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, 2019 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 209,835,558 Common Shares outstanding as at December 31, 2019.

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, 2019, 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, 2019, 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, 2019, 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 the section titled "Disclosure Controls and Procedures" in Management's Discussion and Analysis for the fiscal year ended December 31, 2019, 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, 2019 and 2018, 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, 2019.

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 to any principal officer of the Registrant or any person performing similar functions during the year ended December 31, 2019.

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, 2019, 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, 2019, filed as Exhibit 1.2 to this Annual Report on Form 40-F.

K. Nasdaq Stock Market Exemptions

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, 2019, 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, 2019.
1.2	Management's Discussion and Analysis for the fiscal year ended December 31, 2019.
1.3	Audited Consolidated Financial Statements for the fiscal years ended December 31, 2019 and 2018.
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.
23.7	Consent of Eric Kallio.
23.8	Consent of Natasha Vaz.
23.9	Consent of Kara Byrnes.
23.10	Consent of Tim Williams.
23.11	Consent of Carl E. Defilippi.
23.12	Consent of Charles V. Muerhoff.
23.13	Consent of M3 Engineering & Technology Corporation.
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, 2020

/s/ Delaney Fisher

By: Delaney Fisher

Title: Vice President Associate General Counsel and Corporate Secretary

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EXHIBIT 1.1



Annual Information Form

For the Year Ended December 31, 2019

March 12, 2020

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.

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.

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

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 sold, net of by-product credits (“Cash Costs”), all-in sustaining costs per ounce sold (“AISC”), working capital and total debt.

Per Ounce Measures - Cash Costs and AISC

Cash Costs and AISC are non-GAAP financial measures that do not have any standardized meaning prescribed by IFRS and are therefore unlikely to be comparable to similar measures presented by other companies.

Pan American produces by-product metals incidentally to our silver and gold mining activities. We have adopted the practice of calculating a performance measure with the net cost of producing an ounce of silver and gold, our primary payable metals, after deducting revenues gained from incidental by-product production. 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.

Silver segment Cash Costs and AISC are calculated net of credits for realized revenues from all metals other than silver ("silver segment by-product credits"), and are calculated per ounce of silver sold. Gold segment Cash Costs and AISC are calculated net of credits for realized silver revenues ("gold segment by-product credits"), and are calculated per ounce of gold sold. Consolidated Cash Costs and AISC are based on total silver ounces sold and are net of by-product credits from all metals other than silver ("silver basis consolidated by-product credits").

Prior to 2019, cash costs per ounce reported by Pan American in its AIFs, news releases and other disclosure documents were based on cash costs per ounce of payable silver produced and were net of by-product credits calculated with average market prices applied to all metals produced other than silver. Given the increased complexity of our business with the addition of the new gold operations, we determined that conforming the calculation of Cash Costs with a consistent method to that used for AISC, using realized by-product sales as by-product credits and based on per ounce of silver sold, would provide a more consistent per-ounce measure; as such, the Cash Costs amounts in this AIF have been quantified using the current methodology and are different from those previously reported. Corporate general and administrative expense, and exploration and project development expenses are included in the calculation of consolidated (silver basis) AISC, but are not allocated amongst the operations and thus are not included in either the silver or gold segment AISC totals. In prior years these costs were similarly included only in the consolidated all-in-sustaining costs per silver ounce sold ("AISCSOS") metrics and not allocated to each mine's AISCSOS;

as such, consolidated AISCSOS in previous years included such costs, where total silver or gold segment AISC in the current period does not. A detailed description of how previously reported cash costs were quantified is provided in our management's discussion and analysis for periods prior to 2019.

Cash costs per ounce metrics, 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. Cash costs per ounce is conceptually understood and widely reported in the mining industry.

We believe that AISC, also calculated net of by-products, is a comprehensive measure of the full cost of operating our business, given it includes the cost of replacing silver and gold ounces through exploration, the cost of ongoing capital investments (sustaining capital), general and administrative expenses, as well as other items that affect our consolidated cash flow.

Readers should refer to our management's discussion and analysis for the year ended December 31, 2019 (the "2019 MD&A") for a detailed description and reconciliation of these non-GAAP measures.

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 4).
- 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 66, and our 2019 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 liquid assets to satisfy our 2020 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;
- our anticipated operating cash flow and our ability to raise necessary funds;
- our belief that we are well positioned to take advantage of strategic opportunities as they become available;
- the accuracy of mineral reserve and mineral resource estimates, estimates of future production and future cash, and total costs of production, as applicable, at the La Colorada, Dolores, Huaron, Morococha, San Vicente, and Manantial Espejo mines, and the Navidad, Joaquin and 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 complete the integration of the operations and employees of Tahoe Resources Inc.;
- 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 effect of the New Mining Law established by the Bolivian government on the current joint venture agreement with COMIBOL relating to the San Vicente mine, and our intention to take appropriate steps to protect and, if necessary, enforce our rights under our existing agreement with COMIBOL;
- 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;
- our goal to continue to be a responsible company, committed to sustainable development;
- the pursuit of all legal and commercial avenues to collect the amounts owing to us under our contracts with Doe Run Peru and Republic Metals Corporation ("Republic");
- 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 intention to acquire or discover silver resources that have the potential to be developed economically and to add meaningfully to our production profile while lowering consolidated units costs of production;
- our plans and expectations for our properties and operations, including, without limitation, production estimates, capital expenditures, exploration drilling and development, forecasts regarding investment activities, and other matters discussed under the heading "Outlook for 2020" 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 our material mineral properties.

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 relating to our operations in Mexico, Peru, Bolivia, Argentina, Guatemala and other foreign jurisdictions where we may operate;
- inherent risks associated with tailings facilities and heap leach operations, including failure or leakages;
- work stoppages or other impacts of roadblocks, civil unrest, riots, terrorism and other similar events;
- 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;

- 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);
- 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 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 8 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

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 more current information where applicable, such updated scientific and technical information having been prepared under the supervision of, or reviewed by, Christopher Emerson, FAusIMM, our Vice President, Business Development and Geology, and Martin Wafforn, P. Eng., our Senior Vice President, Technical Services and Process Optimization. Scientific or technical information relating to 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.

The Technical Reports are as follows:

- a report relating to the La Colorada mine entitled "Technical Report for the La Colorada Property, Zacatecas, Mexico", dated effective December 31, 2019 (the "La Colorada Report") by M. Wafforn, C. Emerson and A. Delgado;
- a report relating to the Dolores mine entitled "Technical Report for the Dolores Property, Chihuahua, Mexico", dated effective December 31, 2016 (the "Dolores Report") by M. Wafforn, C. Emerson and A. Delgado;
- a report relating to the Huaron mine entitled "Technical Report for the Huaron Property, Pasco, Peru" dated effective June 30, 2014 (the "Huaron Report") by M. Steinmann, M. Wafforn and A. Delgado;
- a report relating to the Morococha mine entitled "Technical Report for the Morococha Property, Yauli, Peru" dated effective June 30, 2014 (the "Morococha Report") by M. Steinmann, M. Wafforn and A. Delgado;
- a report relating to the Shahuindo mine entitled "Technical Report on the Shahuindo Mine, Cajabamba, Peru" dated effective January 1, 2016 (the "Shahuindo Report") by C. Defilippi, C. Muerhoff, and T. Williams;
- a report relating to the Timmins West mine entitled "National Instrument 43-101 Technical Report, Timmins West Mine, Timmins, Ontario, Canada" dated effective May 15, 2017 (the "Timmins West Report") by E. Kallio, N. Vaz, and K. Byrnes;
- a report relating to the Bell Creek mine entitled "NI 43-101 Technical Report, Updated Mineral Reserve Estimate For Bell Creek Mine, Hoyle Township, Timmins, Ontario, Canada" dated effective December 31, 2014 (the "Bell Creek Report") by E. Kallio and N. Vaz;
- a report relating to the Escobal mine entitled "Escobal Mine Guatemala: NI 43-101 Feasibility Study, Southeastern Guatemala" dated effective November 5, 2014 (the "Escobal Report") by M3 Engineering & Technology Corporation, with authors C. Huss, T. Drielick, D. Roth, P. Tietz, M. Blattman, and J. Caldwell; and
- a report relating to the Navidad property entitled "Pan American Silver Corp.: Navidad Project, Chubut Province, Argentina: Preliminary Assessment" dated January 14, 2011 (the "Navidad Report") by M. Steinmann, M. Wafforn and P. De Mark.

Each of Michael Steinmann, P. Geo., Martin Wafforn, P. Eng., Chris Emerson, FAusIMM, Pamela De Mark, P. Geo., Americo Delgado, P.Eng., Eric Kallio, P.Geo., Natasha Vaz, P.Eng., Kara Byrnes, P.Geo., Carl Defilippi, M.Sc., Charles Muerhoff, B.Sc., Tim Williams, M.Sc., Conrad Huss, P.Eng., Thomas Drielick, P.Eng., Daniel Roth, P.Eng., Paul Tietz, C.P.G., Matthew Blattman, P.Eng., and Jack Caldwell, P.Eng. is, or was in relation to the Technical Reports, 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.

Mineral reserve and mineral resource estimates in this AIF relating to the La Colorada, Dolores, Huaron, Morococha, Shahuindo, Timmins West, Bell Creek, and Escobal mines have been prepared by, or under the supervision of, Christopher Emerson and Martin Wafforn. Mineral resource estimates in this AIF relating to the Navidad property were prepared by, or under the supervision of, Pamela De Mark, our Director of Resources.

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 and disclosed 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 an instrument 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 400,000,000 Common Shares as at December 31, 2019. 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.

In connection with Pan American's acquisition of Tahoe Resources Inc. ("Tahoe"), Pan American issued 313,887,490 contingent value rights (each, a "CVR") to Tahoe shareholders. 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. More details about the Tahoe transaction and the CVRs can be found below under the heading, "Business of Pan American".

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 countries of our mines. Not all of our operating mines are material properties for the purposes of NI 43-101. This information is provided as at December 31, 2019.

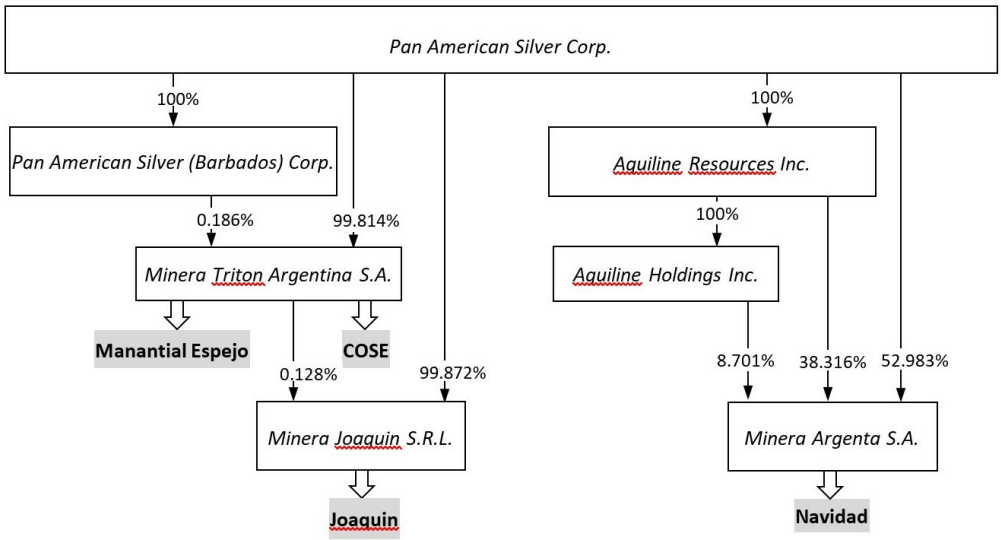
Name of Subsidiary	Jurisdiction
Tahoe Resources Ltd.	Alberta
0799714 B.C. Ltd.	British Columbia
Corner Bay Silver Inc. ("Corner Bay")	Canada
Lake Shore Gold Corp. ("Lake Shore")	Canada
Aquiline Resources Inc. ("Aquiline")	Ontario
Minefinders Corporation Ltd. ("Minefinders")	Ontario
Pan American Silver (Barbados) Corp.	Barbados
Aquiline Holdings Inc.	Barbados
PASCAP Insurance (Barbados) Ltd. ("PASCAP")	Barbados
Escobal Resources Holdings Ltd.	Barbados
Minera Triton Argentina S.A. ("MTA")	Argentina
Minera Argenta S.A. ("MASA")	Argentina

Name of Subsidiary	Jurisdiction
Minera Joaquín S.R.L.	Argentina
Pan American Silver (Bolivia) S.A. (“PASB”)	Bolivia
Minera San Rafael S.A. (“MSR”)	Guatemala
PASMEX, 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 (Netherlands) B.V.	Netherlands
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
Tahoe Resources Peru S.A.C. (“Tahoe Peru”)	Peru
Shahuindo S.A.C.	Peru
La Arena S.A.	Peru

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, 2019, and identifies the main property asset interests (including non-material properties, as applicable) held by the respective entities[1].

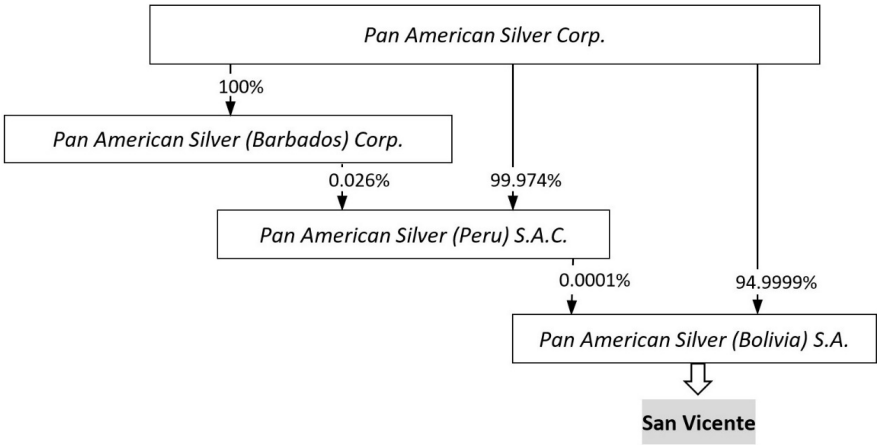
Argentina Properties



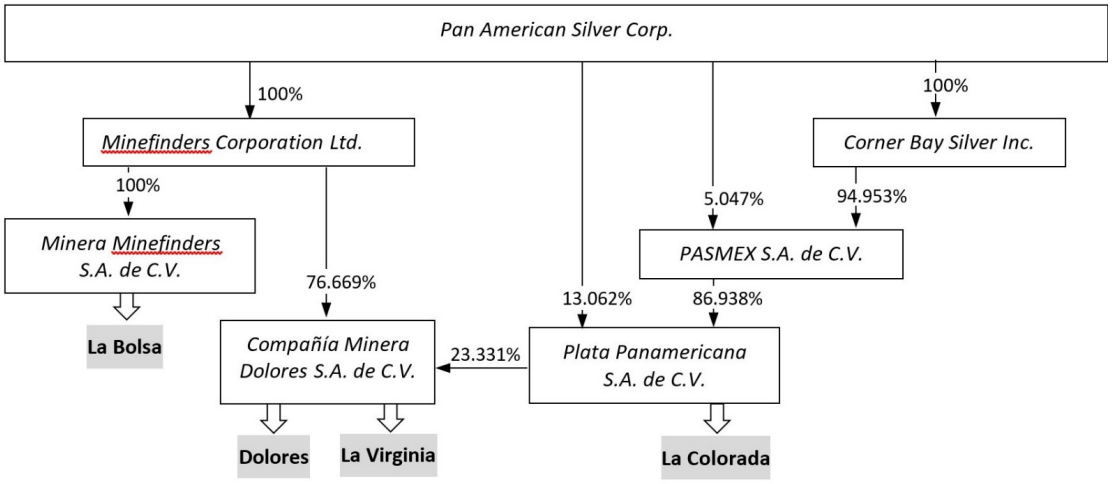
Canada Properties



Bolivia Properties

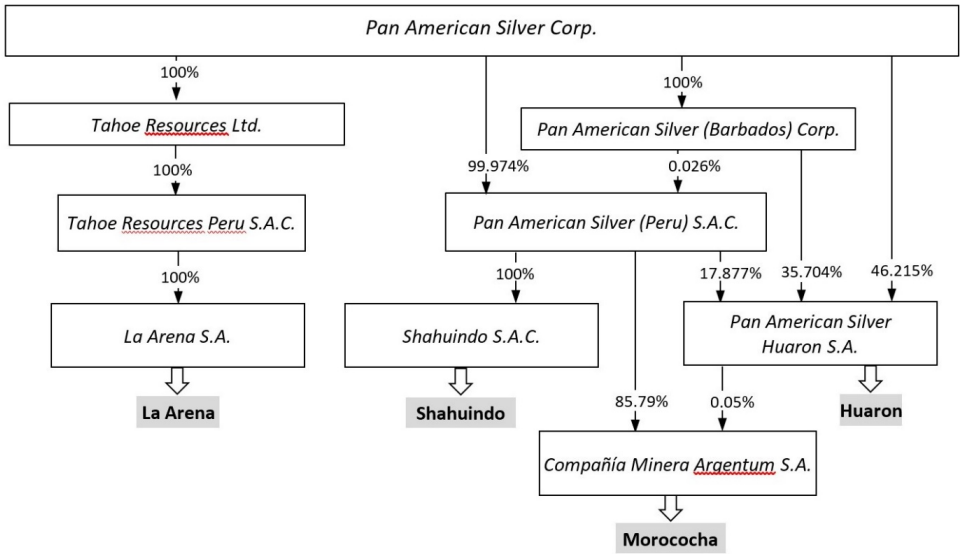


Mexico Properties



Guatemala Properties

Peru 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 three decimal places). Minority interests of less than 0.001% are therefore not shown.

GENERAL DEVELOPMENT OF THE BUSINESS

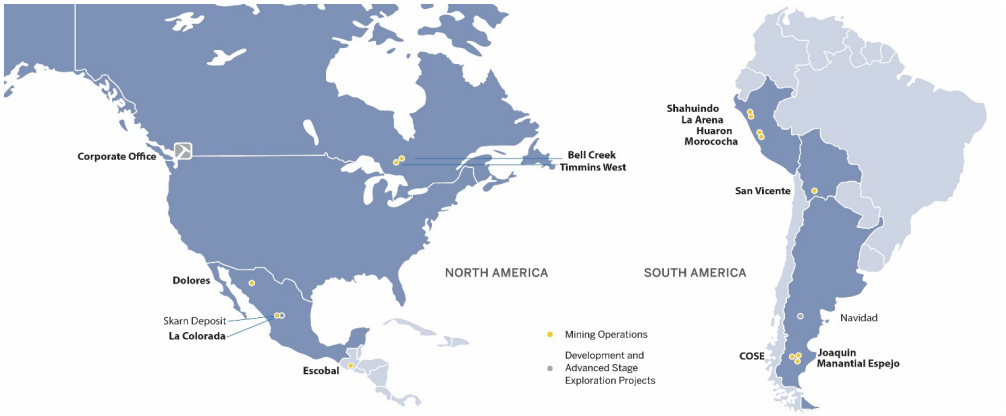
Business of Pan American

We are principally engaged in the operation and development of, and exploration for, silver and gold producing properties and assets. Our principal products are silver and gold, although we also produce and sell zinc, lead, and copper. As at December 31, 2019, we operated mines and developed mining projects in Mexico, Peru, Canada, Argentina and Bolivia, and had control over non-producing silver assets in each of those jurisdictions, in addition to Guatemala and the United States.

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"). We completed the Arrangement on February 22, 2019. In aggregate, we paid $275 million in cash and issued 55,990,512 Common Shares to Tahoe shareholders under the Arrangement. In addition, Tahoe shareholders received an aggregate of 313,887,490 CVRs, each CVR having a term of ten years and being exchangeable for 0.0497 of a Common Share upon first commercial shipment of concentrate following restart of operations at the Escobal mine. Tahoe nominated two directors to Pan American's board of directors (the "Board of Directors"). As required under Part 8 of National Instrument 51-102 – *Continuous Disclosure Obligations* ("NI 51-102"), we have filed a Form 51-102F4 Business Acquisition Report dated May 3, 2019, in respect of the Tahoe transaction.

With the completion of the Tahoe 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 successful 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 believe that it is important to engage with local communities and Xinka populations in an effort to build long-lasting, trusting relationships for the benefit of all stakeholders.

The following map depicts the location of our operating mines and certain of our exploration and non-operating projects as at December 31, 2019.



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	Since 1995, we have increased annual silver production almost every year. In 2019, we produced 25.9 million ounces of silver, which was over one million ounces more than the 24.8 million ounces produced in 2018. We also increased gold production to a record high 559,200 ounces in 2019, which is over three times the amount of gold that we produced in 2018. 2019 production does not include any production prior to February 22, 2019, from mines acquired through the Tahoe transaction. This long-term growth has been accomplished through a combination of acquisition, exploration, development and expansion efforts, with the latest acquisition of Tahoe on February22, 2019, contributing significantly to our production, particularly gold. In 2020, Pan American expects to produce between 27.0 and 28.5 million ounces of silver and between 625,000 and 675,000 ounces of gold from its portfolio of 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 addition to mineral reserves and resources added through acquisitions, Pan American's history of replacing silver ounces mined at its operations reflects our ability to invest in mine and near-mine exploration programs throughout the silver price cycle and to the exploration potential of our asset portfolio. Effective June 30, 2019, our proven and probable silver and gold mineral reserves were approximately 557 million and 5.1 million ounces, respectively, up from the 279.8 million ounces of silver and the 1.7 million ounces of gold at the end of 2018. Our measured and indicated mineral resources (excluding mineral reserves) were approximately 797 million ounces of silver and 10.6 million ounces of gold effective the end of June 2019. 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"	In 2019, with the acquisition of Tahoe, we began reporting Cash Costs[1] and AISC[1] on both a silver segment and gold segment basis, as well as on a consolidated silver[1] basis, in order to better reflect our assets' production profiles. For 2019, silver segment Cash Costs and AISC were $6.39 and $10.46 per silver ounce sold, respectively, and gold segment Cash Costs and AISC in 2019 were $712 and $948 per gold ounce sold, respectively. Consolidated silver basis Cash Costs and AISC in 2019 were ($4.89) and $4.44 per silver ounce sold, respectively.
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. 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 more 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 66 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 "Towards Sustainable Mining", 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 sustainability performance in accordance with the Global Reporting Initiative Standards, with the current report available on Pan American's website at www.panamericansilver.com.

Note:

1 Cash Costs and AISC 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
2019	• Completed the acquisition of Tahoe on February 22, 2019, whose assets included the Shahuindo and La Arena mines in Peru, the Timmins West and Bell Creek mines in Ontario, Canada, and the Escobal mine (currently suspended) in Guatemala. • Produced 25.9 million ounces of silver and 559,200 ounces of gold. The La Colorada mine continued to lead our silver production with 8.2 million ounces produced in 2019, and the Timmins West and Bell Creek (combined), Shahuindo, La Arena, and Dolores mines each produced over 100,000 ounces of gold during 2019. Reported 2019 production from the mines acquired through the Tahoe transaction does not include any production prior to February 22, 2019. • Reported proven and probable mineral reserves of 557 million ounces of silver and 5.1 million ounces of gold, as well as measured and indicated mineral resources of 797 million ounces of silver and 10.6 million ounces of gold, each as of June 30, 2019. • Reported an initial inferred mineral resource estimate for the La Colorada skarn discovery on December 11, 2019, of 72.5 million tonnes, averaging 44 grams per tonne silver, 0.17% copper, 2.02% lead and 4.40% zinc, assuming a cut-off value of $60 per tonne after accounting for transportation, smelting and refining costs. • Amended our corporate credit facility to extend the maturity to February 2023 and increase availability from $300 million to $500 million.
2018	• Produced 24.8 million ounces of silver and 178,900 ounces of gold. The La Colorada mine continued to be our largest silver producer at approximately 7.6 million ounces for 2018, 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 that was expected in 2019. • Made a major exploration discovery at the La Colorada mine. • Announced the proposed acquisition of Tahoe. • Substantially completed active reclamation at the Alamo Dorado site.
2017	• Produced 25.0 million ounces of silver and 160,000 ounces of gold. The La Colorada mine was our largest silver producer at approximately 7.1 million ounces for 2017, followed by the Dolores mine 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. • Construction of the La Colorada mine expansion was completed. Full design processing rates of 1,800 tonnes per day (“tpd”) 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 tpd 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 the Alamo Dorado mine occurred and mining activities concluded. The mine transitioned into the active reclamation phase.

Outlook for 2020

In 2020, we expect to produce between 27.0 and 28.5 million ounces of silver and between 625,000 and 675,000 ounces of gold at consolidated silver basis AISC of between $4.50 and $6.50 per ounce of silver. To forecast AISC, Pan American has assumed metal prices of $17.50/oz for silver, $1,525/oz for gold, $2,350/tonne for zinc, $2,000/tonne for lead, and 6,150/tonne for copper; and average annual exchange rates relative to 1 USD of 19.50 for the MXN, 3.34 for the PEN, 73.64 for the ARS, 6.91 for the BOB, and $1.30 for the CAD.

In 2020, we plan on incurring project capital expenditures of approximately $22.0 million to $27.0 million, relating mostly to: (1) the drilling program, early stage engineering and metallurgical testing for the La Colorada skarn discovery; and (2) an approximate 20% expansion of the Bell Creek mine in Timmins, with the purchase of additional mine equipment and debottlenecking of the plant to optimize improved efficiencies resulting from the commissioning of the Bell Creek shaft in February 2019. We are also focused on capturing additional debottlenecking opportunities at the Shahuindo and La Colorada mines.

Anticipated sustaining capital expenditures of $225.0 million to $240.0 million in 2020 include: (1) completion of the substantial heap leach pad expansions at the Dolores and Shahuindo mines; (2) work on the waste rock storage facilities at the La Arena and Shahuindo mines; (3) expansion of tailings storage facilities at the La Colorada and Timmins mines; (4) advancing open pit mine waste pre-stripping activities at the Dolores and La Arena mines; and (5) mine equipment replacement and refurbishments at the Timmins mines and the La Colorada mine.

Exploration expenditures in 2020, including both amounts that will be expensed and capitalized, are expected to total $37.5 million to $39.5 million, comprised of: (1) $18.5 million to $19.5 million for 186,000 metres of near-mine brownfield exploration drilling for reserve replacement, which is included in the forecast for 2020 sustaining capital expenditures, (2) $11.5 million to $12.5 million in regional, greenfield exploration in Peru, Mexico and Canada; and (3) $7.5 million for 44,000 metres of drilling on the La Colorada skarn discovery, which is included in the forecast for 2020 project capital expenditures.

Cash Costs and AISC 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 66 for more information about the risks relating to our business and our mining properties, particularly with respect to the Escobal mine.

NARRATIVE DESCRIPTION OF THE BUSINESS

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 2019, the La Colorada, Dolores, Huaron, Morococha, Shahuindo, La Arena, Timmins West, Bell Creek, Manantial Espejo and San Vicente mines accounted for all of our production of concentrates and doré.

Consolidated production for the year ended December 31, 2019 **1** was as follows:

	La Colorada	Dolores	Huaron	Morococha[2]	San Vicente[3]	Manantial Espejo	Shahuindo	La Arena	Timmins[4]	Total[5]
Tonnes Milled[6]	768,700	6,777,000	994,000	686,200	349,700	708,600	11,218,800	11,189,700	1,480,700	34,173,400
Grade										
Silver - g/t	361	38	142	126	345	127	8			

Gold - g/t		0.60				1.08	0.60	0.41	3.18	
Zinc %	3.10		2.38	3.76	2.16					
Lead %	1.65		1.22	1.21	0.14					
Copper %			0.81	0.44	0.31					
Production										
Ounces Silver[6]	8,206,000	5,122,000	3,796,000	2,456,000	3,528,000	2,599,000	137,000	26,000	18,000	25,886,000
Ounces Gold[6]	4,610	117,600	970	1,390	480	22,410	145,370	122,520	143,770	559,170
Tonnes Zinc[7]	20,970		18,070	22,500	6,010					67,560
Tonnes Lead[7]	11,150		9,220	6,560	420					27,350
Tonnes Copper[7]			6,020	1,830	850					8,700

Notes:

1 Reflects production subsequent to February 22, 2019, for the Shahuindo, La Arena, Timmins West and Bell Creek mines.
2 Morococha data represents our 92.3% interest in mine production based on ownership of the operating entity.
3 San Vicente data represents our 95% interest in mine production based on ownership of the operating entity.
4 Timmins refers to the Timmins West and Bell Creek mines.
5 Totals may not add due to rounding.
6 Rounded to the nearest thousand.
7 Rounded to the nearest ten.

Our approximate revenue by product category for the financial years ended December 31, 2019 and December 31, 2018 was as follows:

Product Revenue	**2019**	**2018**
	($000's)	($000's)
Silver and Gold Doré	894,202	348,717
Zinc Concentrate	134,992	155,412
Lead Concentrate	183,343	150,832
Copper Concentrate	78,865	86,599
Silver Concentrate	59,357	42,935
Total	**1,350,759**	**784,495**

Additional segmented information is set forth in Note 26 to Pan American's Audited Consolidated Financial Statements for the year ended December 31, 2019, and further information on individual mine performance and other metrics is presented in the 2019 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, Manantial Espejo, Shahuindo, La Arena and Timmins 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 22 herein. Silver and gold doré is delivered to refineries in Canada, 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 the La Colorada mine is delivered to the buyers at the Manzanillo, Mexico, port. Concentrate production from the Huaron and Morococha mines 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 the San Vicente mine 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 2019, we had approximately 6,800 employees and about 5,450 contractors. The majority of those employees and contractors were working at our operations in South and Central America, Mexico and Canada. Our Peruvian operations had the largest workforce with approximately 6,530 employees and contractors as of December 31, 2019, while our Mexican operations had over 3,050 total employees and contractors. Our Argentina and Bolivia operations had approximately 830 and 670 employees and contractors, respectively, and there were over 300 employees and contractors in Guatemala. In Canada, our operations had nearly 800 employees and contractors, and just over 60 persons worked for Pan American's head office in Vancouver, British Columbia at year-end.

Protecting the health, safety and wellbeing of our employees, contractors, suppliers, and community partners where we operate is always a priority for us. Please refer to the Sustainability page of our website at www.panamericansilver.com for further information on our health and safety programs.

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 2017, 2018, or 2019.

Working Capital and Liquidity Position

As at December 31, 2019, we had cash and cash equivalents and short-term investment balances of $238.3 million and working capital of $517.2 million, with $275.0 million outstanding on our corporate credit facility.

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. On February 1, 2019, 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 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, 2019, 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 2020 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

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 continue to implement the best practice established under the Mining Association of Canada's ("MAC") Toward Sustainable Mining ("TSM") program at all of our operations.

During 2019, reviews of the environmental and social performance of all our operations were led by Pan American's Senior Vice President of Corporate Affairs and Sustainability, and Vice President, Environment. 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 Corporate Social Audits are conducted at each mine approximately once every two years. We conduct environmental audits to assess the mine's facilities, operating procedures and control systems to ensure that procedures comply with regulations, are consistent with our corporate standards, and that potential risks are being managed. During 2018, environmental audits were undertaken at the San Vicente, Morococha and Huaron mines, and in 2019, the La Arena, Shahuindo and Manantial Espejo mines were audited. In intervening years between audits, the implementation of the corrective actions required by each audit is checked. The San Vicente, Morococha and Huaron mines' corrective actions were found to be satisfactory in 2019.

We conduct social audits to monitor the programs we run in partnership with neighbouring communities, to assess our employees and contractors' camps and facilities, security practices and social performance of programs and to identify opportunities for improvement in our processes. Our tool is based on the ISO 26000 guidance standard on social responsibility and supplemented with company-specific content, industry requirements, and best practices from the TSM Aboriginal and Community Relationship Protocol, the UN Guiding Principles on Business and Human Rights, the Voluntary Principles on Security and Human Rights and Unicef's Child Rights and Security Checklist. Social audits were completed at the La Arena, Shahuindo, Huaron and Morococha mines in 2019. No material issues were identified.

Pan American is continuing the implementation of the Mining Association of Canada's Towards Sustainable Mining, a framework 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. Sites are also working to align their management systems with the TSM protocols.

In 2019, we adopted a new human rights policy that is based on international best practices and standards. This board-level policy consolidates our existing objectives in the areas of environment, labour, diversity and social responsibility. It formalizes our approach to fostering a positive human rights culture throughout our organization and working to prevent or mitigate any adverse impact of our activities on our employees, communities and other external stakeholders.

We took additional steps to align with international human rights best practise in 2019 and conducted a gap assessment of our security practices against the requirements of the Voluntary Principles on Security and Human Rights and UNICEF's Child Rights and Security Checklist at two of our three operations with armed security forces: La Colorada in Mexico and Escobal in Guatemala.

All phases of our operations are subject to environmental regulation in the various jurisdictions in which we operate.

Our La Arena, Shahuindo, Huaron, Morococha, La Colorada, Dolores, San Vicente, Escobal, and Manantial Espejo operations were all inspected by government agencies in 2019 and no material environmental issues were recorded as a result of these inspections.

In the financial year-end dated December 31, 2019, our environmental expenditures for concurrent reclamation were approximately $2.3 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. Estimates for Timmins, Escobal and Alamo Dorado were developed by each site using direct estimation with site-specific closure plans, engineering estimates, local rates and contractor quotes. We currently estimate the aggregate present value of expenditures required for future closure and decommissioning costs in respect of the Huaron, Morococha, Shahuindo, La Arena, Alamo Dorado, La Colorada, Dolores, Timmins West, Bell Creek, Manantial Espejo, San Vicente, and Escobal mines, along with our pre-existing development properties, to be approximately $188.5 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, 2019.

We completed our 2019 Sustainability Report in accordance with the Global Reporting Initiative (GRI) Standards: core option and GRI Mining & Metals Sector Disclosures. The report includes detailed information on our environmental, social, socio-economic and health and safety performance. The complete Sustainability Report and information about our sustainability programs is available on our website at www.panamericansilver.com.

Operating and Development Properties

Pursuant to NI 51-102, we have identified the following properties and projects as being material as at December 31, 2019: the La Colorada mine, the Dolores mine, the Huaron mine, the Morococha mine, the Shahuindo mine, the Timmins West mine, and the Bell Creek mine. We have also identified the currently-suspended Escobal mine and the Navidad property as material properties for 2019. We do not consider any of our other mines, 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 7.

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. Pan American is exposed to many risks in conducting its business, both known and unknown, and there are numerous uncertainties inherent in estimating mineral reserves and mineral resources. Although we have no current expectation that our mineral reserve and mineral resource estimates will be materially negatively impacted by external factors such as metallurgical, safety, environmental, permitting, title, access, legal, taxation, availability of resources, and other factors disclosed in this AIF, changes in relation to such factors are not uncommon in the mining industry and there can be no assurance that these factors will not have a material impact. There are numerous uncertainties inherent in estimating mineral reserves and mineral resources. The political, economic, regulatory, judicial and social risks related to conducting business in foreign jurisdictions, and changes in metal and

commodity prices, pose particular risk and uncertainty to us and could result in material impacts to our business and performance. In addition to external factors and risks, the accuracy of any mineral reserve and mineral resource estimate is, among other things, 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, from current estimates, and investors are cautioned against attributing undue certainty to mineral reserves and mineral resources. Readers are encouraged to read the discussion under “Risks Relating to Our Business” in this AIF.

I. Operating Properties

A. Mexico

(i) La Colorada Mine

Project Description, Location, and Access

The La Colorada underground silver mine is located in Zacatecas State, Mexico, approximately 100 kilometres south of the city of Durango and 155 kilometres northwest of the city of Zacatecas. The 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 8,840 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 transaction with Maverix Metals Inc. (“Maverix”), 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 2019, the Maverix Gold Stream resulted in Maverix acquiring 3,758 ounces of gold (2018 – 3,968 ounces).

To the best of our knowledge, the La Colorada mine 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 $2.0 million in respect of the Zacatecas Tax in 2019, 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 expect to be reasonably likely to affect access or title, or the right or ability to perform work on the La Colorada mine, certain community and land ownership rights have been asserted over a portion of our La Colorada surface lands. In addition to claims in the Agrarian Courts in Mexico, a process was initiated before the Secretariat of Agrarian, Territorial and Urban Development (“SEDATU”) in Zacatecas to declare such lands as national property. While we are seeking to protect our rights, there could be a material adverse impact on La Colorada’s future mining operations if we are unable to maintain access to those surface areas. Please refer to "Risks Related to Our Business" starting on page 66 for a general discussion of the risks relating to our operations.

History

The Dorado family operated mines at two locations on the property in 1925. From 1929 to 1955, Candelaria y Canoas S.A., a subsidiary of Fresnillo S.A., installed a 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. ("Eugenia") operated a number of mines on the property. In 1994, Minas La Colorada S.A. de C.V. ("MLC") acquired the exploration and exploitation claims and surface rights of Eugenia. Until 1997, MLC conducted mining operations on three of the old mines on the property.

During these time periods, exploration was mainly in the form of development along 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 have been producing from La Colorada since 1998.

Geological Setting, Mineralization, and Deposit Types

The La Colorada mine is located in the Sierra Madre Occidental volcanic belt, at the contact between the Lower Volcanic Supergroup and the Upper Volcanic Supergroup. The oldest rocks exposed on the property are Cretaceous limestones of the Cuesta del Cura Formation and calcareous clastic rocks of the Indidura Formation. They are overlain by conglomerates of the early Tertiary Ahuichilla Formation. East to northeast striking faults form the dominant structures at the property and play a strong role in local mineralization.

Economic mineralization is found in veins, replacement mantos, and skarn. The majority of the mineral resources and mineral reserves are sourced from the NC vein series, the HW vein series, Veta 3, the Amolillo vein system, vein and manto mineralization at the Recompensa system, and the new undeveloped skarn deposit.

Most mineralized veins strike east to northeast and dip moderately to steeply to the south. Most of the mineralization of economic significance is located in quartz veins that average 1 metre to 2 metres wide, but may be significantly wider. Amolillo strikes over 1.5 km to the northeast and dips 60° to the southeast, for over 800 metres down dip. The average vein width is 2.2 metres. The NC vein series lies around 700 m to the southeast of Amolillo. The most significant of these veins, NC2, strikes around 1.2 km to the northeast and dips 75° to the southeast, for over 1 km down dip. The average vein width is 1.9 metres. The HW series is the western continuation of the NC series, strikes east-west, and dips 50° to the south, for over 600 m down dip. The average vein width is 1.8 metres. Veta 3 runs parallel to the HW and NC series, strikes for over 900 m to the northeast, and dips 75° to the northwest, for around 400 m down dip. The average vein width is 1.7 metres.

Manto style mineralization is found near vein contacts where the primary host rock is limestone.

A significant skarn deposit was discovered in 2018 at depth and to the east of the NC2 vein. With increasing depth, mineralization styles progress from epithermal style veins, to manto style mineralization in calcareous sediments, skarn, magmatic hydrothermal breccia skarn, proximal skarn, epithermal veins overprinting porphyry, and copper-molybdenum-silver porphyry. Common minerals include galena and sphalerite, with quartz, carbonate, feldspar, pyroxene, and garnet. The deposit, as currently defined, comprises several zones of mineralization located between 600 metres to 1,700 metres below surface, over an area of around 500 metres by 600 metres.

Exploration

The mine had been working for several decades prior to any specific exploration work and most major structures became known through mine development. Prior to Pan American's ownership, 131 diamond drillholes for a total of 8,665 metres had been completed by MLC, and between September 1997 and March 1998, while the property was under option, Pan American conducted a geophysical survey comprising very low frequency radio and induced polarization.

Since Pan American acquired the La Colorada mine, staff and consulting structural geologists have carried out near mine surface and underground geological and structural mapping. Underground channel and raise sampling is conducted for grade control and mineral resource and reserve estimates as mining progresses.

Drilling

All drilling is by diamond drilling from surface and underground using industry standard drill machines and downhole survey tools. Drilling is conducted by both our employees and private drilling contractors under the supervision of the mine geology department. Near mine surface and underground diamond drilling exploration campaigns are ongoing on an annual basis for mineral resource and mineral reserve estimates.

Sampling, Analysis, and Data Verification

The drill core is cut in half with a diamond bladed saw and samples are selected with respect to geological features, at 2 metre lengths or less. Channel samples of approximately one metre in width are taken in ore development areas and stopes. The samples are maintained in secure facilities and are under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and integrity of the samples has been compromised.

The drillhole samples are prepared by the internal La Colorada mine laboratory, which is operated by our employees, and by independent laboratories including SGS of Durango, Activation Laboratories Ltd ("Actlabs") of Zacatecas, and Bureau Veritas of Hermosillo. Both Actlabs and SGS used fire assay with gravimetric finish for gold and acid digestion with ICP finish for silver, lead, zinc, and copper. Bureau Veritas used fire assay with gravimetric finish for gold and acid digestion with ICP finish for silver, lead, zinc, and copper in their Vancouver, Canada laboratory. The La Colorada mine laboratory used fire assay with gravimetric finish for gold and silver, and acid digestion with atomic absorption ("AA") 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 the La Colorada mine, effective December 31, 2019, 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	3.7	395	0.33	3.11	1.72
Probable	5.3	287	0.26	2.44	1.35
TOTAL	9.0	331	0.29	2.72	1.50

Notes:

1 Estimated using a price of $17 per ounce of silver, $1,300 per ounce of gold, $2,500 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 the La Colorada mine, effective December 31, 2019, are as follows:

La Colorada Mineral Resources [1, 2, 3]						
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**	**% Copper**	**% Zinc**	**% Lead**
Measured	0.5	229	0.24	0.00	1.16	0.65
Indicated	1.6	185	0.15	0.00	1.16	0.56
Inferred	5.0	190	0.16	0.00	4.28	2.16
Inferred skarn	72.5	44	0.00	0.17	4.40	2.02

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using a price of $17 per ounce of silver, $1,300 per ounce of gold, $2,500 per tonne of zinc and $2,100 per tonne of lead, except for the skarn deposit, where metal prices of $18.50 per ounce of silver, $6,500 per tonne of copper, $2,600 per tonne of zinc, and $2,200 per tonne of lead were used. At the skarn deposit, a cut-off value of $60 per tonne, which used metallurgical recoveries of 91% silver, 90% lead, 85% zinc, and 38% copper, was used to tabulate resources..

2 Mineral resource estimates for the La Colorada mine 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.

Resource estimates were made using either two dimensional or three dimensional methods.

Following the two dimensional method, mineral resources are estimated using averaging of the channel and diamond drillhole samples. A long section is produced of each structure and divided into mineable panels. The volume of the panel 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 panel. The grade of each panel is estimated by the length weighted average of the sample grade of each intersection within a 30 metre radius of the panel.

Following the three dimensional method, three dimensional interpretations are made in each vein or mineralized structure around spatially continuous trends of drillhole and channel sample grades greater than the sub-marginal cut-off values for each vein. A similar interpretation is made of hangingwall and footwall dilution volumes

expected to be mined with each structure. The wireframe interpretations are filled with blocks for the ordinary kriged estimate.

For both estimation methods, a long section is produced of each structure and divided into mineable panels. Average bulk density values are applied to each mining panel volume to estimate the tonnes of each panel. The volumes are depleted annually for mining in the previous year. 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 geologists. Planned dilution and loss is applied to the estimate and a value per tonne is calculated in each panel. Any panel with a value above the mineral resource cut-off is converted to mineral resources. Mineral resources that can be economically mined are converted to mineral reserves.

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 the La Colorada mine.

Mining Operations

Underground mining currently takes place utilizing cut and fill and long hole open stoping methods. Ore is hoisted to the surface in a shaft, and when required, may also be hauled to the surface using the two mine access ramps present in both mines.

Processing and Recovery Operations

The operation produces both oxide and sulphide ore processed in two separate circuits with a total nominal plant capacity of 2,000 tpd. The oxide plant is a conventional cyanide leach process comprised of crushing, grinding, leaching, Merrill Crowe zinc precipitation, and on-site refining to produce doré. The sulphide plant has a conventional flotation process comprised of crushing, grinding, and selective lead and zinc froth flotation circuits to produce separate precious metal rich lead and zinc concentrates. In the oxide plant, metallurgical recoveries average 84% for silver and 48% for gold. In the sulphide plant, recoveries average 93% for silver, 61% for gold, 88% for lead, and 88% for zinc.

During 2019, we processed 768.7 thousand tonnes, producing 8.2 million ounces of silver, 4.61 thousand ounces of gold, 20.97 thousand tonnes of zinc, and 11.15 thousand tonnes of lead.

All precious metal doré produced at the La Colorada mine 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 the La Colorada mine 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:

2019	Revenue[1, 2]	Quantity Sold
Silver and Gold in Doré	$16.8 million	1,145,000 ounces of silver
		680 ounces of gold
Lead Concentrate[3]	$121.4 million	20,986 tonnes
Zinc Concentrate[3]	$39.5 million	36,221 tonnes

2018		
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

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 all 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 La Colorada 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.

An environmental impact statement ("EIS") and risk assessment on the La Colorada property was first submitted to the Mexican environmental authorities in early March 1999 and has subsequently been maintained and updated, including a major permit modification for the La Colorada mine expansion in 2017.

The main environmental projects focus on the stability and revegetation of historic tailings facilities. There are no known environmental issues that could materially impact our ability to extract the mineral resources or mineral reserves.

The La Colorada mine voluntarily participates in the Mexican Environmental Protection Authority's "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 La Colorada mine obtained its first certification in 2008 and is periodically re-certified.

A closure cost estimate for La Colorada prepared according to State of Nevada approved SRCE methodology is updated every year. Pan American has estimated the present value of the final site reclamation costs for the La Colorada mine to be approximately $8.1 million effective December 31, 2019. See "Narrative Description of the Business – Environment, Community and Sustainability" for further disclosure regarding forward-looking statements related to reclamation costs.

Capital and Operating Costs

In 2019, total capital additions at La Colorada were approximately $20.8 million, with $11.1 million invested in expenditures related to the expansion activities, including exploration on the new skarn mineralization.

Capital investments for the La Colorada mine in 2020 will total between $31.5 million to $34.5 million. In addition to sustaining capital investments of between $15.5 million and $16.5 million relating to underground mechanization equipment additions, mine equipment refurbishments and replacements, underground ventilation

infrastructure improvements, tailing storage facility expansions and near-mine exploration, we also expect to invest between $16.0 million and $18.0 million in project capital spending for continued exploration drilling and early stage engineering and metallurgical testing on the newly discovered skarn deposit.

In 2019, direct operating costs at La Colorada were $74.5 million.

Exploration, Development, and Production

In 2020, we anticipate producing between 8.5 million and 8.7 million ounces of silver and between 4.0 thousand and 5.0 thousand ounces of gold from the La Colorada mine. We plan to undertake approximately 65,000 metres of exploration drilling at the La Colorada mine, including the skarn, in 2020.

(ii) Dolores Mine

Project Description, Location, and Access

The Dolores open pit and underground silver-gold mine is located in the state of Chihuahua, 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 Dolores mine.

In 2012, Pan American acquired Minefinders and its wholly-owned subsidiary, CMD, that owns and operates the Dolores mine. The mine is comprised of three mineral concessions with an area of approximately 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.

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 Huizopa 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 the Dolores mine 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 expect to be reasonably likely to 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 66 for a general discussion of the risks relating to our operations.

History

Mining began in the region of the Dolores mine in the 1860s. A 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 the Dolores mine.

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 have been producing from Dolores since 2012.

Geological Setting, Mineralization, and Deposit Types

Dolores is located in the Sierra Madre Occidental volcanic belt, which comprises calc-alkaline batholiths and volcano sedimentary rocks of the Lower Volcanic Series and ignimbrites of the Upper Volcanic Series.

The San Francisco fault and its footwall host most of the mineralization at Dolores. The immediate footwall and hanging wall of the fault forms a 500 metre wide northwest-striking corridor of igneous intrusions.

Low sulphidation epithermal silver and gold mineralization 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. Silver and gold mineralization identified on the surface lies over an area 4,000 metres long and up to 1,000 metres wide.

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 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 mine, we have continued with a program of near mine geological mapping and diamond drilling.

Drilling

All drilling is by diamond drilling from surface and underground using industry standard drill machines and downhole survey tools. Drilling is conducted by private drilling contractors under the supervision of the mine geology department. Near mine surface and underground diamond drilling exploration campaigns are ongoing as required for mineral resource and mineral reserve estimates.

Sampling, Analysis, and Data Verification

Reverse circulation drillholes were sampled from the length of each drill rod and diamond drillhole samples are selected according to geological features. Most drill core samples have been taken at 2 metre intervals. The samples are maintained in secure facilities and are under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and 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 assay overlimits were re-assayed using fire assay with gravimetric finish. Gold was analyzed using fire assay with AA finish and with gravimetric finish for any AA overlimits. Since acquiring the Dolores mine, 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 any AA overlimits. Silver is analysed by three acid digestion with ICP-AES finish for trace silver values, by three acid digest with AA finish for ICP-AES overlimits, and by fire assay with gravimetric finish for any AA overlimits.

The mine geology department conducts a 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 mineral processing procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess leaching performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the recovery model, historical performance of the leaching operations and the tonnes, grade and type of material that is planned to be mined.

Mineral Resource and Mineral Reserve Estimates

Dolores Mineral Reserves [1, 2]			
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Proven	35.9	26	0.84
Probable	7.8	28	0.84
TOTAL	43.7	26	0.84

Management estimates that mineral reserves for the Dolores mine, effective June 30, 2019, are as follows:

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Notes:

1 Estimated using a price of $17 per ounce of silver and $1,300 per ounce of gold. Totals may not add due to rounding.

2 Mineral reserve estimates for the Dolores mine 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, effective June 30, 2019, are as follows:

Dolores Mineral Resources [1, 2]			
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Measured	2.0	21	0.35
Indicated	1.5	28	0.56
Inferred	4.0	47	1.22

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Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using metal prices of $22 per ounce of silver and $1,400 per ounce of gold.

2 Mineral resource estimates for the Dolores mine 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. 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 is depleted annually for mining in the previous year. Planned dilution and loss is applied to the block model and a value per tonne is applied to each block. Reserve and resource pits and underground stope shapes were prepared on blocks above the economic cut-off. Mineral resources that can be economically mined are converted to mineral reserves.

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 the Dolores mine.

Mining Operations

Mining at Dolores is by standard open pit methods using shovels, loaders, and haul trucks and by underground methods using sub level open stoping and ramp haulage to the surface.

Processing and Recovery Operations

The Dolores mine uses conventional cyanide heap leaching and Merrill-Crowe technology on the crushed ores to produce gold and silver doré. The high grade portion of the ore is processed through the pulp agglomeration treatment plant and is conveyed with the lower grade portion to the heap leach pads for leaching. The pulp agglomeration plant is comprised of crushing, grinding, particle size classification, filtration, agglomeration, and reagent facilities. The average plant throughput is 20,000 tpd.

During 2019, we stacked 6.8 million tonnes on the leach pads and produced approximately 5.1 million ounces of silver and 117.6 thousand 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:

2019	**Revenue[1,2]**	**Quantity Sold**
Silver and Gold in Doré	$248.7 million	4,924,110 ounces of silver
		120,731 ounces of gold
2018		
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

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 all 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.

Water for the operations is sourced from wells, pit and underground dewatering, and an onsite water storage dam, with a back-up system to supply water from the nearby Rio Tutuaca if required. Power is supplied from the Mexican national grid and backup generators are available when required.

The most significant environmental liabilities associated with the Dolores mine 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 Dolores mine. 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 another pad. 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.

Since then, partially spent ore from the northern half of Pad 1 has been relocated to another pad for leaching, the old liner and base materials were removed, and the area was reconstructed and re-lined. Approximately 1.5 million tonnes of partially spent ore remain in the southern part of Pad 1, awaiting transfer to the newly lined area, and allowing the final reconstruction of the southern half of Pad 1.

A closure cost estimate for Dolores prepared according to State of Nevada approved SRCE methodology is updated every year. We have estimated the present value of reclamation costs for the Dolores property at December 31, 2019 to be approximately $39.1 million. See "Narrative Description of the Business – Environment, Community and Sustainability" for further disclosure regarding forward-looking statements related to reclamation costs.

Capital and Operating Costs

In 2019, total capital additions at the Dolores mine were approximately $50.0 million, including $49.7 million of sustaining capital, primarily for capitalized pre-stripping and leach pad expansions, as well as $0.4 million invested for completion of the expansion project.

Capital investments in 2020 will total between $55.0 million to $58.0 million. The major components of these investments include heap leach pad and pond expansions, open pit mine waste pre-stripping activities and mine equipment refurbishments.

In 2019, direct operating costs at Dolores were $175.2 million.

Exploration, Development, and Production

In 2020, we anticipate producing between 4.5 million and 5.0 million ounces of silver and between 133.5 thousand and 143.5 thousand ounces of gold from the Dolores mine. Our goal is to ramp up the underground mine to 1,500 tpd. We plan to complete brownfield exploration in 2020 including 6,000 meters of drilling.

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 Peru. The nearest town is Cerro de Pasco, and access from Lima is available by rail or 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 from the Huaron mine. 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, tailing storage facilities, effluent management and treatment systems, and waste rock storage facilities are located within our concessions.

To the best of our knowledge, the Huaron mine 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 expect to be reasonably likely to 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 66 for a general discussion of the risks relating to our operations.

History

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

There is no available exploration data collected by previous operators other than diamond drilling. Channel samples were taken by the French Penarroya Company and by Hochschild, but no details on the nature and results of the samples are available, and none of the channel samples collected by previous owners are used in the estimation of mineral resources and mineral reserves.

Prior to our acquisition of the Huaron mine, approximately 22 million tonnes of silver-rich base metal sulphide ore was produced at the property and processed on site.

We have been producing from the Huaron mine since 2001.

Geological Setting, Mineralization, and Deposit Types

The Huaron mine 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 crosscut the mine stratigraphy. The Huaron mine 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.

The Huaron mine 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. Vein orientations vary but generally trend east-west or north-south.

Exploration

Exploration work prior to Pan American’s ownership is unknown, but since we acquired the Huaron mine, exploration has comprised underground diamond drilling and channel sampling, which is used to estimate mineral resources and mineral reserves.

Drilling

All drilling is by diamond drilling from underground using industry standard drill machines and downhole survey tools. Drilling is conducted by private drilling contractors under the supervision of the mine geology department. Near mine underground diamond drilling exploration campaigns are ongoing on an annual basis for mineral resource and mineral reserve estimates.

Sampling, Analysis, and Data Verification

Diamond drillhole and underground channel samples vary between 0.1 metres and 1.5 metres in length. The samples are maintained in secure facilities and are under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and integrity of the samples has 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 finish.

The mine geology department conducts a 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 the Huaron mine, effective June 30, 2019, are as follows:

Huaron Mineral Reserves [1, 2]					
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Proven	6.2	168	3.02	1.44	0.69
Probable	3.7	170	3.00	1.55	0.33
TOTAL	9.9	168	3.01	1.48	0.56

Notes:
1 Estimated using a price of $17 per ounce of silver, $2,500 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 the Huaron mine 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, effective June 30, 2019, are as follows:

Huaron Mineral Resources [1, 2]					
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Measured	2.2	157	2.80	1.50	0.59
Indicated	2.4	155	3.03	1.64	0.61
Inferred	6.2	155	2.77	1.45	0.41

Notes:
1 These mineral resources are in addition to mineral reserves. Estimated using a price of $17 per ounce of silver, $2,500 per tonne of zinc, $2,100 per tonne of lead and $6,000 per tonne of copper.
2 Mineral resource estimates for the Huaron mine 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.

Three dimensional interpretations are made in each vein or mineralized structure around spatially continuous trends of drillhole and channel sample grades greater than the sub-marginal cut-off values for each vein. A similar interpretation is made of hangingwall and footwall dilution volumes expected to be mined with each structure. The wireframe interpretations are filled with blocks for the ordinary kriged estimate.

A long section is produced of each structure and divided into mineable panels. Average bulk density values are applied to each mining panel volume to estimate the tonnes of each panel. The volumes are depleted annually for mining in the previous year. 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 geologists. Planned dilution and loss is applied to the estimate and a value per tonne is calculated in each panel. Any panel with a value above the mineral resource cut-off is converted to mineral resources. Mineral resources that can be economically mined are converted to mineral reserves.

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 primarily mechanized sub-level long hole stoping methods. Ore is brought to the surface using haul trucks, electric locomotives, or hoisted through a shaft.

Processing and Recovery Operations

The Huaron mine operates a 2,900 tpd nominal capacity mill using froth induced flotation technology to produce silver in copper, lead, and zinc concentrates. Metallurgical recoveries average approximately 84% for silver, 77% for zinc, 76% for lead, and 76% for copper.

In 2019, the mill processed approximately 1.0 million tonnes of ore producing approximately 3.8 million ounces of silver, 18.07 thousand tonnes of zinc, 9.22 thousand tonnes of lead, and 6.02 thousand tonnes of copper.

The silver rich zinc, lead, and copper concentrates from the Huaron mine 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".

2019	**Revenue[1, 2]**	**Quantity Sold (Tonnes)**
Zinc Concentrate[3]	$32.0 million	40,059
Lead Concentrate[3]	$32.5 million	17,755
Copper Concentrate[3]	$52.7 million	25,428
2018		
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

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

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 Huaron mine workings, processing plant, tailings and waste disposal areas, effluent management and treatment facilities, roads, and power and water lines have all 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.

The original closure plan for the Huaron mine was filed with the Peru Ministry of Energy and Mines ("Peru MEM") in 2004 and updated in 2006. The closure plan is updated every five years or whenever new infrastructure or modifications are permitted.

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.

An agreement signed in 2000 allows Volcan Compañia Minera S.A.'s ("Volcan") Chungar mine, which neighbours the Huaron mine, 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 the Chungar mine to the Huaron mine 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 the Huaron mine prepared according to State of Nevada approved Standard Reclamation Cost Estimator methodology is updated every year. The current present value of closure expenditures at Huaron as at December 31, 2019, is estimated at $11.8 million. See "Narrative Description of the Business – Environment, Community and Sustainability" for further disclosure regarding forward-looking statements related to reclamation costs.

Capital and Operating Costs

Capital additions at Huaron during 2019 totalled $10.9 million, primarily on equipment leases, near mine exploration, mine deepening, and equipment replacements and refurbishments.

We have forecast sustaining capital investments of between $9.0 million and $10.0 million for 2020, primarily related to mine equipment replacements, mine deepening and near-mine exploration.

In 2019, direct operating costs at the Huaron mine were $77.0 million.

Exploration, Development, and Production

In 2020, the Huaron mine is forecast to produce between approximately 3.8 and 3.9 million ounces of silver and 0.5 thousand ounces of gold. We plan to undertake 20,000 metres of exploration drilling in 2020.

(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 from Lima via paved highway and an all-weather gravel road.

The Morococha mine 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, 2019 (excluding certain investment shares held by Argentum itself).

The Morococha mine 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 the Morococha mine 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 from the Morococha mine. 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 the Morococha mine when we acquired it 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, the Morococha mine 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 expect to be reasonably likely to affect access or title, or the right or ability to perform work on the Morococha mine, including permitting and environmental liabilities, other than as described above, please refer to "Risks Related to Our Business" starting on page 66 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.

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 elevation of the tunnel. The Kingsmill Tunnel is still in use.

In January 2004, we entered into an agreement to purchase 92.014% of the voting shares of Argentum, a Peruvian corporation that held the Anticona and Manuelita mining units and related infrastructure. The transaction was subject to regulatory approval and a number of conditions, including that 100% of the shares of Argentum would first be listed on the Lima Stock Exchange and then be subject to a successful public bid by us for at least the 92.014% of voting shares. In February 2004, we entered into a further agreement to purchase Empresa Minera Natividad S.A. (“Natividad”), a corporation that held additional mining concessions and operations complementary to the Anticona and Manuelita mining units. The acquisitions closed contemporaneously in August 2004, and in 2005, Argentum amalgamated with Natividad, and then subsequently delisted from the Lima Stock Exchange in 2006. We continue to acquire the non-voting labour shares in Argentum that were formerly listed on the Lima Stock Exchange and are now 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.

We have been producing from the Morococha mine since 2004.

Geological Setting, Mineralization, and Deposit Types

Morococha is located in 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 a north-northwest trending anticlinal feature referred to as the Yauli Dome. 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 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 forms along the dominant system of northeast trending tensional faults.

Replacement manto mineralization generally occurs in carbonate horizons intersected by mineralized veins or proximal to pre-mineral intrusives, and some occurs as structurally controlled irregular chimneys. 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.

Mineralization at the Morococha mine 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.

Exploration

None of the exploration work conducted by previous operators is available. Since Pan American acquired the Morococha mine, exploration has comprised underground diamond drilling and channel sampling, which is used to estimate mineral resources and mineral reserves.

Drilling

All drilling is by diamond drilling from surface and underground using industry standard drill machines and downhole survey tools. Drilling is conducted by private drilling contractors under the supervision of the mine geology department. Near mine diamond drilling exploration campaigns are ongoing on an annual basis for mineral resource and reserve estimates.

Sampling, Analysis, and Data Verification

Diamond drill hole and underground channel sample intervals vary in length between 0.10 and 2.0 metres. The samples are maintained in secure facilities and are under the control of our employees or the independent laboratory at all times. We have no reason to believe that the samples' validity or integrity has 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 finish.

The mine geology department conducts a 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 for the Morococha mine, effective June 30, 2019, are as follows:

Morococha Mineral Reserves [1, 2, 3]					
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Proven	4.1	147	4.03	1.38	0.38
Probable	2.2	173	3.26	1.20	0.31
TOTAL	6.3	156	3.76	1.32	0.35

Notes:

1 Estimated using a price of $17 per ounce of silver, $2,500 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 the Morococha mine 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 our 92.3% ownership of the Morococha property.

Management estimates that mineral resources at the Morococha mine, effective June 30, 2019, are as follows:

Morococha Mineral Resources [1, 2, 3]					
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**% Zinc**	**% Lead**	**% Copper**
Measured	0.3	138	2.14	0.86	0.29
Indicated	0.3	143	2.09	0.83	0.20
Inferred	4.5	138	3.26	1.02	0.37

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using a price of $17 per ounce of silver, $2,500 per tonne of zinc, $2,100 per tonne of lead and $6,000 per tonne of copper.

2 Mineral resource estimates for the Morococha mine 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 our 92.3% ownership of the Morococha property.

Three dimensional interpretations are made in each vein or mineralized structure around spatially continuous trends of drillhole and channel sample grades greater than the sub-marginal cut-off values for each vein. A similar interpretation is made of hangingwall and footwall dilution volumes expected to be mined with each structure. The wireframe interpretations are filled with blocks for the ordinary kriged estimate.

A long section is produced of each structure and divided into mineable panels. Average bulk density values are applied to each mining panel volume to estimate the tonnes of each panel. The volumes are depleted annually for mining in the previous year. 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 geologists. Planned dilution and loss is applied to the estimate and a value per tonne is calculated in each panel. Any panel with a value above the mineral resource cut-off is converted to mineral resources. Mineral resources that can be economically mined are converted to mineral reserves.

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 the Morococha mine consist primarily of long hole open stoping and mechanized cut and fill. Ore is either hoisted to the surface in a shaft or trucked to the surface via a haulage ramp.

Processing and Recovery Operations

The Morococha mine operates a 2,000 tpd processing plant using froth induced selective flotation technology to produce silver in zinc, lead, and copper concentrates. Metallurgical recoveries average approximately 89% for silver, 24% for gold, 88% for zinc, 80% for lead, and 62% for copper.

In 2019, the mill processed approximately 0.7 million tonnes of ore, producing approximately 2.5 million ounces of silver, 1.39 thousand ounces of gold, 22.50 thousand tonnes of zinc, 6.56 thousand tonnes of lead, and 1.83 thousand tonnes of copper.

The silver-rich zinc, lead, and copper concentrates from the Morococha mine 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 the Morococha mine for the past three years were as follows:

2019	**Revenue[1, 2]**	**Quantity Sold (Tonnes)**
Zinc Concentrate[3]	$45.9 million	47,732
Lead Concentrate[3]	$29.4 million	13,111
Copper Concentrate[3]	$26.2 million	10,171
2018		
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

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 Morococha mine workings, processing plant, tailings and waste disposal areas, effluent management and treatment facilities, roads, and power and water lines have all 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 original closure plan for the Morococha mine was filed by us with the Peru MEM in 2004 and updated in 2006. The closure plan is updated every five years or whenever new infrastructure or modifications are permitted.

The mine is authorized to source the water necessary for operations from a nearby lake. The primary source of power for the Morococha mine is the Peruvian national power grid.

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 water treatment plant was built and is currently being operated by MCP to treat the 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 the Morococha mine, 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 the Morococha mine prepared according to State of Nevada approved SRCE methodology is updated every year. The current present value of closure expenditures at Morococha effective December 31, 2019, is approximately $7.1 million. See "Narrative Description of the Business – Environment, Community and Sustainability" for further disclosure regarding forward looking statements related to reclamation costs.

Capital and Operating Costs

Capital additions at Morococha during 2019 totalled $14.9 million, including $12.6 million of sustaining capital, primarily on near-mine exploration, equipment replacements and refurbishments, and equipment and office leases, as well as $2.3 million invested in project capital for the installation of a power-line and advancing engineering and permitting for a future plant relocation.

In 2020, we anticipate investing between approximately $7.5 million and $9.0 million in sustaining capital. The sustaining capital expenditure forecast includes near-mine exploration and underground mine equipment additions and replacements. We also expect to incur some expenditures in studies for the potential relocation of the plant.

In 2019, direct operating costs at the Morococha mine were $73.4 million.

Exploration, Development, and Production

In 2020, based on an ownership interest of approximately 92.3% of Argentum, our proportionate interest in Morococha's production is forecast to be between 2.6 million and 2.8 million ounces of silver and between 1.3 thousand and 1.5 thousand ounces of gold. We plan to undertake approximately 31,500 metres of exploration drilling at the Morococha mine in 2020.

(iii) Shahuindo Mine

Project Description, Location, and Access

The Shahuindo mine is an open pit gold mine located in northern Peru, 500 kilometres north-northwest of Lima. The project site can be accessed from Cajamarca via approximately 130 kilometres of paved highway, with unimproved roads accessing the site from the highway. There are daily commercial flights between Lima and Cajamarca.

The Shahuindo mine is 100% owned and operated by Pan American's wholly owned subsidiary, Shahuindo S.A.C. The area of the concession is approximately 7,339 hectares in 26 mineral titles. Shahuindo S.A.C. also controls the neighboring Vikingo and Vikingo I concession covering 1,858 hectares. We pay an annual fee to the Peruvian government to keep the concessions in good standing. 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.

381 surface rights within the Shahuindo mine area cover approximately 2,559 hectares, which is sufficient to operate the mine.

To the best of our knowledge, the Shahuindo mine is not subject to any third-party overrides, back-in rights, payments, or other agreements and 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 expect to be reasonably likely to 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 66 for a general discussion of the risks relating to our operations.

History

Legal rights to the mineral leases of the Shahuindo mine were in dispute between 1996 and 2009. A number of Peruvian, Mexican and Canadian companies have been involved in numerous legal processes that were eventually settled in 2009 with 100% ownership being legally registered to Sulliden Shahuindo S.A.C., a wholly owned subsidiary of Sulliden Gold Ltd. ("Sulliden"). Rio Alto Gold ("Rio Alto") acquired Sulliden in 2014, and in April 2015, Tahoe completed its acquisition of Rio Alto, thereby acquiring control of Sulliden Shahuindo S.A.C. (renamed Shahuindo S.A.C.). Pan American acquired Tahoe in February 2019.

Exploration and mining activities have taken place on the Shahuindo property since 1945. Between 1945 and 1989, Minera Algamarca S.A. ("Algamarca") conducted mining and exploration work on the property. Between 1990 and 1998, former operators conducted geological mapping, drilling of approximately 200 holes, soil and rock geochemical sampling, and metallurgical testwork. Sulliden conducted a large surface drilling campaign of approximately 640 holes, geophysical surveys, geological mapping and trenching, soil and surface rock sampling, metallurgical testing, and economic analyses between 2002 and 2012. Rio Alto conducted a campaign of 246 holes between 2014 and 2015 and drilling was continued on the property by Tahoe. Mine construction commenced in 2014 and commercial production was achieved in 2016.

We have been producing from the Shahuindo mine since late February 2019.

Geological Setting, Mineralization, and Deposit Types

The Shahuindo mine is located in the Western Cordillera of the Andes, within a regional fold and thrust belt of predominantly sedimentary rocks. The principal zone of mineralization in the district occurs in a belt between two large amplitude, regional scale folds. Important structural elements include fold limbs and fold axial surfaces, fold-related fractures, faults and related extension fractures, breccia dikes and irregular bodies, and igneous intrusive contacts. Mineralization is hosted within the siliciclastic sandstone-dominant Farrat formation and the underlying sedimentary Carhuaz formation. These sedimentary rocks have been intruded by at least three felsic stocks which tend to be located along faults and cores of anticlinal structures.

Mineralization comprises an intermediate-sulfidation epithermal system, with high-sulfidation mineralization at depth and in the core of hydrothermal breccias. Oxidation of mineralization extends to a depth of 150 metres below surface.

Exploration

Algamarca conducted exploration work on the Shahuindo property prior to 1990, but no records of that work are available. From 1990 to 1998, Alta Tecnología e Inversión Minera y Metalúrgica SA, Asarco LLC, and Southern Peru Copper Corp. explored the Shahuindo project area, completing mapping, geochemical sampling, and reverse circulation and diamond drilling. Val Dór Geofisica Peru conducted magnetic and induced polarization geophysical surveys between 2002 and 2012 on behalf of the prior owners of Shahuindo.

Most of the accessible underground adits located on the concession were sampled prior to 2012. Detailed soil sampling completed by Sulliden between 2003 and 2012 revealed a series of continuous, parallel gold anomalies in the central and northern areas of the concession. Base metal anomalies were found to the northwest and to the southeast of the concession.

Current exploration at the Shahuindo mine consists of surface geological mapping, geochemical sampling, and drilling.

Drilling

Drilling is by reverse circulation and diamond drilling from surface using industry standard drill machines and downhole survey tools. Drilling is conducted by private drilling contractors under the supervision of the mine geology department. Near mine drilling exploration campaigns are ongoing on an annual basis for mineral resource and mineral reserve estimates.

Sampling, Analysis, and Data Verification

Limited information is available regarding sample preparation and analyses for the drill programs prior to Sulliden's drilling programs beginning in 2003. That data accounts for a small proportion of the data used in the mineral resource and mineral reserve estimates, and many of the holes drilled prior to Sulliden have been twinned or offset with new drill holes.

From 2003 to 2012, Sulliden sampled diamond drillholes after being cut in half, at typically 1.5 metre intervals or according to geological contacts. Reverse circulation drillholes were sampled according to the length of the drill rod. Sulliden sent their samples to ALS in Lima for preparation and analysis using fire assay with AA finish. A QAQC program supervised by the geology department included the submission of certified standards, duplicates, and blanks to the laboratory.

From 2014 to present, the samples have been analyzed by CERTIMIN in Lima using fire assay with AA finish.

The mine geology department conducts a 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.

The samples are maintained in secure facilities and are under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and integrity of the samples has been compromised.

Mineral Processing and Metallurgical Testing

As part of normal mineral processing procedures, metallurgical analysis and testing is undertaken as required. The majority of these analyses are to assess leaching performance and metallurgical recovery. Metal recovery forecasts used in our mine plans are based on the recovery model, historical performance of the leaching 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 at the Shahuindo mine, effective June 30, 2019, are as follows:

Shahuindo Mineral Reserves [1, 2]			
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Proven	69.8	6	0.51
Probable	42.8	6	0.46
TOTAL	112.6	6	0.49

Notes:

1 Estimated using a price of $17 per ounce of silver and $1,300 per ounce of gold. Totals may not add due to rounding.

2 Mineral reserve estimates for the Shahuindo mine 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 Shahuindo mine, effective June 30, 2019, are as follows:

Shahuindo Mineral Resources [1, 2]			
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne [3]**
Measured	3.7	7	0.53
Indicated	8.4	5	0.46
Inferred	107.3	14	0.71

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using a price of $22 per ounce of silver and $1,400 per ounce of gold except for the Shahuindo Sulphide material which was estimated using a price of $15 per ounce of silver and $1,400 per ounce of gold.

2 Mineral resource estimates for the Shahuindo mine 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 Inferred resources include both oxide and sulphide.

Mineral resource estimates for the Shahuindo mine were prepared using inverse power of difference interpolation methods within three dimensional geological interpretations. 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 mining and planned dilution and ore loss was applied. Reserve and resource pits were prepared on blocks above the economic cut-off. Mineral resources that can be economically mined are converted to mineral reserves.

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 Shahuindo.

Mining Operations

Mining at the Shahuindo mine is by standard open pit methods using shovels, loaders, and dump trucks.

Processing and Recovery Operations

The Shahuindo mine uses conventional cyanide heap leaching and a carbon-in-column adsorption-desorption-regeneration ("ADR") process to produce a precipitate that is smelted to gold and silver doré. Average throughput is 36,000 tpd. A 36,000 tpd crushing and agglomeration plant is also available but is currently not in use.

Since Pan American began operating the mine in February 2019, a total of 11.2 million tonnes of ore were stacked on the pads. Metal production was approximately 145.37 thousand ounces of gold and 136.62 thousand ounces of silver.

All production from the Shahuindo 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. Pan American currently has refining contracts in place with refineries in the United States. We have not had any difficulty in securing contracts for the sale of Shahuindo 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".

The revenues per type of doré produced at the Shahuindo mine since our acquisition in February 2019 is as follows:

2019[1]	Revenue[2, 3]	Quantity Sold
Silver and Gold in Doré	$189.4 million	83,323 ounces of silver 133,298 ounces of gold

Notes:

1 Consists of production after February 22, 2019.

2 Consists of sales to arm's length customers.

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

Infrastructure, Permitting, and Compliance Activities

The Shahuindo mine's open pit, leach pads, waste rock dumps, ADR plant, ancillary facilities, roads, and power and water lines have all been constructed and are located within the boundaries of the mining concessions and surface lands owned 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 Shahuindo mine operates under an environmental impact assessment ("EIA") approved in 2013 and has been modified to accommodate mine expansion.

The primary source of power for the mine is the Peruvian national power grid. Water for the operation is obtained from water wells, stormwater collection ponds, and pit dewatering.

A closure cost estimate for the Shahuindo mine was prepared according to State of Nevada approved SRCE methodology and will be updated every year. We have estimated the present value of reclamation costs for the Shahuindo property to be approximately $39.4 million at December 31, 2019. Pan American has not accrued any amounts for any prior existing environmental liabilities. See "Narrative Description of the Business – Environment, Community and Sustainability for further disclosure regarding forward-looking statements related to reclamation costs.

Capital and Operating Costs

In 2019, capital additions at the Shahuindo mine totalled $33.3 million, including $29.9 million of sustaining capital, consisting primarily of leach pad construction and mining equipment, as well as $3.4 million invested in project capital to complete the crushing and agglomeration plant started by Tahoe prior to the acquisition.

The expected sustaining capital budget for 2020 at Shahuindo totals between $63.0 million and $65.0 million, the major components of which include heap leach pad expansions, waste rock storage facility expansions, lease payments from a fleet expansion initiated in 2019, land purchases and near-mine exploration.

In 2019, direct operating costs at the Shahuindo mine were $76.9 million.

Exploration, Development, and Production

In 2020, we anticipate producing 0.2 million ounces of silver and between 162.0 thousand and 172.5 thousand ounces of gold from the Shahuindo mine. We plan to undertake approximately 21,000 metres of exploration drilling at Shahuindo in 2020.

C. Canada

(i) Timmins West Mine

Project Description, Location, and Access

The Timmins West mine is an underground gold mine located approximately 19 kilometres west of the city of Timmins, Ontario. All season road access to the property is provided by provincial Highways 101 and 144.

The Timmins West mine property encompasses a total area of approximately 1,712 hectares, including the Timmins Deposit, Thunder Creek, and Highway-144 properties. Through our wholly-owned subsidiary, Lake Shore, we own a 100% interest in most of the Timmins West mine property, subject to underlying royalties. The exception to this is a 55% interest in eleven unpatented mining claims. We pay an annual fee on the claims to maintain them in good standing. 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.

Surrounding the Timmins West mine property are an additional 276 claims, six leases and 33 patents owned by Lake Shore. In all, there are 89 claims and leases with NSR royalty obligations ranging from 1.5 percent to three percent, many with a buy-back option at Lake Shore's discretion.

In February of 2012 Lake Shore and Franco-Nevada entered into a royalty agreement relating to production from the Timmins West mine. Pursuant to the terms of the royalty agreement, Franco-Nevada paid US$35 million for a 2.25% NSR royalty on the sale of minerals from the Timmins West mine. The terms of the royalty agreement provide for, among other things, a right of first refusal in respect of any further royalties granted on the Timmins West mine, as well as a preferential processing right with respect to ore from the Timmins West mine being processed at the Bell Creek mill. The preferential processing right ceases to apply once US$35 million in royalty payments are made under the royalty agreement. As at the end of 2019, approximately US$24.4 million was paid to Franco-Nevada pursuant to the terms of the royalty. As of the date of this AIF, the preferential processing right has not required any payment to be made with respect to any replacement material. In addition, Sandstorm Gold Ltd. holds a 1% NSR royalty over certain additional claims relating to the Thunder Creek and 144 Gap deposits.

The Timmins West mine is also subject to government taxes, fees and duties including a 10% Ontario Mining Tax, which is applied to profits from the extraction of mineral substances from mines within the province.

While there are no known significant factors or risks that we currently expect to be reasonably likely to 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 66 for a general discussion of the risks relating to our operations.

History

Gold was discovered in 1911 on the property above what is currently the Timmins West mine, and two shallow shafts were sunk between 1911 and 1914. Shortly after, fire storms swept through large parts of the area and the surface plants at the local mines were destroyed. Orpit Mines Limited completed diamond drilling between 1938 and 1944, and Rusk Porcupine Mines excavated several pits and trenches.

Lake Shore began shaft sinking and mine development in 2008, and in January of 2011, commercial production began at the Timmins Deposit and in January of 2012, commercial production began for the Thunder Creek Deposit. Subsequently, the Timmins and Thunder Creek Deposits were combined into a single operation called the Timmins West mine. Tahoe acquired the mine in 2016 with its acquisition of Lake Shore.

We have been producing from Timmins West since late February 2019, following our acquisition of Tahoe.

Geological Setting, Mineralization, and Deposit Types

Following the discovery of gold at Timmins West area, exploration conducted by a variety of previous operators included mapping, shaft sinking, pitting, trenching, diamond drilling, geophysics, metallurgical testwork, and resource estimates. Following Lake Shore's acquisition of the property in 2003, exploration on the Timmins, Thunder Creek, and 144 Gap deposits has consisted primarily of diamond drilling, as well as mapping, surface sampling, and soil geochemical surveys.

Drilling

Exploration drilling in the Timmins West mine area has taken place since 1938, but much of the historical drilling information is not possible to verify. None of the drill data collected prior to 1984 has been considered in the mineral resource and mineral reserve estimates.

Since 2003, all drilling has been by diamond drilling from surface and underground using industry standard drill machines and downhole survey tools. Drilling is conducted by private drilling contractors under the supervision of the mine geology department. Near mine diamond drilling exploration campaigns are ongoing on an annual basis for mineral resource and mineral reserve estimates.

Sampling, Analysis, and Data Verification

Surface drill core is sampled following splitting with a diamond saw, while whole core samples are selected from underground drillholes. The samples are maintained in secure facilities and are under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and integrity of the samples has been compromised.

All samples are analyzed for gold at various independent commercial laboratories using fire assay with AA finish, except for samples sent to SGS Labs, which analyzes by ICP-MS finish.

A QAQC program supervised by the geology department includes the submission of certified standards, duplicates, and blanks to the 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

All ore produced from the Timmins West mine is processed at our Bell Creek mill. 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 Timmins West, effective June 30, 2019, are as follows:

Timmins West Mineral Reserves [1, 2]		
Reserve Category	**Tonnes (Mt)**	**Grams of Gold per tonne**
Proven	0.4	3.66
Probable	4.8	2.98
TOTAL	5.2	3.04

Notes:

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

2 Mineral reserve estimates for the Timmins West mine 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 Timmins West, effective June 30, 2019, are as follows:

Timmins West Mineral Resources [1, 2]		
Resource Category	**Tonnes (Mt)**	**Grams of Gold per tonne**
Measured	0.4	3.81
Indicated	2.4	3.48
Inferred	0.5	3.85

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using prices of $1,300 per ounce of gold.

2 Mineral resource estimates for the Timmins West mine 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 inverse power of distance methods within three dimensional geological interpretations. 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 mining and planned dilution and loss was applied. Reserve and resource stope shapes were prepared on blocks above the economic cut-off. Mineral resources that can be economically mined are converted to mineral reserves.

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 the Timmins West mine.

Mining Operations

The underground mining method utilized at the Thunder Creek, Timmins, and 144 Gap the deposits at the Timmins West mine is by long hole stoping. Ore is transported to the surface by ramp and shaft.

Processing and Recovery Operations

All ore produced from the Timmins West mine is hauled via surface highway trucks to the Bell Creek mill for processing. Processing, metal production, and revenue are reported for the combined Timmins West and Bell Creek ore. Please see “Bell Creek – Processing and Recovery Operations”.

All production from the Timmins West mine is in the form of doré, which is refined at arm's length refineries prior to the sale of refined silver and gold to bullion banks and traders. We have not had any difficulty in securing contracts for the sale of this 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 mine workings, effluent management and treatment facilities, roads, and power and water lines have all 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 the provincial mine grid and water is sourced from underground mine dewatering.

Lake Shore and two First Nations, namely Mattagami and Flying Post First Nations, entered into an Impact and Benefits Agreement ("IBA") in February, 2011, which outlines how Lake Shore and the First Nations communities will work together in the following areas: education and training of First Nation community members, employment, business and contracting opportunities, financial benefits and environmental provisions. The IBA was subsequently amended in early 2019.

A closure cost estimate for Timmins West was prepared based on a government-approved closure plan, engineering estimates, local rates, and contractor quotes. The estimate will be updated every year. Pan American has estimated the present value of reclamation costs for the Timmins West mine to be approximately $2.2 million effective December 31, 2019. See "Narrative Description of the Business – Environment, Community and Sustainability" for further disclosure regarding forward-looking statements related to reclamation costs.

Capital and Operating Costs

Capital and operating costs are reported for the combined Timmins West and Bell Creek mines. Please see "Bell Creek – Capital and Operating Costs".

Exploration, Development, and Production

Exploration, development and production are reported for the combined Timmins West and Bell Creek mines. Please see "Bell Creek – Exploration, Development, and Production".

(ii) Bell Creek Mine

Project Description, Location, and Access

The Bell Creek mine is an underground gold mine located approximately 20 kilometres northeast of Timmins, Ontario. Access to the property is via an all-weather asphalt and gravel road north of Ontario Provincial Highway 101.

The Bell Creek mine is 100% owned by us through our wholly-owned subsidiary Lake Shore. The Bell Creek property is comprised of 12 leases and five veteran lots covering approximately 512 hectares. All claims are either patented, leased mineral claims requiring yearly lease rents and land tax payments, or patented veteran lots which remain valid in perpetuity as long as the annual land and municipal taxes remain paid in full. 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.

Lake Shore signed a 20-year lease for one of the veteran lots in 2005 and we are required to make annual advanced royalty payments of CAD$50,000 (indexed to inflation) and to pay a 2% NSR royalty once commercial production was achieved at the property.

In December 2007, Lake Shore acquired the Bell Creek mine from Goldcorp Inc. ("Goldcorp"), subject to a 2% NSR royalty payable to the Porcupine Joint Venture comprised of Goldcorp and Kinross Gold Corporation ("Kinross"). Kinross subsequently assigned its rights under the agreement to Goldcorp, and in July 2016, Tahoe acquired the royalty

from Goldcorp. Various underlying royalty agreements affect some of the Bell Creek claims including two agreements with net profit interests that can be purchased outright.

Like the Timmins West mine, the Bell Creek mine is also subject to governmental taxes, fees and duties, including the 10% Ontario Mining Tax.

While there are no known significant factors or risks that we currently expect to be reasonably likely to 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 66 for a general discussion of the risks relating to our operations.

History

Gold mineralization was first discovered on the Bell Creek property following trenching, drilling, and geophysical surveys, and the mine was built and operated between 1980 and 1982. Falconbridge operated the mine between 1991 and 1992, followed by Kinross in 1993 and 1994 when mining operations ceased. The mine was kept on care and maintenance until 2001, when a decision was made to allow the underground workings to flood.

In 2002, the Porcupine Joint Venture, a joint venture between Placer Dome Canada Ltd. (“Placer”) and Kinross, was formed and in 2005 the property was reactivated. Goldcorp acquired Placer’s interest later that year and became the operator of the Porcupine Joint Venture. Lake Shore acquired the Bell Creek mine in December 2007.

Lake Shore declared commercial production in January 2012. In April 2016, Tahoe acquired the Bell Creek mine as part of its acquisition of Lake Shore, and Tahoe was subsequently acquired by Pan American in February 2019. We have been producing from the Bell Creek mine since our acquisition of Tahoe.

Geological Setting, Mineralization, and Deposit Types

The Bell Creek deposit is located in the Southern Abitibi Greenstone Belt, a complex of deformed, usually greenschist facies, volcanic dominated oceanic assemblages. Rocks in the Timmins region belong to volcanic and sedimentary assemblages within the Western Abitibi Subprovince of the Superior Province.

The Bell Creek property is underlain by carbonate altered, greenschist facies metavolcanics and clastic metasedimentary rock units belonging to the Tisdale and Porcupine assemblages. The stratigraphy generally strikes east-west to west-northwest, and is steeply dipping and highly deformed.

In the Porcupine Camp, gold-bearing structures most commonly form in relatively competent volcanics intruded by felsic porphyry stocks and dykes. Porphyries intruded the folded and faulted greenstone sequences and initiated the mesothermal systems.

Mesothermal shear hosted gold mineralization in the Bell Creek mine area occurs along selvages of quartz veins and wall rocks, in stylolitic fractures in quartz veins, in fine grained pyrite, and in association with amorphous carbon. High grade gold mineralization occurs within quartz veins contained in alteration zones.

Exploration

The nature of any surface exploration programs completed by owners of the Bell Creek mine property prior to Lake Shore is unknown, with the exception of magnetometer surveys. All exploration conducted by Lake Shore and Tahoe comprised surface and underground drilling.

Drilling

All drilling is by diamond drilling from surface and underground using industry standard drill machines and downhole survey tools. Drilling is conducted by private drilling contractors under the supervision of the mine geology department. Near mine diamond drilling exploration campaigns are ongoing on an annual basis for mineral resource and mineral reserve estimates.

Sampling, Analysis, and Data Verification

Surface drill core is sampled following splitting with a diamond saw, while whole core samples are selected from underground drillholes. The samples are maintained in secure facilities and are under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and integrity of the samples has been compromised.

All samples are analyzed for gold at various independent commercial laboratories using fire assay with AA finish, except for samples sent to SGS Labs, which analyzes by inductively coupled plasma mass spectrometry.

A QAQC program supervised by the geology department includes the submission of certified standards, duplicates, and blanks to the 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 Bell Creek mine, effective June 30, 2019, are as follows:

Bell Creek Mineral Reserves [1, 2]

Reserve Category	Tonnes (Mt)	Grams of Gold per tonne
Proven	2.3	2.94
Probable	2.4	3.34
TOTAL	4.7	3.15

Notes:

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

2 Mineral reserve estimates for the Bell Creek mine 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 Bell Creek mine, effective June 30, 2019, are as follows:

Bell Creek Mineral Resources [1, 2]

Resource Category	Tonnes (Mt)	Grams of Gold per tonne
Measured	1.3	3.92
Indicated	2.9	3.35
Inferred	3.2	3.72

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using prices of $1,300 per ounce of gold.

2 Mineral resource estimates for the Bell Creek mine 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 inverse power of distance methods within three dimensional geological interpretations. 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 mining and planned dilution and loss was applied. Reserve and resource stope shapes were prepared on blocks above the economic cut-off. Mineral resources that can be economically mined are converted to mineral reserves.

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 the Bell Creek mine.

Mining Operations

Underground mining takes place at the Bell Creek mine using long hole stoping methods. Ore is brought to the surface via ramp and by shaft.

Processing and Recovery Operations

Ore from the Bell Creek mine and the Timmins West mine is processed at the Bell Creek mill using grinding, gravity recovery, carbon in leach and carbon in pulp recovery to produce gold doré with minor amounts of silver. The plant has a capacity of 5,000 tpd. Metallurgical recovery averages approximately 95% for gold.

Since we acquired the Bell Creek mine and the Timmins West mines in February 2019, we processed approximately 1.5 million tonnes of ore producing 143.77 thousand ounces of gold and 17.53 thousand ounces of silver from the Timmins West and Bell Creek mines.

All production from the Bell Creek and Timmins West mines is in the form of doré, which is refined at arm's length refineries prior to the sale of refined silver and gold to bullion banks and traders. We have not had any difficulty in securing contracts for the sale of Bell Creek and Timmins West mine 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".

2019	Revenue[1, 2]	Quantity Sold
Silver and Gold in Doré	$201.2 million	17,113 ounces of silver 143,300 ounces of gold

Since February 2019, the revenue produced by the Bell Creek and Timmins West mines is as follows:

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 disposal areas, effluent management and treatment facilities, roads, and power and water lines have all 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 supplied from the provincial power grid and water is sourced from surface and underground dewatering.

Consultations have been undertaken with regulatory agencies, the general public, the Métis Nation of Ontario, Wabun Tribal Council and the First Nation communities of Flying Post First Nation, Mattagami First Nation, and Matachewan First Nation, who are represented by Wabun Tribal Council, and also Wahgoshig First Nation. Consultation provides an opportunity to identify and address the impacts of our activities on external stakeholders and to expedite the authorization process.

As a result of the consultations undertaken, in November 2016, an IBA was signed relating to the Bell Creek mine and surrounding properties with the Mattagami, Wahgoshig, Matachewan and Flying Post First Nation communities in the Timmins area. The IBA established a framework for continued consultation relating to the existing and future operations in and around Timmins, and provides long-term financial benefits to the four First Nations communities as well as opportunities in such areas as new business ventures, employment, training and education.

A closure cost estimate for the Bell Creek mine was prepared based on a government-approved closure plan, engineering estimates, local rates, and contractor quotes. The estimate will be updated every year. Pan American has estimated the present value of reclamation costs for the Bell Creek mine to be approximately $9.5 million effective December 31, 2019. See “Narrative Description of the Business – Environment, Community and Sustainability” for further disclosure regarding forward-looking statements related to reclamation costs.

Capital and Operating Costs

Capital additions at the Timmins West and Bell Creek mines during 2019 totalled $13.7 million, including $11.0 million of sustaining capital, consisting mainly of near mine exploration drilling, equipment rebuilds and infrastructure upgrades, as well as $2.7 million in project capital investments to complete the mine shaft and paste plant at Bell Creek initiated by Tahoe prior to the acquisition.

Capital investments in 2020 at the Timmins West and Bell Creek mines will total between $27.0 million and $30.0 million. Sustaining capital investments of between $23.0 million and $25.0 million are primarily related to tailings storage facility expansions, underground mine equipment replacements and refurbishments and near-mine exploration. We also expect to invest between $4.0 million and $5.0 million in project capital for an approximate 20% expansion of the Bell Creek mine, including the purchase of additional mine equipment and debottlenecking and upgrading certain components of the plant to maximize the benefits from the improved efficiencies resulting from the commissioning of the Bell Creek mine shaft in February 2019

In 2019, direct operating costs at the Timmins West and Bell Creek mines were $124.4 million.

Exploration, Development, and Production

In 2020, we anticipate producing between 165.0 thousand and 180.0 thousand ounces of gold from the Timmins West and Bell Creek mines. We plan to undertake approximately 98,000 metres of exploration drilling at the mines in 2020.

II. Non-Operating and Development Properties

(i) Escobal Mine

Project Description, Location, and Access

The Escobal mine is an underground silver-gold-lead-zinc mine in Guatemala, approximately 40 kilometres east-southeast of Guatemala City and 2 kilometres east of the town of San Rafael Las Flores. Access to the Escobal mine is via 70 kilometres of paved highway from Guatemala City.

The Escobal mine is 100% owned by Pan American through its wholly-owned subsidiary, MSR, and comprises two mineral licenses covering approximately 29.2 km². These include the Escobal Exploitation License (the “Escobal mining license”) covering 20 km² and the Juan Bosco Exploration License covering 9.2 km². The Escobal Exploitation License is valid for 25 years from receipt of the license on April 3, 2013 and is renewable for an additional 25 years. Exploration licenses in Guatemala are granted for an initial period of three years which can be extended for two additional two-year periods, for a total holding period of seven years; after which, application must be made for an exploitation license or new exploration concession. The Juan Bosco Exploration License was granted on May 9, 2012 for the initial term. As permitted by applicable laws, Tahoe subsequently filed two applications to extend the Juan Bosco Exploration License with the Guatemalan Ministry of Energy and Mines (“Guatemala MEM”). The Guatemala MEM did not take any action to renew or extend the Juan Bosco Exploration License on the last extension application.

Some communities and NGOs have been vocal and active in their opposition to mining and exploration activities in Guatemala. In July 2017, the Escobal mining license was suspended as a result of a court proceeding initiated by a non-governmental organization (an "NGO") in Guatemala, based upon the allegation that the Guatemala MEM violated the Xinka indigenous people's right of consultation. After several decisions and appeals on the matter, a decision of the Constitutional Court of Guatemala was rendered on September 3, 2018, determining that the Escobal mining license would remain suspended until the Guatemala MEM completes an ILO 169 consultation. The consultation process is proceeding, with the pre-consultation stage underway. Normal operations at the Escobal mine remain suspended. Legal challenges to the consultation process have been filed with the Guatemalan Supreme Court and the outcome of those challenges is unknown. The process and timing for completing the ILO 169 consultation remains uncertain. In addition, in June 2017, MSR filed its annual request to renew the Escobal mine's export credential with the Guatemala MEM. However, the Guatemala MEM did not renew the export credential because its renewal had become contingent on the Supreme Court's reinstatement of the Escobal mining license. The export credential therefore expired in August 2017 and has not been renewed.

In addition, since June 7, 2017, a group of protesters near the town of Casillas have blocked the primary highway that connects Guatemala City to San Rafael Las Flores and the Escobal mine. Tahoe's operations were reduced between June 8, 2017 and June 19, 2017 to conserve fuel, and on July 5, 2017, were ceased following the Supreme Court's provisional decision to suspend the Escobal mining license while the case against the Guatemala MEM was heard on the merits. A second roadblock was initiated in 2018 near the community of Mataquescuintla. While we have been taking steps to regain trust and repair relationships, there is no guarantee that a positive resolution will be reached.

MSR makes annual payments to the Guatemala MEM for each concession. Annual reports documenting exploration and operation activities have been filed with the Guatemala MEM as required.

While Escobal is on care and maintenance, we continue to comply with Escobal's environmental management plan. As part of these requirements, we are following through on appropriate commitments made by Tahoe; responding to community requests for information and support; completing community engagement activities; and reporting to the Government of Guatemala.

In Guatemala, there is a statutory one percent royalty on precious and base metal production. In addition, MSR paid an additional 4% NSR royalty on concentrates sold from the Escobal mine; of which two percent benefited the local San Rafael municipality; one percent benefited certain outlying municipalities; and one percent benefited MEM. Payments under the Escobal Voluntary Royalty Agreements were suspended in 2017 upon the Escobal license suspension, but some payments of these outstanding royalties have been made more recently to the San Rafael Las Flores municipality under amended agreements.

In addition, MSR established a profit-sharing program that provides a 0.5% NSR royalty to an association of former landowners of the Escobal mine property. Ten percent of this royalty is to be deposited in a special fund, administered by the association's board of directors, and used for improvements in local communities.

Within the Escobal Exploitation License, MSR owns approximately 300 hectares for the area required for mining operations, processing plant and ancillary facilities, surface operations, and tailings and waste rock disposal.

History

Activity at the Escobal property dates back to 1996 when Entre Mares, S.A., the Guatemalan subsidiary of Goldcorp, identified high grade gold values associated with surface quartz veins in the western portion of the Escobal vein. In late 2006, significant silver and gold grades were detected from surface sampling along an extensive alteration zone developed over the Escobal vein. Exploration drilling began on the property in 2007 and resource estimates were prepared in 2010.

In June 2010, Tahoe acquired 100% of the Escobal mine project and associated exploration concessions from Entre Mares, and the Escobal mine was then held by a wholly owned subsidiary of Tahoe, MSR. Mine construction began in 2011, and commercial production began in 2013. The mine produced annually until its suspension in 2017. In February 2019, Pan American acquired Tahoe.

Geological Setting, Mineralization, and Deposit Types

The geological setting of Guatemala is comprised of two tectonic terrains juxtaposed across a major tectonic plate boundary. The northern half of Guatemala is on the North American plate, and the southern half is on the Caribbean plate with three major east-west trending faults forming the collision boundary. The Escobal property is situated on the Caribbean plate, south of the faults. The area is characterized by a series of volcanic units derived from multiple eruptive events.

The Escobal deposit is an intermediate sulfidation, fault related vein formed within sedimentary and volcanic rocks. The Escobal vein system hosts silver, gold, lead and zinc, with an associated epithermal suite of elements, within quartz and quartz-carbonate veins. Quartz veins and stockwork up to 50 metres wide, with up to 10% sulfides, form at the core of the Escobal deposit and grade outward through silicification, quartz-sericite, argillic and propylitic alteration zones.

Precious and base metal mineralization has been identified over a 2,400 metre lateral distance and 1,200 metre vertical range in three zones oriented generally east-west, with variable dips.

Exploration

Exploration at the Escobal mine included surface prospecting, mapping, soil and rock geochemical sampling, geophysical surveys, and drilling.

Drilling

All drilling undertaken between 2007 and 2017 was by diamond drilling from surface and underground using industry standard drill machines and downhole survey tools. Drilling was conducted by both mine employees and private drilling contractors under the supervision of the mine geology department.

Sampling, Analysis, and Data Verification

The drill core was generally sampled at 1.0 metre to 1.5 metre lengths according to geological features, and cut with a saw. The samples are maintained in secure facilities and were under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and integrity of the samples has been compromised. The samples were prepared by Bureau Veritas at their sample preparation facility in Guatemala City and analyzed at their Reno, Nevada USA facility. In late 2015, a portion of the underground stope definition core was analyzed at the on site laboratory.

Gold was assayed by fire assay with AA finish and silver was assayed by digestion with AA finish. Higher grade samples were completed using fire assay and gravimetric finish. Lead and zinc were analyzed by induced coupled polarization or by digestion with AA finish with high grade samples completed using titration methods.

A QAQC program supervised by the geology department included the submission of certified standards, duplicates, and blanks to the 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 were undertaken as required. The majority of these analyses were to assess mill performance and metallurgical recovery. Metal recovery forecasts used in the 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 Escobal mine, effective June 30, 2019, are as follows:

Escobal Mineral Reserves [1, 2]			
Reserve Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Proven	2.5	486	0.42
Probable	22.1	316	0.34
TOTAL	24.7	334	0.35

Notes:

1 Estimated using prices of $20 per ounce of silver and $1,300 per ounce of gold. Totals may not add due to rounding.

2 Mineral reserve estimates for the Escobal mine 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 Escobal mine, effective June 30, 2019, are as follows:

Escobal Mineral Resources [1, 2]			
Resource Category	**Tonnes (Mt)**	**Grams of Silver per tonne**	**Grams of Gold per tonne**
Measured	2.3	251	0.23
Indicated	14.2	201	0.20
Inferred	1.9	180	0.90

Notes:

1 These mineral resources are in addition to mineral reserves. Estimated using prices of $20 per ounce of silver and $1,300 per ounce of gold.

2 Mineral resource estimates for the Escobal mine 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 inverse power of distance methods within geological interpretations created in plan and section. 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 mining and planned dilution and loss was applied. Reserve and resource stope shapes were prepared on blocks above the economic cut-off. Mineral resources that can be economically mined are converted to mineral reserves.

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. Aside from the previously mentioned factors, there are currently no known factors that may have a material negative impact on the estimate of mineral reserves or mineral resources at Escobal.

Mining Operations

Underground mining at Escobal utilized long hole stoping methods, with ore brought to the surface by ramp.

No mining operations have been conducted at Escobal since the Escobal mining license suspension in 2017.

Processing and Recovery Operations

Prior to the suspension of mining operations, ore from the Escobal mine was processed in 4,500 tpd capacity plant using conventional lead-zinc differential flotation to produce silver and gold rich lead and zinc concentrates.

No processing has taken place since the Escobal mining license suspension in 2017.

In 2016, the last full-year period in which there was production from the mine, the Escobal mine produced 22.5 thousand tonnes of lead concentrate and 27.6 thousand tonnes of zine concentrate, with total contained metal of 21.2 million ounces of silver, 10.7 thousand ounces of gold, 10.3 thousand tonnes of lead, and 17.4 thousand tonnes of zinc. Metallurgical recoveries for the lead concentrate were 80.6% silver, 54% gold, 87.2% lead, and 12.6% zinc, while recoveries for the zinc concentrate were 6.1% silver, 6.2% gold, 3.0% lead, and 78.6% zinc.

Infrastructure, Permitting, and Compliance Activities

The Escobal mine workings, processing plant, tailings and waste disposal areas, effluent management and treatment systems, ancillary facilities, roads and power lines have all been constructed and are located within the boundaries of the exploitation license and surface lands owned by us. Power is provided by on-site diesel generation. Water is supplied from mine dewatering and water wells.

The Escobal mine operations have been conducted under an EIS approved by the Ministry of Environment and Natural Resources (“MARN”) and an exploitation license issued by the Guatemala MEM. The export of concentrates is licensed through the Guatemala MEM, with annual renewal requirements. Land use changes and vegetation clearing and reforestation are permitted through Guatemala’s National Institute of Forests. Archeological clearances were issued by the Ministry of Culture and Sports. Other than an export credential which has not been renewed by the Guatemala MEM following its expiration in August 2017 and the suspension of the Escobal mine mining license, to the best of our knowledge, all other permits and licenses required to conduct its activities at the Escobal Mine have been obtained and are currently in good standing. See " Risks Related to Our Business".

MSR has implemented a comprehensive environmental management plan developed specifically for the conditions at the Escobal mine, which addresses operating, reporting, and mitigation procedures for surface and underground operations.

A closure cost estimate for the Escobal mine was prepared based on a closure plan and engineering estimates. The estimate will be updated every year. Pan American has estimated the present value of reclamation costs for the Escobal mine to be approximately $2.6 million effective December 31, 2019. See “Narrative Description of the Business – Environment, Community and Sustainability” for further disclosure regarding forward-looking statements related to reclamation costs.

Capital and Operating Costs

During 2019, Escobal was in care and maintenance, and incurred $17.7 million in holding costs.

Capital additions at Escobal during 2019 totalled $1.1 million.

Exploration, Development, and Production

In 2020, we do not anticipate any production from the Escobal mine. We plan to continue with our property and infrastructure maintenance requirements, and have no plans to undertake any exploration work in 2020. All expenditures will be expensed as incurred.

(ii) Navidad Property

Project Description, Location, and Access

The Navidad silver development property is located 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 100% owners of the Navidad 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.

We hold 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 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 under “Risks Relating to Our Business – Government Regulation”.

There are material governmental and legal factors that affect the mineral resources at the Navidad property 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 from the Navidad property, 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 known significant factors or risks that we currently expect to be reasonably likely to affect access or title, or the right or ability to perform work on the property, including permitting and environmental liabilities, other than as described herein, please refer to "Risks Related to Our Business" starting on page 66 for a general discussion of the risks relating to our operations.

History

A regional exploration program by Normandy Argentina in mid-2000 consisting of 1,200 stream sediment samples resulted in the identification of the Navidad property. In December 2002, IMA Exploration Inc. (“IMA”) applied for exploration concessions over the Navidad area 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 the Navidad property. After acquiring the Normandy assets in 2003, Aquiline Resources Inc. (“Aquiline”) filed a suit against IMA in the Supreme Court of British Columbia in March 2004 claiming that IMA had breached the terms of a confidentiality agreement in obtaining the

Navidad concessions. In 2006, the Supreme Court of British Columbia awarded ownership of the Navidad property to Aquiline, and following several appeals, Aquiline obtained full ownership of the Navidad property in 2008. In 2010, we completed the acquisition of Aquiline and with it, the Navidad property.

From 2006, work included diamond drilling, geophysical surveys, geochemical exploration, metallurgical test work, mineral resource estimates, and a preliminary economic assessment for Loma de La Plata. Following our acquisition of the Navidad property, we continued with diamond drilling, metallurgical testing, hydrologic analysis, environmental studies, and completed a preliminary economic assessment of the Navidad property deposits in 2011. No further work has been undertaken since 2011. There has been no production at the Navidad property.

Geological Setting, Mineralization, and Deposit Types

The Navidad property is located on the southwest edge of the Northern Patagonia Massif in southern Argentina. At the Navidad property, 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 is defined by three northwest striking major fault zones known as the Navidad, Esperanza, and Argenta 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.

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, 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.

Similar styles of silver and base metal mineralization 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.

Exploration

The first exploration on the Navidad property area consisted of a preliminary regional geochemical sampling program conducted by Normandy in mid-2000 that resulted in the identification of anomalies at the Navidad property. Detailed surface mapping took place between 2003 and 2004. Commencing in 2002 and continuing through 2006, soil, rock chip and stream silt samples were collected. The anomalous samples clearly delineate the Navidad, Esperanza and Argenta trends. Between 2006 and 2009, geological mapping and geophysical and geochemical exploration was conducted to provide data for structural interpretation. All of the samples collected during surface exploration have been used to guide the location of diamond drillholes.

Drilling

All drilling was by diamond drilling from the surface using industry standard drill machines and downhole survey tools. Drilling was conducted by private drilling contractors under the supervision of the mine geology department. The drilling results were used as the basis for mineral resource and mineral reserve estimates.

Sampling, Analysis, and Data Verification

Drill core sample intervals varied from between 1 metre and 3 metres long. The core was cut with a diamond bladed saw. The samples were maintained in secure facilities under the control of our employees or the independent laboratory at all times. We have no reason to believe that the validity and integrity of the samples has been compromised. Samples were prepared and assayed by Alex Stewart Assayers Argentina S.A. of Mendoza, Argentina.

Assays were performed using fire assay with gravimetric finish for silver and with AA finish for gold and inductively coupled plasma mass spectrometry for base metals.

A QAQC program supervised by the geology department included the submission of certified standards, duplicates, and blanks to the 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

Metallurgical testwork on the Navidad mineralization includes mineralogical studies, flotation and recovery, grinding, and variability test work. The results indicate that the material responds well to flotation with acceptable recoveries and concentrate grades. The expected metallurgical performance and recovery algorithms for the Navidad mineralization was determined by laboratory bench-scale flotation test methods and a pilot plant test on one feed type. Two distinct feed types will be produced, including a copper-silver feed and lead-silver feed. 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 the silver-lead feed.

Mineral Resource and Mineral Reserve Estimates

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

Navidad Mineral Resources [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 the Navidad property 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 using multiple indicator kriging within three dimensional geological interpretations. 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 tabulated for blocks above the potentially economic cut-off.

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 the Navidad property.

Mining Operations

The planned future mining methods of the Navidad deposits, which are flat lying and located near surface, will be conventional open pit mining with shovels, loaders, and trucks.

Processing and Recovery Operations

The planned future processing method will be by conventional flotation producing a silver rich concentrate and a silver rich lead concentrate. The Navidad Report anticipated a throughput capacity of 15,000 tpd.

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 generators. We are authorized to use water from several bore holes for camp use.

Environmental and social baseline studies have been completed for the Navidad property and the most recent update to draft baseline and impact studies was completed in 2019.

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 the Navidad property can be obtained.

A closure cost estimate for Navidad was prepared according to State of Nevada approved SRCE methodology 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, 2019. Minera Argenta holds environmental reclamation insurance for Navidad in accordance with Argentinean law. See "Narrative Description of the Business – Environment, Community and Sustainability" for further disclosure regarding forward-looking information related to reclamation costs.

Capital and Operating Costs

In 2019, $5.9 million was spent on activities at Navidad, including work on updating the project's EIA and supplementary environmental baseline monitoring. In 2018, $3.6 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 time 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 at the Navidad property in 2020. All expenditures will be expensed as incurred.

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 La Arena mine and Pico Machay property in Peru, the San Vicente mine in Bolivia, the Manantial Espejo mine and the Joaquin and COSE properties in Argentina, the La Bolsa property in Mexico, the Waterloo property in the United States, and certain other interests in Canada. Our Alamo Dorado mine in Mexico is in the post-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.

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 2017, 2018 and 2019 were as follows:

- During 2019, we had 800 tonnes of copper exercised at an average strike price of $6,150 per tonne, resulting in a realized gain of $0.3 million. We had 3,600 tonnes of zinc exercised at a strike price of $2,600 per tonne, resulting in a realized gain of $0.9 million.

- 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 gain 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.

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

Mineral Property Expenditures

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

		2019	2018	2017
Acquisition	COSE	$ -	$ 7,500	$ 7,497
	Joaquin	-	-	12,722
	Shahuindo[1]	437,275	-	-
	La Arena[1]	192,506	-	-
	Timmins[1]	378,889	-	-
	Escobal[1]	273,838	-	-
	TOTAL[2]	1,282,508	7,500	20,219
Development	Huaron[3]	$ 8,013	$ 14,551	$ 8,412
	Morococha[3]	10,703	10,370	9,283
	Alamo Dorado	-	-	-
	Dolores	47,722	59,480	85,374
	La Colorada	20,139	22,473	21,963
	Manantial Espejo	23,909	29,881	8,590
	Navidad	9	39	27
	San Vicente	4,938	6,949	8,146
	Shahuindo	31,329	-	-
	La Arena	47,557	-	-
	Timmins	10,346	-	-
	Other	125	605	437
	TOTAL[2]	$ 205,807	$ 144,348	$ 142,232
Exploration	Huaron	$ 13	$ 660	$ 1,713
	Morococha	327	598	1,629
	Alamo Dorado	-	-	-
	Dolores	1,105	1,594	2,316
	La Colorada	1,445	880	251
	Manantial Espejo	305	744	4,588
	Navidad	-	3,832	2,894
	San Vicente	-	-	-
	Shahuindo	787	-	-
	La Arena	358	-	-
	Timmins	2,259	-	-
	Other[4]		2,830	4,466
	TOTAL[2, 5]	$ 9,803	$ 11,138	$ 17,858

Notes:

1 The figures shown relate to the net asset balances as at December 31, 2019.

2 Numbers may not add due to rounding.

3 Net of lease advances.

4 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.

5 The amounts for 2017 and 2019 exclude $1.9 million and $1.9 million from non-cash project development write-downs.

RISKS RELATED TO OUR BUSINESS

The risk factors described below could materially affect Pan American's future operating results and could cause actual events and results 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. Readers are strongly encouraged to review the following identified risks in detail.

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 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.

In addition to general global economic conditions that can have a severely damaging effect on our business in many ways, declining market prices for 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 13 of Pan American's Audited Consolidated Financial Statements for the year ended December 31, 2019. 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.

The Board of Directors continually assesses Pan American's strategy towards our metal exposure, depending on market conditions. 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. As at December 31, 2019, Pan American had no outstanding contracts to sell base metal production.

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.

Please refer to the 2019 MD&A for more details, including a sensitivity analysis of the effect of certain metal prices on revenue and AISC.

Foreign Operations

In 2019, a significant portion 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, sometimes unexpectedly or as a result of precipitous events, 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;
- limitations on repatriation of operating cash flows, including legal and practical restrictions to transfer funds from foreign jurisdictions
- unreliable or undeveloped infrastructure;
- labour unrest and scarcity;
- human rights violations, including indigenous rights claims;
- 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 Guatemala and Bolivia.

Some communities and NGOs have been vocal and active in their opposition to mining and exploration activities in Guatemala. In July 2017, the Escobal mining license, was suspended as a result of a court proceeding initiated by an NGO in Guatemala, based upon the allegation that Guatemala's MEM violated the Xinka indigenous people's right of consultation. After several decisions and appeals on the matter, a decision of the Constitutional Court of Guatemala was rendered on September 3, 2018, determining that the Escobal mining license would remain suspended until the Guatemala MEM completes an ILO 169 consultation. The consultation process is proceeding, with the pre-consultation stage underway. Normal operations at Escobal mine remain suspended. Legal challenges to the consultation process have been filed with the Guatemalan Supreme Court and the outcome of those challenges is unknown. The process and timing for completing the ILO 169 consultation remains uncertain. In addition, in June 2017, MSR filed its annual request to renew the Escobal mine's export credential with the Guatemala MEM. However, the Guatemala MEM did not renew the export credential because its renewal had become contingent on the Supreme Court's reinstatement of the Escobal mining license. The export credential therefore expired in August 2017 and has not been renewed.

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 has been delayed by COMIBOL and has not been completed. 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.

Criminal activity and violence are also prevalent in some areas that we work in. For example, violence in Mexico is well documented and has, over time, been increasing. Conflicts between the drug cartels and violent confrontations with authorities are not uncommon. Operations at our Dolores mine were temporarily curtailed in 2018 as a result of such violence and the threat of violence on the access roads to the mine. Other criminal activity, such as kidnapping and extortion, is also an ongoing concern. Many incidents of crime and violence go unreported and efforts by police and other authorities to reduce criminal activity are challenged by a lack of resources, corruption and the pervasiveness of organized crime. Incidents of criminal activity have occasionally affected our employees and our contractors and their families, as well as the communities in the vicinity of our operations. Such incidents may prevent access to our mines or offices; halt or delay our operations and production; result in harm to employees, contractors, visitors or community members; increase employee absenteeism; create or increase tension in nearby communities; or otherwise adversely affect our ability to conduct business. We can provide no assurance that security incidents, in the future, will not have a material adverse effect on our operations.

Challenges also exist with respect to inconsistent application of the rule of law, and to sometimes unreliable and biased legal systems and judiciary. In April 2012, Pan American sold all of its interest in the Quiruvilca mine ("Quiruvilca") in Peru, which was previously owned by our subsidiary, Huaron. Since the 2012 sale, a substantial number of labour-related claims have been made by persons alleging to be former or then-current employees working at the Quiruvilca mine. Notwithstanding that an overwhelming majority of these claims were made exclusively against the subsequent owners of Quiruvilca, that Huaron has not owned or been involved with Quiruvilca for a number of years, and that Huaron was not afforded the opportunity to participate or challenge the assertions in court, the labour

courts in Trujillo, Peru, have in many cases, imputed liability on Huaron. In some cases, the courts ordered seizure of monies from Huaron's local bank accounts and garnishment of funds due to Huaron from certain of its trading partners. In August 2018, the current owner of Quiruvilca declared bankruptcy, further exacerbating the situation. Huaron has challenged the basis of the labour court's decisions in Trujillo, and in the Commercial Court and Constitutional Courts of Peru. Pan American believes it has a strong legal position against liability for these claims and intends to continue to vigorously challenge them and enforce certain contractual rights to indemnification. However, there can be no assurance that the outcome of the proceedings or any enforcement of our rights will be favorable to us or that it will not have a material adverse impact on our financial position. Huaron will likely be subject to further labour-related claims, and could also be subject to, directly or indirectly, claims by creditors of the current owner of Quiruvilca and claims relating to the now abandoned mine site, which in aggregate could be material.

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 wastewater;
- 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 previous political regimes 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. While some of these restrictions had begun to ease after the elections in 2015, the government introduced a new export duty in 2018 on silver and gold doré exported from Argentina. In 2019, we paid approximately $3.5 million in export duties, representing an average rate for the export duty of approximately 6%. In 2018, we paid approximately $1.6 million in export duties. Following elections in 2019, the new government in Argentina has begun reinstituting some of the previous unfavourable economic policies, such as strict currency controls.

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 $2.0 million in respect of the Zacatecas Tax in 2019 and $1.2 million in 2018. The validity of the Zacatecas Tax has been challenged on constitutional grounds by various parties, including Pan American.

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.

As previously discussed, in July 2017, the Escobal mining license was suspended as a result of a court proceeding initiated by 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 MSR mining license would remain suspended until the Guatemala MEM completes an ILO 169 consultation. The consultation process is proceeding and the mine remains shut down.

In addition, in June 2017, MSR filed its annual request to renew the export credential with the Guatemala MEM. However, the 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.

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.

For example, certain individuals have asserted community rights and land ownership over a portion of the La Colorada mine's surface lands in the Agrarian Courts of Mexico. They have also initiated a process before SEDATU in Zacatecas to declare such lands as national property. In 2019, we filed an amparo against such process and obtained an injunction to protect it's ownership of these surface rights pending the outcome of the amparo and a further review by SEDATU. If we are unable to acquire or maintain access to those surface rights, there could be material adverse impacts on the La Colorada mine's future mining operations.

Similarly, in Guatemala, the land title system is not well developed and in many cases, relies on informal, hereditary or possessory rights. Such informal systems can create significant uncertainty in obtaining and maintaining ownership or rights of access, in defining precise locations or clear boundaries to properties, and substantiating rights if challenged. It is also difficult to establish the identity of parties who may have, or purport to have, an interest in such property. Many of the surface areas on which the Escobal mine is located are based on such informal rights. MSR is subject to a legal action by an individual claiming to own title to certain lands within the Escobal mine site that MSR had previously purchased. If we are unable to maintain existing lands and access, or to obtain new lands as required, there may be significant adverse impacts to the mine and its operation.

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 property, 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.

We do not own most of the surface rights to the areas that overlie our mining concessions comprising the Morococha mine, 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 the Morococha mine. In June 2010, we reached an agreement with MCP that clearly defines each party's long-term surface rights and provides for the dismissal of the various judicial and administrative claims, therefore providing 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. In exchange, Argentum is to receive periodic cash payments from MCP which would off-set a portion of the capital required for the facility relocation, and a package of surface rights, easements, and mineral concessions in order to relocate the facilities and to continue uninterrupted operations. Pursuant to the agreement, the transfer of lands and rights and the cash payments would 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, 2019, 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

The success of our business is, in many ways, dependent on maintaining positive and respectful relationships with communities in the areas where we work. There is an increasing level of public concern relating to the perceived effects of mining activities, particularly on communities and peoples impacted by such activities. Communities and 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. The manner with which we respond to civil disturbances and other activities can give rise to additional risks where those responses are perceived to be inconsistent with international standards, including those with respect to human rights.

On June 18, 2014, seven plaintiffs filed an action against Tahoe in the British Columbia Supreme Court alleging battery and negligence regarding a security incident that occurred at the Escobal mine on April 27, 2013. The plaintiffs sought compensatory and punitive damages. In April 2017, three of the seven plaintiffs settled their claims against Tahoe. On July 30, 2019, we settled, on behalf of Tahoe, the remaining four plaintiffs' claims and the British Columbia Supreme Court action was dismissed.

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 the Guatemala MEM was heard on the merits. A second roadblock was initiated in 2018 near the community of Mataquescuintla. While we have been taking steps to regain trust and repair relationships, there is no guarantee that a positive resolution will be reached.

Artisanal, or informal, mining is associated with a number of negative impacts, including environmental degradation, human rights abuse and funding of conflict. Additionally, effective local government administration is often lacking in the locations where these miners operate informally or illegally. These activities are largely unregulated and work conditions are often unsafe and present health risks to the artisanal miners and local communities, which while unrelated to our operations, may have a material impact on them. Informal miners are active on land adjacent to our Shahuindo operation. These miners, represented by the Asociación de Mineral Artesanal San Blas ("AMASBA"), are in dialogue with the Peruvian government to formalize their operations. We support formalization and are collaborating with the government, local authorities and AMASBA in this regard.

Pan American is continuing with the implementation of TSM, a program 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. As part of TSM, we have implemented a response mechanisms which helps us manage our social risks by better understanding and responding to community questions or concerns around the perceived or actual impacts of our activities. While we are committed to operating in a responsible manner, there is no assurance that our efforts will be successful at mitigating adverse impacts to our operations, and we may

suffer material consequences to our business, including among other things, delays and closures, increased costs, and significant reputational damage.

From time to time, individuals or communities may allege that our activities have impacted or are impacting their human rights. For example, we are currently in discussions with certain individuals regarding a 2015 relocation of worker housing at our La Colorada project. This is being done under the observations of the United Nations High Commission on Human Rights office in Mexico. In Canada, recent jurisprudence has permitted foreign claimants to bring legal actions in relation to alleged human rights violations and tort claims which may have occurred in their home country. This includes the adoption of international customary law principles as actionable torts in Canada. In addition, international bodies, such as the Inter-American Commission and the Inter-American Court of Human Rights, may adopt precautionary measures or make orders for member states in respect of human rights violations that could materially impact our operations. In 2019 we established a *Global Human Rights Policy*, which sets out our commitment to respect human rights. We also appointed a human rights officer. To align with international best practices, we have conducted a gap assessment of our security practices against the requirements of the Voluntary Principles on Security and Human Rights and UNICEF's Child Rights and Security Checklist at two of our three operations with armed security forces: La Colorada in Mexico, and Escobal in Guatemala. These initiatives were designed to further reduce the risks of alleged human rights violations. However, there is no assurance that claims of human rights violations will not be asserted against us and we may suffer material consequences to our business, including among other things, damages awards, delays and closures, increased costs, and significant reputational damage.

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 indigenous 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 and one that is presently impacting our operations in Guatemala where the Escobal mine has been suspended pending completion of a consultation process. In Canada, our Timmins West and Bell Creek operations have been subject to consultations with local First Nations communities, and Lake Shore is a party to IBAs with certain local First Nation communities which outlines the ongoing relationship between the parties. 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.

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.

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 mineral 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. Mineral resource estimates 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.

This AIF and the documents incorporated by reference herein have been prepared and disclosed in accordance with the requirements of Canadian securities laws that differ from the requirements of United States securities laws. Please refer to the section, "Cautionary Note to U.S. Investors Concerning Estimates of Mineral Reserves and Mineral Resources" on page 8.

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 mine 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 the Dolores, Shahuindo and La Arena mines 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 seven tailings storage facilities, have one closed dry stack tailings facility at the Alamo Dorado mine, one dry stack tailings facility at the Escobal mine, which is currently suspended, and operate a water dam at the Dolores mine. Between 2014 and 2019 we completed Independent Dam Safety Reviews ("IDSR")for all our operating tailings facilities. 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, TSM Tailings Protocol and Guidelines, and best practice. We continue to actively implement the TSM Tailings Protocol and Guidelines at our sites. 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.

In addition to increasing regulatory requirements and operational risks, claims from local communities and NGOs with respect to real or alleged environmental incidents are becoming more common and may impact operations. In the case of legitimate claims, such actions could result in injunctions, suspensions, or other work stoppages, including revocation of permits, or significant fines or awards of damages. In other cases, we may be subject to frivolous or exaggerated claims made in an effort to obstruct or prevent mining operations or to affect our reputation. We have and continue to face such alleged claims in Guatemala related to the Escobal mine, as well as in Peru.

Replacement of Reserves

The La Colorada, Dolores, Huaron, Morococha, Shahuindo, La Arena, Timmins West, Bell Creek, San Vicente and Manantial Espejo mines accounted for all of our production in 2019. 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 mineral 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, 2019, we had receivable balances associated with buyers of our concentrates of $48.8 million (2018 - $40.8 million) and receivable balances associated with buyers of its doré of $17.5 million (2018 - $nil). The vast majority of our concentrate is sold to a limited number of concentrate buyers.

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, 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 damages, but, like many other creditors, we may also be subject to alleged preference claims against us. As at December 31, 2019, we had approximately $58.2 million contained in precious metal inventory at refineries (2018 - $19.7million). 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 suppliers do not deliver products or perform services as expected. As at December 31, 2019, we had made $3.4 million of supplier advances (2018 - $14.4 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 $123.4 million in CAD, $5.2 million in MXN, $2.4 million in PEN, $3.7 million in ARS, $0.4 million in QTZ and $3.4 million in BOB as at December 31, 2019. For the year ended December 31, 2019, we recorded gains of $1.0 million (2018 - gains of $0.7 million), $0.7 million (2018 - $nil), and $0.3 million (2018 - $nil) on MXN, PEN, and CAD derivative contracts, respectively. As at December 31, 2019, Pan American had outstanding positions on $12.0 million in foreign currency exposure of MXN purchases with put rates of $19.50 and call rates ranging from $20.82 to $21.59 expiring between January 2020 and December 2020. As at December 31, 2019, Pan American had outstanding positions on $60.0 million in foreign currency exposure of PEN purchases with put rates of $3.35 and call rates ranging from $3.40 to $3.55 expiring between January 2020 and December 2020. As at December 31, 2019, Pan American had outstanding positions on $30.0 million in foreign currency exposure of CAD purchases with put rates of $1.30 and call rates of $1.37 expiring between January 2020 and December 2020.

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.

Please refer to the 2019 MD&A for a detailed sensitivity analysis of the effect of changes in the exchange rates of certain currencies against the USD on anticipated cost of sales for 2020.

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 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.

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.

Even when efforts to attract and retain qualified personnel and consultants to manage our interests 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

Our employees and contractors are free to pursue collective bargaining and unions have been established at many 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 23 customers that account for 100% of our concentrate and silver and gold sales revenue. We had 7 customers that accounted for 15%, 15%, 13%, 13%, 9%, 8%, and 8% of total sales in 2019. 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 on February 22, 2019, and spent significant time and effort on integrating the Tahoe operations and workforce during the remainder of 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 (the Navidad property) 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 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.

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 IFRS. 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

There is significant evidence of the effects of climate change on our planet and an intensifying focus on addressing these issues. Governments are introducing climate change legislation and treaties at the international, national, and local levels, and regulations relating to emission levels and energy efficiency are evolving and becoming more rigorous. However, the laws and regulatory requirements are not consistent across the jurisdictions in which we operate, and regulatory uncertainty is likely to result in additional complexity and cost in our compliance efforts. Public perception of mining is, in some respects, negative and there is increasing pressure to curtail mining in many jurisdictions as a result, in part, of perceived adverse effects of mining on the environment. Concerns around climate change may also affect the market price of our shares as institutional investors and others may divest interests in industries that are thought to have more environmental impacts. While we are committed to operating responsibly and reducing the negative effects of our operations on the environment, our ability to reduce emissions, energy and water usage by increasing efficiency and by adopting new innovation is constrained by technological advancement, operational factors and economics. Adoption of new technologies, the use of renewable energy, and infrastructure and operational changes necessary to reduce water usage may also increase our costs significantly. Concerns over climate change, and our ability to respond to regulatory requirements and societal pressures, may have significant impacts on our operations and on our reputation, and may even result in reduced demand for our products.

The physical risks of climate change could also adversely impact our operations. These risks include, among other things, extreme weather events, resource shortages, changes in rainfall and in storm patterns and intensities, water shortages, changing sea levels and extreme temperatures. Climate-related events such as mudslides, floods, droughts and fires can have significant impacts, directly and indirectly, on our operations and could result in damage to our facilities, disruptions in accessing our sites with labour and essential materials or in shipping products from our mines, risks to the safety and security of our personnel and to communities, shortages of required supplies such as fuel and chemicals, inability to source enough water to supply our operations, and the temporary or permanent cessation of one or more of our operations. There is no assurance that we will be able to anticipate, respond to, or manage the risks associated with physical climate change events and impacts, and this may result in material adverse consequences to our business and to our financial results.

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 are from current or ex-employees, or employees of former or current owners of our operations such as the Quiruvilca-related claims in Peru, some of which involve claims of significant value, and include alleged improper dismissals, workplace illnesses, such as silicosis, and 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 the subject of three purported class action lawsuits filed in the United States that center primarily around alleged misrepresentations. These U.S. class action lawsuits were later consolidated into one class action suit that is ongoing. 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, or environmental or social damage, and such claimants may seek sizeable monetary damages against us and/or the return of surface or mineral rights or revocation of permits and licenses 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, we are 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 our 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 our 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.

General Economic Conditions

General economic conditions may adversely affect our growth, profitability and ability to obtain financing. Events in global financial markets in the past several years have had a profound impact on the global economy. Many industries, including the silver and gold mining industry, have been and continue to be impacted by these market conditions. Some of the key impacts of the current financial market turmoil include contraction in credit markets resulting in a widening of credit risk, devaluations, high volatility in global equity, commodity, foreign exchange and precious metal markets and a lack of market confidence and liquidity. A continued or worsened slowdown in the financial markets or other economic conditions, including but not limited to, consumer spending, employment rates, business conditions, inflation, fuel and energy costs, consumer debt levels, lack of available credit, the state of the financial markets, interest rates and tax rates, may adversely affect our growth, profitability and ability to obtain financing. A number of issues related to economic conditions could have a material adverse effect on our business, financial condition and results of operations, including:

- contraction in credit markets could impact the cost and availability of financing and our overall liquidity;
- the volatility of silver, gold and other metal prices would impact our revenues, profits, losses and cash flow;
- recessionary pressures could adversely impact demand for our production;
- volatile energy, commodity and consumables prices and currency exchange rates could impact our production costs; and
- the devaluation and volatility of global stock markets could impact the valuation of our equity and other securities.

In addition, the current outbreak of the novel coronavirus (COVID-19) that was first reported from Wuhan, China in December 2019, and any future emergence and spread of similar pathogens could have a material adverse effect on global economic conditions which may adversely impact our business and results of operations and the operations of our suppliers, contractors and service providers, including smelter and refining service providers, and the demand for our production. While initially the outbreak was largely concentrated in China and caused significant disruptions to its economy, it has now spread to many other countries and infections have been reported globally. To date, the coronavirus has not spread widely in areas where we have operations. If the coronavirus spreads to those areas, however, it may have a significant adverse impact on our workforce, production levels, and our ability to continue operating some of our mines. Government efforts to curtail the spread of the coronavirus may also result in temporary or long-term suspensions or shut-downs of our operations. The extent to which the coronavirus impacts our operations will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the duration of the outbreak, new information that may emerge concerning the severity of the coronavirus and the actions taken to contain the coronavirus or treat its impact, among others.

Moreover, the actual and threatened spread of the coronavirus globally could also have a material adverse effect on the regional economies in which we operate, could continue to negatively impact stock markets, including the trading price of our shares, could adversely impact our ability to raise capital, could cause continued interest rate volatility and movements that could make obtaining financing or refinancing our debt obligations more challenging or more expensive and could result in any operations affected by coronavirus becoming subject to quarantine. Any of these developments, and others, could have a material adverse effect on our business and results of operations.

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
2019	• November 6 • August 7 • May 8 • February 20	• $0.035 • $0.035 • $0.035 • $0.035
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

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 ("Nasdaq") under the symbol "PAAS". The majority of trading of our Common Shares takes place on Nasdaq. The following table outlines the closing share price trading range and volume of shares traded by month in 2019:

	Toronto Stock Exchange (CAD$)				Nasdaq Stock Market (USD$)			
Month	High	Low	Volume	Month	High	Low	Volume
January	$ 20.55	$ 17.35	7,327,100	January	$ 15.53	$ 13.01	33,571,103
February	$ 20.16	$ 17.48	11,458,220	February	$ 15.24	$ 13.29	43,274,742
March	$ 18.59	$ 16.67	9,882,220	March	$ 13.86	$ 12.43	52,763,610
April	$ 18.41	$ 16.48	5,843,460	April	$ 13.69	$ 12.28	31,126,904
May	$ 17.20	$ 13.83	7,937,600	May	$ 12.84	$ 10.26	49,021,658
June	$ 17.92	$ 14.66	6,938,400	June	$ 13.62	$ 11.04	59,661,942
July	$ 21.71	$ 16.33	9,794,550	July	$ 16.54	$ 12.39	78,035,882
August	$ 25.32	$ 19.42	10,423,990	August	$ 19.06	$ 14.65	85,519,318
September	$ 25.99	$ 20.42	9,554,590	September	$ 19.48	$ 15.40	77,241,999
October	$ 22.71	$ 20.29	8,133,740	October	$ 17.39	$ 15.44	62,946,850
November	$ 25.70	$ 21.46	7,020,550	November	$ 19.34	$ 16.29	51,611,619
December	$ 31.23	$ 25.27	9,085,690	December	$ 24.02	$ 19.03	66,052,204

EXCEPTIONS FROM NASDAQ CORPORATE GOVERNANCE REQUIREMENTS

Under Rule 4350(a) of Nasdaq 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.

DIRECTORS AND EXECUTIVE OFFICERS

The names of our directors and executive officers as at December 31, 2019, 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.
CHARLES JEANNES[2,4] Reno, Nevada U.S.A.	Director since February 22, 2019	Corporate Director
KEVIN MCARTHUR[5] Reno, Nevada U.S.A.	Director since February 22, 2019	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.

Name and Municipality of Residence	Position with Pan American	Principal Occupation During the Past Five Years
SEAN MCALEER Guatemala City Guatemala	SVP and Managing Director, Guatemala	SVP and Managing Director, Guatemala since September 2019; SVP, Corporate Affairs since February 2019; 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, 2019, the Board of Directors consisted of eight directors, six of whom, Ross Beaty, Michael Carroll, Neil de Gelder, Charles Jeannes, 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, 2019, is set forth in the preceding table.

As of the close of business on March 11, 2020, the directors and executive officers of Pan American named above as a group exercised control or direction or beneficially owned, directly or indirectly, 4,110,866 Common Shares, or approximately 1.96 % of the issued and outstanding Common Shares of Pan American.

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, 2019, 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 resource 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 two other publicly listed companies.

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, 2019 and 2018 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 $2,748,500 and $1,735,700, respectively. The fees in 2019 include amounts related to the audit of Tahoe Resources Inc. for the year ended December 31, 2018, of approximately $291,100.

Audit-Related Fees

The aggregate fees billed by Deloitte LLP for the fiscal years ended December 31, 2019 and 2018 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 $103,900 and $71,000, respectively. In 2019, these fees primarily related to services performed in connection with the Company's business acquisition report and other filings relating to the acquisition of Tahoe Resources Inc. The fees in both 2019 and 2018 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, 2019 and 2018 for professional services rendered by it for tax compliance, tax advice, tax planning, and other services were approximately $2,600 and $9,100, respectively. In 2019, 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, 2019 and 2018 for products and services provided by Deloitte LLP, other than those services reported in the preceding three paragraphs, were approximately $38,900 and $0, respectively. In 2019, such fees related to services provided in respect of the Tahoe integration.

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 “Contingencies” in Note 29 to our Audited Consolidated Financial Statements for the year ended December 31, 2019. 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

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, 2019 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 effective June 30, 2019, 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 7.

Michael Steinmann, P. Geo., Martin Wafforn, P. Eng., Chris Emerson, FAusIMM, Pamela De Mark, P. Geo., Americo Delgado, P.Eng., Eric Kallio, P.Geo., Natasha Vaz, P.Eng., Kara Byrnes, P.Geo., Tim Williams, M.Sc., Carl Defilippi, M.Sc., Charles Muerhoff, B.Sc., Conrad Huss, P.Eng., Thomas Drielick, P.Eng., Daniel Roth, P.Eng., Paul Tietz, C.P.G., Matthew Blattman, P.Eng., Jack Caldwell, P.Eng., and M3 Engineering & Technology Corporation are the persons who have prepared or certified a statement, report, or valuation described in this AIF.

To the best of our knowledge, none of Messrs./Mmes. Steinmann, Wafforn, Emerson, De Mark, Delgado, Kallio, Vaz, Byrnes, Williams, Defilippi, Muerhoff, Tietz, Roth, Blattman, Drielick, Huss, Caldwell or M3 Engineering & Technology Corporation 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, 2019 and 2018, and management's discussion and analysis for the year ended December 31, 2019. 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.

GLOSSARY OF TERMS

"mineral resource" - A mineral resource is a concentration or occurrence of solid material of economic interest in or on the earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

"*inferred mineral resource*" – An inferred mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An inferred mineral resource has a lower level of confidence than that applying to an indicated mineral resource and must not be converted to a mineral reserve. It is reasonably expected that the majority of inferred mineral resources could be upgraded to Indicated mineral resources with continued exploration.

"*indicated mineral resource*" – An indicated mineral resource is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An indicated mineral resource has a lower level of confidence than that applying to a measured mineral resource and may only be converted to a probable mineral reserve.

"measured mineral resource" – A measured mineral resource is that part of a mineral resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A measured mineral resource has a higher level of confidence than that applying to either an indicated mineral resource or an inferred mineral resource. It may be converted to a proven mineral reserve or to a probable mineral reserve.

"*mineral reserve*" – A mineral reserve is the economically mineable part of a measured and/or indicated mineral resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at pre-feasibility or feasibility level as appropriate that include application of modifying factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which mineral reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. The public disclosure of a mineral reserve must be demonstrated by a pre-feasibility study or feasibility study.

"probable mineral reserve" - A probable mineral reserve is the economically mineable part of an indicated, and in some circumstances, a measured mineral resource. The confidence in the modifying factors applying to a probable mineral reserve is lower than that applying to a proven mineral reserve.

"proven mineral reserve" - A proven mineral reserve is the economically mineable part of a measured mineral resource. A proven mineral reserve implies a high degree of confidence in the modifying factors.

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.

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1 In order to be considered "**independent**", the following applies:

Pursuant to the Canadian Securities Administrators' Multilateral Instrument 52-110 "**Audit Committees**", a member of the Committee must not have a direct or indirect material relationship with the Company. A "**material relationship**" is a relationship which could, in the view of the Company's Board, be reasonably expected to interfere with the exercise of a member's independent judgment.

Pursuant to United States securities laws, a member of the Committee may not accept directly or indirectly any consulting, advisory, or other compensatory fee from the Company or any of its subsidiaries; nor be an affiliated person, as such term is defined in Rule 10A-3 of the *Securities and Exchange Act of 1934*, of the Company or any of its subsidiaries.

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, 2019

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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, 2019 (the "2019 Financial Statements") and the related notes contained therein. All amounts in this MD&A and the 2019 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 2019 Financial Statements.

This MD&A refers to various non-Generally Accepted Accounting Principles ("non-GAAP") measures, such as "all-in sustaining cost", "cash costs", "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", "cash costs ", "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 2019 Financial Statements.

Any reference to "cash costs" or "cash costs" in this MD&A should be understood to mean cash costs per ounce of silver or gold, net of by-product credits. Any reference to "AISC" in this MD&A should be understood to mean all-in sustaining costs per silver or gold 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 and gold mining and related activities, including exploration, mine development, extraction, processing, refining and reclamation. The Company owns and operates silver and gold mines located in Peru, Mexico, Argentina, Bolivia, and Canada. We also own the Escobal mine in Guatemala that is currently not operating. In addition, the Company is exploring for new silver deposits and opportunities throughout the Americas. 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 premier silver mining company, 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 our assets.
- Constantly replace and grow our mineable reserves and resources through targeted near-mine exploration and global business development.
- Foster positive long-term relationships with our employees, shareholders, communities and 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 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.

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 eight directors, six of whom are independent as at December 31, 2019. 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:

- *Supporting education for children and adults by contributing to teacher's salaries, and offering scholarships at local and national levels.*
- *Promoting community health with an emphasis on immunizations, optometry, and oral health.*
- *Improving nutrition, focusing on children and women.*
- *Promoting tourism and local areas of interest.*
- *Encouraging economic activity by strengthening the production chain of livestock breeding, and the development of alpaca textiles for product commercialization in North America.*

Climate Action

We recognize that climate change is a threat to the global environment, society, our stakeholders and our business. We are committed to doing our part to ensure an orderly transition to a prosperous low-carbon world.

As one of the largest primary producers of silver in the world, sustainable solutions to climate change are embedded in our purpose as a company. The silver we produce is a key material in solar energy and electrical applications, thereby supporting the transition to a lower carbon economy. Our silver and other products can contribute to displacing a much greater amount of fossil fuel carbon emissions than the direct carbon emissions our operations generate.

We are committed to reducing our carbon footprint by setting realistic short and medium term targets, and supporting research and conservation efforts both near our operations and globally. We are also improving our existing public disclosure regarding our greenhouse gas emissions, ensuring that recognition of climate risks are part of our business plan and stakeholder development strategies.

We support the recommendations from the Task Force on Climate Related Financial Disclosure ("TCFD"), and we are working towards implementing those TCFD recommendations, targeting 2021 for the release of our first report aligned with the TCFD recommendations. We will also continue to report on our emissions, targeted emission reductions, climate risks and other climate-related actions in our annual Sustainability Reports.

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 and mitigate 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 are actively implementing the Mining Association of Canada's *Towards Sustainable Mining* program at all our mines.

In 2019 our efforts were centered around integrating our new assets from the Tahoe acquisition within our existing environmental management strategy and teams. This included a specific focus on environmental stewardship and communication at the Escobal mine in Guatemala, incorporating the new operations into the Towards Sustainable Mining program, environmental auditing of the La Arena and Shahuindo mines, and changing the Closure and Decommissioning Liability calculation methods for La Arena and Shahuindo to our standard methodology.

We build and operate mines in varied environments across the Americas. From the Patagonian plateau in Argentina, to the Sierra Madre in Mexico, to Northern Ontario in Canada 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 the potential to impact surrounding habitats and communities.

We manage environmental 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 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 to 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 ; such as: 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 2019, audits were conducted on the Manantial Espejo, La Arena, and Shahuindo mines. In 2018, audits were conducted on the San Vicente, Huaron and Morococha mines . No material issues were identified in either the 2019 or 2018 environmental audits.

2019 HIGHLIGHTS

Integration of Tahoe Resources Inc. ("Tahoe")

On February 22, 2019, the Company completed the previously announced transaction whereby Pan American acquired all of the issued and outstanding shares of Tahoe (the "Tahoe Acquisition"). Tahoe was a publicly traded precious metals mining company with a diverse portfolio of mines and projects including the following principal mines: La Arena and Shahuindo in Peru; Timmins West and Bell Creek in Canada (together "Timmins"); and Escobal in Guatemala, where operations have been suspended since June 2017 (together the "Acquired Mines"). The Company now operates three gold mines as a result of the Tahoe Acquisition. Consequently, the Company's operations have been divided into silver and gold segments for the purposes of reporting in this MD&A.

All production, operating and financial results of the Acquired Mines (including cash costs and AISC amounts) reported in this MD&A and included in the Company's consolidated results, reflect only the results from February 22, 2019 onwards. Further details of the Tahoe Acquisition are provided in the "Acquisition of Tahoe" section of this MD&A.

Operations & Project Development

- **Silver production of 25.9 million ounces**

Consolidated silver production for 2019 of 25.9 million ounces was 1.1 million ounces more than in 2018, mainly reflecting additional production at Dolores, La Colorada, Huaron, and the Acquired Mines, partially offset by lower production from Manantial Espejo and Morococha. 2019 silver production was in-line with the most recent 2019 forecast range of 25.3 million ounces to 26.3 million ounces, as provided in the Company's Q3 2019 MD&A dated November 6, 2019 (the "November 2019 Forecast").

- **Gold production of 559.2 thousand ounces**

Consolidated gold production for 2019 of 559.2 thousand ounces was 380.3 thousand ounces more than in 2018, reflecting additional production from the Acquired Mines, and was in-line with the November 2019 Forecast range of 550.0 thousand ounces to 600.0 thousand ounces.

- **Base metal production**

Zinc production in 2019 was 67.6 thousand tonnes, slightly higher than both the 2018 zinc production and management's November 2019 Forecast production of 65.0 thousand tonnes to 67.0 thousand tonnes.

Lead production in 2019 was 27.3 thousand tonnes, 22% higher than 2018 lead production and higher than management's November 2019 Forecast production of 24.0 thousand tonnes to 25.0 thousand tonnes.

Copper production in 2019 was 8.7 thousand tonnes, 11% lower than 2018 copper production and lower than management's November 2019 Forecast production of 9.8 thousand tonnes to 10.3 thousand tonnes.

Financial

- **Revenue, net earnings, and operating cash flows**

Revenue in 2019 of $1,350.8 million was up 72% from 2018, driven mainly by increased quantities of gold sold from the Acquired Mines' gold production, and from increased precious metals prices.

Net earnings in 2019 were $111.2 million ($0.55 basic earnings per share), which was a $99.2 million increase from 2018 net earnings of $12.0 million ($0.07 basic earnings per share). The increase was primarily driven by: a $128.4 million increase in mine operating earnings, largely from the Acquired Mines; an $85.0 million increase in investment income, mainly related to the appreciation of the Company's approximately 17% equity interest in New Pacific Metals Corp ("New Pacific"). The increase was partially offset by: increased income taxes, mine care and maintenance costs primarily related to the suspended Escobal mine, and higher interest costs related to amounts drawn on the Company's revolving credit facility (the "Credit Facility"). Net earnings in 2019 included impairment charges of $40.1 million compared to impairments of $27.8 million in 2018, the impairment charges in each year were on the Company's Argentine operating assets.

Adjusted earnings in 2019 were $158.0 million ($0.78 basic adjusted earnings per share), which was $98.6 million higher than 2018 adjusted earnings of $59.4 million ($0.39 basic adjusted earnings per share).

Net cash generated from operating activities in 2019 was $282.0 million, $127.1 million higher than 2018. The increase was driven by higher income and related cash-flows.

- **Liquidity and working capital**

As at December 31, 2019, the Company had cash and short-term investment balances of $238.2 million, working capital of $517.2 million, and $225.0 million available under its $500.0 million revolving credit facility. Total debt of $316.2 million was related to the drawn portion of the Credit Facility and the financing of lease liabilities, which were partially attributable to the new lease accounting standard (IFRS-16) adopted on January 1, 2019, as discussed in the "Changes in Accounting Standards" section of this MD&A.

- **Cash costs per ounce sold**

Silver Segment 2019 cash costs were $6.39 per silver ounce sold, in-line with the November 2019 Forecast range of $6.00 to $7.00 per silver ounce sold.

Gold Segment 2019 cash costs related to the Acquired Mines were $712 per gold ounce sold, which was lower than the November 2019 Forecast range of $725 to $775 per gold ounce sold.

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 the 2019 Financial Statements.

- **All-in Sustaining Costs per ounce sold ("AISC")**

Silver Segment 2019 AISC were $10.46 per silver ounce sold, in-line with the November 2019 Forecast range of $9.50 to $11.00 per silver ounce sold.

Gold Segment 2019 AISC were $948 per gold ounce sold, which was lower than the November 2019 Forecast of $1,000 to $1,100 per gold ounce sold.

Consolidated 2019 AISC per silver ounce sold, including by-product credits from the Acquired Mines' gold production, were $4.44 per silver ounce sold, which was lower than the November 2019 Forecast range of $6.00 to $7.50 per silver ounce sold.

AISC 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 the 2019 Financial Statements.

2020 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. We may revise forecasts during the year to reflect actual results to date and those anticipated for the remainder of the year. The 2020 production, cash costs and AISC outlooks for each mine are further discussed in the "2020 Mine Operation Forecasts" section of this MD&A.

2020 Silver and Gold Production, Cash Costs and AISC Forecasts:

	Silver Production (million ounces)	Gold Production (thousand ounces)	Cash Costs ($ per ounce)(1)	AISC ($ per ounce)(1)
Silver Segment:				
La Colorada	8.5 - 8.7	4.0 -5.0	3.00 - 4.00	5.50 - 6.50
Dolores	4.5 - 5.0	133.5 - 143.5	(8.50) - (5.50)	4.25 - 6.25
Huaron	3.8 - 3.9	0.5	9.25 - 11.00	12.50 - 14.25
Morococha (92.3%)(2)	2.6 - 2.8	1.3 - 1.5	9.50 - 11.75	13.50 - 15.50
San Vicente (95.0%)(3)	3.5 -3.6	0.5	14.00 - 15.00	16.00 - 17.00
Manantial Espejo/COSE/Joaquin	4.0 - 4.3	33.2 - 36.5	16.75 - 17.75	18.50 - 19.50
Total(4,5)	**26.8 - 28.3**	**173.0 - 187.5**	**5.75 - 7.50**	**10.25 - 11.75**
Gold Segment:				
Shahuindo	0.2	162.0 - 172.5	700 - 750	1,070 - 1,150
La Arena	—	125.0 - 135.0	800 - 850	1,120 - 1,200
Timmins	—	165.0 - 180.0	950 - 1,000	1,090 - 1,170
Total(4,5)	**0.2**	**452.0 - 487.5**	**820 - 870**	**1,090 - 1,170**
Total Production(5)	**27.0 - 28.5**	**625.0 - 675.0**		
Consolidated Silver Basis(4)			**n/a(6)**	**4.50 - 6.50**

(1) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for further information on these measures. The cash costs and AISC forecasts assume average metal prices of $17.50/oz for silver, $1,525/oz for gold, $2,350/tonne ($1.07/lb) for zinc, $2,000/tonne ($0.91/lb) for lead, and $6,150/tonne ($2.79/lb) for copper; and average annual exchange rates relative to 1 USD of 19.50 for the Mexican peso ("MXN"), 3.34 for the Peruvian sol ("PEN"), 73.64 for the Argentine peso ("ARS"), 6.91 for the Bolivian boliviano ("BOB"), and $1.30 for the Canadian dollar ("CAD").
(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) As shown in the detailed quantification of consolidated AISC, included in the "Alternative Performance (Non-GAAP) Measures" section of this MD&A, corporate general and administrative costs, and exploration and project development expenses are included in Consolidated Silver Basis AISC, but are not allocated in calculating AISC for the Silver and Gold Segments.
(5) Totals may not add due to rounding.

(6) Pan American will no longer be providing guidance for cash costs on a Consolidated Silver Basis, determining that AISC guidance is a more appropriate measure of reflecting costs on a Consolidated Silver Basis.

The Company expects 2020 silver production of between 27.0 million and 28.5 million ounces, representing between a 4% and 10% increase over the 2019 consolidated production of 25.9 million ounces. Production increases are expected at La Colorada, Manantial Espejo, and Morococha. Production at San Vicente and Huaron is expected to be generally consistent with 2019, while production at Dolores is expected to be slightly lower than 2019. The increase in silver production at La Colorada is expected to be achieved by increasing throughput rates through mine mechanizations, debottlenecking efforts, and infrastructure upgrades. At Manantial Espejo, the expected increase reflects the COSE and Joaquin mine projects coming into production in 2020, and thereby increasing feed grades. At Morococha, the increase is due to mine sequencing into higher silver grade zones. The expected decrease in silver production at Dolores is driven by open pit sequencing into lower silver grade ore zones partially offset by leach sequencing that is expected to draw-down heap silver inventories.

Gold production in 2020 is expected to be between 625 thousand and 675 thousand ounces, which is an increase of between 12% and 21%. The increase is expected primarily from production from a full calendar year of the Acquired Mines, higher gold grades at Dolores due to open pit sequencing, and the addition of COSE production at the Manantial Espejo operation, and partially offset by lower ore tonnages at La Arena from mine sequencing.

Silver Segment cash costs for 2020 are forecast to be between $5.75 and $7.50 per payable ounce of silver, while Silver Segment AISC are expected to be between $10.25 and $11.75 per ounce, which compare to 2019 Silver Segment Cash costs and AISC of $6.39 and $10.46, respectively. Silver Segment per ounce cost metrics are expected to be similar to 2019, based on assumptions for modest escalation in wages and certain consumables as well as higher concentrate treatment and refining charges, offset by higher by-product gold production at Dolores, higher throughputs at La Colorada and higher by-product gold prices. An increase in sustaining capital expenditures is also expected to impact the 2020 AISC, as further described in the following sections.

Gold Segment cash costs for 2020 are forecast to be between $820 and $870 per payable ounce of gold, while Gold Segment AISC are expected to be between $1,090 and $1,170 per ounce, which compare to 2019 Gold Segment cash costs and AISC of $712 and $948, respectively. The expected increase in the Gold Segment per ounce cost metrics is primarily due to increased capital spending on waste dumps and leach pads at Shahuindo and La Arena and equipment replacements at Timmins, which partly reflects the deferral of major projects from 2019 into 2020. In addition, the cost increase reflects a modest increase in operating costs, as further described in the following sections, and assumptions for modest escalation in wages and certain consumables.

Consolidated AISC (on a silver basis, net of by-product credits) in 2020 is forecast to be between $4.50 and $6.50 compared to the $4.44 per ounce recorded in 2019. The expected increase in AISC is largely driven by the same factors expected to increase the Gold Segment AISC discussed above.

2020 Consolidated Base Metal Production Forecasts:

	Zinc (kt)	Lead (kt)	Copper (kt)
Consolidated Production	**67.5 - 70.5**	**27.5 - 29.5**	**9.3 - 10.3**

Base metal production is expected to increase for zinc, lead and copper in 2020 compared to 2019. The expected increase in zinc and lead production reflects higher sulphide ore throughput at La Colorada, partially offset by mine sequencing into lower grades at Huaron, Morococha, and San Vicente. Copper production is expected to increase at Morococha and San Vicente as a result of mine sequencing.

2020 Capital Expenditure Forecasts

In 2020, Pan American expects sustaining capital investments of between $225.0 million and $240.0 million, which is an increase from the $179.1 million invested in 2019. In addition, Pan American expects to invest between $22.0 million and $27.0 million in project capital, primarily to advance the skarn deposit at La Colorada. The following table details the forecast capital investments at the Company's operations and projects in 2020:

	2020 Forecast Capital Investment ($ millions)
La Colorada	15.5 - 16.5
Dolores	55.0 - 58.0
Huaron	9.0 - 10.0
Morococha	7.5 - 9.0
San Vicente	6.0 - 7.0
Manantial Espejo/COSE/Joaquin	4.0 - 5.5
Shahuindo	63.0 - 65.0
La Arena	42.0 - 44.0
Timmins	23.0 - 25.0
Sustaining Capital Total	**225.0 - 240.0**
La Colorada Skarn project	16.0 - 18.0
Timmins Expansion	4.0 - 5.0
Other	2.0 - 4.0
Project Capital Total	**22.0 - 27.0**
Total Capital	**247.0 - 267.0**

The forecast 2020 sustaining capital is related primarily to the following activities:

- La Colorada - underground mechanization equipment additions, mine equipment refurbishments and replacements, underground ventilation infrastructure improvements, tailing storage facility expansions and near-mine exploration;
- Dolores - heap leach pad and pond expansions, open pit mine waste pre-stripping activities and mine equipment refurbishments;
- Huaron - mine equipment replacements, mine deepening and near-mine exploration;
- Morococha - near-mine exploration and underground mine equipment additions and replacements;
- San Vicente - underground mine equipment refurbishments and replacements and near-mine exploration;
- Manantial Espejo - near-mine exploration and mill upgrades to accept the COSE and Joaquin ores;
- Shahuindo - heap leach pad expansions, waste rock storage facility expansions, lease payments from a fleet expansion initiated in 2019, land purchases and near-mine exploration;
- La Arena - open pit mine waste pre-stripping activities, waste rock storage facility expansions and land purchases; and,
- Timmins - tailings storage facility expansions, underground mine equipment replacements and refurbishments and near-mine exploration.

Forecast 2020 project capital consists of:

- La Colorada - continued exploration drilling and early stage engineering and metallurgical testing for the skarn discovery;

- Timmins - an approximate 20% expansion of the Bell Creek mine, including the purchase of additional mine equipment and debottlenecking and upgrading certain components of the plant to maximize the benefits of the improved efficiencies resulting from the commissioning of the Bell Creek shaft in February 2019; and,
- Other - includes remaining payments for the COSE and Joaquin mine developments in Argentina, and advancements in the engineering and permitting for a future plant relocation at Morococha.

2020 Care & Maintenance and General & Administrative Expense Forecast

Forecast care and maintenance expense for 2020 is $21.5 million to $23.0 million, and is made up of $19.0 million to $20.0 million on the Escobal mine and $2.5 million to $3.0 million related to the Navidad project. Annual corporate general and administrative expense, including share-based compensation, is forecast to be between $35.0 million and $37.0 million in 2020.

2020 Exploration Expenditures Forecast

Exploration expenditures in 2020, including both amounts that will be expensed and capitalized, are expected to total $37.5 million to $39.5 million, comprised of: (1) $18.5 million to $19.5 million for 186,000 metres of near-mine brownfield exploration drilling for reserve replacement, which is included in the forecast for 2020 sustaining capital expenditures, (2) $11.5 million to $12.5 million in regional, greenfield exploration in Peru, Mexico and Canada; and (3) $7.5 million for 44,000 metres of drilling on the La Colorada skarn discovery, which is included in the forecast for 2020 project capital expenditures.

2020 Mine Operation Forecasts

Management's expectations for each mine's 2020 operating performance, including production, cash costs, and AISC, are provided below:

La Colorada mine

Silver production is forecast to be between 8.5 million ounces and 8.7 million ounces in 2020 which is 4% to 6% more than the 8.2 million ounces produced in 2019. The increase is driven by an expected 4% increase in throughput from additional debottlenecking, mine mechanizations, and better backfill availability.

Cash costs per silver ounce in 2020 are forecast to be between $3.00 and $4.00 compared to the $2.99 achieved in 2019. The increase is primarily related to higher treatment and refining charges due to deteriorating concentrate treatment terms and lower average zinc price assumptions.

AISC in 2020 is forecast to be between $5.50 and $6.50 per silver ounce, which is 21% to 43% higher than the $4.54 achieved in 2019. The increase is largely driven by the higher treatment and refining charges, as well as an expected $5.8 million to $6.8 million increase in sustaining capital, as previously described.

Dolores mine

Silver production is forecast to be between 4.5 million ounces and 5.0 million ounces in 2020, which is 0.1 million ounces to 0.6 million ounces lower than the 5.1 million ounces produced in 2019. The decrease is primarily driven by planned mine sequencing into lower silver grade zones, partially offset by leach sequencing that is expected to reduce the heap silver inventory. Conversely, the mine sequencing is also expected to increase gold production. Gold production in 2020 is forecast to be between 133.5 thousand ounces and 143.5 thousand ounces, which is between 15.8 thousand ounces to 25.8 thousand ounces higher than the 117.6 thousand ounces produced in 2019.

Cash costs per silver ounce in 2020 are forecast to be between negative $8.50 and negative $5.50, which is a decrease from 2019 cash costs of $3.09, due primarily to increased gold credits from higher gold production and price assumptions.

AISC in 2020 is forecast to be between $4.25 and $6.25 per silver ounce, compared to 2019 AISC of $15.45 (inclusive of net realizable value ("NRV") inventory adjustments that increased AISC by $1.60 in 2019). Excluding the effect of

2019 NRV adjustments, AISC is expected to decrease from 2019 due to the same factors affecting year-over-year cash costs, partially offset by a $5.3 million to $8.3 million expected increase in sustaining capital expenditures, as described previously.

Huaron mine

Silver production is forecast to be between 3.8 million ounces to 3.9 million ounces in 2020, comparable to the 3.8 million ounces produced in 2019. Base metal production is expected to decrease slightly as a result of lower grades from mine sequencing.

Cash costs per silver ounce in 2020 are forecast to be between $9.25 and $11.00, which is higher than the 2019 cash costs of $4.15 per ounce. The increase reflects higher treatment and refining charges, decreased base metal credits due to a combination of a lower zinc price assumption and lower by-product base metal grades, and assumptions for modest escalation in wages and consumables.

AISC for 2020 is forecast to between $12.50 and $14.25 per silver ounce, which is higher than the $7.74 per ounce achieved in 2019 as a result of the increase in cash costs mentioned previously.

Morococha mine

Silver production is forecast to be between 2.6 million ounces to 2.8 million ounces in 2020 which is higher than the 2.5 million ounces produced in 2019, as a result of slight increases to throughput, grades and recoveries. Zinc and lead production are expected to be consistent with 2019, while copper production is expected to increase considerably as a result of mine sequencing.

Cash costs per silver ounce in 2020 are forecast to be between $9.50 and $11.75, which is $5.15 to $7.40 higher than 2019 cash costs of $4.35 per ounce. The increase reflects higher treatment and refining charges, lower zinc price assumptions, and assumptions for modest escalation in wages and certain consumable costs, partially offset by increased copper and silver production.

AISC is forecast to be between $13.50 and $15.50 per silver ounce, which is $3.42 to $5.42 higher than the $10.08 per ounce reported in 2019. The increase is due to the same factors affecting year-over-year cash costs, partially offset by an expected decrease in sustaining capital expenditures, as previously described.

San Vicente mine

Silver production is forecast to be between 3.5 million ounces and 3.6 million ounces in 2020, which is in-line with 2019 production, with anticipated throughput increases being partially offset by lower grades from mine sequencing. Zinc production is expected to decrease by 15% and copper is expected to increase by 18%, both due to mine sequencing.

Cash costs per silver ounce in 2020 are forecast to be between $14.00 and $15.00, which is between $2.23 and $3.23 per ounce higher than 2019 cash costs of $11.77 per ounce due to: operating cost increases from government mandated wage increases; cost escalation for certain consumables; higher treatment and refining charges; and, lower overall base metal credits due to lower zinc production and prices; partially offset by lower royalties and increased copper production.

AISC for 2020 is forecast to be between $16.00 and $17.00 per silver ounce, which is between $2.92 to $3.92 per ounce higher than the $13.08 per ounce recorded in 2019, due to the same factors impacting cash costs previously mentioned.

Manantial Espejo mine

Silver production is forecast to be between 4.0 million ounces to 4.3 million ounces in 2020, which is between 54% and 65% higher than the 2.6 million ounces produced in 2019. Gold production in 2020 is forecast to be between 33.2 thousand ounces and 36.5 thousand ounces, which is between 48% and 63% higher than the 22.4 thousand ounces produced in 2019. The expected increase in production is attributable to the addition of higher-grade COSE and Joaquin ore processed at the Manantial Espejo plant as these projects ramp-up to production following their development in 2019.

Cash costs per silver ounce in 2020 are forecast to be between $16.75 to $17.75, which is below 2019 cash costs of $19.59, primarily as a result of higher grade ore production from COSE and Joaquin displacing low-grade stockpile ores, particularly in the second half of 2020 as these mines ramp up production rates.

AISC for 2020 is forecast to be between $18.50 and $19.50 per silver ounce, which is a slight increase from the $18.43 per ounce reported in 2019. AISC in 2019 benefited from a $3.35 per ounce cost-decreasing NRV adjustment.

Shahuindo mine

Gold production is forecast to be between 162.0 thousand to 172.5 thousand ounces in 2020, which is higher than the145.4 thousand ounces produced in 2019, primarily the result of additional production from a full year of operations.

Cash costs per gold ounce in 2020 are forecast to be between $700 and $750, which is higher than 2019 cash costs of $570 due to increases in operating costs from higher expected employee profit participation payments, greater leach reagent consumption aimed at optimizing recovery rates, and higher community expenses.

AISC for 2020 is forecast to be between $1,070 and $1,150 per gold ounce, which is higher than the 2019 AISC of $807 per ounce as a result of the increase in cash costs mentioned previously, as well as higher sustaining capital as previously described.

La Arena mine

Gold production is forecast to be between 125.0 thousand ounces to 135.0 thousand ounces in 2020, which is higher than the 122.5 thousand ounces produced in 2019. Higher gold grades and recoveries and additional production from a full year of operations are expected to offset lower throughput as a result of higher waste mining anticipated in 2020.

Cash costs per gold ounce in 2020 are forecast to be between $800 and $850, which is higher than 2019 cash costs of $644 due to higher leach pumping costs from an increase in heap heights, the introduction of geotechnical pre-split drilling to optimize the ultimate open pit layback sequencing, which also encounters lower ore production at a higher waste strip ratio.

AISC for 2020 is forecast to be between $1,120 and $1,200 per gold ounce, which is $78 to $158 higher than the$1,042 per ounce reported in 2019 due to the increase in cash costs previously mentioned, partially offset by anticipated lower sustaining capital expenditures, as previously described.

Timmins mine

Gold production is forecast to be between 165.0 thousand ounces to 180.0 thousand ounces in 2020, which is higher than the 143.8 thousand ounces produced in 2019 due to additional production from a full year of operations and increased daily throughput from an approximately 20% mill expansion, largely offset by lower gold grades to optimize the mineral reserve cut-off grade to maximize life of mine profitability.

Cash costs per gold ounce in 2020 are forecast to be between $950 and $1,000, slightly higher than the 2019 cash costs of $904 as increases in operating costs from higher mining and milling rates are expected to be largely offset by higher gold production.

AISC for 2020 is forecast to be between $1,090 and $1,170 per gold ounce, which is higher than 2019 AISC of $998 per ounce as a result of higher sustaining capital, as previously described.

2019 OPERATING PERFORMANCE

Consolidated 2019 Operating Results

Silver and Gold Production

The following table provides silver and gold production at each of Pan American's operations for the three and twelve month periods ended December 31, 2019 and 2018, except for the Acquired Mines, which for the twelve months ended December 31, 2019 only include production from the February 22, 2019 acquisition date:

	Silver Production (ounces '000s)				Gold Production (ounces '000s)			
	Three months ended December 31,		Year ended December 31,		Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	2018	**2019**	2018	**2019**	2018
La Colorada	**2,080**	2,074	**8,206**	7,617	**1.3**	1.2	**4.6**	4.4
Dolores	**1,287**	824	**5,122**	4,081	**26.1**	29.4	**117.6**	136.6
Huaron	**935**	965	**3,796**	3,561	**0.2**	0.2	**1.0**	0.8
Morococha[1]	**554**	740	**2,456**	2,881	**0.2**	0.2	**1.4**	2.1
San Vicente[2]	**877**	937	**3,528**	3,544	**0.1**	0.1	**0.5**	0.5
Manantial Espejo	**817**	587	**2,599**	3,092	**6.7**	6.2	**22.4**	34.6
Shahuindo	**54**	—	**137**	—	**43.5**	—	**145.4**	—
La Arena	**11**	—	**26**	—	**48.4**	—	**122.5**	—
Timmins	**6**	—	**18**	—	**47.3**	—	**143.8**	—
Total [3]	**6,622**	6,128	**25,886**	**24,776**	**173.9**	**37.2**	**559.2**	**178.9**

(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.

Silver Production

2019 consolidated silver production of 25.89 million ounces was 4% higher than the 24.78 million ounces produced in 2018. Dolores, Huaron, and La Colorada drove the increases, primarily due to increased grades and a higher ratio of ounces produced to placed on the heap at Dolores given higher pulp agglomeration plant throughput and increased throughput at the other two operations. The increase was partially offset by lower production at Morococha and Manantial Espejo, primarily due to lower grades at both operations, while Manantial Espejo was also affected by lower throughput. Consolidated silver production in Q4 2019 of 6.62 million ounces was 8% higher than the 6.13 million ounces produced in the fourth quarter of 2018 ("Q4 2018"). Dolores and Manantial Espejo drove the increase, primarily due to increased grades due from mine sequencing at both operations partially offset by heap sequencing that lead to a lower ratio of ounces produced to placed at Dolores. The increase was partially offset by lower production at Morococha, primarily due to lower grades from mine sequencing.

Gold Production

Consolidated gold production in 2019 of 559.2 thousand ounces was more than three times the 178.9 thousand ounces produced in 2018. The increase was attributable to gold production from the Acquired Mines, which totaled 411.7 thousand ounces, partially offset by lower production at Manantial Espejo as a result of higher throughput from low grade stockpiles due to a delay in the COSE and Joaquin mine developments, and at Dolores due to mine

sequencing. Similarly, consolidated gold production in Q4 2019 of 173.9 thousand ounces was more than four times the 37.2 thousand ounces produced in Q4 2018. Q4 2019 production from the Acquired Mines totaled 139.3 thousand ounces of gold.

Each operation's production variances are further discussed in the "Individual Mine Performance" section of this MD&A.

Base Metal Production

The following table provides the Company's base metal production for the three-month and twelve-month periods ended December 31, 2019 and 2018:

	Base Metal Production			
	Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	2018
Zinc - kt	**16.6**	18.5	**67.6**	64.8
Lead - kt	**7.2**	6.3	**27.3**	22.4
Copper - kt	**2.3**	2.2	**8.7**	9.8

Zinc production in 2019 was consistent with 2018 production, driven by higher sulphide ore throughput at La Colorada, which was partially offset by lower grades at San Vicente.

Lead production in 2019 was 22% higher than 2018, resulting primarily from higher sulphide ore throughput at La Colorada and higher grades at Morococha from mine sequencing.

Copper production in 2019 was 11% lower than 2018, driven by lower grades and recoveries at Morococha from mine sequencing. Each operation's by-product production variances are further discussed in the "Individual Mine Performance" section of this MD&A.

Per Ounce Measures

The Company currently operates three gold mines as a result of the Tahoe Acquisition. Consequently, the Company's operations have been divided into silver and gold segments for the purposes of reporting cash costs and AISC, as set out in the table below. Based on the changed production profile of the Company and increased gold production following the Tahoe Acquisition, the Company has determined it necessary to expand the calculating and reporting of operating production, cash costs, and AISC metrics into two segments. The quantification of both the current cash costs and AISC measures is described in detail, and where appropriate reconciled to the 2019 financial statements, in the "Alternative (Non-GAAP) Performance Measures" section of this MD&A.

The following table reflects the cash costs and AISC net of by-product credits at each of Pan American's operations for the three and twelve months ended December 31, 2019, as compared to the same periods in 2018 for the Silver Segment mines and since February 22, 2019 for the newly acquired Gold Segment mines:

	Cash Costs[1] ($ per ounce)				AISC[1] ($ per ounce)			
	Three months ended December 31,		Year ended December 31,		Three months ended December 31,		Year ended December 31,	
	2019	2018[2]	2019	2018[2]	2019	2018[3]	2019	2018[3]
La Colorada	4.30	2.46	2.99	2.26	5.80	5.93	4.54	4.63
Dolores	2.64	6.30	3.09	(1.81)	9.33	35.36	15.45	16.36
Huaron	5.34	2.42	4.15	1.79	9.44	9.71	7.74	7.95
Morococha	10.85	(0.58)	4.35	(4.43)	18.83	6.19	10.08	1.59
San Vicente	14.38	10.20	11.77	9.83	16.50	13.59	13.08	12.20
Manantial Espejo	15.47	23.03	19.59	14.83	16.94	27.94	18.43	16.83
Silver Segment Consolidated	**7.80**	**5.82**	**6.39**	**3.36**	**11.37**	**14.69**	**10.46**	**9.48**
Shahuindo	605	—	570	—	970	—	807	—
La Arena	580	—	644	—	764	—	1,042	—
Timmins	884	—	904	—	984	—	998	—
Gold Segment Consolidated	**693**	**—**	**712**	**—**	**901**	**—**	**948**	**—**
Consolidated per silver ounce sold[4]:								
All Operations	**(8.63)**	**5.82**	**(4.89)**	**3.36**	**1.04**	**16.19**	**4.44**	**10.77**
All Operations before NRV inventory adjustments	**(8.63)**	**5.82**	**(4.89)**	**3.36**	**0.96**	**13.69**	**4.45**	**9.72**

(1) Cash costs and AISC are non-GAAP measures. Please refer to the section "Alternative Performance (Non-GAAP) Measures" of this MD&A for a detailed description of these measures and where appropriate a reconciliation of the measure to the 2019 Financial Statements.
(2) Silver Segment cash costs per ounce sold are calculated based on cash costs, net of by-product credits divided by per ounce of silver sold and they are therefore different from previously reported 2018 "cash costs" which were calculated based on cash costs net of by-product credits divided by payable silver ounces produced. The 2018 cash costs per ounce sold included in the table above have been calculated and presented as comparative amounts to conform to the methodology used by the Company to calculate the 2019 cash cost per ounce sold.
(3) 2018 AISC per ounce sold included in the table above have been calculated and presented as comparative amounts to conform to the methodology used by the Company to calculate the 2019 AISC per ounce sold. The change in methodology relates to the sustaining capital calculation to account for the adoption of IFRS 16, and sustaining capital now includes lease payments. Previously, leased assets were included as sustaining capital in the period of acquisition, while future related lease payments were excluded.
(4) Consolidated silver basis total is calculated per silver ounce sold with total gold revenues included within by-product credits. G&A costs are included in the consolidated AISC, but not allocated in calculating AISC for each operation.

Cash Costs

Consolidated silver basis cash costs were negative $4.89 per ounce and negative $8.63 per ounce for 2019 and Q4 2019, down $8.25 and $14.45 from the comparable 2018 periods, respectively, primarily as a result of the increase in gold by-product credits from the newly acquired Gold Segment mines. These decreases were partially offset by increased Silver Segment cash costs due to a combination of lower base metal prices, higher treatment and refining charges and higher cost per ounce at Morococha and higher annual operating costs per ounce at San Vicente and Manantial Espejo. Consolidated silver basis cash costs reflect the cash costs at both the silver and gold segments of the Company's operations, and are based on total silver ounces sold net of by-product credits from all metals other than silver.

AISC

Consolidated silver basis AISC for 2019 and Q4 2019 were $4.44 per ounce and $1.04 per ounce, respectively, representing decreases of $6.33 and $15.15 per ounce, respectively, from the corresponding 2018 periods. The decreases were primarily the result of the same factors driving the decreased cash costs, as well as a reduction in cost-increasing NRV adjustments. Sustaining capital expenditures decreased for the Silver Segment mines, but increased as a whole due to the addition of the newly Acquired Mines. Consolidated AISC are based on total silver ounces sold and are net of by-product credits from all metals other than silver.

2019 Operating Results versus 2019 Guidance

The following table sets out the various 2019 annual metal production, cash costs, AISC and capital expenditures guidance provided by Management. The Original Guidance was provided in our Annual 2018 MD&A dated March 12, 2019, and was based on Pan American's assets prior to the closing of the Tahoe Transaction. The May Guidance was provided in the Company's MD&A dated May 8, 2019, and incorporated forecasts for the newly Acquired Mines. "NC" in the table below denotes no changes to the previously provided guidance. Guidance was updated in the Company's MD&A dated August 7, 2019 and again in the Company's MD&A dated November 6, 2019 to reflect reductions in select anticipated cost metrics as well as a delay in the COSE and Joaquin projects in Argentina, which impacted our expected production of gold and silver.

	Original Guidance	May Guidance	August Guidance	November Guidance	2019 Actual
Silver Production - Moz	26.5 - 27.5	26.6 - 27.6	25.3 - 26.3	NC	25.9
Gold Production - koz	162.5 - 172.5	570.0 - 620.0	550.0 - 600.0	NC	559.2
Zinc Production - kt	65.0 - 67.0	NC	NC	NC	67.6
Lead Production - kt	24.0 - 25.0	NC	NC	NC	27.3
Copper Production - kt	9.8 - 10.3	NC	NC	NC	8.7
Silver Segment Cash Costs ($ per ounce)	-	6.50 - 7.50	NC	6.00 - 7.00	6.39
Gold Segment Cash Costs ($ per ounce)	-	740 - 810	NC	725 - 775	712
Consolidated Silver Basis Cash Costs ($ per ounce)	6.50 - 7.50	(2.25) - 0.50	(3.30) - (1.80)	(5.50) - (3.80)	(4.89)
Silver Segment AISC ($ per ounce)	-	9.75 - 11.25	NC	9.50 - 11.00	10.46
Gold Segment AISC ($ per ounce)	-	1,025 - 1,125	NC	1,000 - 1,100	948
Consolidated Silver Basis AISC ($ per ounce)	10.80 - 12.30	7.75 - 10.75	7.00 - 9.00	6.00 - 7.50	4.44
Sustaining Capital ($ millions)	85 - 90	203 - 213	NC	NC	179.1
Project Capital ($ millions)	30	40	45	NC	43.6

The following section compares our guidance following the Tahoe acquisition (the "May Guidance") to actual results achieved in 2019.

Silver and Gold Production versus May Guidance

Metal figures presented are in ounces or tonnes of metal produced.

	2019 Silver Production (million ounces)		2019 Gold Production (thousand ounces)	
	Guidance (1)	Actual	Guidance (1)	Actual
Silver Segment:				
La Colorada	8.0 - 8.2	8.2	4.1 - 4.8	4.6
Dolores	5.2 - 5.5	5.1	114.5 - 120.0	117.6
Huaron	3.6 -3.7	3.8	0.5	1.0
Morococha(2)	2.8 -2.9	2.5	1.2 - 1.5	1.4
San Vicente(2)	3.5 - 3.7	3.5	0.3	0.5
Manantial Espejo	3.4 - 3.6	2.6	42.0 - 45.0	22.4
Silver Segment Total(3)	**26.5 - 27.5**	**25.7**	**162.5 - 172.5**	**147.5**
Gold Segment:				
Shahuindo	0.1	0.1	135.0 - 165.0	145.4
La Arena	—	—	117.5 - 122.5	122.5
Timmins	—	—	155.0 - 160.0	143.8
Gold Segment Total (3)	**0.1**	**0.2**	**407.5 - 447.5**	**411.7**
Total(3)	**26.6 - 27.6**	**25.9**	**570.0 - 620.0**	**559.2**

(1) Guidance amount per the May 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.

Silver Production

Consolidated 2019 silver production was 25.9 million ounces, which was 3% lower than the 26.6 million ounces at the low-end of the May Guidance range. The slight production shortfall was primarily the result of the postponement of commercial production from the COSE and Joaquin projects following the ground fall accident reported in June, 2019, deferring start-up of these projects into 2020, as communicated in previous MD&A reports.

Gold Production

Consolidated 2019 gold production was 559.2 thousand ounces which is 2% lower than the 570.0 thousand ounce low-end of the May Guidance range. Similarly, the gold production shortfall was primarily due to the postponement of COSE production into 2020.

Base Metal Production versus May Guidance

Metal figures presented are in ounces or tonnes of metal produced.

	2019 Zinc Production (thousand tonnes)		2019 Lead Production (thousand tonnes)		2019 Copper Production (thousand tonnes)	
	Guidance (1)	Actual	Guidance (1)	Actual	Guidance (1)	Actual
La Colorada	18.7 - 19.5	21.0	9.5 - 9.8	11.1	-	-
Huaron	17.7 - 18.0	18.1	8.5 - 8.8	9.2	5.7 - 5.9	6.0
Morococha(2)	22.6 - 23.0	22.5	5.3 - 5.7	6.6	2.8 - 3.1	1.8
San Vicente(2)	6.0 - 6.5	6.0	0.7	0.4	1.3	0.8
Total(3)	**65.0 - 67.0**	**67.6**	**24.0 - 25.0**	**27.3**	**9.8 - 10.3**	**8.7**

(1) Guidance amount per the May 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.

2019 based metal production was largely in-line with Management's guidance, the differences being attributable to a combination of grade differentials from mine sequencing and throughputs.

Cash Costs and AISC versus May Guidance:

The following table summarizes 2019 cash costs and AISC compared to the May Guidance on a per ounce basis, net of by-product credits.

	2019 Cash Costs(1) ($ per ounce)		2019 AISC(1) ($ per ounce)	
	Guidance (2)	Actual	Guidance (2)	Actual
Silver Segment:				
La Colorada	2.50 - 3.50	2.99	3.50 - 4.50	4.54
Dolores	4.50 - 5.50	3.09	14.00 - 16.00	15.45
Huaron	6.00 - 7.00	4.15	7.50 - 9.25	7.74
Morococha	3.10 - 4.00	4.35	7.00 - 9.00	10.08
San Vicente	10.60 - 11.50	11.77	12.25 - 13.50	13.08
Manantial Espejo	17.00 - 18.50	19.59	17.75 - 19.50	18.43
Total(3)	**6.50 - 7.50**	**6.39**	**9.75 - 11.25**	**10.46**
Gold Segment:				
Shahuindo	550 - 625	570	875 - 1,000	807
La Arena	800 - 850	644	1,275 - 1,325	1,042
Timmins	890 - 940	904	1,025 - 1,075	998
Total(3)	**740 - 810**	**712**	**1,025 - 1,125**	**948**
Consolidated Silver Basis(3,4)	**(2.25) - 0.50**	**(4.89)**	**7.75 - 10.75**	**4.44**

(1) Cash Costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed description of these calculations and a reconciliation of these measures to the 2019 Financial Statements. The cash costs and AISC Forecasts assumed the following 2019 average metal prices: $14.50/oz for silver, $1,250/oz for gold, $2,600/tonne ($1.18/lb) for zinc, $1,950/tonne ($0.88/lb) for lead, and $6,150/tonne ($2.79/lb) for copper; and average annual exchange rates relative to 1 USD of 19.50 for the MXN, 3.33 for the PEN, 41.80 for the ARS, 6.91 for the BOB, and $1.30 for the CAD.
(2) Guidance amount per the May Guidance.
(3) As shown in the detailed quantification of consolidated AISC, included in the "Alternative Performance (Non-GAAP) Measures" section of this MD&A, corporate general and administrative expense, and exploration and project development expense are included in consolidated (silver basis) AISC, but are not allocated amongst the operations and thus are not included in either the silver or gold segment totals.
(4) Consolidated silver basis is calculated by treating all revenues from metals other than silver, including gold, as a by-product credit.

Cash Costs

Silver segment cash costs of $6.39 per ounce were below Management's May Guidance range of $6.50 to $7.50 per ounce, primarily as a result of lower than expected cash costs at Dolores and Huaron being partly offset by higher than expected cash costs at Morococha, San Vicente and Manantial Espejo. Lower cash costs at Dolores were mainly the result of increased gold production, as expected, and higher than assumed gold prices. Lower cash costs at Huaron were mainly due to higher than guidance silver production and lower than expected treatment and refining charges. Manantial Espejo's cash costs were higher than guidance due to the production shortfall previously discussed, partially offset by lower costs from currency devaluation and higher gold prices. Morococha and San Vicente's higher cash costs reflect lower by-product credits from lower than expected base metal prices, increased costs, and lower production than guidance.

Gold segment cash costs of $712 per ounce were below the lower end of the May Guidance due largely to lower direct operating costs at La Arena and Timmins. At La Arena, lower operating costs were primarily related to administrative costs, whereas at Timmins the lower costs were related to a weaker Canadian dollar than assumed and better than expected efficiencies from the new shaft at Bell Creek.

Consolidated cash costs of negative $4.89 per ounce were $2.64 lower than the low-end of the May Guidance, driven primarily from higher than expected gold production and prices.

AISC

Silver segment AISC of $10.46 per silver ounce was within Management's May Guidance range. 2019 AISC reflects the same factors affecting cash costs, partially offset by higher sustaining capital per ounce due to the lower than expected silver production, despite lower than forecast sustaining capital spending.

Gold Segment AISC of $948 per gold ounce was below the low end of the May Guidance range, reflecting the same factors affecting cash costs, as well as lower sustaining capital due to the deferral of certain projects into 2020.

Consolidated AISC, calculated on a silver ounce basis, of $4.44 was well below the low end of the May Guidance, primarily as a result of higher by-product credits from higher than assumed gold prices, and lower than expected sustaining capital expenditures in the Gold Segment operations.

Capital Expenditures versus Forecast:

The following table summarizes the 2019 capital expenditures compared to the Updated 2019 Forecast:

	2019 Capital Expenditure ($ millions)	
	Guidance (1)	Actual
La Colorada	6.5 – 7.0	9.7
Dolores	53.0 – 54.0	49.7
Huaron	6.5 – 7.5	10.9
Morococha	11.0 – 12.0	12.6
San Vicente	6.5 – 7.5	5.0
Manantial Espejo	1.5 – 2.0	2.8
Shahuindo	47.5 – 49.0	29.9
La Arena	54.0 – 56.0	47.6
Timmins	16.5 – 18.0	11.0
Sustaining Capital Sub-total	**203.0 - 213.0**	**179.1**
Morococha projects	2.5	2.3
Mexico projects	7.5	11.5
Joaquin and COSE projects	20.0	23.8
Acquired Mines Projects	10.0	6.1
Project Capital Sub-total	**40.0**	**43.6**
Total Capital	**243.0 – 253.0**	**222.7**

(1) Guidance amount per the May Guidance.

Sustaining capital expenditures were $23.9 million less than the low end of the May Guidance range, driven primarily by deferrals of certain sustaining capital projects in the Gold Segment mines, particularly at Shahuindo. Project capital expenditures in 2019 were largely consistent with guidance amounts.

Individual Mine Performance

An analysis of performance at each operation in 2019 compared with 2018 follows. The project capital amounts invested in 2019 are further discussed in the "Project Development Update" section of this MD&A. The Gold Segment Mines were acquired on February 22, 2019, and as such, the financial and operating results of these mines have only been reported, and included in the Company's consolidated results, from this date forward. As all comparative 2018 period amounts are nil, they have been excluded from the tables and the analysis.

La Colorada mine

	Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	**2018**
Tonnes milled - kt	**197.1**	187.4	**768.7**	726.0
Average silver grade – grams per tonne	**358**	375	**361**	358
Average zinc grade - %	**2.85**	3.10	**3.10**	2.83
Average lead grade - %	**1.70**	1.50	**1.65**	1.40
Production:				
Silver – koz	**2,080**	2,074	**8,206**	7,617
Gold – koz	**1.28**	1.16	**4.61**	4.40
Zinc – kt	**4.85**	5.09	**20.97**	17.79
Lead – kt	**2.92**	2.44	**11.15**	8.84
Cash costs(1)	**$ 4.30**	$ 2.46	**$ 2.99**	$ 2.26
Sustaining capital - ('000s)(2)	**$ 1,957**	$ 5,364	**$ 9,721**	$ 15,462
AISC(1)	**$ 5.80**	$ 5.93	**$ 4.54**	$ 4.63
Payable silver sold - koz	**1,770**	1,780	**7,583**	7,069

(1) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of these measures to cost of sales.
(2) Sustaining capital expenditures exclude $2.9 million and $11.1 million investing activity cash outflows for Q4 2019 and full year 2019, respectively (Q4 2018 and full year 2018: $2.8 million and $7.0 million respectively) related to investment capital incurred on the La Colorada projects, as disclosed in the "Project Development Update" section of this MD&A.

2019 versus 2018

Production:

- Silver: 8% increase, driven primarily by higher throughput of sulphide ore and higher silver grades in the oxide ores from mine sequencing as expected.
- By-products: 18% and 26% increase in zinc and lead, respectively, primarily from the higher throughput of sulphide ore as expected.

Cash Costs: were 32% higher than in 2018; the increase reflects higher than anticipated operating costs largely driven from underground mine ventilation development shortfalls, initial mechanization implementations, higher treatment and refining charges due to a deteriorating concentrate market and lower zinc and lead prices, which more than offset higher production.

Sustaining Capital: primarily related to investments in mechanization equipment, underground infrastructure, lease payments for equipment and offices, and near-mine exploration activities. The decrease in sustaining capital relates to lower expenditures in equipment replacements and refurbishments, and tailings dam expenditures, as anticipated.

AISC: the 2% decrease was the result of lower sustaining capital more than offsetting the drivers that increased cash costs, as described previously.

Dolores mine

	Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	**2018**
Tonnes placed - kt	**1,856.7**	1,818.5	**6,777.0**	6,903.3
Average silver grade – grams per tonne	**42**	25	**38**	31
Average gold grade – grams per tonne	**0.62**	0.68	**0.60**	0.85
Production:				
Silver – koz	**1,287**	824	**5,122**	4,081
Gold – koz	**26.1**	29.4	**117.6**	136.6
Cash costs(1)	**2.64**	6.30	**3.09**	(1.81)
Sustaining capital - ('000s)(2)	**8,106**	13,255	**49,660**	48,842
AISC(1)	**9.33**	35.36	**15.45**	16.36
Payable silver sold - koz	**1,402**	870	**4,924**	4,205

(1) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of these measures to cost of sales.
(2) Sustaining capital expenditures exclude $nil and $0.4 million investing activity cash outflows for Q4 2019 and full year 2019, respectively (Q4 2018 and full year 2018: $0.3 million and $10.6 million respectively) related to final payables for the pulp agglomeration plant and underground mine projects.

2019 versus 2018

Production:

- Silver: the 26% increase was primarily the result of higher grades from mine sequencing as expected partially offset by leach sequencing that resulted in additional silver being inventoried on the heaps.
- Gold: the 14% decrease was due to lower grades from mine sequencing, partially offset by increased recoveries from improved leach kinetics, as expected.

Cash Costs: increased $4.90 per ounce due to lower by-product credits from lower gold production, partially offset by higher silver production and higher gold prices.

Sustaining Capital: consistent year-over-year and primarily related to pre-stripping and leach pad expansions in both periods.

AISC: decrease of 6% due to the factors affecting cash costs being offset by a decrease in NRV adjustments.

Huaron mine

	Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	**2018**
Tonnes milled - kt	**252.3**	252.0	**994.0**	935.0
Average silver grade – grams per tonne	**140**	142	**142**	142
Average zinc grade - %	**2.49**	2.49	**2.38**	2.44
Average lead grade - %	**1.32**	1.22	**1.22**	1.18
Average copper grade - %	**0.85**	0.78	**0.81**	0.76
Production:				
Silver – koz	**935**	965	**3,796**	3,561
Gold – koz	**0.21**	0.22	**0.97**	0.79
Zinc – kt	**4.95**	4.82	**18.07**	17.38
Lead – kt	**2.50**	2.16	**9.22**	8.05
Copper – kt	**1.57**	1.52	**6.02**	5.44
Cash costs(1)	**$ 5.34**	$ 2.42	**$ 4.15**	$ 1.79
Sustaining capital - ('000s)	**$ 2,834**	$ 6,099	**$ 10,936**	$ 17,761
AISC(1)	**$ 9.44**	$ 9.71	**$ 7.74**	$ 7.95
Payable silver sold – koz	**736**	858	**3,253**	3,094

(1) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of these measures to cost of sales.

2019 versus 2018

Production:

- Silver: 7% higher primarily due to higher throughput.
- By-products: increased lead, copper and zinc production of 15%, 11% and 4%, respectively, primarily from higher throughput, and higher lead and copper grades due to mine sequencing, as expected.

Cash Costs: $2.36 per ounce higher due primarily from lower base metal prices, partially offset by increased production of all metals.

Sustaining Capital: primarily related to equipment leases, near mine exploration, mine deepening, and equipment replacements and refurbishments. The year-over-year decrease is primarily related to the reduced spending on the tailings storage facility expansion and mine deepening projects, as the former was completed in 2018 and the latter nears completion.

AISC: a decrease of 3% due to the same factors affecting year-over-year cash costs, being fully offset by decreased sustaining capital.

Morococha mine[1]

	Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	**2018**
Tonnes milled – kt	**176.5**	163.0	**686.2**	672.0
Average silver grade – grams per tonne	**112**	154	**126**	149
Average zinc grade - %	**3.55**	4.02	**3.76**	3.80
Average lead grade - %	**1.17**	1.09	**1.21**	0.92
Average copper grade - %	**0.44**	0.44	**0.44**	0.66
Production:				
Silver – koz	**554**	740	**2,456**	2,881
Gold – koz	**0.23**	0.19	**1.39**	2.09
Zinc – kt	**5.46**	5.78	**22.50**	22.17
Lead – kt	**1.61**	1.40	**6.56**	4.69
Copper – kt	**0.46**	0.45	**1.83**	3.30
Cash costs[2]	**$ 10.85**	$ (0.58)	**$ 4.35**	$ (4.43)
Sustaining capital - ('000s)[3]	**$ 3,945**	$ 4,357	**$ 12,599**	$ 15,038
AISC[2]	**$ 18.83**	$ 6.19	**$ 10.08**	$ 1.59
Payable silver sold (100%) - koz	**515**	674	**2,335**	2,652

(1) Production figures are for Pan American's 92.3% share only, unless otherwise noted.
(2) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of these measures to cost of sales.
(3) Sustaining capital expenditures exclude $0.8 million and $2.3 million investing activity cash outflows for Q4 2019 and full year 2019, respectively, related to investment capital incurred on the Morococha project, as disclosed in the "Project Development Update" section of this MD&A (Q4 2018 and full year 2018, nil).

2019 versus 2018

Production:

- Silver: 15% lower, primarily due to lower grades from mine sequencing.
- By-products: a 40% increase in lead and 45% decrease in copper, both related to mine sequencing into higher lead ore zones. Zinc production was consistent year-over-year.

Cash Costs: $8.78 per ounce higher, due primarily to lower base metal prices and lower silver and copper production, as well as higher direct unit operating costs and treatment and refining charges.

Sustaining Capital: primarily related to expanded near-mine exploration, equipment replacements and refurbishments, and equipment and office leases. The decrease is primarily related to lower ventilation and mill capital.

AISC: $8.49 per ounce increase, primarily driven by the same factors affecting year-over-year cash costs.

San Vicente mine (1)

	Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	**2018**
Tonnes milled – kt	**91.1**	88.3	**349.7**	332.9
Average silver grade – grams per tonne	**328**	372	**345**	362
Average zinc grade - %	**1.80**	3.66	**2.16**	2.77
Average lead grade - %	**0.15**	0.32	**0.14**	0.34
Average copper grade - %	**0.30**	0.37	**0.31**	0.40
Production:				
Silver – koz	**877**	937	**3,528**	3,544
Gold – koz	**0.13**	0.12	**0.48**	0.50
Zinc – kt	**1.31**	2.82	**6.01**	7.47
Lead – kt	**0.13**	0.26	**0.42**	0.78
Copper – kt	**0.22**	0.22	**0.85**	1.02
Cash costs (2)	**$ 14.38**	$ 10.20	**$ 11.77**	$ 9.83
Sustaining capital - ('000s)	**$ 2,048**	$ 1,637	**$ 4,960**	$ 6,983
AISC(2)	**$ 16.50**	$ 13.59	**$ 13.08**	$ 12.20
Payable silver sold (100%) - koz	**1,001**	502	**4,003**	3,054

(1) Production figures are for Pan American's 95.0% share only, unless otherwise noted.
(2) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of these measures to cost of sales.

2019 versus 2018

Production:

- Silver: consistent year-over-year as higher throughput was offset by lower grades, as expected.
- By-products: decreased lead, zinc and copper production of 46%, 20% and 17%, respectively, as a result of lower base metal grades due to the mine sequencing, largely as expected.

Cash costs: $1.94 per ounce increase due to lower base metal grades and prices, higher treatment and refining charges, and higher direct unit costs; partially offset by lower royalties, all in line with expectations.

Sustaining Capital: expenditures primarily relate to mine equipment replacements and rehabilitations, near-mine exploration, and mine site and camp infrastructure. The year-over-year decrease is due to the completion of a tailings storage facility expansion in 2018 and a shortfall in completing planned projects in 2019.

AISC: a $0.88 per ounce increase due to the same factors affecting year-over-year cash costs, partially offset by lower sustaining capital.

Manantial Espejo mine

	Three months ended December 31,		Year ended December 31,	
	2019	2018	**2019**	**2018**
Tonnes milled - kt	**186.5**	198.5	**708.6**	804.4
Average silver grade – grams per tonne	**150**	95	**127**	135
Average gold grade – grams per tonne	**1.21**	0.98	**1.08**	1.42
Production:				
Silver – koz	**817**	587	**2,599**	3,092
Gold – koz	**6.71**	6.19	**22.41**	34.55
Cash costs (1)	**$ 15.47**	$ 23.03	**$ 19.59**	$ 14.83
Sustaining capital - ('000s)	**$ 696**	$ 436	**$ 2,757**	$ 2,827
AISC(1)	**$ 16.94**	$ 27.94	**$ 18.43**	$ 16.83
Payable silver sold - koz	**928**	615	**2,460**	3,086

(1) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of these measures to cost of sales.

2019 versus 2018

Production:

- Silver and gold: 16% and 35% decreases, respectively, primarily from lower throughput due to the temporary suspension in operations following the accident at COSE reported in June 2019 and the processing of lower grade stockpiles from the lack of higher grade ores due to project delays.

Cash costs: a $4.76 per ounce increase from lower sales of silver and gold, as well as higher direct selling costs due to the export tax introduced in September 2018.

Sustaining Capital: consistent with prior year, and primarily related to near-mine exploration and certain mill improvements to adapt for the COSE and Joaquin ores.

AISC: a $1.60 per ounce increase as the factors affecting year-over-year cash costs were partially offset by an increase in cost-decreasing NRV inventory adjustments.

Gold Segment Mines

The Gold Segment Mines were acquired on February 22, 2019, and as such, the financial and operating results of these mines have only been reported, and included in the Company's consolidated results, from this date forward. All comparative 2018 period amounts for the Acquired Mines are nil.

	Three months ended December 31,			Year ended December 31,		
	Shahuindo	La Arena	Timmins	Shahuindo	La Arena	Timmins
Tonnes milled - kt	3,449.4	5,311.8	473.9	11,218.8	11,189.7	1,480.7
Average silver grade – grams per tonne	7	—	—	8	—	—
Average gold grade – grams per tonne	0.58	0.41	3.17	0.60	0.41	3.18
Production:						
Silver – koz	54.21	10.81	5.53	136.62	26.16	17.53
Gold – koz	43.52	48.43	47.33	145.37	122.52	143.77
Cash costs(1)	**$ 605**	**$ 580**	**$ 884**	**$ 570**	**$ 644**	**$ 904**
Sustaining capital - ('000s)(2)	**$ 14,156**	**$ 8,382**	**$ 4,066**	**$ 29,873**	**$ 47,557**	**$ 11,035**
AISC(1)	**$ 970**	**$ 764**	**$ 984**	**$ 807**	**$ 1,042**	**$ 998**
Payable gold sold - koz	39.85	48.06	46.40	133.30	124.21	143.30

(1) Cash costs and AISC are non-GAAP measures. Please refer to the "Alternative Performance (Non-GAAP) Measures" section of this MD&A for a detailed reconciliation of these measures to cost of sales.

(2) Timmins sustaining capital expenditures exclude $0.1 million and $2.7 million of investing activity cash outflow for Q4 2019 and full year 2019, respectively, and related primarily to reduction in accounts payable balances from the Bell Creek shaft project completed prior to acquisition. Shahuindo sustaining capital expenditures exclude $0.1 million and $3.4 million of investing activity cash outflow for Q4 2019 and full year 2019, respectively, relating to project development, as disclosed in the "Project Development Update" section of this MD&A.

Shahuindo

Production: gold production of 145.4 thousand ounces was within the May Guidance range of 135.0 thousand ounces to 165.0 thousand ounces.

Cash Costs: of $570 per ounce of gold were within the May Guidance range of $550 to $625 per ounce.

Sustaining Capital: primarily comprised of leach pad construction and mining equipment, and reflect the deferral in completion of several sustaining capital projects into 2020.

AISC: of $807 per ounce of gold were lower than the May Guidance range of $875 to $1,000, as a result of deferrals in sustaining capital expenditures into 2020.

La Arena

Production: gold production of 122.5 thousand ounces was at the high end of the May Guidance range of 117.5 thousand ounces to 122.5 thousand ounces.

Cash Costs: of $644 per gold ounce were lower than the May Guidance range of $800 to $850 per ounce, due to higher than expected mining costs being classified as capitalized pre-stripping activities as well as lower than expected administrative costs.

Sustaining Capital: primarily comprised of greater than expected classification of mining costs to capitalized pre-stripping activities, leach pad and waste storage facility construction, mine infrastructure upgrades, and land purchases. 2019 sustaining capital was below Management's expectations, as completion of certain sustaining capital projects were deferred into 2020.

AISC: of $1,042 per ounce of gold was lower than the May Guidance range of $1,275 to $1,325, primarily due to better than expected gold sales, lower administrative costs, and lower sustaining capital.

Timmins

Production: gold production of 143.8 thousand ounces was below the May Guidance range of 155.0 thousand ounces to 160.0 thousand ounces largely due to reducing the cut-off grade in an effort to maximize life-of-mine profitability.

Cash Costs: of $904 per ounce of gold are within the May Guidance range of $890 to $940 per ounce.

Sustaining Capital: primarily comprised of exploration, equipment rebuilds and infrastructure upgrades. 2019 sustaining capital was below Management's forecasted range, as completion of certain sustaining capital projects were deferred into 2020.

AISC: was $998 per ounce of gold, which is below the lower end of the May Guidance range of $1,025 to $1,075, due to the factors previously described.

PROJECT DEVELOPMENT UPDATE

The following table reflects the amounts spent at each of Pan American's major projects in2019 as compared to 2018.

Project Development Investment(1) (thousands of USD)	Three months ended December 31,		Year ended December 31,	
	2019	2018	2019	2018
Mexico Projects	**2,891**	3,128	**11,469**	17,648
Joaquin and COSE Projects	**5,622**	10,022	**23,754**	27,053
Morococha Projects	**804**	—	**2,284**	—
Acquired Mines Projects	**187**	—	**6,120**	—
Total	**9,504**	13,150	**43,627**	44,701

(1) Amounts provided in the table above, including prior year amounts, reflect cash-outflows for project capital in the respective periods. Amounts provided in similar tables of previous MD&As represented amounts capitalized as part of the projects in the period reported. As a result of periodic changes in accounts payable balances, the amounts capitalized for the projects during the period may be different than the project investment cash outflows in the period.

Mexico Projects:

The Company spent $11.5 million in 2019, primarily related to exploration drilling activities for the La Colorada skarn deposit discovery first announced in October 2018, for which the Company published an initial resource on December 11, 2019.

Joaquin and COSE Projects:

The Company spent a combined $23.8 million in 2019 on the COSE and Joaquin projects, in order to substantially complete the development of both projects. As a result of the aforementioned accident at COSE, development of both the COSE and Joaquin projects were delayed to reassess and re-engineer ground control systems. Both mines are expected to begin ramp-up ore production rates in 2020.

Morococha Project:

Project capital spending at Morococha during 2019 related to the installation of a power-line to the existing processing plant and advancing engineering and permitting work, all related to a future relocation for the plant.

Acquired Mines Projects:

The Company spent $6.1 million during 2019, primarily related to completing the crushing and agglomeration plant at Shahuindo and the mine shaft and paste plant projects at Bell Creek projects that were started by Tahoe before the Tahoe Acquisition.

OVERVIEW OF 2019 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 both 2019 and 2018 included impairment charges to the Manantial Espejo mine and the COSE and Joaquin projects.

2019	Quarter Ended				Year Ended
(In thousands of USD, other than per share amounts)	March 31 (1)	June 30 (1)	Sept 30 (1)	Dec 31	Dec 31
Revenue(2)	$ 253,699	$ 340,494	$ 352,187	$ 404,379	**$ 1,350,759**
Mine operating earnings (loss)(2)	$ 15,770	$ 37,740	$ 77,168	$ 98,610	**$ 229,288**
Earnings (loss) for the period attributable to equity holders	$ 2,783	$ 5,053	$ 50,975	$ 51,927	**$ 110,738**
Basic earnings (loss) per share	$ 0.02	$ 0.02	$ 0.26	$ 0.25	**$ 0.55**
Diluted earnings (loss) per share	$ 0.02	$ 0.02	$ 0.26	$ 0.25	**$ 0.55**
Cash flow from operating activities	$ (12,911)	$ 83,518	$ 81,948	$ 129,473	**$ 282,028**
Cash dividends paid per share	$ 0.035	$ 0.035	$ 0.035	$ 0.035	**$ 0.140**
Other financial information					
Total assets					**$ 3,461,682**
Total long-term financial liabilities(3)					**$ 517,776**
Total attributable shareholders' equity					**$ 2,463,099**

(1) Amounts differ from those originally reported in the respective quarter due to: (1) the finalization of the purchase price allocation which was retrospectively applied, the most significant change being the removal of the previously recorded $30.5M bargain purchase gain; and, (2) amounts presented retrospectively as if Timmins had not been classified as held for sale.
(2) Concurrent with the Tahoe Acquisition, the Company classified the Timmins mines as a discontinued operation held for sale and, in the third quarter, reclassified to be a continuing operation after a change in Management's intentions. As a result, the previously recorded first and second quarters have been recast to present the Timmins mines as continuing operations.
(3) Total long-term financial liabilities are comprised of non-current liabilities excluding deferred tax liabilities, deferred revenue, and share purchase warrant liabilities.

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	$ 55,124	$ 54,851	$ (4,412)	$ (4,666)	$ 100,897
Earnings for the period attributable to equity holders	$ 47,376	$ 36,187	$ (9,460)	$ (63,809)	$ 10,294
Basic earnings per share	$ 0.31	$ 0.24	$ (0.06)	$ (0.42)	$ 0.07
Diluted earnings 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 (In thousands of USD, other than per share amounts)	Quarter Ended March 31	June 30	Sept 30	Dec 31	Year Ended 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.

Income Statement: 2019 versus 2018

Net earnings of $111.2 million were recorded in 2019 compared to $12.0 million in 2018, which corresponds to basic earnings per share of $0.55 and $0.07, respectively.

The following table highlights the difference between net earnings in 2019 compared with 2018:

Net earnings, year ended December 31, 2018 (in thousands of USD)		$ 12,041	Note
Increased revenue:			
Increased realized metal prices	$ 63,792		
Higher quantities of metal sold	515,563		
Increased direct selling costs	(20,732)		
Increased positive settlement adjustments	7,641		
Total increase in revenue		**$ 566,264**	(1)
Increased cost of sales:			
Increased production costs and increased royalty charges	$ (331,709)		(2)
Increased depreciation and amortization	(106,164)		(3)
Total increase in cost of sales		**$ (437,873)**	
Increased investment income net of other expense		83,711	(4)
Increased income tax expense		(50,121)	(5)
Increased mine care and maintenance		(23,662)	(6)
Increased interest and finance expense		(21,143)	(7)
Increased impairment charges		(12,261)	(8)
Increased general and administrative expense		(9,103)	(9)
Decreased net gain on asset sales, commodity contracts and derivatives		(4,666)	
Increased foreign exchange gains		4,323	
Decreased transaction costs		2,714	
Increased share of income from associate and dilution gain		1,566	
Increased exploration and project development expense		(546)	
Net earnings, year ended December 31, 2019		$ 111,244	

1. ***Revenue*** for 2019 was $1.4 billion, a $566.3 million increase from the $784.5 million of revenue recognized in 2018. The major factor driving the increase was $515.6 million in additional quantities of metal sold, primarily from the addition of the newly acquired Gold Segment mines, and $63.8 million from higher precious

metal prices net of lower base metal prices. Partially offsetting this increase were increased selling costs, mainly from deteriorating concentrate treatment terms and additional export taxes in Argentina.

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,	
	2019	2018	2019	2018
Silver(1) – koz	$ 16.34	15.61	24,676	23,160
Gold(1) – koz	$ 1,406	1,272	548.2	173.9
Zinc(1) – kt	$ 2,535	2,846	60.0	54.6
Lead(1) – kt	$ 1,997	2,189	25.7	20.6
Copper(1) – kt	$ 5,973	$ 6,519	7.6	9.2

(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 and gold increased by 5% and 11%, respectively, in 2019 compared to 2018, whereas realized prices for zinc, lead and copper decreased by 11%, 9% and 8%, respectively.

Gold, silver, lead and zinc quantities sold in 2019 increased by 215%, 7%, 25%, and 10% compared to 2018, respectively, whereas copper quantities sold decreased by 18%. The changes were primarily the result from production changes previously described.

2. ***Production and royalty costs*** in 2019 were $331.7 million higher than in 2018. The increase was mainly attributable to production costs being $350.3 million higher largely due to: (i) additional production costs from the newly Acquired Mines ($325.0 million); (ii) increased production costs at Dolores, San Vicente and Morococha, primarily from inflationary pressures, and at La Colorada from higher sales volumes; partially offset by (iii) lower production costs at Manantial Espejo due primarily to the depreciation of the ARS; and, (iv) a $24.7 million reduction in negative NRV charges. Royalty charges in 2019 were $6.0 million higher, due primarily to royalty charges at the Timmins mines acquired in 2019.
3. ***Depreciation and amortization ("D&A")*** was $106.2 million higher than in 2018, largely as a result of additional depreciation expense from the Acquired Mines of $79.8 million, and increased depreciation at Dolores due to a higher asset base.
4. ***Investment income*** in 2019 was $84.7 million compared to a loss of $0.3 million in 2018, the increase reflects the fair value mark-to-market adjustment of the Company's equity investments for which prices appreciated during 2019, primarily from it's approximately 17% equity interest in New Pacific.
5. ***Income tax expense*** for the year ended December 31, 2019 increased to $71.3 million compared to $21.1 million in 2018. The $50.1 million year-over-year increase in income tax expense was mainly due to the increase in earnings before taxes from 2018 to 2019.
6. ***Care and maintenance costs*** totaled $23.7 million in 2019 and related primarily to the Company's Escobal mine where operations are currently suspended. The Escobal mine was acquired in February 2019 as part of the Tahoe Acquisition therefore there are no comparable expenses from 2018.
7. ***Interest and finance costs*** of $29.3 million in 2019 increased by $21.1 million from 2018, reflecting the interest expense relating to the debt drawn on the Credit Facility, and increased interest expense related to IFRS 16 leases.
8. ***Impairment charges*** of $40.1 million ($40.1 million, net of tax expense) were recorded in 2019, with impairment charges of $27.8 million recorded in 2018. 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, 2019 impairment charges totaling $40.1 million (2018 - charges of $27.8 million) were required on Manantial Espejo.

2019 Impairment - Manantial Espejo

A recent increase in Argentina export taxes, announced in January 2020, combined with the delayed commencement of production from the COSE and Joaquin deposits, and the deteriorated Argentina economy led management to conclude that there was an indication of impairment to its Argentine operating assets, namely the Manantial Espejo mine, and the COSE and Joaquin projects. As at December 31, 2019, the Company determined that the combined CGU 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 $63.6 million was higher than the combined estimated recoverable amount of $23.5 million when using a 9.75% 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 $40.1 million ($40.1 million, net of tax).

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 CGU 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).

Key assumptions and sensitivity:

The metal prices used to calculate the recoverable amounts at December 31, 2019 and December 31, 2018 are based on analyst consensus prices:

Metal prices used at December 31, 2019:

Metal Prices	2020-2022 average
Silver - $/oz	$17.94
Gold - $/oz	$1,474

Metal prices used at December 31, 2018:

Metal Prices	2019-2022 average
Silver - $/oz	$17.07
Gold - $/oz	$1,300

In 2019, 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 3.7% (2018 – 5.3%), with rates applied to the various mines and projects ranging from 4.0% to 12.3% (2018 - 4.5% to 9.8%), 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, 2019, the Company performed a sensitivity analysis on all key assumptions that assumed a 10% adverse change to each individual assumption while holding the other assumptions constant.

At December 31, 2019, 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 Shahuindo, La Arena, Timmins, 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 10% adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

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 10% adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

9. ***General and Administrative expense*** was $31.8 million in 2019 compared to $22.6 million in 2018. The $9.1 million increase reflects the increased size and composition of the Company as a result of the Tahoe Acquisition. The share-based compensation of $4.4 million in 2019 was higher than the share-based compensation of $3.0 million in 2018, a result of the increased size and share price of the Company.

Statement of Cash Flows: 2019 versus 2018

Cash flow from operations in 2019 totaled $282.0 million, $127.1 million more than the $155.0 million generated in 2018. The increase was due to the additional operating cash flow from the newly Acquired Mines, which was mostly offset by lower cash mine operating earnings at Dolores and Manantial Espejo due to a combination of lower revenues and higher operating costs per ounce (see "Individual Mine Performance" section of this MD&A), and a $23.7 million increase in use of cash from working capital changes.

Working capital changes in 2019 resulted in a $27.9 million use of cash reflecting a $43.5 million pay down of accounts payable and accrued liabilities partially offset by a $22.8 million draw-down of inventories. These working capital movements compared to a $4.3 million use of cash in 2018, comprised mainly of inventory buildups and decreased provisions, partially offset by accounts payable buildups and collection of receivables.

Investing activities utilized $402.2 million in 2019, inclusive of $39.7 million received from the net sale of short-term investments. The investing cash outflow reflects the $247.5 million investment (net of cash acquired) related to the

Tahoe Acquisition, as described in the "Acquisition of Tahoe" section of this MD&A, and $205.8 million spent on mineral properties, plant and equipment at the Company's mines and projects.

In 2018, investing activities utilized $159.2 million, 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 properties, 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.

Cash from the sale of certain non-core assets in 2019 and 2018 totaled $10.3 million and $15.8 million, respectively.

Financing activities in 2019 generated $103.3 million compared to a use of $33.1 million in 2018. Financing activities in 2019 were primarily related to the Tahoe Acquisition. The net cash generated consisted of a net $335.0 million drawn on the Company's Credit Facility, described in the "Liquidity and Capital" section of this MD&A, and $125.0 million used to settle Tahoe's previously drawn credit facility. In addition to these acquisition related financing activities, $29.3 million was paid as dividends, $19.3 million of lease repayments were made, and $2.8 million was realized from share issuances from the exercise of stock options in 2019. Financing activities in 2018 consisted of $21.3 million paid as dividends to shareholders, $7.9 million of lease repayments, and $3.0 million used to repay short-term loans.

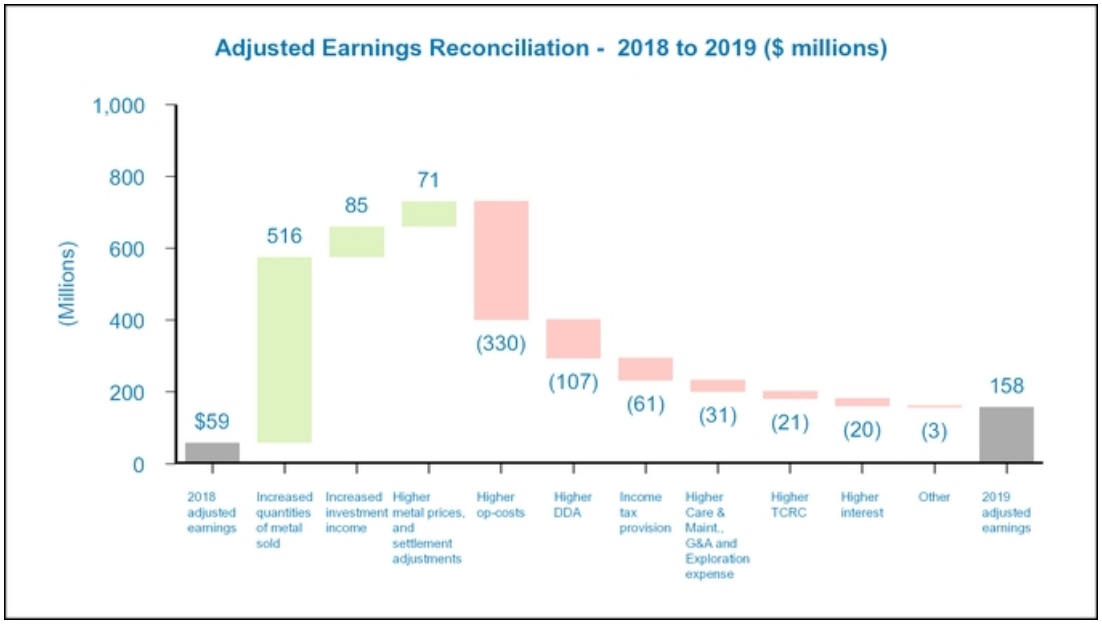
Adjusted Earnings: 2019 versus 2018

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 2019 Financial Statements.

Adjusted Earnings in 2019 were $158.0 million, representing a basic adjusted earnings per share of $0.78, which was $98.6 million, or $0.39 per share, higher than 2018 adjusted earnings of $59.4 million, and basic adjusted earnings per share of $0.39, respectively.

The following chart illustrates the key factors leading to the change in adjusted earnings from2018 to 2019:



Income Statement: Q4 2019 versus Q4 2018

Net earnings of $51.7 million was recorded in Q4 2019 compared to net loss of $63.6 million in Q4 2018, which corresponds to basic earnings per share of $0.25 and basic loss per share of $0.42, respectively.

The following table highlights the key items driving the difference between the net earnings in Q4 2019 as compared to the net loss recorded in Q4 2018:

Net loss, three months ended December 31, 2018 (in thousands of USD)			**$**	**(63,577)**	**Note**
Increased revenue:					
Increased realized metal prices	$	62,320			
Higher quantities of metal sold		180,560			
Increased direct selling costs		(6,862)			
Decreased positive settlement adjustments		(4,996)			
Total increase in revenue			**$**	**231,022**	**(1)**
Increased cost of sales:					
Increased production costs and increased royalty charges	$	(96,752)			**(2)**
Increased depreciation and amortization		(30,994)			**(3)**
Total increase in cost of sales			**$**	**(127,746)**	
Increased investment income net of other expense				32,210	**(4)**
Increased income tax expense				(19,914)	**(5)**
Increased share of income from associate and dilution gain				14,428	**(6)**
Increased impairment charges				(12,261)	**(7)**
Decreased transaction costs				10,426	**(8)**
Increased mine care and maintenance				(8,008)	**(9)**
Increased interest and finance expense				(6,022)	**(10)**
Increased general and administrative expense				(4,559)	
Increased foreign exchange gains				2,564	
Increased net gain on asset sales, commodity contracts and derivatives				2,196	
Decreased exploration and project development expense				947	
Net earnings, three months ended December 31, 2019			**$**	**51,706**	

1. ***Revenue*** for Q4 2019 was $404.4 million, a $231.0 million increase from $173.4 million in Q4 2018. The major factors for the increase were: a $180.6 million variance primarily from increased quantities of precious metals sold due to the additional gold sales from the Acquired Mines and higher silver sales from higher production from the Mexican operations, a $62.3 million price variance from higher realized metal prices for silver, gold and lead; slightly offset by increased direct selling costs, primarily from favorable changes in contract terms relating to concentrate treatment and refining charges, and negative 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,	
	2019	2018	**2019**	2018
Silver(1) – koz	**$ 17.84**	$ 14.35	**6,392**	5,299
Gold(1) – koz	**$ 1,479**	$ 1,232	**171.0**	36.6
Zinc(1) – kt	**$ 2,325**	$ 2,508	**15.1**	15.6
Lead(1) – kt	**$ 2,078**	$ 1,914	**6.1**	5.4
Copper(1) – kt	**$ 5,840**	$ 6,098	**1.9**	2.1

(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.

Increased quarter-over-quarter realized silver, gold, and lead prices of 24%, 20% and 9%, respectively, had the most significant impact on revenues. Zinc and copper price decreases of 7% and 4%, respectively, negatively impacted Q4 2019 revenue.

Sales volumes increased for all metals except zinc and copper. The quantities of silver, gold and lead sold in Q4 2019 were 21%, 367% and 12%, respectively, while quantities of zinc and copper sold decreased by 3% and 6%, respectively.

2. ***Production and royalty costs variances*** were comprised of a $3.3 million increase in royalty costs, largely due to new royalties at the Timmins mines, and a $93.4 million increase in production costs. The quarter-over-quarter production increase reflects new production costs from the Acquired Mines and higher production costs at the Silver Segment mines, mainly Morococha and San Vicente, which was only partially offset by a $12.7 million quarter-over-quarter decrease in cost-increasing NRV inventory adjustments.
3. ***D&A* expense** of $68.2 million in Q4 2019 was $31.0 million higher than in Q4 2018, largely the result of D&A on the Acquired Mines, which totaled $24.0 million, and increased D&A at Dolores on account of higher depreciable asset-bases, as well as from increased quantities of silver sold.
4. ***Investment income*** in Q4 2019 was $33.7 million compared to a loss of $1.4 million in Q4 2018, the increase reflects the fair value mark-to-market adjustment of the Company's equity investments for which prices appreciated during 2019, primarily the Company's investment in New Pacific.
5. ***Income tax expense*** in Q4 2019 was $26.0 million compared to $6.0 million in Q4 2018. The $19.9 million increase was largely attributable to the increase in net earnings before tax and to foreign exchange movements which positively impacted tax assets.
6. ***Share of income from associate and dilution gains*** were $14.2 million in Q4 2019 compared to a $0.2 million expense in Q4 2018, and relate to the Company's investment in Maverix Metals Inc. ("Maverix") which is accounted for using the equity method whereby the Company records its portion of Maverix's net income based on Pan American's fully diluted ownership interest. The quarter over quarter increase was attributable to Maverix issuing common shares in Q4 2019 to acquire certain royalty assets which diluted Pan American's ownership in Maverix and resulted in the recognition of a $13.6 million dilution gain. Maverix did not have a comparable transaction in Q4 2018.
7. ***Impairment charges*** of $40.1 million were recorded in Q4 2019, compared to impairment charges of $27.8 million recorded in Q4 2018. The impairment charges in each quarter related to the previously discussed Manantial Espejo CGU.
8. ***Transactions costs*** incurred in Q4 2018 relate to the Tahoe Acquisition described in the "Acquisition of Tahoe" section of this MD&A. Transaction and integration costs incurred for the Tahoe Acquisition were substantially completed in the third quarter of 2019, and as such there were no comparable costs in Q4 2019.

9. ***Care and maintenance costs*** totaled $8.0 million in Q4 2019 and related primarily to the Company's Escobal mine where operations are currently suspended. The Escobal mine was acquired in February 2019 as part of the Tahoe acquisition and therefore there were no comparable expenses in Q4 2018.
10. ***Interest and finance costs*** of $8.3 million in Q4 2019 increased by $6.0 million from Q4 2018, reflecting the interest expense relating to the debt drawn on the Credit Facility, and increased interest expense related to IFRS 16 leases.

Statement of Cash Flows: Q4 2019 versus Q4 2018

Cash flow from operations in Q4 2019 totaled $129.5 million, $117.5 million more than the $11.9 million generated in Q4 2018. The increase was largely the result of approximately $114.5 million higher cash mine operating earnings; and a $9.6 million increase in operating cash flows from working capital changes; partially offset by a $4.1 million increase in interest payments and a $2.4 million increase in taxes paid.

The quarter-over-quarter increase in mine operating earnings, excluding non-cash D&A and inventory adjustments, was mainly attributable to the addition of the Acquired Mines and improved cash mine operating earnings at Dolores, which was partially offset by lower operating cash flows at Manantial Espejo due to the impact of lower margins.

Working capital changes in Q4 2019 resulted in a $4.7 million source of cash, comprised mainly of accounts receivable collections and a build up in payables, partially offset by inventory buildups and increased prepaid expenses. Comparatively, working capital changes resulted in a $4.9 million use of operating cash flow in Q4 2018, comprised mainly of inventory buildups offset slightly by payables settlements.

Investing activities utilized $51.5 million in Q4 2019, inclusive of $1.8 million used on the net purchase of short-term investments. The balance of Q4 2019 investing activities related primarily to spending $50.3 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 2018, investing activities utilized $51.0 million inclusive of $10.0 million used on the net purchase of short-term investments. The majority of Q4 2018 investing activity cash flow reflected $42.3 million spent on mineral property, plant and equipment additions at the Company’s various operations and projects.

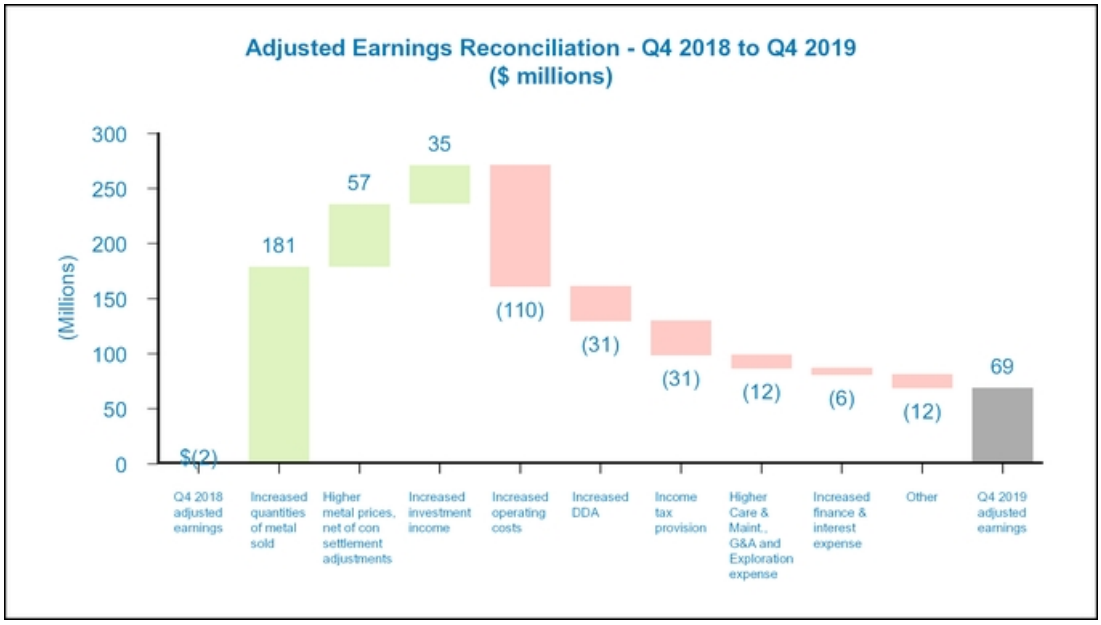
Financing activities in Q4 2019 used $51.9 million compared to $8.7 million in Q4 2018. Cash used in Q4 2019 consisted of $40.0 million of repayments on the Company's Credit Facility, $7.3 million paid as dividends to shareholders, and $5.7 million of lease repayments. In Q4 2018, cash used in financing activities consisted primarily of $5.4 million in dividends to shareholders and $2.2 million of lease repayments.

Adjusted Earnings: Q4 2019 versus Q4 2018

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 2019 Financial Statements.

Adjusted Earnings in Q4 2019 was $68.9 million, representing a basic adjusted loss per share of $0.33, which was $70.9 million, or $0.34 per share, higher than Q4 2018 adjusted loss of $2.0 million, and basic adjusted loss per share of $0.01.

The following chart illustrates the key factors leading to the change in adjusted earnings fromQ4 2018 to Q4 2019:



ACQUISITION OF TAHOE

The Company completed the Tahoe Acquisition on February 22, 2019 (the "Closing Date").

In aggregate, Pan American paid Tahoe shareholders $275.0 million in cash, issued 55,990,512 Pan American shares, and issued contingent consideration in the form of 313,887,490 contingent value rights (CVRs). 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. Upon closing of the Arrangement, existing Pan American and former Tahoe shareholders owned approximately 73% and 27% of Pan American, respectively. Upon satisfaction of the payment conditions under the terms of the CVRs, 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 the Closing Date).

Revolving credit facility increase and draw-down

The Company amended and extended its revolving credit facility (the "Credit Facility"). The Credit Facility was increased by $200.0 million to $500.0 million in Q1 2019, and now matures on February 1, 2023. At Pan American's option, amounts can be drawn under the Credit 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 Credit Facility are subject to a stand-by fee of 0.4219% to 0.6188% per annum, dependent on the Company's leverage ratio.

In conjunction with the Tahoe Acquisition, the Company drew down $335.0 million on the Credit Facility in Q1 2019 under LIBOR-based interest rates to fund, in part, the cash purchase price under the Arrangement and to repay Tahoe's revolving facility, under which $125.0 million was outstanding at the date of acquisition. The Company repaid $60.0 million of the Credit Facility during 2019.

Consolidation of Tahoe

The Company reported its initial accounting for the Tahoe Acquisition during the first quarter of 2019 and had a measurement period of up to one year from the acquisition date to adjust any provisional amounts recognized and to recognize new assets and liabilities as a result of new information obtained which existed at the acquisition date. As a result, the Company recorded a deferred tax asset and made adjustments to the deferred tax liabilities and mineral property during the fourth quarter of 2019. The bargain purchase gain recognized on the acquisition date was eliminated in the fourth quarter of 2019 and retrospectively adjusted from the first quarter's results as a result of changes in the fair values of assets acquired.

Since acquisition on February 22, 2019, the assets acquired from Tahoe contributed revenue of $565.4 million and net income of $124.5 million for the year ended December 31, 2019. Acquisition-related costs of $7.5 million were expensed during the year ended December 31, 2019 were presented as transaction and integration costs.

The following table summarizes the consideration paid as part of the purchase price:

Consideration:	**Shares Issued/ Issuable**		**Consideration**
Fair value estimate of the Pan American Share consideration (1)	55,990,512	$	795,626
Fair value estimate of the CVRs (2)	15,600,208		71,916
Cash (1)	—		275,008
Fair value estimate of replacement options (3)	835,874		124
Total Consideration	**72,426,594**	**$**	**1,142,674**

(1) The Pan American Share consideration value is based on an assumed value of $14.21 per share (based on the NASDAQ closing price on February 21, 2019).

(2) Assumed fair value of the CVRs is based on the residual amount of the value of the Tahoe Shares acquired (based on the NYSE closing price closing of $3.64 on February 21, 2019) after deducting the cash consideration of $275 million and the fair value of the Company's share consideration paid (based on the February 21, 2019 NASDAQ closing price of $14.21).

(3) Assumed fair value of 3.5 million Tahoe options that upon the Tahoe Acquisition vested and converted into 835.8 thousand Pan American stock options (the "Replacement options"). The fair value of the Replacement options was determined using the Black-Scholes option pricing model, as at the Tahoe Acquisition date, using the following assumptions:

Share price at February 21, 2019 (Canadian dollars, "CAD")	$	19.01
Exercise price	$	11.67 - 97.26
Expected volatility		0.4075
Expected life (years)		0.2 - 1.0
Expected dividend yield		0.78%
Risk-free interest rate		0.93%
Fair value (CAD)	$	163,273.36
CAD to USD exchange rate at December 31, 2018	$	0.7578
Fair value (USD)	$	123,729.43

The following table summarizes the preliminary and final allocation of the purchase price to the identifiable assets and liabilities based on their estimated fair values at the date of the Tahoe Acquisition:

	Preliminary as reported March 31, 2019	Adjustments	Final as reported December 31, 2019
Total purchase consideration paid for Tahoe	$ 1,142,674	$ —	$ 1,142,674
Cash and cash equivalents	$ 27,529	$ —	$ 27,529
Accounts receivable	17,854	300	18,154
VAT Receivable	87,268	224	87,492
Inventory	152,534	(4,325)	148,209
Other current assets	4,135	(2,754)	1,381
Mineral properties, plant and equipment	1,298,037	(58,635)	1,239,402
Other assets	3,450	3,101	6,551
Deferred tax assets	—	30,728	30,728
Accounts payable and accrued liabilities	(159,675)	10,933	(148,742)
Debt	(125,000)	—	(125,000)
Provision for closure and decommissioning liabilities	(70,119)	(7,201)	(77,320)
Net current and deferred income tax liabilities	(62,847)	(2,863)	(65,710)
Fair value of Tahoe net assets acquired	**$ 1,173,166**	**$ (30,492)**	**$ 1,142,674**
Bargain purchase gain recognized in net earnings on February 22, 2019	**$ 30,492**	**$ (30,492)**	**$ —**

We primarily used discounted cash flow models (being the net present value of expected future cash flows) to determine the fair value of the mining interests. Expected future cash flows are based on the timing of commencement of commercial production and estimates of quantities of mineral reserves and mineral resources, including expected conversions of resources to reserves, expected future production costs and capital expenditures based on the life of mine plans for the acquired mines as at the acquisition date. The discounted future cash flow models used discount rates with rates applied to the acquired mines ranging from 5% to 9%, depending on the Company's assessment of country risk, project risk, and other potential risks specific to the acquired mining interest. Further, the discounted cash flow models were based on the following estimated future metal prices:

Commodity Prices	2019-2022	2023 onwards
Gold price - $/oz.	$1,300	$1,300
Silver price - $/oz	$17.07	$18.50
Zinc - $/tonne	$2,599	$2,600
Lead - $/tonne	$2,171	$2,200

LIQUIDITY AND CAPITAL POSITION

Liquidity and Capital

Liquidity and Capital Measures (in $000s)	December 31, 2019	September 30, 2019	December 31, 2018	Q4 2019 Change	2019 Change
Cash and cash equivalents ("Cash")	**120,564**	94,713	138,510	25,851	(17,946)
Short-term Investments	**117,776**	82,310	74,004	35,466	43,772
Cash and Short-term investments	**238,340**	177,023	212,514	61,317	25,826
Working Capital	**517,249**	459,272	397,846	57,977	119,403
Credit Facility committed amount	**500,000**	500,000	300,000	—	200,000
Credit Facility amounts drawn	**275,000.0**	315,000.0	—	(40,000)	275,000
Shareholders' equity	**2,467,846**	2,450,231	1,513,349	17,615	954,497
Total debt (1)	**316,208**	360,492	6,676	(44,284)	309,532
Capital (2)	**2,545,714**	2,633,700	1,307,511	(87,986)	1,238,203

(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 cash and short-term investments increased by $61.3 million and $25.8 million during Q4 2019 and 2019, respectively. Operating cash flows in Q4 2019 of $129.5 million, which was a Company record, included $14.5 million in tax payments and a $4.7 million release of cash from working capital changes, financed all of the Company's investing and financing activities in the quarter. The significant financing and investing activity cash outflows in the quarter included $50.3 million in payments for mineral property plant and equipment, $40 million in repayment of the Credit Facility and $7.3 million in dividend payments. Additionally, the Company's investment in New Pacific Metals, classified as a short-term investment, increased by $32.1 million in the quarter.

2019 annual operating cash flows of $282.0 million, which included $82.6 million in tax payments and a $27.9 million use of cash from working capital changes, was sufficient to finance the Company's investments in mineral property plant and equipment of $205.8 million, dividends of $29.3 million and lease payments of $19.3 million during the year. The other significant financing and investing activity cash outflows in the year included the cash component of the consideration paid to Tahoe shareholders of $ 247.5 million ($275 million less cash acquired of $27.5 million), proceeds from the Credit Facility of $335 million, repayment of the Tahoe credit facility of $125 million and subsequent repayments of the Credit Facility of $60 million. Additionally, the Company's investment in New Pacific Metals, classified as a short-term investment, increased by $80.6 million in the year.

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, 2019 of $517.2 million increased by $58 million from September 30, 2019. The strengthening working capital was mainly attributable to the $61.3 million liquidity increase described above, along with a $17.8 million increase in inventories, partially offset by a $11.1 million increase in current liabilities. Since December 31, 2018, working capital increased $119.4 million, primarily from: the $25.8 million liquidity increase described above; a $72.7 million increase in trade and other receivables, and $132 million higher inventory, all partially offset by a net $138.1 million increase in current 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.

In February 2019, in part related to the Tahoe Acquisition discussed in the "Tahoe Acquisition" section of this MD&A, the Company amended and extended its Credit Facility. The amended Credit Facility was 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 Credit 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$335 million under the Credit Facility, 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 repaid $60 million against the Credit Facility prior to December 31, 2019, bring the drawn balance to $275 million at the end of 2019 (2018 - $nil). The Company was in compliance with all covenants required by the Credit Facility.

The Company's financial position at December 31, 2019, 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 2020 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. The Company has no off-balance sheet arrangements.

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 2019				
	Within 1 year	2 - 3 years	4- 5 years	After 5 years	Total
Financial liabilities					
Accounts payable and accrued liabilities other than:	$ 221,488	$ —	$ —	$ —	$ 221,488
Severance accrual	994	5,967	772	109	7,842
Employee compensation	2,848	—	—	—	2,848
Total accounts payable and accrued liabilities	225,330	5,967	772	109	232,178
Debt					
Credit facility	—	—	275,000	—	275,000
Interest	12,952	27,040	—	—	39,992
Provisions(1)(2)	3,979	633	1,350	967	6,929
Income taxes payable	24,770	—	—	—	24,770
Lease obligations	16,221	15,906	7,193	21,675	60,995
Future employee compensation	1,444	8,711	—	—	10,155
Total contractual obligations(2)	**$ 284,696**	**$ 58,257**	**$ 284,315**	**$ 22,751**	**$ 650,019**

(1) Total litigation provision as further discussed in Note 17 of the 2019 Financial Statements.
(2) Amounts above do not include payments related to the Company's anticipated closure and decommissioning obligation (current $3.4 million, long-term $185.1 million) as discussed in Note 17 of the 2019 Financial Statements (2018 - current $1.9 million, long-term $68.6 million), the deferred credit arising from the Aquiline acquisition ($20.8 million) (2018 - $20.8 million) discussed in Note 20 of the 2019 Financial Statements, and deferred tax liabilities of $176.8 million (2018 - $148.8 million).

Outstanding Share Amounts

As at December 31, 2019, the Company had approximately 1.1 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 $97.26 and a weighted average life of 23 months. Approximately 1.0 million of the stock options were vested and exercisable at December 31, 2019, with an average weighted exercise price of CAD $35.16 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, 2020
Common shares	210,002,117
Options (1)	498,878
Total	**210,500,995**

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.

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, 2019 was $290.4 million (December 31, 2018 - $159.1 million) using inflation rates of between 0% and 5% (2018 - between 2% and 17%). The inflated and discounted provision on the statement of financial position as at December 31, 2019, using discount rates between 2% and 9% (December 31, 2018 - between 2% and 22%), was $188.5 million (December 31, 2018 - $70.6 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 2019 were primarily a result of liabilities for the acquired Tahoe mines, 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 of the discount charged in Q4 2019 and 2019 earnings as finance expense were $2.6 million and $9.9 million, respectively (Q4 2018 and 2018 - $1.6 million and $6.5 million, respectively). Reclamation expenditures incurred during Q4 2019 and 2019 were $0.5 million and $2.3 million, respectively (Q4 2018 and 2018 - $2.0 million and $7.8 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 14 of the 2019 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

Per Ounce Measures

Cash Costs and AISC are non-GAAP financial measures that do not have any standardized meaning prescribed by IFRS and are therefore unlikely to be comparable to similar measures presented by other companies.

Pan American produces by-product metals incidentally to our silver and gold mining activities. We have adopted the practice of calculating a performance measure with the net cost of producing an ounce of silver and gold, our primary payable metals, after deducting revenues gained from incidental by-product production. 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.

Silver segment Cash Costs and AISC are calculated net of credits for realized revenues from all metals other than silver ("silver segment by-product credits"), and are calculated per ounce of silver sold. Gold segment Cash Costs and AISC are calculated net of credits for realized silver revenues ("gold segment by-product credits"), and are calculated per ounce of gold sold. Consolidated Cash Costs and AISC are based on total silver ounces sold and are net of by-product credits from all metals other than silver ("silver basis consolidated by-product credits").

Prior period cash costs per ounce reported in previous news releases and MD&As were based on cash costs per ounce of payable silver produced and were net of by-product credits calculated with average market prices applied to all metals produced other than silver. Given the increased complexity of the business with the addition of the new gold operations, the Company determined that conforming the calculation of Cash Costs with a consistent method to that used for AISC, using realized by-product sales as by-product credits and based on per ounce of silver sold, would provide a more consistent per-ounce measure; as such, the comparative Cash Costs amounts in this MD&A have been quantified using the current methodology and are different from those previously reported. As shown in the detailed quantification of consolidated AISC below, corporate general and administrative expense, and exploration and project development expenses are included in the calculation of consolidated (silver basis) AISC, but are not allocated amongst the operations and thus are not included in either the silver or gold segment AISC totals. In prior years these costs were similarly included only in the consolidated all-in-sustaining costs per silver ounce sold ("AISCSOS") metrics and not allocated to each mine's AISCSOS amount; as such, consolidated AISCSOS in previous years included such costs, where total silver segment AISC in the current period does not. A detailed description of how previously reported Cash Costs were quantified is provided in the Company's prior period MD&As.

Cash costs per ounce metrics, 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. Cash costs per ounce is conceptually understood and widely reported in the mining industry.

We believe that AISC, also calculated net of by-products, is a comprehensive measure of the full cost of operating our business, given it includes the cost of replacing silver and gold 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 these measures as calculated by the Company, the following tables provide the detailed reconciliation of these measures to the applicable cost items as reported in the consolidated financial statements for the respective periods. All operating results from the mines acquired in the Tahoe acquisition only include results from February 22, 2019 to December 31, 2019 and the year-to-date amounts do not represent a full twelve months of operations.

Consolidated Cash Costs and AISC:

	Three months ended December 31, 2019				Three months ended December 31, 2018(1,2)		
(In thousands of USD, except as noted)	**Silver Segment**	**Gold Segment**	**Corporate**	**Consolidated (silver basis)(3)**	Silver Segment	Corporate	Consolidated (silver basis)
Production Costs	**136,443**	**93,151**		**229,594**	**132,334**		**132,334**
Purchase Price Allocation Inventory Fair Value Adjustment		(1,683)		(1,683)			
Net Realizable Value Adjustments	(486)	—		(486)	(13,263)		(13,263)
Direct Operating Costs	**135,957**	**91,468**		**227,425**	**119,070**		**119,070**
Royalties	6,024	1,912		7,936	4,601		4,601
Smelting, refining and other direct selling charges (4)	21,148	326		21,474	14,614		14,614
Cash Costs before By-product Credits	**163,129**	**93,706**		**256,835**	**138,285**		**138,285**
Silver segment by-product credits (4)	(113,555)	—		—	(107,468)		
Gold segment by-product credits (4)	—	(690)		—	—		
Consolidated silver basis by-product credits (4)	—	—		(312,015)	—		(107,468)
Cash Costs	**49,573**	**93,016**		**(55,180)**	**30,817**		**30,817**
Net Realizable Value Adjustments	486	—		486	13,263		13,263
Sustaining capital (1)	19,584	26,603		46,187	31,150		31,150
Exploration	929	633	1,000	2,562	1,133	2,375	3,509
Reclamation cost accretion	1,652	777	154	2,583	1,475	156	1,631
General & Administrative expense	—	—	10,009	10,009		5,450	5,450
All In Sustaining Costs	**72,225**	**121,029**	**11,163**	**6,648**	**77,839**	**7,981**	**85,821**
Silver Segment Silver Ounces Sold	6,352	—		—	5,299		—
Gold Segment Gold Ounces Sold	—	134		—	—		—
Total Silver Ounces Sold	—	—		6,392	—		5,299
Cash Costs per Ounce Sold(5)	**7.80**	**693**		**(8.63)**	**5.82**		**5.82**
All-In Sustaining Costs per Ounce Sold	**11.37**	**901**		**1.04**	**14.69**		**16.19**
All-In Sustaining Costs per Ounce Sold (Excludes NRV Adj.) (7)	**11.29**	**901**		**0.96**	**12.19**		**13.69**

(1) 2018 AISC per ounce sold included in the table above have been calculated and presented as comparative amounts to conform to the methodology used by the Company to calculate the 2019 AISC per ounce sold. The change in methodology relates to the sustaining capital calculation to account for the adoption of IFRS 16, and the inclusion of lease payments. Previously, leased assets were included as sustaining capital in the period of acquisition, while future related lease payments were excluded.

(2) Production costs used to calculate 2018 and Q4 2018 AISC 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.

(3) Consolidated silver basis calculated by treating all revenues from metals other than silver, including gold, as a by-product credit in Cash Costs. Total silver basis consolidated by-product credits include all silver segment by-product credits, as well as gold revenues from the Gold Segment mines as by-products. Total silver ounces sold likewise includes silver ounces sold from Gold Segment operations.

See next page for Notes 4, 5, 6, 7 and 8.

(In thousands of USD, except as noted)	Year ended December 31, 2019(6) Silver Segment	Gold Segment (6)	Corporate	Consolidated (silver basis)(3)	Year ended December 31, 2018(1,2) Silver Segment	Corporate	Consolidated (silver basis)
Production Costs	**516,642**	**324,655**		**841,297**	**511,793**		**511,793**
Purchase Price Allocation Inventory Fair Value Adjustment		(43,395)		(43,395)			
Net Realizable Value Adjustments	356	—		356	(24,330)		(24,330)
Direct Operating Costs	**516,998**	**281,260**		**798,257**	**487,462**		**487,462**
Royalties	21,413	5,308		26,721	20,673		20,673
Smelting, refining and other direct selling charges (4)	72,898	953		73,851	53,119		53,119
Cash Costs before By-product Credits	**611,309**	**287,521**		**898,829**	**561,255**		**561,255**
Silver segment by-product credits (4)	(454,472)	—		—	(483,325)		
Gold segment by-product credits (4)	—	(1,968)		—	—		
Consolidated silver basis by-product credits (4)	—	—		(1,019,548)	—		(483,325)
Cash Costs	**156,836**	**285,553**		**(120,718)**	**77,930**		**77,930**
Net Realizable Value Adjustments	(356)	—		(356)	24,330		24,330
Sustaining capital (1)	90,632	88,464		179,096	106,913		106,913
Exploration(8)	3,195	3,404	3,204	9,803	4,476	6,661	11,138
Reclamation cost accretion	6,605	2,637	661	9,903	5,902	622	6,524
General & Administrative expense			31,752	31,752		22,649	22,649
All In Sustaining Costs	**256,913**	**380,058**	**35,617**	**109,480**	**219,551**	**29,932**	**249,484**
Silver Segment Silver Ounces Sold	24,559	—		—	23,160		—
Gold Segment Gold Ounces Sold	—	401		—	—		—
Total Silver Ounces Sold	—	—		24,676	—		23,160
Cash Costs per Ounce Sold(5)	**6.39**	**712**		**(4.89)**	**3.36**		**3.36**
All-In Sustaining Costs per Ounce Sold	**10.46**	**948**		**4.44**	**9.48**		**10.77**
All-In Sustaining Costs per Ounce Sold (Excludes NRV Adj.)(7)	**10.48**	**948**		**4.45**	**8.43**		**9.72**

Notes 1, 2 and 3 provided on previous page.

(4) Included in the revenue line of the consolidated income statements. By-product credits are reflective of realized metal prices for the applicable periods.

(5) Cash costs per ounce sold are calculated based on Cash Costs, net of by-product credits divided by per ounce of silver sold and are therefore different than previously reported 2018 "Cash Costs" which were calculated based on cash costs net of by-product credits divided by payable silver ounces produced. The 2018 cash costs per ounce sold included in the table above have been calculated and presented as comparative amounts to conform to the methodology used by the Company to calculate the 2019 Cash Cost per ounce sold.

(6) All operating results from the mines acquired in connection with the Tahoe Acquisition are only from February 22, 2019 to December 31, 2019, and do not represent a full twelve months of operations.

(7) The Company makes net realizable value ("NRV") adjustments, when necessary, to ensure inventory costs do not exceed their estimated selling prices less the estimated costs of completion and sale.

(8) The amounts for 2019 year-to-date exclude $1.9 million from non-cash project development write-downs.

Sustaining capital is included in AISC, while capital related to growth projects or acquisitions (referred to by the Company as project or investment capital) is not. Inclusion of only sustaining capital in the AISC measure reflects the capital costs associated with current ounces sold as opposed to project capital, which is expected to increase future production.

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)	**2019**	2018	**2019**	2018
Payments for mineral properties, plant and equipment(1)	**50,319**	42,302	**205,807**	144,348
Add/(Subtract)				
Advances received for leases	**5,726**	2,223	**19,270**	7,911
Non-Sustaining capital	**(9,857)**	(13,375)	**(45,980)**	(45,346)
Sustaining Capital	**46,187**	31,150	**179,096**	106,913

(1) As presented on the unaudited interim consolidated statements of cash flows.

Silver Segment Cash Costs and AISC by mine:

SILVER SEGMENT	Three months ended December 31, 2019						
(In thousands of USD, except as noted)	La Colorada	Dolores	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Silver Segment
Production Costs	18,049	42,949	19,680	19,787	12,336	23,642	136,443
NRV inventory adjustments	—	(435)	—	—	—	(51)	(486)
On-site direct operating costs	**18,049**	**42,513**	**19,680**	**19,787**	**12,336**	**23,591**	**135,957**
Royalties	179	2,126	—	—	3,494	224	6,024
Smelting, refining & direct selling costs	4,775	21	5,592	4,091	4,509	2,160	21,148
Cash Costs before by-product credits	**23,003**	**44,660**	**25,272**	**23,878**	**20,339**	**25,975**	**163,128**
Silver segment by-product credits	(15,399)	(40,958)	(21,339)	(18,296)	(5,942)	(11,621)	(113,555)
Cash Costs	**7,604**	**3,702**	**3,934**	**5,582**	**14,396**	**14,354**	**49,572**
NRV inventory adjustments	—	435	—	—	—	51	486
Sustaining capital	1,957	8,106	2,834	3,945	2,048	696	19,584
Exploration and project development	565	274	—	51	—	39	929
Reclamation cost accretion	144	560	181	109	78	580	1,652
All-in sustaining costs	**10,269**	**13,077**	**6,949**	**9,687**	**16,522**	**15,720**	**72,224**
Silver segment silver ounces sold (koz)	**1,770**	**1,402**	**736**	**515**	**1,001**	**928**	**6,352**
Cash cost per ounce sold	**4.30**	**2.64**	**5.34**	**10.85**	**14.38**	**15.47**	**7.80**
AISC per ounce sold	**5.80**	**9.33**	**9.44**	**18.83**	**16.50**	**16.94**	**11.37**
AISC per ounce sold (excluding NRV inventory adjustments)	**5.80**	**9.02**	**9.44**	**18.83**	**16.50**	**16.88**	**11.29**

SILVER SEGMENT(1)	Three Months Ended December 31, 2018						
(In thousands of USD, except as noted)	La Colorada	Dolores	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Silver Segment
Production Costs	16,947	51,107	19,707	16,096	6,984	21,494	132,334
NRV inventory adjustments	—	(11,440)	—	—	—	(1,822)	(13,263)
On-site direct operating costs	**16,947**	**39,667**	**19,707**	**16,096**	**6,984**	**19,671**	**119,070**
Royalties	130	1,642	—	—	2,554	275	4,601
Smelting, refining & direct selling costs	2,050	31	6,061	2,524	1,816	2,132	14,614
Cash Costs before by-product credits	**19,127**	**41,340**	**25,768**	**18,620**	**11,354**	**22,078**	**138,285**
Silver segment by-product credits	(14,749)	(35,862)	(23,696)	(19,013)	(6,231)	(7,917)	(107,468)
Cash Costs	**4,378**	**5,479**	**2,073**	**(394)**	**5,123**	**14,161**	**30,817**
NRV inventory adjustments	—	11,440	—	—	—	1,822	13,263
Sustaining capital	5,364	13,255	6,099	4,357	1,637	436	31,150
Exploration and project development	711	241	7	123	—	51	1,133
Reclamation cost accretion	114	351	152	87	63	708	1,475
All-in sustaining costs	**10,567**	**30,766**	**8,331**	**4,173**	**6,823**	**17,178**	**77,839**
Silver segment silver ounces sold (koz)	**1,780**	**870**	**858**	**674**	**502**	**615**	**5,299**
Cash cost per ounce sold(2)	**2.46**	**6.30**	**2.42**	**(0.58)**	**10.20**	**23.03**	**5.82**
AISC per ounce sold	**5.93**	**35.36**	**9.71**	**6.19**	**13.59**	**27.94**	**14.69**
AISC per ounce sold (excluding NRV inventory adjustments)	**5.93**	**22.21**	**9.71**	**6.19**	**13.59**	**24.98**	**12.19**

SILVER SEGMENT	Year ended December 31, 2019						
(In thousands of USD, except as noted)	La Colorada	Dolores	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Silver Segment
Production Costs	74,544	183,058	76,962	73,396	46,456	62,226	516,642
NRV inventory adjustments	—	(7,885)	—	—	—	8,240	356
On-site direct operating costs	**74,544**	**175,174**	**76,962**	**73,396**	**46,456**	**70,466**	**516,998**
Royalties	595	8,264	—	—	11,348	1,206	21,413
Smelting, refining & direct selling costs	17,420	106	21,088	15,675	11,871	6,738	72,898
Cash Costs before by-product credits	**92,559**	**183,544**	**98,050**	**89,071**	**69,675**	**78,410**	**611,309**
Silver segment by-product credits	(69,905)	(168,333)	(84,544)	(78,907)	(22,573)	(30,211)	(454,472)
Cash Costs	**22,654**	**15,211**	**13,506**	**10,164**	**47,102**	**48,200**	**156,836**
NRV inventory adjustments	—	7,885	—	—	—	(8,240)	(356)
Sustaining capital	9,721	49,660	10,936	12,599	4,960	2,757	90,632
Exploration and project development	1,445	1,105	13	327	—	305	3,195
Reclamation cost accretion	576	2,240	723	436	311	2,319	6,605
All-in sustaining costs(1)	**34,396**	**76,100**	**25,178**	**23,526**	**52,373**	**45,341**	**256,913**
Silver segment silver ounces sold (koz)	**7,583**	**4,924**	**3,253**	**2,335**	**4,003**	**2,460**	**24,559**
Cash cost per ounce sold	**2.99**	**3.09**	**4.15**	**4.35**	**11.77**	**19.59**	**6.39**
AISC per ounce sold	**4.54**	**15.45**	**7.74**	**10.08**	**13.08**	**18.43**	**10.46**
AISC per ounce sold (excluding NRV inventory adjustments)	**4.54**	**13.85**	**7.74**	**10.08**	**13.08**	**21.78**	**10.48**

SILVER SEGMENT(1)	Year ended December 31, 2018						
(In thousands of USD, except as noted)	La Colorada	Dolores	Huaron	Morococha	San Vicente	Manantial Espejo	Consolidated Silver Segment
Production Costs	70,248	179,165	75,382	68,068	33,461	85,468	511,793
NRV inventory adjustments		(24,567)				238	(24,330)
On-site direct operating costs	**70,248**	**154,598**	**75,382**	**68,068**	**33,461**	**85,705**	**487,462**
Royalties	616	7,991	—	—	9,943	2,124	20,673
Smelting, refining & direct selling costs	8,537	129	21,326	13,313	7,451	2,363	53,119
Cash Costs before by-product credits	**79,401**	**162,718**	**96,708**	**81,381**	**50,855**	**90,192**	**561,256**
Silver segment by-product credits	(63,442)	(170,337)	(91,155)	(93,142)	(20,829)	(44,420)	(483,325)
Cash Costs	**15,959**	**(7,618)**	**5,553**	**(11,761)**	**30,026**	**45,772**	**77,931**
NRV inventory adjustments	—	24,567	—	—	—	(238)	24,330
Sustaining capital	15,462	48,842	17,761	15,038	6,983	2,827	106,913
Exploration and project development	880	1,594	660	598	—	744	4,476
Reclamation cost accretion	457	1,405	609	347	252	2,832	5,902
All-in sustaining costs	**32,758**	**68,790**	**24,583**	**4,222**	**37,261**	**51,937**	**219,552**
Silver segment silver ounces sold (koz)	**7,069**	**4,205**	**3,094**	**2,652**	**3,054**	**3,086**	**23,160**
Cash cost per ounce sold(2)	**2.26**	**(1.81)**	**1.79**	**(4.43)**	**9.83**	**14.83**	**3.36**
AISC per ounce sold	**4.63**	**16.36**	**7.95**	**1.59**	**12.20**	**16.83**	**9.48**
AISC per ounce sold (excluding NRV inventory adjustments)	**4.63**	**10.52**	**7.95**	**1.59**	**12.20**	**16.91**	**8.43**

(1) 2018 AISC per ounce sold included in the table above have been calculated and presented as comparative amounts to conform to the methodology used by the company to calculate the 2019 AISC per ounce sold. The change in methodology relates to the sustaining capital calculation to account for the adoption of IFRS 16, and sustaining capital now includes lease payments. Previously leased assets were included as sustaining capital in the period of acquisition, while future related lease payments were excluded.

(2) Cash costs per ounce sold are calculated based on Cash Costs, net of by-product credits divided by per ounce of silver sold and are therefore different from previously reported 2018 "Cash Costs" which were calculated based on cash costs net of by-product credits divided by payable silver ounces produced. The 2018 cash costs per ounce sold included in the table above have been calculated and presented as comparative amounts to conform to the methodology used by the company to calculate the 2019 cash cost per ounce sold.

Gold Segment Cash Costs and AISC by mine:

GOLD SEGMENT	Three months ended December 31, 2019			
(In thousands of USD, except as noted)	Shahuindo	La Arena	Timmins(1)	Total
Production Costs	25,375	28,603	39,173	93,151
Purchase Price Allocation Inventory Fair Value Adjustment	(916)	(750)	(17)	(1,683)
NRV inventory adjustments	—	—	—	—
On-site direct operating costs	**24,459**	**27,853**	**39,156**	**91,468**
Royalties	—	—	1,912	1,912
Smelting, refining & direct selling costs	173	118	35	326
Cash Costs before by-product credits	**24,632**	**27,971**	**41,103**	**93,706**
Gold segment by-product credits	(507)	(92)	(91)	(690)
Cash Costs of Sales	**24,125**	**27,879**	**41,012**	**93,016**
NRV inventory adjustments	—	—	—	—
Sustaining capital	14,156	8,382	4,066	26,603
Exploration and project development	82	33	518	633
Reclamation cost accretion	290	447	40	777
All-in sustaining costs	**38,653**	**36,740**	**45,636**	**121,030**
Gold segment gold ounces sold	**39,849**	**48,062**	**46,400**	**134,310**
Cash cost per ounce sold	**605**	**580**	**884**	**693**
AISC per ounce sold	**970**	**764**	**984**	**901**
AISC per ounce sold (excluding NRV inventory adjustments)	**970**	**764**	**984**	**901**

GOLD SEGMENT	Year ended December 31, 2019			
(In thousands of USD, except as noted)	Shahuindo	La Arena	Timmins(1)	Total
Production Costs	90,877	99,915	133,863	324,655
Purchase Price Allocation Inventory Fair Value Adjustment	(14,003)	(19,978)	(9,414)	(43,395)
NRV inventory adjustments	—	—	—	—
On-site direct operating costs	**76,874**	**79,937**	**124,449**	**281,260**
Royalties	—	—	5,308	5,308
Smelting, refining & direct selling costs	501	345	107	953
Cash Costs before by-product credits	**77,375**	**80,282**	**129,864**	**287,521**
Gold segment by-product credits	(1,411)	(278)	(279)	(1,968)
Cash Costs of Sales	**75,964**	**80,004**	**129,585**	**285,553**
NRV inventory adjustments	—	—	—	—
Sustaining capital	29,873	47,557	11,035	88,464
Exploration and project development	787	358	2,259	3,404
Reclamation cost accretion	983	1,515	139	2,637
All-in sustaining costs	**107,607**	**129,434**	**143,019**	**380,059**
Gold segment gold ounces sold	**133,298**	**124,206**	**143,300**	**400,804**
Cash cost per ounce sold	**570**	**644**	**904**	**712**
AISC per ounce sold	**807**	**1,042**	**998**	**948**
AISC per ounce sold (excluding NRV inventory adjustments)	**807**	**1,042**	**998**	**948**

(1) Timmins refers to the Timmins West and Bell Creek mines.

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, 2019 and 2018, to the net earnings for each period.

	Three Months Ended December 31,		Year ended December 31,	
(In thousands of USD, except as noted)	**2019**	2018	**2019**	2018
Net earnings for the period	**$ 51,706**	$ (63,577)	**$ 111,244**	$ 12,041
Adjust for:				
Loss on derivatives	**—**	60	**14**	1,078
Impairment charges	**40,050**	27,789	**40,050**	27,789
Write-down of project development costs	**—**	—	**1,882**	—
Unrealized foreign exchange losses	**(1,395)**	(348)	**6,057**	10,337
Net realizable value adjustments to heap inventory	**4,128**	12,977	**29,833**	24,082
Unrealized gains on commodity and foreign currency contracts	**(1,046)**	765	**(646)**	(2,481)
Share of income from associate and dilution gain	**(14,246)**	182	**(15,245)**	(13,679)
Reversal of previously accrued tax liabilities	**—**	—	**—**	(1,188)
Metal inventory loss	**—**	4,670	**—**	4,670
Gains on sale of mineral properties, plant and equipment	**(1,040)**	56	**(3,858)**	(7,973)
Closure and decommissioning liability adjustment	**—**	2,832	**—**	2,832
Transaction and integration costs	**(197)**	10,229	**7,515**	10,229
Adjust for effect of taxes relating to the above	**(1,455)**	(5,832)	**(11,208)**	(9,914)
Adjust for effect of foreign exchange on taxes	**(7,597)**	8,175	**(7,651)**	1,611
Adjusted earnings for the period	**$ 68,908**	$ (2,022)	**$ 157,987**	$ 59,434
Weighted average shares for the period	**209,671**	153,352	**201,397**	153,315
Adjusted earnings per share for the period	**$ 0.33**	$ (0.01)	**$ 0.78**	$ 0.39

Total Debt

Total debt is a non-GAAP measure calculated as the total current and non-current portions of long-term debt (including amounts drawn on the Revolving Credit Facility), 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.

Capital

Capital is a non-GAAP measure and is calculated as total equity plus total debt less cash and cash equivalents and short term investments. 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 the enterprise value 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, gold, zinc, lead, and copper; 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 Canada, Peru, Mexico, Argentina, Bolivia and Guatemala; 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 2019 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 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 2019 Financial Statements under Note 9 "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:

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 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.

2020 Revenue Metal Price Sensitivity

		Gold Price						
		$1,225	$1,325	$1,425	$1,525	$1,625	$1,725	$1,825
Silver Price	$14.50	83%	87%	91%	95%	99%	103%	107%
	$15.50	85%	89%	93%	97%	101%	105%	109%
	$16.50	86%	90%	94%	98%	102%	106%	111%
	$17.50	88%	92%	96%	**100%**	104%	108%	112%
	$18.50	89%	94%	98%	102%	106%	110%	114%
	$19.50	91%	95%	99%	103%	107%	111%	115%
	$20.50	93%	97%	101%	105%	109%	113%	117%

Since base metal and gold revenue are treated as a by-product credit for purposes of calculating Cash Costs per ounce of silver sold and AISC, these non-GAAP measures are highly sensitive to base metal and gold prices. The table below illustrates this point by plotting the expected AISC per ounce according to our 2020 guidance against various price assumptions for the Company's two main by-product credits, zinc and gold, expressed in percentage terms:

2020 AISC Metal Price Sensitivity

		Gold Price						
		$1,225	$1,325	$1,425	$1,525	$1,625	$1,725	$1,825
Zinc Price	$2,050	260%	210%	161%	112%	62%	13%	(36)%
	$2,150	256%	206%	156%	107%	58%	9%	(40)%
	$2,250	252%	202%	153%	103%	54%	5%	(44)%
	$2,350	248%	198%	149%	**100%**	51%	2%	(47)%
	$2,450	245%	195%	146%	97%	47%	(2)%	(51)%
	$2,550	241%	192%	142%	93%	44%	(5)%	(54)%
	$2,650	238%	188%	139%	90%	41%	(9)%	(58)%

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.

In addition to general global economic conditions that can have a severely damaging effect on our business in many ways, declining market prices for 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 13 of Pan American's Audited Consolidated Financial Statements for the year ended December 31, 2019. 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.

The Board of Directors continually assesses Pan American's strategy towards our base metal exposure, depending on market conditions. 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. As at December 31, 2019 the Company had no outstanding contracts to sell base metal production.

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.

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, 2019, we had receivable balances associated with buyers of our concentrates of $48.8 million (2018 - $40.8 million) and receivable balances associated with buyers of our doré of $17.5 million (2018 - $nil). The vast majority of our concentrate is sold to a limited number of concentrate buyers.

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 damages, but, like many other creditors, we may also be subject to alleged preference claims against us. As at December 31, 2019, we had approximately $58.2 million (2018 - $19.7 million) contained in precious metal inventory

at refineries. 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 suppliers do not deliver products or perform services as expected. As at December 31, 2019, we had made $3.4 million of supplier advances (2018 - $14.4 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 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.

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 $123.4 million in Canadian dollars, $5.2 million in Mexican pesos, $2.4 million in Peruvian soles, $3.7 million in Argentine pesos, $3.4 million in Bolivian bolivianos, and $0.4 million in Guatemalan quetzals as at December 31, 2019.

As at December 31, 2019, Pan American had outstanding positions on $12.0 million in foreign currency exposure of Mexican peso ("MXN") purchases, $60.0 million of Peruvian sol ("PEN") purchases, and $30.0 million of Canadian dollar ("CAD") purchases. MXN purchases had put rates of 19.50 and call rates ranging from $20.82 to $21.59 expiring between January 2020 and December 2020. PEN purchases had put rates of $3.35 and call rates ranging from $3.40 to $3.55 expiring between January 2020 and December 2020. And, CAD purchases had put rates of $1.30 and call rates of $1.37 expiring between January 2020 and December 2020.

For the year ended December 31, 2019, the Company recorded gains of $1.0 million (2018 - gains of $0.7 million) , $0.7 million (2018 - $nil), and $0.3 million (2018 - $nil) on MXN, PEN, and CAD derivative contracts, respectively.

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 2020, expressed in percentage terms:

2020 Cost of Sales Exchange Rate Sensitivity

		MXN/USD						
		$18.00	$18.50	$19.00	$19.50	$20.00	$20.50	$21.00
PEN/ USD	$3.04	102%	102%	102%	102%	101%	101%	101%
	$3.14	102%	102%	101%	101%	101%	101%	100%
	$3.24	101%	101%	101%	101%	100%	100%	100%
	$3.34	101%	101%	100%	**100%**	100%	100%	99%
	$3.44	100%	100%	100%	100%	99%	99%	99%
	$3.54	100%	100%	99%	99%	99%	99%	98%
	$3.64	99%	99%	99%	99%	98%	98%	98%

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 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.

Taxation Risks

In addition to the risks relating to taxation discussed under the heading “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.

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 are from current or ex-employees, or employees of former or current owners of our operations such as the Quiruvilca-related claims in Peru, some of which involve claims of significant value, and include alleged improper dismissals, workplace illnesses, such as silicosis, and 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 the subject of three purported class action lawsuits filed in the United States that center primarily around alleged misrepresentations. These U.S. class action lawsuits were later consolidated into one class action suit that is ongoing. 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, or environmental or social damage, and such claimants may seek sizeable monetary damages against us and/or the return of surface or mineral rights or revocation of permits and licenses 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.

Foreign Operations

In 2019, a significant portion 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, sometimes unexpectedly or as a result of precipitous events, 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;
- limitations on repatriation of operating cash flows, including legal and practical restrictions to transfer funds from foreign jurisdictions;
- unreliable or undeveloped infrastructure;
- labour unrest and scarcity;
- human rights violations including indigenous rights claims;
- 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 Guatemala and Bolivia.

Some communities and non-governmental organizations ("NGOs") have been vocal and active in their opposition to mining and exploration activities in Guatemala. In July 2017, the Escobal mining license was suspended as a result of a court proceeding initiated by an NGO in Guatemala, based upon the allegation that Guatemala's Ministry of Energy and Mines ("MEM") violated the Xinka indigenous people's right of consultation. After several decisions and appeals on the matter, a decision of the Constitutional Court of Guatemala was rendered on September 3, 2018, determining that the Escobal mining license would remain suspended until the Guatemala MEM completes an ILO 169 consultation. The consultation process is proceeding, with the pre-consultation stage underway. Normal operations at Escobal mine remain suspended. Legal challenges to the consultation process have been filed with the Guatemalan Supreme Court and the outcome of those challenges is unknown. The process and timing for completing the ILO 169 consultation remains uncertain. In addition, in June 2017, the Company's wholly owned subsidiary Minera San Rafael S.A. ("MSR") which owns the Escobal mine, filed its annual request to renew the Escobal mine's export credential with the Guatemala MEM. However, the Guatemala MEM did not renew the export credential because its renewal had become contingent on the Supreme Court's reinstatement of the Escobal mining license. The export credential therefore expired in August 2017 and has not been renewed.

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 the Mining Corporation of Bolivia "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 has been delayed by COMIBOL and has not been

completed. 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.

Criminal activity and violence are also prevalent in some areas that we work in. For example, violence in Mexico is well documented and has, over time, been increasing. Conflicts between the drug cartels and violent confrontations with authorities are not uncommon. Operations at our Dolores mine were temporarily curtailed in 2018 as a result of such violence and the threat of violence on the access roads to the mine. Other criminal activity, such as kidnapping and extortion, is also an ongoing concern. Many incidents of crime and violence go unreported and efforts by police and other authorities to reduce criminal activity are challenged by a lack of resources, corruption and the pervasiveness of organized crime. Incidents of criminal activity have occasionally affected our employees and our contractors and their families, as well as the communities in the vicinity of our operations. Such incidents may prevent access to our mines or offices; halt or delay our operations and production; result in harm to employees, contractors, visitors or community members; increase employee absenteeism; create or increase tension in nearby communities; or otherwise adversely affect our ability to conduct business. We can provide no assurance that security incidents, in the future, will not have a material adverse effect on our operations.

Challenges also exist with respect to inconsistent application of the rule of law, and to sometimes unreliable and biased legal systems and judiciary. In April 2012, Pan American sold all of its interest in the Quiruvilca mine (“Quiruvilca”) in Peru, which was previously owned by our subsidiary, Huaron. Since the 2012 sale, a substantial number of labour-related claims have been made by persons alleging to be former or then-current employees working at the Quiruvilca mine. Notwithstanding that an overwhelming majority of these claims were made exclusively against the subsequent owners of Quiruvilca, that Huaron has not owned or been involved with Quiruvilca for a number of years, and that Huaron was not afforded the opportunity to participate or challenge the assertions in court, the labour courts in Trujillo, Peru, have in many cases, imputed liability on Huaron. In some cases, the courts ordered seizure of monies from Huaron’s local bank accounts and garnishment of funds due to Huaron from certain of its trading partners. In August 2018, the current owner of Quiruvilca declared bankruptcy, further exacerbating the situation. Huaron has challenged the basis of the labour court’s decisions in Trujillo, and in the Commercial Court and Constitutional Courts of Peru. Pan American believes it has a strong legal position against liability for these claims and intends to continue to vigorously challenge them and enforce certain contractual rights to indemnification. However, there can be no assurance that the outcome of the proceedings or any enforcement of our rights will be favorable to us or that it will not have a material adverse impact on our financial position. Huaron will likely be subject to further labour-related claims, and could also be subject to, directly or indirectly, claims by creditors of the current owner of Quiruvilca and claims relating to the now abandoned mine site, which in aggregate could be material.

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 wastewater;
- 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 previous political regimes 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. While some of these restrictions had begun to ease after the elections in 2015, the government introduced a new export duty in 2018 on silver and gold doré exported from Argentina. In 2019, we paid approximately $3.5 million (2018 - $1.6 million) in export duties, representing an average rate for the export duty of approximately 6%. Following elections in 2019, the new government in Argentina has begun reinstituting some of the previous unfavourable economic policies, such as strict currency controls.

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 $2.0 million in respect of the Zacatecas Tax in 2019 (2018 - $1.2 million). The validity of the Zacatecas Tax has been challenged on constitutional grounds by various parties, including Pan American.

Community Action

The success of our business is, in many ways, dependent on maintaining positive and respectful relationships with communities in the areas where we work. There is an increasing level of public concern relating to the perceived effects of mining activities, particularly on communities and peoples impacted by such activities. Communities and 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. The manner with which we respond to civil disturbances and other activities can give rise to additional risks where those responses are perceived to be inconsistent with international standards, including those with respect to human rights.

On June 18, 2014, seven plaintiffs filed an action against Tahoe in the British Columbia Supreme Court alleging battery and negligence regarding a security incident that occurred at the Escobal mine on April 27, 2013. The plaintiffs sought compensatory and punitive damages. In April 2017, three of the seven plaintiffs settled their claims against Tahoe. On July 30, 2019, we settled, on behalf of Tahoe, the remaining four plaintiffs' claims and the British Columbia Supreme Court action was dismissed.

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 the Guatemala MEM was heard on the merits. A second roadblock was initiated in 2018 near the community of Mataquescuintla. While we have been taking steps to regain trust and repair relationships, there is no guarantee that a positive resolution will be reached.

Pan American is continuing with the implementation of the Mining Association of Canada's "Towards Sustainable Mining" ("TSM"), a program 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. As part of TSM, we have implemented a response mechanism which helps us manage our social risks by better understanding and responding to community questions or concerns around the perceived or actual impacts of our activities. While we are committed to operating in a responsible manner, there is no assurance that our efforts will be successful at mitigating adverse impacts to our operations, and we may suffer material consequences to our business, including among other things, delays and closures, increased costs, and significant reputational damage.

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.

For example, certain individuals have asserted community rights and land ownership over a portion of the La Colorada mine's surface lands in the Agrarian Courts of Mexico. They have also initiated a process before the Secretariat of Agrarian, Territorial and Urban Development of Mexico's Federal Government ("SEDATU") in Zacatecas to declare such lands as national property. In 2019, Pan American filed an amparo against such process and obtained an injunction to protect it's ownership of these surface rights pending the outcome of the amparo and a further review by SEDATU. If Pan American is unable to acquire or maintain access to those surface rights, there could be material adverse impacts on the La Colorada mine's future mining operations.

Similarly, in Guatemala, the land title system is not well developed and in many cases, relies on informal, hereditary or possessory rights. Such informal systems can create significant uncertainty in obtaining and maintaining ownership or rights of access, in defining precise locations or clear boundaries to properties, and substantiating rights if challenged. It is also difficult to establish the identity of parties who may have, or purport to have, an interest in such property. Many of the surface areas on which the Escobal mine is located are based on such informal rights. MSR is subject to a legal action by an individual claiming to own title to certain lands within the Escobal mine site that MSR had previously purchased. If we are unable to maintain existing lands and access, or to obtain new lands as required, there may be significant adverse impacts to the mine and its operation.

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 property, 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.

We do not own most of the surface rights to the areas that overlie our mining concessions comprising the Morococha mine, 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 the Morococha mine. In June 2010, we reached an agreement with Minera Chinalco Peru ("MCP") that clearly defines each party's long-term surface rights and provides for the dismissal of the various judicial and administrative claims, therefore providing 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. In exchange, Argentum is to receive periodic cash payments from MCP which would off-set a portion of the capital required for the facility relocation, and a package of surface rights, easements, and mineral concessions in order to relocate the facilities and to continue uninterrupted operations. Pursuant to the agreement, the transfer of lands and rights and the cash payments would 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, 2019, 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.

General Economic Conditions

General economic conditions may adversely affect our growth, profitability and ability to obtain financing. Events in global financial markets in the past several years have had a profound impact on the global economy. Many industries, including the silver and gold mining industry, have been and continue to be impacted by these market conditions. Some of the key impacts of the current financial market turmoil include contraction in credit markets resulting in a widening of credit risk, devaluations, high volatility in global equity, commodity, foreign exchange and precious metal markets and a lack of market confidence and liquidity. A continued or worsened slowdown in the financial markets or other economic conditions, including but not limited to, consumer spending, employment rates, business conditions, inflation, fuel and energy costs, consumer debt levels, lack of available credit, the state of the financial markets, interest rates and tax rates, may adversely affect our growth, profitability and ability to obtain financing. A number of issues related to economic conditions could have a material adverse effect on our business, financial condition and results of operations, including:

- contraction in credit markets could impact the cost and availability of financing and our overall liquidity;
- the volatility of silver, gold and other metal prices would impact our revenues, profits, losses and cash flow;
- recessionary pressures could adversely impact demand for our production;
- volatile energy, commodity and consumables prices and currency exchange rates could impact our production costs; and
- the devaluation and volatility of global stock markets could impact the valuation of our equity and other securities.

In addition, the current outbreak of the novel coronavirus (COVID-19) that was first reported from Wuhan, China on December 31, 2019, and any future emergence and spread of similar pathogens or the existence of pandemics could have a material adverse effect on global economic conditions which may adversely impact our business and results of operations, and our employees and contractors, and the operations of our suppliers, service providers, including smelter and refining service providers, and the demand for our production. While initially the outbreak was largely concentrated in China and caused significant disruptions to its economy, it has now spread to several other countries and infections have been reported globally. To date, the coronavirus has not spread widely in areas where we have operations. If the coronavirus spreads to those areas, however, it may have a significant adverse impact on our workforce, production levels, and our ability to continue operating some of our mines. Government efforts to curtail the spread of the coronavirus may also result in temporary or long-term suspensions or shut-downs of our operations. The extent to which the coronavirus impacts our operations will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the duration of the outbreak, new information that

may emerge concerning the severity of the coronavirus and the actions taken to contain the coronavirus or treat its impact, among others.

Moreover, the actual and threatened spread of the coronavirus globally could also have a material adverse effect on the regional economies in which we operate, could continue to negatively impact stock markets, including the trading price of our shares, could adversely impact our ability to raise capital, could cause continued interest rate volatility and movements that could make obtaining financing or refinancing our debt obligations more challenging or more expensive and could result in any operations affected by coronavirus becoming subject to quarantine. Any of these developments, and others, could have a material adverse effect on our business and results of operations.

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 5 and Note 6 of the 2019 Financial Statements, respectively.

Readers should also refer to Note 3 of the 2019 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

IFRS 16, 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 has applied IFRS 16 using the modified retrospective approach from January 1, 2019 and has elected to record the transition date right-of-use assets at amounts equal to the present value of the minimum lease payments, on a lease by lease basis. Short-term and low-value recognition exemptions were applied, as well as certain practical expedients allowing for the use of hindsight to assess the lease term for contracts with extension options, the exclusion of initial direct costs from measurement of the Right-of-Use-Assets ("ROU Assets") and the exclusion of leases with a term of less than one year remaining at the transition date.

Policy applicable from January 1, 2019

Lease Definition

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. A contract is, or contains, a lease if it conveys the right to control the use of an identified asset for a period of time in exchange for consideration. An identified asset may be implicitly or explicitly specified in a contract, but must be physically distinct, and must not have the ability for substitution by a lessor. The Company has the right to control an identified asset if it obtains substantially all of its economic benefits and either pre-determines, or directs how and for what purpose the asset is used.

Measurement of ROU Assets and Lease Obligations

At lease commencement, the Company recognizes a ROU Asset and a lease obligation. The ROU Asset is initially measured at cost, which comprises the initial amount of the lease obligation adjusted for any lease payments made at, or before, the commencement date, plus any initial direct costs incurred, less any lease incentives received.

The ROU Asset is subsequently amortized on a straight-line basis over the shorter of the term of the lease, or the useful life of the asset determined on the same basis as the Company's property, plant and equipment. The ROU Asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease obligation.

The lease obligation is initially measured at the present value of lease payments remaining at the lease commencement date, discounted using the Company's incremental borrowing rate. Lease payments included in the measurement of the lease obligation, when applicable, may comprise fixed payments, variable payments that depend on an index or rate, amounts expected to be payable under a residual value guarantee and the exercise price under a purchase, extension or termination option that the Company is reasonably certain to exercise.

The lease obligation is subsequently measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Company's estimate of the amount expected to be payable under a residual value guarantee, or if the Company changes its assessment of whether it will exercise a purchase, extension or termination option. When the lease obligation is remeasured, a corresponding adjustment is made to the carrying amount of the ROU Asset.

Recognition Exemptions

The Company has elected not to recognize ROU Assets and lease obligations for short-term leases that have a lease term of twelve months or less or for leases of low-value assets. Payments associated with these leases are recognized as an operating expense on a straight-line basis over the lease term within costs and expenses on the consolidated income statement.

Leases

The Company's leased assets include land, buildings, vehicles, and machinery and equipment with a carrying value of $45.8 million at December 31, 2019. Effective January 1, 2019, the Company adopted IFRS 16 as outlined in Note 18, recognizing $21.4 million of ROU assets, $18.9 million of lease obligations and deferred tax assets/liabilities of $nil.

New and amended IFRS standards not yet effective

New accounting standards and interpretations have been published that are not mandatory for the current period and have not been early adopted. These standards are not expected to have a material impact on the Company in the current or future reporting periods.

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, 2019, 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, 2019, 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, 2019, 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, 2019, 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, 2019. 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, 2019 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 June 30, 2019[1,2]										
Property	**Location**	**Classification**	**Tonnes (Mt)**	**Ag (g/t)**	**Contained Ag (Moz)**	**Au (g/t)**	**Contained Au (koz)**	**Cu (%)**	**Pb (%)**	**Zn (%)**
Silver Segment										
Huaron	Peru	Proven	6.2	168	33.5	N/A	N/A	0.69	1.44	3.02
		Probable	3.7	170	20.1	N/A	N/A	0.33	1.55	3.00
Morococha (92.3%)[3]	Peru	Proven	4.1	147	19.5	N/A	N/A	0.38	1.38	4.03
		Probable	2.2	173	12.3	N/A	N/A	0.31	1.20	3.26
La Colorada	Mexico	Proven	4.0	395	50.8	0.33	42.0	N/A	1.72	3.11
		Probable	5.4	287	49.6	0.26	44.4	N/A	1.35	2.44
Dolores	Mexico	Proven	35.9	26	29.8	0.84	967.4	N/A	N/A	N/A
		Probable	7.8	28	6.9	0.84	210.7	N/A	N/A	N/A
Manantial Espejo	Argentina	Proven	0.8	170	4.6	1.35	36.2	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	1.4	414	18.6	N/A	N/A	0.43	0.35	3.06
		Probable	0.5	345	6.0	N/A	N/A	0.32	0.42	2.71
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
Escobal	Guatemala	Proven	2.5	486	39.5	0.42	34.2	N/A	1.02	1.75
		Probable	22.1	316	225.0	0.34	243.8	N/A	0.77	1.25
Total Silver Segment[4]			**97.5**	**169**	**530.4**	**0.64**	**1,644.1**	**0.47**	**1.10**	**2.24**
Gold Segment										
La Arena	Peru	Proven	27.4	N/A	N/A	0.36	319.4	N/A	N/A	N/A
		Probable	9.5	N/A	N/A	0.30	90.9	N/A	N/A	N/A
Shahuindo	Peru	Proven	69.8	6	14.4	0.51	1,133.2	N/A	N/A	N/A
		Probable	42.8	6	7.8	0.46	629.9	N/A	N/A	N/A
Timmins	Canada	Proven	2.7	N/A	N/A	3.06	269.1	N/A	N/A	N/A
		Probable	7.2	N/A	N/A	3.10	718.6	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
Total Gold Segment[4]			**175.0**	**6**	**26.8**	**0.62**	**3,476.9**	**N/A**	**N/A**	**N/A**
Total Gold and Silver Segments[4]		**Proven + Probable**	**272.5**	**77**	**557.2**	**0.63**	**5,121.1**	**0.47**	**1.10**	**2.24**

(1) See table below entitled "Metal price assumptions used to estimate mineral reserves and resources as at June 30, 2019".
(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. Total average grades of each element are with respect to those mines that produce the element.

Pan American Silver Corporation Measured and Indicated Mineral Resources as of June 30, 2019[1,2]										
Property	**Location**	**Classification**	**Tonnes (Mt)**	**Ag (g/t)**	**Contained Ag (Moz)**	**Au (g/t)**	**Contained Au (koz)**	**Cu (%)**	**Pb (%)**	**Zn (%)**
Silver Segment										
Huaron	Peru	Measured	2.2	157	11.0	N/A	N/A	0.59	1.50	2.80
		Indicated	2.4	155	12.0	N/A	N/A	0.61	1.64	3.03
Morococha (92.3%)[3]	Peru	Measured	0.3	138	1.2	N/A	N/A	0.29	0.86	2.14
		Indicated	0.3	143	1.6	N/A	N/A	0.20	0.83	2.09
La Colorada	Mexico	Measured	0.5	229	3.8	0.24	4.0	N/A	0.65	1.16
		Indicated	1.6	185	9.6	0.15	7.8	N/A	0.56	1.16
Dolores	Mexico	Measured	2.0	21	1.3	0.35	22.0	N/A	N/A	N/A
		Indicated	1.5	28	1.4	0.56	27.1	N/A	N/A	N/A
Manantial Espejo	Argentina	Measured	0.1	164	0.7	1.65	7.1	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	0.9	161	4.4	N/A	N/A	0.22	0.20	2.27
		Indicated	0.3	158	1.4	N/A	N/A	0.27	0.21	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
Joaquin	Argentina	Indicated	0.1	385	0.7	0.58	1.1	N/A	N/A	N/A
Escobal	Guatemala	Measured	2.3	251	18.6	0.23	16.7	N/A	0.31	0.59
		Indicated	14.2	201	91.6	0.20	93.0	N/A	0.38	0.66
Total Silver Segment[4]			**184.0**	**134**	**792.9**	**0.27**	**195.3**	**0.06**	**0.82**	**1.21**
Gold Segment										
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
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
La Arena	Peru	Measured	1.3	N/A	N/A	0.41	17.5	N/A	N/A	N/A
		Indicated	1.7	N/A	N/A	0.38	20.6	N/A	N/A	N/A
Shahuindo	Peru	Measured	3.7	7	0.8	0.53	63.2	N/A	N/A	N/A
		Indicated	8.4	5	1.5	0.46	123.6	N/A	N/A	N/A
Timmins	Canada	Measured	1.7	N/A	N/A	3.89	212.4	N/A	N/A	N/A
		Indicated	5.4	N/A	N/A	3.41	587.8	N/A	N/A	N/A
La Arena II	Peru	Measured	155.7	N/A	N/A	0.25	1,265.2	0.37	N/A	N/A
		Indicated	586.7	N/A	N/A	0.23	4,371.9	0.35	N/A	N/A
Fenn-Gib	Canada	Indicated	40.8	N/A	N/A	0.99	1,298.6	N/A	N/A	N/A
Whitney	Canada	Measured	1.0	N/A	N/A	7.02	218.1	N/A	N/A	N/A
		Indicated	2.3	N/A	N/A	6.77	490.5	N/A	N/A	N/A
Gold River	Canada	Indicated	0.7	N/A	N/A	5.29	117.4	N/A	N/A	N/A
Juby	Canada	Indicated	26.6	N/A	N/A	1.28	1,094.7	N/A	N/A	N/A
Marlhill	Canada	Indicated	0.4	N/A	N/A	4.52	57.4	N/A	N/A	N/A
Vogel	Canada	Indicated	2.2	N/A	N/A	1.75	125.0	N/A	N/A	N/A
Total Gold Segment[4]			**854.9**	**7**	**4.1**	**0.38**	**10,439.6**	**0.35**	**N/A**	**N/A**
Total Gold and Silver Segments[4]		**Measured + Indicated**	**1,038.8**	**123**	**797.0**	**0.38**	**10,634.9**	**0.30**	**0.82**	**1.21**

(1) See table below entitled “Metal price assumptions used to estimate mineral reserves and resources as at June 30, 2019”.
(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. Total average grades of each element are with respect to those mines that produce the element.

Pan American Silver Corporation Inferred Mineral Resources as of June 30, 2019[1,2]										
Property	**Location**	**Classification**	**Tonnes (Mt)**	**Ag (g/t)**	**Contained Ag (Moz)**	**Au (g/t)**	**Contained Au (koz)**	**Cu (%)**	**Pb (%)**	**Zn (%)**
Silver Segment										
Huaron	Peru	Inferred	6.2	155	30.8	N/A	N/A	0.41	1.45	2.77
Morococha (92.3%)[3]	Peru	Inferred	4.5	138	19.9	N/A	N/A	0.37	1.02	3.26
La Colorada	Mexico	Inferred	8.1	133	34.5	0.12	31.6	N/A	2.03	4.01
Dolores	Mexico	Inferred	4.0	47	6.0	1.22	156.3	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	3.0	289	27.9	N/A	N/A	0.24	0.38	3.32
Navidad	Argentina	Inferred	45.9	81	119.4	N/A	N/A	0.02	0.57	N/A
Joaquin	Argentina	Inferred	—	389	0.1	1.29	0.2	N/A	N/A	N/A
COSE	Argentina	Inferred	—	382	0.3	7.10	6.3	N/A	N/A	N/A
Escobal	Guatemala	Inferred	1.9	180	10.7	0.90	53.7	N/A	0.22	0.42
Total Silver Segment[4]			**74.0**	**106**	**252.5**	**0.62**	**289.5**	**0.10**	**0.8**	**3.2**
Gold Segment										
La Bolsa	Mexico	Inferred	13.7	8	3.3	0.51	224.6	N/A	N/A	N/A
Pico Machay	Peru	Inferred	23.9	N/A	N/A	0.58	445.7	N/A	N/A	N/A
La Arena	Peru	Inferred	1.1	N/A	N/A	0.30	10.7	N/A	N/A	N/A
Shahuindo	Peru	Inferred	10.0	5	1.6	0.44	140.6	N/A	N/A	N/A
Shahuindo Sulphide	Peru	Inferred	97.4	14	45.1	0.74	2323.3	N/A	N/A	N/A
Timmins	Canada	Inferred	3.7	N/A	N/A	3.74	443.8	N/A	N/A	N/A
La Arena II	Peru	Inferred	91.6	N/A	N/A	0.23	683.1	0.17	N/A	N/A
Fenn-Gib	Canada	Inferred	24.5	N/A	N/A	0.95	750.0	N/A	N/A	N/A
Whitney	Canada	Inferred	1.0	N/A	N/A	5.34	170.7	N/A	N/A	N/A
Gold River	Canada	Inferred	5.3	N/A	N/A	6.06	1,027.4	N/A	N/A	N/A
Juby	Canada	Inferred	96.2	N/A	N/A	0.94	2,908.8	N/A	N/A	N/A
Vogel	Canada	Inferred	1.5	N/A	N/A	3.60	168.8	N/A	N/A	N/A
Total Gold Segment[4]			**369.8**	**13**	**50.0**	**0.78**	**9,297.6**	**0.17**	**N/A**	**N/A**
Total Gold and Silver Segments[4]		**Inferred**	**443.8**	**48**	**302.5**	**0.78**	**9,587.1**	**0.14**	**0.8**	**3.2**

(1) See table below entitled “Metal price assumptions used to estimate mineral reserves and resources as at June 30, 2019”.
(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. Total average grades of each element are with respect to those mines that produce the element.

Metal Price Assumptions Used to Estimate Mineral Reserves and Resources as of June 30, 2019						
Property	**Category**	**Ag US$/oz**	**Au US$/oz**	**Cu US$/t**	**Pb US$/t**	**Zn US$/t**
Huaron	All categories	17.00	1,300	6,000	2,100	2,500
Morococha	All categories	17.00	1,300	6,000	2,100	2,500
La Colorada	All categories	17.00	1,300	6,000	2,100	2,500
Dolores	Reserves	17.00	1,300			
	Resources	22.00	1,400			
La Bolsa	All categories	14.00	825			
Manantial Espejo	All categories	16.00	1,300			
San Vicente	All categories	17.00	1,300	6,000	2,100	2,500
Navidad	All categories	12.52			1,100	
Pico Machay	All categories		700			
Joaquin	All categories	16.00	1,300			
COSE	All categories	16.00	1,300			
Escobal	All categories	20.00	1,300		2,204	2,424
Shahuindo	Reserves	17.00	1,300			
	Resources	22.00	1,400			
Shahuindo Sulphide	Inferred Resource	15.00	1,400			
La Arena	Reserves	17.00	1,400			
	Resources	22.00	1,500			
La Arena II	All categories		1,500	8,816		
Timmins - Bell Creek	All categories		1,300			
Fenn-Gib	Inside pit		1,190			
	Below pit		1,190			
Whitney	All categories		1,200			
Gold River	All categories		1,200			
Juby(1)	All categories					
Marlhill	All categories		1,125			
Vogel	Inside pit		1,150			
	Below pit		1,150			

(1) Estimation used a cut-off grade of 0.40% g/t Au

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, 2020, 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.

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, 2020, 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, including the Acquired Mines; future Cash Costs and AISC; the sufficiency of the Company's current working capital, anticipated operating cash flow or its ability to raise necessary funds; the anticipated amount and timing of production at each of the Company's properties and in the aggregate; our expectations with respect to future metal prices and exchange rates; the timing and disclosure of the allocation of purchase price for the Tahoe Acquisition; the duration and effect of the license suspensions and any road blocks relating to the Escobal mine; the constitutional court-mandated ILO 169 consultation process in Guatemala, and the timing and completion thereof; the anticipated timing for commencement of commercial production at our COSE and Joaquin projects; the estimated cost of and availability of funding necessary for sustaining capital; forecast capital and non-operating spending; 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; currency exchange rates remaining as estimated; capital, decommissioning and reclamation estimates; our mineral reserve and mineral 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 can be maintained; and our ability to comply with environmental, health and safety laws, particularly given the potential for modifications and expansion of such 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, BOB, GTQ 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, Guatemala or other countries where the Company may carry on business, including the risk of expropriation related to certain of our operations, particularly in Argentina and Bolivia and risks related to the constitutional court-mandated ILO 169 consultation process in Guatemala; 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 Company's ability to secure our mine sites or maintain access to our mine sites due to criminal activity, violence, or civil and labour unrest; the speculative nature of mineral exploration and development, including the risk of obtaining or retaining necessary licenses and permits and the presence of laws, regulations and other legal impediments that may impose restrictions on mining, including those currently in the province of Chubut, Argentina, or that might otherwise prevent or cause the suspension or discontinuation of mining activities; 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 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 or revise 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, 2019 AND DECEMBER 31, 2018

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, 2020

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, 2019 and 2018, the related consolidated income statements, statements of comprehensive income, statements of cash flows, and statements of changes in equity, for each of the two years in the period ended December 31, 2019, 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, 2019 and 2018, and its financial performance and its cash flows for each of the two years in the period ended December 31, 2019, 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, 2019, 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, 2020, 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.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Tahoe Acquisition - Refer to Notes 5(e) and 8 to the financial statements

Critical Audit Matter Description

The Company completed the acquisition of Tahoe Resources Inc. ("Tahoe") on February 22, 2019. The purchase price was allocated to the assets acquired and liabilities assumed based on their fair values, which included certain mineral properties including the Escobal mine in Guatemala ("Escobal") (collectively the "Acquired Mineral Properties"). The determination of the fair value of the Acquired Mineral Properties required management to make significant estimates and assumptions.

While there are many estimates and assumptions that management makes to determine the fair value of the Acquired Mineral Properties, the assumptions with the highest degree of subjectivity are future commodity prices, discount rates, the in-situ multiples and specifically for Escobal, the ability, timing and likelihood that the mine operations will restart. Our audit procedures to evaluate the reasonableness of these estimates and assumptions required a high degree of auditor judgment and an increased extent of audit effort, including the need to involve fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the future commodity prices, discount rates, the in-situ multiples and specifically for Escobal, the ability, timing and likelihood that the mine operations will restart included the following, among others:

- Evaluated the effectiveness of the Company's controls over management's assumptions of future commodity prices, discount rates, in-situ multiples and management's assessment of the ability, timing and likelihood that the mine operations at Escobal will restart.
- With the assistance of fair value specialists:
    - Evaluated the future commodity prices by comparing forecasts to third party forecasts,
    - Evaluated the reasonableness of the discount rates by testing the source information underlying the determination of the discount rate, and
    - Evaluated the reasonableness of the in-situ multiples applied to the exploration properties.
- Evaluated and corroborated through inquiries with key executives, management's ability to estimate the ability, timing and likelihood of Escobal restarting by understanding their process to obtain the background knowledge to make such determination.
- Evaluated the ability, timing and likelihood that the mine operations at Escobal will restart by considering the information received from management and external sources.

Impairment - Assessment of Whether Indicators of Impairment or Impairment Reversal Exist within the Mineral Properties, Plant and Equipment - Refer to Notes 3 and 6 to the financial statements

Critical Audit Matter Description

The Company's determination of whether or not an indicator of impairment or impairment reversal exists at the cash generating unit levels requires significant management judgement. 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.

While there are several factors that are required to determine whether or not an indicator of impairment or impairment reversal exists, the judgements with the highest degree of subjectivity are future commodity prices (for both silver and gold), forecast production output (for both silver and gold), company performance, ability and timing to commence or restart mine operations, and the discount rate. Auditing these estimates and factors required a high degree of subjectivity in applying audit procedures and in evaluating the results of those procedures. This resulted in an increased extent of audit effort, including the involvement of fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the future commodity prices (for both silver and gold), future production output (for both silver and gold), company performance, ability and timing to commence or restart mine operations, and the discount rate in the assessment of indicators of impairment or impairment reversal included the following, among others:

- Evaluated the effectiveness of the Company's controls over management's assessment of indicators of impairment or impairment reversal.
- Evaluated management's ability to accurately forecast future production by:
    - Assessing the methodology used in management's determination of the future production and,
    - Comparing management's future production to historical data and available market trends.
- Performed independent research to assess if there have been any substantive local, political or regulatory changes impacting the jurisdictions in which the Company operates impacting the ability to commence or restart mine operations.
- Compared the company performance of the mineral properties to historical results and third-party reports.
- With the assistance of fair value specialists:
    - Evaluated the future commodity prices by comparing management forecasts to third party forecasts, and
    - Evaluated the reasonableness of the change in discount rate by testing the source information underlying the determination of the discount rate.

Impairment - Testing of Impairment of Mineral Properties, Plant and Equipment - Manantial Espejo Cash Generating Unit ("CGU") - Refer to Notes 3 and 13 to the financial statements

Critical Audit Matter Description

The Company identified an indicator of impairment for the Manantial Espejo CGU as a result of an increase in Argentina export taxes, and project delays. The Company determined that the combined CGU carrying amount of Manantial Espejo mine and the Joaquin and COSE development project and other related assets was greater than the combined estimated recoverable amount, causing the Company to recognize an impairment loss.

While there are several assumptions that go into determining the recoverable amount, the judgement with the highest degree of subjectivity in the valuation model is the commodity prices. Auditing the assumptions surrounding the commodity prices required a high degree of subjectivity in applying audit procedures and in evaluating the results of those procedures. This resulted in an increased extent of audit effort, including the involvement of fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the commodity prices used in the valuation models to determine the recoverable amount of the CGU included the following, among others:

- Evaluated the effectiveness of the controls surrounding the commodity prices.
- Evaluated the commodity prices by comparing management forecasts to third party forecasts with the assistance of fair value specialists.

/s/ Deloitte LLP

Chartered Professional Accountants
Vancouver, Canada
March 12, 2020

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, 2019, 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, 2019, 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, 2019, of the Company and our report dated March 12, 2020, 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, 2020

	December 31, 2019	December 31, 2018
Assets		
Current assets		
Cash and cash equivalents (Note 25)	**$ 120,564**	$ 138,510
Short-term investments (Note 10)	**117,776**	74,004
Trade and other receivables	**168,753**	96,091
Income taxes receivable	**17,209**	13,108
Inventories (Note 11)	**346,507**	214,465
Derivative financial instruments (Note 9)	**1,272**	640
Prepaid expenses and other current assets	**16,838**	11,556
	788,919	548,374
Non-current assets		
Mineral properties, plant and equipment (Note 12)	**2,504,901**	1,301,002
Inventories (Note 11)	**24,209**	—
Long-term refundable tax	**17,900**	70
Deferred tax assets (Note 28)	**36,447**	12,244
Investment in associates (Note 14)	**84,319**	70,566
Goodwill & other assets (Note 15)	**4,987**	5,220
Total Assets	**$ 3,461,682**	$ 1,937,476
Liabilities		
Current liabilities		
Accounts payable and accrued liabilities (Note 16)	**$ 225,330**	$ 131,743
Derivative financial instruments (Note 9)	**—**	51
Current portion of provisions (Note 17)	**7,372**	5,072
Current portion of lease obligations (Note 18)	**14,198**	5,356
Income tax payable	**24,770**	8,306
	271,670	150,528
Non-current liabilities		
Long-term portion of provisions (Note 17)	**188,012**	70,083
Deferred tax liabilities (Note 28)	**176,808**	148,819
Long-term portion of lease obligations (Note 18)	**27,010**	1,320
Debt (Note 19)	**275,000**	—
Deferred revenue (Note 14)	**12,542**	13,288
Other long-term liabilities (Note 20)	**27,754**	25,425
Share purchase warrants (Note 14)	**15,040**	14,664
Total Liabilities	**993,836**	424,127
Equity		
Capital and reserves (Note 21)		
Issued capital	**3,123,514**	2,321,498
Reserves	**94,274**	22,573
Investment revaluation reserve	**—**	208
Deficit	**(754,689)**	(836,067)
Total Equity attributable to equity holders of the Company	**2,463,099**	1,508,212
Non-controlling interests	**4,747**	5,137
Total Equity	**2,467,846**	1,513,349
Total Liabilities and Equity	**$ 3,461,682**	$ 1,937,476

Commitments and contingencies (Notes 9, 29); subsequent events (Note 31)
See accompanying notes to the consolidated financial statements
APPROVED BY THE BOARD ON MARCH 12, 2020

"signed" Ross Beaty, Director *"signed" Michael Steinmann, Director*

		2019		2018
Revenue (Note 26)	$	**1,350,759**	$	784,495
Cost of sales				
Production costs (Note 22)		**(841,297)**		(515,636)
Depreciation and amortization (Note 12)		**(253,453)**		(147,289)
Royalties		**(26,721)**		(20,673)
		(1,121,471)		(683,598)
Mine operating earnings (Note 26)		**229,288**		100,897
General and administrative		**(31,752)**		(22,649)
Exploration and project development		**(11,684)**		(11,138)
Mine care and maintenance		**(23,662)**		—
Foreign exchange losses		**(5,003)**		(9,326)
Impairment charges (Note 13)		**(40,050)**		(27,789)
Gains on commodity and foreign currency contracts (Note 9)		**3,315**		4,930
Gains on sale of mineral properties, plant and equipment (Note 12)		**3,858**		7,973
Share of income from associate and dilution gain (Note 14)		**15,245**		13,679
Transaction and integration costs (Note 8)		**(7,515)**		(10,229)
Other expense (Note 27)		**(4,936)**		(3,659)
Earnings from operations		**127,104**		42,689
Loss on derivatives (Note 9)		**(14)**		(1,078)
Investment income (loss)		**84,704**		(284)
Interest and finance expense (Note 23)		**(29,282)**		(8,139)
Earnings before income taxes		**182,512**		33,188
Income tax expense (Note 28)		**(71,268)**		(21,147)
Net earnings for the year	$	**111,244**	$	12,041
Attributable to:				
Equity holders of the Company		**110,738**		10,294
Non-controlling interests		**506**		1,747
	$	**111,244**	$	12,041
Earnings per share attributable to common shareholders (Note 24)				
Basic earnings per share	$	**0.55**	$	0.07
Diluted earnings per share	$	**0.55**	$	0.07
Weighted average shares outstanding (in 000's) Basic		**201,397**		153,315
Weighted average shares outstanding (in 000's) Diluted		**201,571**		153,522

See accompanying notes to the consolidated financial statements.

		2019		2018
Net earnings for the year	**$**	**111,244**	$	12,041
Items that may be reclassified subsequently to net earnings:				
Unrealized net gains on short-term investments (net of $nil tax in 2019 and 2018)		**—**		993
Reclassification adjustment for realized gains on short-term investments to earnings		**(208)**		(788)
Total comprehensive earnings for the year	**$**	**111,036**	$	12,246
Total comprehensive earnings attributable to:				
Equity holders of the Company	**$**	**110,530**	$	10,499
Non-controlling interests		**506**		1,747
	$	**111,036**	$	12,246

See accompanying notes to the consolidated financial statements.

	2019	2018
Cash flow from operating activities		
Net earnings for the year	**$ 111,244**	$ 12,041
Current income tax expense (Note 28)	**92,129**	53,901
Deferred income tax recovery (Note 28)	**(20,861)**	(32,754)
Interest expense (recovery) (Note 23)	**16,879**	(678)
Depreciation and amortization (Note 12)	**253,453**	147,289
Impairment charges (Note 13)	**40,050**	27,789
Accretion on closure and decommissioning provision (Note 17)	**9,903**	6,524
Unrealized foreign exchange losses	**6,057**	10,337
Gain on sale of mineral properties, plant and equipment	**(3,858)**	(7,973)
Other operating activities (Note 25)	**(96,277)**	17,724
Changes in non-cash operating working capital (Note 25)	**(27,944)**	(4,261)
Operating cash flows before interest and income taxes	**$ 380,775**	$ 229,939
Interest paid	**(16,944)**	(1,684)
Interest received	**776**	1,944
Income taxes paid	**(82,579)**	(75,221)
Net cash generated from operating activities	**$ 282,028**	$ 154,978
Cash flow from investing activities		
Payments for mineral properties, plant and equipment	**$ (205,807)**	$ (144,348)
Tahoe Resources Inc. ("Tahoe") acquisition (Note 8)	**(247,479)**	—
Acquisition of mineral interests	**(1,545)**	(7,500)
Net proceeds from sale of short-term investments	**39,727**	(25,554)
Proceeds from sale of mineral properties, plant and equipment	**10,267**	15,781
Net proceeds from commodity, diesel fuel swaps, and foreign currency contracts	**2,669**	2,449
Net cash used in investing activities	**$ (402,168)**	$ (159,172)
Cash flow from financing activities		
Proceeds from issue of equity shares	**$ 2,781**	$ 1,081
Distributions to non-controlling interests	**(924)**	(2,020)
Dividends paid	**(29,332)**	(21,284)
Proceeds from credit facility (Note 19)	**335,000**	—
Repayment of credit facility (Note 19)	**(185,000)**	—
Repayment of short-term loans	**—**	(3,000)
Payment of lease obligations	**(19,270)**	(7,911)
Net cash generated from (used in) financing activities	**$ 103,255**	$ (33,134)
Effects of exchange rate changes on cash and cash equivalents	**(1,061)**	(115)
Net decrease in cash and cash equivalents	**(17,946)**	(37,443)
Cash and cash equivalents at the beginning of the year	**138,510**	175,953
Cash and cash equivalents at the end of the year	**$ 120,564**	$ 138,510

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	Reserves(1)	Investment revaluation reserve	Deficit	Total	Non-controlling interests	Total equity
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	—	$ —	$ —	$ (1,602)	$ 1,602	$ —	$ —	$ —
Balance, January 1, 2018	**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**
Total comprehensive earnings								
Net earnings for the year	—	—	—	—	110,738	110,738	506	111,244
Other comprehensive income	—	—	—	(208)	—	(208)	—	(208)
	—	—	—	(208)	110,738	110,530	506	111,036
Shares issued on the exercise of stock options	244,299	3,697	(916)	—	—	2,781	—	2,781
Shares issued as compensation (Note 25)	152,391	2,693	—	—	—	2,693	—	2,693
Share-based compensation on option grants	—	—	577	—	—	577	—	577
Tahoe acquisition consideration (Note 8)	55,990,512	795,626	72,040	—	—	867,666	—	867,666
Distributions by subsidiaries to non-controlling interests	—	—	—	—	(28)	(28)	(896)	(924)
Dividends paid	—	—	—	—	(29,332)	(29,332)	—	(29,332)
Balance, December 31, 2019	**209,835,558**	**$ 3,123,514**	**$ 94,274**	**$ —**	**$ (754,689)**	**$ 2,463,099**	**$ 4,747**	**$ 2,467,846**

(1) Includes reserves for share options and contingent value rights ("CVRs") (Note 8).

See accompanying notes to the consolidated financial statements.

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 a British Columbia corporation 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 are produced from mines in Canada, Peru, Mexico, Argentina and Bolivia. Additionally, the Company has project development activities in Canada, Peru, Mexico and Argentina, and exploration activities throughout the Americas. As at December 31, 2019, the Company's Escobal mine in Guatemala continues to be on care and maintenance pending satisfactory completion of an ILO 169 consultation process led by the Ministry of Energy and Mines in Guatemala.

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 on March 12, 2020.

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 functional and presentation currency of the Company and each of its subsidiaries is the United States dollar ("USD").

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, 2019 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
Shahuindo S.A.C	Peru	100%	Consolidated	Shahuindo mine
La Arena S.A.	Peru	100%	Consolidated	La Arena 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
Minera Argenta S.A.	Argentina	100%	Consolidated	Navidad project
Pan American Silver (Bolivia) S.A.	Bolivia	95%	Consolidated	San Vicente mine
Lake Shore Gold Corp.	Canada	100%	Consolidated	Bell Creek and Timmins West mines (together, "Timmins")
Minera San Rafael S.A. ("MSR")	Guatemala	100%	Consolidated	Escobal mine

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

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.

g) Financial instruments

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 9(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 9(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 9(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.

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) 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.

j) 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.

k) 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.

l) 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

m) 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.

A cash-generating unit ("CGU") is identified as the smallest identifiable group of assets that generate cash inflows that are largely independent of the cash inflows from other assets. An impairment review is performed, either individually or at the CGU level, when there are indicators that the carrying amount of the CGU may exceed its recoverable amount. 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.

n) 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.

o) 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 CGUs. In addition, an impairment loss is recognized for any excess of carrying amount over the recoverable amount, being the higher of its fair value less costs to sell ("FVLCTS"), or its value in use (being the net present value of expected future cash flows of the relevant CGU), of a non-current asset or disposal group held for sale. 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, closure, 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.

p) 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.

q) 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.

r) 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.

s) 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.

t) 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.

u) 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

IFRS 16, 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 has applied IFRS 16 using the modified retrospective approach from January 1, 2019 and has elected to record the transition date right-of-use assets at amounts equal to the present value of the minimum lease payments, on a lease by lease basis. Short-term and low-value recognition exemptions were applied, as well as certain practical expedients allowing for the use of hindsight to assess the lease term for contracts with extension options, the exclusion of initial direct costs from measurement of the Right-of-Use-Assets ("ROU Assets") and the exclusion of leases with a term of less than one year remaining at the transition date.

Policy applicable from January 1, 2019

Lease Definition

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. A contract is, or contains, a lease if it conveys the right to control the use of an identified asset for a period of time in exchange for consideration. An identified asset may be implicitly or explicitly specified in a contract, but must be physically distinct, and must not have the ability for substitution by a lessor. The Company has the right to control an identified asset if it obtains substantially all of its economic benefits and either pre-determines, or directs how and for what purpose the asset is used.

Measurement of ROU Assets and Lease Obligations

At lease commencement, the Company recognizes a ROU Asset and a lease obligation. The ROU Asset is initially measured at cost, which comprises the initial amount of the lease obligation adjusted for any lease payments

made at, or before, the commencement date, plus any initial direct costs incurred, less any lease incentives received.

The ROU Asset is subsequently amortized on a straight-line basis over the shorter of the term of the lease, or the useful life of the asset determined on the same basis as the Company's property, plant and equipment. The ROU Asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease obligation.

The lease obligation is initially measured at the present value of lease payments remaining at the lease commencement date, discounted using the Company's incremental borrowing rate. Lease payments included in the measurement of the lease obligation, when applicable, may comprise fixed payments, variable payments that depend on an index or rate, amounts expected to be payable under a residual value guarantee and the exercise price under a purchase, extension or termination option that the Company is reasonably certain to exercise.

The lease obligation is subsequently measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Company's estimate of the amount expected to be payable under a residual value guarantee, or if the Company changes its assessment of whether it will exercise a purchase, extension or termination option. When the lease obligation is remeasured, a corresponding adjustment is made to the carrying amount of the ROU Asset.

Recognition Exemptions

The Company has elected not to recognize ROU Assets and lease obligations for short-term leases that have a lease term of twelve months or less or for leases of low-value assets. Payments associated with these leases are recognized as an operating expense on a straight-line basis over the lease term within costs and expenses on the consolidated income statement.

Leases

The Company's leased assets include land, buildings, vehicles, and machinery and equipment with a carrying value of $45.8 million at December 31, 2019. Effective January 1, 2019, the Company adopted IFRS 16 as outlined in Note 18, recognizing $21.4 million of ROU assets, $18.9 million of lease obligations and deferred tax assets/liabilities of $nil.

New and amended IFRS standards not yet effective

New accounting standards and interpretations have been published that are not mandatory for the current period and have not been early adopted. These standards are not expected to have a material impact on the Company.

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 13. 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 14).

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, 2019, the carrying amount of Dolores and La Arena capitalized stripping costs was $57.5 million and $19.9 million, respectively (2018 - $57.0 million and $nil, respectively).

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, 2019, the carrying amount of the deferred credit arising from the Aquiline acquisition was $20.8 million (2018 - $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 11 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 13.

- *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 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, discount rates, and the timing of the commencement of commercial production. 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 $2.5 billion as at December 31, 2019 (2018 - $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 objective with respect to capital risk management remains unchanged from the year ended December 31, 2018.

8. TAHOE ACQUISITION

On February 22, 2019, the Company completed the acquisition of 100% of the issued and outstanding shares of Tahoe (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 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 CVR for each Tahoe share. Each CVR will be exchanged for 0.0497 of a Common Share upon the first commercial shipment of concentrate following restart of operations at the Escobal mine (the "First Shipment"). The CVRs are transferable and have a term of 10 years. The First Shipment contingency is a discrete event upon which a fixed number of Common Shares will be issued. As there is no variability in the number of shares to be issued if the contingency is met, the Company has concluded that the CVR consideration meets the 'fixed-for-fixed' requirement in IAS 32 - Financial Instruments: Presentation. As such the CVRs are classified as a component of equity, recognized initially at fair value with no remeasurement, and any subsequent settlement to be accounted for within equity.

As a result of the Tahoe Acquisition, 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 Tahoe Acquisition is $1.1 billion. The Company began consolidating the operating results, cash flows and net assets of Tahoe from February 22, 2019 onwards.

Tahoe was a mid-tier publicly traded precious metals mining company with ownership interests in a diverse portfolio of mines and projects including the following principal mines: Timmins West and Bell Creek in Canada; La Arena and Shahuindo in Peru; and Escobal in Guatemala (the "Acquired Mines"). The Escobal mine's operations have been suspended since June 2017.

The Company reported its initial accounting for the Tahoe Acquisition during the first quarter of 2019 and had a measurement period of up to one year from the acquisition date to adjust any provisional amounts recognized and to recognize new assets and liabilities as a result of new information obtained which existed at the acquisition date. As a result, the Company recorded a deferred tax asset with most significant adjustments made to the deferred tax liabilities and mineral property during the fourth quarter of 2019. The bargain purchase gain recognized on the acquisition date was eliminated in the fourth quarter of 2019 and retrospectively adjusted from the first quarter's results as a result of changes in the assessed fair values of assets acquired.

Since acquisition on February 22, 2019, the assets acquired from Tahoe contributed revenue of $565.4 million and pre-tax net income of $124.5 million for the year ended December 31, 2019. Had the transaction occurred January 1, 2018, Tahoe would have contributed revenue of $644.3 million and pre-tax net income of $125.5 million for the year ended December 31, 2019. Acquisition-related costs of $7.5 million were expensed during the year ended December 31, 2019 and were presented as transaction and integration costs.

The following table summarizes the consideration paid as part of the purchase price:

Consideration:	Shares Issued/ Issuable	Consideration
Fair value estimate of the Pan American Share consideration (1)	55,990,512	$ 795,626
Fair value estimate of the CVRs (2)	15,600,208	71,916
Cash (1)	—	275,008
Fair value estimate of replacement options (3)	835,874	124
Total Consideration	**72,426,594**	**$ 1,142,674**

(1) The Pan American Share consideration value is based on an assumed value of $14.21 per share (based on the NASDAQ closing price on February 21, 2019).
(2) Assumed fair value of the CVRs is based on the residual amount of the value of the Tahoe Shares acquired (based on the NYSE closing price closing of $3.64 on February 21, 2019) after deducting the cash consideration of $275 million and the fair value of the Company's share consideration paid (based on the February 21, 2019 NASDAQ closing price of $14.21).
(3) Assumed fair value of 3.5 million Tahoe options that upon the Tahoe Acquisition vested and converted into 835.8 thousand Pan American stock options (the "Replacement options"). The fair value of the Replacement options was determined using the Black-Scholes option pricing model, as at the Tahoe Acquisition date, using the following assumptions:

Share price at February 21, 2019 (Canadian dollars, "CAD")	$	19.01
Exercise price	$	11.67 - 97.26
Expected volatility		0.4075
Expected life (years)		0.2 - 1.0
Expected dividend yield		0.78%
Risk-free interest rate		0.93%
Fair value (CAD)	$	163,273.36
CAD to USD exchange rate at December 31, 2018	$	0.7578
Fair value (USD)	$	123,729.43

The following table summarizes the preliminary and final allocation of the purchase price to the identifiable assets and liabilities based on their estimated fair values at the date of the Tahoe Acquisition:

	Preliminary as reported March 31, 2019	Adjustments	Final as reported December 31, 2019
Total purchase consideration paid for Tahoe	$ 1,142,674	$ —	$ 1,142,674
Cash and cash equivalents	$ 27,529	$ —	$ 27,529
Accounts receivable	17,854	300	18,154
VAT Receivable	87,268	224	87,492
Inventory	152,534	(4,325)	148,209
Other current assets	4,135	(2,754)	1,381
Mineral properties, plant and equipment	1,298,037	(58,635)	1,239,402
Other assets	3,450	3,101	6,551
Deferred tax assets	—	30,728	30,728
Accounts payable and accrued liabilities	(159,675)	10,933	(148,742)
Debt	(125,000)	—	(125,000)
Provision for closure and decommissioning liabilities	(70,119)	(7,201)	(77,320)
Net current and deferred income tax liabilities	(62,847)	(2,863)	(65,710)
Fair value of Tahoe net assets acquired	**$ 1,173,166**	**$ (30,492)**	**$ 1,142,674**
Bargain purchase gain recognized in net earnings on February 22, 2019	**$ 30,492**	**$ (30,492)**	**$ —**

We primarily used discounted cash flow models (being the net present value of expected future cash flows) to determine the fair value of the mining interests. Expected future cash flows are based on the timing of commencement of commercial production and estimates of quantities of ore reserves and mineral resources, including expected conversions of resources to reserves, expected future production costs, and capital expenditures based on the life of

mine plans for the acquired mines as at the acquisition date. The discounted future cash flow models used discount rates with rates applied to the acquired mines ranging from 5% to 9%, depending on the Company's assessment of country risk, project risk, and other potential risks specific to the acquired mining interest. Further, the discounted cash flow models were based on the following estimated future metal prices:

Commodity Prices	2019-2022	2023 onwards
Gold price - $/oz.	$1,300	$1,300
Silver price - $/oz	$17.07	$18.50
Zinc - $/tonne	$2,599	$2,600
Lead - $/tonne	$2,171	$2,200

9. FINANCIAL INSTRUMENTS

a) Financial assets and liabilities by categories

December 31, 2019	Amortized cost	FVTPL	FVTOCI	Total
Financial Assets:				
Cash and cash equivalents	**$ 120,564**	**$ —**	**$ —**	**$ 120,564**
Trade receivables from provisional concentrates sales (1)	**—**	**48,767**	**—**	**48,767**
Receivable not arising from sale of metal concentrates (1)	**116,596**	**—**	**—**	**116,596**
Short-term investments, equity securities	**—**	**117,776**	**—**	**117,776**
Short-term investments, other than equity securities	**—**	**—**	**—**	**—**
Derivative financial assets	**—**	**1,272**	**—**	**1,272**
	$ 237,160	**$ 167,815**	**$ —**	**$ 404,975**
Financial Liabilities:				
Derivative financial liabilities	**$ —**	**$ —**	**$ —**	**$ —**
	$ —	**$ —**	**$ —**	**$ —**

(1) Included in Trade and other receivables.

December 31, 2018	Amortized cost	FVTPL	FVTOCI	Total
Financial Assets:				
Cash and cash equivalents	$ 138,510	$ —	$ —	$ 138,510
Trade receivables from provisional concentrates sales (1)	—	40,803	—	40,803
Receivable not arising from sale of metal concentrates (1)	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) 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, 2019 and 2018. Net gains (losses) on short-term investments recorded at FVTPL were as follows:

		2019		2018
Unrealized net gains (losses) on short-term investments, equity securities	**$**	**83,705**	$	(3,298)
Realized net losses on short-term investments, equity securities		**—**		(49)
	$	**83,705**	**$**	**(3,347)**

c) Financial assets recorded at FVTOCI

The Company's short-term investments other than equity securities are recorded at FVTOCI. The unrealized gains from short-term investments other than equity securities for the year ended December 31, 2019 and 2018 were as follows:

		2019		2018
Unrealized net gains on short-term investments, other than equity securities	**$**	**—**	$	993
Reclassification adjustment for realized gains on short-term investments, other than equity securities		**(208)**		(788)
	$	**(208)**	$	205

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, 2019 and 2018 were comprised of the following:

		2019		2018
Gains on foreign currency and commodity contracts:				
Realized gains on foreign currency and commodity contracts	**$**	**2,669**	$	2,449
Unrealized gains on foreign currency and commodity contracts		**646**		2,481
	$	**3,315**	$	4,930
Loss on derivatives:				
Loss on warrants	**$**	**(14)**	$	(1,078)
	$	**(14)**	$	(1,078)

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, 2019		At December 31, 2018	
	Level 1	Level 2	Level 1	Level 2
Assets and Liabilities:				
Short-term investments	**$ 117,776**	**$ —**	$ 74,004	$ —
Trade receivables from provisional concentrate sales	**—**	**48,767**	—	40,803
Derivative financial assets	**—**	**1,272**	—	640
Derivative financial liabilities	**—**	**—**	—	(51)
	$ 117,776	**$ 50,039**	$ 74,004	$ 41,392

There were no transfers between Level 1 and Level 2 during the year ended December 31, 2019. 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, 2018.

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, 2019, the Company had receivable balances associated with buyers of its concentrates of $48.8 million (2018 - $40.8 million) and receivable balances associated with buyers of its doré of $17.5 million (2018 - $nil). The vast majority of the Company's concentrate is sold to six well-known concentrate buyers.

Doré production from Shahuindo, La Arena, Timmins, 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, 2019, the Company had approximately $58.2 million (2018 - $19.7 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 are sold in the spot market to various bullion traders and banks. Credit risk may arise from this activity 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, 2019, the Company had made $3.4 million (2018 - $14.4 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, 2019, the Company has recorded a loss allowance for expected credit losses in the amount of $7.6 million (2018 – $7.6 million) which relates to trade receivables 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. At December 31, 2019, the Company has also recorded a loss allowance for expected credit losses in the amount of $4.7 million (2018 - $4.7 million) 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, 2019	December 31, 2018
Cash and cash equivalents	**$ 120,564**	$ 138,510
Trade accounts receivable (1)	**66,230**	40,803
Supplier advances	**3,391**	14,370
Royalty receivable (1)	**121**	105
Employee loans (1)	**392**	312

(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 2019				
	Within 1 year	2 - 3 years	4- 5 years	After 5 years	Total
Financial liabilities					
Accounts payable and accrued liabilities other than:	$ 221,488	$ —	$ —	$ —	$ 221,488
Severance accrual	994	5,967	772	109	7,842
Employee compensation	2,848	—	—	—	2,848
Total accounts payable and accrued liabilities	225,330	5,967	772	109	232,178
Debt					
Credit facility	—	—	275,000	—	275,000
Interest	12,952	27,040	—	—	39,992
Provisions(1)(2)	3,979	633	1,350	967	6,929
Income taxes payable	24,770	—	—	—	24,770
Lease obligations	16,221	15,906	7,193	21,675	60,995
Future employee compensation	1,444	8,711	—	—	10,155
Total contractual obligations(2)	**$ 284,696**	**$ 58,257**	**$ 284,315**	**$ 22,751**	**$ 650,019**

	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
Debt					
Interest	1,200	350	—	—	1,550
Loss on commodity contracts	51	—	—	—	51
Provisions(1)(2)	3,123	547	720	178	4,568
Income taxes payable	8,306	—	—	—	8,306
Capital and operating expenditure commitments	7,947	7,898	2,885	530	19,260
Future employee compensation	1,530	4,911	—	—	6,441
Total contractual obligations(2)	**$ 153,900**	**$ 17,469**	**$ 4,139**	**$ 820**	**$ 176,328**

(1) Total litigation provision (Note 17).
(2) Amounts above do not include payments related to the Company's anticipated closure and decommissioning obligation (current $3.4 million, long-term $185.1 million) discussed in Note 17 (2018 - current $1.9 million, long-term $68.6 million), the deferred credit arising from the Aquiline acquisition ($20.8 million) (2018 - $20.8 million) discussed in Note 20, and deferred tax liabilities of $176.8 million (2018 - $148.8 million).

The increase in the Company's exposure to liquidity risk during the year ended December 31, 2019 were due primarily to the draw on the credit facility to finance the Tahoe Acquisition (Note 8) and the obligations acquired.

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.

As at December 31, 2019, Pan American had outstanding positions on $12.0 million in foreign currency exposure of Mexican peso ("MXN") purchases, $60.0 million of Peruvian sol ("PEN") purchases, and $30.0 million of Canadian dollar ("CAD") purchases. MXN purchases had put rates of 19.50 and call rates ranging from $20.82 to $21.59 expiring between January 2020 and December 2020. PEN purchases had put rates of $3.35 and call rates ranging from $3.40 to $3.55 expiring between January 2020 and December 2020. And, CAD purchases had put rates of $1.30 and call rates of $1.37 expiring between January 2020 and December 2020.

For the year ended December 31, 2019, the Company recorded gains of $1.0 million (2018 - gains of $0.7 million), $0.7 million (2018 - $nil), and $0.3 million (2018 - $nil) on MXN, PEN, and CAD derivative contracts, respectively.

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, 2019 non-USD net monetary liabilities were denominated would result in an income before taxes change of about $5.1 million (2018 - $14.3 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, 2019	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	$ 123,391	$ 3,897	$ 2,045	$ (23,387)	$ 23,640
Mexican Peso	5,222	14,215	7,645	(64,589)	(73,938)
Argentine Peso	3,652	18,511	13,737	(16,143)	—
Bolivian Boliviano	3,447	221	1,524	(8,749)	(9,925)
European Euro	3	—	—	—	—
Peruvian Sol	2,406	55,851	(14,660)	(39,884)	(80,138)
Guatemala quetzal	353	1,482	(238)	(669)	1
	$ 138,474	$ 94,177	$ 10,053	$ (153,421)	$ (140,360)

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)
Argentine 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)

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. The average interest rate earned by the Company during the year ended December 31, 2019 on its cash and short-term investments was 0.6% (2018 - 0.9%). A 10% increase or decrease in the interest earned from financial institutions on cash and short-term investments would result in a $0.1 million increase or decrease in the Company's before tax earnings (2018 – $0.2 million).

At December 31, 2019, the Company has $275.0 million in amounts drawn on its secured revolving credit facility (the "Credit Facility"), which had an average interest rate of 4.3%. There were no amounts drawn on the Credit Facility in 2018.

At December 31, 2019, the Company has $41.2 million in lease obligations (2018 - $6.7 million), that are subject to an annualized interest rate of 9.7% (2018 - 2.2%).

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 precious metal prices, the Company's current policy is to not hedge the price of precious metal.

A 10% increase in all metal prices as at December 31, 2019, would result in an increase of approximately $139.1 million (2018 – $81.2 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 $140.1 million (2018 - $82.7 million) in the Company's revenues. The Company also enters into provisional concentrate contracts to sell the zinc, lead and copper concentrates. 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 zinc, lead, copper and silver for provisional concentrate contracts for the year ended December 31, 2019 would result in an increase of approximately $6.4 million (2018 - $6.2 million) in the Company's before tax earnings, which would be reflected in 2019 results. A 10% decrease in metal prices for the same period would result in a decrease of approximately $6.4 million (2018 - $6.2 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, 2019, the Company had no outstanding contracts to sell base metals production.

10. SHORT-TERM INVESTMENTS

	December 31, 2019			December 31, 2018		
	Fair Value	**Cost**	**Accumulated unrealized holding gains**	Fair Value	Cost	Accumulated unrealized holding gains
Short-term investments	**$ 117,776**	**$ 36,826**	**$ 80,950**	$ 74,004	$ 73,796	$ 208

11. INVENTORIES

Inventories consist of:

	December 31, 2019	December 31, 2018
Concentrate inventory	**$ 17,433**	$ 19,286
Stockpile ore (1)	**27,708**	3,945
Heap leach inventory and in process (2)	**169,751**	113,199
Doré and finished inventory (3)	**67,820**	30,736
Materials and supplies	**88,004**	47,299
Total inventories	**$ 370,716**	$ 214,465
Less: current portion of inventories	**$ (346,507)**	$ (214,465)
Non-current portion of inventories (4)	**$ 24,209**	$ —

(1) Includes an impairment charge of $5.0 million to reduce the cost basis of inventory to NRV at Manantial Espejo and Dolores mines (2018 – $11.2 million at Manantial Espejo mine).
(2) Includes an impairment charge of $39.3 million to reduce the cost basis of inventory to NRV at Manantial Espejo and Dolores mines (2018 - $28.9 million at Manantial Espejo and Dolores mines).
(3) Includes an impairment charge of $2.9 million to reduce the cost basis of inventory to NRV at Manantial Espejo and Dolores mines at December 31, 2019. (2018 - $7.5 million at Manantial Espejo mine).
(4) Inventories at Escobal mine, which include $16.9 million in supplies with the remainder attributable to metals, have been classified as non-current pending the restart of operations.

The costs of inventories recognized as expense for the year ended December 31, 2019 amounted to $1.1 billion (2018 – $683.6 million), of which $841.3 million (2018 – $515.6 million) and $253.5 million (2018 – $147.3 million) were included in production costs and depreciation and depletion in the Consolidated Income Statements, respectively.

During the year ended December 31, 2019 a $0.4 million NRV recovery (2018 - $24.3 million NRV loss) was recognized, primarily driven by increased production costs, and included in production costs (Note 22). Inventories held at NRV amounted to $151.5 million (2018 - $143.6 million).

A portion of the stockpile ore amounting to $1.2 million (2018 - $2.5 million) and a portion of the heap leach inventory amounting to $74.5 million (2018 - $75.3 million) are expected to be recovered or settled after more than twelve months.

12. 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, 2019					
Net of accumulated depreciation	$ 678,489	$ 73,375	$ 249,231	$ 299,907	$ 1,301,002
Additions	152,033	42,487	549	68,664	263,733
Tahoe acquisition (Note 8)	314,604	274,817	194,900	455,080	1,239,401
Disposals	(2,461)	(13)	—	(2,010)	(4,484)
Depreciation and amortization	(113,067)	—	—	(140,386)	(253,453)
Depreciation charge captured in inventory	(33,810)	—	—	—	(33,810)
Impairment charge	—	(33,245)	(6,805)	—	(40,050)
Transfers	(77,598)	(25,872)	13,051	90,419	—
Closure and decommissioning – changes in estimate (Note 17)	32,562	—	—	—	32,562
As at December 31, 2019	**$ 950,752**	**$ 331,549**	**$ 450,926**	**$ 771,674**	**$ 2,504,901**
Cost as at December 31, 2019	$ 2,429,815	$ 398,485	$ 876,859	$ 1,476,170	$ 5,181,329
Accumulated depreciation and impairments	**(1,479,063)**	**(66,936)**	**(425,933)**	**(704,496)**	**(2,676,428)**
Carrying value – December 31, 2019	**$ 950,752**	**$ 331,549**	**$ 450,926**	**$ 771,674**	**$ 2,504,901**

	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 (Note 17)	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**

	December 31, 2019			December 31, 2018		
	Cost	Accumulated Depreciation and Impairment	Carrying Value	Cost	Accumulated Depreciation and Impairment	Carrying Value
Huaron, Peru	$ 215,109	$ (126,301)	$ 88,808	$ 207,360	$ (114,288)	$ 93,072
Morococha, Peru	258,862	(164,501)	94,361	243,603	(149,120)	94,483
Shahuindo, Peru (1)	498,960	(39,668)	459,292	—	—	—
La Arena, Peru (1)	112,014	(22,853)	89,161	—	—	—
Alamo Dorado, Mexico	71,724	(71,724)	—	126,960	(126,960)	—
La Colorada, Mexico	305,357	(143,232)	162,125	301,706	(121,940)	179,766
Dolores, Mexico	1,608,334	(1,091,862)	516,472	1,529,751	(981,948)	547,803
Manantial Espejo, Argentina	371,677	(367,901)	3,776	367,105	(362,293)	4,812
San Vicente, Bolivia	143,251	(95,360)	47,891	137,394	(86,663)	50,731
Timmins, Canada (1)	292,986	(42,672)	250,314	—	—	—
Other	27,711	(17,485)	10,226	23,994	(16,265)	7,729
Total	$ 3,905,985	$ (2,183,559)	$ 1,722,426	$ 2,937,873	$ (1,959,477)	$ 978,396
Land and Non-Producing Properties:						
Land	$ 5,528	$ (1,267)	$ 4,261	$ 4,677	$ (1,096)	$ 3,581
Navidad, Argentina	566,577	(376,101)	190,476	566,577	(376,101)	190,476
Escobal, Guatemala (1)	249,353	—	249,353	—	—	—
Timmins, Canada (1)	87,747	—	87,747	—	—	—
Shahuindo, Peru (1)	15,586	—	15,586	—	—	—
La Arena, Peru (1)	117,000	—	117,000	—	—	—
Minefinders, Mexico	83,079	(36,975)	46,104	91,362	(36,975)	54,387
La Colorada, Mexico	15,544	—	15,544	—	—	—
Morococha, Peru	7,213	—	7,213	9,674	—	9,674
Projects, Argentina (2)	95,851	(66,859)	28,992	69,774	(24,939)	44,835
Other	31,866	(11,667)	20,199	30,908	(11,255)	19,653
Total non-producing properties	$ 1,275,344	$ (492,869)	$ 782,475	$ 772,972	$ (450,366)	$ 322,606
Total mineral properties, plant and equipment	$ 5,181,329	$ (2,676,428)	$ 2,504,901	$ 3,710,845	$ (2,409,843)	$ 1,301,002

(1) Acquired as part of the Tahoe Acquisition (Note 8).
(2) Comprised of the Joaquin and COSE projects.

Held for Sale Assets

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 ($6 million, net of tax expense) on the sale of Calcatreu included in gain on sale of mineral properties, plant and equipment.

13. IMPAIRMENT OF NON-CURRENT ASSETS

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. 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

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, 2019, impairment charges totaling $40.1 million (2018 - charges of $27.8 million) were required on Manantial Espejo.

2019 Impairment - Manantial Espejo

A recent increase in Argentina export taxes, announced in January 2020, combined with the delayed commencement of production from the COSE and Joaquin deposits, and the deteriorated Argentina economy led management to conclude that there was an indication of impairment to its Argentine operating assets, namely the Manantial Espejo mine, and the COSE and Joaquin projects. As at December 31, 2019, the Company determined that the combined CGU 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 $63.6 million was higher than the combined estimated recoverable amount of $23.5 million when using a 9.75% 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 $40.1 million ($40.1 million, net of tax).

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 CGU 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).

Key assumptions and sensitivity

The metal prices used to calculate the recoverable amounts at December 31, 2019, and December 31, 2018 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, 2019:

Metal Prices	2020-2022 average
Silver price - $/oz.	$17.94
Gold price - $/oz.	$1,474

Metal prices used at December 31, 2018:

Metal Prices	2019-2022 average
Silver price - $/oz.	$17.07
Gold price - $/oz.	$1,300

In 2019, 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 3.7% (2018 – 5.3%), with rates applied to the various mines and projects ranging from 4.0% to 12.3% (2018 - 4.5% to 9.8%), 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, 2019, the Company performed a sensitivity analysis on all key assumptions that assumed a 10% adverse change to each individual assumption while holding the other assumptions constant.

At December 31, 2019, 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 Shahuindo, La Arena, Timmins, 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 10% adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

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 10% adverse change in any one key assumption would reduce the recoverable amount below the carrying amount.

14. INVESTMENT IN ASSOCIATES

The following table shows a continuity of the Company's investment in Maverix and its investment in other associates:

		2019		2018
Balance of investment in Maverix, December 31,	**$**	**69,116**	$	53,567
Dilution gains (1)		13,438		15,158
Income in associate		1,765		391
Balance of investment in Maverix, December 31,	**$**	**84,319**	$	69,116
Balance of investment in other (2)	**$**	**—**	$	1,450
	$	**84,319**	$	70,566

(1) Includes adjustment for change in ownership interest.
(2) The Company sold its interest in an equity investee for $5 million in May 2019 resulting in a gain of $3.6 million recorded in gains (losses) on sale of mineral, properties, plant and equipment on the Consolidated Income Statements.

Investment in Maverix:

The Company's warrant liability representing in substance ownership interest in Maverix was $15.0 million as at December 31, 2019 (2018 - $14.7 million). The Company's share of Maverix income was recorded based on its fully diluted ownership which averaged 26% for the year ended December 31, 2019 (2018 - 34%).

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. As at December 31, 2019, the deferred revenue liability was $12.5 million (December 31, 2018 - $13.3 million).

The Company recognized $0.7 million during the year ended December 31, 2019 (2018 - $0.6 million), for the delivery of 3,758 ounces (2018 - 3,968 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 $13.5 million for the year ended December 31, 2019 (2018 - gains of $13.3 million) recorded in share of loss from associate and dilution gain.

For the year ended December 31, 2019, the Company also recognized its share of income from associate of $1.8 million (2018 - $0.4 million income), which represents the Company's proportionate share of Maverix's income (loss) during the year.

15. GOODWILL AND OTHER ASSETS

Goodwill and other assets consist of:

	December 31, 2019	December 31, 2018
Goodwill	**$ 3,057**	$ 3,057
Other assets	**1,930**	2,163
	$ 4,987	$ 5,220

16. ACCOUNTS PAYABLE

Accounts payable and accrued liabilities consist of:

	December 31, 2019	December 31, 2018
Trade accounts payable(1)	**$ 66,924**	$ 52,201
Royalties payable	**16,108**	2,004
Other accounts payable and trade related accruals	**59,295**	32,896
Payroll and related benefits	**47,221**	26,817
Severance accruals	**994**	1,791
Refundable tax payable	**9,844**	4,044
Other taxes payable	**24,944**	11,990
	$ 225,330	$ 131,743

(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.

17. PROVISIONS

	Closure and Decommissioning	Litigation	Total
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 24)	6,524	—	6,524
December 31, 2018	$ 70,587	$ 4,568	$ 75,155
Revisions in estimates and obligations incurred	**32,909**	**—**	**32,909**
Acquired from Tahoe (Note 8)	**77,320**	**732**	**78,052**
Charged (credited) to earnings:			
-new provisions	**—**	**2,551**	**2,551**
-change in estimate	**—**	**(252)**	**(252)**
-exchange gains on provisions	**—**	**(265)**	**(265)**
Charged in the year	**—**	**(405)**	**(405)**
Reclamation expenditures	**(2,264)**	**—**	**(2,264)**
Accretion expense (Note 24)	**9,903**	**—**	**9,903**
December 31, 2019	**$ 188,455**	**$ 6,929**	**$ 195,384**

Maturity analysis of total provisions:	December 31, 2019	December 31, 2018
Current	**$ 7,372**	$ 5,072
Non-Current	**188,012**	70,083
	$ 195,384	$ 75,155

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 $290.4 million (2018 - $159.1 million), which has been inflated using inflation rates of between 0% and 5% (2018 – between 2% and 17%). The total provision for closure and decommissioning cost is calculated using discount rates of between 2% and 9% (2018 - between 2% and 22%). Revisions made to the reclamation obligations in 2019 were primarily a result of the newly acquired Tahoe mines, 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 2019 earnings as finance expense was $9.9 million (2018 - $6.5 million). Reclamation expenditures paid during the current year were $2.3 million (2018 - $7.8 million).

Litigation Provision

The litigation provision, as at December 31, 2019 and 2018, consists primarily of amounts accrued for labour claims at several of the Company's mine operations. The balance of $6.9 million at December 31, 2019 (2018 - $4.6 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. LEASES

a. ROU Assets

The following table summarizes changes in ROU Assets for the year ended December 31, 2019, which have been recorded in property, plant and equipment on the Consolidated Statements of Financial Position:

	December 31, 2019
Cost	
Balance, January 1, 2019 (1)	**$ 34,983**
Additions after January 1, 2019	**$ 33,895**
Assets acquired from Tahoe (Note 8)	**$ 8,520**
Transfer out	**$ (16,619)**
Balance, December 31, 2019	**60,779**
Accumulated Depreciation	
Balance at January 1, 2019	**$ (4,780)**
Amortization	**$ (17,674)**
Transfer out	**$ 7,465**
Balance, December 31, 2019	**(14,989)**
Carrying Amounts	
At January 1, 2019	**30,203**
At December 31, 2019	**$ 45,790**

(1) Includes $21.4 million in newly recognized ROU assets.

b. Lease obligations

The following table presents a reconciliation of the Company's undiscounted cash flows at December 31, 2019 and December 31, 2018 to their present value for the Company's lease obligations:

	December 31, 2019	December 31, 2018
Within one year	**$ 16,221**	$ 5,488
Between one and five years	**23,099**	1,335
Beyond five years	**21,675**	—
Total undiscounted lease obligations	**60,995**	6,823
Less: future interest charges	**(19,787)**	(147)
Total discounted lease obligations	**$ 41,208**	$ 6,676
Less: current portion of lease obligations	**(14,198)**	(5,356)
Non-current portion of lease obligations	**$ 27,010**	$ 1,320

When measuring lease liabilities, the Company discounted lease payments using its incremental borrowing rate at January 1, 2019. The weighted average rate applied was 9.7% (2018 - 2.2%), which resulted in interest charges of $3.4 million for the year ended December 31, 2019 (2018 - $0.2 million).

The following table reconciles the Company's lease commitments disclosed in the consolidated financial statements as at and for the year ended December 31, 2019, to the lease obligations recognized on initial application of IFRS 16:

Operating lease commitments at December 31, 2018	$	19,260
Discounted using the incremental borrowing rate at January 1, 2019	$	(2,819)
Recognition exemptions for short-term and low-value leases	$	(455)
Variable payments not included in lease liabilities	$	(233)
Lease obligations recognized at January 1, 2019 related to operating lease commitments at December 31, 2018	$	15,753

19. DEBT

	December 31, 2019	December 31, 2018
Credit Facility	$ 275,000	$ —

The Company's four-year, $300.0 million secured revolving credit facility, which was due to mature on April 15, 2020, was increased to $400.0 million on February 1, 2019, and increased to $500.0 million on February 22, 2019, with maturity on February 1, 2023, and resulted in additional upfront costs of $2.0 million. These amendments were made as part of the Tahoe Acquisition.

The upfront costs have been recorded as an asset under the classification "Prepaid expenses and other current assets" and are being amortized over the life of the Credit Facility. The Credit Facility can be drawn down at any time to finance the Company's working capital requirements, acquisitions, investments and for general corporate purposes.

The financial covenants required the Company to maintain a tangible net worth (exclusive of any prospective write-downs of certain assets) of greater than $1,036.4 million plus 50% of the positive net income from and including the fiscal quarter ended March 31, 2016. As part of the amendment, after March 31, 2019, the financial covenants require the Company to maintain a minimum tangible net worth (exclusive of any prospective write-downs of certain assets) of greater than 70% of its tangible net worth as of March 31, 2019 plus 50% of positive net income from and including the fiscal quarter ended June 30, 2019. In addition, the financial covenants continue to include the requirement for the Company to maintain: (i) a leverage ratio less than or equal to 3.5:1; and (ii) an interest coverage ratio more than or equal to 3.0:1. As of December 31, 2019, the Company was in compliance with all covenants required by the Credit Facility.

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 Credit Facility remained undrawn in 2018. During the year ended December 31, 2019, the Company drew down $335 million, and repaid $60 million, under the Credit Facility, under LIBOR-based interest rates, to fund, in part, the cash purchase price for the Tahoe Acquisition and to repay, in full, and cancel Tahoe's second amended and restated revolving facility, under which $125 million had been drawn.

During the year ended December 31, 2019, the average interest rate incurred by the Company on the Credit Facility was 4.3%. The Credit Facility was not drawn in 2018. During the year ended December 31, 2019, the Company incurred $0.9 million (2018 - $1.4 million) in standby charges on undrawn amounts and $11.6 million (2018 - $nil) in interest on drawn amounts under this Facility.

20. OTHER LONG TERM LIABILITIES

Other long term liabilities consist of:

	December 31, 2019	December 31, 2018
Deferred credit(1)	**$ 20,788**	$ 20,788
Other income tax payable	**118**	227
Severance accruals	**6,848**	4,410
	$ 27,754	$ 25,425

(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.

21. SHARE CAPITAL AND STOCK-BASED COMPENSATION

a. Stock options and Common Shares issued as compensation ("Compensation Shares")

For the year ended December 31, 2019, the total share-based compensation expense relating to stock options and Compensation Shares was $4.4 million (2018 - $3.0 million) and is presented as a component of general and administrative expense.

i. Stock options

During the year ended December 31, 2019, the Company granted 22,788 (2018 – 149,163 stock options) stock options.

During the year ended December 31, 2019, the Company issued 244,299 common shares (2018 – 125,762 shares) in connection with the exercise of stock options.

ii. Replacement options

Following completion of the Tahoe Acquisition (Note 8), the Company issued 835,874 replacement options to eligible Tahoe option holders. These replacement options were fully vested with 12 months of remaining contractual life upon issuance and various exercise prices between CAD $20.52 and CAD $97.26.

iii. Compensation shares

During the year ended December 31, 2019, 22,335 common shares were issued to Directors in lieu of Directors fees of $0.2 million (2018 - 10,338 shares in lieu of fees of $0.2 million).

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, 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**
Granted	22,788	26.54
Granted pursuant to the Tahoe Acquisition (Note 8)	835,874	$ 48.47
Exercised	(244,299)	$ 15.10
Expired	(141,604)	58.45
Forfeited	(27,798)	$ 34.00
As at December 31, 2019	**1,143,348**	**$ 33.84**

The following table summarizes information about the Company's stock options outstanding atDecember 31, 2019:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices CAD$	Number Outstanding as at December 31, 2019	Weighted Average Remaining Contractual Life (months)	Weighted Average Exercise Price CAD$	Number Exercisable as at December 31, 2019	Weighted Average Exercise Price CAD$
$9.76 - $23.61	**476,368**	47.33	$ 14.96	**401,790**	$ 14.48
$23.62 - $35.21	**150,614**	14.30	$ 27.72	**127,826**	$ 27.94
$35.22 - $46.53	**179,488**	4.34	$ 41.72	**179,488**	$ 41.72
$46.54 - $54.15	**189,106**	2.05	$ 51.60	**189,106**	$ 51.60
$54.16 - $97.26	**147,772**	2.34	$ 68.63	**147,772**	$ 68.63
	1,143,348	22.93	$ 33.84	**1,045,982**	$ 35.16

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:

	2019	2018
Expected life	**4.0**	4.0
Expected volatility	**37.1%**	43.8%
Expected dividend yield	**1.0%**	2.1%
Risk-free interest rate	**2.0%**	2.5%
Weighted average exercise price (CAD$)	**$ 26.54**	$ 17.53
Weighted average fair value (CAD$)	**$ 8.34**	$ 5.90

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 75,311 PSUs for 2019 with a share price of CAD $24.88 (2018 - 117,328 PSUs approved at a share price of CAD $17.48). Compensation expense for PSUs was $2.2 million for the year ended December 31, 2019 (2018 - $1.0 million) and is presented as a component of general and administrative expense.

At December 31, 2019, the following PSUs were outstanding:

PSU	Number Outstanding		Fair Value
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**
Granted	75,311		1,784
Paid out	(38,119)		(903)
Forfeited	—		—
Change in value	—		1,924
As at December 31, 2019	**247,601**	**$**	**5,896**

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 $2.5 million for the year ended December 31, 2019 (2018 – $1.7 million) and is presented as a component of general and administrative expense.

At December 31, 2019, the following RSUs were outstanding:

RSU	Number Outstanding		Fair Value
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**
Granted	146,594		3,891
Paid out	(157,584)		(3,140)
Forfeited	(18,617)		(441)
Change in value	—		3,173
As at December 31, 2019	**299,216**	**$**	**7,107**

d. Issued share capital

The Company is authorized to issue 400,000,000 Common Shares without par value.

e. Dividends

The Company declared the following dividends for the years ended December 31, 2019 and 2018:

Declaration Date	Record date	Dividend per common share
February 19, 2020 (1)	March 2, 2020	$ 0.0500
November 6, 2019	November 18, 2019	$ 0.0350
August 7, 2019	August 19, 2019	$ 0.0350
May 8, 2019	May 21, 2019	$ 0.0350
February 20, 2019	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

(1) These dividends were declared subsequent to the year end and have not been recognized as distributions to owners during the period presented.

22. PRODUCTION COSTS

Production costs are comprised of the following:

	2019	2018
Consumption of raw materials and consumables	$ **311,812**	$ 184,484
Employee compensation and benefits expense (1)	**271,684**	167,879
Contractors and outside services	**117,018**	88,475
Utilities	**41,674**	26,320
Other expenses	**74,469**	31,417
Changes in inventories (2)	**24,640**	17,061
	$ **841,297**	$ 515,636

(1) Employee compensation and benefits expense is comprised of:

	2019	2018
Wages, salaries and bonuses	$ **288,015**	$ 181,957
Share-based compensation	**4,448**	2,957
Total employee compensation and benefit expenses	**292,463**	184,914
Less: Expensed within General and Administrative expenses	**(16,156)**	(13,919)
Less: Expensed within Exploration expenses	**(4,623)**	(3,116)
Employee compensation and benefits expenses included in production costs	$ **271,684**	$ 167,879

(2) Includes NRV adjustments to inventory to reduce production costs by $0.4 million for the year ended December 31, 2019 (2018 - increase by $24.3 million).

23. INTEREST AND FINANCE EXPENSE

	2019	2018
Interest expense (recovery)	$ **16,879**	$ (678)
Finance fees	**2,500**	2,293
Accretion expense (Note 17)	**9,903**	6,524
	$ **29,282**	$ 8,139

24. EARNINGS PER SHARE (BASIC AND DILUTED)

For the year ended December 31,	2019			2018		
	Earnings (Numerator)	Shares (000's) (Denominator)	Per-Share Amount	Earnings (Numerator)	Shares (000's) (Denominator)	Per-Share Amount
Net earnings (1)	**$ 110,738**			$ 10,294		
Basic EPS	**$ 110,738**	**201,397**	**$ 0.55**	$ 10,294	153,315	$ 0.07
Effect of Dilutive Securities:						
Stock Options	**—**	**174**		—	207	
Diluted EPS	**$ 110,738**	**201,571**	**$ 0.55**	$ 10,294	153,522	$ 0.07

(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, 2019 were 711,662 out-of-the-money options (2018 – 45,705).

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	2019	2018
Adjustments for non-cash income statement items:		
Share-based compensation expense	**$ 4,448**	$ 2,957
(Gain) loss on securities held	**(83,705)**	3,298
Gains on commodity and foreign currency contracts (Note 9)	**(3,315)**	(4,930)
Loss on derivatives (Note 9)	**14**	1,078
Loss on inventory	**—**	4,670
Share of income from associate and dilution gain (Note 14)	**(15,245)**	(13,679)
Net realizable value adjustment for inventories (Note 22)	**(356)**	24,330
Project development write-down	**1,882**	—
	$ (96,277)	$ 17,724

Changes in non-cash operating working capital items:	2019	2018
Trade and other receivables	**$ 1,545**	$ 6,256
Inventories	**22,753**	(12,128)
Prepaid expenses	**(4,093)**	1,878
Accounts payable and accrued liabilities	**(43,527)**	8,053
Provisions	**(4,622)**	(8,320)
	$ (27,944)	$ (4,261)

Significant non-cash items:	2019	2018
Assets acquired by finance lease	**$ 51,181**	$ 7,028
Share-based compensation issued to employees and directors	**$ 2,693**	$ 1,879

Cash and Cash Equivalents	December 31, 2019	December 31, 2018
Cash in banks	**$ 120,564**	$ 77,735
Short-term money market investments	**—**	60,775
Cash and cash equivalents	**$ 120,564**	$ 138,510

26. SEGMENTED INFORMATION

Operating segments are determined by the way information is reported and used by the Company's Chief Operating Decision Maker ("CODM") to review operating performance. The Company has determined that each producing mine and significant development property represents a reportable segment. The Company has organized its reportable segments by significant revenue streams and geographic regions.

Significant information relating to the Company's reportable segments is summarized in the table below:

For the year ended December 31, 2019

Segment/Country	Mine	Revenue	Production costs and royalties	Depreciation	Mine operating earnings	Capital expenditures
Silver Segment:						
Mexico	Dolores	**$ 248,744**	**$ 191,320**	**$ 104,701**	**$ (47,277)**	**$ 47,722**
	La Colorada	**177,698**	**75,139**	**23,175**	**79,384**	**20,139**
Peru	Huaron	**117,118**	**76,962**	**13,638**	**26,518**	**8,013**
	Morococha	**101,549**	**73,396**	**15,482**	**12,671**	**10,703**
Bolivia	San Vicente	**76,968**	**57,805**	**9,449**	**9,714**	**4,938**
Argentina	Manantial Espejo	**63,289**	**63,432**	**5,854**	**(5,997)**	**23,909**
Guatemala	Escobal	**—**	**—**	**—**	**—**	**1,107**
Total Silver Segment		**785,366**	**538,054**	**172,299**	**75,013**	**116,531**
Gold Segment:						
Peru	Shahuindo	**189,372**	**90,877**	**28,649**	**69,846**	**31,239**
	La Arena	**174,803**	**99,915**	**14,873**	**60,015**	**47,557**
Canada	Timmins	**201,218**	**139,172**	**36,302**	**25,744**	**10,346**
Total Gold Segment		**565,393**	**329,964**	**79,824**	**155,605**	**89,142**
Other segment:						
Canada	Pas Corp	**—**	**—**	**488**	**(488)**	**125**
Argentina	Navidad	**—**	**—**	**—**	**—**	**9**
Other	Other	**—**	**—**	**842**	**(842)**	**—**
Total		**$ 1,350,759**	**$ 868,018**	**$ 253,453**	**$ 229,288**	**$ 205,807**

For the year ended December 31, 2018

Segment/Country	Mine	Revenue	Production costs and royalties	Depreciation	Mine operating earnings	Capital expenditures
Silver Segment:						
Mexico	Dolores	$ 236,835	$ 187,920	$ 83,620	$ (34,705)	$ 59,480
	La Colorada	164,050	70,864	22,567	70,619	22,473
Peru	Huaron	114,739	75,382	12,867	26,490	14,551
	Morococha	117,517	68,066	15,476	33,975	10,370
Bolivia	San Vicente	60,503	43,405	6,200	10,898	6,949
Argentina	Manantial Espejo	90,851	90,672	6,084	(5,905)	29,881
Total Silver Segment		**784,495**	**536,309**	**146,814**	**101,372**	**143,704**
Other segment:						
Canada	Pas Corp	—	—	145	(145)	440
Argentina	Navidad	—	—	—	—	39
Other	Other	—	—	330	(330)	165
Total		**$ 784,495**	**$ 536,309**	**$ 147,289**	**$ 100,897**	**$ 144,348**

A reconciliation of segment mine operating earnings to the Company's earnings before income taxes per the Consolidated Income Statements is as follows:

	2019	2018
Mine operating earnings	**229,288**	100,897
General and administrative	**$ (31,752)**	$ (22,649)
Exploration and project development	**$ (11,684)**	$ (11,138)
Mine care and maintenance	**$ (23,662)**	$ —
Foreign exchange losses	**$ (5,003)**	$ (9,326)
Impairment charges (Note 13)	**$ (40,050)**	$ (27,789)
Gains on commodity and foreign currency contracts (Note 9)	**$ 3,315**	$ 4,930
Gains on sale of mineral properties, plant and equipment (Note 12)	**$ 3,858**	$ 7,973
Share of income from associate and dilution gain (Note 14)	**$ 15,245**	$ 13,679
Transaction and integration costs (Note 8)	**$ (7,515)**	$ (10,229)
Other expense (Note 27)	**$ (4,936)**	$ (3,659)
Earnings from operations	**$ 127,104**	$ 42,689
Loss on derivatives (Note 9)	**$ (14)**	$ (1,078)
Investment income (loss)	**$ 84,704**	$ (284)
Interest and finance expense (Note 23)	**$ (29,282)**	$ (8,139)
Earnings before income taxes	**182,512**	33,188

At December 31, 2019				
Segment/Country	**Mine**	**Assets**	**Liabilities**	**Net assets**
Silver Segment:				
Mexico	Dolores	**$ 763,301**	**$ 137,396**	**$ 625,905**
	La Colorada	**$ 223,416**	**$ 46,476**	**$ 176,940**
Peru	Huaron	**$ 110,642**	**$ 39,962**	**$ 70,680**
	Morococha	**$ 128,280**	**$ 36,754**	**$ 91,526**
Bolivia	San Vicente	**$ 76,418**	**$ 35,331**	**$ 41,087**
Argentina	Manantial Espejo	**$ 77,635**	**$ 27,455**	**$ 50,180**
Guatemala	Escobal	**$ 293,178**	**$ 19,340**	**$ 273,838**
Total Silver Segment		**1,672,870**	**342,714**	**1,330,156**
Gold Segment:				
Peru	Shahuindo	**$ 600,096**	**$ 162,821**	**$ 437,275**
	La Arena	**$ 282,978**	**$ 90,472**	**$ 192,506**
Canada	Timmins	**$ 429,060**	**$ 50,171**	**$ 378,889**
Total Gold Segment		**1,312,134**	**303,464**	**1,008,670**
Other segment:				
Canada	Pas Corp	**$ 229,814**	**$ 304,184**	**$ (74,370)**
Argentina	Navidad	**$ 193,034**	**$ —**	**$ 193,034**
	Other	**$ 53,830**	**$ 43,474**	**$ 10,356**
Total		**$ 3,461,682**	**$ 993,836**	**$ 2,467,846**

At December 31, 2018				
Segment/Country	**Mine**	**Assets**	**Liabilities**	**Net assets**
Silver Segment:				
Mexico	Dolores	$ 791,485	$ 150,003	$ 641,482
	La Colorada	$ 230,736	$ 56,206	$ 174,530
Peru	Huaron	$ 119,015	$ 44,055	$ 74,960
	Morococha	$ 126,755	$ 40,183	$ 86,572
Bolivia	San Vicente	$ 83,686	$ 38,169	$ 45,517
Argentina	Manantial Espejo	$ 20,839	$ 24,994	$ (4,155)
		1,372,516	353,610	1,018,906
Other segment:				
Canada	Pas Corp	$ 247,792	$ 30,221	$ 217,571
Argentina	Navidad	$ 193,777	$ 1,546	$ 192,231
	Other	$ 123,391	$ 38,750	$ 84,641
		$ 1,937,476	$ 424,127	$ 1,513,349

Product Revenue	2019	2018
Refined silver and gold	**894,202**	348,717
Zinc concentrate	**134,992**	155,412
Lead concentrate	**183,343**	150,832
Copper concentrate	**78,865**	86,599
Silver concentrate	**59,357**	42,935
Total	**1,350,759**	784,495

The Company has 23 customers that account for 100% of the concentrate and silver and gold sales revenue. The Company has 7 customers that accounted for 15%, 15%, 13%, 13%, 9%, 8%, and 8% of total sales in 2019, and 7 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 the Company's financial performance, financial position, and cash flows.

27. OTHER INCOME AND (EXPENSES)

	2019	2018
Change in closure and decommissioning estimates	$ **(221)**	$ (2,968)
Royalties income	**909**	631
Other expense	**(5,624)**	(1,322)
Total	$ **(4,936)**	$ (3,659)

28. INCOME TAXES

Components of Income Tax Expense

	2019	2018
Current tax expense (recovery)		
Recognized in profit or loss in current year	**$ 95,219**	$ 59,056
Adjustments recognized in the current year with respect to prior years	**(3,090)**	(5,155)
	92,129	53,901
Deferred tax expense (recovery)		
Deferred tax recovery recognized in the current year	**(13,079)**	(13,256)
Adjustments recognized in the current year with respect to prior years	**(5,003)**	(1,098)
Recognition of previously unrecognized deferred tax assets	**—**	(6,140)
Benefit from previously unrecognized losses, and other temporary differences	**—**	(3,600)
Decrease in deferred tax liabilities due to tax impact of NRV charge to inventory	**(2,779)**	(8,660)
	(20,861)	(32,754)
Income tax expense	**$ 71,268**	$ 21,147

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, 2019 and the comparable period of 2018 were foreign exchange fluctuations, changes in non-recognition of certain deferred tax assets, mining taxes paid, withholding taxes on payments from foreign subsidiaries, and the addition to taxable income from the acquired Tahoe assets. 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

	2019	2018
Earnings before taxes and non-controlling interest	**$ 182,512**	$ 33,188
Statutory Canadian income tax rate	**27.00%**	27.00%
Income tax expense based on above rates	**$ 49,278**	$ 8,961
Increase (decrease) due to:		
Non-deductible expenditures	**7,271**	3,929
Foreign tax rate differences	**2,507**	(2,160)
Change in net deferred tax assets not recognized:		
- Argentina exploration expenditures	**3,117**	3,372
- Other deferred tax assets	**(11,211)**	1,168
Non-taxable portion of net earnings of affiliates	**(132)**	(3,254)
Effect of other taxes paid (mining and withholding)	**21,307**	14,371
Effect of foreign exchange on tax expense	**(7,651)**	1,611
Non-taxable impact of foreign exchange	**4,158**	(351)
Change in non-deductible portion of reclamation liabilities	**8,207**	—
Change in current tax expense estimated for prior years	**(6,694)**	(5,030)
Other	**1,111**	(1,470)
Income tax expense	**$ 71,268**	$ 21,147
Effective income tax rate	**39.05%**	63.72%

Deferred tax assets and liabilities

The following is the analysis of the deferred tax assets (liabilities) presented in the consolidated financial statements:

	2019	2018
Net deferred tax liability, beginning of year	**$ (136,575)**	$ (168,549)
Initial deferred tax liability associated with the Tahoe Acquisition	**(24,080)**	—
Recognized in net earnings in the year	**20,861**	32,754
Reduction due to Mexican de-consolidation payments applied to current tax	**(705)**	(697)
Other	**138**	(83)
Net deferred liability, end of year	**$ (140,361)**	$ (136,575)
Deferred tax assets	**36,447**	12,244
Deferred tax liabilities	**(176,808)**	(148,819)
Net deferred tax liability	**$ (140,361)**	$ (136,575)

Components of deferred tax assets and liabilities

The deferred tax assets (liabilities) are comprised of the various temporary differences, as detailed below:

	2019	2018
Deferred tax assets (liabilities) arising from:		
Closure and decommissioning costs	**$ 16,002**	$ 9,105
Tax losses, resource pools and mining tax credits	**112,188**	29,195
Deductible Mexican mining taxes	**2,701**	2,974
Tax credit resulting from Mexican de-consolidation	**—**	698
Accounts payable and accrued liabilities	**16,865**	6,726
Trade and other receivables	**17,194**	15,756
Provision for doubtful debts and inventory adjustments	**(7,145)**	(11,752)
Mineral properties, plant, and equipment	**(278,707)**	(169,703)
Estimated sales provisions	**(23,026)**	(19,746)
Other temporary differences and provisions	**3,567**	172
Net deferred tax liability	**$ (140,361)**	$ (136,575)

At December 31, 2019, the net deferred tax liability above included the deferred tax benefit of $112.2 million due to tax losses ($49.6 million) and resource pools ($62.6 million). The significant increase in these deferred tax assets from the prior year was primarily related to the Tahoe Acquisition. The losses will begin to expire after the 2024 year end, if unused.

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.

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:

	2019	2018
Tax loss (revenue in nature)	$ **239,216**	$ 131,179
Net tax loss (capital in nature)	**34,646**	14,456
Resource pools and other tax credits	**260,413**	18,266
Financing fees	**2,849**	785
Mineral properties, plant, and equipment	**118,380**	22,669
Closure and decommissioning costs	**141,018**	33,835
Exploration and other expenses not currently deductible	**53,595**	51,175
Intercompany debt	**11,339**	10,160
Doubtful debt and inventory	**23,895**	24,840
Payroll and vacation accruals	**1,055**	827
Other temporary differences	**3,399**	8,217
	$ **889,805**	$ 316,409

Included in the above amounts are operating losses, which if not utilized will expire as follows:

At December 31, 2019

	Canada	US	Peru	Mexico	Barbados	Argentina	Total
2020	—	79	2,110	—	7	1	2,197
2021	—	318	28	—	7	2	355
2022 – and after	215,374	13,185	1,778	2,792	106	3,429	236,664
Total tax losses	**$ 215,374**	**$ 13,582**	**$ 3,916**	**$ 2,792**	**$ 120**	**$ 3,432**	**239,216**

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**

Taxable temporary differences associated with investment in subsidiaries

As at December 31, 2019, taxable temporary differences of $376.5 million (2018 – $85.2 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, 2019.

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. Environment

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, 2019, $188.5 million (2018 - $70.6 million) was accrued for reclamation costs relating to mineral properties. See also Note 17.

c. 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. Argentina

Unanticipated or drastic changes in laws and regulations have affected our operations in the past. For example, under previous political regimes 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. While some of these restrictions had begun to ease after the elections in 2015, the government introduced a new export duty in 2018 on silver and gold doré exported from Argentina (Note 29(h)). Following elections in 2019, the new government in Argentina has begun reinstituting some of the previous unfavorable economic policies, such as strict currency controls.

e. 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 has been delayed by COMIBOL and has not been completed. 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.

f. Other Legal

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 are from current or ex-employees, or employees of former or current owners of our operations such as the Quiruvilca-related claims in Peru, some of which involve claims of significant value, and include alleged improper dismissals, workplace illnesses, such as silicosis, and 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 the subject of three purported class action lawsuits filed in the United States that center primarily around alleged misrepresentations. These U.S. class action lawsuits were later consolidated into one class action suit that is ongoing. 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, or environmental or social damage, and such claimants may seek sizeable monetary damages against us and/or the return of surface or mineral rights or revocation of permits and licenses 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.

g. Title

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. 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.

h. Royalty 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 14), Maverix acquired from the Company a portfolio of royalties, precious metals streams and payment agreements, in exchange for a 54% interest in Maverix (26% fully diluted as at December 31, 2019). 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 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 doré exported, and at ARS 3 per USD $1 of silver doré exported. As a result, the Company paid approximately $3.5 million (2018 - $1.6 million) in export duties, representing an average rate for the export duty of approximately 6% (2018 - 8%).

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 20.

Manantial Espejo

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

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, 2019, the Company incurred approximately $5.1 million in COMIBOL royalties (2018 - incurred $4.8 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, 2019 the royalties paid to EMUSA amounted to approximately $0.8 million (2018 - $0.7 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, 2019, the royalty amounted to $5.5 million (2018 - $4.4 million).

Dolores

Production from the Dolores mine is subject to underlying net smelter return royalties comprised of2% 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 $7.0 million for the year ended December 31, 2019 (2018 – $6.8 million).

Escobal

Some communities and non-governmental organizations ("NGOs") have been vocal and active in their opposition to mining and exploration activities in Guatemala. In July 2017, the Escobal mining license was suspended as a result of a court proceeding initiated by an NGO in Guatemala, based upon the allegation that Guatemala's Ministry of Energy and Mines ("MEM") violated the Xinka indigenous people's right of consultation. After several decisions and appeals on the matter, a decision of the Constitutional Court of Guatemala was rendered on September 3, 2018, determining that the Escobal mining license would remain suspended until the Guatemala MEM completes an ILO 169 consultation. The consultation process is proceeding, with the pre-consultation stage underway. Normal operations at the Escobal mine remain suspended. Legal challenges to the consultation process have been filed with the Guatemalan Supreme Court and the outcome of those challenges is unknown. The process and timing for completing the ILO 169 consultation remains uncertain. In addition, in June 2017, MSR filed its annual request to renew the Escobal mine's export credential with the Guatemala MEM. However, the Guatemala MEM did not renew the export credential because its renewal had become contingent on the Supreme Court's reinstatement of the Escobal mining license. The export credential therefore expired in August 2017 and has not been renewed.

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

Navidad

As a result of uncertainty over the zoning, regulatory and tax laws, the Company has 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, 2019 and 2018 have been disclosed in these consolidated financial statements. Transactions with Maverix, an associate of the Company, have been disclosed in Note 14 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.

Remuneration of key management personnel

The remuneration of directors and other members of key management personnel during the year was as follows:

		2019		2018
Salaries and short-term benefits (1)	**$**	**14,180**	$	13,863
Post-employment benefits (2)		**1,287**		535
Share-based payments (3)		**3,195**		2,446
	$	**18,662**	$	16,844

(1) Includes annual salary and short-term incentives or bonuses earned in the year.
(2) Includes annual contributions to retirement savings plans made by the Company.
(3) Includes annual RSUs, PSUs, stock option and common share grants.

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, 2020 relating to the consolidated financial statements of Pan American Silver Corp. (the "Company") and the effectiveness of the Company's internal control over financial reporting in this Annual Report on Form 40-F of the Company for the year ended December 31, 2019.

/s/ Deloitte LLP

Chartered Professional Accountants
Vancouver, Canada
March 12, 2020

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. "Technical Report for the La Colorada Property, Zacatecas, Mexico" dated effective December 31, 2019 relating to the La Colorada property;
2. "Technical Report for the Dolores Property, Chihuahua, Mexico" dated effective December 31, 2016 relating to the Dolores property;
3. "Technical Report for the Huaron Property, Pasco, Peru" dated effective June 30, 2014 relating to the Huaron property;
4. "Technical Report for the Morococha Property, Yauli, Peru" dated effective June 30, 2014 relating to the Morococha property; and
5. "Pan American Silver Corp. Navidad Project, Chubut Province, Argentina: Preliminary Assessment" dated January 14, 2011 relating to the Navidad 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, 2020 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/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. "Technical Report for the Huaron Property, Pasco, Peru" dated effective June 30, 2014 relating to the Huaron property;
2. "Technical Report for the Morococha Property, Yauli, Peru" dated effective June 30, 2014 relating to the Morococha property; and
3. "Pan American Silver Corp. Navidad Project, Chubut Province, Argentina: Preliminary Assessment" dated January 14, 2011 related to the Navidad 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, 2020 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/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, 2020 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020 .

/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 La Colorada Property, Zacatecas, Mexico" dated effective December 31, 2019 relating to the La Colorada property;
2. "Technical Report for the Dolores Property, Chihuahua, Mexico" dated effective December 31, 2016 relating to the Dolores property;
3. "Technical Report for the Huaron Property, Pasco, Peru" dated effective June 30, 2014 relating to the Huaron property; and
4. "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 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, 2020 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/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 La Colorada Property, Zacatecas, Mexico" dated effective December 31, 2019 relating to the La Colorada 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 12, 2020 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/s/ "Christopher Emerson"
Christopher Emerson, FAusIMM

Exhibit 23.7

CONSENT OF ERIC KALLIO, P.Geo.

To: United States Securities and Exchange Commission

To: Pan American Silver Corp.

Re: Expert Consent for Annual Report on Form 40-F

Technical Reports entitled:

1. "National Instrument 43-101 Technical Report, Timmins West Mine, Timmins, Ontario, Canada" dated effective May 15, 2017; and
2. "NI 43-101 Technical Report, Updated Mineral Reserve Estimate for Bell Creek Mine, Hoyle Township, Timmins, Ontario Canada" effective December 31, 2014

(collectively, the "**Technical Reports**") were prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Eric Kallio, 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 Report and other scientific and technical information attributed to the undersigned (the "**Technical Information**") by Pan American Silver Corp. (the "**Corporation**") in the annual information form of the Corporation, dated March 12, 2020 (the " **AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/s/ "Eric Kallio"
Eric Kallio, P.Geo.

Exhibit 23.8

CONSENT OF NATASHA VAZ, P.Eng.

To: United States Securities and Exchange Commission

To: Pan American Silver Corp.

Re: Expert Consent for Annual Report on Form 40-F

Technical Reports entitled:

1. "National Instrument 43-101 Technical Report, Timmins West Mine, Timmins, Ontario, Canada" dated effective May 15, 2017; and
2. "NI 43-101 Technical Report, Updated Mineral Reserve Estimate for Bell Creek Mine, Hoyle Township, Timmins, Ontario Canada" effective December 31, 2014

(collectively, the "**Technical Reports**") were prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Natasha Vaz, 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 Report and other scientific and technical information attributed to the undersigned (the "**Technical Information**") by Pan American Silver Corp. (the "**Corporation**") in the annual information form of the Corporation, dated March 12, 2020 (the "**AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/s/ "Natasha Vaz"
Natasha Vaz, P.Eng.

Exhibit 23.9

CONSENT OF KARA BYRNES, P.Geo.

To: United States Securities and Exchange Commission

To: Pan American Silver Corp.

Re: Expert Consent for Annual Report on Form 40-F

A technical report titled "National Instrument 43-101 Technical Report, Timmins West Mine, Timmins, Ontario, Canada" dated effective May 15, 2017 (the "**Technical Report**") was prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Kara Byrnes, 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 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 Pan American Silver Corp. (the "**Corporation**") in the annual information form of the Corporation, dated March 12, 2020 (the " **AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/s/ "Kara Byrnes"
Kara Byrnes, P. Geo.

Exhibit 23.10

CONSENT OF TIM WILLIAMS, FAusIMM

To: United States Securities and Exchange Commission

To: Pan American Silver Corp.

Re: Expert Consent for Annual Report on Form 40-F

A technical report titled "Technical Report on the Shahuindo Mine, Cajabamba, Peru" dated effective January 1, 2016 (the " **Technical Report**") was prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Tim Williams, M.Sc., 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 Pan American Silver Corp. (the "**Corporation**") in the annual information form of the Corporation, dated March 12, 2020 (the " **AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/s/ "Tim Williams"
Tim Williams, FAusIMM

Exhibit 23.11

CONSENT OF CARL E. DEFILIPPI, M.Sc., C.E.M.

To: United States Securities and Exchange Commission

To: Pan American Silver Corp.

Re: Expert Consent for Annual Report on Form 40-F

A technical report titled "Technical Report on the Shahuindo Mine, Cajabamba, Peru" dated effective January 1, 2016 (the " **Technical Report**") was prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Carl E. Defilippi, M.Sc., C.E.M., 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 Pan American Silver Corp. (the "**Corporation**") in the annual information form of the Corporation, dated March 12, 2020 (the " **AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/s/ "Carl E. Defilippi"
Carl E. Defilippi, M.Sc., C.E.M.

Exhibit 23.12

CONSENT OF CHARLES V. MUERHOFF, B.Sc.

To: United States Securities and Exchange Commission

To: Pan American Silver Corp.

Re: Expert Consent for Annual Report on Form 40-F

A technical report titled "Technical Report on the Shahuindo Mine, Cajabamba, Peru" dated effective January 1, 2016 (the " **Technical Report**") was prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by Charles V. Muerhoff, B.Sc., 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 Pan American Silver Corp. (the "**Corporation**") in the annual information form of the Corporation, dated March 12, 2020 (the " **AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (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) 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 12th day of March, 2020.

/s/ "Charles V. Muerhoff"
Charles V. Muerhoff, B.Sc.

Exhibit 23.13

CONSENT OF M3 Engineering & Technology Corporation

To: United States Securities and Exchange Commission

To: Pan American Silver Corp.

Re: Expert Consent for Annual Report on Form 40-F

A technical report titled "Escobal Mine Guatemala NI 43-101 Feasibility Study" and dated effective November 5, 2014 (the " **Technical Report**") was prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* by M3 Engineering & Technology Corporation 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 Pan American Silver Corp. (the "**Corporation**") in the annual information form of the Corporation, dated March 12, 2020 (the " **AIF**") and in the Annual Report on Form 40-F of the Corporation, dated March 12, 2020 (the "**40-F**"). The undersigned does also hereby consent to the reference to M3 Engineering & Technology Corporation 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) 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 12th day of March, 2020.

M3 Engineering & Technology Corporation

/s/ "Alberto Bennett"
Name: Alberto Bennett, PE
Title: President

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, 2020

/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, 2020

/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, 2019, 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, 2020

/s/ A. Robert Doyle
By: A. Robert Doyle
Title: Chief Financial Officer
March 12, 2020

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.