates. Should any of these counterparties not honour supply arrangements, or should any of them become insolvent, we may incur losses for products already shipped and be forced to sell our concentrates in the spot market or we may not have a market for our concentrates and therefore our future operating results may be materially adversely impacted. For example, the Doe Run Peru smelter, a significant buyer of our production in Peru, experienced financial difficulties in the first quarter of 2009 and closed. We continued to sell copper concentrates to other buyers but on inferior terms. The Doe Run Peru smelter remains closed and we are owed approximately $7.6 million under the terms of our contract with Doe Run Peru. We continue to pursue all legal and commercial avenues to collect the amount outstanding.

As at December 31, 2018, we had receivable balances associated with buyers of our concentrates of $40.8 million (2017 - $52.0 million). The vast majority of our concentrate is sold to a limited number of concentrate buyers.

Silver doré production is refined under long term agreements with fixed refining terms at three separate refineries worldwide. We generally retain the risk and title to the precious metals throughout the process of refining and therefore are exposed to the risk that the refineries will not be able to perform in accordance with the refining contract and that we may not be able to fully recover our precious metals in such circumstances. For example, in November 2018, Republic Metals Corporation (“Republic”), a refinery used by us, filed for bankruptcy. At the time of the bankruptcy, Republic had possession of approximately $4.9 million of our metal and we are pursuing a claim to collect the metals, or in lieu thereof, damages. As at December 31, 2018, we had approximately $19.7 million contained in precious metal inventory at refineries (2017 - $21.9 million). We maintain insurance coverage against the loss of precious metals at our mine sites and in-transit to refineries.

Refined silver and gold is sold in the spot market to various bullion traders and banks. Credit risk may arise from these activities if we are not paid for metal at the time it is delivered, as required by spot sale contracts.

We maintain trading facilities with several banks and bullion dealers for the purposes of transacting our trading activities. None of these facilities are subject to margin arrangements. Our trading activities can expose us to our counterparties’ credit risk to the extent that our trading positions have a positive mark-to-market value.

Supplier advances for products and services yet to be provided are a common practice in some jurisdictions in which we operate. These advances represent a credit risk to us to the extent that supplies do not deliver products or perform services as expected. As at December 31, 2018, we had made $14.4 million of supplier advances (December 31, 2017 - $14.3 million), which are reflected in “Trade and other receivables” on Pan American’s balance sheet.

Management constantly monitors and assesses the credit risk resulting from our concentrate sales, refining arrangements, and commodity contracts. Furthermore, management carefully considers credit risk when allocating prospective sales and refining business to counterparties. In making allocation decisions, management attempts to avoid unacceptable concentration of credit risk to any single counterparty.

From time to time, we may invest in equity securities of other companies. Just as investing in Pan American is inherent with risks such as those set out in this AIF, by investing in other companies we will be exposed to the risks associated with owning equity securities and those risks inherent in the investee companies.

Taxation Risks

In addition to the risks relating to taxation discussed under the heading “Risks Related to Our Business – Governmental Regulation”, we are also exposed to other tax related risks. In assessing the probability of realizing income tax assets recognized, we make estimates related to expectations of future taxable income, applicable tax planning opportunities, expected timing of reversals of existing temporary differences and the likelihood that tax positions taken will be sustained upon examination by applicable tax authorities. In making its assessments, we give additional weight to positive and negative evidence that can be objectively verified. Estimates of future taxable income are based on forecasted cash flows from operations and the application of existing tax laws in each jurisdiction. We consider relevant tax planning opportunities that are within our control, are feasible, and within management’s ability to implement. Examination by applicable tax authorities is supported based on individual facts and circumstances of the relevant tax position examined in light of all available evidence. Where applicable tax laws and regulations are either unclear or subject to ongoing varying interpretations, it is reasonably possible that changes in these estimates can occur that materially affect the amounts of income tax assets recognized. Also, future changes in tax laws could limit us from realizing the tax benefits from the deferred tax assets. We reassess unrecognized income tax assets at each reporting period.

Exchange Rate Risk

We report our financial statements in USD; however we operate in jurisdictions that utilize other currencies. As a consequence, the financial results of our operations, as reported in USD, are subject to changes in the value of the USD relative to local currencies. Since our sales are denominated in USD and a portion of our operating costs and capital spending are in local currencies, we are negatively impacted by strengthening local currencies relative to the USD and positively impacted by the inverse.

From time to time, we mitigate part of this currency exposure by accumulating local currencies, entering into contracts designed to fix or limit our exposure to changes in the value of local currencies relative to the USD, or assuming liability positions to offset financial assets subject to currency risk. Pan American held cash and short-term investments of $22.5 million in CAD, $2.7 million in MXN, $1.3 million in PEN, $2.7 million in ARS, and $0.3 million in BOB as at December 31, 2018. The Company recorded gains of $0.6 million and $0.7 million on the MXN forward contracts for Q4 2018 and full-year 2018, respectively (Q4 2017 and full-year 2017 losses of $0.8 million and gains of $3.8 million, respectively). As at December 31, 2018, Pan American had outstanding positions on $36.0 million in foreign currency exposure of MXN purchases with put rates of $20.00 and call rates ranging from $20.72 to $23.97 expiring between January 2019 and December 2019.

Our balance sheet contains various monetary assets and liabilities, some of which are denominated in foreign currencies. Accounting convention dictates that these balances are translated at the end of each period, with resulting adjustments being reflected as foreign exchange gains or losses on our income statement.

In addition to the foregoing, governmental restrictions and controls relating to exchange rates also impact our operations. In Argentina, for example, the government has at times established official exchanges rates that were significantly different than the unofficial exchange rates more readily utilized locally to determine prices and value. Our investments in Argentina are primarily funded from outside of the country, and therefore conversion of foreign

currencies, like USD, at the official exchange rate has had the effect of reducing purchasing power and substantially increasing relative costs in an already high inflationary market. Maintaining monetary assets in ARS also exposes us to the risks of ARS devaluation and high domestic inflation.

Liquidity Risk

Liquidity risk is the risk that we will not be able to meet our financial obligations as they come due. The volatility of the metals markets can impact our ability to forecast cash flow from operations. We must maintain sufficient liquidity to meet our short-term business requirements, taking into account our anticipated cash flows from operations, our holdings of cash and cash equivalents, and committed loan facilities.

We manage our liquidity risk by continuously monitoring forecasted and actual cash flows. We have in place a rigorous reporting, planning and budgeting process to help determine the funds required to support our normal operating requirements on an ongoing basis and our expansion plans. We continually evaluate and review capital and operating expenditures in order to identify, decrease, and limit all non-essential expenditures.

We are required to use a portion of our cash flow to service principal and interest on tdebt, which will limit the cash flow available for other business opportunities. We also maintain and enter into intercompany credit arrangements with our subsidiaries in the normal course. Our ability to make scheduled principal payments, pay interest on or refinance our indebtedness depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Unexpected delays in production, the suspension of our mining licenses, or other operational problems could impact our ability to service the debt and make necessary capital expenditures when the debt becomes due. If we are unable to generate such cash flow to timely repay any debt outstanding, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

Competitive Conditions

The mining industry is very competitive, particularly with respect to properties that produce, or are capable of producing, silver, gold, and other metals. Mines have limited lives and, as a result, Pan American continually seeks to replace and expand mineral reserves through the acquisition of new properties. In addition, there is a limited supply of desirable mineral lands available in areas where we would consider conducting exploration and/or production activities. Because we face strong competition for new properties from other mining companies, some of which have greater financial resources than we do, we may be unable to acquire attractive new mining properties on terms that we consider acceptable.

Competition for resources is intense, particularly affecting the availability of manpower, drill rigs, mining equipment, and production equipment. Competition in the mining business for limited sources of capital could adversely impact our ability to acquire and develop suitable silver mines, silver developmental projects, silver producing companies, or properties having significant exploration potential. As a result, there can be no assurance that our acquisition and exploration programs will yield new mineral reserves to replace or expand current mineral reserves, or that we will able to maintain production levels in the future.

Our competitive position is largely determined by our costs compared to other producers throughout the world and our ability to maintain our financial integrity through the lows of the metal price cycles. Costs are governed to a large extent by the location, grade, and nature of mineral reserves as well as by operating and management skills. In contrast with diversified mining companies, we focus on silver production, development, and exploration, and are therefore subject to unique competitive advantages and disadvantages related to the price of silver and to a lesser extent, the price of gold and base metal by-products. If silver prices substantially increase, we will be in a relatively stronger competitive position than diversified mining companies that produce, develop, and explore for other minerals in addition to silver. Conversely, if silver prices substantially decrease, we may be at a competitive disadvantage to diversified mining companies.

Employee Recruitment, Retention and Human Error

Recruiting and retaining qualified personnel is critical to our success. We are dependent on the services of key executives including Pan American's President and Chief Executive Officer and other highly skilled and experienced executives and personnel focused on managing our interests. The number of persons skilled in acquisition, exploration, and development of mining properties is limited and competition for such persons is intense. As our business activity grows, we will require additional key financial, administrative, and mining personnel as well as additional operations staff. There can be no assurance that we will be successful in attracting, training, and retaining qualified personnel as competition for persons with these skill sets increases. If we are not successful in attracting, training, and retaining qualified personnel, the efficiency of our operations could be impaired, which could have an adverse impact on Pan American's future cash flows, earnings, results of operations, and financial condition.

Despite efforts to attract and retain qualified personnel, as well as the retention of qualified consultants, to manage our interests, even when those efforts are successful, people are fallible and human error and mistakes could result in significant uninsured losses to us. These could include, but are not limited to, loss or forfeiture of mineral claims or other assets for non-payment of fees or taxes, erroneous or incomplete filings or non-fulfillment of other obligations, significant tax liabilities in connection with any tax planning effort we might undertake or mistakes in interpretation and implementation of tax laws and practices, and legal claims for errors or mistakes by our personnel.

Employee Relations

Some of our employees and contractors are unionized. In particular, unions have been established at most of our operations. Although we have reached agreements with our various unions and place significant emphasis on maintaining positive relationships with the unions and employees, we have experienced labour strikes and work stoppages in the past. Should they occur, some labour strikes and work stoppages have the potential to materially affect our operations and thereby adversely impact our future cash flows, earnings, production, and financial conditions.

Economic Dependence

We have 16 customers that account for 100% of our concentrate and silver and gold sales revenue. We have seven customers that accounted for 28%, 14%, 13%, 10%, 8%, 8%, and 5% of total sales in 2018. The loss of certain of these customers or curtailment of purchases by such customers could have a material adverse effect on our results of operations, financial condition, and cash flows.

Acquisitions and Integration

An element of our business strategy is to make selected acquisitions. For example, we completed the acquisition of Tahoe Resources Inc. on February 22, 2019. Over our history, we have also completed a number of other important acquisitions, including: the La Colorada mine in 1998; Corner Bay (the Alamo Dorado mine) in 2003; Argentum (the Morococha mine) in 2004; the remaining 50% interest in the Manantial Espejo project in 2006; an additional 40% interest in PASB in respect of the San Vicente mine in May 2007; Aquiline (Navidad) in 2010; Minefinders (the Dolores mine) in 2012; and in 2017, the Joaquin and COSE properties in Argentina. We expect to continue to evaluate acquisition opportunities on a regular basis and intend to pursue those opportunities that we believe are in our long-term best interests. The success of our acquisitions will depend upon a number of factors, including the adequacy, completeness, analysis and interpretation of information obtained during due diligence, our ability to effectively manage the integration and operations of entities once we complete an acquisition, and our ability, in some cases, to make improvements or advancements that we anticipated. The process of managing acquired businesses may involve unforeseen difficulties and risks, and may require a disproportionate amount of management resources and expenditures. There can be no assurance that we will be able to successfully manage the integration and operations of businesses we acquire, or that the anticipated benefits of our acquisitions will be realized.

In addition to acquisitions, we periodically enter into joint venture, option and similar arrangements which, among other things, also require an investment in time and capital, and are subject to risks associated with due diligence matters. We also occasionally make investments in other mining companies, such as our investments in Maverix Metals Inc. and in New Pacific Metals Corp. Such arrangements may depend, in part, on other parties and

may be speculative in nature. There is no guarantee that any of these arrangements will be successful or that we will recover any capital or other investments made in relation thereto.

Limited Supplies and Supply Chain Disruptions

Our operations depend on an uninterrupted supply of reagents (including, but not limited to, cyanide at some operations), production inputs, and other supplies and resources such as skilled personnel. Supply may be interrupted due to a shortage or the scarce nature of inputs, especially with regard to chemical reagents. Supply might also be interrupted due to transportation and logistics associated with the remote location of some of our operations, and government restrictions or regulations which delay importation of necessary items. Any interruptions to the procurement and supply of reagents, production inputs and other supplies, or the availability of skilled personnel could have an adverse impact on our future cash flows, earnings, results of operations, and financial condition.

Commodity Hedging Activities

We occasionally hedge commodities needed in our business, primarily to reduce price risk. Other than base metal hedges referenced in the Metal Price Fluctuations section above, no other commodities were hedged in 2017 or 2018.

Internal Control over Financial Reporting

Management of Pan American is responsible for establishing and maintaining an adequate system of internal control, including internal controls over financial reporting. Internal control over financial reporting is a process designed by, or under the supervision of, the President and Chief Executive Officer and the Chief Financial Officer and effected by the Board of Directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with International Financial Reporting Standards. Management assesses the effectiveness of our internal control over financial reporting based on the criteria set forth in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). We also engage an independent registered public accounting firm to audit and provide independent opinions on the effectiveness of our internal control over financial reporting.

We may fail to achieve and maintain the adequacy of our internal control over financial reporting as such standards are modified, supplemented, or amended from time to time, and we may not be able to ensure that we can conclude on an ongoing basis that we have effective internal control over financial reporting. Also, projections of any evaluation of the effectiveness of internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. No evaluation can provide complete assurance that our internal control over financial reporting will prevent or detect misstatements on a timely basis, or detect or uncover all failures of persons employed by us to disclose material information otherwise required to be reported. The effectiveness of our control and procedures could also be limited by simple errors or faulty judgments. In addition, as we continue to expand, the challenges involved in implementing appropriate internal control over financial reporting will increase and will require that we continue to improve our internal control over financial reporting.

Our failure to satisfy these requirements on a timely basis could result in the loss of investor confidence in the reliability of our financial statements, which in turn could harm our business and negatively impact the trading price of our shares or market value of our other securities. In addition, any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm our operating results or cause us to fail to meet our reporting obligations. There can be no assurance that we will be able to remediate material weaknesses, if any, identified in future periods, or maintain all of the controls necessary for continued compliance, and there can be no assurance that we will be able to retain sufficient skilled finance and accounting personnel, especially in light of the increased demand for such personnel among publicly traded companies. Future acquisitions of companies may provide us with challenges in implementing the required processes, procedures and controls in our acquired operations. Acquired companies may not have disclosure controls and procedures or internal control over financial reporting that are as thorough or effective as those required by securities laws currently applicable to us.

Compliance

We are subject to complex laws and regulatory regimes that differ in the various jurisdictions in which we operate and are sometimes extra-jurisdictional in application. Ensuring that such laws and regulatory requirements are understood and followed by our personnel is difficult and we may inadvertently fail to comply with such laws and requirements or they may be contravened by our personnel. We have established programs, policies and training to reduce and mitigate risks in certain areas, including anti-corruption compliance. In this respect, we have adopted a Global Code of Ethical Conduct and a Global Anti-Corruption Policy, developed a training program, and taken other steps to reduce the risk of non-compliance with applicable anti-corruption laws, including in the United States and Canada. However, there is no guarantee such programs, policies or training will prevent violations of the law, particularly by individual employees or agents. Violations of such laws, particularly those relating to corruption, could lead to the imposition of substantial fines, penalties or other civil or criminal prosecution or sanctions, and could severely damage our reputation. Such fines, penalties, and sanctions, and any damage to our reputation, could have a material adverse effect on our business.

Climate Change

Governments are introducing climate change legislation and treaties at the international, national, and local levels. Regulation relating to emission levels and energy efficiency is becoming more stringent. Some of the costs associated with reducing emissions can be offset by increased energy efficiency and technological innovation. If the current regulatory trend continues, this may result in increased costs at some of our operations. The physical risks of climate change may also adversely impact our operations. These risks may include extreme weather events, resource shortages, changes in rainfall and storm patterns and intensities, water shortages, changing sea levels and changing temperatures.

Claims and Legal Proceedings

We are subject to various claims and legal proceedings covering a wide range of matters that arise in the ordinary course of business activities. Many of these claims relate to current or ex-employees, or employees of former or current owners of our operations, some of which involve claims of significant value, for matters ranging from workplace illnesses, such as silicosis, claims for additional profit-sharing and bonuses in prior years. In some cases, we may become subject to class action lawsuits. For example, in mid-2017, Tahoe, which was acquired by us in late February 2019, and certain of its former directors and officers became, and continue to be, the subject of three purported class action lawsuits filed in the United States that center primarily around alleged misrepresentations. In October 2018, Tahoe learned that a similar proposed class action lawsuit had been filed against Tahoe and its former chief executive officer in the Superior Court of Ontario. These lawsuits seek significant damages. Tahoe has disputed the allegations made in these suits, however the outcomes are not determinable at this time. Furthermore, we are in some cases the subject of claims by local communities, indigenous groups or private land owners relating to land and mineral rights and such claimants may seek sizeable monetary damages against us and/or the return of surface or mineral rights that are valuable to us and which may impact our operations and profitability if lost.

Each of these matters is subject to various uncertainties and it is possible that some of these matters may be resolved unfavourably to us. We establish provisions for matters that are probable and can be reasonably estimated. We also carry liability insurance coverage, however such insurance does not cover all risks to which we might be exposed and in other cases, may only partially cover losses incurred by us. In addition, we may be involved in disputes with other parties in the future that may result in litigation, which may result in a material adverse effect on our financial position, cash flow and results of operations.

Information and Cyber Security

With the increasing dependence and interdependence on electronic data communication and storage, including the use of cloud-based services and personal devices, the Company is exposed to evolving technological risks relating to its information and data. These risks include targeted attacks on our systems or on systems of third parties that we rely on, failure or non-availability of a key information technology system, or a breach of security measures designed to protect our systems. While we employ security measures in respect of its information and data, we cannot be certain that we will be successful in securing this information and data and there may be instances where we are exposed to malware, cyber-attacks or other unauthorized access or use of its information and data.

Any data breach or other improper or unauthorized access or use of our information could have a material adverse effect on our business and could severely damage our reputation.

DIVIDENDS

On February 15, 2010, Pan American's Board of Directors declared its first cash dividend, and has paid a dividend quarterly since that time. Over the past three years, we have declared the following dividends:

Year	Declaration Date	Amount per Common Share
2018	• November 6 • August 8 • May 9 • February 20	• $0.035 • $0.035 • $0.035 • $0.035
2017	• November 8 • August 9 • May 9 • February 14	• $0.025 • $0.025 • $0.025 • $0.025
2016	• November 14 • August 11 • May 11 • February 17	• $0.0125 • $0.0125 • $0.0125 • $0.0125

Each of the foregoing dividends was designated to be an eligible dividend for the purposes of the *Income Tax Act* (Canada). The amounts and specific distribution dates of any future dividends will be evaluated and determined by the Board of Directors on an ongoing basis.

MARKET FOR SECURITIES

Pan American's Common Shares are listed and posted for trading on the Toronto Stock Exchange and The Nasdaq Stock Market under the symbol "PAAS". The majority of trading of our Common Shares takes place on The Nasdaq Stock Market. The following table outlines the closing share price trading range and volume of shares traded by month in 2018:

Toronto Stock Exchange (CAD$)				Nasdaq Stock Market (USD$)			
Month	High	Low	Volume	Month	High	Low	Volume
January	$ 21.41	$ 19.33	5,284,400	January	$ 17.35	$ 15.43	32,951,018
February	$ 20,76	$ 19.10	5,278,200	February	$ 16.59	$ 15.03	32,661,038
March	$ 20.70	$ 19.68	4,059,700	March	$ 16.19	$ 15.08	26,056,316
April	$ 22.16	$ 20.27	3,971,900	April	$ 17.50	$ 15.86	23,329,820
May	$ 23.93	$ 20.79	6,148,100	May	$ 18.56	$ 16.17	27,553,110
June	$ 23.86	$ 22.78	3,510,700	June	$ 18.17	$ 17.49	19,181,214
July	$ 24.01	$ 21.22	4,055,400	July	$ 18.31	$ 16.28	22,856,644
August	$ 22.65	$ 19.86	4,180,500	August	$ 17.36	$ 15.18	28,442,380
September	$ 19.71	$ 18.71	5,184,400	September	$ 15.23	$ 14.36	27,980,184
October	$ 19.72	$ 18.82	6,267,600	October	$ 15.51	$ 14.59	35,617,378
November	$ 20.28	$ 16.68	8,701,600	November	$ 15.44	$ 12.54	46,253,959
December	$ 19.93	$ 17.55	6,707,100	December	$ 14.62	$ 13.24	31,785,142

EXCEPTIONS FROM NASDAQ CORPORATE GOVERNANCE REQUIREMENTS

Under Rule 4350(a) of the Nasdaq Stock Market Rules (the “Nasdaq Rules”), a foreign private issuer (as defined in Rule 12b-2 under the U.S. Securities Exchange Act of 1934, as amended) may follow its home country practice in lieu of certain of the corporate governance requirements of the Nasdaq Rules.

Pursuant to Rule 4350(a), Pan American follows British Columbia practice with respect to quorum requirements in lieu of Nasdaq Rule 4350(f). Nasdaq Rule 4350(f) requires that the minimum quorum for a shareholder meeting is 33-1/3% of the outstanding common shares, whereas Pan American’s articles provide that the minimum quorum for a meeting of the holders of our Common Shares is two individuals who are shareholders, proxy holders representing shareholders or duly authorized representatives of corporate shareholders personally present and representing shares aggregating not less than 25% of the issued Common Shares of Pan American carrying the right to vote at that meeting. In the event there is only one shareholder, the quorum is one person personally present and being, or representing by proxy, that shareholder, or in the case of a corporate shareholder, a duly authorized representative of that shareholder. Pan American’s quorum requirement complies with the *Business Corporations Act* (British Columbia), which requires that unless the articles otherwise provide, two shareholders entitled to vote at a meeting of shareholders, whether in person or represented by proxy, constitute a quorum. Furthermore, the rules of the Toronto Stock Exchange, upon which our Common Shares are also listed, do not contain specific quorum requirements.

On March 21, 2018, Pan American informed the Nasdaq Stock Market that we intended to follow Canadian law with respect to independence requirements for members of its Human Resources and Compensation Committee (the "Compensation Committee") and its Nominating and Governance Committee (the "Nominating Committee") in lieu of those required by Rules 5605(d)(2)(A) and 5605(e)(1)(B) of the Nasdaq Rules, respectively. Rules 5605(d)(2)(A) and 5605(e)(1)(B) require members of compensation committees and nominations committees be independent pursuant to Rule 5605(a)(2)(E) of the Nasdaq Rules. The corporate governance guidelines in Canadian *National Instrument 58-201 – Corporate Governance Guidelines* recommend that a company's board of directors appoint a compensation committee composed entirely of independent directors and the Disclosure of Corporate Governance Practices in Canadian *National Instrument 58-101 – Disclosure of Corporate Governance Practices* (“NI 58-101”) requires (a) disclosure whether or not a company's board of directors has a compensation committee composed entirely of independent directors, and, if not, (b) a description of what steps the board takes to ensure an objective process for determining such compensation. There is no equivalent independence guidance with respect to the Nominating Committee, but NI 58-101 requires (a) disclosure whether or not a company's board of directors has a nominating committee composed entirely of independent directors, and, if not, (b) a description of what steps the board takes to encourage an objective nomination process. Mr. Christopher Noel Dunn, a member of both the Compensation Committee and the Nominating Committee until our Board of Directors accepted his resignation from each of these committees on March 22, 2018, was not considered independent as he served as an executive officer of another publicly listed company where, for an approximate ten month period from May 2017 to March 2018, an executive officer of Pan American served on its compensation committee. Pan American’s executive officer stepped down and no longer serves on that listed company’s compensation committee. Mr. Dunn was replaced on those committees by an independent director pursuant to Rule 5605(a)(2)(E) of the Nasdaq Rules, at which time we fully complied with Rules 5605(d)(2)(A) and 5605(e)(1)(B) of the Nasdaq Rules. Mr. Dunn did not stand for re-election at Pan American’s annual general and special meeting of its shareholders on May 9, 2018.

DIRECTORS AND EXECUTIVE OFFICERS

The names of our directors and executive officers as at December 31, 2018, are set out below, as well as their municipalities of residence, positions with Pan American, and principal occupations for the past five years:

Name and Municipality of Residence	Position with Pan American	Principal Occupation During the Past Five Years
ROSS J. BEATY[5] Vancouver, B.C. Canada	Director and Chairman (director of Pan American since September 30, 1988)	Business Executive and Chairman of Pan American.
MICHAEL CARROLL[1,5] Walnut Creek, California, U.S.A.	Director since January 1, 2011	Corporate Director
NEIL DE GELDER, Q.C.[1, 3] Vancouver, B.C. Canada	Director since July 3, 2012	Exec. VP of Stern Partners, a private diversified investment firm.
DAVID PRESS[2,4] West Vancouver, B.C. Canada	Director since May 13, 2008	Corporate Director
WALTER T. SEGSWORTH[2, 4, 6] West Vancouver, B.C. Canada	Director since May 12, 2009	Corporate Director
MICHAEL STEINMANN[4,5] North Vancouver, B.C. Canada	Director (since January 1, 2016) and President and CEO	CEO of Pan American since January 1, 2016; President since February 18, 2015; Exec. VP, Corporate Development & Geology since September 1, 2008.
GILLIAN WINCKLER[1,2,3] Vancouver, B.C. Canada	Director since May 11, 2016	Corporate Director
STEVEN BUSBY Vancouver, B.C. Canada	COO	COO of Pan American since May 13, 2008.
A. ROBERT DOYLE North Vancouver, B.C. Canada	CFO	CFO of Pan American since January 2004.
CHRISTOPHER EMERSON Vancouver, B.C. Canada	VP, Business Development and Geology	VP, Business Development & Geology of Pan American since August 10, 2015; previously Geology Manager for Glencore South America.
GEORGE GREER Surrey, B.C. Canada	Sr. VP, Project Development	Sr. VP, Project Development of Pan American since January 1, 2012.
CHRISTOPHER LEMON Vancouver, B.C. Canada	General Counsel	General Counsel of Pan American since August 2, 2017; previously General Counsel of First Quantum Minerals Ltd.
SEAN MCALEER Vancouver, B.C. Canada	VP, Human Resources and Security	VP, Human Resources and Security of Pan American since February 1, 2010.

Notes:

1 Member of the Audit Committee.
2 Member of the Human Resources and Compensation Committee.
3 Member of the Nominating and Governance Committee.
4 Member of the Health, Safety, Environment and Communities Committee.
5 Member of the Finance Committee.
6 Mr. Segsworth is our Lead Independent Director.

The directors of Pan American are elected at each annual general meeting to hold office until the next annual general meeting or until their successors are elected or appointed. As at December 31, 2018, the Board of Directors consisted of seven directors, six of whom, Ross Beaty, Michael Carroll, Neil de Gelder, David Press, Walter Segsworth and Gillian Winckler, qualify as unrelated directors who are independent of management. Mr. Steinmann is not independent due to his current management position with us.

On February 22, 2019, Mr. Kevin McArthur and Mr. Charles Jeannes, both of Reno, Nevada, joined Pan American's Board of Directors. Mr. Jeannes is an independent director, however Mr. McArthur is not considered independent due to his position as Executive Chairman of Tahoe prior to the closing of the Arrangement.

The Board of Directors has established five committees: the Audit Committee, the Human Resources and Compensation Committee, the Health, Safety, Environment and Communities Committee, the Nominating and Governance Committee, and the Finance Committee. Detailed information regarding the duties and obligations of the Audit Committee is annexed as Appendix "A" to this AIF. The Board of Directors does not have an Executive Committee. The composition of the various committees as at December 31, 2018, is set forth in the preceding table.

As at March 12, 2019, the directors and executive officers of Pan American named above as a group exercised control or direction or beneficially owned, directly or indirectly, 4,128,632 Common Shares, or approximately 1.97% of the issued and outstanding Common Shares of Pan American.

Except as noted below, none of Pan American's directors or executive officers:

(a) are, as at the date of this AIF, or have been, within 10 years before the date of this AIF, a director, chief executive officer or chief financial officer of any company (including Pan American) that,

(i) was subject to cease trade order, an order similar to a cease trade order, or an order that denied the relevant company access to any exemption under securities legislation (collectively, an "Order") that was issued while the director or executive officer was acting in the capacity as director, chief executive officer or chief financial officer; or

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

(b) are, as at the date of this AIF, or has been within 10 years before the date of this AIF, a director or executive officer of any company (including Pan American) that, while that person was acting in that capacity, or within a year of that person ceasing to act in that capacity, became bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency or was subject to or instituted any proceedings, arrangement or compromise with creditors or had a receiver, receiver manager or trustee appointed to hold its assets; or

(c) have, within the 10 years before the date of this AIF, become bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, or become subject to or instituted any proceedings, arrangement or compromise with creditors, or had a receiver, receiver manager or trustee appointed to hold the assets of the director or executive officer.

In addition, none of Pan American's directors and executive officers has been subject to:

(d) any penalties or sanctions imposed by a court relating to securities legislation or by a securities regulatory authority or has entered into a settlement agreement with a securities regulatory authority; or

(e) any other penalties or sanctions imposed by a court or regulatory body that would likely be considered important to a reasonable shareholder in making an investment decision.

As of the date of this AIF, Pan American is not aware of any shareholder holding a sufficient number of securities of Pan American to affect materially the control of Pan American.

Audit Committee

As at December 31, 2018, the members of the Audit Committee were Michael Carroll (Chair), Neil de Gelder, and Gillian Winckler. The Board of Directors has determined based on the information provided by each director that all members of the Audit Committee meet the independence requirements set out in National Instrument 52-110 – *Audit Committees*, and as defined under Rule 10A-3 of the U.S. Securities Exchange Act of 1934, as amended, and the rules and regulations of the Nasdaq Stock Market. All members of the Audit Committee are financially literate and Michael Carroll, an individual serving on the audit committee of the Board of Directors, is an audit committee financial expert, as that term is defined in General Instruction B(8)(b) of Form 40-F.

The SEC has indicated that the designation of a person as an audit committee financial expert does not make such person an "expert" for any purpose, impose any duties, obligations or liabilities on such person that are greater than those imposed on members of the audit committee and the board of directors who do not carry this designation or affect the duties, obligations or liability of any other member of the audit committee or board of directors.

Relevant Education and Experience of Audit Committee Members

The relevant education and experience of each member of the Audit Committee that is relevant to the performance of the Audit Committee responsibilities are as follows:

Michael L. Carroll (Chair) is a Certified Public Accountant with over 30 years of financial management expertise, primarily with publicly traded mining companies and has previously served on the audit committee of another public company.

Neil de Gelder, Q.C., has over 25 years of experience as a lawyer specializing in corporate, mergers and acquisitions, and financing matters with a major Canadian law firm, frequently advising boards of publicly traded companies. He has been the Executive Director of the British Columbia Securities Commission, and is currently Executive Vice-President of a private diversified investment firm based in Vancouver. In this capacity, he is routinely involved in reviewing internal management financial reporting and external audited and unaudited financial statements from the perspective of an owner or director. Mr. de Gelder has served on a wide variety of corporate, Crown, charitable, and community boards over the years, including serving on the audit committee of a B.C. venture capital fund.

Gillian Winckler is a former mining and business executive with over 25 years of diversified experience in the metals and mining industry and the financial sector. Among other senior positions, Ms. Winckler has been both a Chief Executive Officer and Chief Financial Officer of a Canadian and Australian publicly listed coal development company. Ms. Winckler has been extensively involved with corporate and divisional strategy, mergers and acquisitions, divestments, exploration, as well as project evaluation and development. Ms. Winckler is a Chartered Accountant (South Africa), with a BSc and BComm (Hons) obtained in South Africa. Her professional expertise includes strategic planning, mergers, acquisitions and divestments in the mining sector, as well as IFRS, GAAP, risk management and regulatory reporting. Ms. Winckler also currently serves on the audit committee of another reporting issuer in Canada.

External Auditor Service Fees

Audit Fees

The aggregate fees billed by Deloitte LLP, Pan American's Independent Registered Public Accounting Firm, for the fiscal years ended December 31, 2018 and 2017 for professional services rendered by Deloitte LLP for the audit of Pan American's annual consolidated financial statements or services that are normally provided by Deloitte LLP in connection with statutory and regulatory filings or engagements for such years were approximately $1,735,700 and $1,877,000, respectively.

Audit-Related Fees

The aggregate fees billed by Deloitte LLP for the fiscal years ended December 31, 2018 and 2017 for assurance and related services rendered by it that are reasonably related to the performance of the audit or review of Pan American's consolidated financial statements and are not reported above as audit fees were approximately $71,000 and $13,000, respectively. In 2018, these fees primarily related to services performed in connection with the Company's management information circular relating to the Tahoe transaction. The fees in both 2018 and 2017 also include amounts with respect to Pan American's Canadian Public Accountability Board fees that are remitted by Deloitte on behalf of Pan American.

Tax Fees

The aggregate fees billed by Deloitte LLP for the fiscal years ended December 31, 2018 and 2017 for professional services rendered by it for tax compliance, tax advice, tax planning, and other services were approximately $9,100 and $64,400, respectively. In 2018, such fees related primarily to the provision of services related to tax compliance matters.

Other Fees

The aggregate fees billed by Deloitte LLP for the fiscal years ended December 31, 2018 and 2017 for products and services provided by Deloitte LLP, other than the services reported in the preceding three paragraphs, were approximately $0 and $0, respectively.

Audit Committee Pre-Approval Policies

All audit and non-audit services performed by the Independent Registered Public Accounting Firm are pre-approved by the Audit Committee.

CONFLICTS OF INTEREST

To the best of our knowledge, and other than as disclosed in this AIF, there are no known existing or potential conflicts of interest between us and any of our directors or officers, except that certain officers and directors of Pan American are officers and directors of, or are associated with, other public or private companies. Such associations may give rise to conflicts of interest from time to time between their duties as an officer or director of Pan American and their duties as an officer or director or such other companies. The directors are aware of laws requiring them to act honestly and in good faith with a view to act in the best interests of Pan American and our shareholders and to disclose any conflicts of interest.

LEGAL PROCEEDINGS AND REGULATORY ACTIONS

A description of certain legal proceedings to which we are a party appear under the heading “Commitments” in Note 29 to our Audited Consolidated Financial Statements for the year ended December 31, 2018. We have not been subject to any regulatory penalties or sanctions during the financial year, nor entered into any settlement agreements relating to securities legislation.

INTEREST OF MANAGEMENT AND OTHERS IN MATERIAL TRANSACTIONS

Other than as described below, to the best of our knowledge, no director or executive officer of Pan American, nor any person or company that beneficially owns, controls, directs, directly or indirectly, more than 10% of our Common Shares, nor any associate or affiliate of any of the foregoing persons, has or had a material interest in any transaction within the three most recently completed financial years or during the current financial year that has materially affected or is reasonably expected to materially affect Pan American.

Pursuant to the terms of his employment contract with Tahoe, Mr. McArthur, who held the position of Executive Chair and director of Tahoe prior to the Arrangement, received a lump-sum payment equal to approximately US$1.13 million upon completion of the Arrangement. In addition, in accordance with the Tahoe long term incentive plan, the Tahoe deferred share awards held by Mr. McArthur accelerated and vested in exchange for common shares of Tahoe at the effective time of the Arrangement. These shares were then exchanged for common shares of Pan American under the Arrangement.

TRANSFER AGENTS AND REGISTRAR

The transfer agent and registrar for our Common Shares is Computershare Investor Services Inc. at its principal office in Vancouver, British Columbia, and Computershare Trust Company, N. A. at its office in Denver, Colorado, U.S.A.

MATERIAL CONTRACTS

On November 14, 2018, we entered into a definitive agreement (the “Arrangement Agreement”) for Pan American to acquire all of the outstanding shares of Tahoe pursuant to a plan of arrangement. Details of the Arrangement terms, as provided in the Arrangement Agreement, can be found under the heading “Outlook for 2019” on page 16. Except for contracts entered into in the ordinary course of business, no other material contracts have been entered into by Pan American during the financial year ended December 31, 2018 or before such time which are still in effect.

INTERESTS OF EXPERTS

Deloitte LLP, Independent Registered Public Accounting Firm, is the auditor of Pan American and is independent within the meaning of the Rules of Professional Conduct of the Chartered Professional Accountants of British Columbia.

The Qualified Persons as defined by NI 43-101 who have prepared or supervised the preparation of Pan American's mineral reserve and mineral resource estimates as at December 31, 2018, and who supervised the preparation of and approved the scientific and technical information disclosed in this AIF, as described under the heading "Scientific and Technical Information" on page 6, are Michael Steinmann, President and Chief Executive Officer, Martin Wafforn, Senior Vice President, Technical Services and Process Optimization, Chris Emerson, Vice President, Business Development and Geology, Pamela De Mark, Director of Resources, and Americo Delgado, Director of Metallurgy, all of whom are employees of Pan American.

Michael Steinmann, P. Geo., Martin Wafforn, P. Eng., Chris Emerson, FAusIMM, Pamela De Mark, P. Geo., and Americo Delgado, P.Eng. are the persons who have prepared or certified a statement, report, or valuation described in this AIF.

None of Michael Steinmann, P. Geo., Martin Wafforn, P. Eng., Chris Emerson, FAusIMM, Pamela De Mark, P. Geo., or Americo Delgado, P. Eng. beneficially owns, directly or indirectly, 1% or more of any class of Pan American's outstanding securities.

ADDITIONAL INFORMATION

Additional information, including directors' and officers' remuneration and indebtedness, principal holders of Pan American's securities, and securities authorized for issuance under equity compensation plans, is contained in our management information circular for the most recent annual meeting of shareholders. Additional financial information is also provided in our audited consolidated financial statements for the years ended December 31, 2018 and 2017, and management's discussion and analysis for the year ended December 31, 2018. The foregoing disclosure documents, along with additional information relating to Pan American, may be found on SEDAR at www.sedar.com, on the United States Securities and Exchange Commission website at www.sec.gov, or on our website at www.panamericansilver.com.

"mineral resource" - A mineral resource is a concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals 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.

"*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 grade and 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.

"*indicated mineral resource*" – That part of a mineral resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, 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.

"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.

"*mineral reserve*" – A mineral reserve is the economically mineable part of a measured or indicated mineral resource demonstrated by at least a preliminary feasibility study. This study must include 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.

"probable mineral reserve" - The economically mineable part of an indicated, and in some circumstances, a measured mineral resource demonstrated by at least a preliminary feasibility study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

"proven mineral reserve" - The economically mineable part of a measured mineral resource demonstrated by at least a preliminary feasibility study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

APPENDIX "A"

AUDIT COMMITTEE CHARTER

PURPOSE

Senior management of Pan American Silver Corp. (the "**Company**"), as overseen by its Board of Directors (the "**Board**"), has primary responsibility for the Company's financial reporting, accounting systems and internal controls. The Audit Committee (the "**Committee**") is a standing committee of the Board established for the purposes of overseeing:

a. the quality and integrity of the Company's financial and accounting reporting processes and internal accounting and financial control systems;

b. the external auditor's qualifications and independence;

c. management's responsibility for assessing the effectiveness of internal controls; and

d. the Company's compliance with legal and regulatory requirements in connection with financial and accounting matters.

COMPOSITION AND OPERATION

a. The Committee shall be composed of at least three independent directors and all members of the Committee shall, to the satisfaction of the Board, be Financially Literate and at least one member will be a Committee Financial Expert ("**Financially Literate**" and "**Committee Financial Expert**" are defined in the Definitions section of this Charter).

b. The members of the Committee shall be appointed by the Board, based on the recommendation of the Nominating and Governance Committee, to serve a one-year term and are permitted to serve an unlimited number of consecutive terms.

c. The Committee shall appoint a chair (the "**Chair**") from among its members who shall be an independent director. If the Chair is not present at any meeting of the Committee, one of the other Committee members present at the meeting shall be chosen to preside at the meeting.

d. The Committee will make every effort to meet at least five times per year and each member is entitled to request that an additional meeting be called, which will be held within two weeks of the request for such meeting if practicable. A quorum at meetings of the Committee shall be two members present in person or by telephone. The Committee may also act by unanimous written consent of its members as described under the heading "**Authority**" in this Charter.

e. The external auditor may request the Chair to call a meeting of the Committee to consider any matter that the auditor believes should be brought to the attention of the directors or the shareholders of the Company. In addition to the external auditor, each committee chair, members of board, as well as the Chief Executive Officer or Chief Financial Officer shall be entitled to request the Chair to call a meeting, which meeting shall be held as soon as practicable after receiving the request.

f. Notice of the time and place of every meeting shall be given in writing or by email communication to each member of the Committee at least 24 hours prior to the time fixed for such meeting.

g. The Committee shall fix its own procedure at meetings, keep records of its proceedings and provide a verbal report to the Board routinely at the next regularly scheduled Board meeting and shall provide copies of finalized minutes of meetings to the Corporate Secretary to be kept with the official minute books of the Company.

h. The Committee will review and approve its minutes of meetings and copies will be made available to the external auditor or its members as requested.

i. In camera sessions will be scheduled for each regularly scheduled quarterly Committee meeting, and as needed from time to time.

j. On an ad hoc basis, the Committee may also meet separately with head of internal audit, the Chief Executive Officer, the Chief Financial Officer, the General Counsel and such other members of management as they may deem necessary.

RESPONSIBILITIES AND DUTIES

Overall Committee:

To fulfill its responsibilities and duties the Committee will:

a. review this Charter periodically, but at least once per annum, and recommend to the Board any necessary amendments;

b. review and, where necessary, recommend revisions to the Company's disclosure in the Management Information Circular regarding Committee's composition and responsibilities and how they are discharged;

c. assist the Board in the discharge of its responsibilities relating to the quality, acceptability and integrity of the Company's accounting policies and principles, reporting practices and internal controls;

d. review and recommend approval by the Board of all significant and material financial disclosure documents to be released by the Company, including but not limited to, quarterly and annual financial statements and management discussion and analysis, annual reports, Form 40-F, annual information forms, and prospectuses containing material information of a financial nature; and

e. oversee the relationship and maintain a direct line of communication with the Company's internal and external auditors and assess their respective performance.

Public Filings, Policies and Procedures:

The Committee is responsible for:

a. ensuring adequate procedures are in place for the review of the Company's disclosure of financial information extracted or derived from the Company's financial statements and periodically assess the Company's disclosure controls and procedures, and management's evaluation thereof, to ensure that financial information is recorded, processed, summarized and reported within the time periods required by law;

b. reviewing disclosures made to the Committee by the Chief Executive Officer and the Chief Financial Officer during their certification process for any significant deficiencies in the design or operation of internal controls or material weaknesses therein and any fraud involving management or other employees who have a significant role in internal controls;

c. reviewing with management and the external auditor any correspondence with securities regulators or other regulatory or government agencies which raise material issues regarding the Company's financial reporting or accounting policies; and

d. regularly reviewing with management, the external auditors and the Company's legal counsel, any claim or other contingency, including tax assessments, that could have a material effect upon the financial position or operating results of the Company and the manner in which these matters have been disclosed in the financial statements.

External Auditors

The responsibilities and duties of the Committee as they relate to the external auditor are to:

a. consider and make recommendations to the Board with respect to the external auditor to be nominated for appointment by shareholders at each annual general meeting of the Company and the compensation of the external auditor;

b. review the performance of the external auditor and, where appropriate, recommend to the Board the removal of the external auditor;

c. confirm the independence and effectiveness of the external auditor, which will require receipt from the external auditor of a formal written statement delineating all relationships between the auditor and the Company and any other factors that might affect the independence of the auditor;

d. oversee the work of the external auditor generally, including review and, as applicable, approval of the following :

   i. the external auditor's engagement letter and audit plans;

   ii. the reasonableness of the estimated fees and other compensation to be paid to the external auditor;

   iii. the form and content of the quarterly and annual audit report, which should include, *inter alia*:

      - a summary of the Company's internal controls and procedures;
      - any material issues raised in the most recent meeting of the Committee; and
      - any other related audit, review or attestation services performed for the Company by the external auditors.

   iv. form and content of other reports of the auditors.

   The Committee shall report to the Board, as necessary, in respect of the above noted matters.

e. actively engage in dialogue with the external auditor with respect to any disclosed relationships or services that may affect the independence and objectivity of the external auditor and take, or recommend that the Board take, appropriate actions to oversee the independence of the external auditor;

f. review and pre-approve all non-audit services provided to the Company or its subsidiaries by the external auditor prior to the commencement of such services, and in doing so, the Committee may delegate to one or more independent members of the Committee the authority to pre-approve any such non-audit services, provided that the decision of such member(s) on such non-audit services will be presented to the Committee at its next regularly scheduled meeting, and in all cases, pre-approval of non-audit services must satisfy the requirements set out in National Instrument 52-110 – Audit Committees;

g. monitor the relationship between management and the external auditor and resolve any disagreements between them regarding financial reporting;

h. engage the external auditor in discussions regarding any amendments to critical accounting policies and practices; alternative treatments of financial information within generally accepted accounting principles related to material items that have been discussed with management, including any potential ramifications and the preferred treatment by the independent auditor; and lastly, written

communication between management and the independent auditor, including but not limited to, the management letter and schedules of adjusted and unadjusted differences, as applicable.

Internal Controls and Financial Reporting

The Committee will:

a. obtain reasonable assurance from discussions with (and/or reports from) management, and reports from external and internal auditors that the Company's financial and accounting systems are reliable and that the prescribed internal controls are operating effectively;

b. in consultation with the external auditor, the CEO, the CFO, and where necessary, other members of management, review the integrity of the Company's financial reporting process and the internal control structure;

c. review the acceptability of the Company's accounting principles and direct the auditors' examinations to particular areas of question or concern, as required;

d. request the auditors to undertake special examinations (e.g., review compliance with conflict of interest policies) when it deems necessary;

e. together with management, review control weaknesses identified by the external and internal auditors;

f. review the appointments of the chief financial officer and key financial executives;

g. ensure CEO and CFO certifications pursuant to Sarbanes-Oxley Act sections 302 and 906 and pursuant to Canadian securities laws are prepared and filed and will make inquiry and initiate discussion as necessary with management regarding the practices and procedures adopted to permit management's assurance on the underlying controls; and

h. during the annual audit process, consider if any significant matters regarding the Company's internal controls and procedures over financial reporting, including any significant deficiencies or material weaknesses in their design or operation, need to be discussed with the external auditor, and review whether internal control recommendations made by the auditor have been implemented by management.

Internal Audit

The Committee shall be responsible for reviewing:

a. activities, organization structure and qualifications of the internal audit function;

b. the resources, budget, reporting relationships and planned activities of the internal audit function;

c. internal audit findings and determine that they are being properly followed up;

d. the internal audit procedures and recommending changes, if any; and

e. the adequacy of the line of communication between internal audit and the Committee, ensuring that it is maintained.

Ethical and Legal Compliance and Risk Management

The responsibilities and duties of the Committee as they relate to compliance and risk management are to:

a. satisfy itself as to the integrity of the CEO and other senior management and that the CEO and other senior management strive to create a culture of integrity throughout the Company;

b. review the adequacy, appropriateness and effectiveness of the Company's policies and business practices which impact on the integrity, financial and otherwise, of the Company, including those relating to hedging, insurance, accounting, information services and systems, financial controls and management reporting;

c. receive a report from management on tax issues and planning, including compliance with the Company's source deduction obligations and other remittances under applicable tax or other legislation;

d. receive a report on the annual policy attestation process for the Company's Global Code of Ethical Conduct (the "Code") and Global Anti-Corruption Policy;

e. review annually the adequacy and quality of the Company's financial and accounting staffing, including the need for and scope of internal audit reviews (if any);

f. receiving reports from management and other Board committees, including without limitation the Health Safety, Environment and Community Committee, on the identification, assessment and management of risks;

g. in conjunction with any other committee designated by the Board from time to time, reviewing major financial, audit and accounting related risks and the policies, guidelines and mechanisms that management has put in place to govern the process of monitoring, controlling and reporting such risks;

h. establish procedures for:

    i. the receipt, retention and treatment of complaints received by the Company regarding accounting, internal controls, or auditing matters; and

    ii. the confidential, anonymous submission by employees of the Company of concerns regarding questionable accounting or auditing matters.

i. review any complaints and concerns received regarding accounting, internal controls, or auditing matters or with respect to the Code, and the investigation and resolution thereof, and provide all relevant information relating to such complaints and concerns to the Nominating and Governance Committee, taking into account complainant confidentiality concerns and the roles and responsibilities of each Committee;

j. review and monitor the Company's compliance with applicable legal and regulatory requirements related to financial reporting and disclosure;

k. review all related-party transactions; and

l. carry the responsibility for reviewing reports from management, internal and external auditors with respect to the Company's compliance with the laws and regulations having a material impact on financial reporting and disclosure, including: tax and financial reporting laws and regulations; legal withholding requirements; environmental protection laws and regulations; and any other laws and regulations which expose directors to liability.

AUTHORITY

a. The Committee shall have the authority to:

   i. engage independent counsel and other advisors as it determines necessary to carry out its duties;

   ii. set and pay the compensation for any advisors employed by the Committee; and

   iii. communicate directly with the internal and external auditors.

b. The Committee shall have the power, authority and discretion delegated to it by the Board which shall not include the power to change the membership of or fill vacancies in the Committee.

c. A resolution approved in writing by the members of the Committee shall be valid and effective as if it had been passed at a duly called meeting. Such resolution shall be filed with the minutes of the proceedings of the Committee and shall be effective on the date stated thereon or on the latest date stated in any counterpart.

d. The Board shall have the power at any time to revoke or override the authority given to or acts done by the Committee except as to acts done before such revocation or act of overriding and to terminate the appointment or change the membership of the Committee or fill vacancies in it as it shall see fit.

e. The Committee shall have unrestricted and unfettered access to all Company personnel and documents and shall be provided with the resources necessary to carry out its responsibilities.

f. At the invitation of the Chair, one or more officers or employees of the Company may, and if required by the Committee, shall attend a meeting of the Committee.

g. The Committee, upon approval by a majority of the members of the Committee, may delegate certain of its duties and responsibilities to subcommittees of the Committee, which must report back to the full Committee.

DEFINITIONS

Capitalized terms used in this Charter and not otherwise defined have the meaning attributed to them below:

"**Financially Literate**" means the ability to read and understand a set of financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of the issues that can reasonably be expected to be raised in the Company's financial statements.

"**Committee Financial Expert**" means a person who has the following attributes:

a. an understanding of generally accepted accounting principles and financial statements;

b. the ability to assess the general application of such principles in connection with the accounting for estimates, accruals and reserves;

c. experience preparing, auditing, analyzing or evaluating financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and level of complexity of issues that can reasonably be expected to be raised in the Company's financial statements, or experience actively supervising one or more persons engaged in such activities;

d. an understanding of internal controls and procedures for financial reporting; and

e. an understanding of audit committee functions; acquired through any one or more of the following:

   i. education and experience as a principal financial officer, principal accounting officer, controller, public accountant or auditor or experience in one or more positions that involve the performance of similar functions;

   ii. experience actively supervising a principal financial officer, principal accounting officer, controller, public accountant, auditor or person performing similar functions; or

   iii. experience overseeing or assessing the performance of companies or public accountants with respect to the preparation, auditing or evaluation of financial statements; or other relevant experience.

Exhibit 1.2



PAN AMERICAN SILVER

Management's Discussion and Analysis

FOR THE YEAR ENDED DECEMBER 31, 2018

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

March 12, 2019

INTRODUCTION

This Management's Discussion and Analysis ("MD&A") is intended to help the reader understand the significant factors that influence the performance of Pan American Silver Corp. and its subsidiaries (collectively "Pan American", "we", "us", "our" or the "Company") and such factors that may affect its future performance. This MD&A should be read in conjunction with the Company's audited consolidated financial statements for the year ended December 31, 2018 (the "2018 Financial Statements") and the related notes contained therein. All amounts in this MD&A and the 2018 Financial Statements are expressed in United States dollars ("USD"), unless identified otherwise. The Company reports its financial position, results of operations and cash flows in accordance with International Financial Reporting Standards ("IFRS"), as issued by the International Accounting Standards Board ("IASB"). Pan American's significant accounting policies are set out in Note 3 of the 2018 Financial Statements.

This MD&A refers to various non-Generally Accepted Accounting Principles ("non-GAAP") measures, such as "all-in sustaining cost per silver ounce sold", "cash costs per ounce of silver", "total debt", "working capital", "general and administrative cost per silver ounce produced", "adjusted earnings" and "basic adjusted earnings per share", which are used by the Company to manage and evaluate operating performance at each of the Company's mines and are widely reported in the mining industry as benchmarks for performance, but do not have standardized meaning under IFRS. To facilitate a better understanding of these non-GAAP measures as calculated by the Company, additional information has been provided in this MD&A. Please refer to the section of this MD&A entitled "Alternative Performance (Non-GAAP) Measures" for a detailed description of "all-in sustaining cost per silver ounce sold", "cash costs per ounce of silver", "working capital", "general and administrative cost per silver ounce produced", "adjusted earnings" and "basic adjusted earnings per share", as well as details of the Company's by-product credits and a reconciliation of these measures to the 2018 Financial Statements.

Any reference to "cash costs" or "cash costs per ounce of silver" in this MD&A should be understood to mean cash costs per ounce of silver, net of by-product credits. Any reference to "AISCSOS" in this MD&A should be understood to mean all-in sustaining costs per silver ounce sold, net of by-product credits.

Except for historical information contained in this MD&A, the following disclosures are forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and forward-looking information within the meaning of applicable Canadian provincial securities laws, or are future oriented financial information and as such, are based on an assumed set of economic conditions and courses of action. Please refer to the cautionary note regarding forward-looking statements and information at the back of this MD&A and the "Risks Related to Pan American's Business" contained in the Company's most recent Annual Information Form on file with the Canadian provincial securities regulatory authorities and Form 40-F on file with the U.S. Securities and Exchange Commission (the "SEC"). Additional information about Pan American and its business activities, including its Annual Information Form, is available on SEDAR at www.sedar.com

CORE BUSINESS AND STRATEGY

Pan American engages in silver mining and related activities, including exploration, mine development, extraction, processing, refining and reclamation. As of December 31, 2018 the Company owned and operated silver mines located in Peru, Mexico, Argentina, and Bolivia. In addition, the Company is exploring for new silver deposits and opportunities throughout North and South America. As further discussed in the section of this MD&A entitled “Subsequent Events", on February 22, 2019 the Company completed a transaction (the "Tahoe Acquisition") whereby Pan American acquired all of the issued and outstanding shares of Tahoe Resources Inc. ("Tahoe"). The Tahoe core assets include: the La Arena and Shahuindo gold mines, located in northwestern Peru; the Bell Creek gold mine and mill and the Timmins West gold mine (together, the “Timmins mines”), located in northeastern Ontario, Canada; and the currently suspended Escobal silver mine, located in southeastern Guatemala. Other than in the "Subsequent Events" section of this MD&A, there is no discussion and analysis or any operating outlook relating to any of the Tahoe assets included in this MD&A. The Company is listed on the Toronto Stock Exchange (Symbol: PAAS) and on the Nasdaq Global Select Market (“NASDAQ”) in New York (Symbol: PAAS).

Pan American’s vision is to be the world’s pre-eminent silver producer, with a reputation for excellence in discovery, engineering, innovation and sustainable development. To achieve this vision, we base our business on the following strategy:

- Generate sustainable profits and superior returns on investments through the safe, efficient and environmentally sound development and operation of silver assets.
- Constantly replace and grow our mineable silver reserves and resources through targeted near-mine exploration and global business development.
- Foster positive long-term relationships with our employees, our shareholders, our communities and our local governments through open and honest communication and ethical and sustainable business practices.
- Continually search for opportunities to upgrade and improve the quality of our silver assets both internally and through acquisition.
- Encourage our employees to be innovative, responsive and entrepreneurial throughout our entire organization.

To execute this strategy, Pan American has assembled a sector-leading team of mining professionals with a depth of knowledge and experience in all aspects of our business, which enables the Company to confidently advance early stage projects through construction and into operation.

Pan American is determined to conduct its business in a responsible and sustainable manner. Caring for the environment in which we operate, contributing to the long-term development of our host communities and ensuring that our employees can work in a safe and secure manner are core values at Pan American. We are committed to maintaining positive relations with our employees, the local communities and the government agencies, all of whom we view as partners in our enterprise.

2018 HIGHLIGHTS

Operations & Project Development

- **Silver production of 24.8 million ounces**

Consolidated silver production of 24.8 million ounces was similar to the 25.0 million ounces produced in 2017. Silver production was marginally less than the guidance range of 25.0 million to 26.5 million ounces, as provided in the 2017 annual MD&A dated March 22, 2018 (the "Original Guidance"). The slight production shortfall was primarily due to shortfalls at Dolores and San Vicente, partially offset by higher than forecast production at Morococha, which set an annual record.

- **Gold production of 178.9 thousand ounces**

Consolidated gold production was 178.9 thousand ounces in 2018 compared to 160.0 thousand ounces produced in 2017. The 12% increase reflects increased production from Dolores, as a result of higher grades, which more than offset the anticipated production decrease at Manantial Espejo. 2018 gold production was within the Original Guidance range of 175.0 thousand to 185.0 thousand ounces.

- **Record annual base metal production**

Zinc production was a record 64.8 thousand tonnes in 2018, 17% higher than in 2017, and was 5% higher than the Original Guidance range of 60.0 thousand tonnes to 62.0 thousand tonnes.

Lead production was a record 22.4 thousand tonnes, up 4% from 2017 and was higher than the Original Guidance range of 21.0 thousand to 22.0 thousand tonnes, driven by increased production at San Vicente, Morococha and La Colorada, reflecting higher grades at all three mines, along with increased throughput at La Colorada.

Copper production of 9.8 thousand tonnes was 27% lower than in 2017, largely due to mine sequencing at Morococha. 2018 annual copper production was 18% lower than the Original Guidance range of 12.0 thousand to 12.5 thousand tonnes, and was within the revised range of 9.0 thousand to 10.4 thousand tonnes provided on August 8, 2018 (the "Revised Guidance")

- **Cash costs of $3.35 per ounce**

Consolidated cash costs of $3.35 per ounce were $1.20 per ounce or 26% lower than in 2017, largely due to increased by-product credits driven by increased gold, zinc, and lead production, along with higher gold and copper prices. The 2018 annual cash costs were 7% below the low-end of the Original Guidance of $3.60 to $4.60 per ounce, and were within the Revised Guidance range of $2.80 to $3.80. A record low annual cash cost of $2.02 per ounce was set at La Colorada.

- **Advancement of Joaquin and Cap-Oeste Sur Este ("COSE") project**

The Company advanced the development of the COSE and Joaquin projects in Argentina. At Joaquin the initial fleet of development mining equipment was procured, and the development of the underground mine decline access continued. Progress on the underground decline was less than planned due to difficult ground conditions, which may result in the project completion being delaying by approximately two months. At COSE, development of the underground mine decline access also continued, along with commencement of construction on the first underground electrical substation. Both projects remain on budget.

Financial

- **Revenue, net earnings, and operating cash flows.**

Annual **revenue** in 2018 of $784.5 million was down 4% from 2017, mainly due to lower realized prices for silver, zinc and lead, partially offset by additional ounces of gold sold in 2018 compared to 2017.

Net earnings were $12.0 million ($0.07 basic earnings per share) compared with $123.5 million ($0.79 basic earnings per share) in 2017. Net earnings in 2018 included impairment charges of $27.8 million, compared to 2017, which had $61.6 million of impairment reversals.

Net cash generated from operating activities of $155.0 million was 31% lower than the $224.6 million generated in 2017, driven primarily by decreased revenue, higher cash taxes paid, and negative working capital changes.

Adjusted earnings in 2018 were $59.4 million ($0.39 basic adjusted earnings per share) compared with $77.7 million ($0.51 basic adjusted earnings per share) in 2017. Lower revenue and higher depreciation in 2018 was partially offset by lower income tax expense and selling costs.

- **Strong liquidity and working capital position**

As at December 31, 2018, the Company had cash and short-term investment balances of $212.5 million, working capital of $397.8 million, and $300.0 million available under its undrawn revolving credit facility. During 2018, debt was reduced by $3.9 million, resulting in year-end debt of $6.7 million, mostly related to finance lease liabilities.

- **All-in Sustaining Costs per Silver Ounce Sold ("AISCSOS")**

2018 AISCSOS of $10.73 was similar to the $10.79 recorded in 2017 and was within the Original Guidance range of $9.30 to $10.80, and was higher than the Revised Guidance range of $8.50 to $10.00.

2019 OPERATING OUTLOOK

These estimates are forward-looking statements and information that are subject to the cautionary note associated with forward-looking statements and information at the end of this MD&A. The following outlook does not include the assets acquired under the Tahoe Acquisition that was completed after December 31, 2018. Management intends to update the 2019 outlook to include these assets along with updated 2019 annual general and administrative costs, and exploration and project development costs forecasts. We anticipate providing the updated guidance, inclusive of the Tahoe assets, in the second quarter of 2019. We may also revise guidance during the year to reflect actual results to date and those anticipated for the remainder of the year. The 2019 production, cash costs and AISCSOS outlooks for each mine are further discussed in the "2019 Mine Operation Forecasts" section of this MD&A.

2019 Silver Production, Cash Costs and AISCSOS Forecasts:

	Silver Production (million ounces)	Cash Costs ($ per ounce) (1)	AISCSOS ($ per ounce) (1)
La Colorada	8.0 - 8.2	2.50 - 3.50	3.50 - 4.50
Dolores	5.2 - 5.5	4.50 - 5.50	14.00 - 16.00
Huaron	3.6 - 3.7	6.00 - 7.00	7.50 - 9.25
Morococha (92.3%)(2)	2.8 - 2.9	3.10 - 4.00	7.00 - 9.00
San Vicente (95.0%)(2)	3.5 - 3.7	10.60 - 11.50	12.25 - 13.50
Manantial Espejo	3.4 - 3.6	17.00 - 18.50	17.75 - 19.50
Consolidated Total(3)	**26.5 -27.5**	**6.50 - 7.50**	**10.80 - 12.30**

(1) Cash costs per ounce and AISCSOS are non-GAAP measurements. Please refer to section "Alternative Performance (Non-GAAP) Measures" for a detailed reconciliation of how these measures are calculated. The cash costs and AISCSOS forecasts assume: metal prices of $14.50/oz for silver, $2,600/tonne ($1.18/lb) for zinc, $1,950/tonne ($0.88/lb) for lead, $6,150/tonne ($2.79/lb) for copper, and $1,250/oz for gold; and, average annual exchange rates relative to 1 USD of 19.50 for the Mexican peso ("MXN"), 3.33 of the Peruvian sol ("PEN"), 41.80 for the Argentine peso ("ARS"), 6.91 for the Bolivian boliviano ("BOL"), and $1.30 for the Canadian dollar ("CAD").
(2) Reflects Pan American's ownership in the operation.
(3) Totals may not add up due to rounding.

The Company expects 2019 silver production of between 26.5 million and 27.5 million ounces, which is between 1.7 million (7%) and 2.7 million ounces (11%) more than the 2018 consolidated production of 24.8 million ounces. Production increases are expected at Dolores, La Colorada and Manantial Espejo, while production at Morococha, Huaron and San Vicente is expected to be generally consistent with 2018. The expected increase in silver production at Dolores is driven by mine sequencing into higher silver grade zones, combined with increased throughput achieved by improved pre-stripping and underground mining rates. The increase at La Colorada is expected to be achieved by increasing throughput rates through mine mechanization and infrastructure upgrades and improved grades. At Manantial Espejo, the expected increase reflects bringing the COSE and Joaquin mine projects on stream in the second half of 2019.

Consolidated cash costs, net of by-product credits, for 2019 are forecast to be between $6.50 and $7.50 per payable ounce of silver, which is $3.15 to $4.15 higher than the 2018 cash costs of $3.35 per ounce, respectively. The Company expects consolidated cash costs to increase as a result of lower by-product credits, higher direct selling costs, and increased operating costs, partially offset by increased payable silver production. The expected decrease in by-product credits reflects lower base metal price assumptions and lower gold production at Dolores due to mine sequencing. The higher selling costs are driven by changes in the zinc concentrate treatment charges. Increased operating costs are the result of wage inflation, power cost increases in Mexico, and the addition of COSE and Joaquin costs.

Consolidated AISCSOS in 2019 is forecast to be between $10.80 and $12.30 compared to the $10.73 recorded in 2018 (which included net realizable value ("NRV") inventory adjustments that increased AISCSOS by $1.05 per ounce). The expected increase in AISCSOS is largely driven by the same factors expected to increase cash costs discussed above.

2019 By-product Production Forecasts:

	Gold (koz)	Zinc (kt)	Lead (kt)	Copper (kt)
La Colorada	4.1 - 4.8	18.7 - 19.5	9.5 - 9.8	—
Dolores	114.5 - 120.0	—	—	—
Huaron	0.5	17.7 - 18.0	8.5 - 8.8	5.7- 5.9
Morococha (1)	1.2 - 1.5	22.6 - 23.0	5.3 - 5.7	2.8 - 3.1
San Vicente (2)	0.3	6.0 - 6.5	0.7	1.3
Manantial Espejo	42.0 - 45.0	—	—	—
Consolidated Total(3)	**162.5 - 172.5**	**65.0 - 67.0**	**24.0 - 25.0**	**9.8 - 10.3**

(1) Morococha data represents Pan American's 92.3% interest in the mine's production.
(2) San Vicente data represents Pan American's 95.0% interest in the mine's production.
(3) Totals may not add due to rounding.

2019 gold production is expected to be between 162.5 and 172.5 thousand ounces, down from the 178.9 thousand ounces produced in 2018. The decrease reflects anticipated lower gold grades at Dolores as a result of mine sequencing, partially offset by increased gold production at Manantial Espejo with the addition of higher grade ore from the COSE deposit.

Base metal production is expected to increase for zinc, lead and copper in 2019 compared to 2018. Expectations for zinc and lead production are increasing as a result of mine sequencing into higher grades at the Peruvian operations, and from higher sulphide ore throughput at La Colorada. Copper production is expected to increase at Huaron and San Vicente, partially offset by decreases at Morococha as a result of mine sequencing.

2019 Capital Expenditure Forecasts

In 2019, Pan American expects sustaining capital investments of between $85.0 million and $90.0 million, a decrease from the $105.2 million invested in 2018. In addition, Pan American expects to invest approximately $30.0 million of project capital, primarily to complete the development of the Joaquin and COSE projects and to advance the exploration effort on the newly discovered skarn deposit at La Colorada. The following table details the forecast capital investments at the Company's operations and projects in 2019:

	2019 Forecast Capital Investment ($ millions)
La Colorada	6.5 - 7.0
Dolores	53.0 - 54.0
Huaron	6.5 - 7.5
Morococha	11.0 - 12.0
San Vicente	6.5 - 7.5
Manantial Espejo	1.5 - 2.0
Sustaining Capital Total	**85.0 - 90.0**
Morococha projects	2.5
Mexico projects	7.5
Joaquin & COSE projects	20.0
Project Capital Total	**30.0**
Consolidated Total	**115.0 - 120.0**

The forecast 2019 sustaining capital for each mine is related primarily to the following activities:

- La Colorada - underground equipment refurbishments, underground ventilation infrastructure expansions and near mine exploration.
- Dolores - approximately $26.0 million for pre-stripping activities, $23 million for leach pad expansions, and the remainder for underground equipment and infrastructure additions and near-mine exploration.
- Huaron - mine deepening, near mine exploration and equipment replacements.
- Morococha - near-mine exploration, underground ventilation infrastructure expansions, and underground mine equipment additions, replacements, and refurbishments.
- San Vicente - mine equipment refurbishment and replacements, near mine exploration, underground ventilation infrastructure expansions, and camp improvements.
- Manantial Espejo - exploration programs and upgrades to the process plant.

Forecast 2019 project capital consists of:

- Approximately $20.0 million to complete the development of the COSE and Joaquin mine projects.
- Approximately $7.5 million at La Colorada for continued exploration drilling on the newly discovered skarn deposit.
- Approximately $2.5 million to construct a new powerline and to advance engineering and plant design for a future plant relocation at Morococha.

2019 Exploration and Project Development Expense Forecast

The expected 2019 greenfield exploration and project development expense, including approximately $3.4 million of Navidad holding and maintenance costs as will as other holding costs, is expected to be $8.8 million (2018: $11.1 million). These forecasted exploration and project development expenses do not include any such costs expected to be incurred in relation to the Tahoe assets, an estimated $8.0 million in near-mine exploration included in sustaining capital (2018: $9.9 million), and an estimated $7.5 million for La Colorada skarn exploration activities included in project capital (2018: $1.4 million). We anticipate providing updated 2019 exploration sustaining capital as well as the greenfield exploration and project development cost guidance, inclusive of the Tahoe assets, in the second quarter of 2019.

2019 Mine Operation Forecasts

Management of the Company provides expectations for each mine's 2019 operating performance, including a discussion on expected production, cash costs, and AISCSOS, but excluding the incorporation of the Tahoe mines, below:

La Colorada mine

La Colorada 2019 forecast silver production of 8.0 million to 8.2 million ounces is 5% to 8% more than the7.6 million produced in 2018, driven by an expected 5% increase in throughput from benefits gained from additional mine mechanizations and the implementation of the hydraulic backfill system, as well as improved grades. The 2019 mine plan contemplates the mining and milling rate to increase from 2,000 tonnes per day ("tpd") in January 2019 to 2,150 tonnes per day by year-end 2019, compared to an average of 1,989 tonnes per day achieved in 2018.

Forecast 2019 cash costs per ounce of between $2.50 and $3.50 represent an increase of $0.48 to $1.48 per ounce, respectively, from the record low $2.02 per ounce achieved in 2018. The increase reflects lower by-product credits driven by lower metal prices, increased concentrate treatment and refining charges, partially offset by the benefits from increased silver and base metal production.

AISCSOS for 2019 is expected to be between $3.50 and $4.50, between 3% and 24% lower than the $4.63 achieved in 2018. The expected decline in AISCSOS is largely driven by an expected $9.9 million to $10.4 million decrease in sustaining capital due to a decrease in planned equipment rehabilitations and replacements as well as the completion of the backfill project in 2018, along with increased silver production, partially offset by lower by-product credits.

Dolores mine

Forecast 2019 silver production of 5.2 to 5.5 million ounces is expected to be 1.1 million to 1.4 million ounces higher than the 4.1 million ounces produced in 2018. The forecast increase is primarily driven by increased throughputs, compared with 2018 when production was reduced by the curtailed operations due to certain security-related road closures and an unusually heavy rainy season. Furthermore, the planned mine sequencing into higher silver grade zones will also result in an improved silver production over silver placed ratio. The mine sequencing is conversely resulting in the expected decline in gold production. 2019 gold production of 114.5 to 120.0 thousand ounces is expected to be 16.6 thousand to 22.1 thousand ounces lower than the 136.6 thousand ounces produced in 2018, respectively.

Cash costs in 2019 are expected to be between $4.50 and $5.50 per ounce, higher than the 2018 cash costs of negative $1.87 per ounce, due to reduced gold credits from lower gold production and a lower gold price assumption, partially offset by the previously discussed increased silver production.

AISCSOS for 2019 is expected to be between $14.00 and $16.00, compared to 2018 AISCSOS of $16.36 (which included NRV inventory adjustments that increased AISCSOS by $5.84 per ounce). Excluding the effect of 2018 NRV adjustments, AISCSOS is expected to increase from 2018 primarily due to lower gold production and increased sustaining capital investments, particularly for the annual open pit pre-stripping and leach pad expansion works required for the life-of-mine plan, partially offset by increased silver production.

Huaron mine

In 2019, silver production is expected to be between 3.6 million to 3.7 million ounces, comparable to the 3.6 million ounces produced in 2018. Consistent throughput rates and slightly higher grades from mine sequencing are expected to modestly increase silver and base metal production in 2019 compared to 2018.

2019 cash costs per ounce are forecast to be between $6.00 and $7.00, higher than the 2018 cash costs of $1.63 per ounce, which reflects lower base metal price assumptions and modest inflationary pressures for wages and consumables, partially offset by expected increases in base metal and silver production mentioned previously.

AISCSOS for 2019 is expected to be between $7.50 and $9.25, comparable to the $7.73 achieved in 2018 as a result of the increase in cash costs mentioned previously being largely offset by decreased sustaining capital expenditures due to the completion of the tailings storage facility raise in 2018 and a reduction in the mine deepening project expenditures as it approaches completion.

Morococha mine

The forecast 2019 silver production of 2.8 million to 2.9 million ounces is consistent with the2.9 million ounces produced in 2018, the result of relatively consistent throughputs, grades and recoveries. However, the planned mine sequencing results in increased production from higher zinc and lead grade zones that contain less copper. As such, lead and zinc production are expected to increase by approximately 17% and 3%, respectively, offset by an approximately 11% decrease in copper production.

Forecast 2019 cash costs of between $3.10 and $4.00 per ounce compare to 2018 cash costs of a negative $4.34 per ounce. The increased cash costs reflect lower base metal price assumptions, increased underground advances and shotcrete costs, and less favorable concentrate treatment and refining terms, partially offset by increased base metal production.

AISCSOS for 2019 is expected to be between $7.00 and $9.00, $5.48 to $7.48 higher than the $1.52 reported in 2018. The increase is the result of decreased base metal price assumptions and increased concentrate treatment charges mentioned previously, which more than offset a decrease in sustaining capital.

San Vicente mine

Silver production for 2019 is forecast to be between 3.5 million and 3.7 million ounces, in-line with the3.5 million ounces produced in 2018, the result of anticipated throughput increases being partially offset by lower grades. Zinc production is expected to be lower than the 7.97 thousand tonnes produced in 2018, lead production is expected to be relatively consistent, and copper production is expected to increase by 27%, all due to grade differences from mine sequencing.

Cash costs in 2019 are expected to be between $10.60 and $11.50 per ounce, similar to the 2018 cash costs of $10.12 as the increases in operating costs and lower by-product metal price assumptions, are expected to be offset by lower royalties and increased copper production.

AISCSOS for 2019 is expected to be between $12.25 and $13.50, comparable to the $12.19 reported in 2018, due to the same factors impacting cash costs mentioned previously.

Manantial Espejo mine

Forecast 2019 silver production of 3.4 to 3.6 million ounces is higher than the3.1 million ounces produced in 2018. Further, 2019 gold production of 42.0 thousand to 45.0 thousand ounces is significantly higher than the 34.6 thousand ounces produced in 2018. The expected increase in production is attributable to the addition of higher-grade COSE and Joaquin ore in the second half of 2019 as these projects ramp-up to commercial production.

Forecast 2019 cash costs of $17.00 to $18.50 per ounce are higher than the 2018 cash costs of $13.91 per ounce, as a result of the additional costs associated with mining and hauling the COSE and Joaquin ores, particularly during the continued ramp-up phase subsequent to the commencement of commercial production, along with expected labour cost increases in response to currency devaluations and inflation that occurred in Argentina in 2018.

AISCSOS for 2019 is expected to be between $17.75 and $19.50, an increase from the $16.83 reported in 2018. The increase is due to the same factors affecting cash costs mentioned previously, as well as a decrease in exploration expense relative to 2018.

2018 OPERATING PERFORMANCE

The following table provides silver production and cash costs, net of by-product credits, at each of Pan American's operations for the respective three and twelve month periods ended December 31, 2018 and 2017:

	Silver Production (ounces '000s)				Cash Costs[1] ($ per ounce)			
	Three months ended December 31,		Year ended December 31,		Three months ended December 31,		Year ended December 31,	
	2018	2017	**2018**	**2017**	**2018**	2017	**2018**	**2017**
La Colorada	**2,074**	1,870	**7,617**	7,056	**1.73**	0.43	**2.02**	2.08
Dolores	**824**	1,256	**4,081**	4,232	**7.06**	(3.93)	**(1.87)**	(1.65)
Alamo Dorado	**—**	33	**—**	641	**NA**	2.09	**NA**	16.49
Huaron	**965**	951	**3,561**	3,684	**2.82**	2.08	**1.63**	1.35
Morococha[2]	**740**	721	**2,881**	2,634	**0.61**	(7.42)	**(4.34)**	(5.34)
San Vicente[3]	**937**	1,102	**3,544**	3,610	**9.23**	9.04	**10.12**	11.85
Manantial Espejo	**587**	646	**3,092**	3,123	**25.53**	26.52	**13.91**	18.25
Total [4]	**6,127**	6,579	**24,775**	24,979	**6.12**	3.18	**3.35**	4.55

(1) Cash costs is a non-GAAP measure. Please refer to the section "Alternative Performance (Non-GAAP) Measures" of this MD&A for a detailed description of the cash cost calculation, details of the Company's by-product credits and a reconciliation of this measure to the 2018 Financial Statements.
(2) Morococha data represents Pan American's 92.3% interest in the mine's production.
(3) San Vicente data represents Pan American's 95.0% interest in the mine's production.
(4) Totals may not add due to rounding.

Silver Production

Consolidated silver production in the fourth quarter of 2018 ("Q4 2018 ") of 6.13 million ounces was 7% less than the 6.58 million ounces produced in the fourth quarter of 2017 ("Q4 2017"). The decrease was driven by lower production at Dolores and San Vicente, as a result of lower grades and recoveries, partially offset by increased production at La Colorada from improved throughput. Consolidated annual silver production of 24.8 million ounces was similar to the 25.0 million produced in 2017, largely the result of increased production from increased throughput at La Colorada, and from improved grades at Morococha, offsetting the loss from cessation of production from the Alamo Dorado mine, which produced 640.7 thousand ounces before ceasing production in 2017. Each operation's silver production variances are further discussed in the "Individual Mine Performance" section of this MD&A.

Cash Costs

Consolidated cash costs per ounce of silver for Q4 2018 and full year 2018 were $6.12 and $3.35, respectively, representing a 92% increase and a 26% reduction from Q4 2017 and 2017, respectively. Record low annual cash costs per ounce were achieved at La Colorada in 2018.

The quarter-over-quarter increase was the result of higher direct unit operating costs, mainly from Dolores, lower by-product credits from decreased base metal prices, lower gold production at Manantial Espejo, and lower silver production at Dolores. The lower annual cash costs were attributable to increased by-product credits driven by increased gold, zinc and lead production; along with higher gold, zinc and copper prices. Year-over-year direct consolidated operating costs were generally consistent, with increased costs at Dolores being largely offset by lower costs at Manantial Espejo, and no production costs at Alamo Dorado in the current year compared to the 2017 high cost production in its final year. Each operation's cash costs variances are discussed in the "Individual Mine Performance" section of this MD&A.

By-Product Production

	By-Product Production			
	Three months ended December 31,		Year ended December 31,	
	2018	2017	2018	2017
Gold – koz	**37.2**	43.7	**178.9**	160.0
Zinc – kt	**18.5**	14.7	**64.8**	55.3
Lead – kt	**6.3**	5.4	**22.4**	21.5
Copper – kt	**2.2**	3.0	**9.8**	13.4

Gold production during Q4 2018 was 37.2 thousand ounces, lower than the 43.7 thousand ounces produced in Q4 2017. The decrease is mainly attributable to Manantial Espejo, where production continues from processing material from underground production and lower grade stockpiles. In addition, there was less gold produced at Dolores as a result of lower grades from mine sequencing. 2018 annual gold production of 178.9 thousand ounces was 12% higher than in 2017. The increase was on account of Dolores' increased production that resulted from the anticipated higher grades, which more than offset the anticipated production decrease at Manantial Espejo, due to processing lower grade stockpiles as a result of the completion of open pit mining activities in 2017.

Q4 2018 zinc production was 26% higher than Q4 2017, driven by increased production at San Vicente, Morococha, and La Colorada, reflecting higher grades at all three mines, along with increased throughput at La Colorada. Q4 2018 lead production was 17% higher than Q4 2017, the result of increased throughput at La Colorada. Q4 2018 copper production was 28% lower than in Q4 2017 as a result of the anticipated lower grades at Morococha.

Record annual zinc production of 64.8 thousand tonnes in 2018 was 17% higher than in 2017, driven by higher grades at Morococha and San Vicente from mine sequencing, and higher throughput at the expanded La Colorada mine. 2018 consolidated lead production was a record 22.4 thousand tonnes, up 4% from 2017, driven by increased grades from Morococha mine sequencing. 2018 copper production of 9.8 thousand tonnes was 27% lower than in 2017, due largely to Morococha mine sequencing. Each operation's by-product production is discussed in the "Individual Mine Performance" section of this MD&A.

Average Market Metal Prices

The following tables set out the average market price for each metal produced for2018 and 2017:

	Average Market Metal Prices(1)			
	Three months ended December 31,		Year ended December 31,	
	2018	2017	2018	2017
Silver $/ounce	**14.54**	16.73	**15.71**	17.05
Gold $/ounce	**1,226**	1,275	**1,268**	1,257
Zinc $/tonne	**2,631**	3,236	**2,922**	2,896
Lead $/tonne	**1,964**	2,492	**2,242**	2,317
Copper $/tonne	**6,172**	6,808	**6,523**	6,166

(1) Average market prices for zinc, lead and copper are the London Metal Exchange cash prices for the three and twelve month periods ended December 31, 2018 and 2017. Silver and gold prices are the London Bullion Metal Association prices for the same periods.

AISCSOS

The following table reflects the quantities of payable silver sold and AISCSOS at each of Pan American's operations for the three and twelve months ended December 31, 2018, as compared to the same period in 2017:

	Payable Silver Sold (ounces '000s)				AISCSOS(1) ($ per ounce)			
	Three months ended December 31,		Year ended December 31,		Three months ended December 31,		Year ended December 31,	
	2018	2017	**2018**	**2017**	**2018**	2017	**2018**	**2017**
La Colorada	**1,780**	1,847	**7,069**	6,853	**5.93**	2.81	**4.63**	4.44
Dolores	**870**	1,225	**4,205**	4,089	**35.36**	13.62	**16.36**	10.00
Alamo Dorado	**—**	133	**—**	867	**—**	17.45	**—**	17.69
Huaron	**858**	813	**3,094**	3,181	**9.19**	7.00	**7.73**	5.25
Morococha	**674**	658	**2,652**	2,448	**4.24**	(1.54)	**1.52**	1.22
San Vicente	**502**	1,218	**3,054**	3,603	**13.57**	12.31	**12.19**	14.40
Manantial Espejo	**615**	766	**3,086**	3,171	**27.94**	28.63	**16.83**	23.42
Total (2)	**5,299**	6,659	**23,160**	24,212	**15.86**	10.86	**10.73**	10.79

(1) AISCSOS is a non-GAAP measure. Please refer to the section "Alternative Performance (Non-GAAP) Measures" of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements. G&A costs are included in the consolidated AISCSOS, but not allocated in calculating AISCSOS for each operation.
(2) Totals may not add due to rounding.

Consolidated AISCSOS for Q4 2018 and 2018, were$15.86 and $10.73, respectively, representing an increase of 46% and a decrease of 1%, respectively, from the comparable AISCSOS amounts in 2017.

The $5.00 quarter-over-quarter increase in AISCSOS largely reflects: a $4.57 per ounce decrease in by-product credits, driven by lower by-product metal prices and lower quantities of gold and copper sold; lower silver sales quantities, due to lower production at Dolores and the timing of sales at San Vicente and La Colorada; increased negative NRV inventory adjustments, which increased Q4 2018 AISCSOS by $2.50 ($0.83 increase in Q4 2017); and higher sustaining capital, primarily related to mine deepening projects at Huaron and equipment investments at La Colorada. These AISCSOS increases were partially offset by lower production costs, as well as lower royalties and selling costs from lower volumes of silver sold.

The comparable annual change in AISCSOS reflects: higher sustaining capital, largely from pre-stripping and leach pad works at Dolores; increased negative NRV inventory adjustments, which increased 2018 AISCSOS by $1.05 ($0.51 increase in 2017); and lower quantities of silver sold; being offset by $0.89 per ounce higher by-product credits, from increased gold and zinc sales; and, lower direct selling costs relating to decreased concentrate treatment charges.

Individual Mine Performance

2018 Actual versus 2018 Forecast

The following tables summarize the 2018 metal production, cash costs and AISCSOS achieved for each individual operation compared to the original annual forecasted amounts as provided in the Original Guidance. Reported metal figures included in tables in this section are volumes of metal produced. For the purposes of these comparisons, the symbols have the following meanings:

- üü Actual results were better than 2018 Original Guidance range
- ü Actual results met 2018 Original Guidance range
- û Actual results fell short of 2018 Original Guidance range

	2018 Silver Production (million ounces)			2018 Cash Costs(1) ($ per ounce)			2018 AISCSOS(1) ($ per ounce)		
	Forecast (2)	Actual		Forecast (2)	Actual		Forecast (2)	Actual	
La Colorada	7.4 - 7.7	7.62	ü	1.35 - 1.70	2.02	û	3.80 - 4.30	4.63	û
Dolores	4.5 - 4.9	4.08	û	(1.25) - 0.45	(1.87)	üü	9.00 - 12.00	16.36	û
Huaron	3.6 -3.8	3.56	û	0.75 - 1.50	1.63	û	6.50 - 7.75	7.73	ü
Morococha(3)	2.5 -2.7	2.88	üü	(5.80) - (4.30)	(4.34)	ü	1.05 - 3.50	1.52	ü
San Vicente(3)	3.9 - 4.1	3.54	û	10.00 -10.50	10.12	ü	11.60 - 12.50	12.19	ü
Manantial Espejo	3.2 - 3.3	3.09	û	17.60 -19.00	13.91	üü	18.45 - 20.20	16.83	üü
Total(4)	**25.0 -26.5**	**24.78**	û	**3.60 - 4.60**	**3.35**	üü	**9.30 - 10.80**	**10.73**	ü

(1) Cash Costs and AISCSOS are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements.
(2) Forecast amount per the Original Guidance.
(3) Production figures are only for Pan American's ownership share of Morococha (92.3%), and San Vicente (95.0%).
(4) Totals may not add due to rounding.

	2018 Gold Production (koz)			2018 Zinc Production (kt)		
	Forecast (1)	Actual		Forecast (1)	Actual	
La Colorada	4.2 – 4.3	4.4	üü	17.0 – 18.0	17.8	ü
Dolores	138.9 – 147.7	136.6	û	—	—	
Huaron	1.0	0.8	û	18.5 – 18.7	17.4	û
Morococha(2)	2.2 – 2.3	2.1	û	18.0 – 18.6	22.2	üü
San Vicente(2)	0.2	0.5	üü	6.5 – 6.7	7.5	üü
Manantial Espejo	28.5 – 29.5	34.6	üü	—	—	
Total(3)	**175.0 – 185.0**	**178.9**	ü	**60.0 - 62.0**	**64.8**	üü

(1) Forecast amount per the Original Guidance.
(2) Production figures are only for Pan American's ownership share of Morococha (92.3%), and San Vicente (95.0%).
(3) Totals may not add due to rounding.

	2018 Lead Production (kt)			2018 Copper Production (kt)		
	Forecast (1)	Actual		Forecast (1)	Actual	
La Colorada	9.2 – 9.4	8.8	û	—	—	
Huaron	7.3 – 7.6	8.0	üü	6.0 – 6.2	5.4	û
Morococha(2)	4.3 – 4.7	4.7	ü	5.1 – 5.3	3.3	û
San Vicente(2)	0.2	0.8	üü	0.9	1.0	üü
Total(3)	**21.0 – 22.0**	**22.4**	üü	**12.0 - 12.5**	**9.8**	ü

(1) Forecast amount per the Original Guidance.
(2) Production figures are only for Pan American's ownership share of Morococha (92.3%), and San Vicente (95.0%).
(3) Totals may not add due to rounding.

	2018 Capital Expenditure ($ millions)	
	Forecast(1)	Actual(2)
La Colorada	16.5 – 17.0	16.9
Dolores	47.5 – 49.0	48.5
Huaron	17.0 – 17.5	15.9
Morococha	12.0 – 12.5	14.1
San Vicente	6.0 – 7.0	7.0
Manantial Espejo	1.0 – 2.0	2.8
Sustaining Capital Sub-total(2)	**100.0 - 105.0**	**105.2**
Morococha projects	2.0	—
Mexico projects	13.0	15.9
Joaquin and COSE projects	35.0	25.4
Project Capital Sub-total(2)	**50.0**	**41.3**
Total Capital	**150.0 – 155.0**	**146.5**

(1) Forecast amount per the Original Guidance.

(2) The total sustaining capital amounts capitalized in 2018 were $0.8 million less than the $106.0 million of 2018 sustaining capital cash outflows. Project capital amounts capitalized in 2018 were $3.4 million less than the $44.7 million of 2018 project capital cash outflows. The sustaining capital cash outflows are included in the 2018 AISCSOS calculation, shown in the "Alternative Performance (non-GAAP) Measures" section of this MD&A, and in the tables included for the individual mines in the "Individual Mine Performance" section of this MD&A; these amounts are different than the amounts capitalized in the period, which are provided in the table above. These differences are due to the timing difference between the cash payment of capital investments compared with the period in which investments are capitalized.

Silver Production

Consolidated 2018 silver production was 24.8 million ounces which is 1% lower than the 25.0 million ounce low-end of the Original Guidance. The slight production shortfall was primarily due to underperformance at Dolores and San Vicente, partially offset by higher-than-forecast production at Morococha, which set an annual record. At Dolores, above average rainfalls during the third quarter in 2018 hampered our ability to make up open pit tonnages following the security-related road closures in June, resulting in a shortfall of tonnes placed on the heap. In addition, slower cement deliveries due to logistical challenges required lower solution application and reduced leach rates. At San Vicente, narrow vein mechanization efforts required additional operator training, resulting in lower throughput and increased dilution.

Cash Costs

Consolidated cash costs of $3.35 per ounce were less than the $3.60 per ounce low-end of the Original Guidance, reflecting lower direct costs, mainly from heap-inventory build at Dolores and lower costs at Manantial Espejo from currency devaluation, as well as lower than expected concentrate treatment charges.

By-Product Production

Consolidated gold production of 178.9 thousand ounces was in-line with the Original Forecast range of 175.0 to 185.0 thousand ounces. Higher than expected grades at Manantial Espejo offset the production shortfall at Dolores, resulting in 5.1 thousand ounces, or 17%, more production than the high-end of the Original Guidance range.

Consolidated zinc production in 2018 exceeded the high-end of the Original Guidance range by 5% and is mainly attributable to Morococha mining into zones with higher than originally planned zinc grade zones. Consolidated annual lead production was largely in-line with that originally forecast. Consolidated copper production was 18% lower than the low-end of the Original Guidance range, due to mining occurring in different zones with lower than originally planned copper grades at Morococha in 2018.

AISCSOS

Consolidated AISCSOS of $10.73 was towards the high-end of the $9.30 to $10.80 Original Guidance range, however if the $2.50 impact of negative NRV adjustments is excluded, then the net of NRV AISCSOS of $9.68 would be at the low end of the Original Guidance range. This reflects lower than expected direct production costs, as described in the "Cash Costs" section above, being largely offset by lower than expected by-product credits from lower prices, and lower than expected quantities of silver sold.

La Colorada mine

	Year ended December 31,	
	2018	**2017**
Tonnes milled - kt	**726.0**	655.3
Average silver grade – grams per tonne	**358**	368
Average zinc grade - %	**2.83**	2.81
Average lead grade - %	**1.40**	1.54
Average silver recovery - %	**91.2**	91.1
Average zinc recovery - %	**86.5**	83.7
Average lead recovery - %	**87.2**	86.9
Production:		
Silver – koz	**7,617**	7,056
Gold – koz	**4.40**	4.29
Zinc – kt	**17.79**	15.44
Lead – kt	**8.84**	8.80
Cash cost per ounce net of by-products(1)	**$ 2.02**	$ 2.08
AISCSOS(2)	**$ 4.63**	$ 4.44
Payable silver sold - koz	**7,069**	6,853
Sustaining capital expenditure - ('000s)(3)	**$ 16,942**	$ 13,280
Sustaining capital cash outflow - ('000s)(3)	**$ 15,462**	$ 13,970

(1) Cash costs is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of this measure to cost of sales.
(2) AISCSOS is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements.
(3) Sustaining capital expenditures exclude $7.1 million of project capital for 2018 (2017: $6.9 million) related to investment capital incurred on the La Colorada expansion projects as disclosed in the "Project Development Update" section of this MD&A.

2018 versus 2017

Production:

- Silver: 8% increase, driven primarily from improved throughput attributable to the mine expansion completed in 2017.
- By-products: 15% increase in zinc from improved throughput and higher grades from mine sequencing. Comparable lead production due to lower grades from mine sequencing, largely offset by the increase in throughput.

Cash costs: were a record low; the 3% decrease reflects: improved by-product credits with higher base metal production more than offsetting lower zinc and lead prices; and increased silver production being largely offset by increased direct unit operating costs, particularly power costs.

AISCSOS: the 4% increase was driven by increased operating costs discussed in cash costs above as well as increased sustaining capital discussed below.

Sustaining Capital: primarily related to investments in equipment replacements and rehabilitations, the hydraulic backfill system, plant infrastructure and increased near-mine exploration activities.

2018 versus 2018 Forecast

Production:

- Silver: in-line with the forecast range of 7.4 to 7.7 million ounces.
- By-products: zinc in-line with the forecast range of 17.0 to 18.0 thousand tonnes. Lead4% less than forecast range of 9.2 to 9.4 thousand tonnes, due to lower than expected lead grade, partially offset by better than expected throughput.

Cash costs: were $0.32 higher than the high-end of $1.35 to $1.70 forecast range due to lower than expected by-product credits from lower than forecast metal prices, and higher than expected power costs.

AISCSOS: were $0.33 higher than the high-end of $3.80 to $4.30 forecast range due to the same factors that drove higher cash costs.

Sustaining Capital: in-line with the forecast range of $16.5 to $17.0 million.

Dolores mine

	Year ended December 31,	
	2018	**2017**
Tonnes placed - kt	**6,903.3**	6,604.9
Average silver grade – grams per tonne	**31**	38
Average gold grade – grams per tonne	**0.85**	0.66
Average silver produced to placed ratio - %	**59.2**	51.7
Average gold produced to placed ratio - %	**72.2**	70.7
Production:		
Silver – koz	**4,081**	4,232
Gold – koz	**136.6**	103.0
Cash cost per ounce net of by-products(1)	**(1.87)**	(1.65)
AISCSOS(2)	**16.36**	10.00
Payable silver sold - koz	**4,205**	4,089
Sustaining capital expenditure - ('000s)(3)	**48,470**	38,421
Sustaining capital cash outflows - ('000s)(3)	**$ 48,842**	$ 36,071

(1) Cash costs is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of this measure to cost of sales.

(2) AISCSOS is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements.

(3) Sustaining capital expenditures excludes $8.8 million of project capital for 2018 (2017: $49.9 million) related to investment capital incurred on Dolores expansion projects, as disclosed in the "Project Development Update" section of this MD&A.

2018 versus 2017

Production:

- Silver: 4% lower due to a reduction in stacking rates and silver grades resulting from the re-sequencing of the mine plan because of the 15-day suspension of mining activities in June 2018 and seasonal heavy rains affecting access to certain ore zones, partially offset by enhanced recoveries attributable to the pulp agglomeration plant completed in 2017. Delivery of additional plate and frame expansion kits, to maximize the capacity of the existing filter units in the pulp agglomeration plant, occurred in Q3 2018 and installation commenced in Q4 2018.
- By-products: 33% increase in gold due to better grades from mine sequencing, and higher recoveries due to the addition of the pulp agglomeration plant and the timing of leach pad kinetics.

Cash costs: Decreased $0.22 per ounce due to increased by-product credits from increased gold production, partially offset by higher operating costs associated with the pulp agglomeration plant, higher direct unit operating costs, particularly power costs, delays in the ramp up of stope mining in the underground mine, and greater waste mining due to the re-sequencing of the mine plan.

AISCSOS: increased $6.36 due to the following factors: (i) negative NRV adjustments that resulted in a year over year increase of $4.17 per ounce; (ii) a $12.8 million increase in cash sustaining capital expenditures, due mostly to the higher pre-stripping rates and leach pad pumping and expansions; and, (iii) higher direct operating costs as described above. These factors were partially offset by higher by-product credits from higher gold sales during the year.

Sustaining Capital: comprised mainly of pre-stripping and the restart of the leach pad expansions, both of which were at higher levels of activity compared to 2017.

2018 versus 2018 Forecast

Production:

- Silver: 9% less than the forecast range of 4.5 to 4.9 million ounces, due to the above average rainfalls during the third quarter that hampered the ability to make up open pit tonnages following the security-related road closures in June 2018, resulting in a shortfall of tonnes placed on the heap. In addition, slower cement deliveries due to logistical challenges required lower solution application and reduced leach rates.
- By-products: gold production was 2% less than the forecast range of 138.9 to 147.7 thousand ounces, due to the same factors that drove the silver production shortfall.

Cash costs: were $0.62 lower than the low-end of $(1.25) to $0.45 forecast range due to lower than expected direct operating costs as a result of inventory, and thus cost, buildups in the heap.

AISCSOS: were $4.36 higher than the high-end of $9.00 to $12.00 forecast range mainly due to $5.84 per ounce in negative NRV adjustments, less by-product credits from lower gold production, and lower quantities of silver sold, partially offset by the lower direct operating costs described above.

Sustaining Capital: in-line with the forecast range of $47.5 to $49.0 million.

Huaron mine

	Year ended December 31,	
	2018	**2017**
Tonnes milled - kt	**935.0**	928.1
Average silver grade – grams per tonne	**142**	146
Average zinc grade - %	**2.44**	2.70
Average lead grade - %	**1.18**	1.23
Average copper grade - %	**0.76**	0.84
Average silver recovery - %	**82.7**	85.2
Average zinc recovery - %	**76.0**	77.6
Average lead recovery - %	**73.2**	77.7
Average copper recovery - %	**76.9**	78.5
Production:		
Silver – koz	**3,561**	3,684
Gold – koz	**0.79**	1.15
Zinc – kt	**17.38**	19.37
Lead – kt	**8.05**	8.77
Copper – kt	**5.44**	6.09
Cash cost per ounce net of by-products(1)	**$ 1.63**	$ 1.35
AISCSOS(2)	**$ 7.73**	$ 5.25
Payable silver sold – koz	**3,094**	3,181
Sustaining capital expenditure - ('000s)	**15,940**	8,786
Sustaining capital cash outflows - ('000s)	**$ 17,109**	$ 10,267

(1) Cash costs is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of this measure to cost of sales.

(2) AISCSOS is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements.

2018 versus 2017

Production:

- Silver: 3% lower, primarily due to lower recoveries from mine sequencing into different ore types.
- By-products: Decreased zinc, lead and copper production of 10%, 8% and 11%, respectively, as a result of lower grades due to mine sequencing.

Cash costs: $0.28 per ounce higher due primarily to higher direct unit operating costs and reduced by-product credits from lower base metal prices and lower zinc and copper production, partially offset by improved concentrate treatment terms.

AISCSOS: an increase of $2.48 due to the same factors affecting year-over-year cash costs, as well as higher sustaining capital.

Sustaining Capital: related primarily to equipment replacements and refurbishments, plant and infrastructure upgrades, near-mine exploration, mine deepening and a tailings storage facility raise. The increase from 2017 was related primarily to the 2018 tailings storage facility raise and mine deepening projects.

2018 versus 2018 Forecast

Production:

- Silver: slightly lower than the forecast range of 3.6 to 3.8 million ounces on account of slightly lower grades.
- By-products: zinc 6% lower than the low-end of the forecast range of 18.5 to 18.7 thousand tonnes and copper9% lower than the low-end of the forecast range of 6.0 to 6.2 thousand tonnes, both on account of lower than originally forecast grades and recoveries. Lead production was 6% higher than the high-end of the forecast range of 7.3 to 7.6 thousand tonnes, as slightly increased throughput offset the lower grades.

Cash costs: were $0.13 higher than the high-end of $0.75 to $1.50 forecast range due to lower than expected by-product credits from lower than forecast metal prices and production.

AISCSOS: were in-line, though close to the high-end of the $6.50 to $7.75 forecast range due to same factors that drove higher cash costs, and lower than forecast sustaining capital.

Sustaining Capital: 6% lower than the low-end of the forecast range of $17.0 to $17.5 million, due to the timing of expenditures.

Morococha mine(1)

	Year ended December 31,	
	2018	**2017**
Tonnes milled – kt	**672.0**	676.9
Average silver grade – grams per tonne	**149**	137
Average zinc grade - %	**3.80**	3.01
Average lead grade - %	**0.92**	0.78
Average copper grade - %	**0.66**	1.20
Average silver recovery - %	**90.7**	89.2
Average zinc recovery - %	**87.4**	79.6
Average lead recovery - %	**76.5**	66.6
Average copper recovery - %	**75.7**	83.9
Production:		
Silver – koz	**2,881**	2,634
Gold – koz	**2.09**	3.53
Zinc – kt	**22.17**	16.13
Lead – kt	**4.69**	3.46
Copper – kt	**3.30**	6.64
Cash cost per ounce net of by-products(2)	**$ (4.34)**	$ (5.34)
AISCSOS(3)	**$ 1.52**	$ 1.22
Payable silver sold (100%) - koz	**2,652**	2,448
Sustaining capital expenditure (100%) - ('000s)	**14,085**	12,454
Sustaining capital cash outflow (100%) - ('000s)	**$ 14,840**	$ 12,428

(1) Production figures are for Pan American's 92.3% share only, unless otherwise noted.
(2) Cash costs is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of this measure to our cost of sales.
(3) AISCSOS is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements.

2018 versus 2017

Production:

- Silver: 9% higher, primarily due to higher grades from mine sequencing.
- By-products: a 37% and 35% increase in zinc and lead production, respectively, and a 50% decrease in copper production, all related to mine sequencing.

Cash costs: $1.00 per ounce higher, primarily because of lower by-product prices and higher direct unit operating costs, partially offset by higher silver production and better concentrate treatment terms.

AISCSOS: $0.30 increase, primarily driven by the same factors affecting year-over-year cash costs.

Sustaining Capital: primarily related to expanded near-mine exploration, equipment replacements and refurbishments, mine ventilation, and plant and infrastructure upgrades.

2018 versus 2018 Forecast

Production:

- Silver: 7% higher than the forecast range of 2.5 to 2.7 million ounces on account of higher than expected grades and recoveries.
- By-products: zinc production was 19% higher than the high-end of the forecast range of 18.0 to 18.6 thousand tonnes, and copper production was 35% lower than the low-end of the forecast range of 5.1 to 5.3 thousand tonnes, both the result of mining into zones with higher than originally planned zinc grades and lower than originally planned copper grades. Lead production for the year was in-line with the forecast range of 4.3 to 4.7 thousand tonnes.

Cash costs: were in-line with the $(5.80) to $(4.30) forecast range, with lower by-product prices and marginally higher operating costs being offset by higher zinc, lead and silver production.

AISCSOS: were in-line with $1.05 to $3.50 forecast range.

Sustaining Capital: was 13% higher than the high-end of the forecast range of $12.0 to $12.5 million, primarily due to the decision to increase near-mine exploration activities and expenses related to deepening the Manuelita mine.

San Vicente mine [1]

	Year ended December 31,	
	2018	2017
Tonnes milled – kt	**332.9**	**328.1**
Average silver grade – grams per tonne	**362**	**374**
Average zinc grade - %	**2.77**	**1.94**
Average lead grade - %	**0.34**	**0.29**
Average copper grade - %	**0.40**	**0.43**
Average silver recovery - %	**92.7**	**92.6**
Average zinc recovery - %	**81.5**	**68.7**
Average lead recovery - %	**64.8**	**80.1**
Average copper recovery - %	**80.3**	**83.8**
Production:		
Silver – koz	**3,544**	**3,610**
Gold – koz	**0.50**	**0.51**
Zinc – kt	**7.47**	**4.36**
Lead – kt	**0.78**	**0.47**
Copper – kt	**1.02**	**0.63**
Cash cost per ounce net of by-products[2]	**$ 10.12**	**$ 11.85**
AISCSOS[3]	**$ 12.19**	**$ 14.40**
Payable silver sold (100%) - koz	**3,054**	**3,603**
Sustaining capital expenditure (100%) - ('000s)	**6,965**	8,146
Sustaining capital (100%) - ('000s)	**$ 6,949**	**$ 8,146**

(1) Production figures are for Pan American's 95.0% share only, unless otherwise noted.
(2) Cash costs is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of this measure to cost of sales.
(3) AISCSOS is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements.

2018 versus 2017

Production:

- Silver: slightly lower due to lower grades and dilution experienced with narrow vein mining, largely offset by increased throughput.
- By-products: increased zinc, lead, and copper production of 71%, 64% and 61% respectively, the result of overall better base metal grades due to mine sequencing.

Cash costs: $1.73 per ounce lower due to increased base metal quantities and improved concentrate terms, partially offset by higher direct unit operating costs attributable to the transition to more mechanized mining methods and wage increases.

AISCSOS: a $2.21 reduction due to the same factors affecting year-over-year cash costs, as well as lower royalty expenses due to the timing of revenue and royalty expense recognition and lower sustaining capital.

Sustaining Capital: expenditures primarily relate to mine equipment replacements and rehabilitations, near-mine exploration, tailings storage facility expansion, and mine site and camp infrastructure.

2018 versus 2018 Forecast

Production:

- Silver: 9% lower that the low end of the forecast range of 3.9 to 4.1 million ounces, the result of narrow vein mechanization efforts that required additional operator training, resulting in lower throughput and increased dilution.
- By-products: zinc production was 12% higher than the high-end of the forecast range of 6.5 to 6.7 thousand tonnes, lead was over three times higher than the 0.2 thousand tonnes forecasted, and copper was 13% higher than the 0.9 thousand tonnes forecasted, primarily the result of better than expected base metal grades.

Cash costs: were in-line with the $10.00 to $10.50 forecast range, attributable to lower than expected by-product metal prices offset by the higher than forecast base metal production.

AISCSOS: were in-line with the $11.60 to $12.50 forecast range, due to same factors described in cash costs.

Sustaining Capital: in-line with the forecast range of $6.0 to $7.0 million.

Manantial Espejo mine

	Year ended December 31,	
	2018	**2017**
Tonnes milled - kt	**804.4**	793.5
Average silver grade – grams per tonne	**135**	134
Average gold grade – grams per tonne	**1.42**	1.88
Average silver recovery - %	**88.0**	90.6
Average gold recovery - %	**93.4**	93.8
Production:		
Silver – koz	**3,092**	3,123
Gold – koz	**34.55**	45.34
Cash cost per ounce net of by-products(1)	**$ 13.91**	$ 18.25
AISCSOS(2)	**$ 16.83**	$ 23.42
Payable silver sold - koz	**3,086**	3,171
Sustaining capital expenditure - ('000s)	**2,827**	3,333
Sustaining capital - ('000s)	**$ 2,827**	$ 3,333

(1) Cash costs is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of this measure to cost of sales.
(2) AISCSOS is a non-GAAP measure. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of the AISCSOS calculation and a reconciliation of this measure to the 2018 Financial Statements.

2018 versus 2017

Production:

- Silver: comparable due to slightly better grades, partially offset by lower recoveries.
- By-products: 24% decrease in gold production due to processing of lower grade stockpile ore, as planned.

Cash costs: a $4.34 per ounce decrease from lower direct unit operating costs from the devaluation in the Argentine peso and the termination of open pit mining at the end of the third quarter of 2017, partially offset by lower by-product credits from the lower gold production.

AISCSOS: a $6.59 per ounce decrease due to an $8.3 million decrease in negative NRV inventory adjustments and the lower operating costs described above, partially offset with lower by-product credits from lower gold sales.

Sustaining Capital: primarily related to near-mine exploration.

2018 versus 2018 Forecast

Production:

- Silver: 3% less than the low-end of the forecast range of 3.2 to 3.3 million ounces, due to lower than expected grades.
- By-products: gold production was 17% more than the high-end of the forecast range of 28.5 to 29.5 thousand ounces, the result of higher than anticipated gold grades.

Cash costs: were $3.69 lower than the low-end of the $17.60 to $19.00 forecast range due to lower than expected direct operating costs as a result of the devaluation of the Argentine peso, and higher by-product credits from the higher quantities of gold sold.

AISCSOS: were $1.62 lower than the low-end of $18.45 to $20.20 forecast range due to the same factors that drove lower cash costs.

Sustaining Capital: above Original Guidance range of $1.0 to $2.0 million, primarily due to a surface loader purchase to increase throughput, and additional underground equipment purchases.

PROJECT DEVELOPMENT UPDATE

The following table reflects the amounts spent at each of Pan American's major projects in2018 as compared to 2017.

Project Development Investment (thousands of USD)	Year ended December 31,	
	2018	2017
Dolores Projects (1)	**8,789**	49,886
La Colorada Expansion (2)	**7,099**	6,869
Total Mexico Projects	**15,888**	56,755
Joaquin & COSE Projects (3)	**25,403**	4,674
Total	**41,291**	61,429

(1) As a result of periodic changes in accounts payable balances, the amounts capitalized for the projects during 2018 were $1.8 million less than the project cash outflows (2017: $0.6 million less).
(2) As a result of periodic changes in accounts payable balances, the amounts capitalized for the project during 2018 were $0.1 million more than the project cash outflows (2017: $1.1 million more).
(3) As a result of periodic changes in accounts payable balances, the amounts capitalized for the project during 2018 were $1.6 million less than the project cash outflows (2017: $2.0 million more). In 2017 total expenditures of $9.7 million were incurred for the Joaquin and COSE projects, of which $5.0 million was expensed as part of 2017 exploration and project development expenses, and the remaining $4.7 million was capitalized.

Dolores and La Colorada

The Company invested $8.8 million on completing the Dolores expansion projects, the majority of which was spent on the construction of the underground mine maintenance shop and the acquisition of additional underground mobile equipment units. The underground mine crews were remobilized following the 10-week suspension of underground mining, and the mine recommenced production and ramp-up in Q4 2018, including the continued development of the footwall drifts and ramps in the south-zone.

The Company invested $7.1 million on the La Colorada projects, primarily relating to the construction of a tailings storage facility raise and commissioning of a neutralization plant and exploration on the skarn deposit.

Joaquin and COSE

The Company invested $15.6 million on the Joaquin project, primarily on the surface facilities and the initial fleet of development mining equipment. Approximately 494 metres of development were completed on the decline access for the underground mine, which was less than planned due to difficult ground being unexpectedly encountered close to the surface. The delay in developing the decline access may result in extending completion of the Joaquin project by approximately two months. The Joaquin project remains on budget.

During 2018, the Company invested $9.8 million at COSE, primarily on the decline access to the underground mine. During the year, 308 metres of ramp development were completed for a total of 1,397 metres to date. Construction commenced on the first underground electrical substation, the fresh air raise bore was completed from the 338 level to surface, and installation of a safety escape ladder-way was completed. The COSE project remains on budget.

OVERVIEW OF 2018 FINANCIAL RESULTS

Selected Annual and Quarterly Information

The following tables set out selected quarterly results for the past twelve quarters as well as selected annual results for the past three years. The dominant factors affecting results in the quarters and years presented below are volatility of realized metal prices, and the timing of sales, which varies with the timing of shipments. The fourth quarter of 2018 included an impairment charge to Manantial Espejo. Q4 2017 included an impairment reversal to Morococha and Calcatreu.

2018	Quarter Ended				Year Ended
(In thousands of USD, other than per share amounts)	March 31	June 30	Sept 30	Dec 31	Dec 31
Revenue	$ 206,961	$ 216,460	$ 187,717	$ 173,357	**$ 784,495**
Mine operating earnings (loss)	$ 55,124	$ 54,851	$ (4,412)	$ (4,666)	**$ 100,897**
Earnings (loss) for the period attributable to equity holders	$ 47,376	$ 36,187	$ (9,460)	$ (63,809)	**$ 10,294**
Basic earnings (loss) per share	$ 0.31	$ 0.24	$ (0.06)	$ (0.42)	**$ 0.07**
Diluted earnings (loss) per share	$ 0.31	$ 0.24	$ (0.06)	$ (0.42)	**$ 0.07**
Cash flow from operating activities	$ 34,400	$ 66,949	$ 41,699	$ 11,930	**$ 154,978**
Cash dividends paid per share	$ 0.035	$ 0.035	$ 0.035	$ 0.035	**$ 0.140**
Other financial information					
Total assets					**$ 1,937,476**
Total long-term financial liabilities(1)					**$ 96,828**
Total attributable shareholders' equity					**$ 1,508,212**

(1) Total long-term financial liabilities are comprised of non-current liabilities excluding deferred tax liabilities, deferred revenue, and share purchase warrant liabilities.

2017	Quarter Ended				Year Ended
(In thousands of USD, other than per share amounts)	March 31	June 30	Sept 30	Dec 31	Dec 31
Revenue	$ 198,687	$ 201,319	$ 190,791	$ 226,031	$ 816,828
Mine operating earnings	$ 32,875	$ 44,782	$ 47,818	$ 43,285	$ 168,760
Earnings for the period attributable to equity holders	$ 19,371	$ 35,472	$ 17,256	$ 48,892	$ 120,991
Basic earnings per share	$ 0.13	$ 0.23	$ 0.11	$ 0.32	$ 0.79
Diluted earnings per share	$ 0.13	$ 0.23	$ 0.11	$ 0.32	$ 0.79
Cash flow from operating activities	$ 38,569	$ 42,906	$ 63,793	$ 79,291	$ 224,559
Cash dividends paid per share	$ 0.025	$ 0.025	$ 0.025	$ 0.025	$ 0.100
Other financial information					
Total assets					$ 1,993,332
Total long-term financial liabilities(1)					$ 90,027
Total attributable shareholders' equity					$ 1,516,850

(1) Total long-term financial liabilities are comprised of non-current liabilities excluding deferred tax liabilities, deferred revenue, and share purchase warrant liabilities.

2016 (In thousands of USD, other than per share amounts)	Quarter Ended March 31	June 30	Sept 30	Dec 31	Year Ended Dec 31
Revenue	$ 158,275	$ 192,258	$ 233,646	$ 190,596	$ 774,775
Mine operating earnings	$ 16,698	$ 44,730	$ 88,495	$ 48,956	$ 198,879
Earnings for the period attributable to equity holders	$ 1,738	$ 33,804	$ 42,766	$ 21,777	$ 100,085
Basic earnings per share	$ 0.01	$ 0.22	$ 0.28	$ 0.14	$ 0.66
Diluted earnings per share	$ 0.01	$ 0.22	$ 0.28	$ 0.14	$ 0.66
Cash flow from operating activities	$ 771	$ 66,019	$ 102,346	$ 45,668	$ 214,804
Cash dividends paid per share	$ 0.0125	$ 0.0125	$ 0.0125	$ 0.0125	$ 0.0500
Other financial information					
Total assets					$ 1,898,141
Total long-term financial liabilities(1)					$ 118,594
Total attributable shareholders' equity					$ 1,396,298

(1) Total long-term financial liabilities are comprised of non-current liabilities excluding deferred tax liabilities, deferred revenue, and share purchase warrant liabilities.

Income Statement: 2018 versus 2017

Net earnings of $12.0 million were recorded in 2018 compared to $123.5 million in 2017, which corresponds to basic earnings per share of $0.07 and $0.79, respectively.

The following table highlights the key items driving the difference between the net earnings in 2018 and 2017:

Net earnings, year ended December 31, 2017 (in thousands of USD)		$ 123,451	Note
Decreased revenue:			
Decreased realized metal prices	$ (34,179)		
Higher quantities of metal sold	3,488		
Decreased direct selling costs	16,225		
Decreased positive settlement adjustments	(17,867)		
Total decrease in revenue		**$ (32,333)**	(1)
Increased cost of sales:			
Increased production costs and decreased royalty charges	$ (11,129)		(2)
Increased depreciation and amortization	(24,401)		(3)
Total increase in cost of sales		**$ (35,530)**	
Decreased recovery on impairment reversal		(89,343)	(4)
Decreased income tax expense		37,887	(5)
Increased dilution gain, net of share of loss from associate		11,627	(6)
Decreased foreign exchange gain		(11,149)	(7)
Increased net gain on asset sales, commodity contracts and derivatives		10,964	(8)
Increased transaction costs		(10,229)	(9)
Decreased exploration and project development expense		8,617	(10)
Increased general and administrative expense		(1,252)	(11)
Increased interest and finance expense		(954)	
Increased investment income and other expense		285	
Net earnings, year ended December 31, 2018		**$ 12,041**	

1. ***Revenue*** for 2018 was $784.5 million, a $32.3 million decrease from the $816.8 million of revenue recognized in 2017. The major factor driving the decrease was a $34.2 million price variance from lower realized prices for silver, zinc and lead, partially offset by an estimated $3.5 million positive variance from higher quantities of metal sold, with 17.3 thousand additional ounces of gold sold in 2018 compared to 2017. Revenue in 2018 was also impacted by a $16.2 million positive variance from decreased selling costs, mainly from favorable changes in contract terms relating to concentrate treatment and refining charges.

The following table reflects the metal prices realized by the Company and the quantities of metal sold during each year:

	Realized Metal Prices		Quantities of Metal Sold	
	Year ended December 31,		Year ended December 31,	
	2018	2017	2018	2017
Silver(1) – koz	$ **15.61**	16.99	**23,160**	24,212
Gold(1) – koz	$ **1,272**	1,257	**173.9**	156.6
Zinc(1) – kt	$ **2,846**	2,929	**54.6**	47.3
Lead(1) – kt	$ **2,189**	2,351	**20.6**	20.7
Copper(1) – kt	$ **6,519**	$ 6,174	**9.2**	12.7

(1) Metal price stated as dollars per ounce for silver and gold, and dollars per tonne for zinc, lead and copper, inclusive of final settlement adjustments on concentrate sales.

Realized prices for silver, lead, and zinc decreased by 8%, 7% and 3%, respectively, in 2018 compared to 2017. The realized price for copper increased by 6%, while gold prices remained relatively consistent.

Zinc and gold quantities sold in 2018 increased by 15% and 11%, respectively, compared to 2017, while copper and silver quantities sold decreased by 27% and 4%, respectively. Lead sales quantities were consistent year-over-year.

2. ***Production cost*** increases were primarily driven by a net negative $12.0 million period-over-period change in NRV inventory adjustments (all at Dolores and Manantial Espejo) which increased 2018 costs by $24.3 million and increased 2017 costs by $12.3 million. In addition, 2018 production costs include a provision, with no comparable provision in 2017, of $3.9 million related to certain doré metal inventory held at a refinery used by the Company that filed for bankruptcy in November, 2018. The remainder of the increased production costs was largely driven by higher quantities of gold sold at Dolores, partially offset by the cessation of production at Alamo Dorado and decreased production costs at Manantial Espejo.

3. ***Depreciation and amortization ("D&A")*** expense of $147.3 million in 2018 was $24.4 million more than the $122.9 million in 2017. The increase was mainly driven by higher D&A at Dolores, Morococha and La Colorada. The increased D&A at Dolores was attributable to higher depreciable asset bases from the recent expansions while the increased D&A at Morococha and La Colorada was due to increased sales volumes.

4. ***Impairment charges*** of $27.8 million ($27.8 million, net of tax expense) were recorded in 2018, with impairment reversals of $61.6 million ($53.4 million, net of tax expense) recorded in 2017. Non-current assets are tested for impairment, or reversal of previous impairment charges, when events or changes in circumstance indicate that the carrying amount may not be recoverable, or previous impairment charges against assets are recoverable. The Company performs an impairment test for goodwill at each financial year-end and when events or changes in circumstances indicate that the related carrying value may not be recoverable. The Company considers its internal discounted cash flow economic models as a proxy for the calculation of fair value less cost to sell, given a willing market participant would use such models in establishing a value for the properties. The Company considers impairment, or if previous impairment charges should be reversed, at the cash generating unit (“CGU”) level, which is considered to be an individual mine or a development property. The CGU carrying amount for purposes of this test includes the carrying value of the mineral properties plant and equipment less deferred tax liabilities and closure and decommissioning liabilities related to each CGU.

   The Company’s key assumptions for determining the recoverable amounts of its various CGUs, for the purpose of testing for impairment or impairment reversals, include the most current operating and capital costs information and risk adjusted project specific discount rates. The Company uses an average of analysts’ consensus prices for the first four years of its economic modeling, and long-term reserve prices for the remainder of each asset’s life. The prices used can be found in the key assumptions and sensitivity section below.

Based on the Company's assessment with respect to possible indicators of either impairment or reversal of previous impairments to its mineral properties, the Company concluded that as of December 31, 2018, based on certain indicators, reversals of impairment were required on the following CGUs:

	2018	2017
Manantial Espejo	**$ (27,789)**	$ —
Morococha	**—**	60,237
Calcatreu	**—**	1,317
	$ (27,789)	$ 61,554

2018 Impairment - Manantial Espejo

The decrease in short term analyst consensus silver prices and the introduction of an export tax of three to four Argentine pesos per Dollar of export in September 2018 led management to conclude that there was an indication of impairment to its operating assets in Argentina, namely the Manantial Espejo mine, and the COSE and Joaquin projects. As at December 31, 2018, the Company determined that the combined Net Carrying Amount of the Manantial Espejo mine and the Joaquin and COSE development projects, including mineral properties, plant and equipment, and stockpile inventories, net of associated closure and decommissioning liabilities of $68.1 million was greater than the combined estimated recoverable amount of $39.3 million when using a 7.25% risk adjusted discount rate. Based on this assessment, the Company recorded an impairment charge related to the Manantial Espejo mineral property, and the COSE and Joaquin projects, of $27.8 million ($27.8 million, net of tax).

2017 Impairment Reversal - Morococha

During the years ended December 2017 and 2016, Morococha generated significantly higher cash flows from operations than the amount assumed in the recoverable value estimation at December 31, 2015, primarily the results of continued costs performance and base metal prices being superior to prior expectations. Further, as of December 31, 2017, Morococha's estimated silver mineral reserve increased by 2.8 million ounces. As a result of the CGU's continued strong performance, increased silver mineral reserves and higher long-term metal prices, the Company recognized a reversal of the remaining unamortized impairment of $60.2 million ($52.1 million, net of tax) related to its investment in Morococha at December 31, 2017.

2017 Impairment Reversal - Calcatreu

On January 31, 2018, the Company completed the sale of 100% of the shares of Minera Aquiline Argentina SA, which owns the Calcatreu project ("Calcatreu"), for total consideration of $15.0 million in cash (the "Aquiline Acquisition"). During Q4 2017, immediately prior to the classification to assets and liabilities held for sale, the carrying amount of Calcatreu was re-measured to its recoverable amount, being its fair value less costs of disposal, based on the expected proceeds from the sale. As a result, the Company recorded an impairment reversal of $1.3 million in Q4 2017.

Key assumptions and sensitivity:

The metal prices used to calculate the recoverable amounts at December 31, 2018 and December 31, 2017 are based on analyst consensus prices and the Company's long-term mineral reserve prices, and are summarized in the following tables:

Metal prices used at December 31, 2018:

Metal Prices	2019-2022 average	Long term
Silver - $/oz	$17.07	$18.50
Gold - $/oz	$1,300	$1,300
Zinc - $/tonne	$2,599	$2,400
Lead - $/tonne	$2,171	$2,100
Copper - $/tonne	$6,975	$6,000

Metal prices used at December 31, 2017:

Metal Prices	2018-2021 average	Long term
Silver - $/oz	$18.57	$18.50
Gold - $/oz	$1,307	$1,300
Zinc - $/tonne	$2,818	$2,600
Lead - $/tonne	$2,251	$2,200
Copper - $/tonne	$6,742	$5,500

In 2018, the discount rates used to present value the Company's life of mine cash flows were derived from the Company's weighted average cost of capital, which was calculated as 5.3% (2017 – 5.2%), with rates ranging from 4.5% to 9.8% (2017 - 4.0% to 9.0%) applied to the various mines and projects, depending on the Company's assessment of country risk, project risk and other potential risks specific to each CGU.

The key assumptions in determining the recoverable value of the Company's mineral properties are metal prices, operating and capital costs, foreign exchange rates and discount rates. At December 31, 2018, the Company performed a sensitivity analysis on all key assumptions that assumed a 10% adverse change to each assumption while holding the other assumptions constant.

At December 31, 2018, an adverse 10% movement in any of the major assumptions in isolation did not cause the recoverable amount to be below the CGU carrying value for any of the La Colorada, San Vicente, Huaron, or Morococha mines. For the Dolores mine, Manantial Espejo mine and Navidad project, which previously had their carrying values adjusted to fair value less cost to sell ("FVLCTS") through impairment charges, a modest adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

At December 31, 2017, an adverse 10% movement in any of the major assumptions in isolation did not cause the recoverable amount to be below the CGU carrying value for any of the La Colorada, San Vicente, Huaron, or Morococha mines. For the Dolores mine, Manantial Espejo mine and Navidad project, which previously had their carrying values adjusted to FVLCTS through impairment charges, a modest adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

5. ***Income tax expense*** for the year ended December 31, 2018 decreased to $21.1 million compared to $59.0 million in 2017. The $37.9 million year-over-year decrease in income tax expense was mainly due to the decrease in earnings before taxes from 2017 to 2018.

6. ***Share of loss from associate and dilution gain*** for 2018 was $13.7 million, compared to $2.1 million in 2017 and related entirely to the Company's investment in Maverix Metals Inc. ("Maverix"). As a result of Maverix issuing common shares to acquire certain assets, dilution gains totaling $13.3 million were recognized in 2018, compared to gains of $2.3 million recorded in 2017. Further, during 2018, a $0.4 million gain was recognized for the Company's portion of Maverix's estimated income, compared to a loss of $0.2 million in 2017.

7. ***Foreign exchange ("FX") losses*** in 2018 were $9.3 million compared to FX gains of $1.8 million incurred in 2017. The 2018 losses were largely attributable to the depreciation of the Argentine peso, where 2017 gains arose mainly from the appreciation of the Mexican peso on the Company's monetary assets denominated in those currencies.

8. ***Gain on sale of assets, commodity contracts and derivatives*** variance was primarily the result of the sale of mineral properties, plant and equipment, which in 2018 was $8.0 million compared to $0.2 million in 2017. The increase is attributable to the sale of 100% of the shares of Minera Aquiline Argentina SA, which owns the Calcatreu project, to Patagonia Gold Canada Inc in 2018 with no significant comparable asset sales with resulting gains or losses in 2017.

9. ***Transactions costs*** incurred in 2018 relate to the Tahoe Acquisition described in the "Subsequent Events" section of this MD&A.

10. ***Exploration and project development*** expenses were $11.1 million in 2018 compared to $19.8 million incurred in 2017. The year-over-year decrease was primarily the result of decreased exploration expense relating to

the COSE and Joaquin projects which were in the development phase in 2018, whereby all project costs were capitalized, as discussed in the "Project Development" section of this MD&A. Other exploration expenses recorded in each year relate to exploration and project development activities near the Company's existing mines, at select greenfield projects, and on the holding and maintenance costs associated with the Navidad project, where approximately $3.6 million was spent in 2018 compared to approximately $2.9 million in 2017.

11. ***G&A*** expense was $22.6 million in 2018 compared to $21.4 million in 2017. The $1.2 million increase was primarily related to higher accrued bonuses for restricted share unit cash compensation that reference the Company's share price. The Share-based compensation of $3.0 million in 2018 was comparable to the $3.1 million in 2017.

Statement of Cash Flows: 2018 versus 2017

Cash flow from operations in 2018 totaled $155.0 million, $69.6 million less than the $224.6 million generated in 2017. The decrease was largely the result of decreased cash mine operating earnings and a $16.0 million decrease in operating cash flows from working capital changes, coupled with a $26.4 million increase in taxes paid.

The period-over-period decrease in mine operating earnings, excluding non-cash D&A and inventory adjustments, was driven by decreased revenues, partially offset by decreased royalty costs and decreased production costs (excluding non-cash NRV inventory adjustments). Working capital changes in 2018 resulted in a $4.3 million use of cash, comprised mainly of inventory buildups and decreased provisions, partially offset by accounts payable buildups and collection of receivables. This use of cash compared to a source of working capital of $11.7 million in 2017, and was driven primarily by receivables and inventory draw downs, partially offset by decreased provisions.

Investing activities utilized $159.2 million in 2018, inclusive of $25.6 million used on the net purchase of short-term investments. The balance of 2018 investing activities consisted primarily of spending $144.3 million on mineral property, plant and equipment at the Company's mines and projects, and the remaining $7.5 million payment used for the acquisition of the COSE project. In 2017, investing activities utilized $177.8 million inclusive of $14.3 million used on the net purchase of short-term investments, $142.2 million spent on mineral property, plant and equipment additions at the Company's various operations and projects, and $20.2 million for the acquisition of the COSE and Joaquin projects.

Financing activities in 2018 used $33.1 million compared to $51.5 million in 2017. Cash used in 2018 consisted of $21.3 million paid as dividends to shareholders, $7.9 million of lease repayments, $3.0 million for short-term loan repayments, and $1.1 million in proceeds on share issuances from the exercise of stock options. In 2017, $36.2 million in revolving Credit Facility repayments were made, $15.3 million of dividends were paid, $4.5 million of lease payments were made, $3.0 million was provided from short-term loan proceeds, and $2.6 million in proceeds were generated on share issuances from the exercises of stock options.

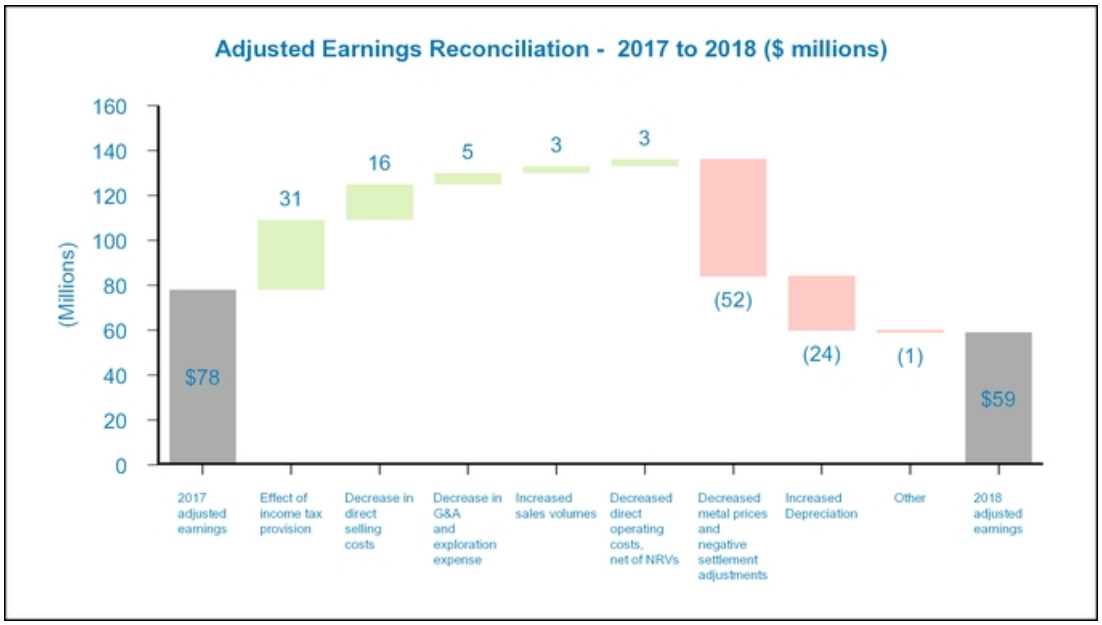
Adjusted Earnings: 2018 versus 2017

Adjusted earnings and basic adjusted earnings per share are non-GAAP measures that the Company considers to better reflect normalized earnings as it eliminates items that in management's judgment are subject to volatility as a result of factors which are unrelated to operations in the period, and/or relate to items that will settle in future periods. Neither adjusted earnings nor basic adjusted earnings per share have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies.

Please refer to the section of this MD&A entitled "Alternative Performance (Non-GAAP) Measures" for a detailed description, and a reconciliation of these measures to the 2018 Financial Statements.

Adjusted Earnings in 2018 were $59.4 million, representing a basic adjusted earnings per share of $0.39, which was $18.3 million, or $0.12 per share, lower than 2017 adjusted earnings of $77.7 million, and basic adjusted earnings per share of $0.51, respectively.

The following chart illustrates the key factors leading to the change in adjusted earnings from2017 to 2018:



Income Statement: Q4 2018 versus Q4 2017

Net loss of $63.6 million was recorded in Q4 2018 compared to net earnings of $49.7 million in Q4 2017, which corresponds to basic loss per share of $0.42 and basic earnings per share of $0.32, respectively.

The following table highlights the key items driving the difference between the net loss in Q4 2018 as compared to the net earnings recorded in Q4 2017:

Net earnings, three months ended December 31, 2017 (in thousands of USD)			**$**	**49,664**	**Note**
Decreased revenue:					
Decreased realized metal prices	$	(30,318)			
Lower quantities of metal sold		(28,811)			
Decreased direct selling costs		4,794			
Increased positive settlement adjustments		1,661			
Total decrease in revenue			**$**	**(52,674)**	**(1)**
Decreased cost of sales:					
Decreased production costs and decreased royalty charges	$	7,728			**(2)**
Increased depreciation and amortization		(3,005)			**(3)**
Total decrease in cost of sales			**$**	**4,723**	
Decreased recovery on impairment reversal				(89,343)	(4)
Decreased income tax expense				33,170	(5)
Increased transaction costs				(10,229)	(6)
Increased net gain on asset sales, commodity contracts and derivatives				2,979	(7)
Decreased investment income and other expense				(870)	
Decreased exploration and project development expense				760	
Increased general and administrative expense				(718)	
Decreased foreign exchange gain				(646)	
Decreased dilution gain, net of share of loss from associate				(441)	
Decreased interest and finance expense				48	
Net loss, three months ended December 31, 2018			**$**	**(63,577)**	

1. ***Revenue*** for Q4 2018 was $173.4 million, a $52.7 million decrease from $226.0 million in Q4 2017. The major factors for the decrease were: a $30.3 million price variance from lower realized metal prices for all metals, and a $28.8 million variance from lower quantities of metal sold, primarily from silver, gold and copper sales; offset slightly by a $4.8 million decrease in direct selling costs, primarily from favorable changes in contract terms relating to concentrate treatment and refining charges, and a $1.7 million increase in positive settlement adjustments on concentrate shipments.

   The following table reflects the metal prices realized by the Company and the quantities of metal sold during each quarter:

	Realized Metal Prices		**Quantities of Metal Sold**	
	Three months ended December 31,		**Three months ended December 31,**	
	2018	2017	**2018**	2017
Silver(1) – koz	**$ 14.35**	$ 16.65	**5,299**	6,659
Gold(1) – koz	**$ 1,232**	$ 1,276	**36.6**	44.7
Zinc(1) – kt	**$ 2,508**	$ 3,282	**15.6**	12.6
Lead(1) – kt	**$ 1,914**	$ 2,472	**5.4**	5.2
Copper(1) – kt	**$ 6,098**	$ 6,811	**2.1**	3.0

(1) Metal price stated as dollars per ounce for silver and gold, and dollars per tonne for zinc, lead and copper, inclusive of final settlement adjustments on concentrate sales.

Decreased quarter-over-quarter realized silver, gold, and copper prices of 14%, 3% and 10%, respectively, had the most significant impact on revenues. Lead and zinc price decreases of 23% and 24%, respectively, also negatively impacted Q4 2018 revenue.

Sales volumes decreased for all metals except lead and zinc. The quantity of silver sold in Q4 2018 was 20% lower than in Q4 2017, largely from build-up of inventories. Quarter-over-quarter gold and copper sales volumes decreased by 18% and 31%, respectively, while quantities of lead and zinc sold increased by 4% and 24%, respectively.

2. ***Production and royalty costs variances*** were comprised of a $4.2 million reduction in royalty costs and a $3.5 million reduction in production costs, reflecting the quarter-over-quarter decrease in the quantity of metal sold. The quarter-over-quarter production cost variance included a negative $7.8 million NRV inventory movement, mainly from Dolores, which added $11.4 million to Dolores production costs in Q4 2018, compared to increasing costs by $4.1 million in Q4 2017. Reduced royalty costs in Q4 2018 were largely attributable to lower sales volumes from the San Vicente mine.
3. ***D&A* expense** of $37.2 million in Q4 2018 was $3.0 million higher than in Q4 2017, largely the result of increased D&A at Dolores on account of higher depreciable asset-bases, as well as from increased quantities of metal sold.
4. ***Impairment charges*** of $27.8 million ($27.8 million, net of tax expense) were recorded in Q4 2018, compared to impairment reversals of $61.6 million ($53.4 million, net of tax expense) recorded in Q4 2017. The Q4 2018 impairment charge related to the previously discussed charge at Manantial Espejo and the Q4 2017 impairment reversals related to the reversals at Morococha and Calcatreu.
5. ***Income tax expense*** in Q4 2018 was $6.0 million compared to $39.2 million in Q4 2017. The $33.2 million decrease was mainly due to a decrease in earnings before taxes. The decrease in tax expense caused by this reduction in earnings was partially offset by: (i) the Q4 2018 impairment charge for Manantial Espejo and the COSE and Joaquin projects for which no tax benefit could be recorded; and, (ii) the impairment reversal for Morococha, which decreased Q4 2017 tax expense by approximately $11.8 million.
6. ***Transactions costs*** incurred in Q4 2018 relate to the Tahoe Acquisition described in the "Subsequent Events" section of this MD&A.
7. ***Gain on sale of assets, commodity contracts and derivatives*** in Q4 2018 was primarily attributable to gains from foreign currency hedge contracts of $0.6 million partially offset by losses from metals hedge contracts and derivatives of $0.2 million which resulted in gains of $0.4 million in Q4 2018 compared to losses of $2.6 million in Q4 2017.

Statement of Cash Flows: Q4 2018 versus Q4 2017

Cash flow from operations in Q4 2018 totaled $11.9 million, $67.4 million less than the $79.3 million generated in Q4 2017. The decrease was largely the result of approximately $43.4 million lower cash mine operating earnings, a $20.1 million decrease in operating cash flows from working capital changes and a $4.0 million increase in taxes paid.

The period-over-period decrease in mine operating earnings, excluding non-cash D&A and inventory adjustments, was driven by decreased revenues, partially offset by increased production costs (excluding non-cash NRV inventory adjustments). Working capital changes in Q4 2018 resulted in a $4.9 million use of cash comprised mainly of inventory buildups offset slightly by payables settlements. Comparatively, working capital changes added $15.2 million to Q4 2017 operating cash flows, largely from inventory draw-downs.

Investing activities utilized $51.0 million in Q4 2018, inclusive of $10.0 million used on the net purchase of short-term investments. The balance of Q4 2018 investing activities related primarily to spending $42.3 million on mineral property, plant and equipment at the Company's mines and projects, as previously described in the "Operating Performance" section of this MD&A. In Q4 2017, investing activities utilized $36.8 million inclusive of $0.7 million used on the net purchase of short-term investments. The majority of Q4 2017 investing activity cash flow reflected $36.5 million spent on mineral property, plant and equipment additions at the Company's various operations and projects.

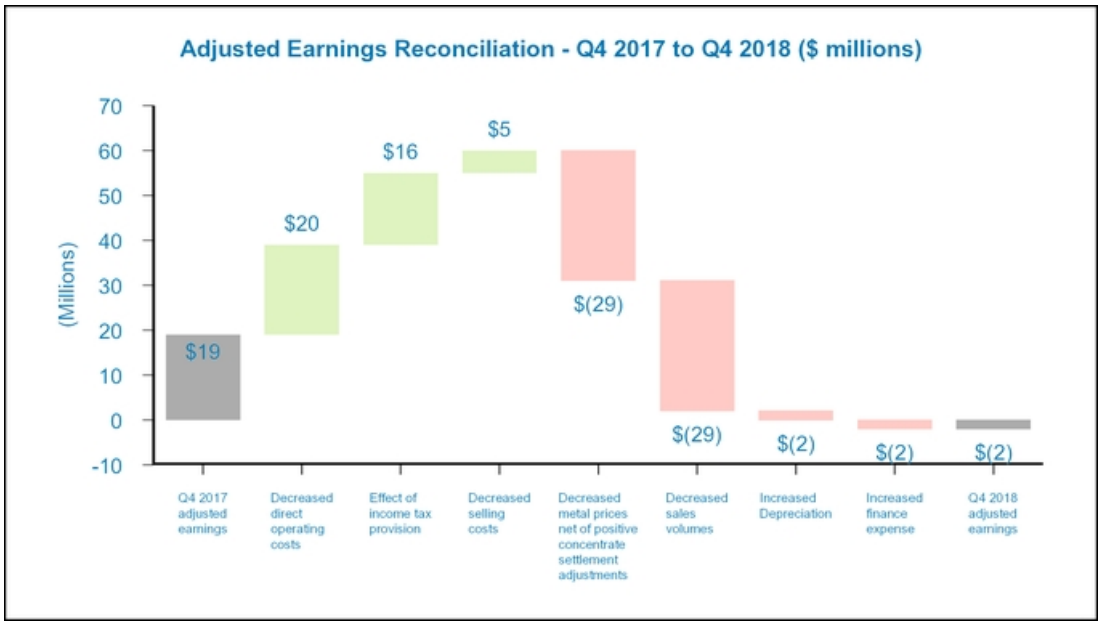
Financing activities in Q4 2018 used $8.7 million compared to $2.5 million in Q4 2017. Cash used in Q4 2018 consisted of $5.4 million paid as dividends to shareholders, $2.2 million of lease repayments, and $1.2 million of distributions to non-controlling interests. In Q4 2017, cash used in financing activities consisted of $3.8 million in dividends to shareholders and $1.3 million of lease repayments, offset by $3.0 million in short-term debt advances.

Adjusted Earnings: Q4 2018 versus Q4 2017

Please refer to the section of this MD&A entitled "Alternative Performance (Non-GAAP) Measures" for a detailed description of "adjusted earnings", and a reconciliation of these measures to the 2018 Financial Statements.

Adjusted Loss in Q4 2018 was $2.0 million, representing a basic adjusted loss per share of $0.01, which was $21.2 million, or $0.14 per share, lower than Q4 2017 adjusted earnings of $19.2 million, and basic adjusted earnings per share of $0.13.

The following chart illustrates the key factors leading to the change in adjusted earnings from Q4 2017 to Q4 2018:



LIQUIDITY AND CAPITAL POSITION

Liquidity and Capital

Liquidity and Capital Measures (in $000s)	Dec. 31, 2018	Sept. 30, 2018	Dec. 31, 2017	Q4 2018 Change	2018 Change
Cash and cash equivalents ("Cash")	**138,510**	186,424	175,953	(47,914)	(37,443)
Short-term Investments	**74,004**	66,233	51,590	7,771	22,414
Cash and Short-term investments	**212,514**	252,657	227,543	(40,143)	(15,029)
Working Capital	**397,846**	443,586	410,756	(45,740)	(12,910)
Revolving Credit Facility ("RCF") Availability	**300,000**	300,000	300,000	—	—
Amount drawn on RCF	**—**	—	—	—	—
Shareholders' equity	**1,513,349**	1,581,602	1,521,051	(68,253)	(7,702)
Total debt (1)	**6,676**	8,439	10,559	(1,763)	(3,883)
Capital (2)	**1,307,511**	1,337,384	1,304,067	(29,873)	3,444

(1) Total debt is a Non-GAAP measure calculated as the total of amounts drawn on the Revolving Credit Facility, finance lease liabilities and loans payable.

(2) The capital of the Company consists of items included in shareholders' equity and debt, net of cash and cash equivalents and short term investments.

Liquidity

The Company's net liquidity position decreased by $40.1 million and $15.0 million during Q4 2018 and 2018, respectively. Operating cash flows in Q4 2018 of $11.9 million, which included $12.1 million in tax payments and a $4.9 million use of cash from working capital changes, financed a portion of the Company's investing and financing activities in the quarter. The significant financing and investing activity cash outflows in the quarter included $42.3 million in payments for mineral property plant and equipment, and $5.4 million in dividend payments.

2018 annual operating cash flows of $155.0 million, which included $75.2 million in tax payments and an $4.3 million use of cash from working capital changes, financed the majority of the Company's investing and financing activities in the year. The significant financing and investing activity cash outflows in the year included $144.3 million in payments for mineral property plant and equipment, and $21.3 million in dividend payments.

Pan American's investment objectives for its cash balances are to preserve capital, to provide liquidity and to maximize returns. The Company's strategy to achieve these objectives is to invest excess cash balances in a portfolio of primarily fixed income instruments with specified credit rating targets established by the Board of Directors of the Company (the "Board"), and by diversifying the currencies in which it maintains its cash balances. The Company does not own any asset-backed commercial paper or other similar, known, at-risk investments in its investment portfolio.

Working capital at December 31, 2018 of $397.8 million decreased by $45.7 million from September 30, 2018. The decrease was mainly attributable to the $40.1 million liquidity decrease described above, along with a $10.2 million increase in accounts payable and accrued liabilities and a $5.5 million decrease in inventories, which were impacted by $13.3 million in negative NRV adjustments in Q4 2018, partially offset by a $9.4 million increase in trade and other receivables. Since December 31, 2017, working capital decreased by $12.9 million, primarily from: the $15.0 million liquidity decrease described above; a $13.7 million decrease in trade and other receivables, and the nonrecurring $7.9 million of assets held for sale as at December 31, 2017 all partially offset by a net $11.0 million decrease in accounts payable, accrued liabilities and loans payable and a $13.9 million decrease in net current tax liabilities.

Capital Resources

The Company manages its capital structure and makes adjustments in light of changes in its economic environment and the risk characteristics of the Company's assets. To effectively manage the Company's capital requirements, Pan American utilizes a planning, budgeting and forecasting process to help determine the funds required to ensure the Company has the appropriate liquidity to meet its operating and growth objectives. The Company ensures that there are sufficient committed loan facilities to meet its short-term business requirements, taking into account its anticipated cash flows from operations and its holdings of cash and cash equivalents and short term investments.

The Company's four-year, $300.0 million secured revolving credit facility that was set to mature on April 15, 2020 (the “RCF”) remained undrawn as of December 31, 2018 and December 31, 2017, and the Company was in compliance with all covenants required by the RCF. In February 2019, in part related to the Tahoe Acquisition discussed in the "Subsequent Events" section of this MD&A, the Company amended and extended its RCF ("Amended RCF"). The Amended RCF has been increased by $200.0 million to $500.0 million, and matures on February 1, 2023. At Pan American's option, amounts can be drawn under the Amended RCF and will incur interest based on the Company's leverage ratio at either (i) LIBOR plus 1.875% to 2.750% or; (ii) The Bank of Nova Scotia's Base Rate on U.S. dollar denominated commercial loans plus 0.875% to 1.750%. Undrawn amounts under the revolving facility are subject to a stand-by fee of 0.4219% to 0.6188% per annum, dependent on the Company's leverage ratio. The Company drew down US$301 million under the Amended RCF, under LIBOR-based interest rates to fund, in part, the cash purchase price under the Tahoe Acquisition and to repay, in full, and cancel Tahoe's second amended and restated revolving facility, under which US$125 million had been drawn.

The Company’s financial position at December 31, 2018, and the operating cash flows that are expected over the next twelve months, lead management to believe that the Company’s liquid assets are sufficient to satisfy our 2019 working capital requirements, commitments, fund currently planned capital expenditures, and to discharge liabilities as they come due. The Company remains well positioned to take advantage of strategic opportunities as they become available. Liquidity risks are discussed further in the “Risks and Uncertainties” section of this MD&A.

The impact of inflation on the Company’s financial position, operational performance or cash flows over the next twelve months cannot be determined with any degree of certainty.

Commitments

In the normal course of business, the Company enters into contracts that give rise to commitments for future minimum payments. The following table summarizes the remaining contractual maturities of the Company's financial and non-financial liabilities, shown in contractual undiscounted cash flow:

	Payments due by period 2018				
	Within 1 year	2 - 3 years	4- 5 years	After 5 years	Total
Financial liabilities					
Accounts payable and accrued liabilities other than:	$ 128,486	$ —	$ —	$ —	$ 128,486
Severance accrual	1,791	3,763	534	112	6,200
Employee compensation	1,466	—	—	—	1,466
Total accounts payable and accrued liabilities	131,743	3,763	534	112	136,152
Loss on commodity contracts	51	—	—	—	51
Provisions(1)(2)	3,123	547	720	178	4,568
Income taxes payable	8,306	—	—	—	8,306
Other commitments					
Capital and operating expenditure commitments	7,947	7,898	2,885	530	19,260
Future employee compensation	1,530	4,911	—	—	6,441
Credit facility charges	1,200	350	—	—	1,550
Total contractual obligations(2)	**$ 153,900**	**$ 17,469**	**$ 4,139**	**$ 820**	**$ 176,328**

(1) Total litigation provision as further discussed in Note 17 of the 2018 Financial Statements.
(2) Amounts above do not include payments related to the Company’s anticipated closure and decommissioning obligation (current $1.9 million, long-term $68.6 million) as discussed in Note 17 of the 2018 Financial Statements (2017 - current $5.6 million, long-term $59.8 million), the deferred credit arising from the Aquiline acquisition ($20.8 million) (2017 - $20.8 million) discussed in Note 19 of the 2018 Financial Statements, and deferred tax liabilities of $148.8 million (2017 - $171.2 million).

Outstanding Share Amounts

As at December 31, 2018, the Company had approximately 0.7 million stock options outstanding (each exercisable for one common share of the Company), with exercise prices in the range of CAD $9.76 to CAD $23.61 and a weighted average life of 52 months. Approximately 0.5 million of the stock options were vested and exercisable at December 31, 2018, with an average weighted exercise price of CAD $13.92 per share.

The following table sets out the common shares and options outstanding as at the date of this MD&A:

	Outstanding as at March 12, 2019
Common shares	209,438,868
Options (1)	1,534,261
Total	**210,973,129**

(1) As part of the Tahoe Acquisition the Company issued 835,874 replacement options with exercise prices in the range of CAD $20.52 to CAD $97.26 and a weighted average life of 33 months.

In January 2019, the Company obtained shareholder approval to increase its authorized share capital from 200 million to 400 million Common Shares without par value.

As part of the consideration payable to Tahoe shareholders in connection with the Tahoe Acquisition, Tahoe shareholders received contingent consideration in the form of one contingent value right ("CVR") for each Tahoe share. Each CVR has a 10 year term and will be exchanged for 0.0497 of a Pan American share upon first commercial shipment of concentrate following restart of operations at the Escobal mine. The Company issued an aggregate of 313,887,490 CVRs. Please refer to the Subsequent Events section of this MD&A for additional information.

CLOSURE AND DECOMMISSIONING COST PROVISION

The estimated future closure and decommissioning costs are based principally on the requirements of relevant authorities and the Company's environmental policies. The provision is measured using management's assumptions and estimates for future cash outflows. The Company accrues these costs, which are determined by discounting costs using rates specific to the underlying obligation. Upon recognition of a liability for the closure and decommissioning costs, the Company capitalizes these costs to the related mine and amortizes such amounts over the life of each mine on a unit-of-production basis, except in the case of exploration projects for which the offset to the liability is expensed. The accretion of the discount due to the passage of time is recognized as an increase in the liability and a finance expense.

The total inflated and undiscounted amount of estimated cash flows required to settle the Company's estimated future closure and decommissioning costs as of December 31, 2018 was $159.1 million (December 31, 2017 - $142.2 million) using inflation rates of between 2% and 17% (2017 - between 2% and 25%). The inflated and discounted provision on the statement of financial position as at December 31, 2018, using discount rates between 2% and 22% (December 31, 2017 - between 2% and 24%), was $70.6 million (December 31, 2017 - $65.4 million). Spending with respect to decommissioning obligations at the Alamo Dorado and Manantial Espejo mines began in 2016, while the remainder of the obligations are expected to be paid through 2040 or later if mine life is extended. Revisions made to the reclamation obligations in Q4 2018 were primarily a result of increased site disturbance from the ordinary course of operations at the mines, reclamation activities at the Alamo Dorado mine, as well as revisions to the estimates based on periodic reviews of closure plans and related costs, actual expenditures incurred and closure activities completed. These obligations will be funded from operating cash flows, reclamation deposits and cash on hand.

The accretion of the discount charged in Q4 2018 and 2018 earnings as finance expense were $1.6 million and $6.5 million, respectively (Q4 2017 and 2017 - $1.5 million and $6.0 million, respectively). Reclamation expenditures incurred during Q4 2018 and 2018 were $2.0 million and $7.8 million, respectively (Q4 2017 and 2017 - $4.7 million and $8.7 million, respectively).

RELATED PARTY TRANSACTIONS

The Company's related parties include its subsidiaries, associates over which it exercises significant influence and key management personnel. During its normal course of operation, the Company enters into transactions with its related parties for goods and services. Related party transactions with Maverix have been disclosed in Note 13 of the 2018 Financial Statements.

These transactions are in the normal course of operations and are measured at the exchange amount, which is the amount of consideration established and agreed to by the parties.

ALTERNATIVE PERFORMANCE (NON-GAAP) MEASURES

AISCSOS

AISCSOS is a non-GAAP financial measure. AISCSOS does not have any standardized meaning prescribed by IFRS and is therefore unlikely to be comparable to similar measures presented by other companies. We believe that AISCSOS reflects a comprehensive measure of the full cost of operating our consolidated business given it includes the cost of replacing silver ounces through exploration, the cost of ongoing capital investments (sustaining capital), general and administrative expenses, as well as other items that affect the Company's consolidated cash flow. To facilitate a better understanding of this measure as calculated by the Company, the following table provides the detailed reconciliation of this measure to the applicable cost items, as reported in the consolidated income statements for the respective periods:

		Three months ended December 31,		Year ended December 31,	
(In thousands of USD, except as noted)		**2018**	2017	**2018**	2017
Direct operating costs		**$ 119,070**	$ 134,202	**$ 487,462**	$ 488,363
Inventory NRV adjustments	**A**	**13,263**	5,495	**24,330**	12,307
Production costs(1)		**$ 132,334**	$ 139,697	**$ 511,793**	$ 500,670
Royalties		**4,601**	8,809	**20,673**	24,510
Direct selling costs (2)		**14,614**	19,408	**53,119**	69,344
Less by-product credits (2)		**(107,468)**	(131,679)	**(483,325)**	(462,663)
Cash cost of sales net of by-products(3)		**$ 44,080**	$ 36,235	**$ 102,259**	$ 131,862
Sustaining capital **(4)**		**$ 29,377**	$ 25,573	**$ 106,030**	$ 84,215
Exploration and project development(5)		**3,509**	4,269	**11,138**	17,858
Reclamation cost accretion		**1,631**	1,493	**6,524**	5,973
General and administrative expense		**5,450**	4,732	**22,649**	21,397
All-in sustaining costs (3)	**B**	**$ 84,048**	$ 72,303	**$ 248,601**	$ 261,304
Payable ounces sold (in thousands)	**C**	**5,299**	6,659	**23,160**	24,212
All-in sustaining cost per silver ounce sold, net of by-products	**B/C**	**$ 15.86**	$ 10.86	**$ 10.73**	$ 10.79
All-in sustaining cost per silver ounce sold, net of by-products (excludes NRV inventory adjustments)	**(B-A)/C**	**$ 13.36**	$ 10.03	**$ 9.68**	$ 10.28

(1) Productions costs used to calculate 2018 and Q4 2018 AISCSOS excludes $3.9 million of costs to produce certain doré metal inventory that was subsequently written-off in full as a result of the inventory being held at a refinery that filed for bankruptcy in November of 2018.
(2) Included in the revenue line of the consolidated income statements, and for by-product credits are reflective of realized metal prices for the applicable periods.
(3) Totals may not add due to rounding.
(4) Please refer to the table below. 2018 annual sustaining capital cash outflows included in this table were $0.8 million more than the $105.2 million of sustaining capital expenditures capitalized in 2018 (2017, $0.2 million less than the $84.4 million capitalized). The difference is due to the timing difference between the cash payment of capital investments compared with the period in which investments are capitalized.
(5) The amounts for 2017 year-to-date exclude $1.9 million from non-cash project development write-downs.

As part of the AISCSOS measure, sustaining capital is included while expansionary or acquisition capital (referred to by the Company as non-sustaining capital) is not. Inclusion of sustaining capital only is a measure of capital costs associated with current ounces sold as opposed to investment capital, which is expected to increase future production. For the periods under review, the items noted below are associated with the La Colorada expansion project, the Dolores leach pad and other expansionary expenditures considered to be investment capital projects.

Reconciliation of payments for mineral properties, plant and equipment and sustaining capital	Three months ended December 31,		Year ended December 31,	
(in thousands of USD)	2018	2017	2018	2017
Payments for mineral properties, plant and equipment(1)	**$ 42,302**	$ 36,473	**$ 144,348**	$ 142,232
Add/(Subtract)				
Advances received for leases	**450**	1,385	**7,028**	5,000
Non-Sustaining capital	**(13,375)**	(12,284)	**(45,346)**	(63,017)
Sustaining Capital(2)	**$ 29,377**	$ 25,573	**$ 106,030**	$ 84,215

(1) As presented on the consolidated statements of cash flows.
(2) Totals may not add due to rounding

	Three months ended December 31, 2018							
(In thousands of USD, except as noted)	La Colorada	Dolores	Huaron	Morococha	San Vicente	Manantial Espejo	PASCORP	Consolidated
Direct operating costs	16,947	39,667	19,707	16,096	6,984	19,671		119,070
NRV inventory adjustments	—	11,440	—	—	—	1,822		13,263
Production costs	16,947	51,107	19,707	16,096	6,984	21,494		132,334
Royalties	130	1,642	—	—	2,554	275		4,601
Direct selling costs	2,050	31	6,061	2,524	1,816	2,132		14,614
Less by-product credits	(14,749)	(35,862)	(23,696)	(19,013)	(6,231)	(7,917)		(107,468)
Cash cost of sales net of by-products(1)	**4,378**	**16,919**	**2,073**	**(394)**	**5,123**	**15,984**		**44,080**
Sustaining capital	5,364	13,255	5,653	3,039	1,628	436		29,377
Exploration and project development	711	241	7	123	—	51	2,375	3,509
Reclamation cost accretion	114	351	152	87	63	708	156	1,631
General & administrative expense	—	—	—	—	—	—	5,450	5,450
All-in sustaining costs(1)	10,567	30,766	7,885	2,855	6,814	17,178	7,981	84,048
Payable ounces sold (thousand)	**1,780**	**870**	**858**	**674**	**502**	**615**		**5,299**
All-in sustaining cost per silver ounce sold, net of by-products	**$ 5.93**	**$ 35.36**	**$ 9.19**	**$ 4.24**	**$ 13.57**	**$ 27.94**		**$ 15.86**
All-in sustaining cost per silver ounce sold, net of by-products (excludes NRV inventory adjustments)	**5.93**	**22.21**	**9.19**	**4.24**	**13.57**	**24.98**		**13.36**

(1) Totals may not add due to rounding.

	Twelve months ended December 31, 2018							
(In thousands of USD, except as noted)	La Colorada	Dolores	Huaron	Morococha	San Vicente	Manantial Espejo	PASCORP	Consolidated
Direct operating costs	70,248	154,598	75,382	68,068	33,461	85,705		487,462
NRV inventory adjustments		24,567				(238)		24,330
Production costs	70,248	179,165	75,382	68,068	33,461	85,468	0	511,793
Royalties	616	7,991	—	—	9,943	2,124		20,673
Direct selling costs	8,537	129	21,326	13,313	7,451	2,363		53,119
Less by-product credits	(63,442)	(170,337)	(91,155)	(93,142)	(20,829)	(44,420)		(483,325)
Cash cost of sales net of by-products(1)	**15,959**	**16,949**	**5,553**	**(11,761)**	**30,026**	**45,534**		**102,259**
Sustaining capital	15,462	48,842	17,109	14,840	6,949	2,827		106,030
Exploration and project development	880	1,594	660	598	—	744	6,661	11,138
Reclamation cost accretion	457	1,405	609	347	252	2,832	622	6,524
General & administrative expense	—	—	—	—	—	—	22,649	22,649
All-in sustaining costs(1)	32,758	68,790	23,931	4,024	37,227	51,937	29,932	248,601
Payable ounces sold (thousand)	**7,069**	**4,205**	**3,094**	**2,652**	**3,054**	**3,086**		**23,160**
All-in sustaining cost per silver ounce sold, net of by-products	**$ 4.63**	**$ 16.36**	**$ 7.73**	**$ 1.52**	**$ 12.19**	**$ 16.83**		**$ 10.73**
All-in sustaining cost per silver ounce sold, net of by-products (excludes NRV adjustments)	**$ 4.63**	**$ 10.52**	**$ 7.73**	**$ 1.52**	**$ 12.19**	**$ 16.91**		**$ 9.68**

(1) Totals may not add due to rounding.

Three months ended December 31, 2017									
(In thousands of USD, except as noted)	La Colorada	Dolores	Alamo Dorado	Huaron	Morococha	San Vicente	Manantial Espejo	PASCORP	Consolidated
Direct operating costs	16,580	35,739	3,957	19,551	16,931	10,484	30,960		134,202
NRV inventory adjustments	—	4,098	(1,916)	—	—	—	3,313		5,495
Production costs	16,580	39,838	2,041	19,551	16,931	10,484	34,273		139,697
Royalties	106	1,966	—	—	—	6,105	633		8,809
Direct selling costs	4,066	31	248	6,659	5,014	3,383	8		19,408
Less by-product credits	(18,316)	(39,317)	(61)	(24,653)	(26,767)	(6,969)	(15,595)		(131,679)
Cash cost of sales net of by-products[1]	**2,435**	**2,518**	**2,227**	**1,557**	**(4,823)**	**13,002**	**19,319**		**36,235**
Sustaining capital	2,576	13,303	—	3,548	3,162	1,939	1,045		25,573
Exploration and project development	73	564	—	428	543	—	936	1,726	4,269
Reclamation cost accretion	112	296	89	162	105	56	619	54	1,493
General & administrative expense	—	—	—	—	—	—	—	4,732	4,732
All-in sustaining costs[1]	5,196	16,682	2,317	5,695	(1,013)	14,998	21,918	6,511	72,303
Payable ounces sold (thousand)	**1,847**	**1,225**	**133**	**813**	**658**	**1,218**	**766**		**6,659**
All-in sustaining cost per silver ounce sold, net of by-products	**$ 2.81**	**$ 13.62**	**$ 17.45**	**$ 7.00**	**$ (1.54)**	**$ 12.31**	**$ 28.63**		**$ 10.86**
All-in sustaining cost per silver ounce sold, net of by-products (excludes NRV adjustments)	**$ 2.81**	**$ 10.27**	**$ 31.89**	**$ 7.00**	**$ (1.54)**	**$ 12.31**	**$ 24.30**		**$ 10.03**

(1) Totals may not add due to rounding.

Twelve months ended December 31, 2017									
(In thousands of USD, except as noted)	La Colorada	Dolores	Alamo Dorado	Huaron	Morococha	San Vicente	Manantial Espejo	PASCORP	Consolidated
Direct operating costs	67,170	116,104	20,477	75,551	63,967	34,731	110,362		488,363
NRV inventory adjustments		6,847	(2,598)				8,058		12,307
Production costs	67,170	122,951	17,879	75,551	63,967	34,731	118,420		500,670
Royalties	475	6,501	79	—	—	14,321	3,134		24,510
Direct selling costs	12,235	93	479	26,238	18,770	10,740	789		69,344
Less by-product credits	(64,133)	(128,351)	(3,467)	(97,715)	(94,233)	(16,278)	(58,485)		(462,663)
Cash cost of sales net of by-products[1]	**15,748**	**1,194**	**14,970**	**4,074**	**(11,496)**	**43,513**	**63,858**		**131,862**
Sustaining capital	13,970	36,071	—	10,267	12,428	8,146	3,333		84,215
Exploration and project development	251	2,444	—	1,713	1,629	—	4,588	7,232	17,858
Reclamation cost accretion	448	1,186	357	646	420	225	2,474	216	5,973
General & administrative expense	—	—	—	—	—	—	—	21,397	21,397
All-in sustaining costs[1]	30,417	40,894	15,327	16,701	2,981	51,884	74,254	28,845	261,304
Payable ounces sold (thousand)	**6,853**	**4,089**	**867**	**3,181**	**2,448**	**3,603**	**3,171**		**24,212**
All-in sustaining cost per silver ounce sold, net of by-products	**$ 4.44**	**$ 10.00**	**$ 17.69**	**$ 5.25**	**$ 1.22**	**$ 14.40**	**$ 23.42**		**$ 10.79**
All-in sustaining cost per silver ounce sold, net of by-products (excludes NRV adjustments)	**$ 4.44**	**$ 8.33**	**$ 20.68**	**$ 5.25**	**$ 1.22**	**$ 14.40**	**$ 20.88**		**$ 10.28**

(1) Totals may not add due to rounding.

Cash Costs per Ounce of Silver, net of by-product credits

Pan American produces by-product metals incidentally to our silver mining activities. We have adopted the practice of calculating the net cost of producing an ounce of silver, our primary payable metal, after deducting revenues gained from incidental by-product production, as a performance measure. This performance measurement has been commonly used in the mining industry for many years and was developed as a relatively simple way of comparing the net production costs of the primary metal for a specific period against the prevailing market price of that metal.

Cash Costs per Ounce of Silver, net of by-product credits, is used extensively in our internal decision making processes. We believe the metric is also useful to investors because it facilitates comparison, on a mine-by-mine basis, notwithstanding the unique mix of incidental by-product production at each mine, of our operations' relative performance on a period-by-period basis, and against the operations of our peers in the silver industry on a consistent basis. Cash costs per ounce is conceptually understood and widely reported in the silver mining industry. However, cash cost per ounce of silver is a non-GAAP measure and does not have a standardized meaning prescribed by GAAP and the Company's method of calculating cash costs may differ from the methods used by other entities.

To facilitate a better understanding of these measures as calculated by the Company, the following table provides the detailed reconciliation of these measures to the production costs, as reported in the consolidated income statements for the respective periods:

Total Cash Costs per ounce of Payable Silver, net of by-product credits (in thousands of U.S. dollars except as noted)		Three months ended December 31, 2018	Three months ended December 31, 2017	Year ended December 31, 2018	Year ended December 31, 2017
Production costs		**$ 136,177**	$ 139,697	**$ 515,636**	$ 500,670
Add/(Subtract)					
Royalties		**4,601**	8,809	**20,673**	24,510
Smelting, refining, and transportation charges		**14,736**	18,469	**57,137**	73,222
Worker's participation and voluntary payments		**(616)**	(1,374)	**(3,506)**	(5,067)
Change in inventories		**5,922**	(12,776)	**16,581**	(16,011)
Other		**(1,090)**	555	**(8,866)**	1,559
Non-controlling interests (1)		**(456)**	(64)	**(875)**	(1,126)
Inventory NRV adjustments		**(13,263)**	(5,495)	**(24,330)**	(12,307)
Cash Operating Costs before by-product credits (2)		**146,012**	147,820	**572,449**	565,450
Less gold credit		**(44,609)**	(54,648)	**(224,716)**	(196,649)
Less zinc credit		**(42,270)**	(40,826)	**(162,646)**	(137,826)
Less lead credit		**(11,482)**	(12,687)	**(46,501)**	(46,948)
Less copper credit		**(12,707)**	(20,026)	**(60,706)**	(77,348)
Cash Operating Costs net of by-product credits (2)	**A**	**34,945**	19,633	**77,881**	106,678
Payable Silver Production (koz)	**B**	**5,710**	6,172	**23,258**	23,444
Cash Costs per ounce net of by-product credits	**A/B**	**$ 6.12**	$ 3.18	**$ 3.35**	$ 4.55

(1) Figures presented in the reconciliation table above are on a 100% basis as presented in the consolidated financial statements with an adjustment line item to account for the portion of the Morococha and San Vicente mines owned by non-controlling interests, an expense item not included in operating cash costs. The associated tables below are for the Company's share of ownership only.

(2) Figures in this table and in the associated tables below may not add due to rounding.

Three months ended December 31, 2018 (1) (in thousands of USD except as noted)		La Colorada	Dolores	Alamo Dorado	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Total
Cash Costs before by-product credits	**A**	**$ 20,448**	**$ 41,872**	**$ —**	**$ 25,721**	**$ 18,147**	**$ 15,422**	**$ 22,527**	**$ 144,136**
Less gold credit	b1	(1,223)	(36,065)	—	—	298	(63)	(7,578)	**(44,631)**
Less zinc credit	b2	(11,342)	—	—	(10,426)	(12,845)	(6,251)	—	**(40,865)**
Less lead credit	b3	(4,492)	—	—	(3,991)	(2,593)	(179)	—	**(11,255)**
Less copper credit	b4	—	—	—	(8,930)	(2,617)	(893)	—	**(12,441)**
Sub-total by-product credits	**B=(b1+ b2+ b3+ b4)**	**$ (17,058)**	**$ (36,065)**	**$ —**	**$ (23,346)**	**$ (17,757)**	**$ (7,386)**	**$ (7,578)**	**$ (109,192)**
Cash Costs net of by-product credits	C=(A+B)	$ 3,390	$ 5,807	$ —	$ 2,374	$ 390	$ 8,036	$ 14,948	**$ 34,945**
Payable ounces of silver (thousand)	D	1,955	823	—	841	636	870	586	**5,710**
Cash cost per ounce net of by-products	**C/D**	**$ 1.73**	**$ 7.06**	**NA**	**$ 2.82**	**$ 0.61**	**$ 9.23**	**$ 25.53**	**$ 6.12**

(1) Totals may not add due to rounding.

Twelve months ended December 31, 2018[1] (in thousands of USD except as noted)		La Colorada	Dolores	Alamo Dorado	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Total
Cash Costs before by-product credits	**A**	**$ 81,578**	**$ 166,048**	**$ —**	**$ 96,464**	**$ 75,836**	**$ 56,973**	**$ 87,074**	**$ 563,974**
Less gold credit	b1	(4,802)	(173,657)	—	(3)	(1,673)	(284)	(44,142)	**(224,561)**
Less zinc credit	b2	(43,777)	—	—	(41,422)	(54,392)	(17,573)	—	**(157,164)**
Less lead credit	b3	(18,459)	—	—	(16,786)	(9,819)	(584)	—	**(45,648)**
Less copper credit	b4	—	—	—	(33,193)	(20,658)	(4,868)	—	**(58,719)**
Sub-total by-product credits	**B=(b1+ b2+ b3+ b4)**	**$ (67,038)**	**$(173,657)**	**$ —**	**$ (91,405)**	**$ (86,542)**	**$ (23,309)**	**$ (44,142)**	**$ (486,093)**
Cash Costs net of by-product credits	C=(A+B)	$ 14,541	$ (7,608)	$ —	$ 5,060	$ (10,706)	$ 33,664	$ 42,932	**$ 77,883**
Payable ounces of silver (thousand)	D	7,196	4,075	—	3,107	2,467	3,326	3,086	**23,258**
Cash cost per ounce net of by-products	**C/D**	**$ 2.02**	**$ (1.87)**	**NA**	**$ 1.63**	**$ (4.34)**	**$ 10.12**	**$ 13.91**	**$ 3.35**

(1) Totals may not add due to rounding.

Three months ended December 31, 2017[1] (in thousands of USD except as noted)		La Colorada	Dolores	Alamo Dorado	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Total
Cash Costs before by-product credits	**A**	**$ 18,708**	**34,778**	**$ 136**	**$ 26,440**	**$ 20,276**	**$ 15,300**	**$ 29,800**	**$ 145,437**
Less gold credit	b1	(1,377)	(39,708)	(90)	(9)	(625)	(79)	(12,704)	**(54,592)**
Less zinc credit	b2	(11,337)	—	—	(12,296)	(12,205)	(3,767)	—	**(39,605)**
Less lead credit	b3	(5,232)	—	—	(4,758)	(2,361)	(131)	—	**(12,483)**
Less copper credit	b4	—	—	—	(7,671)	(9,585)	(1,868)	—	**(19,124)**
Sub-total by-product credits	**B=(b1+ b2+ b3+ b4)**	**$ (17,947)**	**$ (39,708)**	**$ (90)**	**$ (24,733)**	**$ (24,776)**	**$ (5,845)**	**$ (12,704)**	**$ (125,804)**
Cash Costs net of by-product credits	C=(A+B)	$ 761	$ (4,930)	$ 46	$ 1,706	$ (4,500)	$ 9,455	$ 17,095	**$ 19,633**
Payable ounces of silver (thousand)	D	1,777	1,254	22	821	607	1,046	645	**6,172**
Cash cost per ounce net of by-products	**C/D**	**$ 0.43**	**$ (3.93)**	**$ 2.09**	**$ 2.08**	**$ (7.42)**	**$ 9.04**	**$ 26.52**	**$ 3.18**

(1) Totals may not add due to rounding.

Twelve months ended December 31, 2017[1] (in thousands of USD except as noted)		La Colorada	Dolores	Alamo Dorado	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Total
Cash Costs before by-product credits	**A**	**$ 75,407**	**122,532**	**$ 12,666**	**$101,588**	**$ 76,085**	**$ 55,286**	**$ 113,726**	**$ 557,291**
Less gold credit	b1	(4,477)	(129,503)	(2,498)	(148)	(2,639)	(305)	(56,842)	**(196,411)**
Less zinc credit	b2	(37,967)	—	—	(46,080)	(39,402)	(10,522)	—	**(133,972)**
Less lead credit	b3	(18,994)	—	—	(19,039)	(7,573)	(672)	—	**(46,278)**
Less copper credit	b4	—	—	(46)	(32,059)	(38,315)	(3,533)	—	**(73,952)**
Sub-total by-product credits	**B=(b1+ b2+ b3+ b4)**	**$ (61,438)**	**$(129,503)**	**$ (2,544)**	**$ (97,327)**	**$ (87,929)**	**$ (15,032)**	**$ (56,842)**	**$ (450,614)**
Cash Costs net of by-product credits	C=(A+B)	$ 13,970	$ (6,971)	$ 10,123	$ 4,261	$ (11,844)	$ 40,254	$ 56,884	**$ 106,677**
Payable ounces of silver (thousand)	D	6,709	4,225	614	3,164	2,219	3,396	3,117	**23,444**
Cash cost per ounce net of by-products	**C/D**	**$ 2.08**	**$ (1.65)**	**$ 16.49**	**$ 1.35**	**$ (5.34)**	**$ 11.85**	**$ 18.25**	**$ 4.55**

(1) Totals may not add due to rounding.

Adjusted Earnings and Basic Adjusted Earnings Per Share

Adjusted earnings and basic adjusted earnings per share are non-GAAP measures that the Company considers to better reflect normalized earnings as it eliminates items that in management's judgment are subject to volatility as a result of factors which are unrelated to operations in the period, and/or relate to items that will settle in future periods. Certain items that become applicable in a period may be adjusted for, with the Company retroactively presenting comparable periods with an adjustment for such items and conversely, items no longer applicable may be removed from the calculation. The Company adjusts certain items in the periods that they occurred, but does not reverse or otherwise unwind the effect of such items in future periods. Neither adjusted earnings nor basic adjusted earnings per share have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies.

The following table shows a reconciliation of adjusted earnings for the three and twelve months ended December 31, 2018 and 2017, to the net earnings for each period.

	Three Months Ended December 31,		Year ended December 31,	
(In thousands of USD, except as noted)	**2018**	2017	**2018**	2017
Net (loss) earnings for the period	**$ (63,577)**	$ 49,664	**$ 12,041**	$ 123,451
Adjust for:				
Loss (gain) on derivatives	**60**	(64)	**1,078**	(64)
Impairment charges (reversals)	**27,789**	(61,554)	**27,789**	(61,554)
Write-down of project development costs	**—**	—	**—**	1,898
Unrealized foreign exchange (gains) losses	**(348)**	362	**10,337**	(383)
Net realizable value adjustment of heap inventory	**12,977**	4,936	**24,082**	10,060
Unrealized losses (gains) on commodity and foreign currency contracts	**765**	2,190	**(2,481)**	(909)
Mine operation severance costs	**—**	—	**—**	3,509
Share of loss (income) from associate and dilution gain	**182**	(259)	**(13,679)**	(2,052)
Reversal of previously accrued tax liabilities	**—**	—	**(1,188)**	(2,793)
Metal inventory loss	**4,670**	—	**4,670**	—
Transaction costs	**10,229**	—	**10,229**	—
Losses (gains) on sale of mineral properties, plant and equipment	**56**	794	**(7,973)**	(191)
Closure and decommissioning liability adjustment	**2,832**	4,515	**2,832**	8,388
Adjust for effect of taxes relating to the above	**(5,832)**	6,046	**(9,914)**	2,273
Adjust for effect of foreign exchange on taxes	**8,175**	12,589	**1,611**	(3,928)
Adjusted (loss) earnings for the period	**$ (2,022)**	$ 19,219	**$ 59,434**	$ 77,705
Weighted average shares for the period	**153,352**	153,207	**153,315**	153,070
Adjusted (loss) earnings per share for the period	**$ (0.01)**	$ 0.13	**$ 0.39**	$ 0.51

Total Debt

Total debt is a non-GAAP measure calculated as the total current and non-current portions of: long-term debt, finance lease liabilities, and loans payable. Total debt does not have any standardized meaning prescribed by GAAP and is therefore unlikely to be comparable to similar measures presented by other companies. The Company and certain investors use this information to evaluate the financial debt leverage of the Company.

Working Capital

Working capital is a non-GAAP measure calculated as current assets less current liabilities. Working capital does not have any standardized meaning prescribed by GAAP and is therefore unlikely to be comparable to similar measures presented by other companies. The Company and certain investors use this information to evaluate whether the Company is able to meet its current obligations using its current assets.

RISKS AND UNCERTAINTIES

The Company is exposed to many risks in conducting its business, including but not limited to: metal price risk as the Company derives its revenue from the sale of silver, zinc, lead, copper, and gold; credit risk in the normal course of dealing with other companies; foreign exchange risk as the Company reports its financial statements in USD whereas the Company operates in jurisdictions that utilize other currencies; the inherent risk of uncertainties in estimating mineral reserves and mineral resources; political, economic and social risks related to conducting business in foreign jurisdictions such as Peru, Mexico, Argentina and Bolivia; environmental risks; and risks related to its relations with employees. Certain of these risks are described below, and are more fully described in Pan American's Annual Information Form (available on SEDAR at www.sedar.com) and Form 40-F filed with the SEC", and in the Financial Instruments and related risks section of the 2018 Financial Statements. Certain additional risk factors relating to the business of Tahoe are described in the Company's management information circular dated December 4, 2018, with respect to the Arrangement, which is available on SEDAR at www.sedar.com. Readers are encouraged to refer to these documents for a more detailed description of some of the risks and uncertainties inherent to Pan American's business.

Financial Instruments Risk Exposure

The Company's is exposed to financial risks, including metal price risk, credit risk, interest rate risk, foreign currency exchange rate risk, and liquidity risk. The Company's exposures and management of each of those risks is described in the Company's 2018 Financial Statements under Note 8 "Financial Instruments", along with the financial statement classification, the significant assumptions made in determining the fair value, and amounts of income, expenses, gains and losses associated with financial instruments. Fair value estimates are made at a specific point in time, based on relevant market information and information about the financial instrument. These estimates are subjective in nature and involve uncertainties and matters of significant judgment and, therefore, cannot be determined with precision. Changes in assumptions could significantly affect the estimates.

The following provides a description of the risks related to financial instruments and how management manages these risks:

Trading Activities and Credit Risk

The zinc, lead, and copper concentrates produced by us are sold through long-term supply arrangements to metal traders or integrated mining and smelting companies. The terms of the concentrate contracts may require us to deliver concentrate that has a value greater than the payment received at the time of delivery, thereby introducing us to credit risk of the buyers of our concentrates. Should any of these counterparties not honour supply arrangements, or should any of them become insolvent, we may incur losses for products already shipped and be forced to sell our concentrates in the spot market, or we may not have a market for our concentrates and therefore our future operating results may be materially adversely impacted.

For example, the Doe Run Peru smelter, a significant buyer of our production in Peru, experienced financial difficulties in the first quarter of 2009 and closed. The Doe Run Peru smelter remains closed and we are owed approximately $7.6 million under the terms of our contract with Doe Run Peru. We continue to pursue all legal and commercial avenues to collect the amount outstanding.

As at December 31, 2018, we had receivable balances associated with buyers of our concentrates of $40.8 million (2017- $52.0 million). The vast majority of the Company's concentrate is sold to a limited number of concentrate buyers.

Silver doré production is refined under long-term agreements with fixed refining terms at three separate refineries worldwide. We generally retain the risk and title to the precious metals throughout the process of refining and therefore are exposed to the risk that the refineries will not be able to perform in accordance with the refining contract and that we may not be able to fully recover our precious metals in such circumstances. For example, in November 2018, Republic Metals Corporation ("Republic"), a refinery used by us, filed for bankruptcy. At the time of the bankruptcy, Republic had possession of approximately $4.9 million of our metal, which for accounting purposes has been fully provided for, and we are pursuing a claim to collect the metals, or in lieu thereof, damages. As at December 31, 2018, we had approximately $19.7 million (2017 - $21.9 million) contained in precious metal inventory

at refineries. We maintain insurance coverage against the loss of precious metals at our mine sites, in-transit to refineries and while at the refineries.

Refined silver and gold is sold in the spot market to various bullion traders and banks. Credit risk may arise from these activities if we are not paid for metal at the time it is delivered, as required by spot sale contracts.

We maintain trading facilities with several banks and bullion dealers for the purposes of transacting our trading activities. None of these facilities are subject to margin arrangements. Our trading activities can expose us to the our counterparties' credit risk to the extent that our trading positions have a positive mark-to-market value.

Supplier advances for products and services yet to be provided are a common practice in some jurisdictions in which the Company operates. These advances represent a credit risk to the Company to the extent that suppliers do not deliver products or perform services as expected. As at December 31, 2018, the Company had made $14.4 million of supplier advances (December 31, 2017 - $14.3 million), which are reflected in “Trade and other receivables” on the Company’s balance sheet.

Management constantly monitors and assesses the credit risk resulting from our concentrate sales, refining arrangements and commodity contracts. Furthermore, management carefully considers credit risk when allocating prospective sales and refining business to counterparties. In making allocation decisions, management attempts to avoid unacceptable concentration of credit risk to any single counterparty.

From time to time, we may invest in equity securities of other companies. Just as investing in Pan American is inherent with risks such as those set out in this MD&A, by investing in other companies we will be exposed to the risks associated with owning equity securities and those risks inherent in the investee companies.

Liquidity Risk

Liquidity risk is the risk that we will not be able to meet our financial obligations as they come due. The volatility of the metals markets can impact our ability to forecast cash flow from operations.

We must maintain sufficient liquidity to meet our short-term business requirements, taking into account our anticipated cash flows from operations, our holdings of cash and cash equivalents and committed loan facilities.

We manage our liquidity risk by continuously monitoring forecasted and actual cash flows. We have in place a rigorous reporting, planning and budgeting process to help determine the funds required to support our normal operating requirements on an ongoing basis and our expansion plans. We continually evaluate and review capital and operating expenditures in order to identify, decrease and limit all non-essential expenditures.

We currently have an aggregate consolidated indebtedness of approximately$6.7 million, comprised of capital leases. As a result of this indebtedness, we are required to use a portion of our cash flow to service principal and interest on this debt, which will limit the cash flow available for other business opportunities. We also maintain and enter into intercompany credit arrangements with our subsidiaries in the normal course. Our ability to make scheduled principal payments, pay interest on or refinance our indebtedness depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Unexpected delays in production, the suspension of our mining licenses, or other operational problems could impact our ability to service the debt and make necessary capital expenditures when the debt becomes due. If we are unable to generate such cash flow to timely repay any debt outstanding, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

Foreign currency exchange rate risk

We report our financial statements in USD, however we operate in jurisdictions that utilize other currencies. As a consequence, the financial results of our operations, as reported in USD, are subject to changes in the value of the USD relative to local currencies. Since Pan American’s sales are denominated in USD and a portion of our operating costs and capital spending are in local currencies, we are negatively impacted by strengthening local currencies relative to the USD and positively impacted by the inverse.

From time to time, the Company mitigates part of this currency exposure by accumulating local currencies, entering into contracts designed to fix or limit the Company's exposure to changes in the value of local currencies relative to the USD, or assuming liability positions to offset financial assets subject to currency risk. The Company held cash and short-term investments of $22.5 million in CAD, $2.7 million in MXN, $1.3 million in PEN, $2.7 million in ARS, and $0.3 million in BOB as at December 31, 2018. The Company recorded gains of $0.6 million and $0.7 million on the MXN forward contracts for Q4 2018 and full-year 2018, respectively (Q4 2017 and full-year 2017 losses of $0.8 million and gains of $3.8 million, respectively). As at December 31, 2018, the Company had outstanding positions on $36.0M in foreign currency exposure of MXN purchases with put rates of $20.00 and call rates ranging from $20.72 to $23.97 expiring between January 2019 and December 2019.

The following table illustrates the effect of changes in the exchange rate of PEN and MXN against the USD on anticipated cost of sales for 2019, expressed in percentage terms:

2019 Cost of Sales Exchange Rate Sensitivity

		MXN/USD						
		$18.00	$18.50	$19.00	$19.50	$20.00	$20.50	$21.00
PEN/ USD	$3.03	103%	102%	102%	101%	101%	101%	100%
	$3.13	102%	102%	101%	101%	101%	100%	100%
	$3.23	102%	101%	101%	100%	100%	100%	99%
	$3.33	101%	101%	100%	**100%**	100%	99%	99%
	$3.43	101%	100%	100%	100%	99%	99%	98%
	$3.53	101%	100%	100%	99%	99%	98%	98%
	$3.63	100%	100%	99%	99%	98%	98%	98%
	$3.73	100%	99%	99%	98%	98%	98%	97%

The Company's balance sheet contains various monetary assets and liabilities, some of which are denominated in foreign currencies. Accounting convention dictates that these balances are translated at the end of each period, with resulting adjustments being reflected as foreign exchange gains or losses on the Company's income statement.

In addition to the foregoing, governmental restrictions and controls relating to exchange rates also impact our operations. In Argentina, for example, the government has at times established official exchanges rates that were significantly different than the unofficial exchange rates more readily utilized locally to determine prices and value. Our investments in Argentina are primarily funded from outside of the country, and therefore conversion of foreign currencies, like USD, at the official exchange rate has had the effect of reducing purchasing power and substantially increasing relative costs in an already high inflationary market. Maintaining monetary assets in ARS also exposes us to the risks of ARS devaluation and high domestic inflation.

Metal Price Risk

Pan American derives its revenue from the sale of silver, zinc, lead, copper and gold, and therefore fluctuations in the price of these metals significantly affect our operations and profitability. The Company's sales are directly dependent on metal prices, and metal prices have historically shown significant volatility and are beyond the Company's control. The Board continually assesses Pan American's strategy towards our base metal exposure, depending on market conditions. The table below illustrates the effect of changes in silver and gold prices on anticipated revenues for 2019, expressed in percentage terms. This analysis assumes that quantities of silver and gold produced and sold remain constant under all price scenarios presented.

2019 Revenue Metal Price Sensitivity

		Gold Price						
		$950	$1,050	$1,150	$1,250	$1,350	$1,450	$1,550
Silver Price	$11.50	83%	86%	88%	90%	92%	94%	96%
	$12.50	87%	89%	91%	93%	95%	98%	100%
	$13.50	90%	92%	94%	97%	99%	101%	103%
	$14.50	94%	96%	98%	**100%**	102%	104%	106%
	$15.50	97%	99%	101%	103%	106%	108%	110%
	$16.50	100%	102%	105%	107%	109%	111%	113%
	$17.50	104%	106%	108%	110%	112%	114%	117%
	$18.50	107%	109%	111%	113%	116%	118%	120%

Since base metal and gold revenue are treated as a by-product credit for purposes of calculating cash costs per ounce of silver and AISCSOS, these non-GAAP measures are highly sensitive to base metal and gold prices. The table below illustrates this point by plotting the expected cash cost per ounce according to our 2019 forecast against various price assumptions for the Company's two main by-product credits, zinc and gold, expressed in percentage terms:

2019 Cash Cost Metal Price Sensitivity

		Gold Price						
		$950	$1,050	$1,150	$1,250	$1,350	$1,450	$1,550
Zinc Price	$2,300	132%	125%	117%	109%	101%	93%	85%
	$2,400	129%	122%	114%	106%	98%	90%	82%
	$2,500	126%	118%	111%	103%	95%	87%	79%
	$2,600	123%	116%	108%	**100%**	92%	84%	76%
	$2,700	121%	113%	105%	98%	90%	82%	74%
	$2,800	118%	111%	103%	95%	87%	79%	71%
	$2,900	116%	108%	100%	93%	85%	77%	69%
	$3,000	113%	106%	98%	90%	82%	74%	66%

The price of silver and other metals are affected by numerous factors beyond our control, including:

- global and regional levels of supply and demand;
- sales by government holders and other third parties;
- metal stock levels maintained by producers and others;
- increased production due to new mine developments and improved mining and production methods;
- speculative activities;
- inventory carrying costs;
- availability, demand and costs of metal substitutes;
- international economic and political conditions;
- interest rates, inflation and currency values;
- increased demand for silver or other metals for new technologies; and
- reduced demand resulting from obsolescence of technologies and processes utilizing silver and other metals.

Declining market prices for these metals could materially adversely affect our operations and profitability. A decrease in the market price of silver, gold and other metals could affect the commercial viability of our mines and production

at some of our mining properties. Lower prices could also adversely affect future exploration and our ability to develop mineral properties and mines, including the development of capital intensive projects such as Navidad, all of which would have a material adverse impact on our financial condition, results of operations and future prospects. There can be no assurance that the market prices will remain at sustainable levels.

If market prices of gold and silver remain below levels used in Pan American's impairment testing and reserve prices for an extended period of time, Pan American may need to reassess its long-term price assumptions, and a significant decrease in the long-term price assumptions would be an indicator of potential impairment, requiring Pan American to perform an impairment assessment on related assets. Pan American further discusses key assumptions used in measuring the recoverable amounts of its mining assets in Note 12 of Pan American's Audited Consolidated Financial Statements for the year ended December 31, 2018. Due to the sensitivity of the recoverable amounts to long term metal prices, as well as to other factors including changes to mine plans and cost escalations, any significant change in these key assumptions and inputs could result in impairment charges in future periods.

From time to time, we mitigate the market price risk associated with our base metal production by committing some of our forecast base metal production to forward sales and options contracts. However, decisions relating to hedging may have material adverse effects on our financial performance, financial position, and results of operations. The Board of Directors continually assesses Pan American's strategy towards our base metal exposure, depending on market conditions. As at December 31, 2018 the only put and call contracts the Company had outstanding was for 3,000 tonnes of lead, with a floor of $1,800 and a cap of $2,175 from January 2019 to June 2019.

We take the view that our precious metals production should not be hedged, thereby allowing the maximum exposure to precious metal prices. However, in extreme circumstances, the Board may make exceptions to this approach. Such decisions could have material adverse effects upon our financial performance, financial position, and results of operations.

Taxation Risks

We are exposed to tax related risks. In assessing the probability of realizing income tax assets recognized, the Company makes estimates related to expectations of future taxable income, applicable tax planning opportunities, expected timing of reversals of existing temporary differences and the likelihood that tax positions taken will be sustained upon examination by applicable tax authorities. In making its assessments, we give additional weight to positive and negative evidence that can be objectively verified. Estimates of future taxable income are based on forecasted cash flows from operations and the application of existing tax laws in each jurisdiction. We consider relevant tax planning opportunities that are within the Company's control, are feasible and within management's ability to implement. Examination by applicable tax authorities is supported based on individual facts and circumstances of the relevant tax position examined in light of all available evidence. Where applicable tax laws and regulations are either unclear or subject to ongoing varying interpretations, it is reasonably possible that changes in these estimates can occur that materially affect the amounts of income tax assets recognized. Also, future changes in tax laws could limit the Company from realizing the tax benefits from the deferred tax assets. We reassess unrecognized income tax assets at each reporting period.

Claims and Legal Proceedings

We are subject to various claims and legal proceedings covering a wide range of matters that arise in the ordinary course of business activities. Many of these claims relate to current or ex-employees, or employees of former or current owners of our operations, some of which involve claims of significant value, for matters ranging from workplace illnesses, such as silicosis, and claims for additional profit-sharing and bonuses in prior years. In some cases, the Company or its subsidiaries may become subject to class action lawsuits. For example, in mid-2017, Tahoe, which was acquired by us in late February 2019, and certain of its former directors and officers became, and continue to be, the subject of three purported class action lawsuits filed in the United States that center primarily around alleged misrepresentations. In October 2018, Tahoe learned that a similar proposed class action lawsuit had been filed against Tahoe and its former chief executive officer in the Superior Court of Ontario. These lawsuits seek significant damages. Tahoe has disputed the allegations made in these suits, however the outcomes are not determinable at this time. Furthermore, we are in some cases the subject of claims by local communities, indigenous groups or private land owners relating to land and mineral rights and such claimants may seek sizeable monetary damages against us and/or the return of surface or mineral rights that are valuable to us and which may impact our operations and profitability if lost.

Each of these matters is subject to various uncertainties and it is possible that some of these matters may be resolved unfavourably to us. We establish provisions for matters that are probable and can be reasonably estimated. We also carry liability insurance coverage, however such insurance does not cover all risks to which we might be exposed and in other cases, may only partially cover losses incurred by the Company. In addition, we may be involved in disputes with other parties in the future that may result in litigation, which may result in a material adverse effect on our financial position, cash flow and results of operations.

Foreign Operations

As at December 31, 2018, all of our production and revenues were derived from our operations in Peru, Mexico, Argentina and Bolivia, and, as a result, we are exposed to a number of risks and uncertainties, including:

- expropriation, nationalization, and the cancellation, revocation, renegotiation, or forced modification of existing contracts, permits, licenses, approvals, or title, particularly without adequate compensation;
- changing political and fiscal regimes, and economic and regulatory instability;
- unanticipated adverse changes to laws and policies, including those relating to mineral title, royalties and taxation;
- delays or inability to obtain or maintain necessary permits, licenses or approvals;
- opposition to mine development projects, which include the potential for violence, property damage and frivolous or vexatious claims;
- restrictions on foreign investment;
- unreliable or undeveloped infrastructure;
- labour unrest and scarcity;
- difficulty obtaining key equipment and components for equipment;
- regulations and restrictions with respect to imports and exports;
- high rates of inflation;
- extreme fluctuations in currency exchange rates and restrictions on foreign exchange, currencies and repatriation;
- inability to obtain fair dispute resolution or judicial determinations because of bias, corruption or abuse of power;
- abuse of power of foreign governments who impose, or threaten to impose, fines, penalties or other similar mechanisms, without regard to the rule of law;

- difficulties enforcing judgments, particularly judgments obtained in Canada or the United States, with respect to assets located outside of those jurisdictions;
- difficulty understanding and complying with the regulatory and legal framework with respect to mineral properties, mines and mining operations, and permitting;
- violence and the prevalence of criminal activity, including organized crime, theft and illegal mining;
- civil unrest, terrorism and hostage taking;
- military repression and increased likelihood of international conflicts or aggression; and
- increased public health concerns.

Certain of these risks and uncertainties are illustrated well by circumstances in Bolivia.

In early 2009, a new constitution was enacted in Bolivia that further entrenched the government's ability to unilaterally amend or enact laws, and which enshrined the concept that all natural resources belong to the Bolivian people. On May 28, 2014, the Bolivian government enacted the New Mining Law. Among other things, the New Mining Law established a new Bolivian mining authority to provide principal mining oversight (varying the role of COMIBOL) and set out a number of new economic and operational requirements relating to state participation in mining projects. Further, the New Mining Law provided that all pre-existing contracts were to migrate to one of several new forms of agreement within a prescribed period of time. As a result, we anticipate that our current joint venture agreement with COMIBOL relating to the San Vicente mine will be subject to such migration and possible renegotiation of key terms. The primary effects on the San Vicente operation and our interest therein will not be known until such time as we have, if required to do so, renegotiated the existing contract, and the full impact may only be realized over time. We will take appropriate steps to protect and, if necessary, enforce our rights under our existing agreement with COMIBOL. There is, however, no guarantee that governmental actions, including possible expropriation or additional changes in the law, and the migration of our contract will not impact our involvement in the San Vicente operation in an adverse way and such actions could have a material adverse effect on us and our business.

On June 25, 2015, the Bolivian government further enacted the New Conciliation and Arbitration Law, which endeavors to set out newly prescribed arbitral norms and procedures, including for foreign investors. However, its application is unclear and we await clarification by regulatory authorities in order to assess its impact on our business.

In most cases, the effect of these risks and uncertainties cannot be accurately predicted and, in many cases, their occurrence is outside of our control. Although we are unable to determine the impact of these risks on our future financial position or results of operations, many of these risks and uncertainties have the potential to substantially affect our exploration, development and production activities and could therefore have a material adverse impact on our operations and profitability.

Government Regulations

Our operations, exploration, and development activities are subject to extensive laws and regulations in the jurisdictions in which we conduct our business, including with respect to:

- environmental protection, including carbon emissions;
- permitting;
- management and use of toxic substances and explosives;
- management and use of natural resources, including water and energy supplies;
- management of waste and waste water;
- exploration, development, production, and post-closure reclamation of mines;
- imports and exports;
- transportation;

- price controls;
- taxation;
- mining royalties;
- labour standards, employee profit-sharing and occupational health and safety, including mine safety;
- human rights;
- social matters, including historic and cultural preservation, engagement and consultation, local hiring and procurement, development funds;
- anti-corruption and anti-money laundering; and
- data protection and privacy.

The costs associated with compliance with these and future laws and regulations can be substantial, and changes to existing laws and regulations (including the imposition of higher taxes and mining royalties) could cause additional expense, capital expenditures, restrictions on or suspensions of our operations and delays in the development of our properties. In addition, the regulatory and legal framework in some jurisdictions in which we operate are out-dated, unclear and at times, inconsistent. A failure to comply with these laws and regulations, including with respect to our past and current operations, and possibly even actions of parties from whom we acquired our mines or properties, could lead to, among other things, the imposition of substantial fines, penalties, sanctions, the revocation of licenses or approvals, expropriation, forced reduction or suspension of operations, and other civil, regulatory or criminal proceedings.

Many of the jurisdictions in which we operate also have certain laws or policies that impose restrictions on mining activities. For example, there are currently laws in the Province of Chubut, Argentina, which, among other things, prohibit open pit mining and the use of cyanide in mineral processing across the entire Province. As currently enacted, the laws in the Province of Chubut would likely render any future construction and development of the Navidad property uneconomic or not possible at all. There is no guarantee that these restrictions on mining will be removed or that they will not become more restrictive, or that new constraints will not be imposed, including those that might have significant economic impacts on our operations and profitability.

Unanticipated or drastic changes in laws and regulations have affected our operations in the past. For example, under the previous political regime in Argentina, the government intensified the use of severe price, foreign exchange, and import controls in response to unfavourable domestic economic trends. These included informal restrictions on dividend, interest, and service payments abroad and limitations on the ability to convert ARS into USD, exposing us to additional risks of ARS devaluation and high domestic inflation. The new federal government elected in 2015 has eased many of the previously instituted controls and restrictions, but in September 2018, it introduced a new export duty on silver and gold doré exported from Argentina. The duty is scheduled to expire on December 31, 2020. However, for the period from September to December 2018, we paid approximately $1.6 million in export duties, representing an average rate for the export duty of approximately 8% or revenue.

As governments continue to struggle with deficits and concerns over the effects of depressed economies, the mining and metals sector has been targeted to raise revenue. Taxation and royalties are often subject to change and are vulnerable to increases in both poor and good economic times, especially in many resource rich countries. The addition of new taxes, specifically those aimed at mining companies, could have a material impact on our operations and will directly affect profitability and our financial results.

In late December 2016, for example, the Zacatecas state government in Mexico enacted a new set of ecological taxes which took effect on January 1, 2017. The Zacatecas Tax applies broadly across a number of industries in the State of Zacatecas that involve extraction, emissions to the air, soil or water, and deposits of residue or waste. The Zacatecas Tax primarily effects the La Colorada mine in respect of the materials placed in its tailings storage facility. We paid approximately $1.2 million in respect of the Zacatecas Tax in 2018, however, the validity of the Zacatecas Tax has been challenged on constitutional grounds by various parties, including Pan American.

In addition to more targeted changes in taxation, we are also subject to broad-based changes. For example, in December 2017, the United States' Tax Cuts and Job Act (the "US Tax Reform") was enacted, which made significant changes to income tax law in the United States. Among the many provision included in the US Tax Reform, the most notable change was a reduction in the general corporate income tax rate from 35% to 21%, effective January 1, 2018.

SIGNIFICANT JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY IN THE APPLICATION OF ACCOUNTING POLICIES

In preparing financial statements in accordance with IFRS, management is required to make estimates and assumptions that affect the amounts reported in the consolidated financial statements. These critical accounting estimates represent management estimates and judgments that are uncertain, and any changes in these could materially impact the Company's financial statements. Management continuously reviews its estimates, judgments and assumptions using the most current information available. The significant judgments and key sources of estimation uncertainty in the application of accounting policies are described in Note 4 and Note 5 of the 2018 Financial Statements, respectively.

Readers should also refer to Note 3 of the 2018 Financial Statements, for the Company's summary of significant accounting policies.

CHANGES IN ACCOUNTING STANDARDS

New and Amended IFRS Standards that are Effective for the Current Year

Financial Instruments

On January 1, 2018, the Company adopted, retrospectively without restatement, IFRS 9 -*Financial Instruments* ("IFRS 9") which replaced IAS 39 - *Financial Instruments: Recognition and Measurement* ("IAS 39"). IFRS 9 provides a revised model for recognition and measurement of financial instruments with a single, forward-looking 'expected loss' impairment model, and significant changes to hedge accounting. The standard is effective for annual periods beginning on or after January 1, 2018. There was no impact from IFRS 9 on the Company's classification and measurement of financial assets and liabilities, except for equity securities as described below.

Under IFRS 9, subsequent to initial recognition, financial assets are classified and measured at either: amortized cost, fair value through other comprehensive income ("FVTOCI") or at fair value through profit or loss ("FVTPL"). The approach in IFRS 9 is based on how an entity manages its financial instruments in the context of its business model and the contractual cash flow characteristics of the financial assets.

IFRS 9 introduced a single expected credit loss impairment model for financial assets measured at amortized cost and for debt instruments at FVTOCI, which is based on changes in credit quality since initial recognition. The adoption of the expected credit loss impairment model did not have a significant impact on the Company's financial statements.

IFRS 9 changed the requirements for hedge effectiveness and consequently for the application of hedge accounting, which did not impact the Company. As the Company does not apply hedge accounting, either under IAS 39 or IFRS 9, the adoption of IFRS 9 with regards to hedge accounting did not impact the Company or its accounting policies.

The Company has not restated comparative 2017 information for financial instruments in the scope of IFRS 9. Therefore, the comparative 2017 information is reported under IAS 39 and is not comparable to the information presented for 2018. Differences arising from the adoption of IFRS 9 have been recognized directly in retained earnings as of January 1, 2018. The adoption of IFRS 9 did not result in a change in carrying value of any of our financial instruments on the transition date. The main area of change was the accounting for equity securities previously classified as available for sale.

In accordance with IFRS 9 guidance, investments in equity securities that are neither subsidiaries nor associates ("equity securities") are categorized as FVTPL unless they are designated as FVTOCI. Further, investments in equity securities, previously classified as available for sale, are now classified at FVTPL. As of January 1, 2018 equity securities are measured at FVTPL, prior to this and under IAS 39 these assets were initially recorded at fair value with subsequent

measurements recorded at FVTOCI. The Company continued to designate its short term investments other than equity securities as financial assets at FVTOCI. This change in measurement classification resulted in an adjustment to opening retained earnings on January 1, 2018 for the historical unrealized gains and losses on the Company's existing equity securities investments. The adjustment was $1.6 million with a corresponding adjustment to accumulated other comprehensive income.

The Company's financial instrument policy in accordance with IFRS 9 is disclosed in Note 3(g) of the 2018 Financial Statements.

Revenue Recognition

The Company adopted IFRS 15 - *Revenue from Contracts with Customers* ("IFRS 15") which replaced IAS 11 - Construction Contracts; IAS 18 - Revenue, and other revenue interpretations.

IFRS 15 requires either a full retrospective application, whereby comparative information is restated in accordance with IFRS 15, or a modified retrospective application, whereby the cumulative impact of adoption is recognized in opening retained earnings, as of January 1, 2018, and comparative period balances are not restated. The Company elected to apply the modified retrospective approach, though the new standard had no cumulative impact as at January 1, 2018.

IFRS 15 establishes a single five-step model framework for determining the nature, amount, timing and uncertainty of revenue and cash flows arising from a contract with a customer, and introduces a revenue recognition model under which an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This new framework did not result in a change in the way the Company recognizes or measures revenue but additional disclosures have been presented in Note 3(f) as a result of adopting IFRS 15. Further, the standard introduces the concept of performance obligations that are defined as 'distinct' promised goods or services, and requires entities to apportion revenue earned to the distinct performance obligations on a relative stand-alone selling price basis. The Company may from time to time enter into concentrate contracts where the Company is responsible for shipping and insurance costs necessary to bring the goods to a named destination after the date on which control of the goods is transferred to the customer. Accordingly, under IFRS 15, a portion of the revenue earned under such contracts, representing the obligation to fulfill the shipping and insurance services, will be deferred and recognized over the time the obligations are fulfilled. There were no such contracts in 2017, nor in 2018.

The Company's revenue recognition policy in accordance with IFRS 15 is disclosed in Note 3(f) of the 2018 Financial Statements.

Other Narrow Scope Amendments

The Company has adopted IFRIC interpretation 22 - *Foreign Currency Transactions and Advanced Consideration*, and narrow scope amendments to IFRS 2 - *Share-based Payment,* which did not have a material impact on the Company's consolidated financial statements.

New and amended IFRS standards not yet effective

The Company has not early adopted any amendment, standard or interpretation that has been issued by the IASB but is not yet effective.

Leases

IFRS 16, *Leases* ("IFRS 16") In January 2016, the IASB issued IFRS 16 - *Leases* which replaces IAS 17 - *Leases* and its associated interpretative guidance, including IFRIC 4 and SIC 15. IFRS 16 applies a control model to the identification of leases, distinguishing between a lease and a non-lease component on the basis of whether the customer controls the specific asset. For those contracts that are or contain a lease, IFRS 16 introduces significant changes for lessees to the accounting for contracts that are or contain a lease, introducing a single, on-balance sheet accounting model that is similar to current finance lease accounting, with limited exceptions for short-term leases less than 12 months in duration or leases of low value assets. Lessor accounting remains similar to current accounting practice. The standard is effective for annual periods beginning on or after January 1, 2019, with early application permitted for entities that apply IFRS 15.

The Company plans to apply IFRS 16 at the date it becomes effective and has selected the modified retrospective transition approach, which does not require restatement of comparative periods, instead, the cumulative impact of applying IFRS 16 will be accounted for as an adjustment to equity at the start of the accounting period in which it is first applied. The Company does not intend to bring short-term leases (contracts with terms that end within 12 months of the mandatory transition date) or low value leases on balance sheet. Costs for these items will continue to be expensed directly to the Consolidated Income Statements.

The Company is close to finalizing its implementation project. It is expected that the Company will record a material balance of lease assets and associated lease liabilities on the Consolidated Statements of Financial Position at January 1, 2019. IFRS 16 will further result in increased depreciation and amortization on these lease assets and increased interest on these additional lease liabilities. These lease payments will be recorded as financing outflows in the Consolidated Statements of Cash Flows.

Uncertainty Over Income Tax Treatments

IFRIC 23, Uncertainty over Income Tax Treatments ("IFRIC 23") provides guidance regarding the application of the IAS 12 Income Taxes recognition and measurement requirements where there is uncertainty surrounding income tax treatment of a tax position. To apply IFRIC 23, the Company must determine whether it is probable that the relevant tax authorities will accept an uncertain tax treatment used, or proposed to be used, in its income tax filings. If it determined that the tax authorities will accept the tax treatment, the Company should account for the impact consistent with that tax treatment. If it is determined that the tax authorities are not likely to accept the tax treatment, the Company should account for the impact of the uncertainty in the period in which this determination is made. IFRIC 23 is effective for annual periods beginning on or after January 1, 2019 and can be applied with either full retrospective application or modified retrospective application without restatement of comparatives retrospectively or prospectively. The Company does not expect the application of IFRIC 23 will have a significant impact on the Company’s consolidated financial statements.

Annual Improvements 2015-2017 Cycle

In December 2017, the IASB issued the Annual Improvements 2015-2017 cycle, containing amendments to IFRS 3 - Business Combinations ("IFRS 3"), IFRS 11 - Joint Arrangements, IAS 12 - Income Taxes and IAS 23 - Borrowing Costs. These amendments are effective for annual periods beginning on or after January 1, 2019 and are not expected to have a significant impact on the Company's consolidated financial statements.

CORPORATE GOVERNANCE, SOCIAL RESPONSIBILITY, AND ENVIRONMENTAL STEWARDSHIP

Governance

Pan American adheres to high standards of corporate governance and closely follows the requirements established by both the Canadian Securities Administrators and the SEC. We believe that our current corporate governance systems meet or exceed these requirements.

Our Board oversees the direction and strategy of the business and the affairs of the Company. The Board is comprised of seven directors, six of whom are independent as at December 31, 2018. As at the date of this MD&A, the Board is comprised of nine directors, seven of whom are dependent. The Board’s wealth of experience allows it to effectively oversee the development of corporate strategies, provide management with long-term direction, consider and approve major decisions, oversee the business generally and evaluate corporate performance. The Nominating and Governance Committee, appointed by the Board, oversees the effective functioning of the Board and the implementation of governance best practices.

We believe that good corporate governance is important to the effective performance of the Company, and plays a significant role in protecting the interests of all stakeholders while helping to maximize value.

Corporate Social Responsibility

The Health, Safety, Environment, and Communities Committee, appointed by the Board, provides oversight for the corporate social initiatives of the Company and reports directly to the Board. We are committed to creating sustainable value in the communities where our people work and live. Guided by research conducted by our local offices, we participate in, and contribute to numerous community programs. They typically center on education and health, nutrition, environmental awareness, local infrastructure and alternative economic activities. Some of our key initiatives are:

- *Strengthening the production chain of livestock breeding.*
- *Value adding through the development of alpaca textiles weaving workshops with product commercialization in North America.*
- *Improving nutrition, focusing on children and women.*
- *Promoting community health with emphasis on immunizations, optometry, and oral health.*
- *Promoting tourism and local areas of interest such as the Stone Forest in Huayllay in Peru.*
- *Encouraging education for children and adults by contributing to teacher's salaries, and providing continuous support through different scholarships at a local and national level.*

Environmental Stewardship

We are committed to operating our mines and developing our new projects in an environmentally responsible manner. Guided by our Corporate Environmental Policy, we take every practical measure to minimize the environmental impacts of our operations in each phase of the mining cycle, from early exploration through development, construction and operation, up to and after the mine's closure.

We build and operate mines in varied environments across the Americas. From the Patagonian plateau to the Sierra Madre in Mexico, our mines are generally located in isolated places where information about environmental and cultural values is often limited. Our mines in Peru and Bolivia are situated in historic mining districts where previous operations have left significant environmental liabilities that have potential to impact surrounding habitats and communities.

We manage these challenges using best practice methods in environmental impact assessment and teams of leading local and international professionals who clearly determine pre-existing environmental values at each location. These extensive baseline studies often take years of work and cover issues such as biodiversity and ecosystems, surface and groundwater resources, air quality, soils, landscape, archeology and paleontology, and the potential for acid rock drainage in the natural rocks of each new mineral deposit or historic waste facilities. The data collected often significantly advances scientific knowledge about the environments and regions where we work.

The baseline information is then used interactively in the design of each new mine or to develop management and closure plans for historic environmental liabilities, in open consultation with local communities and government authorities. We conduct detailed modeling and simulation of the environmental effects of each alternative design in order to determine the optimum solution, always aiming for a net benefit.

Once construction and operations begin, we conduct regular monitoring of all relevant environmental variables in order to measure real impacts against baseline data and report to the government and communities on our progress. Community participation in environmental monitoring is encouraged across all our mines. We implement management systems, work procedures and regular staff training to ensure optimum day-to-day management of issues like waste separation and disposal, water conservation, spill prevention, and incident investigation and analysis.

We conduct corporate environmental audits of our operations to ensure optimum environmental performance. Environmental staff from all mines participate in the audits, which improves integration and consolidation of company-wide standards across our operations. In 2018, audits were conducted on the Huaron and Morococha mines. In 2017, audits were conducted on the Dolores, La Colorada and Manantial Espejo mines. No material issues were identified in either the 2018 or 2017 environmental audits.

SUBSEQUENT EVENTS

On February 22, 2019, the Company completed the Tahoe Acquisition. Each Tahoe shareholder had the right to elect to receive either $3.40 in cash (the "Cash Election") or 0.2403 of a Pan American share (the "Share Election") for each Tahoe share, subject in each case to pro-ration based on a maximum cash consideration of $275 million and a maximum number of Pan American shares issued of 56.0 million. Tahoe shareholders who did not make an election by the election deadline were deemed to have made the Share Election. Holders of 23,661,084 Tahoe shares made the Cash Election and received all cash consideration in the amount of $3.40 per Tahoe share. The holders of 290,226,406 Tahoe shares that made or were deemed to have made, the Share Election were subject to pro-ration, and received consideration of approximately $0.67 in cash and 0.1929 of a Pan American share per Tahoe share.

In addition, Tahoe shareholders received contingent consideration in the form of one CVR for each Tahoe share. Each CVR will be exchanged for 0.0497 of a Pan American share upon first commercial shipment of concentrate following restart of operations at the Escobal mine. The CVRs are transferable and have a term of 10 years.

As a result of the acquisition of Tahoe, the Company paid $275 million in cash, issued 55,990,512 common shares of Pan American, and issued 313,887,490 CVRs. After this share issuance, Pan American shareholders owned approximately 73%, while former Tahoe shareholders owned approximately 27%, of the shares of the combined company. The Company has determined that this transaction represents a business combination with Pan American identified as the acquirer. Based on the February 21, 2019 closing share price of Pan American's common shares, the total consideration of the acquisition is approximately $1.1 billion. We began consolidating the operating results, cash flows and net assets of Tahoe from February 22, 2019 onwards.

Tahoe is a mid-tier publicly traded precious metals mining company with ownership interests in a diverse portfolio of mines and projects including the following principle mines: Timmins West and Bell Creek in Canada; La Arena and Shahuindo in Peru; and Escobal in Guatamela. The Escobal mine's operations have been suspended since June 2017.

As the transaction closed in February 2019, the initial allocation of the purchase price to the assets and liabilities acquired is not complete. The main areas under consideration are the values attributable to the mineral interests of each of the mines acquired. We will disclose a preliminary purchase price allocation in our first quarter 2019 condensed consolidated interim financial statements.

Acquisition related costs incurred in 2018 amounted to $10.2 million, have been expensed, and are presented as transaction costs as at December 31, 2018.

DISCLOSURE CONTROLS AND PROCEDURES

Pan American’s management considers the meaning of internal control to be the processes established by management to provide reasonable assurance about the achievement of the Company’s objectives regarding operations, reporting and compliance. Internal control is designed to address identified risks that threaten any of these objectives.

As of December 31, 2018, the Company carried out an evaluation, under the supervision and with the participation of the Company’s management, including the Company’s Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company’s disclosure controls and procedures. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that, as of December 31, 2018, the Company’s disclosure controls and procedures were effective.

Management's Report on Internal Control over Financial Reporting

Management of Pan American is responsible for establishing and maintaining an adequate system of internal control, including internal controls over financial reporting. Internal control over financial reporting is a process designed by, or under the supervision of, the President and Chief Executive Officer and the Chief Financial Officer and effected by the Board, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS as issued by the IASB. It includes those policies and procedures that:

a) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of Pan American,

b) are designed to provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS, and that receipts and expenditures of Pan American are being made only in accordance with authorizations of management and Pan American's directors, and

c) are designed to provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of Pan American's assets that could have a material effect on the annual financial statements or interim financial reports.

The Company's management, including its President and Chief Executive Officer and Chief Financial Officer, believe that due to its inherent limitations, internal control over financial reporting may not prevent or detect misstatements on a timely basis. Also, projections of any evaluation of the effectiveness of internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of Pan American's internal control over financial reporting as of December 31, 2018, based on the criteria set forth in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this assessment, management concluded that, as of December 31, 2018, Pan American's internal control over financial reporting was effective.

Management reviewed the results of management's assessment with the Audit Committee of the Board. Deloitte LLP, an independent registered public accounting firm, was engaged, as approved by a vote of the Company's shareholders, to audit and provide independent opinions on the Company's consolidated financial statements and the effectiveness of the Company's internal control over financial reporting as of December 31, 2018. Deloitte LLP has provided such opinions.

Changes in Internal Controls over Financial Reporting

There has been no change in the Company's internal control over financial reporting during the period ended December 31, 2018 that has materially affected or is reasonably likely to materially affect, its internal control over financial reporting.

MINERAL RESERVES AND RESOURCES

Pan American Silver Corporation Mineral Reserves as of December 31, 2018[1,2]

Property	Location	Classification	Tonnes (Mt)	Ag (g/t)	Contained Ag (Moz)	Au (g/t)	Contained Au (koz)	Cu (%)	Pb (%)	Zn (%)
Huaron	Peru	Proven	6.3	156	31.4	N/A	N/A	0.55	1.36	2.84
		Probable	4.1	163	21.7	N/A	N/A	0.42	1.49	2.84
Morococha(92.3%) [3]	Peru	Proven	3.7	160	19.0	N/A	N/A	0.44	1.36	4.17
		Probable	3.1	150	15.1	N/A	N/A	0.32	1.26	3.32
La Colorada	Mexico	Proven	4.3	387	53.5	0.31	42.9	N/A	1.66	2.92
		Probable	4.3	346	47.5	0.27	36.6	N/A	1.21	2.13
Dolores	Mexico	Proven	35.8	27	31.3	0.86	990.8	N/A	N/A	N/A
		Probable	8.7	27	7.7	0.79	220.4	N/A	N/A	N/A
La Bolsa	Mexico	Proven	9.5	10	3.1	0.67	202.9	N/A	N/A	N/A
		Probable	6.2	7	1.4	0.57	113.1	N/A	N/A	N/A
Manantial Espejo	Argentina	Proven	1.2	156	5.9	1.26	47.3	N/A	N/A	N/A
		Probable	0.1	204	0.9	3.64	16.0	N/A	N/A	N/A
San Vicente (95%) [3]	Bolivia	Proven	1.5	396	19.3	N/A	N/A	0.43	0.34	3.00
		Probable	0.7	383	8.9	N/A	N/A	0.40	0.37	2.90
Joaquin	Argentina	Probable	0.5	721	11.0	0.41	6.2	N/A	N/A	N/A
COSE	Argentina	Probable	0.1	918	2.2	17.7	43.3	N/A	N/A	N/A
Totals [4]		**Proven + Probable**	**90.0**	**97**	**279.8**	**0.76**	**1,719.5**	**0.45**	**1.31**	**2.98**

(1) Prices used to estimate mineral reserves for 2018 were $18.50 per ounce of silver, $1,300 per ounce of gold, $2,400 per tonne of zinc, $2,100 per tonne of lead, and $6,000 per tonne of copper, except at Manantial Espejo where $16.50 per ounce of silver and $1,250 per ounce of gold were used. Metal prices used for La Bolsa were $14.00 per ounce of silver and $825 per ounce of gold.

(2) Mineral reserve estimates were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, Vice President Business Development and Geology and Martin G. Wafforn, P.Eng., Senior Vice President Technical Services and Process Optimization, each of whom are Qualified Persons as that term is defined in National Instrument 43-101 (“NI 43-101”).

(3) This information represents the portion of mineral reserves attributable to Pan American based on its ownership interest in the operating entity as indicated.

(4) Totals may not add up due to rounding.

Pan American Silver Corporation Measured and Indicated Mineral Resources as of December 31, 2018[1,2]										
Property	**Location**	**Classification**	**Tonnes (Mt)**	**Ag (g/t)**	**Contained Ag (Moz)**	**Au (g/t)**	**Contained Au (koz)**	**Cu (%)**	**Pb (%)**	**Zn (%)**
Huaron	Peru	Measured	2.1	155	10.4	N/A	N/A	0.19	1.56	2.91
		Indicated	1.7	151	8.3	N/A	N/A	0.30	1.47	2.76
Morococha (92.3%) [3]	Peru	Measured	0.3	145	1.4	N/A	N/A	0.21	0.87	2.15
		Indicated	0.5	151	2.4	N/A	N/A	0.26	0.98	2.93
La Colorada	Mexico	Measured	0.6	193	3.7	0.22	4.2	N/A	0.60	1.00
		Indicated	2.0	156	9.9	0.15	9.4	N/A	0.54	1.11
Dolores	Mexico	Measured	4.5	20	2.8	0.25	36.4	N/A	N/A	N/A
		Indicated	1.6	27	1.4	0.53	27.4	N/A	N/A	N/A
La Bolsa	Mexico	Measured	1.4	11	0.5	0.90	39.9	N/A	N/A	N/A
		Indicated	4.5	9	1.3	0.50	71.2	N/A	N/A	N/A
Manantial Espejo	Argentina	Measured	0.1	169	0.8	1.66	7.8	N/A	N/A	N/A
		Indicated	0.2	241	1.4	2.86	16.5	N/A	N/A	N/A
San Vicente (95%) [3]	Bolivia	Measured	0.8	154	4.0	N/A	N/A	0.21	0.17	2.23
		Indicated	0.2	148	0.9	N/A	N/A	0.22	0.22	1.73
Navidad	Argentina	Measured	15.4	137	67.8	N/A	N/A	0.10	1.44	N/A
		Indicated	139.8	126	564.5	N/A	N/A	0.04	0.79	N/A
Pico Machay	Peru	Measured	4.7	N/A	N/A	0.91	137.5	N/A	N/A	N/A
		Indicated	5.9	N/A	N/A	0.67	127.1	N/A	N/A	N/A
Joaquin	Argentina	Indicated	0.1	385	0.7	0.58	1.1	N/A	N/A	N/A
Totals [4]		**Measured+Indicated**	**186.3**	**121**	**682.1**	**0.58**	**478.5**	**0.05**	**0.86**	**2.18**

(1) Prices used to estimate mineral resources for 2018 were $18.50 per ounce of silver, $1,300 per ounce of gold, $2,400 per tonne of zinc, $2,100 per tonne of lead, and $6,000 per tonne of copper, except at Dolores and Manantial Espejo, where $24.00 per ounce of silver and $1,400 per ounce of gold were used. Metal prices for Joaquin were $25.00 per ounce of silver and $1,400 per ounce of gold. Metal prices used for La Bolsa were $14.00 per ounce of silver and $825 per ounce of gold. Metal prices for Navidad were $12.52 per ounce of silver and $1,100 per tonne of lead.

(2) Mineral resource estimates were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, Vice President Business Development and Geology and Martin G. Wafforn, P.Eng., Senior Vice President Technical Services and Process Optimization, each of whom are Qualified Persons as that term is defined in NI 43-101 - *Standards of Disclosure for Mineral Projects*.

(3) This information represents the portion of mineral resources attributable to Pan American based on its ownership interest in the operating entity as indicated.

(4) Totals may not add up due to rounding.

Pan American Silver Corporation Inferred Mineral Resources as of December 31, 2018[1,2]										
Property	**Location**	**Classification**	**Tonnes (Mt)**	**Ag (g/t)**	**Contained Ag (Moz)**	**Au (g/t)**	**Contained Au (koz)**	**Cu (%)**	**Pb (%)**	**Zn (%)**
Huaron	Peru	Inferred	6.2	157	31.0	N/A	N/A	0.37	1.50	2.75
Morococha (92.3%) [3]	Peru	Inferred	4.7	140	21.4	N/A	N/A	0.38	1.08	4.30
La Colorada	Mexico	Inferred	6.2	185	37.1	0.20	40.8	N/A	2.08	4.09
Dolores	Mexico	Inferred	4.3	45	6.2	1.15	158.5	N/A	N/A	N/A
La Bolsa	Mexico	Inferred	13.7	8	3.3	0.51	224.6	N/A	N/A	N/A
Manantial Espejo	Argentina	Inferred	0.5	194	3.0	2.71	41.4	N/A	N/A	N/A
San Vicente (95%) [3]	Bolivia	Inferred	2.5	322	26.3	N/A	N/A	0.27	0.33	3.44
Navidad	Argentina	Inferred	45.9	81	119.4	N/A	N/A	0.02	0.57	N/A
Pico Machay	Peru	Inferred	23.9	N/A	N/A	0.58	445.7	N/A	N/A	N/A
Joaquin	Argentina	Inferred	0.01	389	0.1	1.29	0.2	N/A	N/A	N/A
COSE	Argentina	Inferred	0.03	382	0.3	7.10	6.3	N/A	N/A	N/A
Totals [4]		**Inferred**	**108.0**	**92**	**248.0**	**0.59**	**917.5**	**0.10**	**0.83**	**3.64**

(1) Prices used to estimate mineral resources for 2018 were $18.50 per ounce of silver, $1,300 per ounce of gold, $2,400 per tonne of zinc, $2,100 per tonne of lead, and $6,000 per tonne of copper, except at Dolores and Manantial Espejo, where $24.00 per ounce of silver and $1,400 per ounce of gold were used. Metal prices used for Joaquin were $25.00 per ounce of silver and $1,400 per ounce of gold. Metal prices used for La Bolsa were $14.00 per ounce of silver and $825 per ounce of gold. Metal prices for Navidad were $12.52 per ounce of silver and $1,100 per tonne of lead.

(2) Mineral resource estimates were prepared under the supervision of, or were reviewed by, Christopher Emerson, FAusIMM, Vice President Business Development and Geology and Martin G. Wafforn, P.Eng., Senior Vice President Technical Services and Process Optimization, each of whom are Qualified Persons as that term is defined in NI 43-101 - *Standards of Disclosure for Mineral Projects*.

(3) This information represents the portion of mineral resources attributable to Pan American based on its ownership interest in the operating entity as indicated.

(4) Totals may not add up due to rounding.

Dolores, Mexico, as of December 31, 2018:

Location	Classification	Tonnes (Mt)	Ag ppm	Ag contained metal (Moz)	Au ppm	Au contained metal (koz)
	Proven	30.16	26.0	24.7	0.90	868.0
	Probable	7.42	20.0	4.7	0.51	122.0
Open pit	Proven + Probable	37.58	24.0	29.4	0.82	990.0
	Proven	1.71	81.0	4.4	1.62	89.0
	Probable	1.29	72.0	3.0	2.38	99.0
Underground	Proven + Probable	3.00	77.0	7.4	1.95	188.0
	Proven	3.90	17.0	2.2	0.27	34.0
	Probable	—	—	—	—	—
Stockpiles	Proven + Probable	3.90	17.0	2.2	0.27	34.0
	Proven	35.76	27.0	31.3	0.86	991.0
	Probable	8.71	27.0	7.7	0.79	220.0
All	Proven + Probable	44.47	27.0	39.0	0.85	1,211.0

Notes: Totals may not add up due to rounding. Mineral reserve estimates were prepared under the supervision of or were reviewed by Martin Wafforn, P. Eng., Senior Vice President, Technical Services and Process Optimization of Pan American. Mineral reserves have been estimated using metal prices of $18.50 per ounce of silver and $1,300 per ounce of gold.

General Notes Applicable to the Foregoing Tables:

Mineral reserves and resources are as defined by the Canadian Institute of Mining, Metallurgy and Petroleum.

Pan American reports mineral resources and mineral reserves separately. Reported mineral resources do not include amounts identified as mineral reserves. Mineral resources that are not mineral reserves have no demonstrated economic viability.

Pan American does not expect these mineral reserve and resource estimates to be materially affected by metallurgical, environmental, permitting, legal, taxation, socio-economic, political, and marketing or other relevant issues.

See the Company's Annual Information Form dated March 12, 2019, available at www.sedar.com for further information on the Company's material mineral properties, including information concerning associated QA/QC and data verification matters, the key assumptions, parameters and methods used by the Company to estimate mineral reserves and mineral resources, and for a detailed description of known legal, political, environmental, and other risks that could materially affect the Company's business and the potential development of the Company's mineral reserves and resources.

Grades are shown as contained metal before mill recoveries are applied.

TECHNICAL INFORMATION

Scientific and technical information contained in this MD&A has been reviewed and approved by Martin Wafforn, P.Eng., Senior Vice President Technical Services and Processing Optimization, and Christopher Emerson, FAusIMM, Vice President Business Development and Geology, each of whom are Qualified Persons, as the term is defined in Canadian National Instrument 43-101 - *Standards of Disclosure of Mineral Projects*.

For more detailed information regarding the Company's material mineral properties and technical information related thereto, including a complete list of current technical reports applicable to such properties, please refer to the Company's Annual Information Form dated March 12, 2019, filed at www.sedar.com or the Company's most recent Form 40-F filed with the SEC.

Cautionary Note Regarding Forward-Looking Statements and Information

Certain of the statements and information in this MD&A constitute “forward-looking statements” within the meaning of the United States Private Securities Litigation Reform Act of 1995 and “forward-looking information” within the meaning of applicable Canadian provincial securities laws relating to the Company and its operations. All statements, other than statements of historical fact, are forward-looking statements. When used in this MD&A, the words, “will”, “believes”, “expects”, “intents”, “plans”, “forecast”, “objective”, “guidance”, “outlook”, “potential”, “anticipated”, “budget”, and other similar words and expressions, identify forward-looking statements or information. These forward-looking statements or information relate to, among other things: future financial and operational performance; future production of silver, gold and other metals produced by the Company; future cash costs per ounce of silver and all-in sustaining costs per silver ounce sold; the sufficiency of the Company’s current working capital, anticipated operating cash flow or its ability to raise necessary funds; timing of production and the cash costs of production at each of the Company’s properties; the estimated cost of and availability of funding necessary for sustaining capital; the successful implementation and effects of ongoing or future development and expansion plans, including the development of the Joaquin and COSE projects, and exploration of the newly discovered skarn deposit at La Colorada, and the anticipated financial and operational results of such projects; the intention to provide updated guidance related to the Tahoe Acquisition in the second quarter of 2019; forecast capital and non-operating spending; the timing and method of payment of compensation; anticipated volatility in effective tax rates and contributing factors; the implementation of new accounting standards, and the anticipated effect of such accounting standards on the Company’s financial statements; and the Company’s plans and expectations for its properties and operations.

These forward-looking statements and information reflect the Company’s current views with respect to future events and are necessarily based upon a number of assumptions and estimates that, while considered reasonable by the Company, are inherently subject to significant operational, business, economic, competitive, political, regulatory, and social uncertainties and contingencies. These assumptions include: tonnage of ore to be mined and processed; ore grades and recoveries; prices for silver, gold and base metals remaining as estimated; the ability of the Company to successfully integrate Tahoe's operations and employees and realize synergies and cost savings at the times, and to the extent, anticipated; the potential impact of the Arrangement on relationships, including with regulatory bodies, employees, suppliers, customers and competitors; currency exchange rates remaining as estimated; capital, decommissioning and reclamation estimates; our mineral reserve and resource estimates and the assumptions upon which they are based; prices for energy inputs, labour, materials, supplies and services (including transportation); no labour-related disruptions at any of our operations; no unplanned delays or interruptions in scheduled production; all necessary permits, licenses and regulatory approvals for our operations are received in a timely manner; and our ability to comply with environmental, health and safety laws. The foregoing list of assumptions is not exhaustive.

The Company cautions the reader that forward-looking statements and information involve known and unknown risks, uncertainties and other factors that may cause actual results and developments to differ materially from those expressed or implied by such forward-looking statements or information contained in this MD&A and the Company has made assumptions and estimates based on or related to many of these factors. Such factors include, without limitation: fluctuations in silver, gold, and base metal prices; fluctuations in prices for energy inputs; fluctuations in currency markets (such as the PEN, MXN, ARS, BOL and CAD versus the USD); risks related to the technological and operational nature of the Company’s business; changes in national and local government, legislation, taxation, controls or regulations and political, legal or economic developments in Canada, the United States, Mexico, Peru, Argentina, Bolivia or other countries where the Company may carry on business, including the risk of expropriation relative to certain of our operations, particularly in Argentina and Bolivia; risks and hazards associated with the business of mineral exploration, development and mining (including environmental hazards, industrial accidents, unusual or unexpected geological or structural formations, pressures, cave-ins and flooding); risks relating to the credit worthiness or financial condition of suppliers, refiners and other parties with whom the Company does business; inadequate insurance, or inability to obtain insurance, to cover these risks and hazards; employee relations; relationships with and claims by the local communities and indigenous populations; availability and increasing costs associated with mining inputs and labour; the speculative nature of mineral exploration and development, including the risk of obtaining necessary licenses and permits and the presence of laws and regulations that may impose restrictions on mining, including those currently in the province of Chubut, Argentina; diminishing quantities or grades of mineral reserves as properties are mined; global financial conditions; the Company’s ability to complete and successfully integrate acquisitions and to mitigate other business combination risks; challenges to, or difficulty in

maintaining, the Company's title to properties and continued ownership thereof; the actual results of current exploration activities, conclusions of economic evaluations, and changes in project parameters to deal with unanticipated economic or other factors; increased competition in the mining industry for properties, equipment, qualified personnel, and their costs; having sufficient cash to pay obligations as they come due; and those factors identified under the caption "Risks Related to Pan American's Business" in the Company's most recent Form 40-F and Annual Information Form as well as those factors identified in the section entitled "Risk Factors" in the Company's management information circular dated December 4, 2018with respect to the Arrangement, each filed with the United States Securities and Exchange Commission and Canadian provincial securities regulatory authorities, respectively. Although the Company has attempted to identify important factors that could cause actual results to differ materially, there may be other factors that cause results not to be as anticipated, estimated, described, or intended. Investors are cautioned against attributing undue certainty or reliance on forward-looking statements or information. Forward-looking statements and information are designed to help readers understand management's current views of our near and longer term prospects and may not be appropriate for other purposes. The Company does not intend, and does not assume any obligation, to update these forward-looking statements or information to reflect changes in assumptions or in circumstances or any other events affecting such statements or information, other than as required by applicable law.

Cautionary Note to U.S. Investors Concerning Estimates of Mineral Reserves and Resources

This MD&A has been prepared in accordance with the requirements of Canadian securities laws, which differ from the requirements of U.S. securities laws. Unless otherwise indicated, all mineral reserve and resource estimates included in the MD&A have been disclosed in accordance with NI 43-101 and the Canadian Institute of Mining, Metallurgy, and Petroleum Definition Standards. NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects. Canadian standards, including NI 43-101, differ significantly from the requirements of the SEC, and information concerning mineralization, deposits, mineral reserve and resource information contained or referred to herein may not be comparable to similar information disclosed by U.S. companies. In particular, and without limiting the generality of the foregoing, this MD&A uses the terms "measured resource", "indicated resources" and "inferred resources". U.S. investors are advised that, while such terms are recognized and required by Canadian Securities laws, the SEC does not recognize them. The requirements of NI 43-101 for identification of "reserves" are not the same as those of the SEC, and reserves reported by Pan American, in compliance with NI 43-101, may not qualify as "reserves" under SEC standards. Under U.S. standards, mineralization may not be classified as a "reserve" unless the determination has been made that the mineralization could be economically and legally produced for extracted at the time the reserve determination is made. **U.S. investors are cautioned not to assume that any part of a "measured resource" or "indicated resource" will ever be converted in to a "reserve". U.S. investors should also understand that "inferred resources" have a great amount of uncertainty as to their existence and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of the "inferred resources" exist, are economically or legally mineable or will ever be upgraded to a higher category.** Under Canadian Securities laws, estimated "inferred resources" may not form the basis of feasibility or pre-feasibility studies, except in rare cases. Disclosure of "contained ounces" in a mineral resource is permitted disclosure under Canadian Securities laws. However, the SEC normally only permits issuers to report mineralization that does not constitute "reserves" by SEC standards as in place tonnage and grade, without reference to unit measures. Accordingly, information concerning mineral deposits set forth may not be comparable with information made public companies that report in accordance with U.S. standards.

Exhibit 1.3



Consolidated Financial Statements and Notes

FOR THE YEARS ENDED DECEMBER 31, 2018 AND DECEMBER 31, 2017

Management's Responsibility For Financial Reporting

The accompanying Consolidated Financial Statements of Pan American Silver Corp. were prepared by management, which is responsible for the integrity and fairness of the information presented, including the many amounts that must of necessity be based on estimates and judgments. These Consolidated Financial Statements were prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB"). Financial information appearing throughout our management's discussion and analysis is consistent with these Consolidated Financial Statements.

In discharging our responsibility for the integrity and fairness of the consolidated financial statements and for the accounting systems from which they are derived, we maintain the necessary system of internal controls designed to ensure that transactions are authorized, assets are safeguarded and proper records are maintained. These controls include quality standards in hiring employees, policies and procedure manuals, a corporate code of conduct and accountability for performance within appropriate and well-defined areas of responsibility.

The Board of Directors of Pan American Silver Corp. (the "Board") oversees management's responsibilities for financial reporting through an Audit Committee, which is composed entirely of directors who are neither officers nor employees of Pan American Silver Corp. The Audit Committee reviews our consolidated financial statements and recommends them to the Board for approval. Other key responsibilities of the Audit Committee include reviewing our existing internal control procedures and planned revisions to those procedures, and advising the directors on auditing matters and financial reporting issues.

Deloitte LLP, Independent Registered Public Accounting Firm appointed by the shareholders of Pan American Silver Corp. upon the recommendation of the Audit Committee and the Board, have performed an independent audit of the Consolidated Financial Statements and their report follows. The auditors have full and unrestricted access to the Audit Committee to discuss their audit and related findings.

"signed"	*"signed"*
Michael Steinmann	A. Robert Doyle
Chief Executive Officer	Chief Financial Officer

March 12, 2019

Deloitte.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of Pan American Silver Corp.

Opinion on the Financial Statements
We have audited the accompanying consolidated statements of financial position of Pan American Silver Corp. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated income statements, consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows, for each of the two years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and its financial performance and its cash flows for each of the two years in the period ended December 31, 2018, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 12, 2019, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion
These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte LLP

Chartered Professional Accountants
Vancouver, Canada

March 12, 2019

We have served as the Company's auditor since 1993.

Deloitte.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of Pan American Silver Corp.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Pan American Silver Corp. and subsidiaries (the "Company") as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2018, of the Company and our report dated March 12, 2019, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable

assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte LLP

Chartered Professional Accountants
Vancouver, Canada

March 12, 2019

	December 31, 2018	December 31, 2017
Assets		
Current assets		
Cash and cash equivalents (Note 25)	**$ 138,510**	$ 175,953
Short-term investments (Note 9)	**74,004**	51,590
Trade and other receivables	**96,091**	109,746
Income taxes receivable	**13,108**	16,991
Inventories (Note 10)	**214,465**	218,715
Derivative financial instruments (Note 8)	**640**	1,092
Assets held for sale (Note 11)	**—**	7,949
Prepaid expenses and other current assets	**11,556**	13,434
	548,374	595,470
Non-current assets		
Mineral properties, plant and equipment (Note 11)	**1,301,002**	1,336,683
Long-term refundable tax	**70**	80
Deferred tax assets (Note 28)	**12,244**	2,679
Investment in associates (Note 13)	**70,566**	55,017
Other assets (Note 14)	**2,163**	346
Goodwill (Note 12)	**3,057**	3,057
Total Assets	**$ 1,937,476**	$ 1,993,332
Liabilities		
Current liabilities		
Accounts payable and accrued liabilities (Note 15)	**$ 131,743**	$ 139,698
Loans payable (Note 16)	**—**	3,000
Derivative financial instruments (Note 8)	**51**	1,906
Current portion of provisions (Note 17)	**5,072**	8,245
Current portion of finance lease (Note 18)	**5,356**	5,734
Income tax payable	**8,306**	26,131
	150,528	184,714
Non-current liabilities		
Long-term portion of provisions (Note 17)	**70,083**	61,248
Deferred tax liabilities (Note 28)	**148,819**	171,228
Long-term portion of finance lease (Note 18)	**1,320**	1,825
Deferred revenue (Note 13)	**13,288**	12,017
Other long-term liabilities (Note 19)	**25,425**	26,954
Share purchase warrants (Note 13)	**14,664**	14,295
Total Liabilities	**424,127**	472,281
Equity		
Capital and reserves (Note 20)		
Issued capital	**2,321,498**	2,318,252
Share option reserve	**22,573**	22,463
Investment revaluation reserve	**208**	1,605
Deficit	**(836,067)**	(825,470)
Total Equity attributable to equity holders of the Company	**1,508,212**	1,516,850
Non-controlling interests	**5,137**	4,201
Total Equity	**1,513,349**	1,521,051
Total Liabilities and Equity	**$ 1,937,476**	$ 1,993,332

Commitments and contingencies (Notes 8, 29); subsequent events (Note 31)
See accompanying notes to the consolidated financial statements
APPROVED BY THE BOARD ON MARCH 12, 2019

"signed" Ross Beaty, Director *"signed" Michael Steinmann, Director*

		2018		2017
Revenue (Note 26)	$	**784,495**	$	816,828
Cost of sales				
Production costs (Note 21)		**(515,636)**		(500,670)
Depreciation and amortization (Note 11)		**(147,289)**		(122,888)
Royalties		**(20,673)**		(24,510)
		(683,598)		(648,068)
Mine operating earnings		**100,897**		168,760
General and administrative		**(22,649)**		(21,397)
Exploration and project development		**(11,138)**		(19,755)
Foreign exchange (losses) gains		**(9,326)**		1,823
Impairment (charges) reversals (Note 12)		**(27,789)**		61,554
Gains on commodity and foreign currency contracts (Note 8)		**4,930**		606
Gains on sale of mineral properties, plant and equipment (Note 11)		**7,973**		191
Share of income from associate and dilution gain (Note 13)		**13,679**		2,052
Transaction costs(1)		**(10,229)**		—
Other expense		**(3,659)**		(5,505)
Earnings from operations		**42,689**		188,329
(Loss) gain on derivatives (Note 8)		**(1,078)**		64
investment (loss) income		**(284)**		1,277
Interest and finance expense (Note 23)		**(8,139)**		(7,185)
Earnings before income taxes		**33,188**		182,485
Income tax expense (Note 28)		**(21,147)**		(59,034)
Net earnings for the year	$	**12,041**	$	123,451
Attributable to:				
Equity holders of the Company		**10,294**		120,991
Non-controlling interests		**1,747**		2,460
	$	**12,041**	$	123,451
Earnings per share attributable to common shareholders (Note 24)				
Basic earnings per share	$	**0.07**	$	0.79
Diluted earnings per share	$	**0.07**	$	0.79
Weighted average shares outstanding (in 000's) Basic		**153,315**		153,070
Weighted average shares outstanding (in 000's) Diluted		**153,522**		153,353

See accompanying notes to the consolidated financial statements.
(1) Transaction costs incurred as part of the acquisition of Tahoe Resources Inc. described in Note 31.

	2018	2017
Net earnings for the year	**$ 12,041**	$ 123,451
Items that may be reclassified subsequently to net earnings:		
Unrealized net gains on short-term investments (net of $nil tax in 2018 and 2017)	**993**	810
Reclassification adjustment for realized (gains) losses on short-term investments to earnings	**(788)**	361
Total comprehensive earnings for the year	**$ 12,246**	$ 124,622
Total comprehensive earnings attributable to:		
Equity holders of the Company	**$ 10,499**	$ 122,162
Non-controlling interests	**1,747**	2,460
	$ 12,246	$ 124,622

See accompanying notes to the consolidated financial statements.

	2018	2017
Cash flow from operating activities		
Net earnings for the period	**$ 12,041**	$ 123,451
Current income tax expense (Note 28)	**53,901**	62,877
Deferred income tax recovery (Note 28)	**(32,754)**	(3,843)
Interest recovery (Note 23)	**(678)**	(1,179)
Depreciation and amortization (Note 11)	**147,289**	122,888
Impairment charges (reversals) (Note 12)	**27,789**	(61,554)
Accretion on closure and decommissioning provision (Note 17)	**6,524**	5,973
Unrealized foreign exchange losses (gains)	**10,337**	(383)
Gain on sale of mineral properties, plant and equipment	**(7,973)**	(191)
Project development write-down	**—**	1,898
Other operating activities (Note 25)	**17,724**	12,663
Changes in non-cash operating working capital (Note 25)	**(4,261)**	11,709
Operating cash flows before interest and income taxes	**$ 229,939**	$ 274,309
Interest paid	**(1,684)**	(2,367)
Interest received	**1,944**	1,462
Income taxes paid	**(75,221)**	(48,845)
Net cash generated from operating activities	**$ 154,978**	$ 224,559
Cash flow from investing activities		
Payments for mineral properties, plant and equipment	**$ (144,348)**	$ (142,232)
Acquisition of mineral interests	**(7,500)**	(20,219)
Net purchase of short-term investments	**(25,554)**	(14,267)
Proceeds from sale of mineral properties, plant and equipment	**15,781**	1,674
Purchase of shares in associate (Note 13)	**—**	(2,473)
Net proceeds (payments) from commodity, diesel fuel swaps, and foreign currency contracts	**2,449**	(304)
Net cash used in investing activities	**$ (159,172)**	$ (177,821)
Cash flow from financing activities		
Proceeds from issue of equity shares	**$ 1,081**	$ 2,606
Distributions to non-controlling interests	**(2,020)**	(1,052)
Dividends paid	**(21,284)**	(15,314)
Repayment of credit facility	**—**	(36,200)
(Repayment of) proceeds from short-term loans (Note 16)	**(3,000)**	3,000
Payment of equipment leases	**(7,911)**	(4,542)
Net cash used in financing activities	**$ (33,134)**	$ (51,502)
Effects of exchange rate changes on cash and cash equivalents	**(115)**	(164)
Net decrease in cash and cash equivalents	**(37,443)**	(4,928)
Cash and cash equivalents at the beginning of the year	**175,953**	180,881
Cash and cash equivalents at the end of the year	**$ 138,510**	$ 175,953

Supplemental cash flow information (Note 25).
See accompanying notes to the consolidated financial statements.

	Attributable to equity holders of the Company							
	Issued shares	Issued capital	Share option reserve	Investment revaluation reserve	Deficit	Total	Non-controlling interests	Total equity
Balance, December 31, 2016	**152,334,652**	**$ 2,303,978**	**$ 22,946**	**$ 434**	**$ (931,060)**	**$ 1,396,298**	**$ 2,706**	**$ 1,399,004**
Total comprehensive earnings								
Net earnings for the year	—	—	—	—	120,991	120,991	2,460	123,451
Other comprehensive income	—	—	—	1,171	—	1,171	—	1,171
	—	—	—	1,171	120,991	122,162	2,460	124,622
Shares issued on the exercise of stock options	307,266	3,604	(998)	—	—	2,606	—	2,606
Shares issued as compensation (Note 25)	135,404	2,020	—	—	—	2,020	—	2,020
Share-based compensation on option grants	—	—	515	—	—	515	—	515
Acquisition of mineral interests	525,654	8,650	—	—	—	8,650	—	8,650
Distributions by subsidiaries to non-controlling interests	—	—	—	—	(87)	(87)	(965)	(1,052)
Dividends paid	—	—	—	—	(15,314)	(15,314)	—	(15,314)
Balance, December 31, 2017	**153,302,976**	**$ 2,318,252**	**$ 22,463**	**$ 1,605**	**$ (825,470)**	**$ 1,516,850**	**$ 4,201**	**$ 1,521,051**
Impact of adopting IFRS 9(1)	—	—	—	(1,602)	1,602	—	$ —	—
Balance, January 1, 2018 (restated)	**153,302,976**	**$ 2,318,252**	**$ 22,463**	**$ 3**	**$ (823,868)**	**$ 1,516,850**	**$ 4,201**	**$ 1,521,051**
Total comprehensive earnings								
Net earnings for the year	—	—	—	—	10,294	10,294	1,747	12,041
Other comprehensive income	—	—	—	205	—	205	—	205
	—	—	—	205	10,294	10,499	1,747	12,246
Cancellation of expired shares	(120,339)	—	—	—	178	178	—	178
Shares issued on the exercise of stock options	125,762	1,367	(286)	—	—	1,081	—	1,081
Shares issued as compensation (Note 25)	139,957	1,879	—	—	—	1,879	—	1,879
Share-based compensation on option grants	—	—	396	—	—	396	—	396
Distributions by subsidiaries to non-controlling interests	—	—	—	—	(1,209)	(1,209)	(811)	(2,020)
Dividends paid	—	—	—	—	(21,462)	(21,462)	—	(21,462)
Balance, December 31, 2018	**153,448,356**	**$ 2,321,498**	**$ 22,573**	**$ 208**	**$ (836,067)**	**$ 1,508,212**	**$ 5,137**	**$ 1,513,349**

See accompanying notes to the consolidated financial statements.
(1) Adjustment upon the adoption of IFRS 16 for investments in equity securities described in Note 4.

1. NATURE OF OPERATIONS

Pan American Silver Corp. is the ultimate parent company of its subsidiary group (collectively, the "Company", or "Pan American"). Pan American is incorporated and domiciled in Canada, and its office is at Suite 1500 – 625 Howe Street, Vancouver, British Columbia, V6C 2T6.

The Company is engaged in the production and sale of silver, gold, zinc, lead and copper as well as other related activities, including exploration, extraction, processing, refining and reclamation. The Company's major products produced from mines in Peru, Mexico, Argentina and Bolivia. Additionally, the Company has project development activities in Peru, Mexico and Argentina, and exploration activities throughout South America and Mexico.

2. BASIS OF PREPARATION

These consolidated financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB"). IFRS comprises IFRSs, International Accounting Standards ("IAS"), and interpretations issued by the IFRS Interpretations Committee ("IFRICs") and the former Standing Interpretations Committee ("SIC").

These consolidated financial statements were approved for issuance by the Board of Directors onMarch 12, 2019.

3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The significant accounting policies used in the preparation of these consolidated financial statements are as follows:

a) Presentation currency

The consolidated financial statements are presented in United States dollars ("USD"), which is the Company's and each of the subsidiaries' functional and presentation currency, and all values are rounded to the nearest thousand except where otherwise indicated.

b) Basis of measurement

These consolidated financial statements have been prepared on an historical cost basis, except for those assets and liabilities that are measured at revalued amounts or fair values at the end of each reporting period.

c) Basis of consolidation

The accounts of the Company and its subsidiaries, which are controlled by the Company, have been included in these consolidated financial statements. Control is achieved when the Company is exposed, or has rights, to variable returns from the investee and when the Company has the ability to affect those returns through its power over the investee. Subsidiaries are included in the consolidated financial results of the Company from the effective date of acquisition up to the effective date of disposition or loss of control. The principal subsidiaries of the Company and their geographic locations at December 31, 2018 were as follows:

Subsidiary	Location	Ownership Interest	Accounting	Operations and Development Projects Owned
Pan American Silver Huaron S.A.	Peru	100%	Consolidated	Huaron mine
Compañía Minera Argentum S.A.	Peru	92%	Consolidated	Morococha mine
Minera Corner Bay S.A. de C.V.	Mexico	100%	Consolidated	Alamo Dorado mine
Plata Panamericana S.A. de C.V.	Mexico	100%	Consolidated	La Colorada mine
Compañía Minera Dolores S.A. de C.V.	Mexico	100%	Consolidated	Dolores mine
Minera Tritón Argentina S.A.	Argentina	100%	Consolidated	Manantial Espejo mine & Cap-Oeste Sur Este ("COSE") project
Minera Joaquin S.R.L.	Argentina	100%	Consolidated	Joaquin project
Pan American Silver (Bolivia) S.A.	Bolivia	95%	Consolidated	San Vicente mine
Minera Argenta S.A.	Argentina	100%	Consolidated	Navidad Project

d) Investments in associates

An associate is an entity over which the investor has significant influence but not control and that is neither a subsidiary nor an interest in a joint venture. Significant influence is presumed to exist where the Company has between 20% and 50% of the voting rights, but can also arise where the Company has less than 20%, if the Company has the power to participate in the financial and operating policy decisions affecting the entity. The Company's share of the net assets and net earnings or loss is accounted for in the consolidated financial statements using the equity method of accounting.

e) Business combinations

Upon the acquisition of a business, the acquisition method of accounting is used, whereby the purchase consideration is allocated to the identifiable assets, liabilities and contingent liabilities (identifiable net assets) acquired on the basis of fair value at the date of acquisition. When the cost of the acquisition exceeds the fair value attributable to the Company's share of the identifiable net assets, the difference is treated as goodwill, which is not amortized and is reviewed for impairment annually or more frequently when there is an indication of impairment. If the fair value attributable to the Company's share of the identifiable net assets exceeds the cost of acquisition, the difference is immediately recognized in the consolidated income statement. Acquisition related costs, other than costs to issue debt or equity securities of the acquirer, including investment banking fees, legal fees, accounting fees, valuation fees, and other professional or consulting fees are expensed as incurred. The costs to issue equity securities of the Company as consideration for the acquisition are reduced from share capital as share issuance costs. The costs to issue debt securities are capitalized and amortized using the effective interest method.

Non-controlling interests are measured either at fair value or at the non-controlling interests' proportionate share of the recognized amounts of the acquirers' identifiable net assets as at the date of acquisition. The choice of measurement basis is made on a transaction by transaction basis.

Control of a business may be achieved in stages. Upon the acquisition of control, any previously held interest is re-measured to fair value at the date control is obtained resulting in a gain or loss upon the acquisition of control.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Company reports provisional amounts for the items for which the accounting is incomplete. These provisional amounts are adjusted during the measurement period, or additional assets or

liabilities are recognized, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

f) Revenue recognition

Policy applicable from January 1, 2018

Revenue associated with the sale of commodities is recognized when control of the asset sold is transferred to the customer. Indicators of control transferring include an unconditional obligation to pay, legal title, physical possession, transfer of risk and rewards and customer acceptance. This generally occurs when the goods are delivered to a loading port, warehouse, vessel or metal account as contractually agreed with the buyer; at which point the buyer controls the goods. In cases where the Company is responsible for the cost of shipping and certain other services after the date on which control of the goods transfers to the customer, these other services are considered separate performance obligations and thus a portion of revenue earned under the contract is allocated and recognized as these performance obligations are satisfied.

The Company's concentrate sales contracts with third-party buyers, in general, provide for a provisional payment based upon provisional assays and quoted metal prices. Final settlement is based on applicable commodity prices set on specified quotational periods, typically ranging from one month prior to shipment, and can extend to three months after the shipment arrives at the smelter and is based on average market metal prices. For this purpose, the transaction price can be measured reliably for those products, such as silver, gold, zinc, lead and copper, for which there exists an active and freely traded commodity market such as the London Metals Exchange and the value of product sold by the Company is directly linked to the form in which it is traded on that market.

Sales revenue is commonly subject to adjustments based on an inspection of the product by the customer. In such cases, sales revenue is initially recognized on a provisional basis using the Company's best estimate of contained metal, and adjusted subsequently. Revenues are recorded under these contracts at the time control passes to the buyer based on the expected settlement period. Revenue on provisionally priced sales is recognized based on estimates of the fair value of the consideration receivable based on forward market prices and estimated quantities. At each reporting date provisionally priced metal is marked to market based on the forward selling price for the quotational period stipulated in the contract. Variations between the price recorded at the date when control is transferred to the buyer and the actual final price set under the smelting contracts are caused by changes in metal prices resulting in the receivable being recorded at fair value through profit or loss ("FVTPL").

IFRS 15 - *Revenue from Contracts with Customers* ("IFRS 15") requires that variable consideration should only be recognized to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur. The Company concluded that the adjustments relating to the final assay results for the quantity and quality of concentrate sold are not significant and do not constrain the recognition of revenue.

Refining and treatment charges under the sales contracts are netted against revenue for sales of metal concentrate.

The Company recognizes deferred revenue in the event it receives payments from customers in consideration for future commitments to deliver metals and before such sale meets the criteria for revenue recognition. The Company recognizes amounts in revenue as the metals are delivered to the customer. Specifically, for the metal agreements entered into with Maverix Metals Inc. ("Maverix"), the Company determines the amortization of deferred revenue to the Consolidated Income Statement on a per unit basis using the estimated total quantity of metal expected to be delivered to Maverix over the terms of the contract. The Company estimates the current portion of deferred revenue based on quantities anticipated to be delivered over the next twelve months

Policy applicable before January 1, 2018

Revenue associated with the sale of commodities is recognized when all significant risks and rewards of ownership of the asset sold are transferred to the customer, usually when insurance risk and title has passed to the customer and the commodity has been delivered to the shipping agent. At this point the Company retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the commodities and the costs incurred, or to be incurred, in respect of the sale, can be reliably measured. Revenue is recognized at the fair value of the consideration receivable, to the extent that it is probable that economic benefits will flow to the Company and the revenue can be reliably measured. Sales revenue is recognized at the fair value of consideration received, which in most cases is based on invoiced amounts.

The Company's concentrate sales contracts with third-party smelters, in general, provide for a provisional payment based upon provisional assays and quoted metal prices. Final settlement is based on applicable commodity prices set on specified quotational periods, typically ranging from one month prior to shipment, and can extend to three months after the shipment arrives at the smelter and is based on average market metal prices. For this purpose, the selling price can be measured reliably for those products, such as silver, gold, zinc, lead and copper, for which there exists an active and freely traded commodity market such as the London Metals Exchange and the value of product sold by the Company is directly linked to the form in which it is traded on that market.

Sales revenue is commonly subject to adjustments based on an inspection of the product by the customer. In such cases, sales revenue is initially recognized on a provisional basis using the Company's best estimate of contained metal, and adjusted subsequently. Revenues are recorded under these contracts at the time title passes to the buyer based on the expected settlement period. Revenue on provisionally priced sales is recognized based on estimates of the fair value of the consideration receivable based on forward market prices. At each reporting date provisionally priced metal is marked to market based on the forward selling price for the quotational period stipulated in the contract. Variations between the price recorded at the shipment date and the actual final price set under the smelting contracts are caused by changes in metal prices and result in an embedded derivative in the accounts receivable. The embedded derivative is recorded at fair value each period until final settlement occurs, with the fair value adjustments recognized in revenue.

Refining and treatment charges under the sales contract with third-party smelters are netted against revenue for sales of metal concentrate.

The Company recognizes deferred revenue in the event it receives payments from customers in consideration for future commitments to deliver metals and before such sale meets the criteria for revenue recognition. The Company recognizes amounts in revenue as the metals are delivered to the customer. Specifically, for the metal agreements entered into with Maverix, the Company determines the amortization of deferred revenue to the Consolidated Income Statement on a per unit basis using the estimated total quantity of metal expected to be delivered to Maverix over the terms of the contract. The Company estimates the current portion of deferred revenue based on quantities anticipated to be delivered over the next twelve months

g) Financial instruments

Policy applicable from January 1, 2018

Measurement – initial recognition

Financial assets and financial liabilities are recognized in the Company's statement of financial position when the Company becomes a party to the contractual provisions of the instrument. On initial recognition, all financial assets and financial liabilities are recorded at fair value, net of attributable transaction costs, except for financial assets and liabilities classified as at FVTPL. Transaction costs of financial assets and liabilities classified as at FVTPL are expensed in the period in which they are incurred.

Subsequent measurement of financial assets and liabilities depends on the classifications of such assets and liabilities.

Classification of financial assets

Amortized cost:

Financial assets that meet the following conditions are measured subsequently at amortized cost:

(i) The financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows, and

(ii) The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

The amortized cost of a financial asset is the amount at which the financial asset is measured at initial recognition minus the principal repayments, plus the cumulative amortization using effective interest method of any difference between that initial amount and the maturity amount, adjusted for any loss allowance. Interest income is recognized using the effective interest method. Interest income is recognized in Investment (loss) income in the Consolidated Income Statements.

The Company's financial assets at amortized cost primarily include cash and cash equivalents, receivables not arising from sale of metal concentrates included in Trade and other receivables in the Consolidated Statement of Financial Position (Note 8(a)).

Fair value through other comprehensive income ("FVTOCI"):

Financial assets that meet the following conditions are measured at FVTOCI:

(i) The financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets, and

(ii) The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

The Company's short-term investments in other than equity securities are measured at FVTOCI (Note 8(c)).

FVTPL:

By default, all other financial assets are measured subsequently at FVTPL.

The Company, at initial recognition, may also irrevocably designate a financial asset as measured at FVTPL if doing so eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise from measuring assets or liabilities or recognizing the gains and losses on them on different bases.

Financial assets measured at FVTPL are measured at fair value at the end of each reporting period, with any fair value gains or losses recognized in profit or loss to the extent they are not part of a designated hedging relationship. Fair value is determined in the manner described in Note 8(e)(ii). The Company's financial assets at FVTPL include its trade receivables from provisional concentrate sales, short-term investments in equity securities, and derivative assets not designated as hedging instruments.

Financial liabilities and equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and an equity instrument.

An equity instrument is any contract that evidences a residual interest in the assets of the Company after deducting all its liabilities. Equity instruments issued by the Company are recognized at the proceeds received, net of direct issue costs. Repurchase of the Company's own equity instruments is recognized and deducted directly in equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Company's own equity instruments.

Classification of financial liabilities

Financial liabilities that are not contingent consideration of an acquirer in a business combination, held for trading or designated as at FVTPL, are measured at amortized cost using effective interest method.

Derivatives

When the Company enters into derivative contracts, these transactions are designed to reduce exposures related to assets and liabilities, firm commitments or anticipated transactions. The Company does not have derivative instruments that qualify as cash flow hedges and consequently all derivatives are recorded at fair value with changes in fair value recognized in net earnings.

The following table summarizes the classification and measurement of the Company's financial assets prior to January 1, 2018 in accordance with IAS 39, compared to the new classification as of January 1, 2018, in accordance with IFRS 9:

Financial Asset	IAS 39 Classification / Measurement	IFRS 9 Classification and Measurement
Cash and cash equivalents	Loans and receivables / Amortized cost	Amortized cost
Short-term investments - equity securities	Available-for-sale / FVTOCI	FVTPL
Short-term investments - other than equity securities	Available-for-sale / FVTOCI	FVTOCI
Trade receivables from provisional concentrates sales	FVTPL	FVTPL
Receivable not arising from sale of metal concentrates	Loans and receivables / Amortized cost	Amortized cost
Derivative financial assets	Held-for-trading / FVTPL	FVTPL

Additional disclosures have been presented in Note 8 as a result of adopting IFRS 9.

Policy applicable before January 1, 2018

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

(i) Financial assets

The Company classifies its financial assets in the following categories: at fair value through profit or loss, loans and receivables, available-for-sale and held-to-maturity investments. The classification depends on the purpose for which the financial assets were acquired. Management determines the classification of financial assets at initial recognition.

a. Financial assets at fair value through profit or loss

Financial assets are classified as at fair value through profit or loss when the financial asset is either held for trading or it is designated as at fair value through profit and loss. Derivatives are included in this category and are classified as current assets or non-current assets based on their maturity date. The Company does not acquire financial assets for the purpose of selling in the short term. Financial assets carried at fair value through profit or loss are initially recognized at fair value. The directly attributable transaction costs are expensed in the income statement in the period in which they are incurred. Subsequent changes in fair value are recognized in net earnings.

b. Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Loans and receivables comprise 'trade and other receivables', 'other assets' and 'cash and cash equivalents' in the statement of financial position. Loans and receivables are carried at amortized cost less any impairment.

c. Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either specifically designated as available-for- sale or not classified in any of the other categories. They are included in current assets. Changes in the fair value of available-for-sale financial assets denominated in a currency other than the functional currency of the holder, other than equity investments, are analyzed between translation differences and other changes in the carrying amount of the securities. The translation differences are recognized in the consolidated income statement. Any impairment charges are also recognized in the consolidated income statement, while other changes in fair value are recognized in the investment revaluation reserve. When financial assets classified as available-for-sale are sold, the accumulated fair value adjustments previously recognized in the investment revaluation reserve are reclassified to the consolidated income statement. Dividends on available-for-sale equity instruments are also recognized in the consolidated income statement within investment income when the Company's right to receive payments is established.

d. Held-to-maturity investments

Non-derivative financial assets with fixed or determinable payments and fixed maturity are classified as held-to-maturity when the Company has the positive intention and ability to hold to maturity. Other long-term investments that are intended to be held-to-maturity, such as bonds, are measured at amortized cost. This cost is computed as the amount initially recognized minus principal repayments, plus or minus the cumulative amortization using the effective interest method of any difference between the initially recognized amount and the maturity amount. This calculation includes all fees paid or received between parties to the contract that are an integral part of the effective interest rate, transaction costs and all other premiums and discounts. For investments carried at amortized cost, gains and losses are recognized in income when the investments are derecognized or impaired, as well as through the amortization process.

(ii) Financial liabilities

Borrowings and other financial liabilities are classified as other financial liabilities and are recognized initially at fair value, net of transaction costs incurred and are subsequently stated at amortized cost. Any difference between the amounts originally received (net of transaction costs) and the redemption value is recognized in the income statement over the period to maturity using the effective interest method.

Borrowings and other financial liabilities are classified as current liabilities unless the Company has an unconditional right to defer settlement of the liability for at least 12 months after the statement of financial position date.

(iii) Derivative financial instruments

When the Company enters into derivative contracts, these transactions are designed to reduce exposures related to assets and liabilities, firm commitments or anticipated transactions. All derivatives are initially recognized at their fair value on the date the derivative contract is entered into and are subsequently re-measured at their fair value at each statement of financial position date.

Embedded derivatives: Derivatives embedded in other financial instruments or other host contracts are treated as separate derivatives when their risks and characteristics are not closely related to their host contracts.

(iv) Fair value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Where quoted market prices are available, these are used to determine fair values. In other cases, fair values are calculated using quotations from independent financial institutions, or by using valuation techniques consistent with general market practice applicable to the instrument.

- The fair values of cash and short term borrowings approximate their carrying values as a result of their short maturity or because they carry floating rates of interest.
- Derivative financial assets and liabilities are measured at fair value.

(v) Impairment of financial assets

Available-for-sale financial assets

The Company assesses at each statement of financial position date whether there is objective evidence that a financial asset or a group of financial assets is impaired. In the case of equity securities classified as available for sale, an evaluation is made as to whether a decline in fair value is 'significant' or 'prolonged' based on an analysis of indicators such as significant adverse changes in the technological, market, economic or legal environment in which the investee operates.

If an available-for-sale financial asset is impaired, an amount comprising the difference between its cost (net of any principal payment and amortization) and its current fair value, less any impairment loss previously recognized in the consolidated income statement is transferred from the investment revaluation reserve to the consolidated income statement. Reversals in respect of equity instruments classified as available-for-sale are not recognized in the consolidated income statement. Reversals of impairment losses on debt instruments are reversed through the consolidated income statement if the increase in fair value of the instrument can be objectively related to an event occurring after the impairment loss was recognized.

(vi) Derecognition of financial assets and liabilities

Financial assets

A financial asset is derecognized when its contractual rights to the cash flows that comprise the financial asset expire or substantially all the risks and rewards of the asset are transferred.

Financial liabilities

Gains and losses on discharge, cancellation or expiry of a financial liability are recognized within finance income and finance costs, respectively.

Where an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a settlement of the original liability and the recognition of a new liability, and any difference in the respective carrying amounts is recognized in the income statement.

(vii) Trade receivables

Trade receivables are recognized initially at fair value and are subsequently measured at amortized cost reduced by any provision for impairment. A provision for impairment of trade receivables is established when there is objective evidence that the Company will not be able to collect all amounts due. Indicators of impairment would include financial difficulties of the debtor, likelihood of the debtor's insolvency, default in payment or a significant deterioration in credit worthiness. Any impairment is recognized in the income statement within 'doubtful accounts provision'. When a trade receivable is uncollectable, it is written off against the provision for impairment. Subsequent recoveries of amounts previously written off are credited against 'doubtful accounts provision' in the income statement.

(viii) Accounts payable and accrued liabilities

Accounts payable and accrued liabilities are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

(ix) Share purchase warrant liabilities

Share purchase warrant liabilities are recognized initially at fair value and subsequently measured at amortized cost using the effective interest rate method.

h) Derivative Financial Instruments

The Company utilizes metals and currency contracts, including forward contracts to manage exposure to fluctuations in metal prices and foreign currency exchange rates. For metals production, these contracts are intended to reduce the risk of falling prices on the Company's future sales. Foreign currency derivative financial instruments, such as forward contracts are used to manage the effects of exchange rate changes on foreign currency cost exposures. Such derivative financial instruments are initially recognized at fair value on the date on which a derivative contract is entered into and are subsequently re-measured at fair value. Derivatives are carried as assets when the fair value is positive and as liabilities when the fair value is negative and any gains or losses arising from changes in fair value on derivatives are taken directly to earnings for the year. The fair value of forward currency and commodity contracts is calculated by reference to current forward exchange rates and prices for contracts with similar maturity profiles.

Derivatives, including certain conversion options and warrants with exercise prices in a currency other than the functional currency, are recognized at fair value with changes in fair value recognized in profit or loss.

i) Cash and cash equivalents

Cash and cash equivalents include cash on hand and cash in banks. It also includes short-term money market investments that are readily convertible to cash with original terms of three months or less. Cash and cash equivalents are classified as loans and receivables and therefore are stated at amortized cost, less any impairment.

j) Short-term investments

Short-term investments are classified as "available-for-sale", and consist of highly-liquid debt securities with original maturities in excess of three months and equity securities. These debt and equity securities are initially recorded at fair value, which upon their initial measurement is equal to their cost. Subsequent measurements and changes in the market value of these debt and equity securities are recorded as changes to other comprehensive income. Investments are assessed quarterly for potential impairment.

k) Inventories

Inventories include work in progress, concentrate ore, doré, processed silver and gold, heap leach inventory, and operating materials and supplies. Work in progress inventory includes ore stockpiles and other partly processed material. Stockpiles represent ore that has been extracted and is available for further processing. The classification of inventory is determined by the stage at which the ore is in the production process. Inventories of ore are sampled for metal content and are valued based on the lower of cost or estimated net realizable value ("NRV") based upon the period ending prices of contained metal. Cost is determined on a weighted average basis or using a first-in-first-out basis and includes all costs incurred in the normal course of business including direct material and direct labour costs and an allocation of production overheads, depreciation and amortization, and other costs, based on normal production capacity, incurred in bringing each product to its present location and condition. Material that does not contain a minimum quantity of metal to cover estimated processing expenses to recover the contained metal is not classified as inventory and is assigned no value. The work in progress inventory is considered part of the operating cycle which the Company classifies as current inventory and hence heap leach and stockpiles are included in current inventory. Quantities are assessed primarily through surveys and assays.

The costs incurred in the construction of the heap leach pad are capitalized. Heap leach inventory represents silver and gold contained in ore that has been placed on the leach pad for cyanide irrigation. The heap leach

process is a process of extracting silver and gold by placing ore on an impermeable pad and applying a diluted cyanide solution that dissolves a portion of the contained silver and gold, which is then recovered during the metallurgical process. When the ore is placed on the pad, an estimate of the recoverable ounces is made based on tonnage, ore grade and estimated recoveries of the ore type placed on the pad. The estimated recoverable ounces on the pad are used to compile the inventory cost.

The Company uses several integrated steps to scientifically measure the metal content of the ore placed on the leach pads. The tonnage, grade, and ore type to be mined in a period was first estimated using the Mineral Reserve model. As the ore body is drilled in preparation for the blasting process, samples are taken of the drill residue which is assayed to determine their metal content and quantities of contained metal. The estimated recoverable ounces carried in the leach pad inventory are adjusted based on actual recoveries being experienced. Actual and estimated recoveries achieved are measured to the extent possible using various indicators including, but not limited to, individual cell recoveries, the use of leach curve recovery and trends in the levels of carried ounces depending on the circumstances or cumulative pad recoveries.

The Company then processes the ore through the crushing facility where the output is again weighed and sampled for assaying. A metallurgical reconciliation with the data collected from the mining operation is completed with appropriate adjustments made to previous estimates. The crushed ore is then transported to the leach pad for application of the leaching solution. The samples from the automated sampler are assayed each shift and used for process control. The quantity of leach solution is measured by flow meters throughout the leaching and precipitation process. The pregnant solution from the heap leach is collected and passed through the processing circuit to produce precipitate which is retorted and then smelted to produce doré bars.

The Company allocates direct and indirect production costs to by-products on a systematic and rational basis. With respect to concentrate and doré inventory, production costs are allocated based on the silver equivalent ounces contained within the respective concentrate and doré.

The inventory is stated at lower of cost or NRV, with cost being determined using a weighted average cost method. The ending inventory value of ounces associated with the leach pad is equal to opening recoverable ounces plus recoverable ounces placed less ounces produced plus or minus ounce adjustments.

The estimate of both the ultimate recovery expected over time and the quantity of metal that may be extracted relative to the time the leach process occurs requires the use of estimates which rely upon laboratory test work and estimated models of the leaching kinetics in the heap leach pads. Test work consists of leach columns of up to 400 days duration with 150 days being the average, from which the Company projects metal recoveries up to three years in the future. The quantities of metal contained in the ore are based upon actual weights and assay analysis. The rate at which the leach process extracts gold and silver from the crushed ore is based upon laboratory column tests and actual experience. The assumptions used by the Company to measure metal content during each stage of the inventory conversion process include estimated recovery rates based on laboratory testing and assaying. The Company periodically reviews its estimates compared to actual experience and revises its estimates when appropriate. The ultimate recovery will not be known until the leaching operations cease.

Supplies inventories are valued at the lower of average cost and NRV using replacement cost plus cost to dispose, net of obsolescence. Concentrate and doré inventory includes product at the mine site, the port warehouse and product held by refineries. At times, the Company has a limited amount of finished silver at a minting operation where coins depicting Pan American's emblem are stamped.

l) Mineral properties, plant and equipment

On initial acquisition, mineral properties, plant and equipment are valued at cost, being the purchase price and the directly attributable costs of acquisition or construction required to bring the asset to the location and condition necessary for the asset to be capable of operating in the manner intended by management. When provisions for closure and decommissioning are recognized, the corresponding cost is capitalized as part of the cost of the related assets, representing part of the cost of acquiring the future economic benefits of the operation. The capitalized cost of closure and decommissioning activities is recognized in mineral property, plant and equipment and depreciated accordingly.

In subsequent periods, buildings, plant and equipment are stated at cost less accumulated depreciation and any impairment in value, whilst land is stated at cost less any impairment in value and is not depreciated.

Each asset's or part's estimated useful life has due regard to both its own physical life limitations and the present assessment of economically recoverable reserves of the mine property at which the item is located, and to possible future variations in those assessments. Estimates of remaining useful lives and residual values are reviewed annually. Changes in estimates are accounted for prospectively.

The expected useful lives are included below in the accounting policy for depreciation of property, plant, and equipment. The net carrying amounts of mineral property, land, buildings, plant and equipment are reviewed for impairment either individually or at the cash-generating unit level when events and changes in circumstances indicate that the carrying amounts may not be recoverable. To the extent that these values exceed their recoverable amounts, that excess is recorded as an impairment provision in the financial year in which this is determined.

In countries where the Company paid Value Added Tax ("VAT") and where there is uncertainty of its recoverability, the VAT payments have either been deferred with mineral property costs relating to the property or expensed if it relates to mineral exploration. If the Company ultimately recovers previously deferred amounts, the amount received will be applied to reduce mineral property costs or taken as a credit against current expenses depending on the prior treatment.

Expenditure on major maintenance or repairs includes the cost of the replacement of parts of assets and overhaul costs. Where an asset or part of an asset is replaced and it is probable that future economic benefits associated with the item will be available to the Company, the expenditure is capitalized and the carrying amount of the item replaced derecognized. Similarly, overhaul costs associated with major maintenance are capitalized and depreciated over their useful lives where it is probable that future economic benefits will be available and any remaining carrying amounts of the cost of previous overhauls are derecognized. All other costs are expensed as incurred.

Where an item of mineral property, plant and equipment is disposed of, it is derecognized and the difference between its carrying value and net sales proceeds is disclosed as earnings or loss on disposal in the income statement. Any items of mineral property, plant or equipment that cease to have future economic benefits are derecognized with any gain or loss included in the financial year in which the item is derecognized.

m) Operational mining properties and mine development

When it has been determined that a mineral property can be economically developed as a result of establishing proven and probable reserves (which occurs upon completion of a positive economic analysis of the mineral deposit), the costs incurred to develop such property including costs to further delineate the ore body and remove overburden to initially expose the ore body prior to the start of mining operations, are also capitalized. Such costs are amortized using the units-of-production method over the estimated life of the ore body based on proven and probable reserves.

Costs associated with commissioning activities on constructed plants are deferred from the date of mechanical completion of the facilities until the date the Company is ready to commence commercial production. Any revenues earned during this period are recorded as a reduction in deferred commissioning costs. These costs are

amortized using the units-of-production method (described below) over the life of the mine, commencing on the date of commercial production.

Acquisition costs related to the acquisition of land and mineral rights are capitalized as incurred. Prior to acquiring such land or mineral rights, the Company makes a preliminary evaluation to determine that the property has significant potential to economically develop the deposit. The time between initial acquisition and full evaluation of a property's potential is dependent on many factors including: location relative to existing infrastructure, the property's stage of development, geological controls and metal prices. If a mineable deposit is discovered, such costs are amortized when production begins. If no mineable deposit is discovered, such costs are expensed in the period in which it is determined the property has no future economic value. In countries where the Company has paid VAT and where there is uncertainty of its recoverability, the VAT payments have either been deferred with mineral property costs relating to the property or expensed if it relates to mineral exploration. If the Company ultimately makes recoveries of the VAT, the amount received will be applied to reduce mineral property costs or taken as a credit against current expenses depending on the prior treatment.

Major development expenditures on producing properties incurred to increase production or extend the life of the mine are capitalized while ongoing mining expenditures on producing properties are charged against earnings as incurred. Gains or losses from sales or retirements of assets are included in gain or loss on sale of assets.

n) Depreciation of mineral property, plant and equipment

The carrying amounts of mineral property, plant and equipment (including initial and any subsequent capital expenditure) are depreciated to their estimated residual value over the estimated useful lives of the specific assets concerned, or the estimated life of the associated mine or mineral lease, if shorter. Estimates of residual values and useful lives are reviewed annually and any change in estimate is taken into account in the determination of remaining depreciation charges, and adjusted if appropriate, at each statement of financial position date. Changes to the estimated residual values or useful lives are accounted for prospectively. Depreciation commences on the date when the asset is available for use as intended by management.

i) Units of production basis

For mining properties and leases and certain mining equipment, the economic benefits from the asset are consumed in a pattern which is linked to the production level. Except as noted below, such assets are depreciated on a units of production basis.

In applying the units of production method, depreciation is normally calculated using the quantity of material extracted from the mine in the period as a percentage of the total quantity of material to be extracted in current and future periods based on proven and probable reserves.

ii) Straight line basis

Assets within operations for which production is not expected to fluctuate significantly from one year to another or which have a physical life shorter than the related mine are depreciated on a straight line basis.

Mineral properties, plant and equipment are depreciated over their useful life, or over the remaining life of the mine if shorter. The major categories of property, plant and equipment are depreciated on a unit of production and/or straight-line basis as follows:

- Land – not depreciated
- Mobile equipment – 3 to 7 years
- Buildings and plant facilities – 25 to 50 years
- Mining properties and leases including capitalized evaluation and development expenditures – based on applicable reserves on a unit of production basis.
- Exploration and evaluation – not depreciated until mine goes into production
- Assets under construction – not depreciated until assets are ready for their intended use

o) Exploration and evaluation expenditure

Relates to costs incurred on the exploration and evaluation of potential mineral reserves and resources and includes costs such as exploratory drilling and sample testing and the costs of pre-feasibility studies. Exploration expenditures relates to the initial search for deposits with economic potential. Evaluation expenditures arise from a detailed assessment of deposits or other projects that have been identified as having economic potential.

Expenditures on exploration activity are not capitalized.

Capitalization of evaluation expenditures commences when there is a high degree of confidence in the project's viability and hence it is probable that future economic benefits will flow to the Company.

Evaluation expenditures, other than that acquired from the purchase of another mining company, is carried forward as an asset provided that such costs are expected to be recovered in full through successful development and exploration of the area of interest or alternatively, by its sale.

Purchased exploration and evaluation assets are recognized as assets at their cost of acquisition or at fair value if purchased as part of a business combination.

In the case of undeveloped projects there may be only inferred resources to form a basis for the impairment review. The review is based on a status report regarding the Company's intentions for the development of the undeveloped project. In some cases, the undeveloped projects are regarded as successors to ore bodies, smelters or refineries currently in production. Where this is the case, it is intended that these will be developed and go into production when the current source of ore is exhausted or to replace the reduced output, which results where existing smelters and/or refineries are closed. It is often the case that technological and other improvements will allow successor smelters and/or refineries to more than replace the capacity of their predecessors. Subsequent recovery of the resulting carrying value depends on successful development or sale of the undeveloped project. If a project does not prove viable, all unrecoverable costs associated with the project, net of any related impairment provisions, are written off.

An impairment review is performed, either individually or at the cash generating unit ("CGU") level, when there are indicators that the carrying amount of the assets may exceed their recoverable amounts. A reversal of impairment test is performed whenever there is an indication that impairment may have reversed. When an impairment loss reverses in a subsequent period, the revised carrying amount shall not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset previously, less subsequent depreciation and depletion. Impairments and reversals of impairment are recognized in net earnings in the period in which they occur. Capitalized exploration and evaluation assets are reassessed on a regular basis and these costs are carried forward provided that the conditions discussed above for expenditure on exploration activity and evaluation expenditures are met.

Expenditures are transferred to mining properties and leases or assets under construction once the technical feasibility and commercial viability of extracting a mineral resource are demonstrable and the work completed to date supports the future development of the property. In order to demonstrate technical feasibility and commercial viability, the Company evaluates the individual project and its established mineral reserves, assesses the relevant findings and conclusions from the Company's activities and in applicable technical or other studies relating to the project, and considers whether and how any additional factors and circumstances might impact the project, particularly in light of the Company's capabilities, risk tolerance and desired economic returns. The Company conducts its managerial evaluation for commercial viability by assessing the factors it considers relevant to the commercial development of the project, taking into consideration the exploration and technical evaluation activities and work undertaken in relation to the project. If the asset demonstrates technical feasibility and commercial viability, the asset is reclassified to mineral properties, plant and equipment. Assessment for impairment is conducted before reclassification.

p) Deferred stripping costs

In open pit mining operations, it is necessary to remove overburden and other waste in order to access the ore body. During the preproduction phase, these costs are capitalized as part of the cost of the mine property and subsequently amortized over the life of the mine (or pit) on a units of production basis.

The costs of removal of the waste material during a mine's production phase are deferred where they give rise to future benefits. These capitalized costs are subsequently amortized on a unit of production basis over the reserves that directly benefit from the specific stripping activity.

q) Asset impairment

Management reviews and evaluates its assets for impairment, or reversals of impairment, when events or changes in circumstances indicate that the related carrying amounts may not be recoverable or when there is an indication that impairment may have reversed. Impairment is normally assessed at the level of cash-generating units which are identified as the smallest identifiable group of assets that generate cash inflows that are largely independent of the cash inflows from other assets. In addition, an impairment loss is recognized for any excess of carrying amount over the fair value less costs to sell ("FVLCTS") of a non-current asset or disposal group held for sale. When an impairment review is undertaken, recoverable amount is assessed by reference to the higher of value in use (being the net present value of expected future cash flows of the relevant CGU) and FVLCTS. The best evidence of FVLCTS is the value obtained from an active market or binding sale agreement. Where neither exists, FVLCTS is based on the best information available to reflect the amount the Company could receive for the CGU in an arm's length transaction. This is often estimated using discounted cash flow techniques.

Where the recoverable amount is assessed using discounted cash flow techniques, the resulting estimates are based on detailed mine and/or production plans. For value in use, recent cost levels are considered, together with expected changes in costs that are compatible with the current condition of the business and which meet the requirements of IAS 36 "Impairment of Assets." The cash flow forecasts are based on best estimates of expected future revenues and costs, including the future cash costs of production, capital expenditure, close down, restoration and environmental clean-up. These may include net cash flows expected to be realized from extraction, processing and sale of mineral resources that do not currently qualify for inclusion in proven or probable ore reserves. Such non-reserve material is included where there is a high degree of confidence in its economic extraction. This expectation is usually based on preliminary drilling and sampling of areas of mineralization that are contiguous with existing reserves. Typically, the additional evaluation to achieve reserve status for such material has not yet been done because this would involve incurring costs earlier than is required for the efficient planning and operation of the mine.

Where the recoverable amount of a CGU is dependent on the life of its associated ore, expected future cash flows reflect long term mine plans, which are based on detailed research, analysis and iterative modeling to optimize the level of return from investment, output and sequence of extraction. The mine plan takes account of all relevant characteristics of the ore, including waste to ore ratios, ore grades, haul distances, chemical and metallurgical properties of the ore affecting process recoveries and capacities of processing equipment that can be used. The mine plan is therefore the basis for forecasting production output in each future year and for forecasting production costs.

The Company's cash flow forecasts are based on estimates of future commodity prices, which assume market prices will revert to the Company's assessment of the long-term average price, generally over a period of three to five years. These assessments often differ from current price levels and are updated periodically.

The discount rates applied to the future cash flow forecasts represent an estimate of the rate the market would apply having regard to the time value of money and the risks specific to the asset for which the future cash flow estimates have not been adjusted, including appropriate adjustments for the risk profile of the countries in which the individual CGU operate. The great majority of the Company's sales are based on prices denominated in USD. To the extent that the currencies of countries in which the Company produces commodities strengthen against the USD without commodity price offset, cash flows and, therefore, net present values are reduced. Non-financial

assets other than goodwill that have suffered impairment are tested for possible reversal of the impairment whenever events or changes in circumstances indicate that the impairment may have reversed.

r) Closure and decommissioning costs

The mining, extraction and processing activities of the Company normally give rise to obligations for site closure or rehabilitation. Closure and decommissioning works can include facility decommissioning and dismantling; removal or treatment of waste materials; site and land rehabilitation. The extent of work required and the associated costs are dependent on the requirements of relevant authorities and the Company's environmental policies. Provisions for the cost of each closure and rehabilitation program are recognized at the time that environmental disturbance occurs. When the extent of disturbance increases over the life of an operation, the provision is increased accordingly. Costs included in the provision encompass all closure and decommissioning activity expected to occur progressively over the life of the operation and at the time of closure in connection with disturbances at the reporting date. Routine operating costs that may impact the ultimate closure and decommissioning activities, such as waste material handling conducted as an integral part of a mining or production process, are not included in the provision. Costs arising from unforeseen circumstances, such as the contamination caused by unplanned discharges, are recognized as an expense and liability when the event gives rise to an obligation which is probable and capable of reliable estimation. The timing of the actual closure and decommissioning expenditure is dependent upon a number of factors such as the life and nature of the asset, the operating license conditions, and the environment in which the mine operates. Expenditures may occur before and after closure and can continue for an extended period of time dependent on closure and decommissioning requirements. Closure and decommissioning provisions are measured at the expected value of future cash flows, discounted to their present value and determined according to the probability of alternative estimates of cash flows occurring for each operation. Discount rates used are specific to the underlying obligation. Significant judgements and estimates are involved in forming expectations of future activities and the amount and timing of the associated cash flows. Those expectations are formed based on existing environmental and regulatory requirements which give rise to a constructive or legal obligation.

When provisions for closure and decommissioning are initially recognized, the corresponding cost is capitalized as a component of the cost of the related asset, representing part of the cost of acquiring the future economic benefits of the operation. The capitalized cost of closure and decommissioning activities is recognized in Property, plant and equipment and depreciated accordingly. The value of the provision is progressively increased over time as the effect of discounting unwinds, creating an expense recognized in finance expenses. Closure and decommissioning provisions are also adjusted for changes in estimates. Those adjustments are accounted for as a change in the corresponding capitalized cost, except where a reduction in the provision is greater than the un-depreciated capitalized cost of the related assets, in which case the capitalized cost is reduced to nil and the remaining adjustment is recognized in the income statement. In the case of closed sites, changes to estimated costs are recognized immediately in the income statement. Changes to the capitalized cost result in an adjustment to future depreciation and finance charges. Adjustments to the estimated amount and timing of future closure and decommissioning cash flows are a normal occurrence in light of the significant judgements and estimates involved.

The provision is reviewed at the end of each reporting period for changes to obligations, legislation or discount rates that impact estimated costs or lives of operations and adjusted to reflect current best estimate. The cost of the related asset is adjusted for changes in the provision resulting from changes in the estimated cash flows or discount rate and the adjusted cost of the asset is depreciated prospectively.

s) Foreign currency translation

The Company's functional currency and that of its subsidiaries is the USD as this is the principal currency of the economic environments in which they operate. Transaction amounts denominated in foreign currencies (currencies other than USD) are translated into USD at exchange rates prevailing at the transaction dates. Carrying values of foreign currency monetary assets and liabilities are re-translated at each statement of financial position date to reflect the U.S. exchange rate prevailing at that date.

Gains and losses arising from translation of foreign currency monetary assets and liabilities at each period end are included in earnings except for differences arising on decommissioning provisions which are capitalized for operating mines.

t) Share-based payments

The Company makes share-based awards, including restricted share units ("RSUs), performance share units ("PSUs"), shares and options, to certain employees.

For equity-settled awards, the fair value is charged to the income statement and credited to equity, on a straight-line basis over the vesting period, after adjusting for the estimated number of awards that are expected to vest. The fair value of the equity-settled awards is determined at the date of grant. Non-vesting conditions and market conditions, such as target share price upon which vesting is conditioned, are factored into the determination of fair value at the date of grant. All other vesting conditions are excluded from the determination of fair value and included in management's estimate of the number of awards ultimately expected to vest.

The fair value is determined by using option pricing models. At each statement of financial position date prior to vesting, the cumulative expense representing the extent to which the vesting period has expired and management's best estimate of the awards that are ultimately expected to vest is computed (after adjusting for non-market performance conditions). The movement in cumulative expense is recognized in the income statement with a corresponding entry within equity. No expense is recognized for awards that do not ultimately vest, except for awards where vesting is conditional upon a market condition, which are treated as vested irrespective of whether or not the market condition is satisfied, provided that all other performance conditions are satisfied.

Where the terms of an equity-settled award are modified, as a minimum an expense is recognized as if the terms had not been modified over the original vesting period. In addition, an expense is recognized for any modification, which increases the total fair value of the share-based payment arrangement, or is otherwise beneficial to the employee as measured at the date of modification, over the remainder of the new vesting period.

Where an equity-settled award is cancelled, it is treated as if it had vested on the date of cancellation, and any expense not yet recognized for the award is recognized immediately. Any compensation paid up to the fair value of the awards at the cancellation or settlement date is deducted from equity, with any excess over fair value being treated as an expense in the income statement. However, if a new award is substituted for the cancelled award, and designated as a replacement award on the date that it is granted, the new awards are treated as if they are a modification of the original award, as described in the previous paragraph.

u) Leases

The determination of whether an arrangement is, or contains a lease is based in the substance of the arrangement at the inception date, including whether the fulfillment of the arrangement is dependent on the use of a specific asset or assets or whether the arrangement conveys a right to use the asset. A reassessment after inception is only made in specific circumstances.

Assets held under finance leases, where substantially all the risks and rewards of ownership of the asset have passed to the Company, are capitalized in the statement of financial position at the lower of the fair value of the leased property or the present value of the minimum lease payments during the lease term calculated using the interest rate implicit in the lease agreement. These amounts are determined at the inception of the lease and are depreciated over the shorter of their estimated useful lives or the lease term. The capital elements of future obligations under leases and hire purchase contracts are included as liabilities in the statement of financial position. The interest elements of the lease or hire purchase obligations are charged to the income statement over the periods of the leases and hire purchase contracts and represent a constant proportion of the balance of capital repayments outstanding.

Leases where substantially all the risks and rewards of ownership have not passed to the Company are classified as operating leases. Rentals payable under operating leases are charged to the income statement on a straight-

line basis over the lease term. The Company will apply the new lease accounting standard, IFRS 16 - *Leases* ("IFRS 16"), on its effective date of January 1, 2019 (Note 4).

v) Income taxes

Taxation on the earnings or loss for the year comprises current and deferred tax. Taxation is recognized in the income statement except to the extent that it relates to items recognized in other comprehensive income or directly in equity, in which case the tax is recognized in other comprehensive income or equity.

Current tax is the expected tax payable on the taxable income for the year using rates enacted or substantively enacted at the year end, and includes any adjustment to tax payable in respect of previous years.

Deferred tax is provided using the statement of financial position liability method, providing for the tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for tax assessment or deduction purposes. Where an asset has no deductible or depreciable amount for income tax purposes, but has a deductible amount on sale or abandonment for capital gains tax purposes, that amount is included in the determination of temporary differences.

The tax effect of certain temporary differences is not recognized, principally with respect to goodwill; temporary differences arising on the initial recognition of assets or liabilities (other than those arising in a business combination or in a manner that initially impacted accounting or taxable earnings); and temporary differences relating to investments in subsidiaries, jointly controlled entities and associates to the extent that the Company is able to control the reversal of the temporary difference and the temporary difference is not expected to reverse in the foreseeable future. The amount of deferred tax recognized is based on the expected manner and timing of realization or settlement of the carrying amount of assets and liabilities, with the exception of items that have a tax base solely derived under capital gains tax legislation, using tax rates enacted or substantively enacted at period end. To the extent that an item's tax base is solely derived from the amount deductible under capital gains tax legislation, deferred tax is determined as if such amounts are deductible in determining future assessable income.

The carrying amount of deferred income tax assets is reviewed at each statement of financial position date and reduced to the extent that it is no longer probable that sufficient taxable earnings will be available to allow all or part of the deferred income tax asset to be utilized. To the extent that an asset not previously recognized fulfils the criteria for recognition, a deferred income tax asset is recorded.

Deferred tax is measured on an undiscounted basis at the tax rates that are expected to apply in the periods in which the asset is realized or the liability is settled, based on tax rates and tax laws enacted or substantively enacted at the statement of financial position date.

Current and deferred taxes relating to items recognized in other comprehensive income or directly in equity are recognized in other comprehensive income or equity and not in the income statement. Mining taxes and royalties are treated and disclosed as current and deferred taxes if they have the characteristics of an income tax. Judgements are required about the application of income tax legislation. These judgements and assumptions are subject to risk and uncertainty, hence there is a possibility that changes in circumstances will alter expectations, which may impact the amount of deferred tax assets and deferred tax liabilities recognized on the statement of financial position and the amount of other tax losses and temporary differences not yet recognized. In such circumstances, some or the entire carrying amount of recognized deferred tax assets and liabilities may require adjustment, resulting in a corresponding credit or charge to the income statement.

Deferred tax assets, including those arising from tax losses, capital losses and temporary differences, are recognized only where it is probable that taxable earnings will be available against which the losses or deductible temporary differences can be utilized. Assumptions about the generation of future taxable earnings and repatriation of retained earnings depend on management's estimates of future cash flows. These depend on estimates of future production and sales volumes, commodity prices, reserves, operating costs, closure and decommissioning costs, capital expenditures, dividends and other capital management transactions.

w) Earnings (loss) per share

Basic earnings (loss) per share is calculated by dividing earnings attributable to ordinary equity holders of the parent entity by the weighted average number of ordinary shares outstanding during the period.

The diluted earnings per share calculation is based on the earnings attributable to ordinary equity holders and the weighted average number of shares outstanding after adjusting for the effects of all potential ordinary shares. This method requires that the number of shares used in the calculation be the weighted average number of shares that would be issued on the conversion of all the dilutive potential ordinary shares into ordinary shares. This method assumes that the potential ordinary shares converted into ordinary shares at the beginning of the period (or at the time of issuance, if not in existence at beginning of the period). The number of dilutive potential ordinary shares is determined independently for each period presented.

For convertible securities that may be settled in cash or shares at the holder's option, returns to preference shareholders and income charges are added back to net earnings used for basic EPS and the maximum number of ordinary shares that could be issued on conversion is used in computing diluted earnings per share.

x) Borrowing costs and upfront costs

Borrowing costs that are directly attributable to the acquisition, construction or production of qualifying assets are capitalized. Qualifying assets are assets that require a substantial amount of time to prepare for their intended use, including mineral properties in the evaluation stage where there is a high likelihood of commercial exploitation. Qualifying assets also include significant expansion projects at the operating mines. Borrowing costs are considered an element of the historical cost of the qualifying asset. Capitalization ceases when the asset is substantially complete or if construction is interrupted for an extended period. Where the funds used to finance a qualifying asset form part of general borrowings, the amount capitalized is calculated using a weighted average of rates applicable to the relevant borrowings during the period. Where funds borrowed are directly attributable to a qualifying asset, the amount capitalized represents the borrowing costs specific to those borrowings. Where surplus funds available out of money borrowed specifically to finance a project are temporarily invested, the total borrowing cost is reduced by income generated from short-term investments of such funds.

Upfront costs incurred in connection with entering new credit facilities are recorded as Other assets and are amortized over the life of the respective credit facilities.

4. CHANGES IN ACCOUNTING STANDARDS

New and amended IFRS standards that are effective for the current year

Financial Instruments

On January 1, 2018, the Company adopted, retrospectively without restatement, IFRS 9 -*Financial Instruments* ("IFRS 9") which replaced IAS 39 - *Financial Instruments: Recognition and Measurement* ("IAS 39"). IFRS 9 provides a revised model for recognition and measurement of financial instruments with a single, forward-looking 'expected loss' impairment model and significant changes to hedge accounting. The standard is effective for annual periods beginning on or after January 1, 2018. There was no impact from IFRS 9 on the Company's classification and measurement of financial assets and liabilities except for equity securities as described below.

Under IFRS 9, subsequent to initial recognition, financial assets are classified and measured at either: amortized cost, FVTOCI or at FVTPL. The approach in IFRS 9 is based on how an entity manages its financial instruments in the context of its business model and the contractual cash flow characteristics of the financial assets.

IFRS 9 introduced a single expected credit loss impairment model for financial assets measured at amortized cost and for debt instruments at FVTOCI, which is based on changes in credit quality since initial recognition. The adoption of the expected credit loss impairment model did not have a significant impact on the Company's financial statements.

IFRS 9 changed the requirements for hedge effectiveness and consequently for the application of hedge accounting which did not impact the Company. As the Company does not apply hedge accounting, either under IAS 39 or IFRS 9, the adoption of IFRS 9 with regards to hedge accounting did not impact the Company or its accounting policies.

The Company has not restated comparative 2017 information for financial instruments in the scope of IFRS 9. Therefore, the comparative 2017 information is reported under IAS 39 and is not comparable to the information presented for 2018. Differences arising from the adoption of IFRS 9 have been recognized directly in retained earnings as of January 1, 2018. The adoption of IFRS 9 did not result in a change in carrying value of any of our financial instruments on the transition date. The main area of change was the accounting for equity securities previously classified as available for sale.

In accordance with IFRS 9 guidance, investments in equity securities that are neither subsidiaries nor associates ("equity securities") are categorized as FVTPL unless they are designated as FVTOCI. Further, investments in equity securities, previously classified as available for sale, are now classified at FVTPL. As of January 1, 2018 equity securities are measured at FVTPL, prior to this and under IAS 39 these assets were initially recorded at fair value with subsequent measurements recorded at FVTOCI. The Company continued to designate its short term investments other than equity securities as financial assets at FVTOCI. This change in measurement classification resulted in an adjustment to opening retained earnings on January 1, 2018 for the historical unrealized gains and losses on the Company's existing equity securities investments. The adjustment was $1.6 million with a corresponding adjustment to accumulated other comprehensive income.

The Company's financial instrument policy in accordance with IFRS 9 is disclosed in Note 3(g).

Revenue Recognition

The Company adopted IFRS 15 which replaced IAS 11 - Construction Contracts; IAS 18 - Revenue, and other revenue interpretations.

IFRS 15 requires either a full retrospective application, whereby comparative information is restated in accordance with IFRS 15, or a modified retrospective application, whereby the cumulative impact of adoption is recognized in opening retained earnings, as of January 1, 2018, and comparative period balances are not restated. The Company elected to apply the modified retrospective approach, though the new standard had no cumulative impact as at January 1, 2018.

IFRS 15 establishes a single five-step model framework for determining the nature, amount, timing and uncertainty of revenue and cash flows arising from a contract with a customer, and introduces a revenue recognition model under which an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This new framework did not result in a change in the way the Company recognizes or measures revenue but additional disclosures have been presented in Note 3(f) as a result of adopting IFRS 15. Further, the standard introduces the concept of performance obligations that are defined as 'distinct' promised goods or services, and requires entities to apportion revenue earned to the distinct performance obligations on a relative stand-alone selling price basis. The Company may from time to time enter into concentrate contracts where the Company is responsible for shipping and insurance costs necessary to bring the goods to a named destination after the date on which control of the goods is transferred to the customer. Accordingly, under IFRS 15, a portion of the revenue earned under such contracts, representing the obligation to fulfill the shipping and insurance services, will be deferred and recognized over the time the obligations are fulfilled. There were no such contracts in 2017, nor in 2018.

The Company's revenue recognition policy in accordance with IFRS 15 is disclosed in Note 3(f).

Other Narrow Scope Amendments

The Company has adopted IFRIC interpretation 22 - *Foreign Currency Transactions and Advanced Consideration*, and narrow scope amendments to IFRS 2 - *Share-based Payment,* which did not have a material impact on the Company's consolidated financial statements.

New and amended IFRS standards not yet effective

The Company has not early adopted any amendment, standard or interpretation that has been issued by the IASB but is not yet effective.

Leases

In January 2016, the IASB issued IFRS 16 which replaces IAS 17 - *Leases* and its associated interpretative guidance, including IFRIC 4 and SIC 15. IFRS 16 applies a control model to the identification of leases, distinguishing between a lease and a non-lease component on the basis of whether the customer controls the specific asset. For those contracts that are or contain a lease, IFRS 16 introduces significant changes for lessees to the accounting for contracts that are or contain a lease, introducing a single, on-balance sheet accounting model that is similar to current finance lease accounting, with limited exceptions for short-term leases less than 12 months in duration or leases of low value assets. Lessor accounting remains similar to current accounting practice. The standard is effective for annual periods beginning on or after January 1, 2019, with early application permitted for entities that apply IFRS 15.

The Company plans to apply IFRS 16 at the date it becomes effective and has selected the modified retrospective transition approach, which does not require restatement of comparative periods; instead, the cumulative impact of applying IFRS 16 will be accounted for as an adjustment to equity at the start of the accounting period in which it is first applied. The Company does not intend to bring short-term leases (contracts with terms that end within 12 months of the mandatory transition date) or low value leases on balance sheet. Costs for these items will continue to be expensed directly to the Consolidated Income Statements.

The Company is close to finalizing its implementation project. It is expected that the Company will record a material balance of lease assets and associated lease liabilities on the Consolidated Statements of Financial Position at January 1, 2019. IFRS 16 will further result in increased depreciation and amortization on these lease assets and increased interest on these additional lease liabilities. These lease payments will be recorded as financing outflows in the Consolidated Statements of Cash Flows.

Uncertainty Over Income Tax Treatments

IFRIC 23, *Uncertainty over Income Tax Treatments* ("IFRIC 23") provides guidance regarding the application of the *IAS 12 Income Taxes* recognition and measurement requirements where there is uncertainty surrounding income tax treatment of a tax position. To apply IFRIC 23, the Company must determine whether it is probable that the relevant tax authorities will accept an uncertain tax treatment used, or proposed to be used, in its income tax filings. If it determined that the tax authorities will accept the tax treatment, the Company should account for the impact consistent with that tax treatment. If it is determined that the tax authorities are not likely to accept the tax treatment, the Company should account for the impact of the uncertainty in the period in which this determination is made. IFRIC 23 is effective for annual periods beginning on or after January 1, 2019 and can be applied with either full retrospective application or modified retrospective application without restatement of comparatives retrospectively or prospectively. The Company does not expect the application of IFRIC 23 will have a significant impact on the Company's consolidated financial statements.

Annual Improvements 2015-2017 Cycle

In December 2017, the IASB issued the Annual Improvements 2015-2017 cycle, containing amendments to IFRS 3 - Business Combinations ("IFRS 3"), IFRS 11 - Joint Arrangements, IAS 12 - Income Taxes and IAS 23 - Borrowing Costs. These amendments are effective for annual periods beginning on or after January 1, 2019 and are not expected to have a significant impact on the Company's consolidated financial statements.

5. SIGNIFICANT JUDGEMENTS IN APPLYING ACCOUNTING POLICIES

Judgements that have the most significant effect on the amounts recognized in the Company's consolidated financial statements are as follows:

a) Capitalization of evaluation costs

The Company has determined that evaluation costs capitalized during the year relating to the operating mines and certain other exploration interests have potential future economic benefits and are potentially economically recoverable, subject to the impairment analysis as discussed in Note 12. In making this judgement, the Company has assessed various sources of information including but not limited to the geologic and metallurgic information, history of conversion of mineral deposits to proven and probable mineral reserves, scoping and feasibility studies, proximity to existing ore bodies, operating management expertise and required environmental, operating and other permits.

b) Commencement of commercial production

During the determination of whether a mine has reached an operating level that is consistent with the use intended by management, costs incurred are capitalized as mineral property, plant and equipment and any consideration from commissioning sales are offset against costs capitalized. The Company defines commencement of commercial production as the date that a mine has achieved a sustainable level of production based on a percentage of design capacity along with various qualitative factors including but not limited to the achievement of mechanical completion, continuous nominated level of production, the working effectiveness of the plant and equipment at or near expected levels and whether there is a sustainable level of production input available including power, water and diesel.

c) Assets' carrying values and impairment charges

In determining carrying values and impairment charges the Company looks at recoverable amounts, defined as the higher of value in use or FVLCTS in the case of non-financial assets, and at objective evidence that identifies significant or prolonged decline of fair value on financial assets classified as available-for-sale indicating impairment. These determinations and their individual assumptions require that management make a decision based on the best available information at each reporting period.

d) Functional currency

The functional currency for the Company and its subsidiaries is the currency of the primary economic environment in which each operates. The Company has determined that its functional currency and that of its subsidiaries is the USD. The determination of functional currency may require certain judgements to determine the primary economic environment. The Company reconsiders the functional currency used when there is a change in events and conditions which determined the primary economic environment.

e) Business combinations

Determination of whether a set of assets acquired and liabilities assumed constitute a business may require the Company to make certain judgments, taking into account all facts and circumstances. A business consists of inputs, including non-current assets and processes, including operational processes, that when applied to those inputs have the ability to create outputs that provide a return to the Company and its shareholders.

f) Determination of control of subsidiaries and joint arrangements

Determination of whether the Company has control of subsidiaries or joint control of joint arrangements requires an assessment of the activities of the investee that significantly affect the investee's returns, including strategic, operational and financing decision-making, appointment, remuneration and termination of the key management personnel and when decisions related to those activities are under the control of the Company or require unanimous consent from the investors. Based on assessment of the relevant facts and circumstances, primarily, the Company's limited board representation and restricted influence over operating, strategic and financing decisions, the Company concluded that it does not control Maverix and as a result classified it as an investment in associate subject to significant influence (Note 13).

g) Deferral of stripping costs

In determining whether stripping costs incurred during the production phase of a mining property relate to mineral reserves that will be mined in a future period and therefore should be capitalized, the Company treats the costs of removal of the waste material during a mine's production phase as deferred, where it gives rise to future benefits. These capitalized costs are subsequently amortized on a unit of production basis over the reserves that directly benefit from the specific stripping activity. As at December 31, 2018, the carrying amount of stripping costs capitalized was $57.0 million comprised entirely of Dolores (December 31, 2017 - $47.7 million was capitalized comprised entirely of Dolores).

h) Replacement convertible debenture

As part of the 2009 Aquiline transaction, the Company issued a replacement convertible debenture that allowed the holder to convert the debenture into either 363,854 Pan American shares ("Common Shares") or a silver stream contract with Aquiline Resources Inc., a wholly owned subsidiary of the Company. The holder subsequently selected the silver stream contract related to certain production from the Navidad project. The silver stream contract is classified and accounted for as a deferred credit. In determining the appropriate classification of the silver stream contract as a deferred credit, the Company evaluated the economics underlying the contract as of the date the Company assumed the obligation. As at December 31, 2018, the carrying amount of the deferred credit arising from the Aquiline acquisition was $20.8 million (2017 - $20.8 million).

6. KEY SOURCES OF ESTIMATION UNCERTAINTY IN THE APPLICATION OF ACCOUNTING POLICIES

Key sources of estimation uncertainty that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities are:

- *Revenue recognition:* Revenue from the sale of concentrate to independent smelters is recognized when control of the asset sold is transferred to the customer. The Company's concentrate sales contracts with third-party buyers, in general, provide for a provisional payment based upon provisional assays and quoted metal prices. Final settlement is based on applicable commodity prices set on specified quotational periods, typically ranging from one month prior to shipment, and can extend to three months after the shipment arrives at the smelter and is based on average market metal prices. Sales revenue is commonly subject to adjustments based on an inspection of the product by the customer. In such cases, sales revenue is initially recognized on a provisional basis using the Company's best estimate of contained metal, and adjusted subsequently. Revenues are recorded under these contracts at the time control passes to the buyer based on the expected settlement period. Revenue on provisionally priced sales is recognized based on estimates of the fair value of the consideration receivable based on forward market prices and estimated quantities. At each reporting date provisionally priced metal is marked to market based on the forward selling price for the quotational period stipulated in the contract. Variations between the price recorded at the date when control is transferred to the buyer and the actual final price set under the smelting contracts are caused by changes in metal prices resulting in the receivable being recorded at FVTPL. In a period of high price volatility, as experienced under current economic conditions, the effect of mark-to-market price adjustments related to the quantity of metal which remains to be settled with

independent smelters could be significant. For changes in metal quantities upon receipt of new information and assay, the provisional sales quantities are adjusted.

- *Estimated recoverable ounces:* The carrying amounts of the Company's mining properties are depleted based on recoverable ounces. Changes to estimates of recoverable ounces and depletable costs including changes resulting from revisions to the Company's mine plans and changes in metal price forecasts can result in a change to future depletion rates.

- *Mineral reserve estimates:* The figures for mineral reserves and mineral resources are disclosed in accordance with National Instrument 43 -101, "Standards of Disclosure for Mineral Projects", issued by the Canadian Securities Administrators and in accordance with "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines – adopted November 23, 2003", prepared by the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Standing Committee on Reserve Definitions. There are numerous uncertainties inherent in estimating mineral reserves and mineral resources, including many factors beyond the Company's control. Such estimation is a subjective process, and the accuracy of any mineral reserve or mineral resource estimate is a function of the quantity and quality of available data and of the assumptions made and judgments used in engineering and geological interpretation. Differences between management's assumptions including economic assumptions such as metal prices and market conditions could have a material effect in the future on the Company's financial position and results of operation.

- *Valuation of Inventory:* In determining mine production costs recognized in the consolidated income statement, the Company makes estimates of quantities of ore stacked in stockpiles, placed on the heap leach pad and in process and the recoverable silver in this material to determine the average costs of finished goods sold during the period. Changes in these estimates can result in a change in mine operating costs of future periods and carrying amounts of inventories. Refer to Note 10 for details.

- *Depreciation and amortization rates for mineral properties, plant and equipment and mineral interests:* Depreciation and amortization expenses are allocated based on assumed asset lives and depreciation and amortization rates. Should the asset life or depreciation rate differ from the initial estimate, an adjustment would be made in the consolidated income statement prospectively. A change in the mineral reserve estimate for assets depreciated using the units of production method would impact depreciation expense prospectively.

- *Impairment, or impairment reversal, of mining interests:* While assessing whether any indications of impairment, or impairment reversal, exist for mining interests, consideration is given to both external and internal sources of information. Information the Company considers include changes in the market, economic and legal environment in which the Company operates that are not within its control that affect the recoverable amount of mining interests. Internal sources of information include the manner in which mineral property, plant and equipment are being used or are expected to be used and indications of the economic performance of the assets. Estimates include but are not limited to estimates of the discounted future after-tax cash flows expected to be derived from the Company's mining properties, costs to sell the mining properties and the appropriate discount rate. Changes in metal price forecasts, increases or decreases in estimated future costs of production, increases or decreases in estimated future capital costs, reductions or increases in the amount of recoverable mineral reserves and mineral resources and/or adverse or favorable current economics can result in a write-down or write-up of the carrying amounts of the Company's mining interests. Impairments and impairment reversals of mining interests are discussed in Note 12.

- *Estimation of decommissioning and reclamation costs and the timing of expenditures:* The cost estimates are updated annually during the life of a mine to reflect known developments, (e.g. revisions to cost estimates and to the estimated lives of operations), and are subject to review at regular intervals. Decommissioning, restoration and similar liabilities are estimated based on the Company's interpretation of current regulatory requirements, constructive obligations and are measured at the best estimate of expenditures required to settle the present obligation of decommissioning, restoration or similar liabilities that may occur upon decommissioning of the mine at the end of its productive life. The carrying amount is determined based on the net present value of estimated

future cash expenditures for the settlement of decommissioning, restoration or similar liabilities that may occur upon decommissioning of the mine. Such estimates are subject to change based on changes in laws and regulations and negotiations with regulatory authorities. Refer to Note 17 for details on decommissioning and restoration costs.

- *Income taxes and recoverability of deferred tax assets:* In assessing the probability of realizing income tax assets recognized, the Company makes estimates related to expectations of future taxable income, applicable tax planning opportunities, expected timing of reversals of existing temporary differences and the likelihood that tax positions taken will be sustained upon examination by applicable tax authorities. In making its assessments, the Company gives additional weight to positive and negative evidence that can be objectively verified. Estimates of future taxable income are based on forecasted cash flows from operations and the application of existing tax laws in each jurisdiction. The Company considers relevant tax planning opportunities that are within the Company's control, are feasible and within management's ability to implement. Examination by applicable tax authorities is supported based on individual facts and circumstances of the relevant tax position examined in light of all available evidence. Where applicable tax laws and regulations are either unclear or subject to ongoing varying interpretations, it is reasonably possible that changes in these estimates can occur that materially affect the amounts of income tax assets recognized. Also, future changes in tax laws could limit the Company from realizing the tax benefits from the deferred tax assets. The Company reassesses unrecognized income tax assets at each reporting period.

- *Accounting for acquisitions:* The provisional fair value of assets acquired and liabilities assumed and the resulting goodwill, if any, requires that management make certain judgments and estimates taking into account information available at the time of acquisition about future events, including, but not restricted to, estimates of mineral reserves and resources acquired, exploration potential, future operating costs and capital expenditures, future metal prices, long-term foreign exchange rates and discount rates. Changes to the provisional values of assets acquired and liabilities assumed, deferred income taxes and resulting goodwill, if any, are retrospectively adjusted when the final measurements are determined if related to conditions existing at the date of acquisition (within one year of the acquisition date).

- *Provisions and contingencies:* Due to the size, complexity and nature of the Company's operations, various legal and tax matters are outstanding from time to time. In the event the Company's estimates of the future resolution of these matters change, the Company will recognize the effects of the changes in its consolidated financial statements on the date such changes occur. Refer to Note 29 for further discussion on contingencies.

7. MANAGEMENT OF CAPITAL

The Company's objective when managing its capital is to maintain its ability to continue as a going concern while at the same time maximizing the growth of its business and providing returns to its shareholders. The Company's capital structure consists of shareholders' equity (comprising issued capital plus share option reserve plus deficit, plus investment revaluation reserve) with a balance of $1.5 billion as at December 31, 2018 (December 31, 2017 - $1.5 billion). The Company manages its capital structure and makes adjustments based on changes to its economic environment and the risk characteristics of the Company's assets. The Company's capital requirements are effectively managed based on the Company having a thorough reporting, planning and forecasting process to help identify the funds required to ensure the Company is able to meet its operating and growth objectives.

The Company is not subject to externally imposed capital requirements and the Company's overall strategy with respect to capital risk management remains unchanged from the year ended December 31, 2017.

8. FINANCIAL INSTRUMENTS

a) Financial assets and liabilities by categories

December 31, 2018 (1)	Amortized cost	FVTPL	FVTOCI	Total
Financial Assets:				
Cash and cash equivalents	**$ 138,510**	**$ —**	**$ —**	**$ 138,510**
Trade receivables from provisional concentrates sales(2)	**—**	**40,803**	**—**	**40,803**
Receivable not arising from sale of metal concentrates(2)	**40,918**	**—**	**—**	**40,918**
Short-term investments, equity securities	**—**	**19,178**	**—**	**19,178**
Short-term investments, other than equity securities	**—**	**—**	**54,826**	**54,826**
Derivative financial assets	**—**	**640**	**—**	**640**
	$ 179,428	**$ 60,621**	**$ 54,826**	**$ 294,875**
Financial Liabilities:				
Derivative financial liabilities	**$ —**	**$ 51**	**$ —**	**$ 51**
	$ —	**$ 51**	**$ —**	**$ 51**

(1) Financial assets and liabilities by categories presented in accordance with IFRS 9 (see Note 4)
(2) Included in Trade and other receivables.

December 31, 2017 (1)	Loans and receivables	FVTPL	Available for sale	Total
Financial Assets:				
Cash and cash equivalents	$ 175,953	$ —	$ —	$ 175,953
Trade receivables from provisional concentrates sales(2)	—	51,952	—	51,952
Receivable not arising from sale of metal concentrates(2)	43,467	—	—	43,467
Short-term investments, equity securities	—	—	22,971	22,971
Short-term investments, other than equity securities	—	—	28,619	28,619
Derivative financial assets	—	1,092	—	1,092
	$ 219,420	$ 53,044	$ 51,590	$ 324,054
Financial Liabilities:				
Derivative financial liabilities	$ —	$ 1,906	$ —	$ 1,906
	$ —	$ 1,906	$ —	$ 1,906

(1) Financial assets and liabilities by categories presented in accordance with IAS 39.
(2) Included in Trade and other receivables.

b) Short-term investments in equity securities recorded at FVTPL

The Company's short-term investments in equity securities are recorded at FVTPL for the year ended December 31, 2018 but were recorded at FVTOCI for the year ended December 31, 2017. Net losses on short-term investments recorded at FVTPL were as follows:

		2018	2017
Unrealized net losses on short-term investments, equity securities	(1)	**$ (3,298)**	$ —
Realized net losses on short-term investments, equity securities	(1)	**(49)**	—
		$ (3,347)	**$ —**

(1) Short-term investments in equity securities, previously classified as available for sale with fair value changes recorded through other comprehensive income, as of January 1, 2018, have been reclassified and measured as FVTPL.

c) Financial assets recorded at FVTOCI

The Company's short-term investments other than equity securities are recorded at FVTOCI. The unrealized (losses) gains from short-term investments other than equity securities for the year ended December 31, 2018 and 2017 were as follows:

	2018	2017
Unrealized net gains on short-term investments, other than equity securities	**$ 993**	$ 810
Reclassification adjustment for realized (gains) losses on short-term investments, other than equity securities	**(788)**	361
	$ 205	$ 1,171

d) Derivative instruments

The Company's derivative financial instruments are comprised of foreign currency and commodity contracts. The net gains (losses) on derivatives for the year ended December 31, 2018 and 2017 were comprised of the following:

	2018	2017
Gains on foreign currency and commodity contracts:		
Realized gains (losses) on foreign currency and commodity contracts	**$ 2,449**	$ (304)
Unrealized gains on foreign currency and commodity contracts	**2,481**	910
	$ 4,930	$ 606
(Loss) gain on derivatives:		
(Loss) gain on warrants	**$ (1,078)**	$ 64
	$ (1,078)	$ 64

e) Fair value information

i) Fair Value Measurement

The categories of the fair value hierarchy that reflect the inputs to valuation techniques used to measure fair value are as follows:

Level 1: Quoted prices in active markets for identical assets or liabilities;

Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly; and

Level 3: Inputs for the asset or liability based on unobservable market data

The levels in the fair value hierarchy into which the Company's financial assets and liabilities that are measured and recognized on the Consolidated Statements of Financial Position at fair value on a recurring basis were categorized as follows:

	At December 31, 2018		At December 31, 2017	
	Level 1	Level 2	Level 1	Level 2
Assets and Liabilities:				
Short-term investments	**$ 74,004**	**$ —**	$ 51,590	$ —
Trade receivables from provisional concentrate sales	**—**	**40,803**	—	51,952
Derivative financial assets	**—**	**640**	—	1,092
Derivative financial liabilities	**—**	**(51)**	—	(1,906)
	$ 74,004	**$ 41,392**	$ 51,590	$ 51,138

There were no transfers between Level 1 and Level 2 during the year ended December 31, 2018. The methodology and assessment of inputs for determining the fair value of financial assets and liabilities as well as the levels of hierarchy for the Company's financial assets and liabilities measured at fair value remains unchanged from that at December 31, 2017.

ii) Valuation Techniques

Short-term investments and other investments

The Company's short-term investments and other investments are valued using quoted market prices in active markets and as such are classified within Level 1 of the fair value hierarchy and are primarily money market securities and U.S. Treasury securities. The fair value of the investment securities is calculated as the quoted market price of the investment and in the case of equity securities, the quoted market price multiplied by the quantity of shares held by the Company.

Derivative assets and liabilities

The Company's derivative assets and liabilities were comprised of investments in warrants, commodity swaps and foreign currency contracts. The fair value of the warrants is calculated using an option pricing model which utilizes a combination of quoted prices and market-derived inputs. The Company's commodity swaps and foreign currency contracts are valued using observable market prices. Derivative instruments are classified within Level 2 of the fair value hierarchy.

Receivables from Provisional Concentrate Sales

A portion of the Company's trade receivables arose from provisional concentrate sales and are valued using quoted market prices based on the forward London Metal Exchange for copper, zinc and lead and the London Bullion Market Association P.M. fix for gold and silver.

f) Financial Instruments and related risks

The Company has exposure to risks of varying degrees of significance which could affect its ability to achieve its strategic objectives for growth and shareholder returns. The principle financial risks to which the Company is exposed are:

i) Credit risk
ii) Liquidity risk
iii) Market risk
    1. Currency risk
    2. Interest rate risk
    3. Price risk

The Company's Board of Directors has overall responsibility for the establishment and oversight of the Company's risk management framework and reviews the Company's policies on an ongoing basis.

i) Credit Risk

Credit risk is the risk of financial loss to the Company if a customer or counterparty to a financial instrument fails to meet its contractual obligations and arises principally from the Company's trade receivables. The carrying value of trade receivables represents the maximum credit exposure.

The Company has long-term concentrate contracts to sell the zinc, lead and copper concentrates produced by the Huaron, Morococha, San Vicente and La Colorada mines. Concentrate contracts are common business practice in the mining industry. The terms of the concentrate contracts may require the Company to deliver concentrate that has a value greater than the payment received at the time of delivery, thereby introducing the Company to credit risk of the buyers of concentrates. Should any of these counterparties not honour supply arrangements, or should any of them become insolvent, the Company may incur losses for products already shipped and be forced to sell its concentrates on the spot market or it may not have a market for its concentrates and therefore its future operating results may be materially adversely impacted. At December 31, 2018, the Company had receivable balances associated with buyers of its concentrates of $40.8 million (2017 - $52.0 million). The vast majority of the Company's concentrate is sold tosix well-known concentrate buyers.

Silver doré production from La Colorada, Dolores and Manantial Espejo is refined under long term agreements with fixed refining terms at three separate refineries worldwide. The Company generally retains the risk and title to the

precious metals throughout the process of refining and therefore is exposed to the risk that the refineries will not be able to perform in accordance with the refining contract and that the Company may not be able to fully recover precious metals in such circumstances. At December 31, 2018, the Company had approximately $19.7 million (2017 - $21.9 million) of value contained in precious metal inventory at refineries. The Company maintains insurance coverage against the loss of precious metals at the Company's mine sites, in-transit to refineries and whilst at the refineries.

The Company maintains trading facilities with several banks and bullion dealers for the purposes of transacting the Company's trading activities. None of these facilities are subject to margin arrangements. The Company's trading activities can expose the Company to the credit risk of its counterparties to the extent that the trading positions have a positive mark-to-market value. However, the Company minimizes this risk by ensuring there is no excessive concentration of credit risk with any single counterparty, by active credit management and monitoring.

Refined silver and gold is sold in the spot market to various bullion traders and banks. Credit risk may arise from these activities if the Company is not paid for metal at the time it is delivered, as required by spot sale contracts.

Supplier advances for products and services yet to be provided are a common practice in some jurisdictions in which the Company operates. These advances represent a credit risk to the Company to the extent that suppliers do not deliver products or perform services as expected. As at December 31, 2018, the Company had made $14.4 million (2017 - $14.3 million) of supplier advances, which are reflected in "Trade and other receivables" on the Company's consolidated statement of financial position.

Management constantly monitors and assesses the credit risk resulting from its refining arrangements, concentrate sales and commodity contracts with its refiners, trading counterparties and customers. Furthermore, management carefully considers credit risk when allocating prospective sales and refining business to counterparties. In making allocation decisions, management attempts to avoid unacceptable concentration of credit risk to any single counterparty.

At December 31, 2018, the Company has recorded an allowance for doubtful accounts provision in the amount of $7.6 million (2017 – $7.6 million) which relates to amounts owing from Doe Run Peru ("DRP"), one of the buyers of concentrates from the Company's Peruvian operations, for deliveries of concentrates that occurred in early 2009. The Company will continue to pursue every possible avenue to recover the amounts owed by DRP. At December 31, 2018, the Company recorded an additional allowance for doubtful accounts provision in the amount of $4.7 million (2017 - $nil) which relates to amounts owning from Republic Metals, one of the buyers of doré, for deliveries that occurred in 2018.

Cash and cash equivalents, trade accounts receivable and other receivables that represent the maximum credit risk to the Company consist of the following:

	December 31, 2018	December 31, 2017
Cash and cash equivalents	**$ 138,510**	$ 175,953
Short-term investments	**74,004**	51,590
Trade accounts receivable(1)	**40,803**	51,952
Royalty receivable(1)	**105**	60
Employee loans(1)	**312**	491

(1) Included in Trade and other receivables.

The Company invests its cash and cash equivalents, which also has credit risk, with the objective of maintaining safety of principal and providing adequate liquidity to meet all current payment obligations.

ii) Liquidity Risk

Liquidity risk is the risk that the Company will not be able to meet its financial obligations as they come due. The Company manages its liquidity risk by continuously monitoring forecasted and actual cash flows. The Company has in place a rigorous planning and budgeting process to help determine the funds required to support the Company's normal operating requirements on an ongoing basis and its expansion plans. The Company strives to maintain sufficient liquidity to meet its short-term business requirements, taking into account its anticipated cash flows from operations, its holdings of cash and short-term investments, and its committed loan facilities.

In the normal course of business, the Company enters into contracts that give rise to commitments for future minimum payments. The following table summarizes the remaining contractual maturities of the Company's financial and non-financial liabilities, shown in contractual undiscounted cash flow:

Payments due by period 2018					
	Within 1 year	2 - 3 years	4- 5 years	After 5 years	Total
Financial liabilities					
Accounts payable and accrued liabilities other than:	$ 128,486	$ —	$ —	$ —	$ 128,486
Severance accrual	1,791	3,763	534	112	6,200
Employee compensation	1,466	—	—	—	1,466
Total accounts payable and accrued liabilities	131,743	3,763	534	112	136,152
Loss on commodity contracts	51	—	—	—	51
Provisions(1)(2)	3,123	547	720	178	4,568
Income taxes payable	8,306	—	—	—	8,306
Other commitments					
Capital and operating expenditure commitments	7,947	7,898	2,885	530	19,260
Future employee compensation	1,530	4,911	—	—	6,441
Credit facility charges	1,200	350	—	—	1,550
Total contractual obligations(2)	**$ 153,900**	**$ 17,469**	**$ 4,139**	**$ 820**	**$ 176,328**

Payments due by period 2017					
	Within 1 year	2 - 3 years	4- 5 years	After 5 years	Total
Financial liabilities					
Accounts payable and accrued liabilities other than:	$ 136,671	$ —	$ —	$ —	$ 136,671
Severance accrual	1,092	2,273	760	1,051	5,176
Employee compensation	1,935	—	—	—	1,935
Total accounts payable and accrued liabilities	139,698	2,273	760	1,051	143,782
Loan obligation	3,000	—	—	—	3,000
Loss on commodity contracts	1,906	—	—	—	1,906
Provisions(1)(2)	2,681	546	627	243	4,097
Income taxes payable	26,131	—	—	—	26,131
Other commitments					
Capital and operating expenditure commitments	8,812	8,883	1,390	789	19,874
Future employee compensation	1,879	2,894	—	—	4,773
Credit facility charges	1,200	1,550	—	—	2,750
Total contractual obligations(2)	**$ 185,307**	**$ 16,146**	**$ 2,777**	**$ 2,083**	**$ 206,313**

(1) Total litigation provision (Note 17).
(2) Amounts above do not include payments related to the Company's anticipated closure and decommissioning obligation (current $1.9 million, long-term $68.6 million) discussed in Note 17 (2017 - current $5.6 million, long-term $59.8 million), the deferred credit arising from the Aquiline acquisition ($20.8 million) (2017 - $20.8 million) discussed in Note 19, and deferred tax liabilities of $148.8 million (2017 - $171.2 million).

There was no significant change to the Company's exposure to liquidity risk during the year ended December 31, 2018.

iii) Market Risk

1. Currency Risk

The Company reports its financial statements in USD; however, the Company operates in jurisdictions that utilize other currencies. As a consequence, the financial results of the Company's operations as reported in USD are subject to changes in the value of the USD relative to local currencies. Since the Company's sales are denominated in USD and a portion of the Company's operating costs and capital spending are in local currencies, the Company is negatively impacted by strengthening local currencies relative to the USD and positively impacted by the inverse.

At December 31, 2018, the Company had outstanding positions on its foreign currency exposure of Mexican peso ("MXN") purchases with no comparative positions at December 31, 2017. The Company recorded gains of $0.7 million on MXN derivative contracts for the year ended December 31, 2018 (2017 - gains of $3.8 million).

The Company's net earnings are affected by the revaluation of its monetary assets and monetary liabilities at each balance sheet date. The Company has reviewed its monetary assets and monetary liabilities and is exposed to foreign exchange risk through financial assets and liabilities and deferred income tax liabilities denominated in currencies other than USD as shown in the table below. The Company estimates that a 10% change in the exchange rate of the foreign currencies in which its December 31, 2018 non-USD net monetary liabilities were denominated would result in an income before taxes change of about $14.3 million (2017 - $17.4 million).

The Company is exposed to currency risk through the following financial assets and liabilities, and deferred income tax assets and liabilities denominated in foreign currencies:

At December 31, 2018	Cash and short-term investments	Other current and non-current assets	Income taxes receivable (payable), current and non-current	Accounts payable and accrued liabilities and non-current liabilities	Deferred tax assets and liabilities
Canadian Dollar	$ 22,514	$ 1,793	$ —	$ (851)	$ —
Mexican Peso	2,724	18,873	7,240	(31,909)	(106,383)
Argentinian Peso	2,677	15,038	1,134	(18,739)	—
Bolivian Boliviano	285	532	(6,068)	(12,167)	(9,372)
European Euro	127	—	(332)	—	—
Peruvian Sol	1,268	2,324	2,640	(13,134)	(23,004)
	$ 29,595	$ 38,560	$ 4,614	$ (76,800)	$ (138,759)

At December 31, 2017	Cash and short-term investments	Other current and non-current assets	Income taxes receivable (payable), current and non-current	Accounts payable and accrued liabilities and non-current liabilities	Deferred tax assets and liabilities
Canadian Dollar	$ 25,062	$ 529	$ (713)	$ (348)	$ —
Mexican Peso	5,188	22,809	(242)	(26,013)	(141,870)
Argentinian Peso	4,239	19,720	837	(28,685)	—
Bolivian Boliviano	4,659	495	(3,840)	(13,954)	(10,076)
European Euro	24	—	(780)	—	—
Peruvian Sol	2,274	1,026	(4,402)	(13,478)	(16,603)
	$ 41,446	$ 44,579	$ (9,140)	$ (82,478)	$ (168,549)

2. Interest Rate Risk

Interest rate risk is the risk that the fair values and future cash flows of the Company will fluctuate because of changes in market interest rates. At December 31, 2018, the Company has $6.7 million in lease obligations (2017 - $7.6 million), that are subject to an annualized interest rate of 2.2% (2017 - 2.2%). At December 31, 2018, the Company has short-term loans in Argentina of $nil (2017 - $3.0 million at an annualized interest rate of 1.8%).

The average interest rate earned by the Company during the year ended December 31, 2018 on its cash and short-term investments was 0.90% (2017 - 0.77%). A 10% increase or decrease in the interest earned from financial institutions on cash and short-term investments would result in a $0.2 million increase or decrease in the Company's before tax earnings (2017 – $0.2 million).

3. Price Risk

Metal price risk is the risk that changes in metal prices will affect the Company's income or the value of its related financial instruments. The Company derives its revenue from the sale of silver, gold, lead, copper, and zinc. The Company's sales are directly dependent on metal prices that have shown significant volatility and are beyond the Company's control. Consistent with the Company's mission to provide equity investors with exposure to changes in silver prices, the Company's current policy is to not hedge the price of silver.

A 10% increase in all metal prices as at December 31, 2018, would result in an increase of approximately $81.2 million (2017 – $83.9 million) in the Company's revenues. A 10% decrease in all metal prices as at the same period would result in a decrease of approximately $82.7 million (2017 - $85.3 million) in the Company's revenues. The Company also enters into provisional concentrate contracts to sell the zinc, lead and copper concentrates produced by the Huaron, Morococha, San Vicente and La Colorada mines. We have provisionally priced sales for which price finalization, referenced to the relevant zinc, lead, copper and silver index, is outstanding at the balance sheet date. A 10% increase in metals prices on open positions of approximately 8,300 tonnes, 2,300 tonnes, 2,000 tonnes, and 1.6 million ounces (2017 - 9,200 tonnes, 2,200 tonnes, 800 tonnes, and 1.9 million ounces) of zinc, lead, copper and silver, respectively, for provisional concentrate contracts for the year ended December 31, 2018 would result in an increase of approximately $6.2 million (2017 - $7.4 million) in the Company's before tax earnings which would be reflected in 2018 results. A 10% decrease in metal prices for the same period would result in a decrease of approximately $6.2 million (2017 - $7.4 million) in the Company's before tax earnings.

The Company mitigates the price risk associated with its base metal production by committing some of its forecasted base metal production from time to time under forward sales and option contracts. The Board of Directors continually assesses the Company's strategy towards its base metal exposure, depending on market conditions. At December 31, 2018, the Company had outstanding contracts to sell some of its base metals production.

9. SHORT-TERM INVESTMENTS

	December 31, 2018			December 31, 2017		
	Fair Value	**Cost**	**Accumulated unrealized holding gains**	Fair Value	Cost	Accumulated unrealized holding gains
Short-term investments	**$ 74,004**	**$ 73,796**	**$ 208**	$ 51,590	$ 49,985	$ 1,605

10. INVENTORIES

Inventories consist of:

	December 31, 2018	December 31, 2017
Concentrate inventory	**$ 19,286**	$ 11,582
Stockpile ore (1)	**3,945**	16,209
Heap leach inventory and in process (2)	**113,199**	108,509
Doré and finished inventory (3)	**30,736**	35,054
Materials and supplies	**47,299**	47,361
	$ 214,465	$ 218,715

(1) Includes an impairment charge of $11.2 million to reduce the cost basis of inventory to NRV at Manantial Espejo and Dolores mines (December 31, 2017 – $10.0 million at Manantial Espejo mine).
(2) Includes an impairment charge of $28.9 million to reduce the cost basis of inventory to NRV at Manantial Espejo and Dolores mines (December 31, 2017 - $10.3 million at Manantial Espejo and Dolores mines).
(3) Includes an impairment charge of $7.5 million to reduce the cost basis of inventory to NRV at Manantial Espejo and Dolores mines at December 31, 2018. (December 31, 2017 - $2.9 million at Manantial Espejo mine).

The costs of inventories recognized as expense for the year ended December 31, 2018 amounted to $683.6 million (2017 – $648.1 million), of which $515.6 million (2017 – $500.7 million) and $147.3 million (2017 – $122.9 million) was included in production costs and depreciation and depletion in the Consolidated Income Statements, respectively.

During the year ended December 31, 2018 a $24.3 million (2017 - $12.3 million NRV loss) NRV loss was recognized, primarily driven by decreased metal prices, and included in production costs (Note 21). Inventories held at NRV amounted to $143.6 million (2017 - $125.5 million).

A portion of the Stockpile ore amounting to $2.5 million (2017 - $9.5 million) and a portion of the heap leach inventory amounting to $75.3 million (2017 - $74.3 million) are expected to be recovered or settled after more than twelve months.

11. MINERAL PROPERTIES, PLANT AND EQUIPMENT

Acquisition costs of investment and non-producing properties together with costs directly related to mine development expenditures are capitalized. Exploration expenditures on investment and non-producing properties are charged to expense in the period they are incurred.

Capitalization of evaluation expenditures commences when there is a high degree of confidence in the project's viability and hence it is probable that future economic benefits will flow to the Company. Evaluation expenditures, other than that acquired from the purchase of another mining company, are carried forward as an asset provided that such costs are expected to be recovered in full through successful development and exploration of the area of interest or alternatively, by its sale. Evaluation expenditures include delineation drilling, metallurgical evaluations, and geotechnical evaluations amongst others.

Mineral properties, plant and equipment consist of:

	Mining Properties				
	Depletable	Non-depletable			
	Reserves and Resources	Reserves and Resources	Exploration and Evaluation	Plant and Equipment	Total
Carrying value					
As at January 1, 2018					
Net of accumulated depreciation	$ 766,883	$ 71,809	$ 253,128	$ 244,863	$ 1,336,683
Additions	106,701	25,423	—	16,896	149,020
Disposals	—	(396)	—	(937)	(1,333)
Depreciation and amortization	(68,935)	—	—	(78,354)	(147,289)
Depreciation charge captured in inventory	(12,620)	—	—	—	(12,620)
Impairment charge	(2,144)	(25,113)	—	(532)	(27,789)
Transfers	(115,726)	1,652	(3,897)	117,971	—
Closure and decommissioning – changes in estimate	4,330	—	—	—	4,330
As at December 31, 2018	**$ 678,489**	**$ 73,375**	**$ 249,231**	**$ 299,907**	**$ 1,301,002**
Cost as at December 31, 2018	$ 1,997,880	$ 104,614	$ 668,358	$ 939,993	$ 3,710,845
Accumulated depreciation and impairments	**(1,319,391)**	**(31,239)**	**(419,127)**	**(640,086)**	**(2,409,843)**
Carrying value – December 31, 2018	**$ 678,489**	**$ 73,375**	**$ 249,231**	**$ 299,907**	**$ 1,301,002**

	Mining Properties				
	Depletable	Non-depletable			
	Reserves and Resources	Reserves and Resources	Exploration and Evaluation	Plant and Equipment	Total
Carrying value					
As at January 1, 2017					
Net of accumulated depreciation	$ 694,501	$ 58,578	$ 259,953	$ 209,695	$ 1,222,727
Additions	120,098	4,066	—	23,938	148,102
Acquisition of Argentine projects	—	40,315	—	30	40,345
Disposals	—	—	(195)	(2,710)	(2,905)
Depreciation and amortization	(53,124)	—	—	(69,764)	(122,888)
Depreciation charge captured in inventory	(4,104)	—	—	—	(4,104)
Impairment reversal	27,531	6,892	1,317	25,814	61,554
Transferred to assets held for sale	—	—	(7,947)	(2)	(7,949)
Transfers	(22,400)	(38,042)	—	57,862	(2,580)
Closure and decommissioning – changes in estimate	4,381	—	—	—	4,381
As at December 31, 2017	**$ 766,883**	**$ 71,809**	**$ 253,128**	**$ 244,863**	**$ 1,336,683**
Cost as at December 31, 2017	$ 2,018,937	$ 77,242	$ 653,216	$ 889,655	$ 3,639,050
Accumulated depreciation and impairments	**(1,252,054)**	**(5,433)**	**(400,088)**	**(644,792)**	**(2,302,367)**
Carrying value – December 31, 2017	**$ 766,883**	**$ 71,809**	**$ 253,128**	**$ 244,863**	**$ 1,336,683**

	December 31, 2018			December 31, 2017		
	Cost	Accumulated Depreciation and Impairment	Carrying Value	Cost	Accumulated Depreciation and Impairment	Carrying Value
Huaron mine, Peru	$ 207,360	$ (114,288)	$ 93,072	$ 196,111	$ (107,970)	$ 88,141
Morococha mine, Peru	243,603	(149,120)	94,483	230,932	(135,868)	95,064
Alamo Dorado mine, Mexico	126,960	(126,960)	—	194,023	(194,023)	—
La Colorada mine, Mexico	301,706	(121,940)	179,766	279,541	(100,970)	178,571
Dolores mine, Mexico	1,529,751	(981,948)	547,803	1,485,200	(908,651)	576,549
Manantial Espejo mine, Argentina	367,105	(362,293)	4,812	367,573	(353,322)	14,251
San Vicente mine, Bolivia	137,394	(86,663)	50,731	131,038	(79,595)	51,443
Other	23,994	(16,265)	7,729	24,174	(16,447)	7,727
Total	$ 2,937,873	$ (1,959,477)	$ 978,396	$ 2,908,592	$ (1,896,846)	$ 1,011,746
Land and Non-Producing Properties:						
Land	$ 4,677	$ (1,096)	$ 3,581	$ 4,990	$ (1,234)	$ 3,756
Navidad project, Argentina	566,577	(376,101)	190,476	566,577	(376,101)	190,476
Minefinders projects, Mexico	91,362	(36,975)	54,387	73,956	(16,929)	57,027
Morococha, Peru	9,674	—	9,674	9,674	—	9,674
Argentine projects(1)(2)	69,774	(24,939)	44,835	44,376	—	44,376
Other	30,908	(11,255)	19,653	30,885	(11,257)	19,628
Total non-producing properties	$ 772,972	$ (450,366)	$ 322,606	$ 730,458	$ (405,521)	$ 324,937
Total mineral properties, plant and equipment	$ 3,710,845	$ (2,409,843)	$ 1,301,002	$ 3,639,050	$ (2,302,367)	$ 1,336,683

(1) On February 10, 2017, the Company completed the acquisition of 100% of Coeur Joaquin S.R.L., subsequently renamed Minera Joaquin S.R.L. ("Joaquin"). Joaquin's principal asset is the Joaquin project, located in the Santa Cruz province of southern Argentina. The consideration for the acquisition was $25.0 million, comprised of $15.0 million in cash and $10.0 million of the Company's common shares valued as of January 13, 2017 (555,654 total common shares), plus a 2.0% net smelter returns royalty on the Joaquin project. Transaction costs were $0.3 million during the year ended December 31, 2017 with no similar amount in 2018.

(2) On May 31, 2017, the Company acquired 100% of Patagonia Gold Plc's ("Patagonia") COSE project in the Santa Cruz province of southern Argentina from Patagonia. Consideration payable to Patagonia included $15 million, of which $7.5 million is deferred, plus a 1.5% net smelter returns ("NSR") royalty on the COSE project. On May 31, 2017, the Company made a payment of $7.5 million and granted a 1.5% NSR on production from COSE, and the title to COSE transferred to the Company. The remaining $7.5 million payment was made on May 31, 2018.

The assets acquired and liabilities assumed from both projects have been included in the table above under "Argentine projects", and in the "Manantial Espejo" reportable operating segment of the segment note (Note 26). The Company concluded that the acquired assets and assumed liabilities did not constitute a business and accordingly the transactions were accounted for as asset acquisitions. The Joaquin purchase price was allocated to the assets acquired and liabilities assumed on a relative fair value basis with $25.4 million allocated to mineral properties, plant and equipment and the remaining allocated to working capital items ($0.04 million). The COSE purchase price of $15.0 million was allocated to mineral properties, plant and equipment.

Held for Sale Assets

On December 31, 2017, all of the assets and liabilities of Minera Aquiline Argentina SA were classified as held for sale. Immediately prior to the classification to assets and liabilities held for sale, the carrying amount of the Calcatreu project ("Calcatreu") was re-measured to its recoverable amount, being its fair value less costs of disposal, based on the expected proceeds from the sale. As a result, the Company recorded an impairment reversal during the year ended December 31, 2017 of $1.3 million with no impairment or impairment reversal recorded during the year ended December 31, 2018 (Note 12).

On January 31, 2018, the Company completed the sale of 100% of the shares of Minera Aquiline Argentina SA, which owns Calcatreu, to Patagonia for total consideration of $15 million in cash. The Company received $5 million at the date of sale with the remaining $10 million received on May 18, 2018 as scheduled. During the year ended December 31, 2018 the Company recorded a gain of $8.0 million (2017 - $nil) ($6 million, net of tax expense (2017 - $nil, net of tax expense)), respectively, on the sale of Calcatreu included in gain on sale of mineral properties, plant and equipment.

12. IMPAIRMENT (CHARGES) REVERSALS AND GOODWILL

Non-current assets are tested for impairment, or reversal of previous impairment charges, when events or changes in circumstance indicate that the carrying amount may not be recoverable, or previous impairment charges against assets are recoverable. The Company performs an impairment test for goodwill at each financial year end and when events or changes in circumstances indicate that the related carrying value may not be recoverable. The Company considers its internal discounted cash flow economic models as a proxy for the calculation of FVLCTS, given a willing market participant would use such models in establishing a value for the properties. The Company considers impairment, or if previous impairment charges should be reversed, at the CGU level, which is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The Company's CGUs are its mine sites, represented by its principal producing mining properties and significant development projects. The CGU carrying amount for purposes of this test includes the carrying value of the mineral properties plant and equipment and goodwill less deferred tax liabilities and closure and decommissioning liabilities related to each CGU.

The Company's key assumptions for determining the recoverable amounts of its various CGUs, for the purpose of testing for impairment or impairment reversals, include the most current operating and capital costs information and risk adjusted project specific discount rates. The Company uses an average of analysts' consensus prices for the first four years of its economic modeling, and long-term reserve prices for the remainder of each asset's life. The prices used can be found in the key assumptions and sensitivity section below.

Impairment (charges) reversals

Based on the Company's assessment with respect to possible indicators of either impairment or reversal of previous impairments to its mineral properties, the Company concluded that as of December 31, 2018 impairment charges totaling $27.8 million ($27.8 million, net of tax expense) (2017 - impairment reversals of $61.6 million ($53.4 million, net of tax expense)) were required on the following CGUs:

	2018	2017
Manantial Espejo	**$ (27,789)**	$ —
Morococha	**—**	60,237
Calcatreu	**—**	1,317
	$ (27,789)	$ 61,554

2018 Impairment - Manantial Espejo

The decrease in short term analyst consensus silver prices and the introduction of an export tax of three to four Argentine pesos per Dollar of export in September 2018, led management to conclude that there was an indication of impairment to its operating assets in Argentina, namely the Manantial Espejo mine, and the COSE and Joaquin projects. As at December 31, 2018, the Company determined that the combined Net Carrying Amount of the Manantial Espejo mine and the Joaquin and COSE development projects, including mineral properties, plant and equipment, and stockpile inventories, net of associated closure and decommissioning liabilities of $68.1 million was greater than the combined estimated recoverable amount of $39.3 million when using a 7.25% risk adjusted discount rate. Based on this assessment, the Company recorded an impairment charge related to the Manantial Espejo mineral property, and the COSE and Joaquin projects, of $27.8 million ($27.8 million, net of tax).

2017 Impairment Reversal - Morococha

During the years ended December 2017 and 2016, Morococha generated significantly higher cash flows from operations than the amount assumed in the recoverable value estimation at December 31, 2015, primarily the results of continued costs performance and base metal prices being superior to prior expectations. Further, as of December 31, 2017, Morococha's estimated silver mineral reserve increased by 2.8 million ounces. As a result of the CGU's continued strong performance, increased silver mineral reserves and higher long-term metal prices, the Company recognized a reversal of the remaining unamortized impairment of $60.2 million ($52.1 million, net of tax) related to its investment in Morococha at December 31, 2017.

2017 Impairment Reversal - Calcatreu

The Company recorded an impairment reversal on Calcatreu during the year ended December 31, 2017 further discussed in Note 11.

Key assumptions and sensitivity
The metal prices used to calculate the recoverable amounts at December 31, 2018, and December 31, 2017 are based on analyst consensus prices and the Company's long term reserve prices, and are summarized in the following tables.

Metal prices used at December 31, 2018:

Commodity Prices	2019-2022 average	Long term
Silver price - $/oz.	$17.07	$18.50
Gold price - $/oz.	$1,300	$1,300
Zinc price - $/tonne	$2,599	$2,400
Lead price - $/tonne	$2,171	$2,100
Copper price - $/tonne	$6,975	$6,000

Metal prices used at December 31, 2017:

Commodity Prices	2018-2021 average	Long term
Silver price - $/oz.	$18.57	$18.50
Gold price - $/oz.	$1,307	$1,300
Zinc price - $/tonne	$2,818	$2,600
Lead price - $/tonne	$2,251	$2,200
Copper price - $/tonne	$6,742	$5,500

In 2018, the discount rates used to present value the Company's life of mine cash flows were derived from the Company's weighted average cost of capital which was calculated as 5.3% (2017 – 5.2%), with rates applied to the various mines and projects ranging from 4.5% to 9.8% (2017 - 4.0% to 9.0%), depending on the Company's assessment of country risk, project risk, and other potential risks specific to each CGU.

The key assumptions in determining the recoverable value of the Company's mineral properties are individual metal prices, operating and capital costs, foreign exchange rates and discount rates. At December 31, 2018, the Company performed a sensitivity analysis on all key assumptions that assumed a modest (10%) adverse change to each individual assumption while holding the other assumptions constant.

At December 31, 2018, an adverse 10% movement in any of the major assumptions in isolation did not cause the recoverable amount to be below the CGU carrying value for any of the La Colorada, San Vicente, Huaron, or Morococha mines. For the Dolores mine, Manantial Espejo mine and Navidad project, which previously had their carrying values adjusted to FVLCTS through impairment charges, a modest adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

At December 31, 2017, an adverse 10% movement in any of the major assumptions in isolation did not cause the recoverable amount to be below the CGU carrying value for any of the La Colorada, San Vicente, Huaron, or Morococha mines. For the Dolores mine, Manantial Espejo mine and Navidad project, which previously had their carrying values

adjusted to FVLCTS through impairment charges, a modest adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

Goodwill

Goodwill arose when the Company acquired Minefinders Corporation Ltd. in 2012 and consists of:

	December 31, 2018	December 31, 2017
Goodwill	**$ 3,057**	$ 3,057

13. INVESTMENT IN ASSOCIATES

The following table shows a continuity of the Company's investment in Maverix and its investment in other associates:

	2018	2017
Balance of investment in Maverix, December 31,	**$ 53,567**	$ 48,284
Investment in associate	—	2,473
Dilution gain	13,288	2,273
Adjustment for change in ownership interest	1,870	758
Income (loss) in associate	391	(221)
Balance of investment in Maverix, December 31,	**$ 69,116**	$ 53,567
Balance of investment in other	**$ 1,450**	$ 1,450
	$ 70,566	$ 55,017

Investment in Maverix:

The Company's warrant liability representing in substance ownership interest in Maverix was $14.7 million as at December 31, 2018 (December 31, 2017 - $14.3 million). The Company's share of Maverix income or loss was recorded, based on its 40% interest from January 1, 2018 to June 29, 2018, and 29% interest from June 30, 2018 to December 31, 2018 (2017 - 43% from January 1, 2017 to February 21, 2017, 41% from February 22, 2017 to April 20, 2017, and 40% for the remainder of the year) representing the Company's fully diluted ownership.

On June 29, 2018, Maverix closed a transaction with Newmont Mining Corp. and its affiliates ("Newmont") where Maverix acquired a portfolio of fifty (50) royalties from Newmont, for which Maverix issued to Newmont a total of 60 million common shares, 10 million common share purchase warrants, exercisable for five years at $1.64 per common share, and made a cash payment of $17 million (collectively, the "Newmont Transaction").

On August 17, 2017, Maverix closed a transaction with CEF Limited ("CEF") where CEF provided Maverix with a $20.0 million senior secured loan facility and Maverix issued 5.9 million common shares to CEF for gross proceeds of $5.3 million. The Company exercised its anti-dilution rights in connection with the CEF transaction where Maverix issued 2.3 million common shares to the Company for gross proceeds of $2.5 million.

On April 20, 2017, Maverix closed a transaction with a wholly owned subsidiary of Silvercorp Metals Inc. (Silvercorp"), where Maverix acquired a net smelter return royalty on the Silvertip mine located in British Columbia Canada; and Maverix issued to Silvercorp a total of 3.8 million common shares (the "Silvertip Transaction").

On February 21, 2017, Maverix closed a transaction with Auramet Trading LLC and certain of its affiliates (collectively "Auramet"), where Maverix acquired a portfolio of two (2) royalties from Auramet; and Maverix issued to Auramet a total of 8.5 million common shares and made a cash payment of $5 million (collectively, the "Auramet Transaction").

Deferred Revenue:

Deferred revenue relates to precious metal streams whereby the Company will sell 100% of the future gold production from La Colorada and 5% of the future gold production from La Bolsa, which is in the exploration stage, to Maverix for $650 and $450 per ounce, respectively (the "Streams"). The deferred revenue liability recognized by the Company is the portion of the deferred revenue to be paid to Maverix owners other than Pan American through its ownership in Maverix.

The Company will recognize the deferred revenue related to the Streams as revenue as the gold ounces are delivered to Maverix. On June 29, 2018, February 21, 2017, April 20, 2017 and August 17, 2017, the Company recorded an additional $1.9 million, $0.4 million, $0.2 million, and $0.1 million of deferred revenue, respectively, as a result of the diluted ownership in Maverix that arose on the Newmont, Auramet, Silvertip and CEF Transactions, respectively. As at December 31, 2018, the deferred revenue liability was $13.3 million (December 31, 2017 - $12.0 million).

During the year ended December 31, 2018, $0.6 million (2017 - $0.3 million) was recognized for the delivery of 3,968 ounces of gold (2017 - 2,347 ounces) from La Colorada to Maverix. All transactions with Maverix were in the normal course and measured at exchange amounts, which were the amounts of consideration established and agreed to by the Company and Maverix.

Income Statement Impacts:

The Company recognized dilution gains of $13.3 million for the year ended December 31, 2018 (2017 - gains of $2.3 million) recorded in share of loss from associate and dilution gain.

For the year ended December 31, 2018 the Company also recognized its share of income from associate of $0.4 million (2017 - $0.2 million loss) which represents the Company's proportionate share of Maverix's income (loss) during the year.

14. OTHER ASSETS

Other assets consist of:

	December 31, 2018	December 31, 2017
Reclamation bonds	**$ 199**	$ 199
Lease receivable	**1,903**	81
Other assets	**61**	66
	$ 2,163	$ 346

15. ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

Accounts payable and accrued liabilities consist of:

	December 31, 2018	December 31, 2017
Trade accounts payable(1)	**$ 52,201**	$ 47,138
Royalties payable	**2,004**	4,896
Other accounts payable and trade related accruals	**32,896**	29,690
Payroll and related benefits	**26,817**	29,329
Severance accruals	**1,791**	1,092
Other taxes payable	**4,044**	3,439
Other	**11,990**	24,114
	$ 131,743	$ 139,698

(1) No interest is charged on the trade accounts payable ranging from 30 to 60 days from the invoice date. The Company has policies in place to ensure that all payables are paid within the credit terms.

16. LOANS PAYABLE

	December 31, 2018	December 31, 2017
Loans Payable(1)	**$ —**	$ 3,000

(1) This $US loan bears interest at 1.8% per annum.

17. PROVISIONS

	Closure and Decommissioning	Litigation	Total
December 31, 2016	$ 55,611	$ 4,332	$ 59,943
Revisions in estimates and obligations incurred	12,561	—	12,561
Charged (credited) to earnings:			
-new provisions	—	767	767
-change in estimate	—	(228)	(228)
-exchange gains on provisions	—	93	93
Charged in the year	—	(867)	(867)
Reclamation expenditures	(8,749)	—	(8,749)
Accretion expense (Note 23)	5,973	—	5,973
December 31, 2017	$ 65,396	$ 4,097	$ 69,493
Revisions in estimates and obligations incurred	**6,516**	**—**	**6,516**
Charged (credited) to earnings:			
-new provisions	**—**	**1,308**	**1,308**
-change in estimate	**—**	**(173)**	**(173)**
-exchange gains on provisions	**—**	**(253)**	**(253)**
Charged in the year	**—**	**(411)**	**(411)**
Reclamation expenditures	**(7,849)**	**—**	**(7,849)**
Accretion expense (Note 23)	**6,524**	**—**	**6,524**
December 31, 2018	**$ 70,587**	**$ 4,568**	**$ 75,155**

Maturity analysis of total provisions:	December 31, 2018	December 31, 2017
Current	**$ 5,072**	$ 8,245
Non-Current	**70,083**	61,248
	$ 75,155	$ 69,493

Closure and Decommissioning Cost Provision

The total inflated and undiscounted amount of estimated cash flows required to settle the Company's estimated future closure and decommissioning costs is $159.1 million (December 31, 2017 - $142.2 million) which has been inflated using inflation rates of between 2% and 17% (2017 – between 2% and 25%). The total provision for closure and decommissioning cost is calculated using discount rates of between 2% and 22% (2017 - between 2% and 24%). Revisions made to the reclamation obligations in 2018 were primarily a result of increased site disturbance at the mines as well as revisions to the estimate based on periodic reviews of closure plans, actual expenditures incurred and concurrent closure activities completed. These obligations will be funded from operating cash flows, reclamation deposits and cash on hand.

The accretion expense charged to 2018 earnings as finance expense was $6.5 million (2017 - $6.0 million). Reclamation expenditures paid during the current year were $7.8 million (2017 - $8.7 million).

Litigation Provision

The litigation provision, as at December 31, 2018 and 2017, consists primarily of amounts accrued for labour claims at several of the Company's mine operations. The balance of $4.6 million at December 31, 2018 (2017 - $4.1 million) represents the Company's best estimate for all known and anticipated future obligations related to the above claims. The amount and timing of any expected payments are uncertain as their determination is outside the control of the Company.

18. FINANCE LEASE OBLIGATIONS

The following table presents a reconciliation of the total future minimum lease payments atDecember 31, 2018 and December 31, 2017 to their present value for equipment lease obligations at several of the Company's subsidiaries:

	December 31, 2018	December 31, 2017
Less than a year	$ **5,488**	$ 5,879
2 years	**1,335**	1,845
	6,823	7,724
Less future finance charges	**(147)**	(165)
Present value of minimum lease payments	$ **6,676**	$ 7,559
Less: current portion of finance lease obligation	**(5,356)**	(5,734)
Non-current portion of finance lease obligation	$ **1,320**	$ 1,825

19. OTHER LONG TERM LIABILITIES

Other long term liabilities consist of:

	December 31, 2018	December 31, 2017
Deferred credit(1)	$ **20,788**	$ 20,788
Other income tax payable	**227**	2,082
Severance accruals	**4,410**	4,084
	$ **25,425**	$ 26,954

(1) As part of the 2009 Aquiline transaction the Company issued a replacement convertible debenture that allowed the holder to convert the debenture into either 363,854 Common Shares or a Silver Stream contract related to certain production from the Navidad project. Regarding the replacement convertible debenture, it was concluded that the deferred credit presentation was the most appropriate and best representation of the economics underlying the contract as of the date the Company assumed the obligation as part of the Aquiline acquisition. Subsequent to the acquisition, the counterparty to the replacement debenture selected the Silver Stream alternative. The final contract for the alternative is being discussed and pending the final resolution of this discussion, the Company continues to classify the fair value calculated at the acquisition of this alternative, as a deferred credit.

20. SHARE-BASED COMPENSATION AND OTHER RELATED INFORMATION

a. Stock options and Common Shares issued as compensation ("Compensation Shares")

For the year ended December 31, 2018 the total share-based compensation expense relating to stock options and Compensation Shares was $3.0 million (2017 - $3.1 million) and presented as a component of general and administrative expense.

i. Compensation shares

During the year ended December 31, 2018, the Company awarded 129,619 (2017 - 123,113 Compensation Shares with a two year vesting period) Compensation Shares with a three year vesting period as compensation.

During the year ended December 31, 2018, 10,338 Common Shares were issued to Directors in lieu of Directors fees of $0.2 million (2017 - 12,291 Common Shares in lieu of fees of $0.2 million).

ii. Stock options

During the year ended December 31, 2018, the Company granted 149,163 (2017 – 91,945 stock options) stock options with a two year vesting period as compensation.

The following table summarizes changes in stock options for the years ended December 31:

	Stock Options	
	Shares	Weighted Average Exercise Price CAD$
As at December 31, 2016	**1,310,864**	**$ 16.81**
Granted	91,945	$ 18.64
Exercised	(307,266)	$ 11.24
Expired	(61,891)	$ 40.22
Forfeited	(97,529)	$ 23.60
As at December 31, 2017	**936,123**	**$ 16.56**
Granted	149,163	17.53
Exercised	(125,762)	$ 11.14
Expired	(211,614)	24.90
Forfeited	(49,523)	$ 19.49
As at December 31, 2018	**698,387**	**$ 15.00**

The following table summarizes information about the Company's stock options outstanding atDecember 31, 2018:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices CAD$	Number Outstanding as at December 31, 2018	Weighted Average Remaining Contractual Life (months)	Weighted Average Exercise Price CAD$	Number Exercisable as at December 31, 2018	Weighted Average Exercise Price CAD$
$9.76 - $11.57	**232,883**	43.08	$ 10.07	**232,883**	$ 10.07
$11.58 - $17.01	**97,043**	40.16	$ 12.50	**97,043**	$ 12.50
$17.02 - $18.53	**230,811**	57.74	$ 17.88	**81,648**	$ 18.53
$18.54 - $23.61	**137,650**	67.28	$ 20.29	**91,680**	$ 21.12
	698,387	52.29	$ 15.00	**503,254**	$ 13.92

The following assumptions were used in the Black-Scholes option pricing model in determining the fair value of options granted during the years ended December 31:

	2018	2017
Expected life	**4.0**	4.0
Expected volatility	**43.8%**	41.9%
Expected dividend yield	**2.1%**	2.6%
Risk-free interest rate	**2.5%**	2.2%
Weighted average exercise price (CAD$)	**$ 17.53**	$ 18.64
Weighted average fair value (CAD$)	**$ 5.90**	$ 5.30

b. PSUs

PSUs are notional share units that mirror the market value of the Company's Common Shares. Each vested PSU entitles the participant to a cash payment equal to the value of an underlying share, less applicable taxes, at the end of the term, plus the cash equivalent of any dividends distributed by the Company during the three-year performance period. PSU grants will vest on the date that is three years from the date of grant subject to certain exceptions. Performance results at the end of the performance period relative to predetermined performance criteria and the application of the corresponding performance multiplier determine how many PSUs vest for each participant. The Board of Directors approved the issuance of 117,328 PSUs for 2018 with a share price of CAD $17.48 (2017 - 54,962 PSUs approved at a share price of CAD$19.04). Compensation expense for PSUs was $1.0 million for the year ended December 31, 2018 (2017 - $1.0 million) and is presented as a component of general and administrative expense.

At December 31, 2018, the following PSUs were outstanding:

PSU	Number Outstanding		Fair Value
As at December 31, 2016	**141,790**	**$**	**2,152**
Granted	54,962		823
Paid out	(30,408)		(875)
Forfeited	—		—
Change in value	—		511
As at December 31, 2017	**166,344**	**$**	**2,611**
Granted	117,328		1,532
Paid out	(73,263)		(1,528)
Forfeited	—		—
Change in value	—		476
As at December 31, 2018	**210,409**	**$**	**3,091**

c. RSUs

Under the Company's RSU plan, selected employees are granted RSUs where each RSU has a value equivalent to one Pan American common share. The RSUs are settled in cash or Common Shares at the discretion of the Board of Directors and vest in three installments, the first 33.3% vest on the first anniversary date of the grant, the second 33.3% vest on the second anniversary date of the grant, and a further 33.3% vest on the third anniversary date of the grant. Additionally, RSU value is adjusted to reflect dividends paid on Common Shares over the vesting period.

Compensation expense for RSUs was $1.7 million for the year ended December 31, 2018 (2017 – $2.0 million) and is presented as a component of general and administrative expense.

At December 31, 2018, the following RSUs were outstanding:

RSU	Number Outstanding		Fair Value
As at December 31, 2016	**315,423**	**$**	**4,764**
Granted	184,187		2,698
Paid out	(222,006)		(3,257)
Forfeited	(15,591)		(243)
Change in value	—		136
As at December 31, 2017	**262,013**	**$**	**4,098**
Granted	244,961		3,207
Paid out	(156,715)		(2,181)
Forfeited	(21,436)		(313)
Change in value	—		(1,187)
As at December 31, 2018	**328,823**	**$**	**3,624**

d. Issued share capital

The Company is authorized to issue 200,000,000 Common Shares of no par value.

e. Dividends

The Company declared the following dividends for the period starting January 1,2017 until March 12, 2019:

Declaration Date	Record date	Dividend per common share
February 20, 2019 (1)	March 4, 2019	$ 0.0350
November 6, 2018	November 19, 2018	$ 0.0350
August 8, 2018	August 20, 2018	$ 0.0350
May 9, 2018	May 22, 2018	$ 0.0350
February 20, 2018	March 5, 2018	$ 0.0350
November 8, 2017	November 20, 2017	$ 0.0250
August 9, 2017	August 21, 2017	$ 0.0250
May 9, 2017	May 23, 2017	$ 0.0250
February 14, 2017	February 27, 2017	$ 0.0250

(1) These dividends were declared subsequent to the year end and have not been recognized as distributions to owners during the period presented.

21. PRODUCTION COSTS

Production costs are comprised of the following:

	2018	2017
Consumption of raw materials and consumables	$ **184,484**	$ 160,224
Employee compensation and benefits expense	**167,879**	169,109
Contractors and outside services	**88,475**	83,012
Utilities	**26,320**	24,764
Severance costs related to mine operations	**—**	3,509
Other expenses (1)	**31,417**	34,339
Changes in inventories (2)	**17,061**	25,713
	$ **515,636**	$ 500,670

(1) Includes closure and decommissioning liability adjustments to reduce production costs by $nil (2017 - reduce by $1.2 million).
(2) Includes NRV adjustments to inventory to increase production costs by $24.3 million for the year ended December 31, 2018 (2017 - increase by $12.3 million).

22. EMPLOYEE COMPENSATION AND BENEFITS EXPENSE

	2018	2017
Wages, salaries and bonuses	$ **181,957**	$ 184,225
Share-based compensation	**2,957**	3,077
Total employee compensation and benefit expenses	**184,914**	187,302
Less: Expensed within General and Administrative expenses	**(13,919)**	(14,023)
Less: Expensed within Exploration expenses	**(3,116)**	(4,170)
Employee compensation and benefits expenses included in production costs	$ **167,879**	$ 169,109

23. INTEREST AND FINANCE EXPENSE

	2018	2017
Interest recovery	**$ (678)**	$ (1,179)
Finance fees	**2,293**	2,391
Accretion expense (Note 17)	**6,524**	5,973
	$ 8,139	$ 7,185

24. EARNINGS PER SHARE (BASIC AND DILUTED)

For the year ended December 31,	2018			2017		
	Earnings (Numerator)	**Shares (000's) (Denominator)**	**Per-Share Amount**	Earnings (Numerator)	Shares (000's) (Denominator)	Per-Share Amount
Net earnings (1)	**$ 10,294**			$ 120,991		
Basic EPS	**$ 10,294**	**153,315**	**$ 0.07**	$ 120,991	153,070	$ 0.79
Effect of Dilutive Securities:						
Stock Options	**—**	**207**		—	283	
Diluted EPS	**$ 10,294**	**153,522**	**$ 0.07**	$ 120,991	153,353	$ 0.79

(1) Net earnings attributable to equity holders of the Company.

Potentially dilutive securities excluded in the diluted earnings per share calculation for the year ended December 31, 2018 were 45,705 out-of-the-money options (2017 – 279,943).

25. SUPPLEMENTAL CASH FLOW INFORMATION

The following tables summarize other adjustments for non-cash income statement items, changes in operating working capital items and significant non-cash items:

Other operating activities	2018	2017
Adjustments for non-cash income statement items:		
Share-based compensation expense	**$ 2,957**	$ 3,077
Loss on securities held	**3,298**	—
Gains on commodity and foreign currency contracts (Note 8)	**(4,930)**	(606)
Loss (gain) on derivatives (Note 8)	**1,078**	(64)
Loss on inventory	**4,670**	—
Share of income from associate and dilution gain (Note 13)	**(13,679)**	(2,052)
NRV adjustment for inventories	**24,330**	12,308
	$ 17,724	$ 12,663

Changes in non-cash operating working capital items:	2018	2017
Trade and other receivables	**$ 6,256**	$ 9,852
Inventories	**(12,128)**	10,898
Prepaid expenses	**1,878**	(3,096)
Accounts payable and accrued liabilities	**8,053**	2,569
Provisions	**(8,320)**	(8,514)
	$ (4,261)	$ 11,709

Significant non-cash items:	2018	2017
Assets acquired by finance lease	$ 7,028	$ 5,000
Share-based compensation issued to employees and directors	$ 1,879	$ 2,020
Shares issued as consideration for select Argentine projects (Note 11)	$ —	$ 8,650

Cash and Cash Equivalents	December 31, 2018	December 31, 2017
Cash in banks	$ 77,735	$ 160,001
Short-term money market investments	60,775	15,952
Cash and cash equivalents	$ 138,510	$ 175,953

26. SEGMENTED INFORMATION

All of the Company's operations are within the mining sector, conducted through operations in four countries. Due to geographic and political diversity, the Company's mining operations are decentralized in nature whereby Mine General Managers are responsible for achieving specified business results within a framework of global policies and standards. We have determined that each producing mine and significant development property represents an operating segment. Country corporate offices provide support infrastructure to the mines in addressing local and country issues including financial, human resources, and exploration support. The Company has a separate budgeting process and measures the results of operations and exploration activities independently. Operating results of operating segments are reviewed by the Company's chief operating decision maker ("CODM") to make decisions about resources to be allocated to the segments and to assess their performance. Segment performance is evaluated by the CODM based on a number of measures including earnings before income taxes.

Significant information relating to the Company's reportable operating segments is summarized in the table below:

	Year ended December 31, 2018										
	Peru		Mexico			Argentina		Bolivia	Canada		
	Huaron	Morococha	Dolores	Alamo Dorado	La Colorada	Manantial Espejo	Navidad	San Vicente	Pas Corp	Other	**Total**
Revenue	$ 114,739	$ 117,517	$ 236,835	$ —	$ 164,050	$ 90,851	$ —	$ 60,503	$ —	$ —	$ 784,495
Depreciation and amortization	$ (12,867)	$ (15,476)	$ (83,621)	$ —	$ (22,567)	$ (6,090)	$ (87)	$ (6,200)	$ (145)	$ (236)	$ (147,289)
Exploration and project development	$ (660)	$ (598)	$ (1,463)	$ —	$ (880)	$ (843)	$ (3,629)	$ —	$ (1,687)	$ (1,378)	$ (11,138)
Interest income	$ 38	$ 101	$ —	$ 8	$ —	$ 290	$ 104	$ —	$ 1,138	$ 265	$ 1,944
Interest and financing expenses	$ (786)	$ (582)	$ (207)	$ (508)	$ (477)	$ (3,018)	$ (97)	$ (256)	$ (2,170)	$ (38)	$ (8,139)
(Loss) gain on disposition of assets	$ (39)	$ 7	$ (67)	$ 568	$ 1	$ —	$ —	$ (513)	$ 195	$ 7,821	$ 7,973
Share of loss from associate and dilution gain	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ 13,679	$ —	$ 13,679
Loss on derivatives	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ (1,078)	$ —	$ (1,078)
Foreign exchange gains (losses)	$ 185	$ 141	$ 1,407	$ (106)	$ 22	$ (6,404)	$ (2,448)	$ 1,021	$ (3,235)	$ 91	$ (9,326)
Gain on commodity, fuel swaps and foreign currency contracts	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ 4,930	$ —	$ 4,930
Impairment charges	$ —	$ —	$ —	$ —	$ —	$ (27,789)	$ —	$ —	$ —	$ —	$ (27,789)
Earnings (loss) before income taxes	$ 24,302	$ 33,204	$ (35,648)	$ (5,529)	$ 67,400	$ (44,103)	$ (6,832)	$ 10,421	$ (22,560)	$ 12,533	$ 33,188
Income tax (expense) recovery	$ (10,587)	$ (12,113)	$ 24,884	$ 7,547	$ (20,408)	$ (89)	$ (36)	$ (3,747)	$ (6,111)	$ (487)	$ (21,147)
Net earnings (loss) for the year	$ 13,715	$ 21,091	$ (10,764)	$ 2,018	$ 46,992	$ (44,192)	$ (6,868)	$ 6,674	$ (28,671)	$ 12,046	$ 12,041
Capital expenditures	$ 14,551	$ 10,370	$ 59,480	$ —	$ 22,473	$ 29,881	$ 39	$ 6,949	$ 440	$ 165	$ 144,348

	As at December 31, 2018										
	Huaron	Morococha	Dolores	Alamo Dorado	La Colorada	Manantial Espejo	Navidad	San Vicente	Pas Corp	Other	**Total**
Total assets	$ 119,015	$ 126,755	$ 791,485	$ 12,270	$ 230,736	$ 20,839	$ 193,777	$ 83,686	$ 247,792	$ 111,121	$1,937,476
Total liabilities	$ 44,055	$ 40,183	$ 150,003	$ 5,856	$ 56,206	$ 24,994	$ 1,546	$ 38,169	$ 30,221	$ 32,894	$ 424,127

	Year ended December 31, 2017										
	Peru		Mexico			Argentina		Bolivia	Canada		
	Huaron	Morococha	Dolores	Alamo Dorado	La Colorada	Manantial Espejo	Navidad	San Vicente	Pas Corp	Other	**Total**
Revenue	$ 129,085	$ 120,244	$ 197,748	$ 17,958	$ 171,654	$ 111,642	$ —	$ 68,497	$ —	$ —	$ 816,828
Depreciation and amortization	$ (13,464)	$ (9,693)	$ (67,515)	$ (23)	$ (19,381)	$ (5,236)	$ (88)	$ (7,181)	$ (108)	$ (199)	$ (122,888)
Exploration and project development	$ (1,713)	$ (1,629)	$ (2,316)	$ —	$ (2,149)	$ (4,588)	$ (2,894)	$ —	$ (2,659)	$ (1,807)	$ (19,755)
Interest income	$ 63	$ 58	$ —	$ 4	$ —	$ 525	$ —	$ —	$ 472	$ 340	$ 1,462
Interest and financing expenses	$ (855)	$ (578)	$ 1,613	$ (359)	$ (467)	$ (2,969)	$ (99)	$ (232)	$ (3,101)	$ (138)	$ (7,185)
(Loss) gain on disposition of assets	$ (154)	$ (117)	$ (291)	$ 540	$ (319)	$ —	$ —	$ (455)	$ 361	$ 626	$ 191
Share of loss from associate and dilution gain	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ 2,052	$ —	$ 2,052
Gain on derivatives	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ 64	$ —	$ 64
Foreign exchange (losses) gains	$ (92)	$ (38)	$ 642	$ (29)	$ (143)	$ (1,373)	$ (644)	$ 1,045	$ 1,493	$ 962	$ 1,823
Gain on commodity, fuel swaps and foreign currency contracts	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ 606	$ —	$ 606
Impairment reversals	$ —	$ 42,112	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ 19,442	$ 61,554
Earnings (loss) before income taxes	$ 36,650	$ 86,476	$ (503)	$ (8,474)	$ 79,307	$ (24,404)	$ (3,570)	$ 14,592	$ (22,567)	$ 24,978	$ 182,485
Income tax (expense) recovery	$ (12,818)	$ (16,663)	$ 11,719	$ 1,033	$ (20,843)	$ (1,108)	$ (85)	$ (5,305)	$ (6,360)	$ (8,604)	$ (59,034)
Net earnings (loss) for the year	$ 23,832	$ 69,813	$ 11,216	$ (7,441)	$ 58,464	$ (25,512)	$ (3,655)	$ 9,287	$ (28,927)	$ 16,374	$ 123,451
Capital expenditures	$ 8,412	$ 9,283	$ 85,379	$ —	$ 21,963	$ 8,590	$ 27	$ 8,146	$ 2	$ 430	$ 142,232

	As at December 31, 2017										
	Huaron	Morococha	Dolores	Alamo Dorado	La Colorada	Manantial Espejo	Navidad	San Vicente	Pas Corp	Other	**Total**
Total assets	$ 116,138	$ 131,180	$ 833,397	$ 17,125	$ 231,205	$ 125,088	$ 194,225	$ 85,869	$ 210,286	$ 48,819	$ 1,993,332
Total liabilities	$ 46,184	$ 36,058	$ 176,464	$ 8,163	$ 65,145	$ 43,408	$ 1,296	$ 30,819	$ 28,939	$ 35,805	$ 472,281

Product Revenue	**2018**	2017
Refined silver and gold	**348,717**	345,756
Zinc concentrate	**155,412**	140,315
Lead concentrate	**150,832**	161,981
Copper concentrate	**86,599**	114,564
Silver concentrate	**42,935**	54,212
Total	**784,495**	816,828

The Company has 16 customers that account for 100% of the concentrate and silver and gold sales revenue. The Company has 7 customers that accounted for 28%, 14%, 13%, 10%, 8%, 8%, and 5% of total sales in 2018, and 7 customers that accounted for 23%, 16%, 15%, 14%, 8%, 6%, and 5% of total sales in 2017. The loss of certain of these customers or curtailment of purchases by such customers could have a material adverse effect on the Company's results of operations, financial condition, and cash flows.

27. OTHER INCOME AND (EXPENSES)

		2018		2017
Change in closure and decommissioning estimates	**$**	**(2,968)**	$	(8,388)
Royalties income	**$**	**631**	$	574
Other (loss) income		**(1,322)**		2,309
Total	**$**	**(3,659)**	$	(5,505)

28. INCOME TAXES

Components of Income Tax Expense

		2018		2017
Current tax expense (recovery)				
Recognized in profit or loss in current year	**$**	**59,056**	$	66,345
Adjustments recognized in the current year with respect to prior years		**(5,155)**		(3,468)
		53,901		62,877
Deferred tax expense (recovery)				
Deferred tax recovery recognized in the current year		**(13,256)**		(898)
Adjustments recognized in the current year with respect to prior years		**(1,098)**		(1,539)
Increase in deferred tax liabilities due to tax impact of reversals of mineral properties, plant, and equipment impairments (Note 11, 12)		**—**		17,770
Recognition of previously unrecognized deferred tax assets		**(6,140)**		(10,275)
Benefit from previously unrecognized losses, and other temporary differences		**(3,600)**		(6,487)
Decrease in deferred tax liabilities due to tax impact of NRV charge to inventory		**(8,660)**		(2,414)
		(32,754)		(3,843)
Income tax expense	**$**	**21,147**	$	59,034

Income tax expense differs from the amount that would result from applying the Canadian federal and provincial income tax rates to earnings before income taxes. These differences result from the items shown on the following table which results in an effective tax rate that varies considerably from the comparable period. The main factors that affected the effective tax rate for the year ended December 31, 2018 and the comparable period of 2017 were changes in the non-recognition of certain deferred tax assets, mining taxes paid, and withholding taxes on payments from foreign subsidiaries. The Company continues to expect that these and other factors will continue to cause volatility in effective tax rates in the future.

Reconciliation of Effective Income Tax Rate

	2018	2017
Earnings before taxes and non-controlling interest	**$ 33,188**	$ 182,485
Statutory Canadian income tax rate	**27.00%**	26.00%
Income tax expense based on above rates	**$ 8,961**	$ 47,446
Increase (decrease) due to:		
Non-deductible expenditures	**3,929**	4,618
Foreign tax rate differences	**(2,160)**	3,644
Change in net deferred tax assets not recognized:		
- Argentina exploration expenditures	**3,372**	2,051
- Other deferred tax assets	**1,168**	(10,752)
Non-taxable portion of net earnings of affiliates	**(3,254)**	(4,055)
Tax on sale of royalty	**—**	1,400
Effect of other taxes paid (mining and withholding)	**14,371**	20,065
Effect of foreign exchange on tax expense	**1,611**	(3,928)
Non-taxable impact of foreign exchange	**(351)**	2,937
Change in current tax expense estimated for prior years	**(5,030)**	(3,503)
Other	**(1,470)**	(889)
Income tax expense	**$ 21,147**	$ 59,034
Effective income tax rate	**63.72%**	32.35%

Deferred tax assets and liabilities

The following is the analysis of the deferred tax assets (liabilities) presented in the consolidated financial statements:

	2018	2017
Net deferred tax liability, beginning of year	**$ (168,549)**	$ (169,136)
Recognized in net earnings in the year	**32,754**	3,843
Reduction due to Mexican de-consolidation payments applied to current tax	**(697)**	(3,231)
Other	**(83)**	(25)
Net deferred liability, end of year	**$ (136,575)**	$ (168,549)
Deferred tax assets	**12,244**	2,679
Deferred tax liabilities	**(148,819)**	(171,228)
Net deferred tax liability	**$ (136,575)**	$ (168,549)

Components of deferred tax assets and liabilities

The deferred tax assets (liabilities) are comprised of the various temporary differences as detailed below:

	2018	2017
Deferred tax assets (liabilities) arising from:		
Closure and decommissioning costs	**$ 9,105**	$ 7,019
Tax losses and mining tax credits	**29,195**	24,014
Deductible Mexican mining taxes	**2,974**	2,792
Tax credit resulting from Mexican de-consolidation	**698**	1,385
Accounts payable and accrued liabilities	**6,726**	3,047
Trade and other receivables	**15,756**	21,527
Provision for doubtful debts and inventory adjustments	**(11,752)**	(14,517)
Mineral properties, plant, and equipment	**(169,703)**	(186,641)
Estimated sales provisions	**(19,746)**	(28,726)
Other temporary differences and provisions	**172**	1,551
Net deferred tax liability	**$ (136,575)**	$ (168,549)

At December 31, 2018, the net deferred tax liability above included the deferred tax benefit of $29.2 million related to tax losses of approximately $98.4 million. These losses will begin to expire after the 2024 year end, if unused.

At December 31, 2017, the net deferred tax liability above included the deferred tax benefit of $24.0 million related to tax losses of approximately $80.6 million. These losses will begin to expire after the 2024 year end, if unused.

Unrecognized deductible temporary differences, unused tax losses and unused tax credits

Deductible temporary differences, unused tax losses and unused tax credits for which no deferred tax assets have been recognized are attributable to the following:

	2018	2017
Tax loss (revenue in nature)	**$ 131,179**	$ 165,180
Net tax loss (capital in nature)	**14,456**	15,423
Resource pools and other tax credits	**18,266**	18,609
Financing fees	**785**	1,464
Mineral properties, plant, and equipment	**22,669**	20,441
Closure and decommissioning costs	**33,835**	42,484
Exploration and other expenses not currently deductible	**51,175**	54,672
Intercompany debt	**10,160**	8,061
Doubtful debt and inventory	**24,840**	16,602
Deductible Mexican mining taxes	**—**	77
Payroll and vacation accruals	**827**	2,015
Other temporary differences	**8,217**	2,601
	$ 316,409	$ 347,629

Included in the above amounts are operating losses, which if not utilized will expire as follows:

At December 31, 2018

	Canada	US	Peru	Mexico	Barbados	Argentina	Total
2019	—	85	—	—	4	45	134
2020	—	80	—	—	7	61	148
2021 – and after	114,466	13,469	250	2,456	105	151	130,897
Total tax losses	**$ 114,466**	**$ 13,634**	**$ 250**	**$ 2,456**	**$ 116**	**$ 257**	**131,179**

At December 31, 2017

	Canada	US	Peru	Mexico	Barbados	Argentina	Total
2018	—	120	—	—	6	50	176
2019	—	86	—	—	4	90	180
2020 – and after	122,853	13,289	—	20,925	93	7,664	164,824
Total tax losses	**$ 122,853**	**$ 13,495**	**$ —**	**$ 20,925**	**$ 103**	**$ 7,804**	**$ 165,180**

Taxable temporary differences associated with investment in subsidiaries

As at December 31, 2018, taxable temporary differences of $85.2 million (2017 – $88.3 million) associated with the investments in subsidiaries have not been recognized as the Company is able to control the timing of the reversal of these differences and does not expect them to reverse in the foreseeable future.

29. CONTINGENCIES

The following is a summary of the contingent matters and obligations relating to the Company as at December 31, 2018.

a. General

The Company is subject to various investigations, claims and legal and tax proceedings covering matters that arise in the ordinary course of business activities. Each of these matters is subject to various uncertainties and it is possible that some of these matters may be resolved unfavorably to the Company. Certain conditions may exist as of the date the financial statements are issued, which may result in a loss to the Company. In the opinion of management none of these matters are expected to have a material effect on the results of operations or financial conditions of the Company.

b. Environmental Matters

The Company's mining and exploration activities are subject to various laws and regulations governing the protection of the environment. These laws and regulations are continually changing and are generally becoming more restrictive. The Company conducts its operations so as to protect the public health and environment and believes its operations are in compliance with applicable laws and regulations in all material respects. The Company has made, and expects to make in the future, expenditures to comply with such laws and regulations, but cannot predict the full amount of such future expenditures.

Estimated future reclamation costs are based on the extent of work required and the associated costs are dependent on the requirements of relevant authorities and the Company's environmental policies. As of December 31, 2018, $70.6 million (December 31, 2017 - $65.4 million) was accrued for reclamation costs relating to mineral properties. See also Note 17.

c. Income Taxes

The Company operates in numerous countries around the world and accordingly it is subject to, and pays annual income taxes under the various income tax regimes in the countries in which it operates. Some of these tax regimes are defined by contractual agreements with the local government, and others are defined by the general corporate income tax laws of the country. The Company has historically filed, and continues to file, all required income tax returns and to pay the taxes reasonably determined to be due. The tax rules and regulations in many countries are highly complex and subject to interpretation. From time to time, the Company is subject to a review of its historic income tax filings and in connection with such reviews, disputes can arise with the taxing authorities over the interpretation or application of certain rules to the Company's business conducted within the country involved.

d. Law changes in Argentina

Under the previous political regime in Argentina, the government intensified the use of severe price, foreign exchange, and import controls in response to unfavourable domestic economic trends. These included informal restrictions on

dividend, interest, and service payments abroad and limitations on the ability to convert ARS into USD, exposing the Company to additional risks of ARS devaluation and high domestic inflation. The new federal government elected in 2015 has eased many of the previously instituted controls and restrictions, but it is unknown whether these changes will be lasting, and in September 2018, it introduced a new export duty on silver and gold doré exported from Argentina. The duty is scheduled to expire on December 31, 2020. However, for the period from September to December 2018, we paid approximately $1.6 million in export duties, representing an average rate for the export duty of approximately 8%.

e. Political changes in Bolivia

On May 28, 2014, the Bolivian government enacted Mining Law No. 535 (the "New Mining Law"). Among other things, the New Mining Law has established a new Bolivian mining authority to provide principal mining oversight (varying the role of COMIBOL) and sets out a number of new economic and operational requirements relating to state participation in mining projects. Further, the New Mining Law provides that all pre-existing contracts are to migrate to one of several new forms of agreement within a prescribed period of time. As a result, we anticipate that our current joint venture agreement with COMIBOL relating to the San Vicente mine will be subject to migration to a new form of agreement and may require renegotiation of some terms in order to conform to the New Mining Law requirements. We are assessing the potential impacts of the New Mining Law on our business and are awaiting further regulatory developments, but the primary effects on the San Vicente operation and our interest therein will not be known until such time as we have, if required to do so, renegotiated the existing contract, and the full impact may only be realized over time. In the meantime, we understand that pre-existing agreements will be respected during the period of migration and we will take appropriate steps to protect and, if necessary, enforce our rights under our existing agreement with COMIBOL. There is, however, no guarantee that governmental actions, including possible expropriation or additional changes in the law, and the migration of our contract will not impact our involvement in the San Vicente operation in an adverse way and such actions could have a material adverse effect on us and our business.

f. Other Legal Matters

The Company is subject to various claims and legal proceedings covering a wide range of matters that arise in the ordinary course of business activities, many of them relating to ex-employees. Each of these matters is subject to various uncertainties and it is possible that some of these matters may be resolved unfavorably to the Company. The Company establishes provisions for matters that are probable and can be reasonably estimated, included within current liabilities, and amounts are not considered material.

In assessing loss contingencies related to legal proceedings that are pending against the Company or un-asserted claims that may result in such proceedings, the Company and its legal counsel evaluate the perceived merits of any legal proceedings or un-asserted claims as well as the perceived merits of the amount of relief sought or expected to be sought. In the opinion of management there are no claims expected to have a material effect on the results of operations or financial condition of the Company.

g. Title Risk

Although the Company has taken steps to verify title to properties in which it has an interest, these procedures do not guarantee the Company's title. Property title may be subject to, among other things, unregistered prior agreements or transfers and may be affected by undetected defects.

h. Royalty Agreements and Participation Agreements

The Company has various royalty agreements on certain mineral properties entitling the counterparties to the agreements to receive payments per terms as summarized below. Royalty liabilities incurred on acquisitions of properties are netted against the mineral property while royalties that become payable upon production are expensed at the time of sale of the production.

As part of the arrangement closed with Maverix on July 11, 2016 (Note 13), Maverix acquired from the Company a portfolio of royalties, precious metals streams and payment agreements, in exchange for a 54% interest in Maverix

(40% fully diluted as at December 31, 2018). The key portfolio assets included the economic equivalent of one hundred percent (100%) of the gold produced from Pan American's operating La Colorada silver mine, less a fixed price of US$650 per ounce for the life of the mine, as well as an agreement to purchase five percent (5%) of future gold production at a fixed price of US$450 per ounce from the feasibility stage La Bolsa project. The portfolio also included, among others, a net smelter returns royalty of one percent (1%) on the Pico Machay project that is currently owned by Pan American.

In the province of Chubut, Argentina which is the location of the Company's Navidad property, there is a provincial royalty of 3% of the "Operating Income". Operating income is defined as revenue minus production costs (not including mining costs), treatment and transportation charges. Refer below to the Navidad project section below for further details.

In September 2018, the government of Argentina introduced a new export duty of12% to be applied on the export of goods from Argentina until December 31, 2020. In general, the duty is capped at ARS 4 per USD $1 of gold dore exported, and at ARS 3 per USD $1 of silver dore exported. For the period from September to December 2018, the Company paid approximately $1.6 million in export duties.

As part of the 2009 Aquiline transaction, the Company issued a replacement convertible debenture that allowed the holder to convert the debenture into either 363,854 Common Shares or a silver stream contract with Aquiline Resources Inc., a wholly owned subsidiary of the Company. The holder subsequently selected the silver stream contract related to certain production from the Navidad project. The final contract for the alternative is being discussed and pending the final resolution to this alternative, the Company continues to classify the fair value calculated at the acquisition of this alternative, as a deferred credit as disclosed in Note 19.

Manantial Espejo mine

Production from the Manantial Espejo property is subject to royalties to be paid to Barrick Gold Corp. according to the following: (i) $0.60 per metric tonne of ore mined from the property and fed to process at a mill or leaching facility to a maximum of 1 million tonnes; and (ii) one-half of one percent (0.5%) of net smelter returns derived from the production of minerals from the property. In addition, the Company has negotiated a royalty equal to 3.0% of operating cash flow payable to the Province of Santa Cruz.

San Vicente mine

Pursuant to an option agreement entered into with COMIBOL, a Bolivian state mining company, with respect to the development of the San Vicente property, the Company is obligated to pay COMIBOL a participation fee of 37.5% (the "Participation Fee") of the operation's cash flow. Once full commercial production of San Vicente began, the Participation Fee was reduced by 75% until the Company recovered its investment in the property. The Participation Fee has now reverted back to the original percentage. For the year ended December 31, 2018, the Company incurred approximately $4.8 million in COMIBOL royalties (2017 - incurred $8.5 million).

A royalty is also payable to EMUSA, a former partner of the Company on the project. The royalty is a2% net smelter return royalty (as per the Agreement) payable only after the Company has recovered its capital investment in the project and only when the average price of silver in a given financial quarter is $9.00 per ounce or greater. For the year ended December 31, 2018 the royalties paid to EMUSA amounted to approximately $0.7 million (2017 - $0.9 million).

In December 2007, the Bolivian government introduced a new mining royalty that affects the San Vicente project. The royalty is applied to gross metal value of sales (before smelting and refining deductions) and the royalty percentage is a sliding scale depending on metal prices. At current metal prices, the royalty is 6% for silver metal value and 5% for zinc and copper metal value of sales. The royalty is income tax deductible. For the year ended December 31, 2018 the royalty amounted to $4.4 million (2017 - $5.0 million).

Dolores mine

Production from the Dolores mine is subject to underlying net smelter return royalties comprised of 2% on silver production and 3.25% on gold production. These royalties are payable to Royal Gold Inc. and were effective in full as of May 1, 2009, on the commencement of commercial production at the Dolores mine. The royalties to Royal Gold amounted to approximately $6.8 million for the year ended December 31, 2018 (2017 – $5.5 million).

Navidad project

As a result of uncertainty over the zoning, regulatory and tax laws which will ultimately apply, the Company has temporarily suspended project development activities at Navidad. The Company remains committed to the development of Navidad and to contributing to the positive economic and social development of the province of Chubut upon the adoption of a favorable legislative framework.

30. RELATED PARTY TRANSACTIONS

The Company's related parties include its subsidiaries, associates over which it exercises significant influence, and key management personnel. During its normal course of operation, the Company enters into transactions with its related parties for goods and services. All related party transactions for the year ended December 31, 2018 and 2017 have been disclosed in these consolidated financial statements. Transactions with Maverix, an associate of the Company, have been disclosed in Note 13 of these consolidated financial statements.

These transactions are in the normal course of operations and are measured at the exchange amount, which is the amount of consideration established and agreed to by the parties.

Compensation of key management personnel

The remuneration of directors and other members of key management personnel during the year were as follows:

		2018		2017
Short-term benefits	**$**	**13,863**	$	10,175
Share-based payments		**2,446**		2,235
	$	**16,309**	$	12,410

31. SUBSEQUENT EVENTS

Tahoe Resources Inc. ("Tahoe") Acquisition

On February 22, 2019, the Company completed the acquisition of 100% of the issued and outstanding shares of Tahoe. Each Tahoe shareholder had the right to elect to receive either $3.40 in cash (the "Cash Election") or 0.2403 of a Common Share (the "Share Election") for each Tahoe share, subject in each case to pro-ration based on a maximum cash consideration of $275 million and a maximum number of Common Shares issued of 56.0 million. Tahoe shareholders who did not make an election by the election deadline were deemed to have made the Share Election. Holders of 23,661,084 Tahoe shares made the Cash Election and received all cash consideration in the amount of $3.40 per Tahoe share. The holders of 290,226,406 Tahoe shares that made or were deemed to have made, the Share Election were subject to pro-ration, and received consideration of approximately $0.67 in cash and 0.1929 of a Common Share per Tahoe share.

In addition, Tahoe shareholders received contingent consideration in the form of one contingent value right ("CVR") for each Tahoe share. Each CVR will be exchanged for 0.0497 of a Common Share upon first commercial shipment of concentrate following restart of operations at the Escobal mine. The CVRs are transferable and have a term of 10 years.

As a result of the acquisition of Tahoe, the Company paid $275 million in cash, issued 55,990,512 Common Shares, and issued 313,887,490 CVRs. After this share issuance, Pan American shareholders owned approximately 73%, while former Tahoe shareholders owned approximately 27%, of the shares of the combined company. The Company has determined that this transaction represents a business combination with Pan American identified as the acquirer. Based on the February 21, 2019 closing share price of Common Shares, the total consideration of the acquisition is approximately $1.1 billion. We began consolidating the operating results, cash flows and net assets of Tahoe from February 22, 2019 onwards.

Tahoe is a mid-tier publicly traded precious metals mining company with ownership interests in a diverse portfolio of mines and projects including the following principle mines: Timmins West and Bell Creek in Canada; La Arena and Shahuindo in Peru; and Escobal in Guatamela. The Escobal mine's operations have been suspended since June 2017.

As the transaction closed in February 2019, the initial allocation of the purchase price to the assets and liabilities acquired is not complete. The main areas under consideration are the values attributable to the mineral interests of each of the mines acquired. We will disclose a preliminary purchase price allocation in our first quarter 2019 condensed consolidated interim financial statements.

Acquisition related costs incurred in 2018 amounted to $10.2 million have been expensed and are presented as transaction costs as at December 31, 2018.

Authorized Share Capital

In January 2019, the Company obtained shareholder approval to increase its authorized share capital from 200 million to 400 million Common Shares without par value.

Credit Facility Renewal and Advance

The Company's four-year, $300.0 million secured revolving credit facility that matures on April 15, 2020 (the “Credit Facility”) remained undrawn as of December 31, 2018 and December 31, 2017, and the Company was in compliance with all covenants required by the Credit Facility. In February 2019, as part of the acquisition of Tahoe, the Company amended and extended its Credit Facility. The facility has been increased by $200.0 million to $500.0 million, and matures on February 1, 2023. At Pan American's option, amounts can be drawn under the revolving facility and will incur interest based on the Company's leverage ratio at either (i) LIBOR plus 1.875% to 2.750% or; (ii) The Bank of Nova Scotia's Base Rate on U.S. dollar denominated commercial loans plus 0.875% to 1.750%. Undrawn amounts under the revolving facility are subject to a stand-by fee of 0.4219% to 0.6188% per annum, dependent on the Company's leverage ratio. The Company drew down US$301 million under the Credit Facility, under LIBOR-based interest rates to fund, in part, the cash purchase price under the Tahoe arrangement and to repay, in full, and cancel Tahoe's second amended and restated revolving facility, under which US$125 million had been drawn.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-212468 on Form F-10 and Registration Statement Nos. 333-180494, 333-180495, 333-206162 and 333-229795 on Form S-8, and to the use of our reports dated March [12], 2019 relating to the consolidated financial statements of Pan American Silver Corp. and subsidiaries (the “Company”) and the effectiveness of the Company’s internal control over financial reporting appearing in this Annual Report on Form 40-F of Pan American Silver Corp. for the year ended December 31, 2018.

/s/ "Deloitte LLP"
Chartered Professional Accountants
Vancouver, Canada
March 12, 2019

Exhibit 23.2

CONSENT OF MARTIN WAFFORN, P. ENG.

To: United States Securities and Exchange Commission

Re: Expert Consent for Annual Report on Form 40-F

Technical reports entitled:

1. "Manantial-Espejo Project Canadian Standard NI 43-101, Santa Cruz Province, Argentina" dated March 2006 relating to the Manantial Espejo property;
2. "Technical Report for the San Vincente Property, Potosi Bolivia" dated effective December 31, 2014 relating to the San Vincente property;
3. "Pan American Silver Corp. Navidad Project, Chubut Province, Argentina: Preliminary Assessment" dated January 14, 2011 relating to the Navidad property;
4. "Technical Report – Preliminary Economic Analysis for the Expansion of the La Colorada Mine, Zacatecas, Mexico" dated effective December 31, 2013 relating to the La Colorada property;
5. "Technical Report for the Dolores Property, Chihuahua, Mexico" dated effective December 31, 2016 relating to the Dolores property;
6. "Technical Report for the Huaron Property, Pasco, Peru" dated effective June 30, 2014 relating to the Huaron property;
7. "Technical Report for the Morococha Property, Yauli, Peru" dated effective June 30, 2014 relating to the Morococha property; and
8. "Technical Report for the Joaquin Property, Santa Cruz, Argentina - Pre-feasibility Study" dated effective November 30, 2017 relating to the Joaquin property.

(collectively, the "**Technical Reports**")

were prepared for Pan American Silver Corp. (the "**Corporation**") in accordance with National Instrument 43-101 - *Standards of Disclosure for Mineral Projects* by Martin Wafforn, P. Eng., in whole or in part, and filed with applicable securities regulatory authorities.

The undersigned does hereby consent to the inclusion of the written disclosure of the Technical Reports and the extracts from, or summary of, or references to the Technical Reports and other scientific and technical information attributed to the undersigned (the "**Technical Information**") by the Corporation in the annual information form of the Corporation, dated March 12, 2019 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2019 (the "**40-F**"). The undersigned does also hereby consent to the reference to my name in the AIF and the 40-F.

The undersigned consents to the incorporation by reference in the Registration Statements on Form S-8 (File Nos., 333-180494, 333-180495, 333-206162 and 333-229795) and on Form F-10 (File No. 333-212468) of the references to my name and the above mentioned information in the AIF and 40-F.

The undersigned does hereby confirm that I have read the AIF and the 40-F and have no reason to believe that there are any misrepresentations in the information contained in the AIF or the 40-F that are (a) derived from the Technical Reports or the Technical Information; or (b) within my knowledge as a result of the services I performed in connection with the Technical Reports or the Technical Information.

Dated this 12 day of March, 2019.

/s/ "Martin Wafforn"
Martin Wafforn, P. Eng.

Exhibit 23.3

CONSENT OF MICHAEL STEINMANN, P. GEO.

To: United States Securities and Exchange Commission

Re: Expert Consent for Annual Report on Form 40-F

Technical reports entitled:

1. "Manantial-Espejo Project Canadian Standard NI 43-101, Santa Cruz Province, Argentina" dated March 2006 relating to the Manantial Espejo property;
2. "Technical Report for the San Vincente Property, Potosi Bolivia" dated effective December 31, 2014 relating to the San Vincente property;
3. "Pan American Silver Corp. Navidad Project, Chubut Province, Argentina: Preliminary Assessment" dated January 14, 2011 related to the Navidad property;
4. "Technical Report – Preliminary Economic Analysis for the Expansion of the La Colorada Mine, Zacatecas, Mexico" dated effective December 31, 2013 relating to the La Colorada property;
5. "Technical Report for the Huaron Property, Pasco, Peru" dated effective June 30, 2014 relating to the Huaron property; and
6. "Technical Report for the Morococha Property, Yauli, Peru" dated effective June 30, 2014 relating to the Morococha property.

(collectively, the "**Technical Reports**")

were prepared for Pan American Silver Corp. (the "**Corporation**") in accordance with National Instrument 43-101 - *Standards of Disclosure for Mineral Projects* by Michael Steinmann, P. Geo., in whole or in part, and filed with applicable securities regulatory authorities.

The undersigned does hereby consent to the inclusion of the written disclosure of the Technical Reports and the extracts from, or summary of, or references to the Technical Reports and other scientific and technical information attributed to the undersigned (the "**Technical Information**") by the Corporation in the annual information form of the Corporation, dated March 12, 2019 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2019 (the "**40-F**"). The undersigned does also hereby consent to the reference to my name in the AIF and the 40-F.

The undersigned consents to the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-180494, 333-180495, 333-206162 and 333-229795) and on Form F-10 (File No. 333-212468) of the references to my name and the above mentioned information in the AIF and 40-F.

The undersigned does hereby confirm that I have read the AIF and the 40-F and have no reason to believe that there are any misrepresentations in the information contained in the AIF or the 40-F that are (a) derived from the Technical Reports or the Technical Information; or (b) within my knowledge as a result of the services I performed in connection with the Technical Reports or the Technical Information.

Dated this 12 day of March, 2019.

/s/ "Michael Steinmann"
Michael Steinmann, P. Geo.

Exhibit 23.4

CONSENT OF PAMELA DE MARK, P. GEO., BAPPSC (APP GEO, HONS), MAusIMM

To: United States Securities and Exchange Commission

Re: Expert Consent for Annual Report on Form 40-F

A technical report "Pan American Silver Corp. Navidad Project, Chubut Province, Argentina: Preliminary Assessment" and dated effective January 14, 2011, (the "**Technical Report**") was prepared for Pan American Silver Corp. (the "**Corporation**") in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Pamela De Mark, P. Geo. BAppSc (App Geo, Hons), MAusIMM, in whole or in part, and filed with applicable securities regulatory authorities.

The undersigned does hereby consent to the inclusion of the written disclosure of the Technical Report and the extracts from, or summary of, or references to the Technical Report and other scientific and technical information attributed to the undersigned (the "**Technical Information**") by the Corporation in the annual information form of the Corporation, dated March 12, 2019 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2019 (the "**40-F**"). The undersigned does also hereby consent to the reference to my name in the AIF and the 40-F.

The undersigned consents to the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-180494, 333-180495, 333-206162 and 333-229795) and on Form F-10 (File No. 333-212468) of the references to my name and the above mentioned information in the AIF and 40-F.

The undersigned does hereby confirm that I have read the AIF and the 40-F and have no reason to believe that there are any misrepresentations in the information contained in the AIF or the 40-F that are (a) derived from the Technical Report or the Technical Information; or (b) within my knowledge as a result of the services I performed in connection with the Technical Report or the Technical Information.

Dated this 12 day of March, 2019.

/s/ "Pamela De Mark"
Pamela De Mark,
P. Geo., BAppSc (App Geo, Hons), MAusIMM

Exhibit 23.5

CONSENT OF AMERICO DELGADO, P. ENG.

To: United States Securities and Exchange Commission

Re: Expert Consent for Annual Report on Form 40-F

Technical reports entitled:

1. "Technical Report for the Dolores Property, Chihuahua, Mexico" dated effective December 31, 2016 relating to the Dolores property;
2. "Technical Report for the Huaron Property, Pasco, Peru" dated effective June 30, 2014 relating to the Huaron property;
3. "Technical Report for the Morococha Property, Yauli, Peru" dated effective June 30, 2014 relating to the Morococha property;
4. "Technical Report for the San Vincente Property, Potosi Bolivia" dated effective December 31, 2014 relating to the San Vincente property; and
5. "Technical Report for the Joaquin Property, Santa Cruz, Argentina - Pre-feasibility Study" dated effective November 30, 2017 relating to the Joaquin property.

(collectively, the "**Technical Reports**")

were prepared for Pan American Silver Corp. (the "**Corporation**") in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Americo Delgado, P. Eng., in whole or in part, and filed with applicable securities regulatory authorities.

The undersigned does hereby consent to the inclusion of the written disclosure of the Technical Reports and the extracts from, or summary of, or references to the Technical Reports and other scientific and technical information attributed to the undersigned (the "**Technical Information**") by the Corporation in the annual information form of the Corporation, dated March 12, 2019 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2019 (the "**40-F**"). The undersigned does also hereby consent to the reference to my name in the AIF and the 40-F.

The undersigned consents to the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-180494, 333-180495, 333-206162 and 333-229795) and on Form F-10 (File No. 333-212468) of the references to my name and the above mentioned information in the AIF and 40-F.

The undersigned does hereby confirm that I have read the AIF and the 40-F and have no reason to believe that there are any misrepresentations in the information contained in the AIF or the 40-F that are (a) derived from the Technical Reports or the Technical Information; or (b) within my knowledge as a result of the services I performed in connection with the Technical Reports or the Technical Information.

Dated this 12 day of March, 2019.

/s/ "Americo Delgado"
Americo Delgado, P. Eng

Exhibit 23.6

CONSENT OF CHRISTOPHER EMERSON, FAusIMM.

To: United States Securities and Exchange Commission

Re: Expert Consent for Annual Report on Form 40-F

Technical Reports entitled:

1. "Technical Report for the Joaquin Property, Santa Cruz, Argentina - Pre-feasibility Study dated effective November 30, 2017 relating to the Joaquin property; and
2. "Technical Report for the Dolores Property, Chihuahua, Mexico" and dated effective December 31, 2016 relating to the Dolores property.

(collectively, the "**Technical Reports**") were prepared for Pan American Silver Corp. (the "**Corporation**") in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Christopher Emerson, FAusIMM, in whole or in part, and filed with applicable securities regulatory authorities.

The undersigned does hereby consent to the inclusion of the written disclosure of the Technical Reports and the extracts from, or summary of, or references to the Technical Report and other scientific and technical information attributed to the undersigned (the "**Technical Information**") by the Corporation in the annual information form of the Corporation, dated March , 2019 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March , 2019 (the "**40-F**"). The undersigned does also hereby consent to the reference to my name in the AIF and the 40-F.

The undersigned consents to the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-180494, 333-180495, 333-206162 and 333-229795) and on Form F-10 (File No. 333-212468) of the references to my name and the above mentioned information in the AIF and 40-F.

The undersigned does hereby confirm that I have read the AIF and the 40-F and have no reason to believe that there are any misrepresentations in the information contained in the AIF or the 40-F that are (a) derived from the Technical Reports or the Technical Information; or (b) within my knowledge as a result of the services I performed in connection with the Technical Reports or the Technical Information.

Dated this 12 day of March, 2019.

/s/ "Christopher Emerson"
Christopher Emerson, FAusIMM.

Exhibit 31.1

Certification
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Michael Steinmann, certify that:

1. I have reviewed this annual report on Form 40-F of Pan American Silver Corp.;

1. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the issuer as of, and for, the periods presented in this report;

4. The issuer's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the issuer and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the issuer, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the issuer's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the issuer's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the issuer's internal control over financial reporting; and

5. The issuer's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the issuer's auditors and the audit committee of the issuer's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the issuer's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the issuer's internal control over financial reporting.

Dated: March 12, 2019

/s/ "Michael Steinmann"

By: Michael Steinmann

Title: President and Chief Executive Officer

Exhibit 31.2

Certification
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, A. Robert Doyle, certify that:

1. I have reviewed this annual report on Form 40-F of Pan American Silver Corp.;

1. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the issuer as of, and for, the periods presented in this report;

4. The issuer's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the issuer and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the issuer, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the issuer's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the issuer's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the issuer's internal control over financial reporting; and

5. The issuer's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the issuer's auditors and the audit committee of the issuer's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the issuer's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the issuer's internal control over financial reporting.

Dated: March 12, 2019

/s/ "A. Robert Doyle"

By: A. Robert Doyle

Title: Chief Financial Officer

Exhibit 32.1

Certification of CEO and CFO
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

In connection with the Annual Report of Pan American Silver Corp. (the "Registrant") filed under cover of Form 40-F for the year ended December 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Michael Steinmann, as Chief Executive Officer of the Registrant, and A. Robert Doyle, as Chief Financial Officer of the Registrant, each hereby certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, to the best of his knowledge, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Registrant.

/s/ "Michael Steinmann"
By: Michael Steinmann
Title: President & Chief Executive Officer
March 12, 2019

/s/ "A. Robert Doyle"
By: A. Robert Doyle
Title: Chief Financial Officer
March 12, 2019

This certification accompanies the Report pursuant to § 906 of the Sarbanes-Oxley Act of 2002 and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed by the Registrant for purposes of §18 of the Securities Exchange Act of 1934, as amended.