Annual Information Form

For the Year
Ended December 31, 2016

July 14, 2017

FORWARD-LOOKING STATEMENTS

This Annual Information Form contains "forward-looking statements" within the meaning of applicable Canadian securities legislation. Such forward-looking statements concern the Company's anticipated results and developments in the Company's operations in future periods, planned exploration and development of its properties, plans related to its business and other matters that may occur in the future. These statements relate to analyses and other information that are based on expectations of future performance, including planned work programs.

Forward-looking statements are made based upon certain assumptions and other important factors that, while considered reasonable by Company, are inherently subject to significant business economic, competitive, political and social uncertainties and contingencies. The Company has made assumptions based on many of these factors which include, without limitation, present and future's business strategies, the environment in which the Company will operate in the future, including the price of gold, silver and zinc and the anticipated cost and the ability to achieve goals. Certain important factors that could cause actual results, performances or achievements to different materially from those in the forward-looking statements include, among others, volatility in the price of silver and gold, discrepancies between actual and estimated mineral reserves and resources and metallurgical recovery, mining operational and development risks, regulatory restrictions, activities by governmental authorities and changes in legislation, community relations, the speculative nature of mineral exploration, the global economic climate, loss of key employees, additional funding requirements and defective title to mineral claims or property. While the Company has attempted to identify important factors that could cause actual actions, events or results to differ from those described in forward-looking statements, there may be factors that cause actions, events or results not to be as anticipated, estimated or intended.

Forward-looking statements are subject to a variety of known and unknown risks, uncertainties and other factors which could cause actual events or results to differ materially from those expressed or implied by the forward-looking statements, including, without limitation, the following and those disclosed in this Annual Information Form under "Description of the Business – Risk Factors":

- risks related to precious and base metal price fluctuations;
- risks related to fluctuations in the currency markets (particularly the Mexican peso, Canadian dollar and United States dollar);
- risks related to the inherently dangerous activity of mining, including conditions or events beyond the Company's control, and operating or technical difficulties in mineral exploration, development and mining activities;
- uncertainty in the Company's ability to raise financing and fund the exploration and development of its mineral properties;
- uncertainty as to actual capital costs, operating costs, production and economic returns, and uncertainty that development activities will result in profitable mining operations;
- risks related to reserves and mineral resource figures being estimates based on interpretations and assumptions which may result in less mineral production under actual conditions than is currently estimated and to diminishing quantities or grades of mineral reserves as properties are mined;
- risks related to governmental regulations and obtaining necessary licenses and permits;
- risks related to the business being subject to environmental laws and regulations which may increase costs of doing business and restrict the Company's operations;
- risks related to mineral properties being subject to prior unregistered agreements, transfers, or claims and other defects in title;
- risks relating to inadequate insurance or inability to obtain insurance;
- risks related to all of the Company's properties being located in Mexico, the United States and Guatemala, including political, economic, social and regulatory instability and community relations requirements; and
- risks related to officers and directors becoming associated with other natural resource companies which may give rise to conflicts of interests.

This list is not exhaustive of the factors that may affect our forward-looking statements. Should one or more of these risks and uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in the forward-looking statements. The Company's forward-looking statements are

based on beliefs, expectations and opinions of management on the date that the statements are made and the Company does not assume any obligation to update forward-looking statements if circumstances or management's beliefs, expectations or opinions change, except as required by law. For the reasons set forth above, investors should not place undue reliance on forward-looking statements.

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GENERAL

Date of Information

All information in this Annual Information Form is as of July 14, 2017 unless otherwise indicated and the information contained herein is current as of such date, unless otherwise stated.

Conversion Table

All data and information is presented in metric units. In this Annual Information Form, the following conversion factors are used:

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	31.103 grams	=	1 ounce (troy)
1.102 tons (short)	=	1 tonne	0.907 tonnes	=	1 ton
0.029 ounces/ton	=	1 gram/tonne	34.28 grams/tonne	=	1 ounce/ton
1 ppm	=	1 gram/tonne			
1 ounce/ton	=	34.286 ppm			
1%	=	10,000 ppm			

Technical Abbreviations

Ag	silver
Au	gold
AuEq	gold equivalent
cm	centimetres
g	grams
g Ag/t	grams of silver per tonne
g AuEq/t	grams of gold equivalent per tonne
g Au/t	grams of gold per tonne
gpt	grams per tonne
ha	hectares
NI 43-101	National Instrument 43-101 Standards of Disclosure for Mineral Projects
km	kilometres
km^2	square kilometres
NSR	net smelter return
m	metres
opt	ounces per ton
oz	ounce(s)
RC	reverse circulation
T	Tonne
>	greater than

Currency

All dollar ($) amounts stated in this Annual Information Form refer to Canadian dollars ($ or Cdn.$) unless United States dollars (U.S.$) are indicated. On July 13, 2017, the daily average exchange rate for the United States dollar in terms of Canadian dollars, as quoted by the Bank of Canada, was U.S.$1.00 = Cdn.$1.2743 (Cdn.$1.00 = U.S.$0.7847). On December 30, 2016, the noon exchange rate for the United States dollar in terms of Canadian dollars, as quoted by the Bank of Canada, was U.S.$1.00 = Cdn.$1.3427 (Cdn.$1.00 = U.S.$0.7448).

Purpose

This Annual Information Form is prepared in the form prescribed by National Instrument 51-102F2 of the Canadian Securities Administrators and is being voluntarily filed with the British Columbia and Alberta Securities Commissions and the TSX Venture Exchange (the "**TSX-V**").

Qualified Persons

Gary Parkison, CPG, Vice President Development of the Company is a "qualified person" within the meaning of NI 43-101 (a "**Qualified Person**"), and he has reviewed and approved the scientific and technical information relating to the Company's mineral properties disclosed in this Annual Information Form. Other Qualified Persons are responsible for the technical and scientific information contained in the technical report incorporated by reference in this Annual Information Form. See "Interests of Experts—Names of Experts".

CORPORATE STRUCTURE

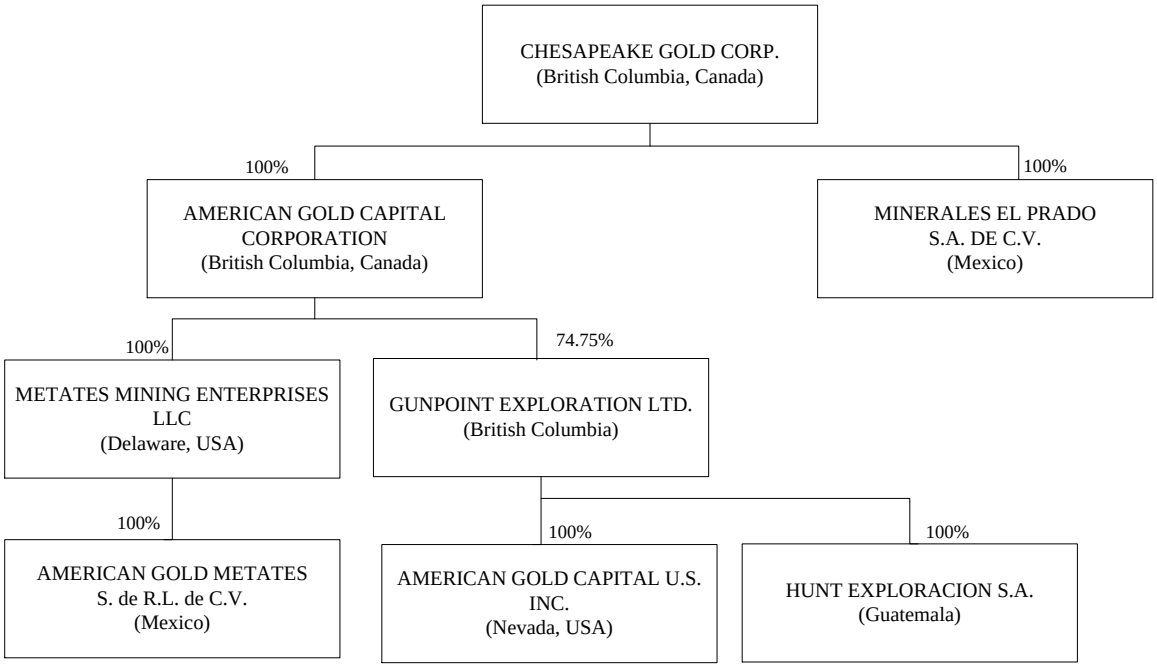
Name, Address and Incorporation

Chesapeake Gold Corp. ("**Chesapeake**" or the "**Company**") was incorporated under the laws of British Columbia on April 18, 2002 and presently exists under the Business Corporations Act (British Columbia). The Company's name was changed from "Chesapeake Gold Ltd." to "Chesapeake Gold Corp." on May 10, 2002.

The Company's head office is located at #201—1512 Yew Street, Vancouver, British Columbia V6K 3E4 and its registered office is located at 19th Floor, 885 West Georgia Street, Vancouver, British Columbia V6C 3H4.

Intercorporate Relationships

The following chart shows the intercorporate relationships among Chesapeake and its material subsidiaries:



Unless the context otherwise requires, references to "Chesapeake" or "the Company" in this Annual Information Form are to the Company and its subsidiaries.

GENERAL DEVELOPMENT OF THE BUSINESS

Chesapeake is a development stage company focusing on the discovery, acquisition and development of major gold-silver deposits in North and Central America. The Company's primary asset is the Metates gold-silver project ("**Metates**") located in Durango State, Mexico. The Metates project is one of the largest undeveloped gold and silver deposits in Mexico.

Three Year History

During the past three years Chesapeake has completed two pre-feasibility studies ("PFS") for Metates. A PFS dated effective October 31, 2013 and titled "Metates Gold-Silver Project – Amended NI 43-101 Technical Report Preliminary Feasibility Study" proposed a large scale mine with Phase 1 processing 60,000 tonnes per day ("tpd") and Phase 2 ore throughput increasing to 120,000 tpd. Inital Phase 1 capital cost was US$2.9 billion with a further US$1.3 billion to fund the Phase 2 ramp-up. The active pit mining was completed in 19 years and all metal production including stockpile ore by year 25.

The second PFS dated effective April 29, 2016 and titled "Metates Gold-Silver Project – NI 43-101 Technical Report Updated Preliminary Feasibility Study" proposed a lower initial ore throughput of 30,000 tpd with staged expansion to 90,000 tpd. Active pit mining is planned for 27 years followed by 10 years of processing stockpiled ore. Initial capital cost is US$1.9 billion with Phase 2 expansion of US$1.6 billion largely funded by internal cash flow over 4 years to reach nameplate capacity.

The two pre-feasibility studies provide viable alternative development options for Metates. Chesapeake does not plan to undertake further detailed engineering and development work at Metates. Management believes the two PFS studies have significantly advanced and de-risked Metates. The scalable mine plans and significant estimated gold-silver-zinc production could be strategic in financing Metates future development.

Chesapeake has been developing a regional organic pipeline of exploration projects near Metates and a proposed plant process site at El Paso. To date, the Company has acquired, through staking and acquisition, four projects; namely, Nicole, San Javier, El Paso and Yarely. Nicole is drill-ready. San Javier and El Paso continue to be explored and are being advanced to the drill stage. During the past year, the Company's primary focus has been assembling properties for the Yarely project which the Company is actively mapping, sampling, trenching and undertaking IP/Resistivity ground geophysics. Exploration work has identified three mineralized hydrothermal systems within a large area of extensive alteration. Yarely is strategically located 20 kilometres from the El Paso plant site. Chesapeake is scheduling a 5,000 metre drill program to commence in late Q3 of this year.

DESCRIPTION OF BUSINESS

General

Business of the Company

Chesapeake is a precious metals explorer with significant gold, silver and zinc assets in Mexico. The Company is focused on the exploration and development of precious metals projects in North and Central America. Chesapeake's major project is its 100% owned Metates gold deposit located in Durango state, Mexico. Metates is one of the largest undeveloped gold and silver projects in the Americas.

The Company also has a portfolio of mineral exploration properties in Mexico comprising 83,000 ha in the states of Durango, Sinaloa, Oaxaca and Veracruz. In addition, the Company owns approximately 75% of Gunpoint Exploration Ltd. ("**Gunpoint**") which owns the Talapoosa gold project in Nevada and two Mexican properties, La Gitana and La Cecilia.

Specialized Skill and Knowledge

Most aspects of the Company's business require specialized skills and knowledge. Such skills and knowledge include the areas of geology, exploration, development, financing and accounting. The Company has executive officers and employees with extensive experience in geology, exploration and mine development in Mexico and other parts of North and Central America. As well, the Company's executive officers, directors and employees have significant experience in mining, international finance, mergers and acquisitions and accounting.

Competitive Conditions

The Company competes with major mining companies and other smaller natural resource companies in the acquisition, exploration, financing and development of new properties and projects in North and Central America. Many of these companies are more experienced, larger and have greater financial resources for, among other things, financing and the recruitment and retention of qualified personnel. See "Risk Factors—Competitive Conditions".

Environmental Protection

The Company's operations are subject to environmental regulations promulgated by government agencies from time to time.

The management of environmental issues will need to be a substantial component of any type of commercial operation at Metates owing to varying climatic conditions and the high sulphide content in the deposit.

Employees

During the financial year ended December 31, 2016, Chesapeake and its subsidiaries had an average of 20 employees and independent contractors. All management functions of the Company are performed by the directors or executive officers of the Company, either directly or through their consulting companies.

Foreign Operations

The Company's activities are currently focused on the Metates Project located in Durango state, Mexico which exposes it to various levels of political, economic and other risks and uncertainties associated with operating in a foreign jurisdiction. As a developing economy, operating in Mexico has certain risks, including changes to or invalidation of government mining regulations; expropriation or revocation of land or property rights; changes in foreign ownership rights; changes in foreign taxation rates; security issues; corruption; uncertain political climate; terrorist actions or war; and lack of a stable economic climate. See "Risk Factors–Foreign Operations".

Significant Acquisitions

There were no significant acquisitions completed by the Company during the financial year ended December 31, 2016.

Social or Environmental Policies

The Company is committed to ensuring that its activities are consistent with the Company's long term goal of gaining community support for its operations. The Company's corporate performance is based on integrity, openness, and respect for employees, the communities in the areas of its operations, and supporting institutions.

In October 2012 Chesapeake signed a six year agreement with Community of San Juan de Camarones ("**SJC**") which provides the Company with surface access to continue the exploration and development of Metates. The annual payments to SJC commencing October 2013 are U.S.$133,325 until 2019. In addition, the Company agreed to a community benefit commitment totalling 2.7 million Mexican pesos (approximately $200,000) over the term of the agreement. In May, 2016, Chesapeake signed a two year agreement with the Ejido El Carrizal which permits the Company to conduct exploration work and feasibility studies at the El Paso site in Sinaloa state. The annual payments are U.S.$10,000.

Risk Factors

The following factors are those which are the most applicable to the Company. The discussion which follows is not inclusive of all potential risks. Risk management is an ongoing exercise upon which the Company spends a substantial amount of time. While it is not possible to eliminate all of the risks inherent to the mining business, the Company strives to manage these risks, to the greatest extent possible, to ensure that its assets are protected.

Precious and Base Metal Price Fluctuations

The profitability of the precious and base metal operations in which the Company has an interest will be significantly affected by changes in the market prices of precious and base metals. Prices for precious and base metals fluctuate on a daily basis, have historically been subject to wide fluctuations and are affected by numerous factors beyond the control of the Company such as the level of interest rates, the rate of inflation, central bank transactions, world supply of the precious and base metals, foreign currency exchange rates, international investments, monetary systems, speculative activities, international economic conditions and political developments. The exact effect of these factors cannot be accurately predicted, but the combination of these factors may result in the Company not receiving adequate returns on invested capital or the investments retaining their respective values. Declining market prices for these metals could materially adversely affect the Company's operations and profitability.

Foreign Exchange Rate Fluctuations

The Company raises its funds through equity issuances which are priced in Canadian dollars. The Company maintains the majority of its cash and cash equivalents in Canadian dollars, United States dollars and Mexican pesos. By virtue of its international operations, the Company incurs costs and expenses in foreign currencies other than the Canadian dollar. The exchange rates covering such currencies, including the United States dollar, are subject to fluctuation which gives rise to foreign currency exposure, either favourable or unfavourable. The Company does not hedge the United States dollar against the Canadian dollar. The Company does not undertake steps to mitigate transactional volatility in Mexican pesos.

Operating Hazards and Risks

Mining operations generally involve a high degree of risk, which even a combination of experience, knowledge and careful evaluation may not be able to overcome. These risks include, but are not limited to, the following: environmental hazards, industrial accidents, third party accidents, unusual or unexpected geological structures or formations, fires, power outages, labour disruptions, floods, explosions, cave-ins, land-slides, acts of God, periodic interruptions due to inclement or hazardous weather conditions, earthquakes, war, rebellion, revolution, delays in transportation, inaccessibility to property, restrictions of courts and/or government authorities, other restrictive matters beyond the reasonable control of the Company, and the inability to obtain suitable or adequate machinery, equipment or labour and other risks involved in mineral property exploration and development.

Operations in which the Company has a direct or indirect interest will be subject to all the hazards and risks normally incidental to exploration and development of precious and base metals, any of which could result in work stoppages, resultant losses, asset write downs, damage to or destruction of equipment, damage to life and property, environmental damage and possible legal liability for any or all damages. The Company may become subject to liability for pollution or hazards against which it cannot insure or against which it may elect not to insure. Any compensation for such liabilities may have a material, adverse effect on the Company's financial position.

The Company's liability insurance may not provide sufficient coverage for losses related to these or other hazards. Insurance against certain risks, including certain liabilities for environmental pollution, may not be available to the Company or to other companies within the industry at reasonable terms or at all. In addition, the Company's insurance coverage may not continue to be available at economically feasible premiums, or at all. Any such event could have a material adverse effect on the Company's business.

Exploration and Development

There is no assurance given by the Company that its exploration and development programs and properties will result in the discovery, development or production of a commercially viable ore body.

The business of exploration for minerals and mining involves a high degree of risk. Few properties that are explored are ultimately developed into producing mines.

The economics of developing silver, gold and other mineral properties are affected by many factors including capital and operating costs, variations of the tonnage and grade of ore mined, fluctuating mineral markets, and such other factors as government regulations, including regulations relating to royalties, allowable production, importing and exporting of minerals and environmental protection. Depending on the prices of silver, gold or other minerals produced, the Company may determine that it is impractical to commence commercial production. Substantial expenditures are required to discover an ore-body, to establish reserves, to identify the appropriate metallurgical processes to extract metal from ore, and to develop the mining and processing facilities and infrastructure. The marketability of any minerals acquired or discovered may be affected by numerous factors which are beyond the Company's control and which cannot be accurately foreseen or predicted, such as market fluctuations, conditions for precious and base metals, the proximity and capacity of milling and smelting facilities, and such other factors as government regulations, including regulations relating to royalties, allowable production, importing and exporting minerals and environmental protection. In order to commence exploitation of certain properties presently held under exploration concessions, it is necessary for the Company to apply for an exploitation concession. There can be no guarantee that such a concession will be granted. Unsuccessful exploration or development programs could have a material adverse impact on the Company's operations and profitability.

Calculation of Resources and Precious Metal Recoveries

There is a degree of uncertainty attributable to the calculation and estimates of resources and their corresponding metal grades to be mined and recovered. Until resources are actually mined and processed, the quantities of mineralization and metal grades must be considered as estimates only. Any material change in the quantity of mineral resources, grades and recoveries may affect the economic viability of the Company's properties.

Acquisition Strategy

As part of the Company's business strategy, it has sought and will continue to seek new mining and development opportunities in the mining industry. In pursuit of such opportunities, it may fail to select appropriate acquisition candidates, negotiate appropriate acquisition terms, conduct sufficient due diligence to determine all related liabilities or to negotiate favourable financing terms. The Company may encounter difficulties in transitioning the business, including issues with the integration of the acquired businesses or its personnel into the Company. The Company cannot assure that it can complete any acquisition or business arrangement that it pursues, or is pursuing, on favourable terms, or that any acquisitions or business arrangements completed will ultimately benefit its business.

Competitive Conditions

Significant competition exists for natural resource acquisition opportunities. As a result of this competition, some of which is with large, well established mining companies with substantial capabilities and significant financial and technical resources, the Company may be unable to either compete for or acquire rights to exploit additional attractive mining properties on terms it considers acceptable. Accordingly, there can be no assurance that the Company will be able to acquire any interest in projects that would yield reserves or results for commercial mining operations.

Foreign Operations

The Company's operations are currently conducted through subsidiaries principally in Mexico and, as such, its operations are exposed to various levels of political, economic and other risks and uncertainties which could result in work stoppages, blockades of the Company's mining operations and appropriation of assets. Some of the Company's operations are located in areas where Mexican drug cartels operate. These risks and uncertainties vary

from region to region and include, but are not limited to, terrorism; hostage taking; local drug gang activities; military repression; expropriation; extreme fluctuations in currency exchange rates; high rates of inflation; labour unrest; the risks of war or civil unrest; renegotiation or nullification of existing concessions, licenses, permits and contracts; illegal mining; changes in taxation policies; restrictions on foreign exchange and repatriation; and changing political conditions, currency controls and governmental regulations that favour or require the awarding of contracts to local contractors or require foreign contractors to employ citizens of, or purchase supplies from, a particular jurisdiction.

Although the Company strives to maintain good relations with the local community in Mexico by providing employment opportunities and social services, local opposition to mine development projects could arise in Mexico, and such opposition could be violent. There can be no assurance that such local opposition will not arise with respect to the Company's foreign operations. If the Company were to experience resistance or unrest in connection with its operations, it could have a material adverse effect on its operations.

The Company has entered into an agreement with the Community of San Juan de Camarones for the purpose of conducting exploration activities. See "Description of Business – Social or Environmental Policies".

To the extent the Company acquires mineral properties in jurisdictions other than Mexico, it may be subject to similar and additional risks with respect to its operations in those jurisdictions.

Government Regulation

The Company's operations, exploration and development activities are subject to extensive foreign federal, state and local laws and regulations governing such matters as environmental protection, management and use of toxic substances and explosives, management of natural resources, health, exploration and development of mines, production and post-closure reclamation, safety and labour, mining law reform, price controls import and export laws, taxation, maintenance of claims, tenure, government royalties and expropriation of property. There is no assurance that future changes in such regulation, if any, will not adversely affect the Company's operations. The activities of the Company require licenses and permits from various governmental authorities.

The costs associated with compliance with these laws and regulations are substantial and possible future laws and regulations, changes to existing laws and regulations and more stringent enforcement of current laws and regulations by governmental authorities, could cause additional expenses, capital expenditures, restrictions on or suspensions of the Company's operations and delays in the development of its properties. Moreover, these laws and regulations may allow governmental authorities and private parties to bring lawsuits based upon damages to property and injury to persons resulting from the environmental, health and safety practices of the Company's past and current operations, or possibly even those actions of parties from whom the Company acquired its properties, and could lead to the imposition of substantial fines, penalties or other civil or criminal sanctions. The Company retains competent and well trained individuals and consultants in jurisdictions in which it does business, however, even with the application of considerable skill the Company may inadvertently fail to comply with certain laws. Such events can lead to financial restatements, fines, penalties, and other material negative impacts on the Company.

Obtaining and Renewing of Government Permits

In the ordinary course of business, the Company is required to obtain and renew government 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 is a complex and time-consuming process involving numerous jurisdictions and possibly involving public hearings and costly undertakings on the Company's part. The duration and success of the Company's efforts to obtain and renew permits are contingent upon many variables not within its control including the interpretation of applicable requirements implemented by the permitting authority. The Company may not be able to obtain or renew permits that are necessary to its operations, or the cost to obtain or renew permits may exceed what the Company believes it can recover from a given property once in production. Any unexpected delays or costs associated with the permitting process could delay the development or impede the operation of a mine, which could adversely impact the Company's operations and profitability.

Environmental Factors

All phases of the Company's operations are subject to environmental regulation in the various jurisdictions in which it operates. Environmental legislation is evolving in a manner which will require stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects and a heightened degree of responsibility for companies and their officers, directors and employees. There is no assurance that any future changes in environmental regulation, will not adversely affect the Company's operations. The costs of compliance with changes in government regulations have the potential to reduce the profitability of future operations. Environmental hazards that may have been caused by previous or existing owners or operators may exist on the Company's mineral properties, but are unknown to the Company at the present.

Title to Assets

Although the Company has received title opinions for properties in which it has a material interest, there is no guarantee that title to such properties will not be challenged or impugned. While the mining claims in which the Company has, or has the right to acquire, an interest have been surveyed, the precise location of the boundaries of the claims and ownership of mineral rights in specific tracts of land comprising the claims may be challenged. The Company's mineral concessions may be subject to prior unregistered agreements or transfers or native land claims and title may be affected by unidentified or unknown defects. The Company has conducted as thorough an investigation as possible on the title of properties that it has acquired or will be acquiring to be certain that there are no other claims or agreements that could affect its title to the concessions or claims. If title to the Company's properties is disputed it may result in the Company paying substantial costs to settle the dispute or clear title and could result in the loss of the property, which events may affect the economic viability of the Company.

Uncertainty of Funding

The Company has limited financial resources, and the mineral concessions in which the Company has an interest require financial expenditures to be made by the Company. There can be no assurance that adequate funding will be available to the Company so as to maintain its interests. Further exploration work and development of the properties in which the Company has an interest depend upon the Company's ability to obtain financing through joint venturing of projects, debt financing or equity financing or other means. Failure to obtain financing on a timely basis could cause the Company to forfeit all or parts of its interests in mineral properties or reduce or terminate its operations.

Mining Operations

The capital costs required by the Company's projects may be significantly higher than anticipated. Capital and operating costs, production and economic returns, and other estimates contained in the Company's current technical report and PFS may differ significantly from those provided for in future studies and estimates and from management guidance and, in the event that the Company decides to initiate mine development and construction, there can be no assurance that the Company's actual capital and operating costs will not be higher than presently anticipated. In addition, delays to construction and exploration schedules may negatively impact the net present value and internal rates of return of the Company's mineral properties as set forth in the applicable report.

Employee Recruitment and Retention

Recruiting and retaining qualified personnel is critical to the Company's success. The Company is dependent on the services of key executives and other highly skilled and experienced executives and personnel focused on managing the Company's interests. The number of persons skilled in acquisition, exploration, development and operation of mining properties are limited and competition exists to attract such persons. As the Company's business activity grows, the Company will require additional key financial, administrative and mining personnel as well as additional operations staff. If the Company is not able to attract, hire and retain qualified personnel, the efficiency of its operations could be impaired, which could have an adverse impact on the Company's results of operations and financial condition.

Infrastructure

Development and exploration activities depend, to one degree or another, on adequate infrastructure. Reliable roads, bridges, power sources and water supply are important determinants, which affect capital and operating costs. The lack of availability on acceptable terms or the delay in the availability of any one or more of these items could prevent or delay exploitation or development of the Company's projects. If adequate infrastructure is not available in a timely manner, there can be no assurance that the exploitation or development of the Company's projects will be commenced or completed on a timely basis, if at all; or the construction costs and ongoing operating costs associated with the exploitation and/or development of the Company's advanced projects will not be higher than anticipated. In addition, unusual or infrequent weather phenomena, sabotage, government or other interference in the maintenance or provision of such infrastructure could adversely affect the Company's operations and profitability.

Fluctuations in the price of consumed commodities

Prices and availability of commodities consumed or used in connection with exploration, development and mining, such as natural gas, diesel, oil, electricity, cyanide and other reagents fluctuate affecting the costs of the Company's operations. These fluctuations can be unpredictable, can occur over short periods of time and may have a materially adverse impact on the Company's operating costs or the timing and costs of various projects. The Company's general policy is not to hedge its exposure to changes in prices of the commodities it uses in its business.

Potential Conflicts of Interest

The directors and officers of the Company may serve as directors and/or officers of other public and private companies, and may devote a portion of their time to manage other business interests. This may result in certain conflicts of interest. To the extent that such other companies may participate in ventures in which the Company is also participating, such directors and officers of the Company may have a conflict of interest in negotiating and reaching an agreement with respect to the extent of each company's participation. The laws of British Columbia, Canada, require the directors and officers to act honestly, in good faith, and in the best interests of the Company and its shareholders. However, in conflict of interest situations, directors and officers of the Company may owe the same duty to another company and will need to balance the competing obligations and liabilities of their actions.

There is no assurance that the needs of the Company will receive priority in all cases. From time to time, several companies may participate together in the acquisition, exploration and development of natural resource properties, thereby allowing these companies to: (i) participate in larger properties and programs; (ii) acquire an interest in a greater number of properties and programs; and (iii) reduce their financial exposure to any one property or program. A particular company may assign, at its cost, all or a portion of its interests in a particular program to another affiliated company due to the financial position of the company making the assignment. In determining whether or not the Company will participate in a particular program and the interest therein to be acquired by it, it is expected that the directors and officers of the Company will primarily consider the degree of risk to which the Company may be exposed and its financial position at that time.

Absolute Assurance on Financial Statements

The Company prepares its financial statements in accordance with accounting policies and methods prescribed by Canadian generally accepted accounting principles. In the preparation of financial statements, management may need to rely upon assumptions, make estimates or use their best judgment in determining the financial condition of the Company. In order to have a reasonable level of assurance that financial transactions are properly authorized, assets are safeguarded against unauthorized or improper use and transactions are properly recorded and reported, the Company has implemented and continue to analyze its internal control systems for financial reporting. Although the Company believes that its financial reports and financial statements are prepared with reasonable safeguards to ensure reliability, the Company cannot provide absolute assurance in that regard.

General Economic Conditions

The unprecedented events in global financial markets during the last few years have had a profound effect on the global economy. Many industries, including the gold and silver mining industry, are affected by these market

conditions. Some of the key effects of the current financial market turmoil include contraction in credit markets resulting in a widening of credit risk, devaluations and high volatility in global equity, commodity, foreign exchange and precious metal markets, and a lack of market 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 the Company's growth and profitability.

Specifically:

- the global credit/liquidity crisis could affect the cost and availability of financing and the Company's overall liquidity;
- volatile energy prices, commodity and consumables prices and currency exchange rates affect the Company's operating costs;
- the devaluation and volatility of global stock markets affects the valuation of the Company's equity securities; and
- during sustained periods of lower interest rates, the Company's interest income will be reduced as higher yielding cash equivalents and short-term investments mature and the proceeds are invested at the lower interest rates.

These factors could have a material adverse effect on the Company's financial condition and results of operations.

Passive Foreign Investment Company Consequences

The Company has not made a determination as to whether it is considered a "passive foreign investment company" (a "**PFIC**") as such term is defined in the U.S. Internal Revenue Code of 1986, as amended (the "**Code**"), for U.S. federal income tax purposes for the current tax year and any prior tax years. A non-U.S. corporation generally will be considered a PFIC for any taxable year if either (1) at least 75% of its gross income is passive income or (2) at least 50% of the value of its assets (based on an average of the quarterly values of the assets during a taxable year) is attributable to assets that produce or are held for the production of passive income.

In general, if the Company is or becomes a PFIC, any gain recognized on the sale of securities and any "excess distributions" (as specifically defined in the Code) paid on the securities must be rateably allocated to each day in a U.S. taxpayer's holding period for the securities. The amount of any such gain or excess distribution allocated to prior years of such U.S. taxpayer's holding period for the securities generally will be subject to U.S. federal income tax at the highest tax applicable to ordinary income in each such prior year, and the U.S. taxpayer will be required to pay interest on the resulting tax liability for each such prior year, calculated as if such tax liability had been due in each such prior year.

Substantial Volatility of Share Price

In recent years, the securities markets in the United States and Canada have experienced a high level of price and volume volatility, and the securities of many mineral exploration companies have experienced wide fluctuations in price which have not necessarily been related to the operating performance, underlying asset values or prospects of such companies. The price of the Company's Common Shares (as defined under "Capital Structure") is also likely to be significantly affected by short-term changes in mineral prices or in the Company's financial condition or results of operations as reflected in its quarterly financial reports. Other factors unrelated to the Company's performance that may have an effect on the price of Common Shares include the following: the extent of analytical coverage available to investors concerning the Company's business may be limited if investment banks with research capabilities do not follow the Company's securities; lessening in trading volume and general market interest in the Company's securities may affect an investor's ability to trade significant numbers of the Common Shares; the size of the Company's public float may limit the ability of some institutions to invest in the Company's securities; and a substantial decline in the price of the Common Shares that persists for a significant period of time could cause the Company's securities to be delisted from the TSX-V, further reducing market liquidity.

Potential dilution of present and prospective shareholdings

In order to finance future operations and development efforts, the Company may raise funds through the issue of Common Shares or the issue of securities convertible into Common Shares. The Company cannot predict the size of future issues of Common Shares or the issue of securities convertible into Common Shares or the effect, if any, that future issues and sales of Common Shares will have on the market price of the Common Shares. Any transaction involving the issue of Common Shares, or securities convertible into Common Shares, could result in dilution, possibly substantial, to present and prospective holders of Common Shares.

Lack of Dividends

The Company has paid no dividends on the Common Shares to date. The Company currently plans to retain all future earnings and other cash resources, if any, for the future operation and development of its business. Payment of any future dividends, if any, will be at the discretion of the Board of Directors after taking into account many factors, including the Company's operating results, financial condition, and current and anticipated cash needs.

Financial Instruments

From time to time, the Company may use and has used certain financial instruments for investment purposes such as asset-backed commercial paper or to manage the risks associated with changes in gold and silver prices, interest rates and foreign currency exchange rates. The use of financial instruments involves certain inherent risks including, among other things: (i) credit risk, the risk of default on amounts owing to the Company by the counterparties with which Company has entered into such transaction; (ii) market liquidity risk, the risk that the Company has entered into a position that cannot be closed out quickly, either by liquidating such financial instrument or by establishing an offsetting position; (iii) unrealized mark-to-market risk, the risk that, in respect of certain financial instruments, an adverse change in market prices for commodities, currencies or interest rates will result in the Company incurring an unrealized mark-to-market loss in respect of such derivative products.

DESCRIPTION OF MINERAL PROPERTIES

Metates Project

The following summary of the Metates Project is extracted from the "Metates Gold-Silver Project – NI 43-101 Technical Report Updated Preliminary Feasibility Study" (the "**Updated PFS**") dated effective April 29, 2016 and prepared for the Company by M3 Engineering and Technology Corp. and other consultants (see "Interests of Experts—Names of Experts"). The authors of the PFS are Qualified Persons. The detailed disclosure on the Metates Project in the PFS is incorporated into this Annual Information Form by reference and the following summary is subject to all the assumptions, qualifications and procedures set out in the PFS. A copy of the PFS was filed by the Company on May 3, 2016 on SEDAR and may be accessed under the Company's profile at www.sedar.com.

Introduction

Chesapeake Gold Corp. (Chesapeake) commissioned M3 Engineering & Technology (M3) of Tucson, Arizona to prepare an updated preliminary feasibility study (Updated PFS) for the Metates Gold-Silver Project in Durango, Mexico. The study is compliant with Canadian reporting regulations as defined in National Instrument 43-101 (NI 43-101). This Updated PFS presents an alternative development option to the previous PFS that was filed on the SEDAR website on March 27, 2013 and had an effective date of March 18, 2013 (2013 PFS). The primary reason behind the updated PFS was to define a lower initial capital cost scenario over that of the 2013 PFS while maintaining key operating efficiencies, economies of scale and significant cash flow to support future expansion. This Updated PFS development option explores the feasibility of starting with a smaller Phase 1 operation at 30,000 tpd with a staged Phase 2 expansion to 90,000 tpd by year 5.

Since the publication of the updated Preliminary Economic Assessment (PEA) report in April 2011, Chesapeake has continued to study the project at a preliminary feasibility level. New drilling data has led to a better, more accurate definition of the ore body, making possible the declaration of mineral reserves. This Updated PFS is based on additional and comprehensive data and offers a very detailed design of the process facilities and tailing, waste rock and neutralization waste storage at the Metates and El Paso sites. Capital cost savings in the Updated PFS are realized in part by the leasing of the mine fleet, outsourcing of the dedicated power plant, oxygen plant, desalination plant, limestone/lime production and relocation of the process plant site and related scope changes.

Key Data

Key project parameters are presented in Table 1-1 including a summary of the project size, production, operating costs, metal prices, and financial indicators.

Table 1-1: Key Project Data

Mine Life/Operation Life	27 years/37 years
Mine Type:	Open Pit
Process Description:	Crushing, grinding, flotation, dry-stack tailing deposition, Acid POX, cyanide leach, MerrillCrowe Au/Ag recovery, SX-EW Zn recovery
Total Material Mined, LOM, kt	2,309,887
Total Waste Tons, LOM, kt	1,207,558
Total Ore Processed, LOM, kt	1,102,329
Waste: Ore Ratio, LOM	1.10
Design Mill Throughput, tpd Phase 1/Phase 2	30,000/90,000
Gold Ore Grade, g/t, LOM	0.516
Silver Ore Grade, g/t, LOM	14.2
Zinc Grade, %, LOM	0.164
Phase 1 Capital Costs (US$000's)	$1,909,644
Phase 2 Capital Costs (US$000's)	$1,586,771
Combined Phase 1 & 2 Capital Costs (US$000's)	$3,496,415
Sustaining Capital Costs (US$000's)	$122,973
Metal Production, LOM	
Gold troy ounces (000's)	16,490
Silver troy ounces (000's)	327,490
Zinc pounds (000's)	3,265,291

Operating Period	**Phase 1/yr 1-4**	**Phase 2/yr 5-27**	**Phase 2/yr 28-37**	**Life of Mine**
Ave. Annual Gold (000's ozs)	146	579	254	445
Ave. Annual Silver (000's ozs)	16,157	8,183	7,482	8,856
Ave. Annual Zinc (000's lbs)	48,715	89,070	102,182	88,251
Strip Ratio (waste/ore)	0.93	1.11	0.00	1.10
Byproduct Gold Cash Cost	($339/ounce)	$666/ounce	$651/ounce	$628/ounce

Financial Indicators	**Low Case**	**Base Case**	**High Case**
Gold Price ($ per troy ounce)	$1,100.00	$1,250.00	$1,400.00
Silver Price ($ per troy ounce)	$17.60	$20.00	$22.40
Zinc Price ($ per pound)	$0.88	$1.00	$1.12
Pre-Tax Project Internal Rate of Return (IRR %)	6.4%	10.9%	14.7%
Pre-Tax NPV at 5% Discount Rate ($000's)	375,463	$1,779,313	$3,183,162
Pre-Tax Payback (years)	11.2	8.7	7.2
After Tax Project Internal Rate of Return (IRR %)	3.3%	7.7%	11.3%
After Tax NPV at 5% Discount Rate ($000's)	($395,012)	$737,416	$1,842,627
After Tax Payback (years)	15.4	10.1	8.4

Property Description and Location

Metates Site

The Metates Project is composed of two different sites, both located in northwest Mexico. The Metates mine site is in the northwestern part of Durango State, some 160 km northwest of the city of Durango and 175 km north of the coastal resort city of Mazatlán. Geographic coordinates of the Metates deposit area are 24°55'N latitude and 106°23'W longitude (Figure 1-1).

Topography at the Metates site is mountainous with elevations in the general region ranging from 620 meters in the west near the village of San Juan de Camarones to 2,300 meters along the ridge line to the southeast. Elevations in the immediate Metates Project area range from 650 to 1,180 meters in the area of the concentrator site.

The Metates property is composed of twelve contiguous concessions totaling 4,261 hectares in area. These concessions are held in the name of American Gold Metates, S. de R.L. de C.V., an indirect 99.9%-owned subsidiary of Chesapeake. All of these concessions are in good standing with applicable taxes, payments, and filings being current.

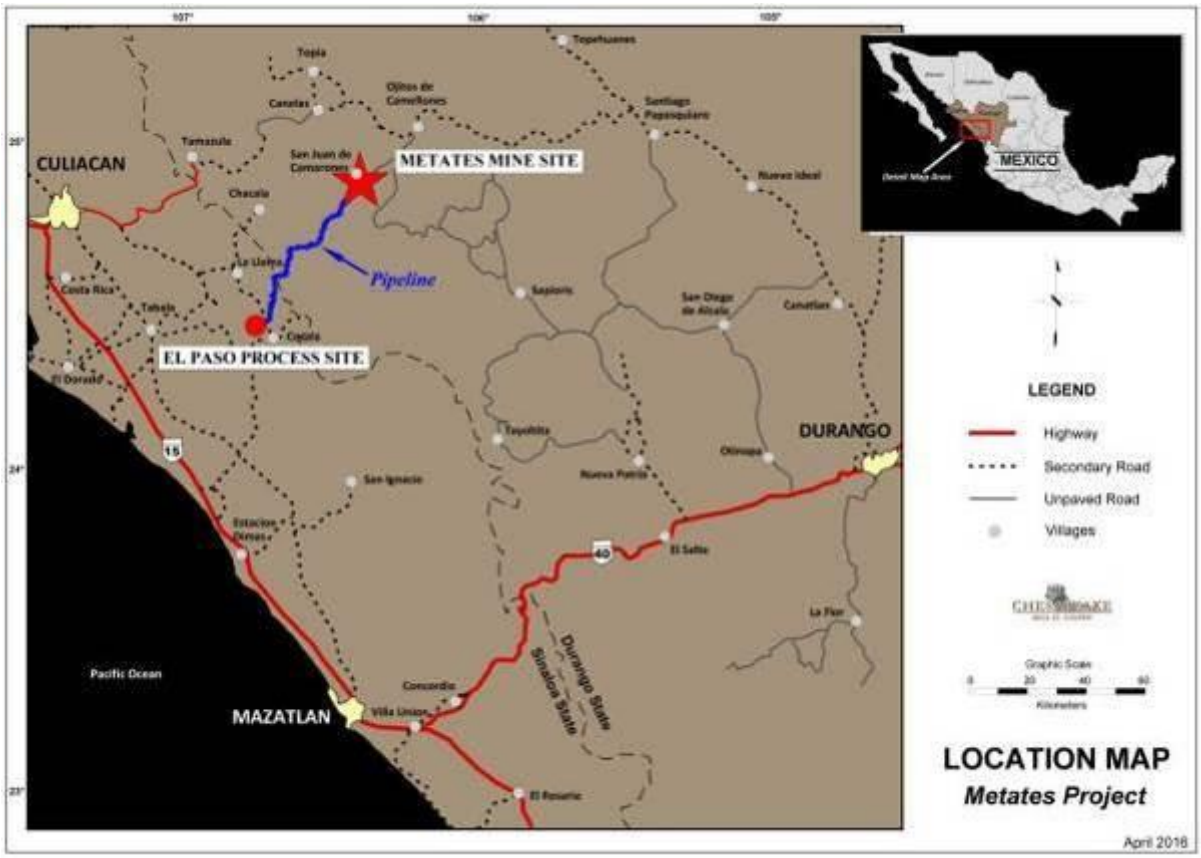


Figure 1-1: Metates Project Location Map

El Paso Site

The El Paso site is located in the state of Sinaloa, Mexico, approximately 75 km southeast of the City of Culiacan, 60 km southwest of the Metates mine site, and 6 km north of the town of Cosala. The topography of the general region is characterized by isolated valleys and ranges with an elevation at the processing plant at 400 meters. The geographic coordinates of the El Paso project area are 24°28'N latitude and 106°43'W longitude. The El Paso site is

adjacent to a paved road extending north from Cosala, a town of about 12,000 people. An access road will need to be improved and/or constructed to connect the El Paso site with the Metates site.

History

Table 1-2 outlines the history of exploration/mining at Metates, from the early Spanish colonial times of the 17th and 18th centuries to the present. The first extensive work on the property is thought to be that of Sr. Roberto Erraguin, who developed at least one adit targeting mineralization in the sediments, and also possibly an adit into the intrusive hosted mineralization as well.

From 1980 to 1983, Minas Frisco and a subsidiary of British Petroleum ("Frisco/BP") followed up on the earlier work of Sr. Erraguin, drilling numerous holes that targeted primarily the sedimentary-hosted massive sulfide base metalrich mineralization. The entire available core from this drilling was re-logged and assayed by Cambior.

In 1987, after the Frisco/BP venture returned the property to Sr. Erraguin, Luismin optioned the concessions. Luismin's early stage exploration determined that the intrusive-hosted mineralization represented a large-tonnage, disseminated-type deposit. Luismin drilled four deep core holes in 1992 in the most geochemically anomalous area and intercepted significant lengths of continuously mineralized material with low-grade gold and silver.

In early 1993, Cambior and Luismin entered into a joint venture, whereby Cambior could earn an initial 50% of the property through a combination of exploration expenditures and the preparation of a feasibility study. Between 1993 and 1997, Cambior carried out extensive work on the Metates property, culminating in the preparation of a preliminary feasibility study, dated July 1997.

Since acquiring the Metates property in 2007, Chesapeake has completed extensive drilling and related assaying in order to validate the Cambior data and to allow for its incorporation into a succession of NI 43-101 compliant resource estimates. In addition Chesapeake and independent consultants have prepared several NI 43-101 compliant PEA technical reports and issued a preliminary feasibility study in March 2013 (2013 PFS). This technical report will update the 2013 PFS and describe a lower capital cost alternate development option as well as several scope changes in relation to site locations, waste storage, and water and power supply.

Table 1-2: Property History

Date	Entity	Work Program	Significant Results
Pre–1978	Spanish colonists and artisanal miners	Small-scale mining in district	None recorded
1978	Roberto Erraguin	25 tpd mill to treat ore from vein structures in sediments	None recorded
1980–1983	Minas Frisco/BP	28 diamond drillholes	Both sedimentary and intrusive mineralization were intersected
1987–1992	Luismin	4 diamond drillholes	Tonnage calculated on Main Zone (intrusive)
1993–1997	Cambior/Luismin JV	Intensive drilling/ Preliminary Feasibility Study	Large tonnage/low grade deposit outlined
1998–1999	Cambior/Luismin JV	Property idle	
2000–2002	Ownership changes	Property idle	
2003–2004	Wheaton/Glamis JV	Resumption of work contemplated, but none performed	None recorded, but NI 43-101 report published by WGM
2004–2007	American Gold	Property acquired by American Gold, but no work undertaken on-site	None recorded
2007–2008	Chesapeake	Engineering studies and 37 core drillholes	NI 43-101 Report
2009–2010	Chesapeake	Metallurgical and engineering studies	NI 43-101 Preliminary Economic Assessment

Date	Entity	Work Program	Significant Results
2011	Chesapeake	Continued metallurgical and engineering studies; extensive drilling	NI 43-101 Updated Preliminary Economic Assessment
2012-2013	Chesapeake	Metallurgical and engineering studies	NI43-101 Preliminary Feasibility Study
2014-2016	Chesapeake	Limited drilling, extensive engineering and infrastructure studies	Updated NI 43-101 Preliminary Feasibility Study

Geological Setting and Deposit Type

Geology

The local geology shows the Metates Project is situated within a window of Mesozoic basement rocks exposed by erosion of the extensive flat-lying Tertiary volcanic cover. The basement complex of Cretaceous- to Jurassic-aged rocks consists of a monotonous sequence of interbedded sandstones, shales, and argillites. In general, the lower horizons are finer-grained and thinly bedded, with the grain size and bedding thickness tending to increase up section. The sedimentary package measures at least 1,000 m in exposed thickness, but the true thickness could be somewhat less, due to the presence of intra-formational thrust faulting and isoclinal folding. A variable amount of black carbonaceous material is present throughout the sequence, with organic carbon content ranging up to more than 1% locally. Pyrite is a common constituent of all of the sedimentary rocks and is commonly present as thin laminations, as disseminated framboidal biogenic pyrite, or as irregular veinlets or stockworks. Overall, pyrite content in the sedimentary rocks within the mineralized area is typically in the range of 5% to more than 10%, but can be much higher locally. The stratigraphy is indicative of a submarine seafloor distal flysch depositional environment.

A preserved thickness of at least 100 m of conglomerate is present in the upper portion of the Mesozoic sedimentary sequence. The conglomerate ranges from rounded pebbles to boulders of sandstone and subordinate shale, chert, volcanic rock, and quartz fragments in a sandy-to-shaley, well-indurated matrix. The conglomeratic beds are often interbedded with arkose and argillite.

A felsic igneous body, interpreted to be a subvolcanic to extrusive volcanic dome, is generally broadly conformable with the enclosing sedimentary rocks and is referred to as the Metates Intrusive. The body is in the shape of an inverted saucer and is oriented in a northwest/southeast direction, dipping approximately 40° to the northeast. It is approximately 1,500 m long and up to 300 m thick. The body is quartz latitic in composition and contains approximately 50% phenocrysts (quartz, biotite, and feldspars) set in an aphanitic groundmass. The rock exhibits a texture ranging from igneous to volcanic. Pyrite content in the Metates Intrusive, as in the surrounding sedimentary rocks, is typically in the range of 5% to more than 10%. The upper contact, or transition with the sediments, can be upwards of 100 m thick, and is composed predominantly of a breccia body that comprises often rounded igneous clasts and igneous-derived matrix, with a progressively larger amount of sedimentary matrix and sedimentary clasts going up section away from the core of the igneous body. Several radiometric age dates have been obtained from the Metates Intrusive. A U-Pb date has been obtained on a zircon separate, and indicates an emplacement age of 108 million years ("Ma"). Ages of 87 and 89 Ma, which likely represent an alteration age, have been obtained on sericite by K/Ar methods.

The Tertiary sequence at Metates consists primarily of a lower and upper volcanic sequence. In the Metates area, the lower volcanics are a sequence of andesitic flows 100 to 150 m thick, and breccias which have been propylitically altered and are thought to postdate mineralization. A conglomerate of variable thickness (up to 60 m) is known to locally underlie the lower volcanic sequence rocks. This rock is distinct from the Mesozoic conglomerate, but could be a local erosional accumulation of this unit. It does appear to be altered and mineralized, with local, possibly secondary enrichment of silver. The upper volcanics are composed of cliff-forming rhyolite ash flow tuff units, which are up to 700 m thick in the immediate vicinity of the project. Talus (or colluvial**)** deposits up to 50 m thick cover much of the project area, and are derived predominantly from erosion of the upper volcanics.

Mineralization

Sulfide mineralization within the project area is thought to be both syngenetic and epigenetic in origin. Syngenetic mineralization is fairly widespread within the sedimentary rocks and is typical of rocks formed in a black-shale or euxinic environment. Very little, if any, precious metal mineralization is thought to be associated with this phase of predominantly pyritic mineralization. Epigenetic mineralization may have occurred as two separate mineralizing events in both the sedimentary rocks (North Zone) and in the intrusive rocks (Main Zone), but it is possible that the mineralization in the sediments represents an earlier, more distal event that is related to an emerging intrusive dome, which subsequently intruded part of the sedimentary hosted mineralization.

Mineralization is most typically expressed as sulfide stockwork veinlets or disseminations. Within both the sedimentary and intrusive rocks, veinlets are typically composed almost completely of pyrite, sphalerite, arsenopyrite, and galena, with very little gangue mineralization such as quartz or calcite. Veinlets are typically between 1 to 5 mm in thickness, sometimes exceeding 1 cm, and are generally banded with layers of pyrite, sphalerite, and/or galena. Within the intrusive, feldspar and biotite phenocrysts are commonly replaced by pyrite and sphalerite, with the individual pyrite crystals generally several millimeters in size. Sphalerite and galena inclusions are common within disseminated and veinlet pyrite.

Extensive mineralogical investigations indicate that some amount of native gold and electrum occurs as both submicron-micron sized grains that are generally enclosed within the pyrite grains, or as exsolutions and/or in the crystal structure of the pyrite in both sedimentary and intrusive host rocks. There is evidence to suggest that most gold is typically so fine-grained as to be considered "invisible." Extensive metallurgical investigations have demonstrated that the gold is largely refractory, or not amenable to routine cyanidation, even when the material is finely ground. Most silver mineralization is thought to be commonly present in solid solution within galena, with lesser amounts contained as the mineral argentite, and is also refractory. Gold and silver mineralization is associated with the sulfides replacing feldspar and biotite phenocrysts, with sulfide veinlets and sulfide stockworks. Sulfide sulfur content of mineralized sedimentary and intrusive rocks is typically in the range of 3% to more than 10% by weight, a reflection of the high percentage of pyrite in these rocks. The sedimentary rocks also contain significant amounts of organic carbon, which results in the mineralization in these rocks having both refractory and "preg-borrowing" characteristics. Preg-borrowing is when gold and silver, once extracted by cyanide, are then bound up with organic carbon, making them more difficult for routine recovery. Multiple mineralizing episodes are suggested based on the cross-cutting and mineralized breccia clast/host relationships. Oxidation of the Metates-mineralized system has been very limited, with the depth of oxidation generally not exceeding 5 to 10 m. Surficial exposures of fresh sulfides are not uncommon.

Exploration Status, Drilling, Sample Preparation and Security

Exploration and Drilling

A core drilling program was initiated by Chesapeake in December 2007. The initial purpose of the core drilling program was to twin numerous Cambior drillholes in both the Main and North Zones in order to validate the results of the Cambior holes and provide additional information on the sample preparation, analytical procedures, and assays. Subsequent holes were also completed as infill holes between the two mineralized zones that were untested by Cambior, as well as some step-out holes targeting possible extensions outside the known mineralization. The program also provided drill core for a comprehensive metallurgical test program. A total of 36 holes were drilled in this program for a total of 14,379 m.

In February 2011, Chesapeake undertook a second core drilling program which included 53 holes totaling 23,486 meters. The purposes of the core drilling program was to infill between widely spaced holes to allow the conversion of Inferred class resource to Indicated class, to drill geotechnical holes in support of pit slope stability investigations, and to expand the overall resource with step-out holes. A rotary reverse circulation (RC) drilling program was conducted in 2012 to drill condemnation holes in and around the area of the proposed waste rock management and tailing storage facility, as well as the main Metates plant site. Some of these holes were converted to groundwater piezometer holes. Reverse circulation drilling totaled 4,200 meters in 27 holes.

In 2012 Chesapeake also drilled 956 meters in five core holes at the Ranchito site to allow for the estimation of the tons and grade contained in a portion of the extensive limestone resource in this area. The drill hole results were supplemented by 630 meters of surface channel sampling in a total of five trenches. The exploration work at the Ranchito site also included extensive geologic mapping and general reconnaissance work. The plant location was moved to the El Paso site for this current study, but it is expected the quality and quantity of the limestone at the two sites is very similar.

Five holes, totaling 2,018 meters, were drilled for the 2013 campaign at Metates. The purpose of these holes was to provide samples for metallurgical testing. A summary of drilling used for the estimation of resources at Metates is provided as Table 1-3.

Table 1-3: Summary of Drilling by Campaign

Company	Year	No. of Holes	Meters
Cambior	1993	14	4,827
	1994	92	33,499
	1995	34	10,499
	Subtotal	**140**	**48,825**
Chesapeake	2007–2008	36	14,379
	2011	53 5	23,486
	2013		2,018
	Subtotal	**94**	**39,883**
Total		**234**	**88,708**

Sample Preparation, Security and Verification

The Chesapeake sample preparation procedures and security protocols employed were similar to those procedures described for the Cambior 1994–95 programs, and would be considered industry standard. Drill core was transported from the drill rig to the secure logging and storage facility at the end of each twelve-hour drill shift. After the core was logged for geology and geotechnical attributes, the core was marked into 3 m sample intervals. The core was photographed and then sawed in half, and one-half placed in a plastic sample bag marked with a unique sample number and sent off for assay.

Specifically for the Chesapeake samples and the 2007-2008, 2011 and 2013 drill campaigns one of the one-half core assay samples was cut in half to generate what is called a "1/4 core duplicate" sample at the rate of about every 40th sample. This ¼ core duplicate sample was assigned a unique sample number. Standards and blanks were introduced into the sample stream with unique sample numbers assigned at the rate of about 1 in 20 samples. The standards used are certified reference material sourced from an independent commercial third party. Three different analytical standards were used, and cover a range of gold and silver values, along with one blank standard to examine carryover contamination from sample to sample.

The Chesapeake samples were shipped in a covered and secured truck to ALS Chemex Laboratories in Hermosillo or Zacatecas, Mexico. Once at the lab, the samples were dried and the entire sample crushed to 90% passing -10 mesh. Samples were then split and a 1,000 g subsample obtained, which was then pulverized to 85% passing -200 mesh in a ring and puck type mill. At the rate of about every 40th sample, a second 1,000 g split of the -10 mesh material was obtained and then pulverized to generate a "preparation duplicate" sample which was also assigned a unique sample number. Also at the rate of every 40th sample, the 1,000 g pulverized sample was split in two 500 g subsamples to create "pulp duplicates," each of which was again assigned a unique sample number. Thus, four separate assays were reported for every 40th sample. These four different assays, performed on four different assay pulps, are instructive in determining the amount of sample variance related to each of these steps; core sample, preparation, and pulverization. After pulverization, a portion of each of the individual pulp samples was shipped to the ALS Chemex Laboratories facility in Vancouver, BC, Canada, where the samples were analyzed. The assays were then reported to Chesapeake, both electronically and by signed assay certificates.

The sample preparation and analytical procedures employed by Cambior and Chesapeake are adequate for the purpose of defining mineral resources and mineral reserves. The Cambior QA/QC procedures identified, at least to the satisfaction of some of the independent reviewers, that there was an assay bias in the 1994 data. The Chesapeake QA/QC work has verified the bias and quantified the likely impact. Cambior's 1993 and 1994 gold assays have been factored by 0.8985 to correct for an apparent analytical bias at the Bondar-Clegg laboratory.

IMC conducted much of the work to assemble the Cambior drilling database for the 1997 preliminary feasibility study and still has the original database in its archives. IMC compared this archive data with the assay database provided by Chesapeake at the start of the 2009 resource modeling work. The comparison validates that the original data has not been tampered with nor otherwise altered since the Cambior study. IMC also compared the Chesapeake assays in the database with the ALS Chemex assay certificates to verify the 2007-2008 drilling data. For 2011 drilling, IMC compared the database entries with assay certificates for five holes, about 10% of the new data. No errors were encountered, and IMC considers that the 2011 drilling data is verified. The QA/QC results from the Chesapeake drilling program determined there was no problem with the integrity of the assays received from ALS Chemex and all the assays were entered into the database with no adjustments.

The five holes drilled for the 2013 program were composited to 15m bench composites and compared with the 2012 resource model. On a hole-by-hole basis the comparisons are quite variable, but the five holes as a group compared reasonably well and serve to validate the current resource model for gold, silver and zinc. This further implies the holes compare reasonably well with the other holes in the vicinity.

Mineral Processing and Metallurgical Testing

Metallurgical tests for this study were conducted at RDi Resources Development Inc. (RDi) of Wheat Ridge, Colorado, Hazen Research (Hazen) of Golden, Colorado, Sherritt Technologies (Sherritt) of Fort Saskatchewan, Alberta, and ALS Metallurgy (ALS) of Perth, Australia under the supervision of Hydromet (Pty) Ltd. It was determined by the metallurgical testing performed by Cambior that the Metates ores are refractory to conventional cyanidation. As such, much emphasis has been placed on the investigation of various refractory ore treatment options for the Metates ores over the years.

Two main metallurgical composites were tested, one consisting of intrusive-type rock and designated CH-I, for "Chesapeake Intrusive" and the other consisting of sedimentary-type rock and designated CH-A, for "Chesapeake Arenite."

The gold and silver analyses and back-calculated contents for these composites are given in Table 1-4. The assayed Au and Ag heads were averaged from three analyses, while the back-calculated heads were averaged by RDi from 24 tests on CH-I and 25 tests on CH-A.

Table 1-4: Head Assays of Composite Samples

Element	Method	Intrusive (CH-I)	Sedimentary (CH-A)
Au, g/t	Assayed	0.98	1.00
	Back calculated	0.91	0.81
Ag, g/t	Assayed	9.67	28.62
	Back calculated	10.83	24.54

Metallurgical testing at RDi demonstrated the refractory behavior of both gold and silver on whole ore and rougher flotation concentrates derived from these two composites. Bottle roll leach tests extracted about 50% and 9% gold from the CH-I and CH-A samples, respectively, demonstrating the double refractory/preg-robbing nature of the sediment hosted mineralization when using direct cyanidation. Silver recoveries averaged about 30% for both samples. Using carbon in leach methods, gold extractions averaged about 48% for both samples while silver recoveries averaged about 32%. Agitation leach tests on rougher concentrate from both samples averaged about 47% for gold and 42% for silver, roughly the same as for the whole ore, when using carbon in leach methods for extraction.

The high metal recoveries to the flotation concentrate from the whole ore along with the many logistical and engineering advantages of working with the concentrate encouraged the incorporation of a concentration step into any further metallurgical test programs.

In addition to the preferred treatment of the concentrate via acid pressure oxidation (POX) other refractory treatment options examined included both roasting and ultra-fine grinding. The low gold and silver recoveries from cyanide leached residues following roasting tests conducted by Hazen steered the processing investigations away from roasting. Samples were also tested using the Albion ultra-fine grind process. The recoveries obtained were lower than for the POX process, while requiring more energy for grinding and not eliminating waste acid neutralization.

Comminution Indices

Comminution indices were measured for the intrusive and sedimentary composites, returning average values for ballmill work indices of 13.3 kWh/t for intrusive and 12.3 kWh/t for sedimentary samples (closing size = 100 mesh). The average crusher work indices were 13.21 kWh/t for intrusive and 15.66 kWh/t for sedimentary samples.

Chesapeake submitted numerous individual samples for further comminution tests to determine variability in the ore, including JK SMC and drop-weight tests, and ball mill work indices. The SAG mills were designed with JK SimMet using the 15^{th} percentile Axb (85^{th} percentile hardness) of 47.4, where A=64.9, b=0.73, t_a=0.45 and SG=2.74. The ball mills were designed using the 85^{th} percentile of the measured Bond work index of 15.09 kWh/t. At the 85^{th} percentile hardness, no clear distinction in the comminution parameters were observed between the intrusive and sedimentary samples.

Sulfide Flotation Testing

Reagents Dosage and Flotation Time – Larger-Scale Flotation Tests

Optimization studies were performed to optimize reagent dosages and flotation time. The tests were conducted at a primary grind of P_{80} of 100 mesh. A full (100%) reagent dosage is 100 g/t PAX, 75 g/t AP404. Three tests were conducted on each composite using a full reagent dosage, half the reagent dosage, and a quarter of the reagent dosage. The test results indicate that the full dosage has to be maintained to attain maximum gold recovery in the CH-A composite. Also, the plots show that a 12-minute residence time was sufficient.

Effect of Primary Grind

A series of flotation tests were performed to evaluate the effect of gold and silver recovery at two primary grind sizes, namely P80 of 65 mesh and 100 mesh for the various blends of intrusive and sedimentary ores. The test results indicate no significant difference in gold or silver recovery based on similar tailing assays at the two grind sizes.

Effect of Head Grade and Projected Flotation Gold and Silver Recoveries

Gold recovery was essentially independent of the feed gold grade. On the other hand, silver and zinc recoveries increased as the head grade increased. Figure 1-2 shows the recovery of Au, Ag and Zn from variability samples as a function of head grade and ore type. Asymptotic regressions lines were fitted to the data points and used to calculate flotation recoveries in the financial model based on the scheduled ore grade for that period. These recoveries were independent of host rock type (intrusive or sedimentary).

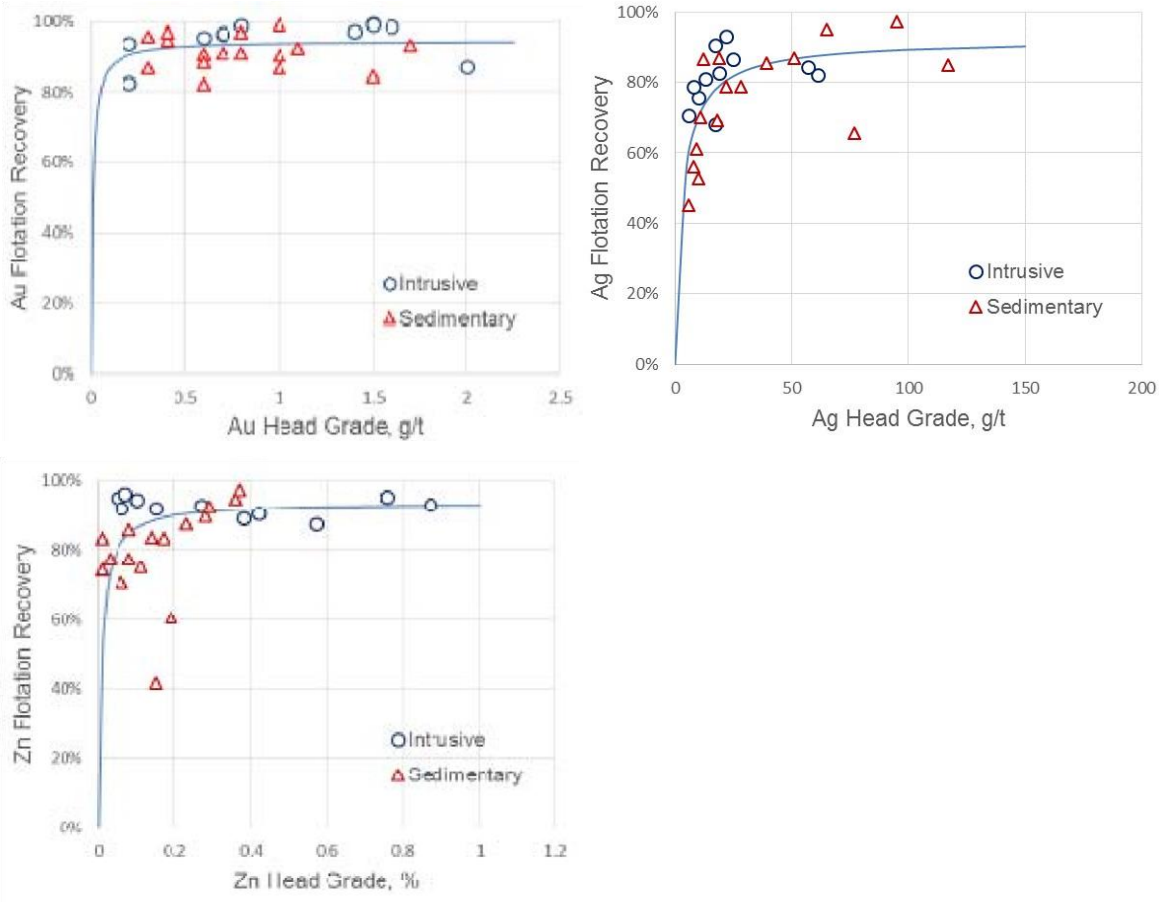


Figure 1-2: Rougher Flotation Recovery as a Function of Head Grade for Gold, Silver, and Zinc

Leach Tests on Non-Oxidized Samples

About half of the gold and three fifths of the silver in the Metates ore is refractory to cyanide leaching. Table 1-5 below shows the recovery of gold and silver from intrusive and sedimentary samples of whole ore, as well as from flotation concentrates. The table shows the low gold and silver recoveries of untreated whole ore or flotation concentrate. The significant improvement of gold recovery in the carbon-in-leach tests also indicate pregrobbing in the sedimentary ore.

Table 1-5: Bottle Roll and Agitation Leach Tests on Whole Ore Samples and Rougher Flotation Concentrates

Bottle Roll Leach Tests, Whole Ore, P80 = 100 microns, 96 hours				
Direct Cyanidation - 96 hours	**Intrusive**		**Sedimentary**	
	Au	**Ag**	**Au**	**Ag**
Extraction %	52.7	28.5	9.0	32.6
Residue g/t	0.41	8.28	0.62	19.32
Calc. Head g/t	0.86	11.58	0.68	28.66
Carbon-In-Leach (CIL) - 96 hours	**Intrusive**		**Sedimentary**	
	Au	**Ag**	**Au**	**Ag**
Extraction %	47.6	25.1	49.0	39.7
Residue g/t	0.49	11.61	0.37	15.38
Calc. Head g/t	0.93	15.49	0.73	25.52

Agitation CIL Tests, Rougher Flotation Concentrate, P80 = 212 microns, 48 hours				
Carbon-In-Leach - 48 hours	**Intrusive**		**Sedimentary**	
	Au	**Ag**	**Au**	**Ag**
Extraction %	57.3	43.6	37.3	39.7
Residue g/t	2.06	23.83	3.36	110.74
Calc. Head g/t	4.82	42.24	5.36	183.68

The insoluble gold and silver are believed to be encapsulated in pyrite and arsenian pyrite. The sulfides need to be oxidized to liberate the encapsulated values to achieve economic recoveries. Several paths to pretreat flotation concentrates were examined, including roasting, bioxidation, ultra-fine grinding and pressure oxidation. This report focuses on the last option of producing a sulfide concentrate, oxidizing this concentrate in a pressure vessel and leaching the oxidized slurry with cyanide.

Pressure Oxidation Tests

Chesapeake commissioned three laboratories to perform pressure oxidation tests on sulfide concentrates. Hazen conducted scoping batch tests on 2-L Parr autoclaves. Sherritt also performed confirmatory batch pressure oxidation (POX) tests as a prelude to a continuous pilot plant test. The latest tests were batch POX tests conducted by ALS), under the supervision of Hydromet to simulate the Flash, Thicken and Recycle (FTR) technology.

The concentrates tested were derived from flotation tests done by RDi or Hazen on CH-I (Blend I), CH-A (Blend A) and other composites designated Blend C, FT-71 and FT-73. They range from 2.65 to 6.18 g/t Au, from 70 to 439 g/t Ag and around 28 % sulfide sulfur.

Sherritt and Hazen employed testing procedures reflecting a conventional POX flowsheet including some or all of the following:

- pressure oxidation
- conditioning or hot cure
- lime boil and cyanidation (Au and Ag recovery)
- solid-liquid separation by decantation or filtration

Batch testwork conducted by ALS employed a similar flowsheet but includes flash cooling, thickening and recycling (FTR) of slurry withdrawn from the first compartment. The ALS testwork was conducted in batch mode. Otherwise, the physical conditions of temperature, total pressure, oxygen pressure, free acidity, etc. within the autoclave were

essentially the same in all the testwork performed in the Sherritt Phase IIA, IIB and the ALS campaigns. The Sherritt Phase IIB pilot testing was conducted in a continuous mode and employed larger reaction vessels.

Batch Pressure Oxidation Tests at Hazen

Unground CH-A concentrate was treated at 220 ^{o}C, 700 kPa O_2 overpressure as a function of residence time. Above 45 minutes residence time, sulfide sulfur oxidation is in excess of 98%. Although the degree of oxidation seems to level off, acid production continued to increase beyond 45 minutes. The test at 30 minutes only resulted in an 88% sulfide-sulfur oxidation.

The extent of gold and silver extraction from POX leach residues in subsequent CIL processes depended on the handling of the post-POX residues. At 60-minute residence time and 100-psi O_2 overpressure POX conditions, gold and silver extraction during subsequent CIL was in excess of 95% and 80%, respectively, without lime boil treatment. Generally, lime boil treatment of the residue tended to increase silver extraction and decrease gold extraction. Table 1-6 summarizes the gold and silver extraction from leach residues generated under standard POX conditions

Table 1-6: Au and Ag Cyanidation Extraction from POX Residues

POX Experiment	**3190-136**	**3190-137**		**3190-144**		**3190-153**		**3190-154**	
Concentrate Feed Type	CH-A	CH-I		CH-A		CH-A		CH-I	
CIL Feed, g/t Ag g/t Au	207 5.3	55 5.8	55 5.8	189 7.0	189 7.0	186 6.2	186 6.2	48 7.4	48 7.4
Lime Boil	No	No	Yes	Yes	No	No	Yes	No	Yes
CIL Extraction, %, Ag Au	83.5 98.5	81.2 98.6	83.3 96.8	89.0 85.2	89.0 97.7	72.2 97.7	81.0 93.2	83.5 99.0	81.0 95.9

[a]Based on head and tails analyses; POX conducted at 220°C, 60 min., and 100-psi (689-kPa) O_2 overpressure.

Batch Pressure Oxidation Tests at Sherritt – Phase IIA

For Blend A (CH-A concentrate), sulfide oxidation reached 97 to 99% at 40 minutes POX retention time. Sulfide oxidation for Blend I (CH-I concentrate), Blend C, FT-71 and FT-73 was more rapid, reaching 98 to 99% after 20 minutes POX retention. Regrinding was not necessary to achieve fast sulfide oxidation. POX of Blend A at higher temperature and lower oxygen partial pressure (230°C and 500 kPa O_2) yielded sulfide oxidation behavior similar to that at the standard conditions of 220°C and 700 kPa O_2.

The product solutions contained between 28 and 50 g/L free sulfuric acid, typically in the range of about 40 to 45 g/L H_2SO_4. The iron concentrations ranged from 14 to 25 g/L Fe, with only 0.1 to 0.5 g/L Fe^{2+}. The equivalent acid concentrations, including aluminum, ferrous and ferric iron, and free sulfuric acid, were between 77 and 128 g/L, corresponding to 484 to 974 kg of equivalent acid per ton of concentrate feed. The amount of iron in solution represented 36 to 66% of the iron in the feed. The solutions also contained 0.2 to 2.3 g/L Zn.

For many of the tests, particularly those on Blend A and Blend I, the solids weight change in POX was small. In all of the tests there was large solids weight loss between the last autoclave sample and the conditioned discharge, due to the re-dissolution of basic iron sulfates. This weight loss was between about 13 and 55% with respect to the feed concentrate. The product solids contained 1.9 to 4.9 % Al, 15.4 to 23.9% Fe, 10.1 to 23.9% Si, and 3.1 to 12.3% S, almost exclusively as sulfate sulfur. The copper and zinc contents of the POX residues were below the detection limits of 0.02% Cu and 0.05% Zn.

Based on the Phase IIA batch POX tests, 60 minutes retention time and a temperature of 220°C were selected as baseline conditions in the pilot plant operation. Regrinding of the feed did not appear to afford any advantage; however the need for regrinding was also evaluated in batch tests on the pilot plant feed prior to the campaign.

Integrated Continuous POX Pilot Plant Test at Sherritt – Phase IIB

The amenability of the Chesapeake flotation concentrate to the pressure oxidation process was demonstrated in a 96-hour continuous pilot plant campaign. The campaign processed a total of 415 kgs of concentrate that had been prepared by Hazen from flotation processing of equal parts of sedimentary and intrusive hosted mineralization. The concentrate was then shipped to Sherritt. The pressure oxidation operation was divided into four periods, based on variations in temperature (220 or 210°C) and retention time (45, 50 or 60 minutes), as shown on Table 1-7.

Table 1-7: Pilot Plant Operating Parameters

Period		**1**	**2**	**3**	**4**
Run Time, h		0 to 36	36 to 60	60 to 82	82 to 96
Temperature, °C		220	220	220	210
Pressure, kPa(gauge)		2,720	2,720	2,720	2,310
Calculated Oxygen Pressure, kPa		500	500	500	500
Retention Time, minutes		60	50	45	50
Solids Content in Autoclave Slurry[1], %		11.9	11.9	11.9	11.2
Overall Solution Evaporation, %[2]		22.5	22.5	22.5	20.6
Conditioning	Temperature, °C	95	95	95	95
	No. of Tanks	2	2	3	3

[1] solids content in autoclave after all quench addition, assuming no weight loss due to solids reaction or solution evaporation

[2] by weight, in pressure letdown and "flashing"

Hot cure/conditioning, a four-stage countercurrent decantation washing (CCD), and solution neutralization circuits were also operated in an integrated fashion with the pressure oxidation circuit. Extensive batch cyanidation tests were conducted on the solids collected from the pressure oxidation autoclave, the conditioning tanks, and the CCD wash circuit.

Sulfide Oxidation

Sulfide oxidation profiles across the POX autoclave are summarized in Table 1-8, with C1/C2 representing the first, double-sized compartment and C3 to C6 representing the subsequent autoclave compartments. Sulfide oxidation was rapid and reached at least 99.7% in compartment C6 in all periods of operation.

Table 1-8: Sulfide Oxidation Profiles

Period	**Temp °C**	**Ret. Time min**	**Sulfide Oxidation (steady state values), %**				
			C1/C2	**C3**	**C4**	**C5**	**C6**
Period 1	220	60	72.8	92.3	98.3	99.7	99.9
Period 2	220	50	54.2	81.3	97.5	99.5	99.7
Period 3	220	45	66.7	85.8	98.5	99.7	99.8
Period 4	210	50	80.2	91.6	98.8	99.8	99.9

Gold and Silver Extraction

Cyanide amenability (CNA) tests, which use carbon-in leach extraction and small quantities of solids and do not involve intermediate sampling, were performed on samples from the pressure oxidation and conditioning circuit and the wash circuit product solids every six hours. CNA tests were also performed on samples of lime boil solids, which were produced from washed slurry product of CCD washing (W4 U/F) every three hours. Figure 1-3 and Figure 1-4 display the CNA gold extractions for selected samples.

Gold extraction reached about 95% for solids collected from the final autoclave compartment (C6) in Period 1 and then decreased in the middle of Period 2 (48 h) to about 90% and remained in the 90 to 93% range for the duration of the campaign. Based on a comparison of the results of the W4 U/F tests with those of the C6 tests, conditioning appeared to increase gold extraction by up to about 2% after about 48 h of operation, although the time required for POX C6 solids to be processed through the conditioning tanks and wash circuits needs to be considered in the comparison. Lime boil resulted in about 3% additional gold extraction in Period 1, 1 to 2% additional gold extraction in Periods 3 and 4, and about 5% in Period 2.

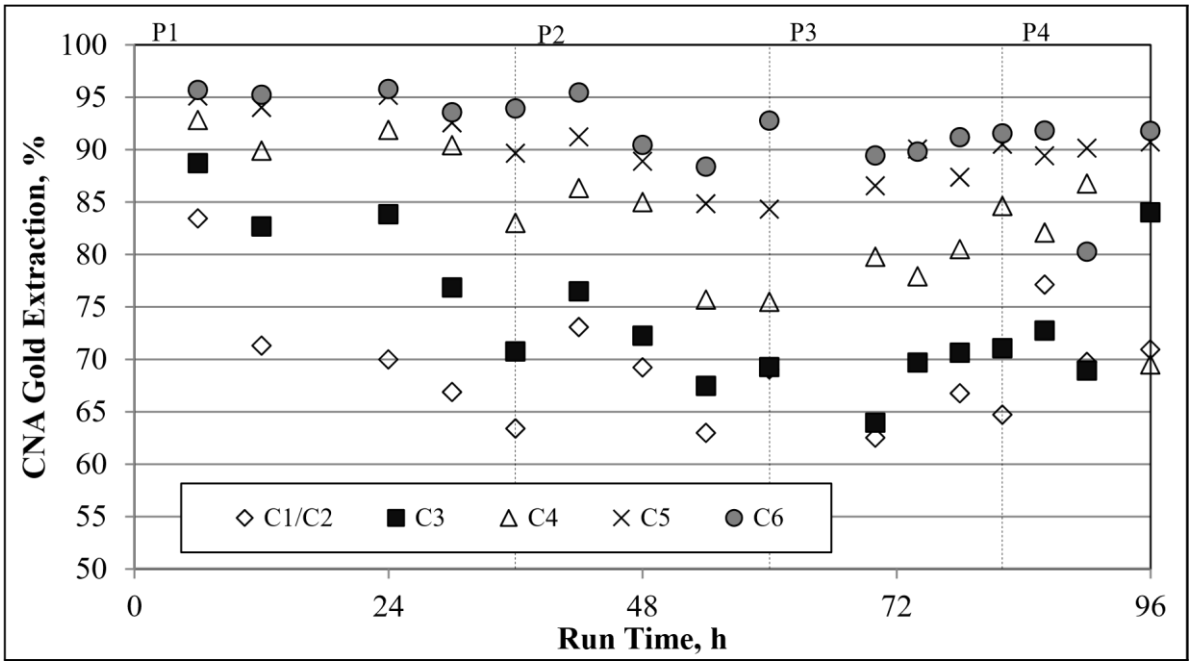


Figure 1-3: CNA Gold Extraction from POX Autoclave Residues by Compartment

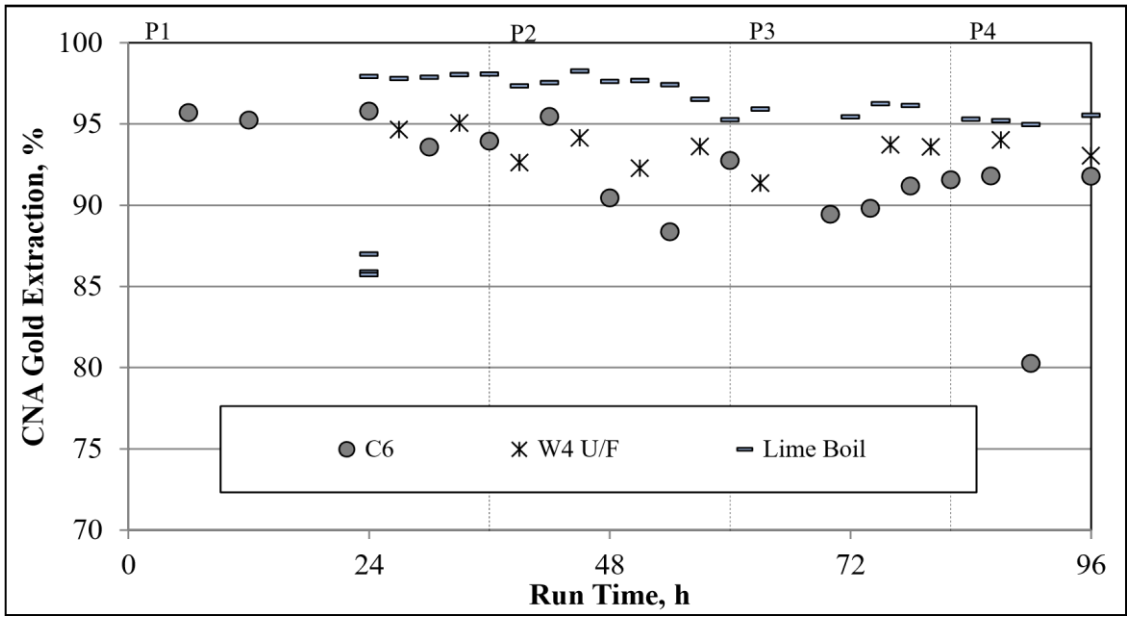


Figure 1-4: CNA Gold Extraction from POX C6, W4 Underflow and Lime Boil Residues

Silver extractions for the autoclave samples reached a maximum of 30% and were highest for the first two autoclave compartments, and then decreased to <1% toward the final compartment.

CNA silver extractions for selected samples, including the lime boil solids, are shown Figure 1-5. Based on the batch test work, silver extraction from the POX solids was expected to be insignificant, <1%, until lime boil was employed to decompose any jarosite. Most of the C6 and W4 U/F silver extractions were indeed <1%. Silver extractions after lime boil of the Period 1 W4 underflow samples were notably low, at roughly 40 to 50%, likely due to insufficient lime addition (lower than the target addition of 200% of the stoichiometric). In Period 2, silver extraction from the lime boil samples increased steadily to the 95% level and averaged about 90% for Periods 3 and 4. The median silver extraction in Periods 2 to 4 was 87%.

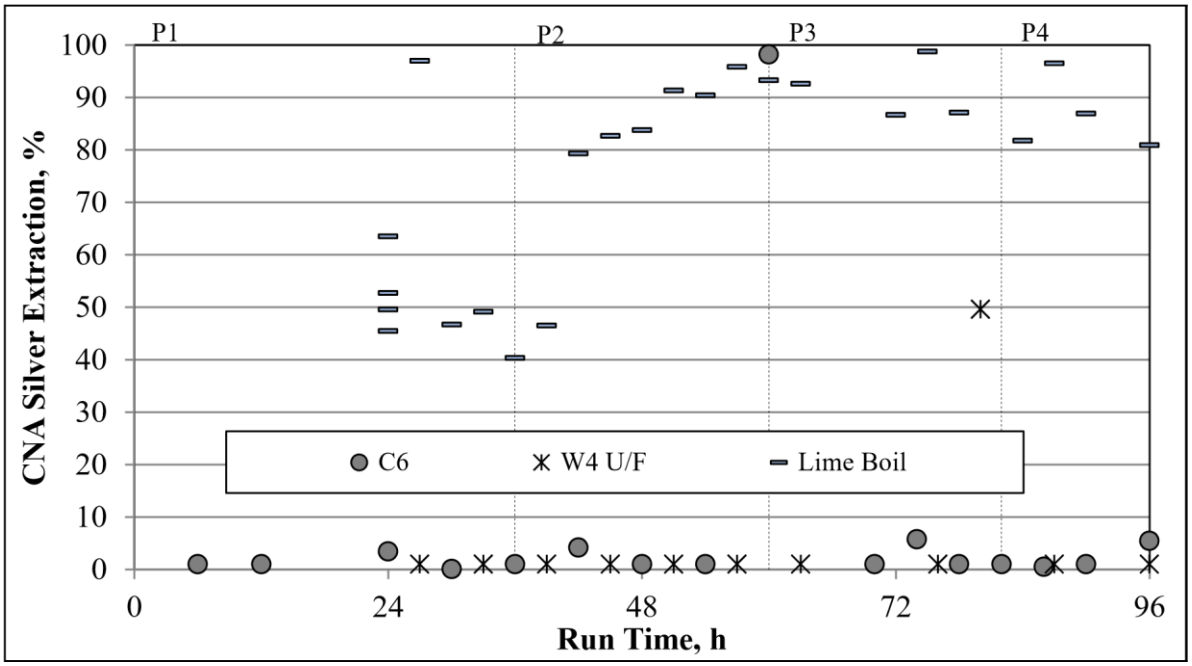


Figure 1-5: CNA Silver Extraction from POX C6, W4 Underflow and Lime Boil Residues

Based on these results, 50 to 60 minutes retention time at 220°C and 500 kPa oxygen overpressure are recommended for POX operation.

Effect of Conditioning

The pilot plant autoclave discharge slurry was passed through an evaporator and either two or three conditioning tanks with a retention time of 5 to 7 h. Samples of this conditioned slurry were held at temperature in a small batch reactor during the campaign to investigate the effect of extended conditioning time. Conditioning time of 10 to 12 h led to significant re-dissolution of basic iron sulfate (BFS) compared to the shorter time of the pilot plant operation, and a minimum of 4 h is recommended for commercial operation, to minimize sulfate content of the POX solids and minimize lime consumption.

Countercurrent Decantation Wash

All of the conditioned discharge slurry from the pressure oxidation circuit was washed with water in a countercurrent decantation (CCD) wash circuit to recover the zinc and to remove the bulk of the acid and dissolved metals from the POX solids prior to treatment by lime boil. The CCD wash was done in four stages (four thickeners) – W1, W2, W3 and W4. The CCD solution product came from the overflow of the first thickener (W1 O/F), while the washed residue was produced in the underflow of the fourth thickener (W4 U/F). Samples of the product solids

from the CCD wash circuit were also taken every 3 h and subjected to lime boil, in batch mode, and then subjected to cyanide leaching.

The CCD wash circuit was operated from 12.8 to 96 h run time, for 79.2 h of total on-stream time, or 95% availability when feed was available from the pressure oxidation circuit. The wash ratio, flocculant additions, zinc concentrations and percent removal of acid and zinc achieved in the pilot plant campaign are summarized in the Table 1-9.

Table 1-9: CCD Wash Circuit Operating Parameters

Operating Period		**1**	**2**	**3**	**4**
Wash Ratio to W4, L/L of U/F solution		1.81	2.04	1.78	2.20
Flocculant Dosage (Magnafloc 333), g/t solids					
W1		117	118	114	132
W2		62	56	58	66
W3		21	50	58	68
W4		55	56	61	70
Total		254	280	292	337
W4 Overflow, g/L	H_2SO_4	0.47	1.05	1.85	1.43
	Zn	0.05	0.08	0.12	0.13
Removal, %	H_2SO_4	99.7	99.3	98.7	98.6
	Zn	99.3	99.1	98.5	98.7

Zinc recovery to the W1 overflow solution was above or near the target of 99% throughout the pilot plant operation, corresponding to a soluble loss of zinc of about 1% to the W4 underflow slurry. Residual soluble zinc will be precipitated with lime during lime boil treatment and cyanidation for the recovery of gold and silver from these solids and will ultimately report to the cyanidation tailing. *Lime Boil*

The objective of the lime boil step is to decompose basic iron sulfate precipitates and jarosites in the conditioned and washed POX solids, in order to liberate silver for cyanide leaching. Small samples (~250 g) of the underflow slurry from the last wash thickener (W4 U/F) were taken every 3 h and subjected to lime boil, in batch mode, and then forwarded to standard roll bottle cyanide amenability tests. Larger samples (~2 kg) of W4 U/F slurry were taken twice daily, at 0900 and 2100 h, and subjected to lime boil for large roll bottle cyanide leach rate tests.

Twenty-seven lime boil tests were conducted during the pilot plant program. The first four tests constituted a rate series, with 1 h, 2 h, 3 h and 4 h retention time, respectively, on a sample of the W4 U/F slurry collected 24 hours into period 1 operations. Twenty-one small-scale and six large-scale tests were conducted. The test parameters, conditions and key results are summarized in Table 1-10.

Table 1-10: Lime Boil (Batch Mode) Operating Parameters and Key Results

Operating Period		1	2	3	4
Feed Slurry	Solids Content, %	30.0	30.8	31.1	30.2
	$S(SO_4)$, %	5.56	5.44	5.48	3.86
Test Slurry	Solids Content, %	21.1	20.7	20.7	20.4
Lime Addition	CaO Required, kg/t con	139	141	114	92
	CaO Added, kg/t con	115	138	111	97
	CaO Added, % Stoich	150 to 183	184 to 209	184 to 209	182 to 262
Temperature, °C		90	90	90	90
Retention Time, h		2	2	2	2
CNA Extraction, %	Au	97.9	97.5	95.9	95.2
(Median)	Ag	46.7	87.1	87.1	86.9

The lime addition targeted 200% of the stoichiometric requirement of CaO for the sulfate contained in the feed slurry (W4 U/F). Without real-time data, the additions were based on estimates of the feed slurry solids content. The actual lime additions were lower than required for most of the lime boil tests, and significantly so in Period 1.

Recommended operating parameters for lime boil are 20% solids (after dilution and lime slurry addition), 90°C, 2 h retention time, and 200% stoichiometric lime addition based on the sulfate sulfur content of the feed solids and the equivalent acid content of the entrained solution. Gold extraction of at least 95% and silver extraction of 87% were achieved under these conditions.

Flash-Thicken-Recycle (FTR) Modification to Classic Pressure Oxidation

Flowsheet

The Flash-Thicken-Recycle (FTR) concept removes heat from the autoclave by withdrawing slurry from the first compartment and cooling it in a flash tank, adding dilution fluid to further cool the flashed underflow, thickening the cooled slurry, removing a thickener overflow direct to the neutralization circuit and returning the cooled thickener underflow slurry to the autoclave. This mechanical intervention to eliminate some heat reduces the volume of quench water required, thereby increasing the capacity autoclaves by as much as 100 to 150%.

In addition to increasing the capacity of the autoclave vessels, FTR removes unwanted solutes such as iron sulfates, sulfuric acid, and others from the autoclave, where they would otherwise combine to increase the mass of solids leaving the autoclave.

This suite of differences between the FTR and the classical POX combine in the case of the Metates Project (Updated PFS) to reduce the autoclave investment from approximately 8 in the classical circuit to 4 in the FTR circuit, during Phase 2 operations and possibly remove the need for a conditioning circuit after the autoclave discharge. This reduced autoclave complement lowers both the capital and operating costs of the autoclave circuit at Metates without compromising the gold, silver and zinc recoveries.

Results of FTR-POX Tests

The important FTR test results are shown in Table 1-11 together with the results from the batch and continuous tests.

Important parameters to track for both batch and continuous type autoclave tests are those that reflect the reaction of iron sulfides (pyrite) during the test and include the behavior of iron, sulfide sulfur and sulfate sulfur. For refractory gold and silver, the success of the testwork is to be found in their recovery after a lime boil step.

Conditioning

In the FTR system, the "conditioning" de facto takes place within the autoclave – the conditions of which favor not only basic iron sulfate (BFS), but also jarosite re-dissolution. Consequently, lower residual sulfate sulfur levels exist in the FTR autoclave discharge residue (ALS Test 9) where the Fe:S mole ratio is above 3. This clearly indicates that the iron in leach solids is predominantly hematite with only small amounts of jarosite present.

An overall benefit of a lower sulfate sulfur and higher Fe:S mole ratio is lower lime reagent consumption in the lime boil circuit. More importantly, the conditioning step is essentially unnecessary as the formation of iron hydroxy-sulfate within the autoclave is minimized by employing the FTR thickener, as a means of removing sulfate and iron from the autoclave.

Lime Boil

The ALS test lime consumption is in line with that found by Sheritt in relation to the sulfate sulfur content of the lime boil feed. The sulfate sulfur in the ALS test was reduced in the FTR stage and in the CCD wash, which resulted in a lower lime requirement.

Table 1-11: Summary of Key POX Autoclave Results

Test Number And Concentrate Type	Mass Change (%)	Soluble Iron in Leachate		Overall Iron Extraction (%)	Sulfuric Acid in Leachate		Sulfide Sulfur in Solids		Sulfate Sulfur in Solids		Recovery after lime boil	
		#1 (g/L)	POX Disch		#1 (g/L)	POX Disch	#1 (%)	POX Disch	#1 (%)	POX Disch	Au, %	Ag, %
Blend A Batch Phase IIA	0 – 9 (Loss)	7 - 11	6 - 7	12 - 18	49 - 55	50 - 61	0.3 – 0.9	0.1 – 0.2	6 - 11	7 - 12	89 – 95	87 - 94
Blend I Batch Phase IIA	3(loss) -9(gain)	7 - 12	<6	12 - 15	46 - 48	50 - 54	0.4 – 0.8	0.02 - 0.10	11 - 12	12 - 14	96 - 97	89 - 92
Blend C,FT71, FT73 Phase IIA	2 – 24 (gain)	8 - 12	<6	12 - 16	49 - 55	42 - 51	0.2 – 0.40	0.1 – 0.2	6 - 9	9 - 11	90 - 95	83 - 90
Pre-Pilot Batch (Phase IIB)	4 – 17 (Loss)	–	5 – 10	8 - 13	–	~51	–	0.14 – 0.32	–	4 - 8	95 – 97	76 - 90
Pilot Plant Phase IIB	Variable ±2% Mass loss	13 - 18	5 - 7	~23	36 - 45	40 - 48	5 - 10	0.02 – 0.04	4 - 8	10 - 11	95 - 97	80 - 95
ALS Batch Tests 7 & 9	35% (Loss)	14 - 16	2 - 5	~50	53 - 60	~49	4.7 – 6.3	0.14 – 0.16	5 - 6	2.3 – 2.7*	95 - 97	87 - 94

*No conditioning applied to POX Discharge

Au and Ag Recovery by Cyanidation

Cyanide amenability tests results are reported below in Table 1-12. The results for Sherritt's Phase IIB results are shown along with the results from the batch FTR tests from ALS which essentially yielded the same gold and silver extraction.

Table 1-12: Gold and Silver CIL Recoveries after Lime Boil – All Tests

Concentrate Type		POX Leach Temp (ºC)	Autoclave Feed Solids (%)	Gold Recovery (%)	Silver Recovery (%)
Pilot Plant (Phase IIB)	Period 1	220	11.9	97.9	46.7
	Period 2	220	11.9	97.5	87.1
	Period 3	220	11.9	95.9	87.1
	Period 4	210	11.9	95.2	86.9
ALS Test 8	(Reground Conc)	220	13/20	97 – 98.5	87 – 94
ALS Test 9	(Reground Conc)	220	13/20	96 - 97	80 - 87

The addition of about 15 kg NaCN per ton of solids processed in the cyanide leach was required to maintain about 3 g/L NaCN in solution during leaching. This corresponded to a NaCN consumption of about 10 kg/t of POX feed (flotation concentrate), or less.

Oxygen Purity

The batch and pilot plant tests were conducted with a liberal vapor phase vent that assured the target oxygen partial pressure was achieved (e.g. 600 to 700kPa). All the tests were operated at a specific temperature and this confirmed the steam vapor pressure in the autoclave. The difference between the 'total pressure' and the steam vapor pressure was then attributed to oxygen as a consequence of employing a liberal vapor phase vent.

It is not economically feasible for commercial purposes to liberally vent the autoclave and, consequently, the gas pressure (other than steam) in the autoclave vessel, will be comprised of mostly oxygen and nitrogen.

A trade off study examining oxygen purity and electricity demand conducted interactively with an oxygen plant supplier confirmed that a 90% oxygen gas purity feed to the autoclave was optimal for the project, but further POX testing using 90% purity oxygen should be undertaken.

Silver Deportment in Aqueous Phase

Approximately 1% of the silver in the feed (or 1 kg/h of metal) will be lost to the autoclave aqueous fraction. This silver component that is leached is unlikely to be recoverable. Silver losses in the aqueous phase (i.e. soluble losses) in the classical and FTR circuits are not expected to be different.

Zinc Dissolution and Recovery

Zinc and copper are leached quantitatively in all the POX tests and the residue values for these elements are at detection limits. The dissolution of these elements is almost complete by the time the slurry leaves the first compartment in the pilot plant runs. Zinc will be recovered in the course of neutralizing the overflow from the flash thickener and the first CCD wash thickener. Iron and most of the copper will be removed first by partial neutralization of the solution with ground limestone and the iron–bearing solids separated. Zinc will be precipitated as a hydroxide which will then be re-leached with sulfuric acid and the concentrated zinc-bearing solution sent to the

zinc solvent extraction and electrowinning facility. Zinc will be recovered as cathodes and then melted to produce special highgrade (SHG) zinc ingots.

Preg-borrowing Potential

Several cyanide leach rate tests without carbon addition yielded lower gold extractions, indicating that the POX solids may be preg-borrowing. However, other tests by Sherritt and Hazen did not show any preg-borrowing characteristics. The Hazen tests, in particular, seem to suggest that the high pH and temperature used during lime boil may passivate organic carbon. Additional work is needed to characterize this behavior, including measures to alleviate metal loss, for example, CIL cyanidation or the addition of a suitable hydrocarbon to passivate the adsorption surfaces of the POX solids carbon.

Overall Recoveries

From the metallurgical test results, the following assumptions regarding metal recoveries, listed in Table 1-13, seem to be reasonable and are subsequently used in the economic analysis. Extensive test work supports the adoption of a flotation mass pull of 15%.

Table 1-13: Overall Recoveries of Metals in Each Process Stage

Process Stage	Recovery, %		
	Zn	Au	Ag
Concentrator (varies with head grade for Ag and Zn)	82.5	93	76
POX & CN Leach	92.8	98	87
Merrill Crowe (assumed)		99	99
SX-EW	97.2		
Overall	74	90.2	65

Mineral Resource and Reserve Estimates

Mineral Resource

Table 1-14 presents the mineral resource for the Metates Project which is inclusive of the mineral reserve.

Table 1-14: Mineral Resource (Inclusive of Mineral Reserve)

Metates Mineral Resource by Lithology **4/29/2015**

Resource Class	Ktonnes	Gold Eq. (g/t)	Gold (g/t)	Gold (koz)	Silver (g/t)	Silver (koz)	Zinc (%)	Zinc (mlbs)
Measured Mineral Resource	371,125	0.829	0.611	7,287.9	16.1	192,323	0.181	1,478.52
Intrusive Host	*101,151*	*0.999*	*0.773*	*2,513.9*	*16.7*	*54,311*	*0.260*	*579.79*
Sediment Host	*269,974*	*0.765*	*0.550*	*4,774.0*	*15.9*	*138,012*	*0.151*	*898.73*
Indicated Mineral Resource	761,994	0.644	0.472	11,552.1	12.7	310,923	0.156	2,613.73
Intrusive Host	*138,125*	*0.789*	*0.623*	*2,766.7*	*12.2*	*54,179*	*0.226*	*688.19*
Sediment Host	*623,869*	*0.612*	*0.438*	*8,785.5*	*12.8*	*256,744*	*0.140*	*1,925.53*
Measured/Indicated Resource	1,133,119	0.705	0.517	18,840.0	13.8	503,246	0.164	4,092.25
Intrusive Host	*239,276*	*0.878*	*0.686*	*5,280.6*	*14.1*	*108,489*	*0.240*	*1,267.99*
Sediment Host	*893,843*	*0.658*	*0.472*	*13,559.5*	*13.7*	*394,756*	*0.143*	*2,824.26*
Inferred Mineral Resource	51,543	0.517	0.387	641.4	9.5	15,787	0.097	109.90
Intrusive Host	*2,885*	*0.578*	*0.489*	*45.4*	*6.6*	*612*	*0.092*	*5.85*
Sediment Host	*48,658*	*0.513*	*0.381*	*596.0*	*9.7*	*15,175*	*0.097*	*104.05*

Resource is tabulated at a 0.34 g/t Gold Equivalent Cutoff Grade
Gold Equivalent = Gold + Silver / 73.55
Total Material in Cone Shell 2,466,205 ktonnes

Measured and indicated mineral resource amount to 1.13 billion tonnes at 0.517 g/t gold and 13.8 g/t silver for 18.8 million ounces of contained gold and 503.2 million ounces of contained silver. Inferred mineral resources is an additional 51.5 million tonnes at 0.387 g/t gold and 9.5 g/t silver for 641,400 ounces contained gold and 15.8 million contained ounces of silver. The resources are based on an equivalent gold cutoff grade of 0.34 g/t where:

Gold Equivalent = Gold + Silver / 73.55

The resources are based on a block model updated by IMC during July 2014 that includes the 2013 drilling by Chesapeake.

The resources are contained within a floating cone pit shell and are compliant with the "reasonable prospects for economic extraction" clauses of the Canadian NI 43-101 regulations. The cone shell is based on a gold price of US$ 1200 per ounce and a silver price of $19.20 per ounce, with no credit for contained zinc. Measured, indicated, and inferred resources were allowed to contribute to the economics for the cone shell. Total material (ore and waste) in the cone shell is 2.47 billion tonnes.

Mineral Reserve Estimates

Table 1-15 presents the mineral reserve for the Metates Project based on the mine and plant production schedules developed for the project. The mineral reserve amounts to 1.110 billion ore tons at 0.516 g/t gold, 14.2 g/t silver, and 0.164% zinc. Contained metal amounts to 18.3 million ounces of gold, 501.6 million ounces of silver and 4.0 billion pounds of zinc. Measured and indicated mineral resources in the production schedule are converted to proven and probable mineral reserves, respectively. The low-grade stockpile is classified as probable mineral reserve regardless of the original classification of the in-situ resource.

Table 1-15: Mineral Reserve

Metates Mineral Reserve							
Reserve Class:	Ktonnes	Gold (g/t)	Gold (Koz)	Silver (g/t)	Silver (Koz)	Zinc (%)	Zinc (M lbs)
Proven Mineral Reserve Mill Ore	283,777	0.696	6,350.2	17.2	156,929	0.171	1,069.8
Probable Mineral Reserve Mill Ore	515,849	0.546	9,055.5	13.5	224,398	0.147	1,671.7
Low Grade Stockpile	302,703	0.295	2,872.8	12.4	120,229	0.188	1,255.7
Total Probable Reserve	818,552	0.453	11,928.3	13.1	344,627	0.162	2,927.5
Proven/Probable Reserve Mill Ore	799,626	0.599	15,405.7	14.8	381,327	0.156	2,741.5
Low Grade Stockpile	302,703	0.295	2,872.8	12.4	120,229	0.188167	1,255.7
Total Proven/Probable	1,102,329	0.516	18,278.5	14.2	501,556	0.164	3,997.3

As will be discussed in the Section 16 (Mining Methods), the mine production schedule and resultant mineral reserve estimate are based on cutoff grades that vary by year to balance mine and plant production capacities. The cutoff grades also tend to be higher than the breakeven and internal cutoff grades.

IMC does not know of any mining, metallurgical, infrastructure, permitting, or other relevant factor that would materially affect the mineral reserve estimate.

Mining Methods

Metates Mine

Metates Mining Phases

The final pit design for this current study is relatively unchanged from the 2013 final pit. The final pit design is based on a floating cone run at $1200 per ounce gold and $19.20 per ounce silver. Economic parameters used to guide pit design are similar to the 2013 study except the silver price was reduced from $24.00 to $19.20 per ounce.

Eight mining phases have been established to mine the pit from the initial starter pit to the final pit limits. This is compared to five phases for the 2013 PFS. Some of the early mining phases were divided to allow more flexibility during the early years when the ore production rate is 30,000 tpd. The phase designs include haul roads and adequate working room for large mining equipment. The in-pit roads are 33m wide at a maximum grade of 10%. The width will accommodate trucks up to the 360-ton class such as Caterpillar 797 trucks. The pit design also incorporates recommendations by Call & Nicholas, Inc. (CNI) on slope angles. Figure 1-6 shows the final pit design (mining phase 8). Table 1-16 shows the tons and grades associated with each of the mining phases.

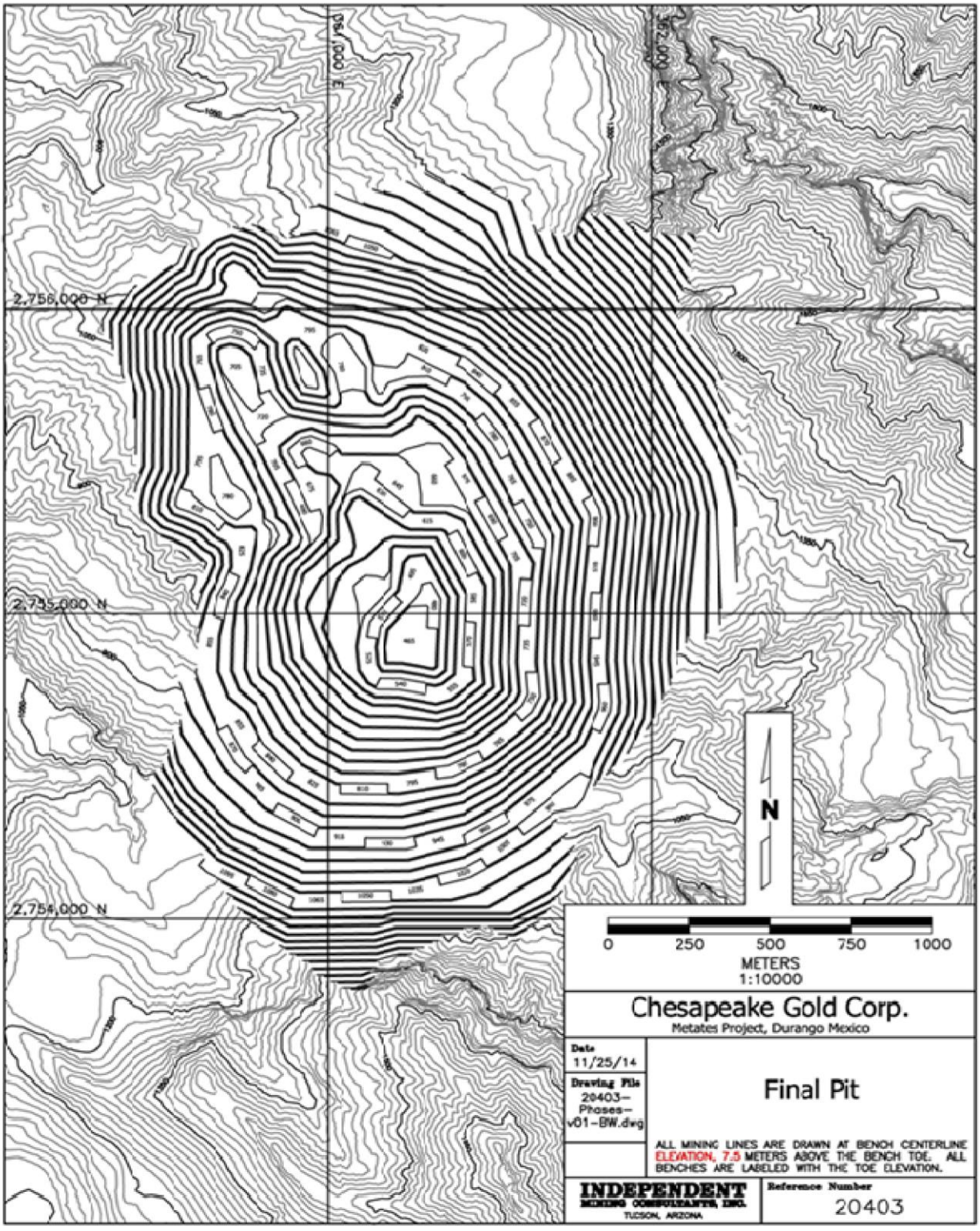


Figure 1-6: Final Pit (Mining Phase 8)

Table 1-16: Mining Phases

Mining Phase	Ktonnes	Gold (g/t)	Silver (g/t)	Zinc (%)	Copper (%)	Sulfur (%)	Waste Ktonnes	Total Ktonnes	Strip Ratio
Direct Feed	Ore: 31,041								
1A		0.536	38.8	0.416	0.008	4.46			
1B	84,354	0.935	12.2	0.248	0.015	6.14			
2	70,704	0.654	37	0.203	0.009	4.38			
3	8,763	1.009	23.2	0.201	0.012	4.98			
4	88,548	0.693	11.7	0.131	0.011	4.98			
5	77,063	0.598	15.8	0.157	0.011	4.47			
6	119,672	0.599	7.6	0.09	0.011	4.52			
7A	64,245	0.458	16.5	0.304	0.007	3.87			
7B	72,799	0.599	13.4	0.084	0.015	4.82			
8	182,437	0.419	8.9	0.077	0.010	3.86			
Total	799,626	0.599	14.8	0.155	0.011	4.55			
Low Grade	Stockpile:								
1A	53,345	0.249	17.8	0.251	0.005	2.95			
1B	8,378	0.304	10.7	0.376	0.006	3.58			
2	53,233	0.320	18.0	0.216	0.007	3.37			
3	11,450	0.391	11.6	0.184	0.008	3.55			
4	48,933	0.317	9.2	0.173	0.007	3.49			
5	21,960	0.236	12.5	0.135	0.006	2.81			
6	62,182	0.338	6.8	0.132	0.008	3.63			
7A	18,176	0.206	12.2	0.225	0.005	2.58			
7B	7,519	0.318	7.5	0.116	0.01	3.6			
8	17,527	0.237	10.3	0.127	0.005	2.73			
Total	302,703	0.295	12.4	0.188	0.007	3.26			
Total Ore:									
1A	84,386	0.355	25.5	0.312	0.006	3.51	45,531	129,917	0.54
1B	92,732	0.878	12.1	0.260	0.014	5.91	20,276	113,008	0.22
2	123,937	0.511	28.8	0.209	0.008	3.95	39,230	163,167	0.32
3	20,213	0.659	16.6	0.191	0.010	4.17	30,123	50,336	1.49
4	137,481	0.559	10.8	0.146	0.010	4.45	87,036	224,517	0.63
5	99,023	0.518	15.1	0.152	0.010	4.10	81,121	180,144	0.82
6	181,854	0.510	7.3	0.104	0.010	4.22	293,202	475,056	1.61
7A	82,421	0.402	15.6	0.287	0.007	3.59	294,241	376,662	3.57
7B	80,318	0.573	12.8	0.087	0.015	4.71	23,796	104,114	0.30
8	199,964	0.403	9.0	0.081	0.010	3.76	293,002	492,966	1.47
Total	1,102,329	0.516	14.2	0.164	0.010	4.20	1,207,558	2,309,887	1.10

Metates Plant Production Schedule

The production schedule is based on a nominal 30,000 tpd plant (10,950 ktpy) for the initial 3.5 years of commercial production. During Year 4 a 60,000 tpd expansion is added. Ramp up is during the second half of Year 4 with full production of 90,000 tpd (32,850 ktpy) achieved by the start of Year 5.

For the 2013 Metates production schedules it was assumed that intrusive and sedimentary ores would have different grinding rates. This is no longer believed to be the case. For this schedule it is assumed both ore types have the same grinding rate.

Table 1-17 shows the proposed plant production schedule. The top section of the table shows ore by time period. Ore is also tabulated by intrusive versus sedimentary ore.

A key constraint on the production schedule is the amount of sulfur to the autoclaves in the concentrate. Sulfur in mill feed was limited to 1,693 ktonnes per year for this schedule. This is considered the maximum for four autoclaves. This is a relatively minor constraint; only Years 9 and 12 are at this limit. This assumes 95% of the sulfur in the feed reports to the concentrate.

For scheduling purposes an economic variable IMC terms "Net of Processing" was constructed. This is in US$ per ore tonne and reflects the NSR value of the ore less estimated autoclave costs. This variable was constructed as follows. First the NSR value was calculated for each model block:

NSR = ($1200 x 0.892 x gold + $19.20 x 0.758 x silver)/31.103

NSR is in US$ per ore tonne and 0.892 and 0.758 reflect the plant recoveries of gold and silver respectively.

Based on the 2013 PFS, process and G&A costs averaged $10.00 and $0.32 per tonne respectively for a total of $10.32 per tonne. The mill operations plus G&A portion of the operating cost was estimated at $4.09 per tonne on average.

Autoclave operations were estimated to amount to about $6.23 per ore tonne on average and these costs are highly correlated to sulfur content of the feed. Assuming the average sulfur content of mill feed of about 4.08% the autoclave process was modeled as $0.069 per pound sulfur in mill feed.

Since the autoclave costs varies by block, the Net of Processing value was calculated as:

NOP = NSR – Autoclave

These Net of Processing cutoff grades and values are shown on the schedule. Internal NOP cutoff grade is the milling plus G&A cost of $4.09. Table 1-17 shows that Net of Process cutoff grades vary from highs of about $24 per tonne during the first quarter of Year 2 to lows of the internal cutoff grade of about $4.10 per tonne.

Between a proposed low grade Net of Processing Cutoff Grade of US$ 7.75 per ore tonne and the operating cutoff grade for each year, there is the potential to produce about 300 million tonnes of low grade material with is placed in a stockpile, consistent with previous studies. Tailing from this amount of additional ore could potentially backfill a significant portion of the pit. This low grade is stockpiled north of the pit and reclaimed on a last-in-first-out (LIFO) basis during Years 27 through 37.

Total ore is 1.15 billion tonnes at 0.516 g/t gold, 14.2 g/t silver, and 0.164% zinc. Total material is 2.3 billion tonnes for a 1.1 to 1 waste to ore ratio. Preproduction is 10.4 million total tonnes of material and will probably take about a year, including construction of initial mine access roads. About 113,000 tons of ore will be produced during preproduction that will be part of the Year 1 Quarter 1 plant feed.

Table 1-17: Plant Production Schedule

[illegible]

Metates Mine Equipment

Mine major equipment requirements for the Metates mine were sized and estimated on a first principles basis based on the mine production schedule, the mine work schedule, and estimated equipment productivity rates. The work schedule is based on two 12-hour shifts per day for 365 days per year. The mine equipment estimate is based on owner operation and assumes a well-managed mining operation with a well-trained labor pool, and that all the equipment is new at the start of mining.

Table 1-18 shows major equipment requirements by time period for Metates. This represents the equipment required to perform the following duties:

- Developing access roads from the mine to the crusher and waste dumps
- Mining and transporting ore to the crusher
- Mining and transporting low grade ore to the low grade stockpiles
- Mining and transporting waste to the various waste storage facilities
- Maintaining the haul roads and dumps

The peak equipment requirements consist of three large blast hole drills, three large cable shovels, and a maximum fleet of about 42 trucks.

Equipment Type	Capacity/ Power	Time Period																									
		PP	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4Q1	Y4Q2	Y4Q3	Y4Q4	5	6	7	8	9	10	11	12
P&H 320XPC Drill	(356 mm)	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	3	3	3	3	3
P&H 4100XPC Cable Shovel	(67.6 cu m)	1	1	1	1	1	1	2	1	1	2	2	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Komatsu 960E Truck	(327 mt)	9	14	13	11	10	9	10	9	10	10	11	11	12	17	21	26	31	29	32	37	37	36	32	32	32	32	33
Komatsu D475ASD-5 Track Dozer	(664 kw)	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Komatsu D375A-6 Track Dozer	(455 kw)	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Komatsu WD900-3 Wheel Dozer	(640 kw)	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Caterpillar 24M Motor Grader	(397 kw)	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Water Truck - 30,000 gal	(113,500 l)	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Komatsu PC350 Excavator	(2.7 cu m)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Atlas Copco ECM 720 Drill	(140 mm)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Komatsu 900-3 Wheel Loader	(11.5 cu m)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Komatsu HD785 Truck	(94 mt)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
TOTAL		23	28	27	25	24	23	25	23	24	25	26	25	26	39	44	50	55	53	56	61	61	60	56	56	57		

Table 1-18: Mine Major Equipment Fleet Requirement

Equipment Type	Capacity/ Power	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
P&H 320XPC Drill	(356 mm)	3	3	3	3	3	3	3	3	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0
P&H 4100XPC Cable Shovel	(67.6 cu m)	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Komatsu 960E Truck	(327 mt)	41	39	35	37	37	40	42	35	20	21	19	14	16	19	21	6	9	9	8	7	7	6	6	6	3
Komatsu D475ASD-5 Track Dozer	(664 kw)	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Komatsu D375A-6 Track Dozer	(455 kw)	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Komatsu WD900-3 Wheel Dozer	(640 kw)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Caterpillar 24M Motor Grader	(397 kw)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Water Truck - 30,000 gal	(113,500 l)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Komatsu PC350 Excavator	(2.7 cu m)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Atlas Copco ECM 720 Drill	(140 mm)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Komatsu 900-3 Wheel Loader	(11.5 cu m)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Komatsu HD785 Truck	(94 mt)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
TOTAL		65	63	59	61	61	64	66	59	40	41	39	34	36	39	40	17	20	20	19	18	18	17	17	17	14

El Paso Limestone Quarry

General

The autoclaves and metal recovery circuit will require large quantities of limestone for acid neutralization. The El Paso processing site is located near a high quality limestone source to provide the needed material.

Limestone sampling at the El Paso site was limited to a few surface samples. However, the nearby Ranchito limestone site was sampled by five core holes and five surface trenches, totaling 376 sample intervals, for the 2013 PFS. The depositional environment and stratigraphy of the two areas are similar. The samples were assayed for CaO, MgO, SiO_2, Al_2O_3, and Fe_2O_3 by typical analytical procedures that would be used for cement quality limestone. From these IMC calculated $CaCO_3$ and $MgCO_3$ as 1.786 x CaO and 1.6 x MgO respectively. Based on this sampling it appears there will be sufficient material of 95% $CaCO_3$ or greater for calciner feed and also sufficient material for limestone slurry. IMC considers that assuming the El Paso site is similar to Ranchito is adequate for preliminary feasibility, but more sampling is recommended for the feasibility study.

Mine and Plant Production Schedule

The key assumptions for estimating limestone requirements are that 15% of mill feed reports to the concentrate and also that 95% of the sulfur in the ore is recovered in the concentrate. Limestone requirements for slurry feed are estimated as 3.5 tonnes of limestone per tonne of sulfur and limestone requirements for calciner feed are estimated as 0.493 tonnes of limestone per tonne of sulfur, i.e. limestone requirements are about 4 tonnes of limestone per tonne of sulfur. Life of project, it is anticipated that about 153.9 million tonnes of limestone will be required for slurry feed, and 21.7 million tonnes for calciner feed. This amounts to 175.6 million tonnes of limestone. Tonnes of lime to tonnes of limestone for calciner feed indicate a calcine ratio of 0.56. This calculation assumes a limestone purity of 95% and also an efficiency of 95%, i.e. 95% of limestone processed is converted to usable product.

Also, based on Ranchito results, IMC has assumed mine waste will be about 6% of the total plant feed, or 10.5 million tonnes.

El Paso Mining Equipment

Mine major equipment requirements for El Paso were sized and estimated on a first principles basis based on the mine production schedule, the mine work schedule, and estimated equipment productivity rates.

For Years 1 through 3.5 the work schedule is based on one 10-hour shift per day for 260 days per year (five days per week). This only requires one mining crew. During the second half of Year 4 the operation converts to two 10-hour shifts per day for 312 days per year (six days per week). This requires three mining crews. The mine equipment estimate is based on owner operation of leased equipment and assumes a well-managed mining operation with a well-trained labor pool, and that all the equipment is new at the start of mining.

Table 1-19 shows major equipment requirements by time period for El Paso. During the first few years the equipment includes one drill, one wheel loader, and five to six trucks. After the expansion of Metates to 90,000 tonnes per day the peak equipment requirements consist of two blast hole drills, two wheel loaders, and a maximum fleet of nine trucks; the 10 trucks indicated for Year 5 can probably be avoided. Mechanical availability on the new units purchased for Years 4 and 5 should be better than the average availability (85%) assumed for the calculations.

Table 1-19: El Paso Mining Equipment

Equipment Type	Capacity/ Power	Time Period																													
		PP	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4Q1	Y4Q2	Y4Q3	Y4Q4					Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12		
Atlas Copco ECM 720 Drill	(121 mm)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Komatsu WA900-3E0 Wheel Lo	(13 cu m)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Komatsu HD785 Truck	(94 mt)	0	1	4	4	5	5	5	5	6	6	6	6	6	6	6	6	4	7	10	9	9	9	9	9	9	9	9	9	9	9
Komatsu D275AX-5 Track Doze	(335 kw)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Komatsu WD500 Wheel Dozer	(264 kw)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Komatsu GD555 Motor Grader	(144 kw)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Water Truck - 10,000 gal	(37,850 l)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Komatsu PC270 Excavator	(1.7 cu m)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL		0	8	11	11	12	12	12	12	13	13	13	13	13	13	13	12	16	20	19	19	19	19	19	19	19	19	19	19	19	19

Equipment Type	Capacity/ Power	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17	Yr 18	Yr 19	Yr 20	Yr 21	Yr 22	Yr 23	Yr 24	Yr 25	Yr 26	Yr 27	Yr 28	Yr 29	Yr 30	Yr 31	Yr 32	Yr 33	Yr 34	Yr 35	Yr 36	Yr 37					
Atlas Copco ECM 720 Drill	(121 mm)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	1	2	1	1	1
Komatsu WA900-3E0 Wheel Lo	(13 cu m)	2	2	2	2	1	1	2	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Komatsu HD785 Truck	(94 mt)	9	9	9	8	7	7	8	7	7	8	7	6	6	6	7	4	6	5	6	5	5	6	5	5	2					
Komatsu D275AX-5 Track Doze	(335 kw)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2					
Komatsu WD500 Wheel Dozer	(264 kw)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
Komatsu GD555 Motor Grader	(144 kw)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
Water Truck - 10,000 gal	(37,850 l)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
Komatsu PC270 Excavator	(1.7 cu m)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
TOTAL		19	19	19	18	16	16	18	16	16	18	16	15	15	15	17	12	15	14	15	13	13	15	13	13	10					

Recovery Methods

Milling and Metal Recovery

Roughly 50% of the gold and silver in Metates ore is locked up in pyrite and other sulfides. As a result, the sulfides must be concentrated and oxidized before cyanide leaching. Grinding and concentration of the ore is done near the mine site at Metates. The sulfide concentrate is piped downhill (about a 750 m drop in elevation) some 127 km to El Paso for acid pressure oxidation and cyanidation.

Grinding and Flotation

From the run of the mine, the ore is crushed and ground to 80% finer than 212 microns through a primary crusher (60in x 89in gyratory), two grinding lines. The Phase 1 grinding line consists of a SAG mill, 10.4 m x 6.1 m F/F (34' x 20' F/F), and a 6.71 m x 11.6 m (22' x 38') ball mill. The Phase 2 addition to the grinding plant will comprise a SAG mill, 12.2 m x 7.32 m F/F (40' x 24') and two ball mills, 6.71 m x11.6 m (22' x 38'). The Phase 1 SAG mill will be powered by dual synchronous drives with 6,000 kW each. The Phase 2 SAG mill will be driven by a wrap-around gearless drive with 23,000 kW. All three ball mills will be powered by dual pinion drives with 5,250 kW each. Flotation is done with a single rougher stage to produce a concentrate that contains about 92% of the gold, 88% of the silver, 89.3% of the zinc, and 91% of the copper. The project mass pull into the concentrate is 15%. The concentrate is thickened and then pumped to El Paso.

Flash-Thicken-Recycle (FTR) Acid Pressure Oxidation (POX) and Leaching

Acid pressure oxidation will be performed in four titanium-clad autoclaves (AC), using the Flash-Thicken-Recycle (FTR) modification to the acid pressure oxidation process. Operating parameters are 220^{o}C, 60 minutes, and an O_2 overpressure of 500 kPa. The compartment 1 flash thickener overflow containing acid and iron sulfates is directed to the neutralization circuit, while the underflow is returned to the autoclave.

The final AC discharge will be cooled by flashing, conditioned for eight hours, and then pumped to five stages of counter current decantation (CCD) wash to rinse the slurry of as much free acid and dissolved iron as possible. The CCD overflow is sent to solution neutralization. The rinsed slurry will undergo lime boil for four hours before leaching by cyanidation. Gold and silver in solution are recovered by filtration and Merrill-Crowe zinc precipitation. The gold and silver precipitate is then smelted and cast into doré bars.

One autoclave will be built in Phase 1 with three more added in Phase 2. Each autoclave is 5.6 m in diameter and 44.5 m in length (tangent-to-tangent), equipped with two flash tanks after the first compartment and a third flash tank at the discharge. The flash tanks measure 7 m in diameter (inside brick), and 11 m high (tangent to tangent) and 16.5 m overall.

Acid Neutralization and Zinc Recovery

Acid pressure oxidation of high sulfide concentrate produces large quantities of acid that need to be neutralized. The solution also contains dissolved zinc that may be recovered during the course of neutralization.

Neutralization would have been a significant cost for the operation and this drove the decision to locate the El Paso, which is replete with limestone deposits. Therefore, the bulk of neutralization can be achieved with limestone slurry, to be finished off to the target pH with milk of lime (MOL).

The recovery of zinc from the rinse solution of the first compartment flash and the AC discharge will provide additional revenue. Zinc is first precipitated as basic zinc sulfate is three parallel lines of 5 tanks, settled in two thickeners (33-m diameter in Phase 1 and 45-m diameter in Phase 2), filtered, and sent to the zinc plant as a filtered residue. The residue is then re-dissolved with the zinc in solution recovered by a solvent extraction and electrowinning (SX/EW) plant. The EW cathodes are finally cast in to produce 25-kg slabs of special high-grade (SHG). The zinc plant has a zinc dust unit to produce zinc dust for the Merrill-Crowe plant and for copper recovery.

To date, there have been four significant zinc SX-EW plants constructed world-wide. These are: Skorpion Zinc in Namibia, Akita Zinc in Japan, Portovesme in Sardinia and Horsehead in USA. There are similarities between the zinc SX plant selected for Metates and Skorpion Zinc in Namibia. The flowsheet employed is essentially identical to that proposed for Metates, with several stages of mixers and settlers. The settlers for Metates uses the same reverse-flow design but slightly less conservative based on experience of the original Skorpion designers of the reverse-flow settlers.

The overall process flow sheet is shown in Figure 1-7, while the general layouts of the process facilities are shown in Figure 1-8 for Metates and in Figure 1-9 for El Paso.

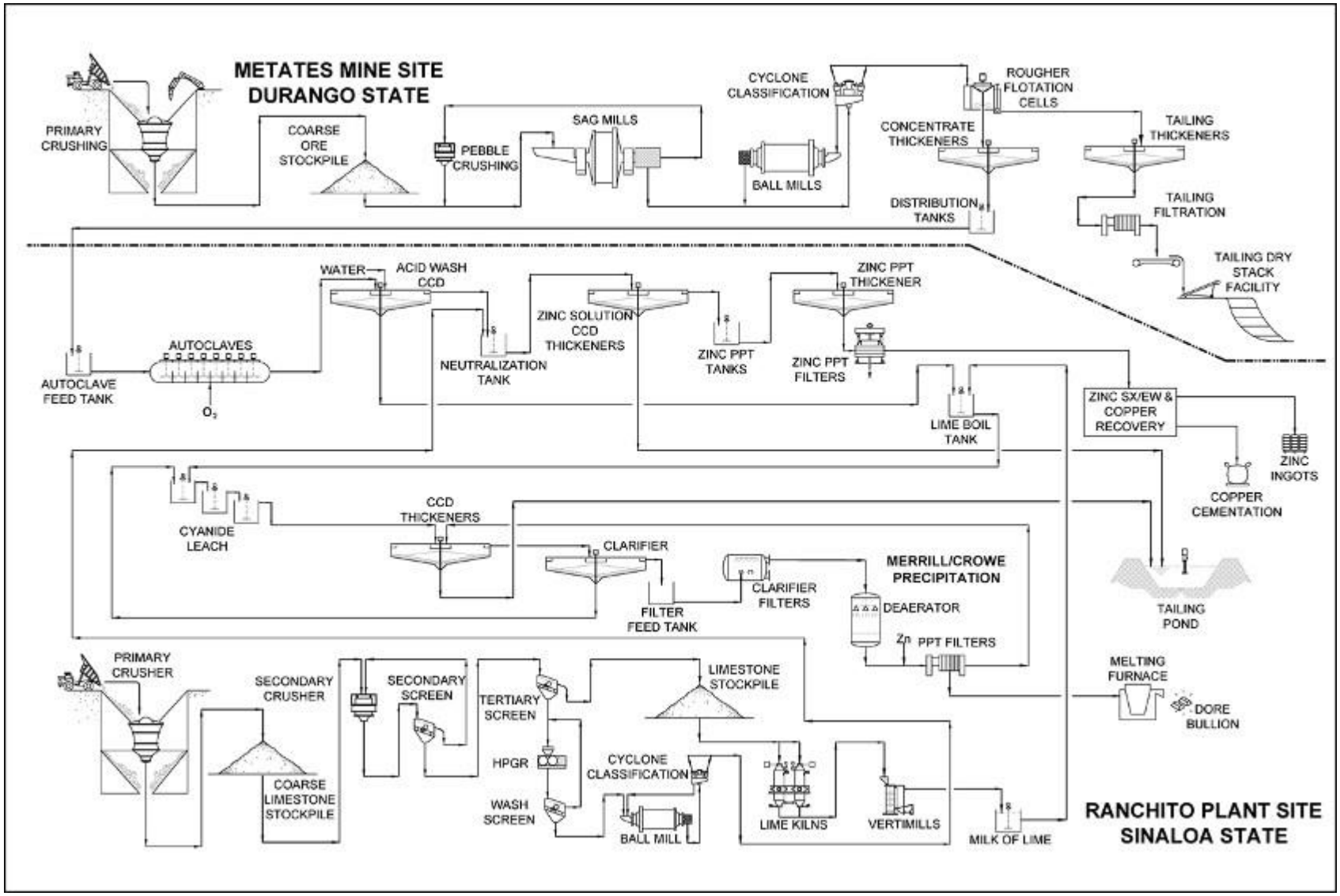


Figure 1-7: Generalized Processing Flowsheet of the Metates Project

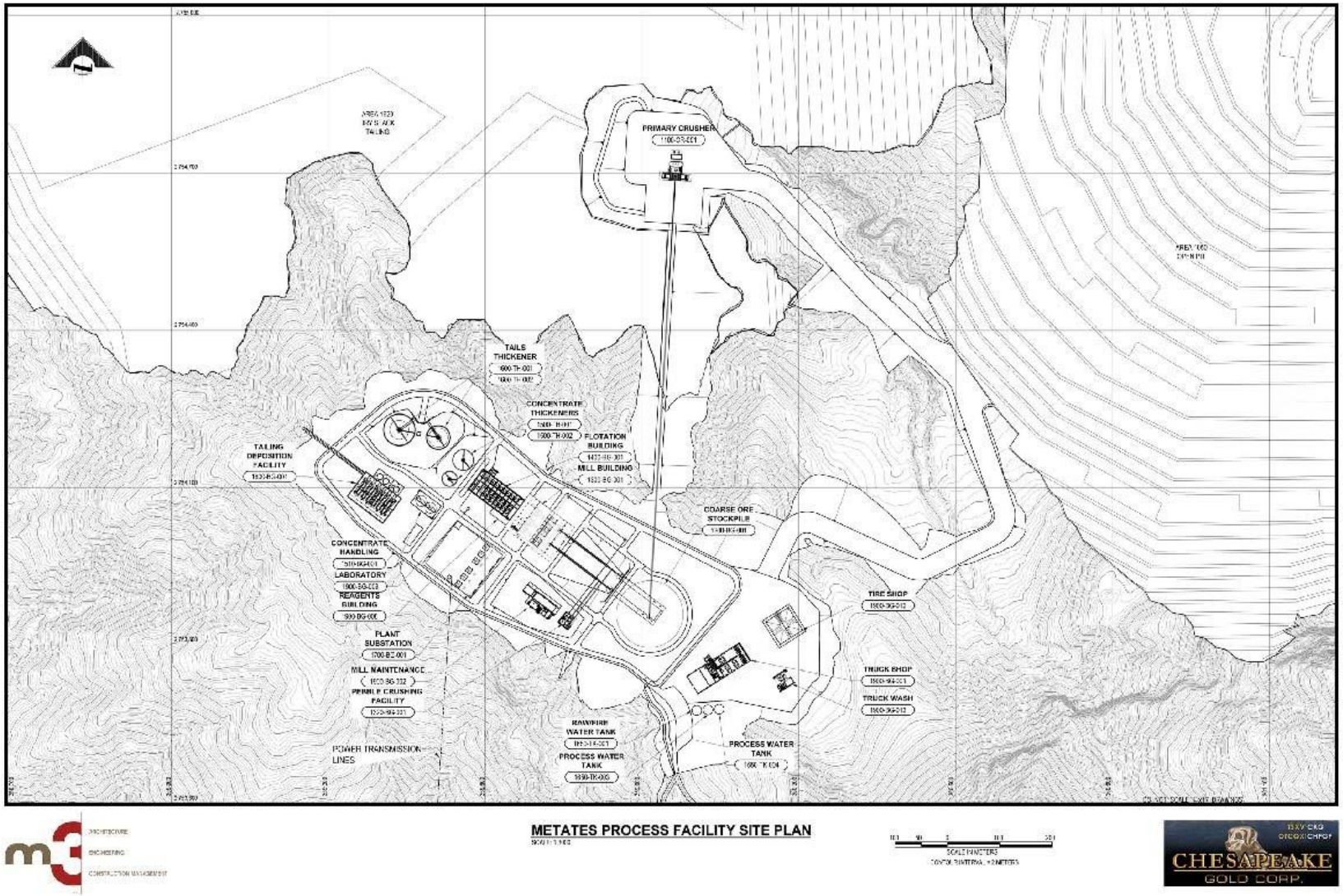


Figure 1-8: Metates Process Facilities Site Plan

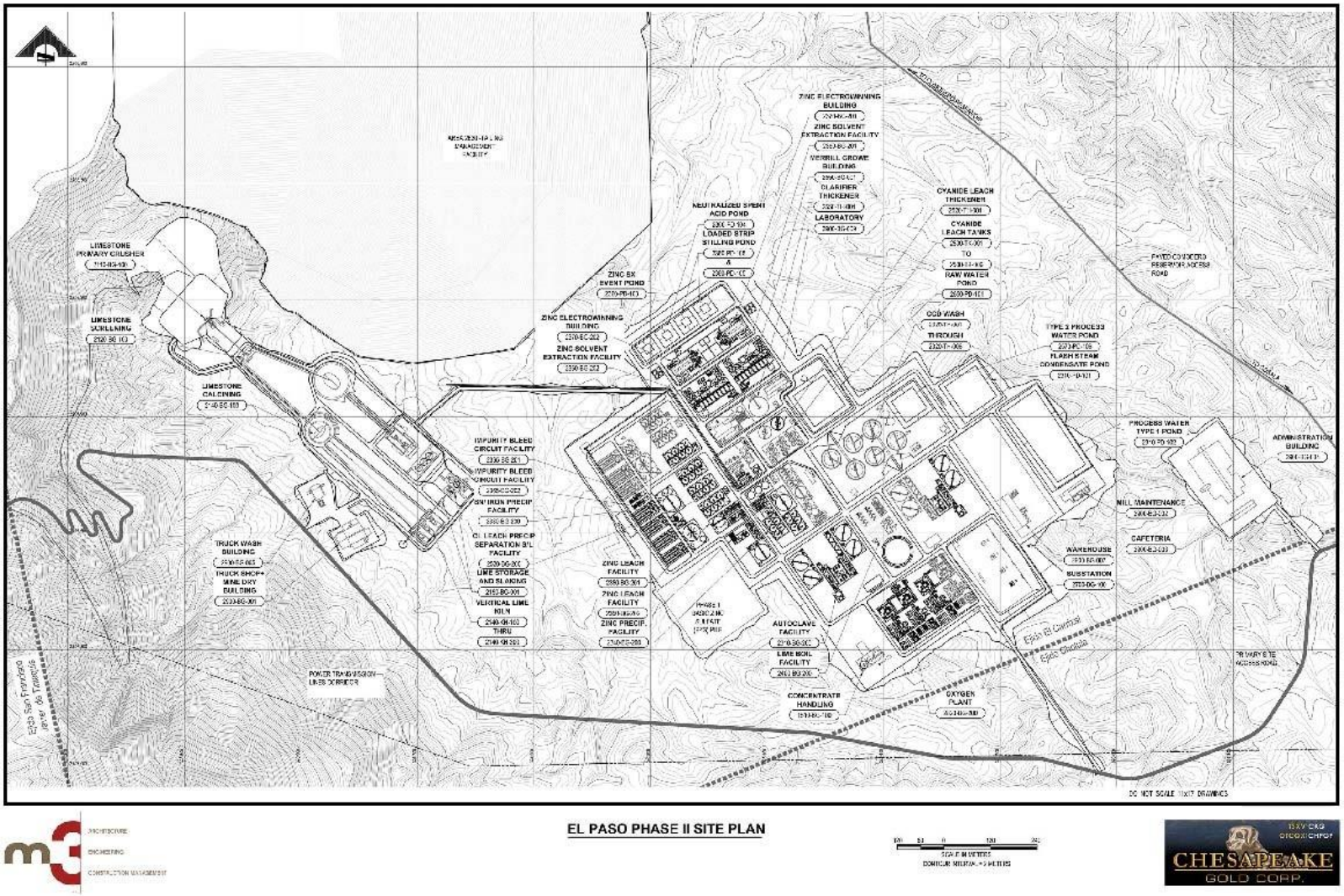


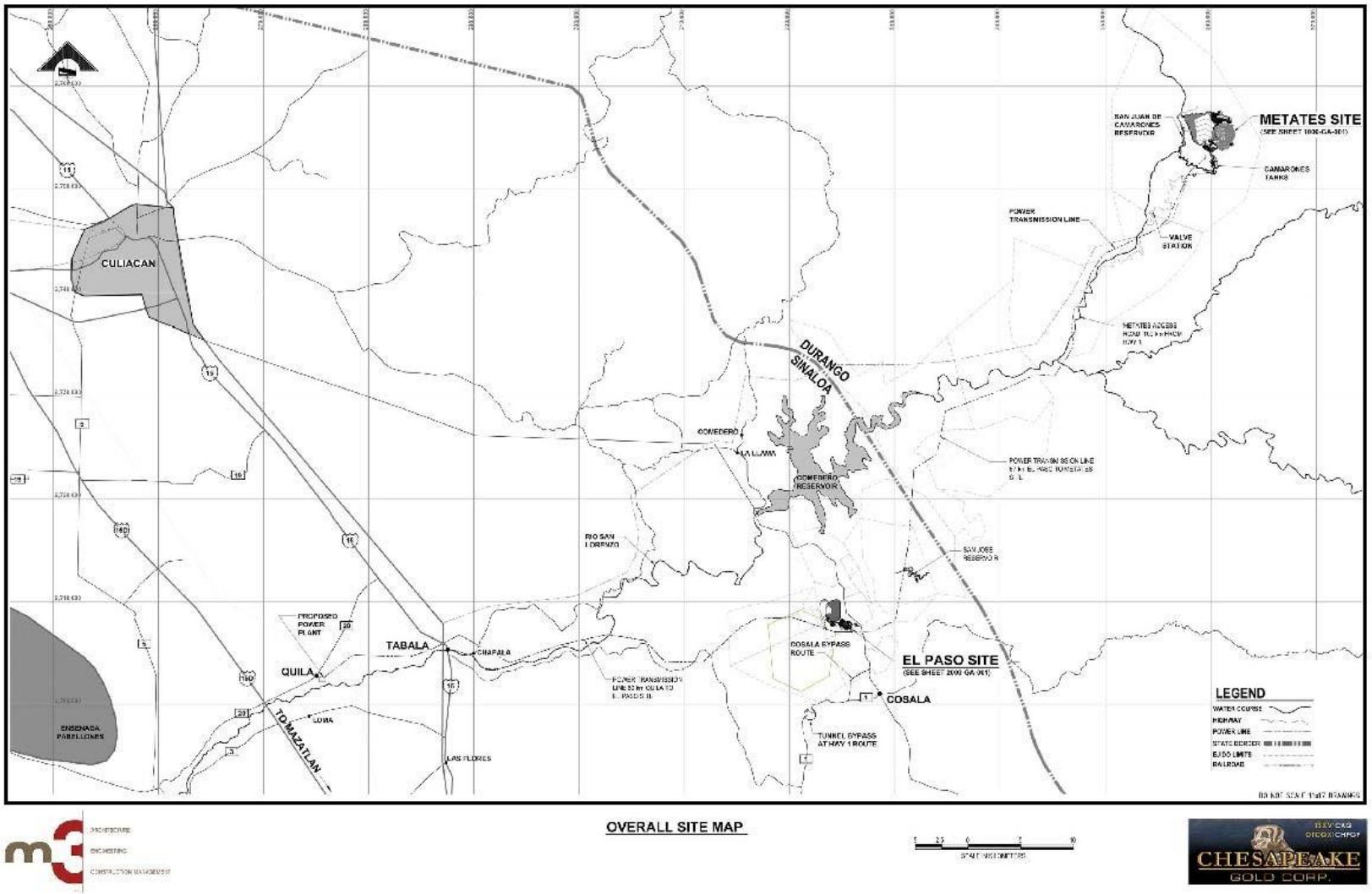
Figure 1-9: El Paso Process Facilities Site Plan

Project Infrastructure

Access Roads

Access roads will need to be improved and/or constructed to service the Metates and El Paso sites. All roads are designed to be 8 meters wide, consisting of two 3.5-meter travel lanes and a 0.5-meter shoulder for each lane. The access roads will be capped with an 8-inch layer of aggregate base course (ABC) material. A ditch for drainage is provided in cut sections and a safety berm is provided for fill sections.

The Metates Access Road is approximately 100 km long and connects the Metates site to paved State Highway 1 crossing about 6 km north of the town of Cosala. This road will serve as the main access to the Metates site, including the corridor for the concentrate pipeline. A short 3 km long access road will connect the El Paso site to Highway 1. Selective road improvements are planned for Highway 1 west of Cosala, as well as bypass around Cosala. The Metates access roads and power infrastructure is shown as Figure 1-10.



OVERALL SITE MAP

Figure 1-10: Metates Access Roads and Power Infrastructure

Waste Management Facilities – Metates Site

There are two main waste streams from mining and mineral processing operations at the Metates site:

1) Acid-generating or potentially acid generating (AG or PAG waste) and Non-acid-generating (NAG) waste rock; and,

2) Bulk flotation tailing having functionally minimal or no acid-generating potential.

Since the 2013 PFS, some minor optimizations in the overall waste management strategies have been completed, with a primary focus on modifications in the methodology, equipment specifications and staging for bulk placement of dewatered flotation tailing. The significant improvements in water conservation via tailing dewatering have been continued in the current study, where an estimated 60% reduction in consumptive use of fresh water over that of a more conventional hydraulic impoundment design approaches is realized and is the hallmark of the overall waste management strategy. Fully filtering the non-reactive (inert) bulk flotation tailing material provide the functional basis for a cost-efficient and effective co-disposal plan to be integrated at Metates, greatly reducing or eliminating most geotechnical risk factors and allowing active mitigation of risks associated with PAG waste rock. Furthermore, the relative proportions of both waste streams provides a favorable and conservative blending scenario to be achieved, reducing the risks of any significant time exposure of PAG waste to air and water by encapsulating it within a thick matrix of inert tailing. In combination, the net effect on the project is notable from the perspectives of decreased risk and improvements in overall environmental sustainability. The waste management plan for Metates meets or exceeds current best practice standards in the mining industry on an international basis. Ausenco of Denver, Colorado was the primary consultant for the design of the waste management facilities.

Over the life of the mine, approximately 1.2 billion tons of waste rock (about 72% of which is classified as AG) and 937 million tons of dry tailing will be produced and managed in the Metates integrated waste management storage facility (ISF). Dry tailing will be placed at a nominal daily rate of 75,000 tons during Phase 2 operations. During operating years 1-27, when the open pit mine is active, the dry, filtered tailing will be placed in the ISF. The inert dry tailing will be placed in thick layers using a combination of large-capacity transport conveyors and mobile stackers to cover placed ARD waste rock in relatively rapid succession. Figure 1-11 illustrates the general configuration of the Metates ISF in active operation during production year 3 as well as the mine and processing facilities and ancillaries.

As shown on Figure 1-11, in early stage operations, the dry stack will be built from the plant on a downhill grade, by working toward the base of the ISF, from which the larger-scale stacking operations will proceed. Approximately 1% of the dry tailing will be placed using a small dedicated truck fleet that will service the needs of waste rock placement outside of the central bulk-fill zone as interim cover to greatly reduce or eliminate the potential for acid generation from exposed AG waste rock.

Beginning in Year 27, previously stockpiled low-grade ore will be reclaimed and processed. The stacking system will be reconfigured at that time to allow for simultaneous placement of tailings into the abandoned open pit, as well as on the top surface of the ISF for final contouring and reclamation.

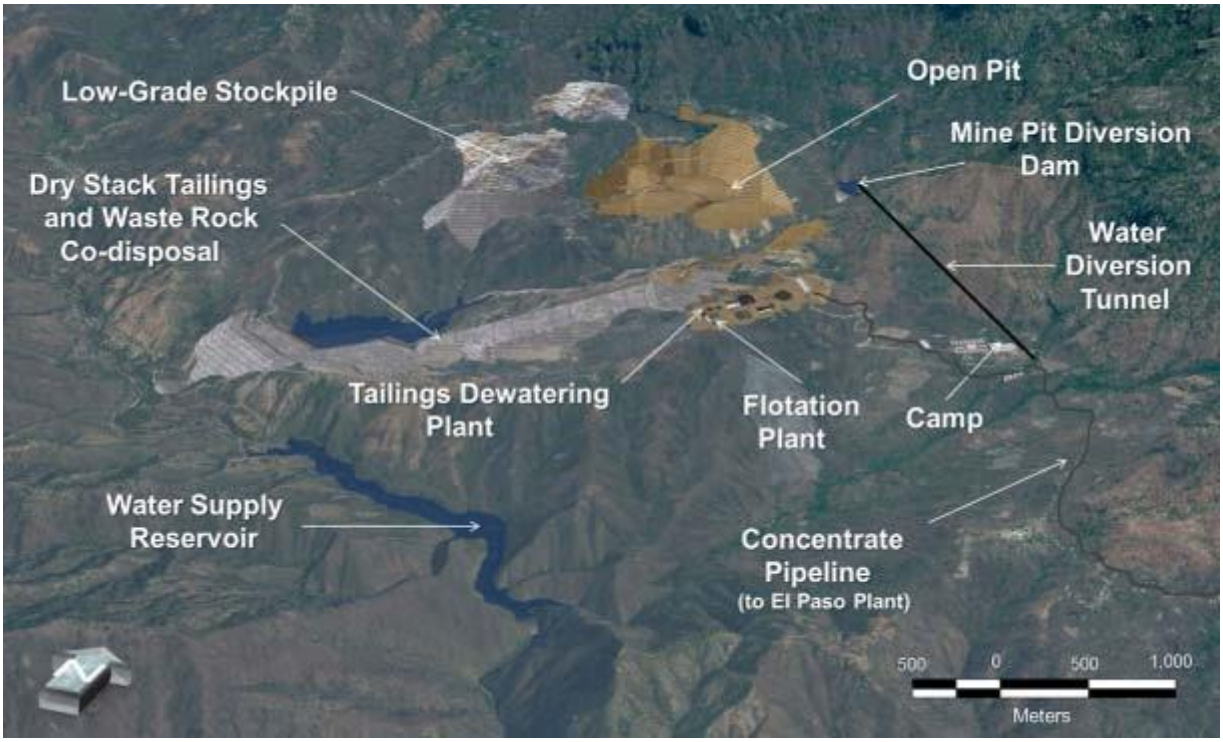


Figure 1-11: Metates ISF Development and Site Facilities – Year 3 (Phase Operations)

Backfilling of the open pit with tailing will proceed to an elevation of approximately 828m. This surface will be configured to allow for effective management of surface runoff which will be directed to a sump area located on the eastern edge of the pit. This will also facilitate the creation of a low-permeability barrier zone ('plug") along the western pit edge in an area coincident with the original path of the former San Nicolas drainage that was disrupted as the pit developed over time and was backfilled with waste rock and dry tailing. This configuration provides an optimum geometry for the base of a pit lake that will form over time in the open pit. The top 10m of the pit backfill will be amended with lime to create a reactive barrier that will enhance the overall water quality in the pit lake. The barrier created by the low-permeability barrier will act to suppress any small groundwater flows that may exit the pit lake over time, once the lake has reached steady-state conditions many years after the active mining operations have ceased. The outer perimeter of the ISF is constructed of bulk-fill waste rock that will serve as a large earth buttress and will be sequentially covered with low-permeability NAG rock and soil to reduce infiltration in the outer slopes and allow for concurrent reclamation.

Long-term monitoring and minimal routine maintenance will be required post-closure at the Metates site. Short term and longer-term, post-closure water treatment is planned. For all waters leaving the site which will be collected at the mouth of the San Nicolas drainage. The cost for a dedicated water treatment plant have been incorporated into the closure and reclamation cost estimates. It is projected that seepage reporting to the ISF seepage collection pond requiring active treatment will generally diminish over time. Figure 1-12 is a post-closure illustration of the Metates site and highlights the projected pit lake and completed site reclamation.

Figure 1-12: Metates Post–Closure Configuration of the ISF and Open Pit Mine

Waste Management Facilities – El Paso Site

The El Paso process operations will produce two main waste streams:

1) Residue from the limestone slurry and lime neutralization of acidic solutions form the POX processing of ore concentrates; and,

2) Cyanide leach tailing from POX residue

The waste management strategy in the 2013 PFS included hydraulic placement and impoundment of a combined waste stream, incorporating only primary thickening as part of the dewatering process. It was determined that incorporating filtration dewatering and dry stacking for both of the El Paso process waste streams would be possible and beneficial and allow for a plant site location no longer limited to those favoring hydraulic impoundments and dams. This allowed for the relocation of the Ranchito process facilities in the 2013 PFS to the current El Paso site, with some related cost savings and efficiencies in many process and ancillary operations. The combined waste management facility (WMF) is located adjacent to the process operations as shown on Figure 1-13, which illustrates Year 5 operations.

The rationale for combining the two waste streams for concurrent disposal and improving geochemical stability is an essential part of the overall waste management philosophy at El Paso. Based on prior studies it was determined that the combination of materials achieved a blended pH that minimized metals mobility that could have resulted if the original pH levels of the individual waste streams were maintained without subsequent secondary treatment for control purposes. Geotechnical and geochemical analysis of the filtered combined waste products confirmed the material's strength and overall physical characteristics. The combined waste product is essentially a gypsum-like material that is unique with respect to its continued hydration after mixing. This continued crystallization process yields significant increases in compressive strength over a relatively short (<30 days) timeframe with an associated decrease in its hydraulic conductivity (in the range of 1×10^{-7} cm/s). This functionally makes the stack impermeable to infiltration of rainwater and runoff, producing the effect seen in a typical clay liner. Ausenco was the primary consultant for the WMF design, water management, handling and stacking plans as well as plans for concurrent and final reclamation and closure of the WMF.

Figure 1-13 shows the development of the WMF site as it would appear in Year 5, and illustrates the relative positions of key process components of the El Paso operation. The WMF will be constructed in nine phases. The

placement process begins with mixing of the two filtered process streams and delivery to a staging stockpile via conveyor. Multiple delivery conveyors and mobile stackers are employed to deliver the material to specific staging points, where dozers and graders are used to move, spread and lightly compact the material in relatively thin lifts. The surface is maintained to promote surface water runoff to specific areas, from which collected contact water will be recycled to the plant as solution makeup. The WMF design includes provisions for uphill sediment control and storm water catchment management as well as two storm water diversion channels that will be constructed as the facility footprint is enlarged over time. Seepage collection systems are also planned but any seepage will be reduced as a consequence of the concurrent surface reclamation. Final reclamation of the top surface provides options for beneficial post-reclamation land use and for very limited long-term maintenance. Figure 1-14 illustrates the configuration of the El Paso site and WMF at the end of operations in Year 37.

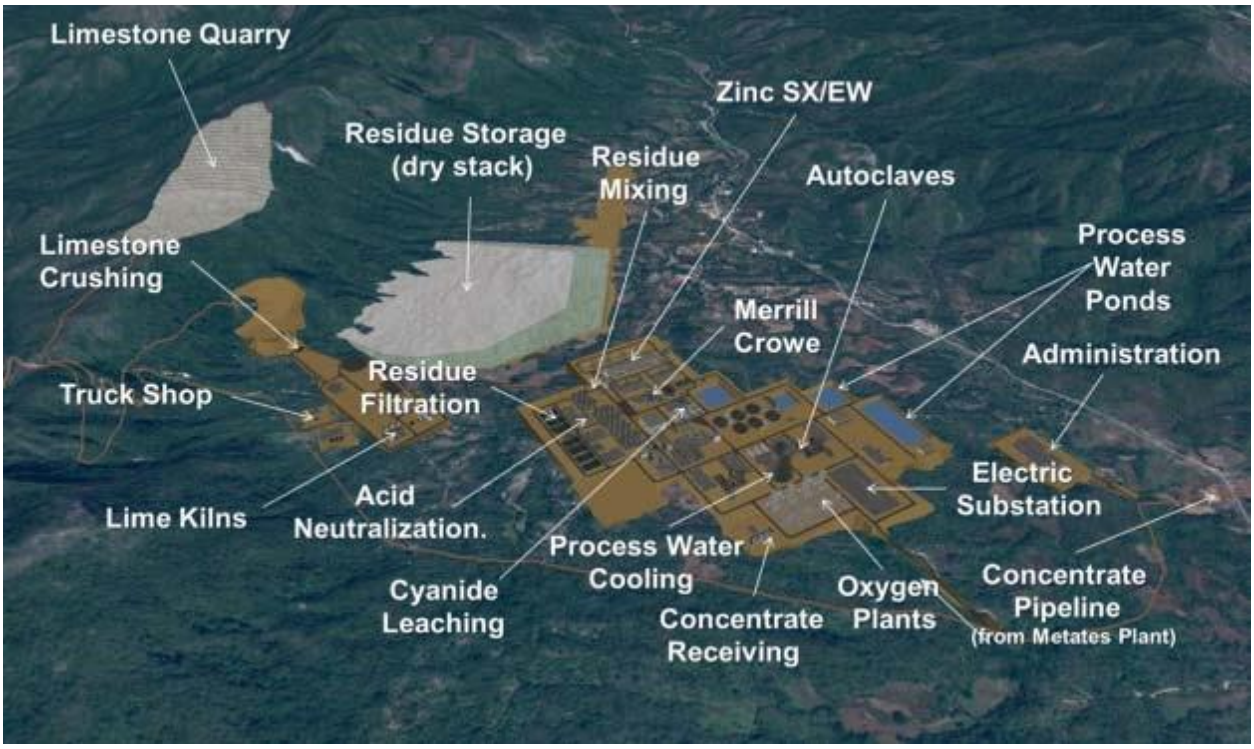


Figure 1-13: El Paso Process and Ancillary Facilities – Year 5 (Phase 2) Operations

Figure 1-14: El Paso Site and WMF – Year 37 – End of Operations

Water Supply and Distribution

One of the most critical elements of the Metates Project is the establishment of an adequate supply of fresh water to support a wide range of operational demands. As the project has evolved, a range of alternatives have been explored in order to secure and guarantee this essential resource. The 2013 PFS adopted a conventional approach that involved securing surface water rights via transfer from a number of current rights holders, creating surface water reservoirs and transferring the acquired water rights to these reservoirs. New surface water rights were not available at that time in the Rio San Lorenzo basin. A large water storage reservoir would be constructed at the Metates site, as well as multiple reservoirs near the El Paso site. Along with a network of water transfer pipelines and tanks to ensure process water was available even during severe drought scenarios. Projected annual consumptive use was estimated at 25 Mm^3. The initial water transfer and capital costs, annual operating costs and supply risk were still felt as significant, so risk and cost reduction in the water supply system became major objectives of the current Updated PFS.

A large cost component of a surface water based supply is the per cubic meter based tariff that is charged by the Mexican government. This tariff has been increasing over the years to where that tariff is now about the same cost as desalinated seawater sourced from reverse osmosis (SWRO) plant on a per cubic meter basis. Use of SWRO water presents many advantages as it does not impact the amount of existing surface water supplies in the basin, and would avoid any potential future water supply shortages and conflicts with existing stakeholders.

Under the current supply model, the SWRO plant would produce desalinated water that would be pumped approximately 10 km inland to a designated inlet station along a section of the main irrigation offtake on the Rio San Lorenzo. Approximately 20 Mm^3 of irrigation-quality water will be produced at the plant and delivered to existing water rights holders in the San Lorenzo Basin as a direct offset to surface waters that will be collected and impounded in reservoirs at the El Paso and Metates sites (both are within the San Lorenzo basin) as the source of all operational water for the entire project. The existing rights of the current users would be swapped for the SWRO water and the rights then transferred to the reservoir sites.

The cost of SWRO water produced from a third party operator is estimated at $0.825/m^3 including power. This price would be comparable to, and possibly lower than the cost of water based on the current tariff structure. The SWRO based water supply solution is thought to carry lower inherent risk than that of the comparable and more conventional water supply plan as outlined in the 2013 PFS.

Schlumberger Water Services (SWS) and SRK Consulting (SRK), both of Denver, Colorado assisted in the water supply investigations and design and developed a site wide water balance. Figure 1-15 is a schematic representing the essential elements of the site-wide water balance.

The most significant factor in the optimization of the water balance is the incorporation of the dedicated SWRO source. SRK presents the results of a water supply and network modeling program based on the GoldSim Pro 11.1.5. software platform. The model employs historical climate data from long-term weather stations in the vicinity of both the Metates and El Paso sites to build a 46-year precipitation and evaporation record. The climate model, upon which the simulations were based, used this record to create climate scenarios that represented both average conditions, as well as those that were representative of extended wet and dry periods. The sizing of reservoirs and establishment of optimal water production scenarios for the SWRO plant were based on an interactive process that examined a wide range of yearly operating scenarios over the planned 37-year lifetime of the project. Contingencies to manage all project water demands under extreme conditions were included in the water balance modeling program.

The water supply and distribution plan for the Updated PFS incorporates changes relative to the 2103 PFS. These changes were driven primarily by overall reduction in consumptive water demand as a result of lower production requirements, improvements in water conservation via full dewatering of the El Paso process operations waste streams (dry stacking) and the introduction of sea water desalination. The Updated PFS design calls for the construction of single reservoirs at the Metates and El Paso sites. These reservoirs are now located in large drainage basins which lowers the supply risk and allows for smaller and less costly dams.

Paterson & Cooke (P&C) of Golden, Colorado developed designs and cost estimates for a system-wide water distribution system that linked the new surface water reservoirs to operations at Metates and El Paso. That system includes 4 basic elements:

- A 12.3 km raw water pipeline from the San Jose Reservoir to the El Paso Raw Water Tanks.
- A 5.4 km raw water pipeline from the San Juan Reservoir to the Camarones Storage Tanks.
- A 2.2 km raw water pipeline from the Camarones Storage Tanks to the Metates Process Water Tanks.
- A 16.7 km water pipeline from the Desalination Plant to the Agricultural Water Distribution Station.

In addition, several other small subsystems and associated pump stations deliver collected water from the pit rim, open pit mine, internal collection ponds and seepage ponds at Metates, as well as from the waste management facilities at the El Paso operation.

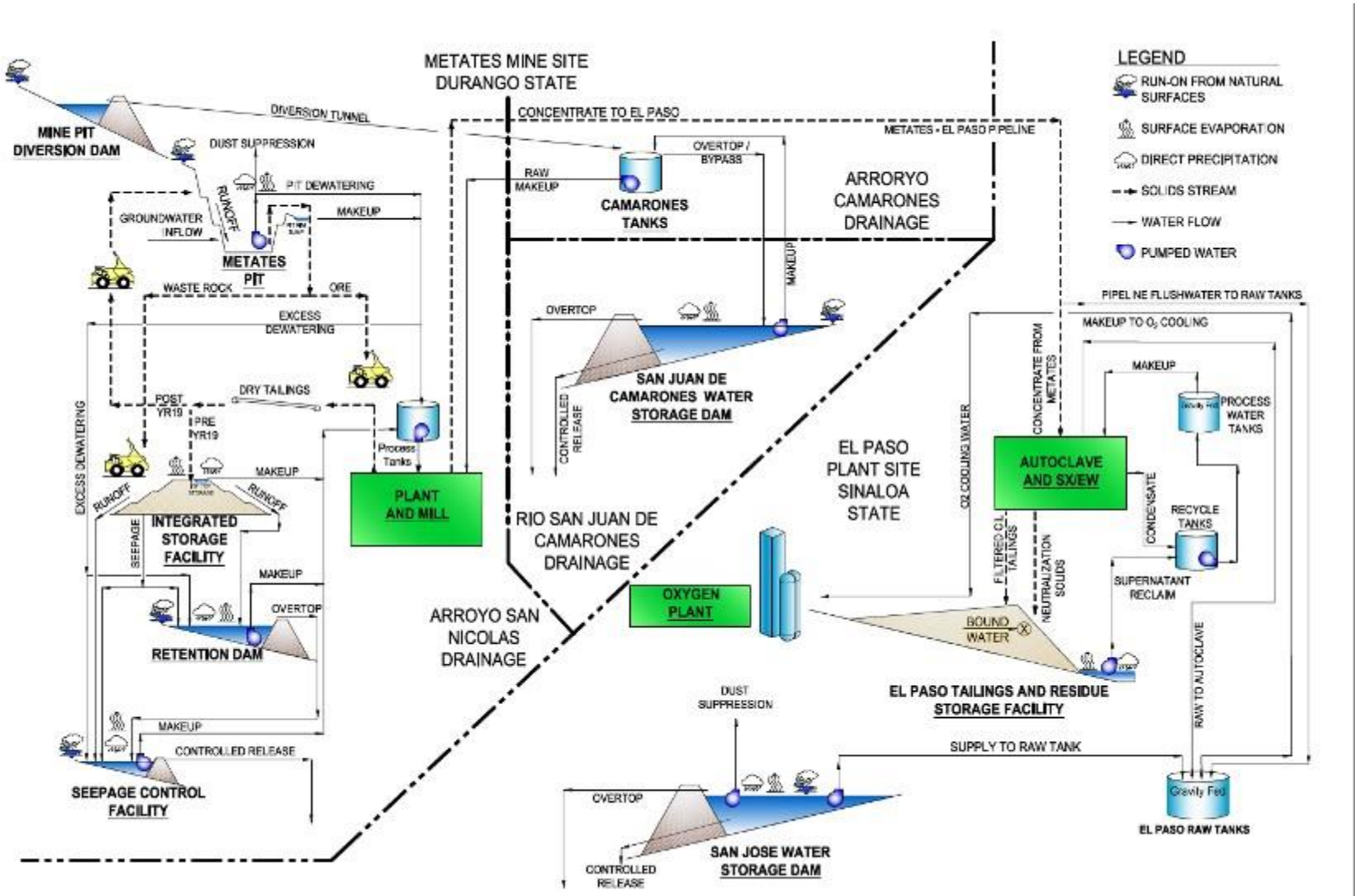


Figure 1-15: Metates Water Balance Flow Schematic

Power Supply and Distribution

The availability of inexpensive natural gas sourced from the United States is an important factor in establishing the power supply for the Metates, since power represents one of the most significant operating costs for the project. In 2012, the Mexican government, through its power authority (CFE), initiated the construction of new pipelines to delivery natural gas along its northwest coast. One of these (North Pipeline) crosses into the US at San Isidro, Texas, the other (Northwest Pipeline) at Sasabe, Arizona. Gas feeding these lines is tied into the Henry Hub in Louisiana. The Northwest pipeline is now complete to its terminus in Mazatlan and the North pipeline is nearing completion at its terminus in Los Mochis. The majority of the natural gas flowing into Mexico is contracted to the CFE as part of a fuel conversion plan that will replace heavy fuel oil with natural gas at is power plants as well as providing a natural gas source for new power plants. Excess capacity in the system is expected to be available to support private industrial customers and independent power generators alike.

Pace Global (Pace) of Fairfax, Virginia, was contracted by Chesapeake to conduct a study of two major power supply options for the Metates Project: purchasing power from the CFE, and self-supply via an independent power provider (IPP). Based on the results of that study, CFE industrial tariff rates are expected to remain volatile and subject to variables including, inflation, fuel price fluctuations, political environment, climate change mandates, etc. Pace has therefore recommended the IPP option as having the best combination of economics and risk than the CFE grid supply alternative. The IPP concept would include several elements as outlined by Pace:

1. Chesapeake would enter into a long-term power supply agreement (PSA) in which the IPP would be responsible for construction and operation of a dedicated power plant

2. Surplus power generated would be sold into the wholesale market at competitive rates and allow for a more efficient sizing of the power plant rather than one sized exclusively for the demands of Metates

3. Power from the CFE grid would serve as backup in the event of outages or maintenance.

4. Both variable costs (natural gas costs to be paid by Chesapeake and some operating costs) and fixed costs (operating costs, capital recovery, debt service and IPP profit) would be included in the PSA terms.

Proposed siting of the dedicated power plant took into account a range of variables including: proximity to cooling water and the El Paso plant operations, the configuration and location of the CFE grid, and the potential impact of wheeling charges. A site near the town of Quila (located approximately 50 km west of the El Paso plant site) was chosen for a natural-gas-fired combined cycle gas turbine (CCGT).

Chesapeake reviewed various expressions of interest from a number IPP candidates and selected AES Corporation of Arlington, Virginia and its subsidiary AES Mexico to prepare a non-binding proposal for the supply of more than 500MW of power over a proposed 20-yr PSA. Using an average Henry Hub natural gas price of $2.12/MMBtu, the AES proposal would deliver power to Metates for a projected price of $49.75/MWh or about $0.04975/kWh. Pace has estimated that this pricing option would be approximately 50% of the equivalent cost if power were to be sourced directly from the CFE grid.

Electrical power for the Metates mine and El Paso process sites will be transmitted along a newly-constructed 400 kV power line that will tie into the existing CFE grid at a substation to be constructed near the town of Quila. The 400 kV line will extend some 55 km to the El Paso site and then another 72 km to the Metates site (total distance of 127 km) (see Figure 1-9). Once complete the line will be turned over to the CFE.

Environmental Studies, Permitting and Social and Community Impacts

Baseline environmental studies were undertaken by Cambior with regard to surface water and groundwater, climate, air quality, biological conditions, and archaeology. In addition, numerous samples of mine rock (both ore and waste) have been studied for their acid generating and acid neutralization potential. This information has been summarized in the Cambior Preliminary Feasibility Study. Golder Associates (Golder) of Lakewood, Colorado completed a reevaluation of the 1997 studies using new samples from the 2008 drilling. The new information from Golder, along

with extensive testing additional lab and on-site testing of waste rocks and process related samples (tailing and neutralization residue), was summarized by INTERRAlogic (ITL) of Golden, Colorado, who also produced a mine closure plan for the Metates and El Paso sites.

At the Metates site baseline information on both surface and groundwater was collected by Cambior during the period 1994-1997. SWS established new surface water and groundwater sampling locations at Metates that cover the same general area as the older sampling sites and has also resampled the same groundwater wells established during the older period effectively extending the baseline monitoring timeframe. Surface and groundwater sampling sites at the Ranchito site were established by Chesapeake and SWS but have now been abandoned with the move to the El Paso site. No surface and groundwater sampling sites have yet been established at the El Paso site. The goal of the surface and groundwater sampling program is to characterize the pre-mining or pre-operations conditions at the Metates and El Paso sites. This information is required to be included as part of the permitting applications to SEMARNAT.

A total of 9 groundwater monitoring wells have been installed and are currently sampled regularly at the Metates site. A total of 8 surface water sampling sites have been installed at the Metates site, of which 5 are regularly sampled. Sampling of the groundwater sites generally involves collection and chemical analysis of groundwater as well as physical determination of groundwater level and other field parameters. Sampling of surface water sites generally involves surface flow measurements as well as the collection and chemical analysis of surface waters and field parameters.

Environmental baseline data collection and reporting has been completed by M3 Mexicana for the Metates mine site and the Ranchito processing site. The environmental baseline work included a survey of the climate, geologic hazards, air quality, surface water runoff, vegetation, wildlife, federally designated conservation areas, socioeconomic evaluation, and a review of cultural/historic sites. The results of the site visit, record review, and preliminary investigations did not reveal any significant environmental issues. There are expected to be certain at-risk species (Priority 1, 2, and 3) of vegetation and wildlife in the areas examined. Specific management plans will need to be developed to address each of the at-risk species encountered. Additional follow-up/confirmation investigations will be necessary as the specifics of the project are developed. These studies need to be extended to cover the El Paso site and the connecting infrastructure corridor, but conditions are expected to be similar to those areas already examined.

For the most part, federal laws regulate mining in Mexico, but there are some aspects subject to state or local approval. The Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) is the chief agency regulating environmental matters in Mexico. The Comisión Nacional del Agua (CONAGUA) has authority over matters concerning water rights and activities that affect ground and surface water, including diversion of floodwaters. Separate permit applications will be submitted for the three areas of activity, namely, the Metates site, the El Paso site, and the access/infrastructure corridor between the sites. This allows development work to commence in any area that is permitted without having to wait for the entire project area to be permitted. The main permits required for construction and operation include the Environmental Impact Manifest (MIA), Change of Land Use (CUS), and Risk Analysis (RA), all administered by SEMARNAT, and Water Rights, Explosives, and Cultural Resources, all administered by other federal agencies. Overall, permitting in Mexico is straightforward and governed by mandated processing timeframes. For the Metates Project a permitting timeframe not exceeding 18 months is considered reasonable, based on current information.

Chesapeake has in place a surface rights agreement with the local community that allows for exploration and predevelopment activities at the Metates site through September 2018. A similar agreement with the community around the El Paso site is currently under negotiation.

Chesapeake has had extensive and on-going discussions with representatives from the State Governments of both Durango and Sinaloa States. Both states are very supportive of the future development of the Metates Project and have pledged to support Chesapeake in any way they can.

Capital Cost Summary

In general, capital costs for mining at both the Metates and El Paso sites were developed by IMC, while costs for the waste management and other engineered facilities were developed by Ausenco. P&C developed costs for water distribution, tailing dewatering and filtration and the concentrate pipeline. M3 was responsible for developing most all other costs, especially for the processing plants, power distribution, site preparation, etc. Chesapeake provided the owner's costs, including the Metates access road, other selected infrastructure and land acquisition costs.

Metates Mine Capital Cost

The mine capital costs for the Metates mine, assuming owner operation, were estimated by IMC. Costs are presented for two cases: 1) owner purchase of all equipment, and 2) leasing of all equipment for the entire project life. The mine capital costs developed by IMC include the following items:

- Mine major equipment
- Mine support equipment and initial spare parts
- Mine preproduction development expense

The estimated cost of the following facilities was developed by others and is included in the infrastructure capital budget:

- The mine shop and warehouse, including equipment washing facilities
- Fuel and lubricant storage facilities
- Storage facilities for blasting agents and high explosives
- Mine electrification
- Office facilities

Table 1-20 summarizes the mine capital cost by category for initial and sustaining capital for the owner purchase case. The initial capital period is preproduction and the first quarter of Year 1.

Table 1-20: Metates Mine Capital Cost – Owner Purchase of All Equipment (US$000)

Category		Initial Capital by Time Period					Initial Capital	Sustaining Capital	Total Capital
		PP	Yr1-Q1	Yr1-Q2	Yr1-Q3	Yr1-Q4			
Major Equipment		102,805	29,156	0	0	0	131,961	443,237	575,198
Support Equipment @	10.00%	10,281	2,916	0	0	0	13,196	44,324	57,520
Initial Spare Parts @	0.00%	0	0	0	0	0	0	0	0
Shop Tools @	0.00%	0	0	0	0	0	0	0	0
Equipment Subtotal		113,086	32,071	0	0	0	145,157	487,561	632,718
Equipment Contingency @	5.0%	5,654	1,604	0	0	0	7,258	0	7,258
Mine Development		28,693	0	0	0	0	28,693	0	28,693
TOTAL MINE CAPITAL		147,433	33,675	0	0	0	181,108	487,561	668,668
Exclusions: Mine shop and warehouse, fuel and lubricant storage, explosives storage, and offices.									

The costs are in 4th quarter 2015 US dollars and do not include IVA taxes of about 16%.

The base case for financial analysis is leasing of all mining equipment for terms of 5 years for most equipment and 8 years for large drills, shovels, and trucks and the owner acquiring the equipment at the end of the leases. For details on the lease cases see Section 21.1. Equipment capital cost is minimal for this case and the operating costs are adjusted to reflect the annual lease costs.

El Paso Mine Capital Cost

The mine capital cost for El Paso, assuming owner operation of all equipment, was estimated by IMC. Two cases are developed: 1) owner purchase of all equipment, and 2) leasing of all equipment. The mine capital cost developed by IMC includes the following items:

- Major equipment
- Support equipment
- Preproduction development expense

The estimated cost of the following facilities was developed by others and is included in the infrastructure capital budget:

- The shop and warehouse
- Fuel and lubricant storage facilities
- Storage facilities for blasting agents and high explosives
- Office facilities

It is also assumed that initial spare parts and shop tools will be provided as part of the service provided under maintenance and repair contracts ("MARC") for the equipment.

Table 1-21 summarizes the mine capital cost by category for initial and sustaining capital for the case where the owners purchase all of the mining equipment. All initial capital is purchased during the preproduction period to be available at the start of Year 1.

Table 1-21: El Paso Quarry Capital Cost: Owner Purchase of All Equipment

		Initial Capital by Time Period					Initial Capital	Sustaining Capital	Total Capital
Category		PP	Yr1-Q1	Yr1-Q2	Yr1-Q3	Yr1-Q4			
Major Equipment		12,033	0	0	0	0	12,033	26,423	38,456
Support Equipment @	10.00%	1,203	0	0	0	0	1,203	2,642	3,846
Initial Spare Parts @	0.00%	0	0	0	0	0	0	0	0
Shop Tools @	0.00%	0	0	0	0	0	0	0	0
Equipment Subtotal		13,236	0	0	0	0	13,236	29,065	42,301
Equipment Contingency @	5.0%	662	0	0	0	0	662	0	662
Mine Development		3,372	0	0	0	0	3,372	0	3,372
TOTAL MINE CAPITAL		17,270	0	0	0	0	17,270	29,065	46,335
Exclusions: Mine shop and warehouse, fuel and lubricant storage, explosives storage, and offices.									

The costs are 4th quarter 2015 US dollars and do not include IVA taxes of about 16%.

As with Metates, the base case for financial analysis is leasing of all mining equipment for terms of 5 years and the owner acquiring the equipment at the end of the leases. For details on the lease cases see Section 21.1. Equipment capital cost is minimal for this case and the operating costs are adjusted to reflect the annual lease costs. For the Updated PFS it is assumed that much of the El Paso limestone mining and limestone slurry and lime production is outsourced to a third party in which case all of the mine capital and much of the process plant capital is reflected as an operating cost.

Consolidated Mine and Mill Capital Cost

The consolidated mine and mill capital cost is shown in Table 1-22. The preliminary feasibility level total estimate for the mine, mill, POX plant, lime kiln, and limestone slurry plant is $3.496 billion, including a contingency of $497 million. The initial capital expenditure is $1.91 billion to develop the site, site access, and build the 30,000-tpd plant in Phase 1. A Phase 2 expansion of the plant to operate in Year 5 will increase the capacity by 60,000 for a total of 90,000 tpd at a cost of $1.59 billion.

Table 1-22: Consolidated Mine and Mill Capital Costs

Area	Phase 1	Phase 2	Total
Metates Site			
Mining Equipment & Mine Development	$44,401	$0	$44,401
Crushing, Grinding, Flotation	$277,787	$155,066	$432,853
Tailing Dewatering & Stacking	$51,069	$40,031	$91,100
Other	$63,276	$16,559	$79,835
Subtotal	**$436,533**	**$211,656**	**$648,189**
El Paso Site			
Pressure Oxidation & Oxygen Supply	$278,976	$484,392	$763,368
Limestone Crushing & Lime Production	$63,017	$14,332	$77,349
Precious Metals Recovery	$66,115	$48,993	$115,107
Zinc Recovery	$32,858	$240,731	$273,588
Tailings & Residue Disposal (1)	$13,761	$0	$13,761
Other	$39,522	$8,873	$48,395
Subtotal	**$494,249**	**$797,320**	**$1,291,569**
Infrastructure			
Access Roads & Civil Works	$107,567	$2,356	$109,922
Electric Power	$102,566	$11,753	$114,318
Water Supply	$32,335	$12,196	$44,531
Subtotal	**$242,467**	**$26,304**	**$268,771**
Total Direct Field Cost	$1,173,249	$1,035,280	$2,208,529
Indirects, EPCM, Commissioning & Spare Parts	$300,282	$298,433	$598,715
Total On Site Constructed Cost	$1,473,532	$1,333,713	$2,807,244
Contingency	$244,004	$253,058	$497,063
Owner's Cost	$192,108	$0	$192,108
Total Capital Cost	**$1,909,644**	**$1,586,771**	**$3,496,415**

Operating Cost Summary

The operating costs were generated by IMC for all mining activities, by P&C for water distribution, concentrate pipeline, and dewatering, Ausenco for tailing disposal, and concurrent reclamation and M3 for the majority of the processing operations at both the Metates and El Paso sites and the general and administrative costs.

Metates Mine Operating Costs

Table 1-23 summarizes the mine operating costs for the Metates mine site, based on owner operation of the mine. Total cost, the cost per total tonne, and cost per ore tonne are shown by various time periods. The US$ 28.7 million preproduction development cost is the source of the mine development capital cost reported in Section 1.12.1. During commercial production the unit costs for mining are $1.365 per total tonne and $3.22 per ore tonne.

Table 1-23: Metates Mine Summary of Total and Unit Mining Costs

Category	Total Material (kt)	Ore (kt)	Total Cost (US$)	Cost Per Total Ton(ne) (US$/t)	Cost Per Ore Ton(ne) (US$/t)
Mine Development (PP)	10,407	0	28,693	2.757	0.000
Commercial Production (Years 1 to 37)	2,602,300	1,102,329	3,552,681	1.365	3.223
All Time Periods	2,612,707	1,102,329	3,581,373	1.371	3.249
Commercial Production Years 1 - 5	317,614	79,797	410,119	1.291	5.140
Commercial Production Years 6 - 10	550,004	164,250	749,133	1.362	4.561
Commercial Production Years 11 - 20	1,072,328	328,499	1,549,808	1.445	4.718
Commercial Production Years 21 - 27	362,521	229,950	583,757	1.610	2.539
Commercial Production Years 28 - 37 (LG)	299,833	299,833	259,864	0.867	0.867

The costs are in 4th quarter 2015 US dollars and do not include the IVA tax, typically about 16% on consumable items. The estimate is based on assumed prices for commodities such as fuel, explosives, parts, tires, etc. that are subject to wide variations depending on market conditions. The estimate is based on the following prices for key commodities:

- Diesel fuel delivered to the site for $0.70 per liter ($2.652/US gallon), excluding IVA
- Bulk blasting agents delivered to the site for $0.866 per kg
- Tires at approximately 50% of US list prices
- Electricity at $0.051/kwh

Other assumptions include:

- Exchange rate of 16.7 pesos to the US dollar
- MARC contracts for all equipment maintenance for the entire project life
- Supervisory and hourly labor rates provided by M3 engineering. These include a burden of about 34.23%

The cost estimate includes the following mining activities:

- Mining and transporting ore to the crusher
- Mining and transporting waste to the various waste storage facilities, including the embankments, and pad for the low grade stockpile
- Maintaining the haul roads and dumps
- Operation and maintenance supervision
- Mine engineering and geology support, including ore grade control

There is not an allowance in the mine operating cost estimate for pumping water from the pit. The estimate does, however, include an annual estimated cost for drain holes for slope de-watering. This estimate was provided by SWS.

El Paso Quarry Operating Cost

Table 1-24 summarizes the mine operating costs for El Paso, based on owner operation of the mine. Total cost, the cost per total tonne, and cost per ore tonne are shown by various time periods. During commercial production the unit costs for mining are $1.787 per total tonne and $1.894 per ore tonne. Unit costs are higher during Years 1 through 4 than the other time periods due to the low production rate.

Table 1-24: El Paso Quarry Summary of Total and Unit Mining Costs

Category	Total Material (kt)	Ore (kt)	Total Cost (US$)	Cost Per Total Ton(ne) (US$/t)	Cost Per Ore Ton(ne) (US$/t)
Commercial Production (Years 1 to 37)	186,095	175,561	332,580	1.787	1.894
Commercial Production Years 1 - 4	6,815	6,429	15,176	2.227	2.361
Commercial Production Years 5 - 10	39,203	36,984	69,499	1.773	1.879
Commercial Production Years 11 - 20	62,116	58,600	107,396	1.729	1.833
Commercial Production Years 21 - 30	51,148	48,253	90,733	1.774	1.880
Commercial Production Years 31 - Final	26,814	25,296	49,776	1.856	1.968

The costs are in 4th quarter 2015 US dollars and do not include the IVA tax, typically about 16% on consumable items. The estimate is based on assumed prices for commodities such as fuel, explosives, parts, tires, etc. that are subject to wide variations depending on market conditions. The estimate is based on the following prices for key commodities:

- Diesel fuel delivered to the site for $0.70 per liter ($2.652/US gallon), excluding IVA
- Bulk blasting agents delivered to the site for $0.866 per kg (including $0.151 per kg for delivery)
- Tires at approximately 50% of US list prices

Other assumptions include:

- Exchange rate of 16.7 pesos to the US dollar
- MARC contracts for all equipment maintenance for the entire project life
- Supervisory and hourly labor rates provided by M3 Engineering. These include a burden of about 34.23%

The cost estimate includes the following mining activities:

- Mining and transporting ore to the crusher
- Mining and transporting waste to the waste storage facility
- Maintaining the haul roads and dumps
- Operation and maintenance supervision
- Mine engineering and geology support

As noted earlier, the cost basis for the Updated PFS assumes that much of the El Paso limestone and lime production will be outsourced to an experienced and established third party producer of these products. The capital cost for the portions of the plant where the owner retains control is included in the El Paso capital costs. The remaining parts of the plant are owned by the third party operator. M3 estimated the constructed costs of these remaining plant components along with EPCM and contingency. This capital cost and the M3 estimated operating costs for those plant operations as well as the leased mining capital costs and mine operating costs from IMC were used to construct an economic model for mine and plant operations. The economic model was queried to provide a 20% IRR on invested capital and operating costs to the third party operator and this was converted to an estimated operating cost for this operation on an annualized basis for the limestone and lime supply.

Consolidated Mine and Mill Operating Cost

Milling operating costs were developed by M3, based on prevailing costs for labor, fuel, power, commodities and consumables:

- Metates Milling Operation
  - o Crushing and Conveying
  - o Grinding and Classification
  - o Flotation
  - o Concentrate Thickening
  - o Ancillary Services
- El Paso Metal Recovery Operation
  - o Limestone Crushing and Grinding
  - o Lime Production
  - o Ag and Au Leach
  - o Merrill Crowe
  - o Refinery

The labor costs were derived from a staffing plan and based on Mexico labor rates. The labor rates include all applicable social security benefits and payroll taxes.

Electrical power will be provided by a dedicated natural gas fired 526MW capacity power plant owned and operated by an independent power provider. The delivered cost of electricity is $0.0612 per kilowatt hour. Power consumption was based on the equipment list connected kW, discounted for operating time and the operating load.

Reagents consumption was based on metallurgical tests. Grinding ball and liner consumption was estimated based on typical mill consumption. Reagent and steel ball pricing were estimated from budgetary quotes from vendors.

An allowance was made to cover the cost of maintenance parts and outside repairs based on 5% of the direct cost of capital equipment.

Annual allowances for supplies and services which include lubricants, diesel fuel, safety items, outside services and tools and miscellaneous supplies were taken into account for each cost center.

Table 1-25 is the consolidated summary of the mine and process related operating costs for the Metates and El Paso sites, including support facilities. The life of mine operating cost for the Metates Project is estimated to be $18.28 per ton of ore. This cost includes the mining operation, Metates milling operation, El Paso metal recovery operation and supporting facilities (laboratory, G&A, staff housing, community development). The equivalent AISC (“all-in sustaining cash cost”) is $9.88/ton on a LOM basis when taking into account by-product credits for silver and zinc sales, sustaining costs, corporate overhead and exploration.

Table 1-25: Metates Project Consolidated Operating Cost Summary

Summary of Operating Costs - Base Case	LOM Average, $/t	LOM $/oz Au Oz.
Metates Site		
Mining (Include rehandle and equipment lease costs)	$3.83	$256.98
Crushing, Grinding, Flotation	$2.74	$183.83
Concentrate Thickening & Transportation	$0.18	$12.29
Tailings Dewatering & Stacking & Other	$0.89	$59.43
Subtotal	**$7.65**	**$512.53**
El Paso Site		
Pressure Oxidation & Acid Neutralization & Oxygen Supply	$4.67	$312.84
Limestone Mining, Crushing & Lime Production (Incl. outsource)	$1.63	$109.22
Precious Metal Recovery	$0.78	$52.17
Zinc & Copper Recovery	$0.61	$40.63
Tailings & Residue Disposal	$0.61	$40.90
Subtotal	**$8.29**	**$555.76**
Support		
General & Administrative	$0.52	$34.76
Water Supply (Include outsource Desalination Plant)	$0.66	$44.28
Subtotal	**$1.18**	**$79.04**
Total Operating Cost	**$17.12**	**$1,147.33**
Royalties	$1.02	$68.50
Refining & Transportation	$0.14	$9.13
Total Cash Cost	**$18.28**	**$1,224.97**
Net Silver and Zinc Byproduct Credit	**$8.91**	**$596.90**
Cash Cost ($/Au oz.) Byproduct Basis	**$9.37**	**$628.07**
Sustaining Capital and Reclamation	$0.16	$10.61
Corporate Overhead	$0.31	$20.49
Exploration	$0.04	$2.74
AISC ($/Au oz.)	**$9.88**	**$661.91**

(1) Based on mine site costs excluding transport, refining, etc.

Economic Analysis

The Metates Project economics were performed using a discounted cash flow approach, presenting the Net Present Value (NPV), payback period (time in years to recapture the initial capital investment) and the Internal Rate of Return (IRR). Annual cash flow projections were estimated over the life of the mine based on estimates of capital expenditures, production cost, and sale revenue.

The financial results were developed for three different metal prices assumptions (base case, low case and high case); these assumptions were provided to M3 by Chesapeake. The financial results are presented in Table 1-26.

Table 1-26: Financial Results Summary

Financial Results Summary - Base Case			
Metal Price Assumptions	**Low**	**Base**	**High**
Gold ($/oz)	$1,100	$1,250	$1,400
Silver ($/oz.)	$17.60	$20.00	$22.40
Zinc ($/lb.)	$0.88	$1.00	$1.12
Pre-Tax Economic Indicators			
NPV @ 5% ($000)	$375,463	$1,779,313	$3,183,162
IRR %	6.4	10.9	14.7
Payback (yrs)	11.2	8.7	7.2
After-Tax Economic Indicators			
NPV @ 5% ($000)	($395,012)	$737,416	$1,842,627
IRR %	3.3	7.7	11.3
Payback (yrs)	15.4	10.1	8.4
Pre-Tax Cumulative Net Operating Income			
Phase 1 - years 1-4	$714,536	$979,105	$1,243,674
Phase 2 - years 5-27	$5,824,940	$8,505,405	$11,185,871
Phase 2 - years 28-LOM	$991,299	$1,669,709	$2,348,118
Total - All Metals LOM ($000)	**$7,530,775**	**$11,154,219**	**$14,777,663**

The AISC ("all-in sustaining cash cost") on a LOM basis is $661.91 per ounce, and is based on the by-product LOM cash cost of $628.07, and adding an allowance for sustaining capital, reclamation and closure of $10.61 per ounce, corporate overhead of $20.49 per ounce and exploration of $2.74 per ounce.

A sensitivity analysis was performed for the project using metal prices, operating cost, capital cost and metal recovery. The economic indicators tested against these factors are the NPV, IRR, and payback period.

The recovery and the metal price factors have the greatest impact on the economic indicators, while the operating cost, power cost and capital cost have approximately the same impact. Metal recoveries should be maximized during the operation of the plant as it is the factor that has the most influence on the economic indicators. Figure 1-16 through Figure 1-18 show the sensitivities for each of the factors tested on an after-tax basis.

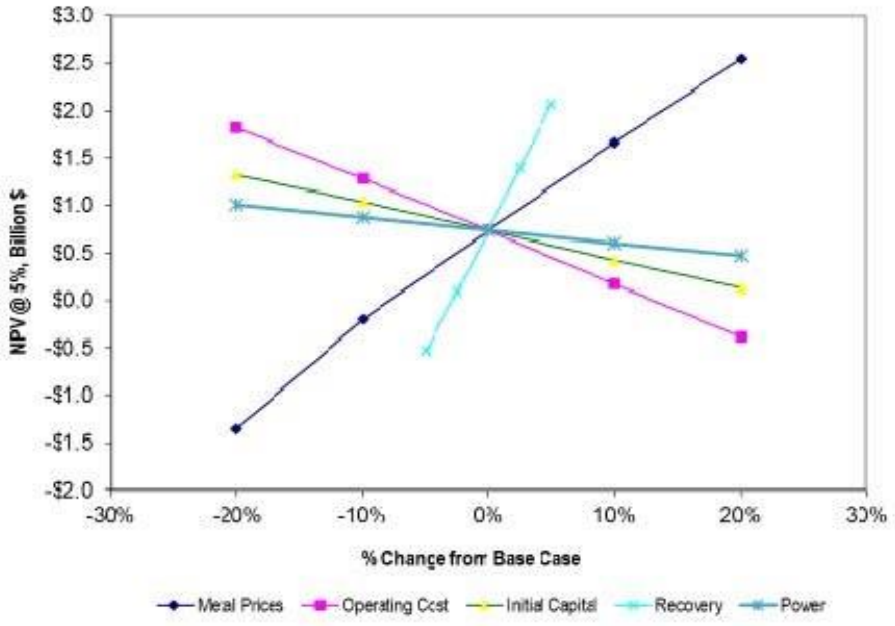


Figure 1-16: Sensitivity of NPV @ 5% to Metal Prices, Operating Cost, Capital Cost and Overall Recovery

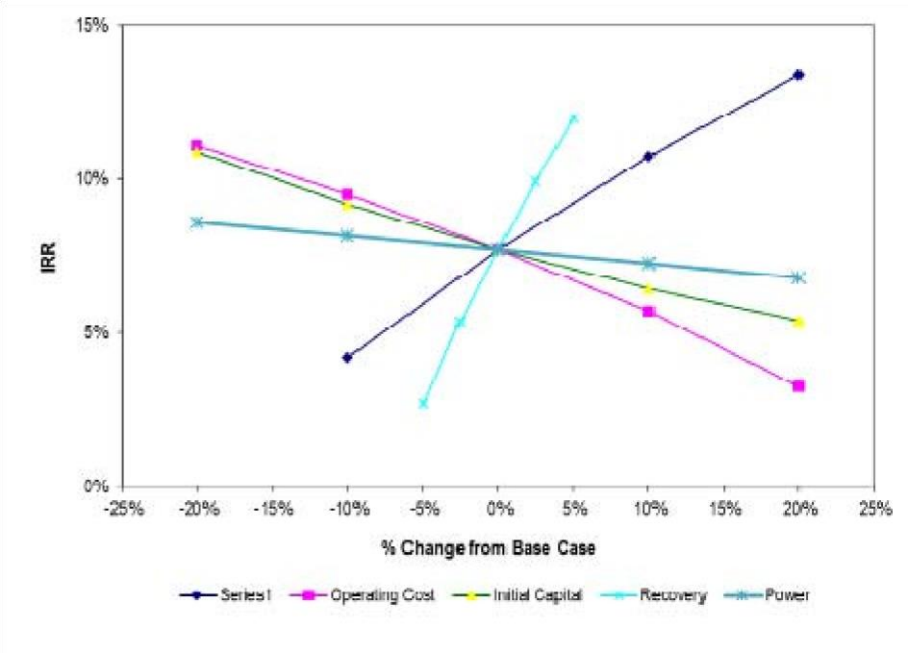


Figure 1-17: Sensitivity of IRR to Metal Prices, Operating Cost, Capital Cost and Overall Recovery

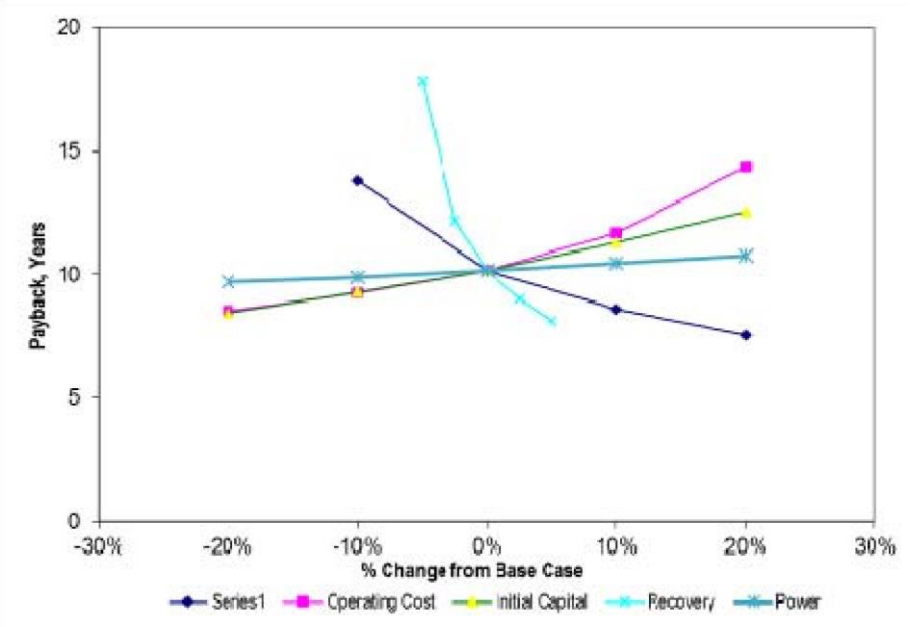


Figure 1-18: Sensitivity of Payback Time to Metal Prices, Operating Cost, Capital Cost and Overall Recovery

Conclusions and Recommendations

Comparison between the 2013 PFS and this Updated PFS

With this Updated PFS, the Metates Project offers two alternate development options for the deposit: the 2013 PFS case and the Updated PFS case. The 2013 PFS features a rapid production ramp up with higher initial capital and superior overall project economics. The Updated PFS has lower initial capital, lower project execution risk with expansion funded by cash flow. The scalable mine plans and multiple metal streams provide optionality and financing flexibility in Metates future development. It is recommended by M3 that Chesapeake advance the Metates Project toward the completion of an NI 43-101-compliant feasibility study once the preferred development scenario is defined.

The 2013 PFS fast tracked the mine development with Phase 1 processing 60,000 tpd and Phase 2 ore throughput increasing to 120,000 tpd in year 2. The LOM metal production for the 2013 PFS is essentially the same as for the Updated PFS, but with active mining completed in year 19 and all metal production completed over 25 years. The mining, processing and metal recovery operations are similar for both studies. Besides the relative scale of mining operations, significant changes and improvements in the Updated PFS have further de-risked the project in respect to site and infrastructure development, water management, power supply, reclamation and stakeholder interests. Most of these changes and improvements would be directly transferrable to the larger throughput of the 2013 PFS development option.

For comparison with the Updated PFS, the 2013 PFS has been adjusted to the Updated PFS base case metal prices, changes in the 2014 Mexican tax regime, revised metal recoveries and elimination of the cash reserve. The initial Phase 1 capital cost for the 2013 PFS is $2.94 billion (60,000 tpd rate) increasing to $4.22 billion to achieve full nameplate capacity (120,000 tpd rate) in Phase 2. The initial Phase 1 throughput (30,000 tpd rate) in the Updated PFS has a capital cost of $1.91 billion with $1.59 billion in capital to complete Phase 2 to the 90,000 tpd rate.

Operating costs on a per tonne of ore basis have increased in the Updated PFS as compared to the 2013 PFS largely due to the lower throughput rates, mine fleet leasing costs and outsourcing the limestone/lime plant. For the 2013 PFS, the adjusted LOM by-product cash cost is $417 per ounce compared to the Updated PFS by-product cash cost of $628 per ounce LOM.

Operating cash costs per ounce also increased in the Updated PFS as a result of additional metallurgical testwork that increased the overall gold recovery from 89% to 90% but decreased the silver recovery from 76% to 66% and zinc recovery from 85% to 81%. Silver recoveries average 75% in the first 5 years of production when mined silver grades are higher. Partially offsetting the impact of the increased operating cost is a 20% reduction in the cost of electric power due to lower prevailing natural gas prices. The LOM cash costs for both the 2013 PFS and Updated PFS reflect the significant silver and zinc by-product credits along with the low stripping ratio, and low power and neutralization costs. The comparison between the two development options is presented as Table 1-27.

Table 1-27: Comparison of the 2013 and Updated PFS Development Options

	2013 PFS	Updated PFS
Contained Metal Reserves		
Gold (thousand oz.)	18,452	18,279
Silver (thousand oz.)	526,111	501,556
Zinc (million lbs.)	4,185	3,997
Production		
Total Mine Life (years)	19	27
Total Plant Operating Life (years)	25	37
Phase I (years)	1	4
Phase I Production Rate (tonnes/day)	60,000	30,000
Phase II Production Rate (tonnes/day)	120,000	90,000
Average Annual Gold Production (thousand oz)	664	445
Average Annual Silver Production (thousand oz)	13,708	8,856
Average Annual Zinc Production (million lbs.)	128.0	88.3
Capex and Opex		
Initial Phase I Capital ($000)	$2,939,670	$1,909,644
Initial Phase I & 2 Capital ($000)	$4,218,244	$3,496,415
Total Operating Cost ($ per tonne milled)	$13.59	$17.12
LOM Cash Cost (gold only by-product basis)	$417	$628
Financial Results		
Pre-tax NPV (5%) ($000)	$3,471,455	$1,779,313
Pre-tax IRR (%)	14.4	10.9
Pre-tax Payback (years)	5.5	8.7
After-tax NPV (5%) ($000)	$1,948,365	$737,416
After-tax IRR (%)	10.7	7.7
After-tax Payback (years)	6.7	10.1

Note: 2013 PFS adjusted with Updated PFS base case metal price assumptions, Mexican taxes, metal recoveries, 0.5% royalty and no cash reserve.

Recommendations

The discussion below of recommendations is not meant to be comprehensive, and focuses primarily on the physical testing and studies that are recommended for completion prior to preparation of the feasibility study. The total estimated cost for the tasks as noted below is $8.8 million. It is estimated an additional $12 million will need to be spent to complete the feasibility study for a total of $20.8 million. Additional discussion of the recommendations is included in Section 26.

IMC recommends an in-fill drilling program in the area of mining phases 1 and 2 to provide more information about gold, silver, zinc and sulfur grades for the first few years of mining activity. The estimated direct cost of this program comprising 31 holes and 11,200 meters (drilling, assaying, and supervision) is approximately $2.2 million.

IMC also recommends the drilling of approximately ten holes (1,500 meters) at the El Paso limestone quarry site to better define the stratigraphy and improve the grade estimation.

Call & Nicholas, Inc. has recommended additional slope stability work, including additional hydrologic studies to provide the phreatic surface and hydraulic conductivity of the major rock units, additional oriented core drilling and continued RQD logging of all core drill holes, and a review of the intermediate pit phases.

More flotation testing will be required to assess variability in metal recoveries in relation to ore types, feed grades, spatial location within the deposit, etc. with special emphasis on improving silver recoveries to the bulk sulfide concentrate. This phase of the testing program can be performed on smaller samples using bench scale equipment. Flotation testing at a pilot scale should also be performed under the optimized conditions of grind size, flotation time, reagent dosages, etc. to generate up to 2,000 kgs or more of flotation concentrate that can be used in the pilot scale POX testing described below. One or more pilot scale runs might be required. Approximately 20,000 kgs of P sized core was drilled in 2013 and is available for the metallurgical testing.

A limited number of batch POX tests were conducted to prove the technical viability of the FTR technology. The next step is to conduct a continuous pilot plant scale test to establish the material and heat balance of the process, and to establish process efficiencies and reagent requirements, generate representative product samples and compile the necessary engineering data for commercial design. Testing will involve POX using the FTR configuration as well as defining optimal conditions for lime boil, a conditioning step (if needed), CCD, cyanide leach of POX solids, solution neutralization. Zinc related recovery tests (solution neutralization, zinc precipitation, re-leaching, SX testing, solid/liquid separation) can be done in conjunction with the autoclave pilot testing noted above. Hazen has issued a pilot plant test work proposal for the above work with an estimated cost of $3,040,000. An additional $500,000 is estimated for the bench scale and pilot scale flotation testing to generate the concentrate required for the above pilot program.

Studies must be performed to investigate the potential preg-borrowing behavior of the POX treated concentrate and to identify ways to mitigate this phenomenon, if present. Studies will consider controlling the conditions during lime boil, evaluating the impact of POX temperatures, and using blinding agents to passivate the organic carbon in the concentrate, among others. The use of CIL may also be revisited focusing on alternatives to the counter-current CIL design and other alternatives including the use of both CIL (to remove gold ahead of lime boil) and Merrill Crowe (to recover mostly silver post lime boil) plants. The use of resin-in-leach might also be investigated.

Additional comminution testing will include additional drop weight/SMC tests, bond work, and abrasion testing, etc. Tailing and concentrate samples from the pilot scale flotation testing will be evaluated for their particle size distribution and rheology and submitted for dry stack filtration-type testing. Testing of concentrate will focus on issues related to slurry transport. In addition, testing and simulation may also include mixtures of both tailing and waste rock.

Additional geotechnical investigations are recommended in areas where facilities have been located in this study and where limited geotechnical work has been performed. Targeted geotechnical work, consisting mostly of test borings and hydrogeological testing, should be performed in areas of high impact site facilities at both the Metates and El Paso sites.

The grading plans for the Metates and El Paso sites and site access roads will need to be upgraded to feasibility study accuracy. To elevate the project to feasibility level, several studies are recommended including obtaining additional vendor quotes, generating more accurate capital cost estimates, and trade-off studies relating to the use of brick lined autoclaves, oxygen plant capital costs, out-sourcing of limestone and lime production and investigation of LNG as fuel for mine haul trucks. Additional work on the access roads and transport of large equipment is also recommended.

Natural gas sourcing and costing should be confirmed through discussions with gas pipeline companies. As well, parallel discussions should be undertaken with several power plant operators to define a preferred IPP and initiate negotiations to define specific binding terms and conditions of electric power supply. Further work on the SWRO supply needs to be performed, including the potential terms of surface water rights and transfer.

The Updated PFS development option incorporates numerous scope changes to site locations and layout, water supply, power supply, waste management and reclamation that are directly transferable to the 2013 PFS. It is recommended that the 2013 PFS be revised and updated to incorporate these changes in scope while keeping intact the rapid ramp up and larger throughput of this option. This will allow for a more direct comparison between the two development scenarios. This revision of the 2013 PFS might be an internal only study which will not require compliance to full PFS standards or the preparation of a NI43-101 Technical Report. It would be best to prepare this revised 2013 PFS study sooner than later to keep the cost basis current with that of Updated PFS. Evaluation of the results of the comparative studies, in conjunction with an evaluation of external market conditions, should help to define the preferred development option for a feasibility study.

Perform an environmental baseline survey for the El Paso site and the access road/infrastructure corridor between the El Paso and Metates sites. Sampling sites for surface water flow monitoring and chemistry and groundwater level and chemistry should be established at the El Paso site. Periodic sampling of all surface and groundwater locations at the Metates and El Paso should be continued on a regular basis.

Socio-economic studies should be undertaken at the Metates site, the El Paso site, along the connecting corridor as well as towns and villages in the region that might also be impacted by future project development. Studies should include a census of the population including household composition, education, employment, income, housing, etc.

Define a comprehensive strategy for the engagement of local, regional and national stakeholders. This will include continued discussions with state government officials (Durango and Sinaloa), a more formal program of discussions with the local communities and ejidos that may be impacted by the Metates Project, and a series of informational meetings/exchanges to help manage expectations and provide a basis of fact as the project moves forward. Evaluate the social and economic impacts to the communities surrounding the project that might accompany development. Study the availability of skilled and unskilled labor for project construction and operation.

Attempt to secure development rights over the lands required for operations in both the Metates and El Paso areas. Initiate discussions with the national environmental and permitting agency SEMARNAT to better define the most effective permitting strategies and data requirements for permit applications. Identify any unique circumstances or issues related to permitting that might impact the timing and approval of project operating permits.

Other Properties

Chesapeake owns a 74.5% equity interest in Gunpoint. Gunpoint owns a 100% interest in the Talapoosa project in Nevada and the La Gitana and La Cecilia properties in Mexico. Chesapeake also owns other mineral exploration properties in Mexico in the states of Durango, Sinaloa and Veracruz. The other exploration properties in Mexico are not considered by the Company to be material for the purposes of this Annual Information Form. **The properties are presently in the exploration stage and are without a known body of commercial ore and/or mineral reserves.**

Talapoosa Project

In November 2010, Gunpoint acquired from Chesapeake a 100% interest in the Talapoosa gold project ("**Talapoosa**") located in Lyon County, Nevada, U.S.A.

Talapoosa is a low-sulphidation gold-silver property in the Walker Lane gold trend of western Nevada, approximately 45 kilometers east of Reno. The property consists of 535 unpatented lode mining claims and seven additional fee land sections which cover 10,780 ha. Since 1977, eight mining companies have drilled 564 drill holes for 71,000 metres along with environmental and metallurgical work. To date, four zones of mineralization have been identified – Main Zone, Bear Creek Zone, Dyke Adit, and East Hill.

Gunpoint filed on April 15, 2013 a technical report entitled "Technical Report and Resource Estimate on the Talapoosa Project, Nevada" dated effective April 12, 2013 (the "**Talapoosa Report**"). A copy of the Talapoosa Report may be accessed under Gunpoint's profile at www.sedar.com. The Talapoosa Report indicates for the Talapoosa property a measured (0.6 million) and indicated (0.4 million) resource of 1.0 million ounces of gold

(31.2 million tons at a grade of 0.032 oz/t AuEq) and an inferred resource of 233,532 ounces of gold (11.2 million tons at a grade of 0.021 oz/t AuEq) using a cut-off of 0.015 oz/t gold equivalent.

In March 2015, Gunpoint entered into an option agreement (the "**Option Agreement**") with Timberline Resources Corporation, a company listed on the TSX Venture Exchange, and Timberline's subsidiary (collectively, "**Timberline**") pursuant to which Gunpoint granted Timberline an option ("**Option**") to acquire from Gunpoint's subsidiary, American Gold Capital US Inc. ("**American Gold**"), a 100% interest in the Talapoosa gold project. In consideration for the Option, Timberline has paid U.S.$300,000 and issued 2,000,000 common shares of Timberline to American Gold. As at December 31, 2016, American Gold owned 8% of the outstanding common shares of Timberline.

Timberline filed on August 10, 2015 a "Preliminary Economic Assessment on the Talapoosa Project" (the "**Talapoosa PEA**") under Timberline's profile on SEDAR at www.sedar.com. At a 5% discount rate, the Talapoosa PEA indicated an after-tax net present value of U.S.$136 million and 39% internal rate of return at U.S.$1,150/oz gold and U.S.$16/oz silver.

On October 20, 2016, the Option Agreement with Timberline was amended (the "**Amended Option Agreement**") to extend the option exercise period (the "**Option Period**") from September 12, 2017 to March 31, 2019. As a result of the Amended Option Agreement, to exercise the Option to acquire a 100% interest in Talapoosa, Timberline must pay a total of U.S.$11 million in cash to American Gold and issue 3,500,000 common shares of Timberline to American Gold during the Option Period, as follows:

- Payment of U.S.$1 million and 1,000,000 common shares of Timberline by March 31, 2017 (received).
- Payment of U.S.$2 million and 1,000,000 common shares of Timberline by March 31, 2018.
- Final payment of U.S.$8 million and 1,500,000 common shares of Timberline by March 31, 2019.

Timberline is to also undertake cumulative project expenditures of a minimum of U.S.$7.5 million by December 31, 2018.

In addition, if gold prices average greater than or equal to U.S.$1,600 over any 90-day period ("**Trigger Event**") within a five-year period commencing on the Option exercise closing date, Timberline will pay Gunpoint an additional U.S.$10 million of which a minimum of U.S.$5 million will be payable within six months of the Trigger Event, and the remaining U.S.$5 million payable within 12 months of the Trigger Event, with both payments payable in cash or, at Timberline's discretion, up to 50% in common shares of Timberline.

Upon exercise of the Amended Option Agreement, Timberline will have paid U.S.$11.3 million and issued 5,500,000 common shares of Timberline to Gunpoint to acquire a 100% interest in Talapoosa. Gunpoint will retain a 1% NSR in Talapoosa which is no longer subject to a buy-back option.

La Cecilia Project

In November 2010, Gunpoint also acquired from Chesapeake the La Cecilia Project located in northeastern Sonora State, Mexico. La Cecilia comprises three mineral concessions totalling 794 ha and hosts epithermal gold mineralization in a rhyolite dome setting.

La Cecilia is a low-sulphidation, epithermal-type gold-silver system related to two well-developed northwest and northeast trending sets of faults centred on "Cerro Magallanes", a rhyolite dome complex. The mineralization occurs as high grade in vein structures and as lower grade within broader zones of stockeworks and breccias. Numerous other anomalous zones of silicification, brecciation and argillic alteration exist across the extent of the flow dome complex, an area of more than one km by two km.

On January 31, 2017, Gunpoint entered into an agreement ("**Riverside Option Agreement**") with Riverside Resources Inc., a company listed on the TSX Venture Exchange ("**Riverside**"**)** whereby Gunpoint granted Riverside an option to acquire a 100% interest in La Cecilia. Pursuant to the Option Agreement, Riverside has the right to acquire a 100% interest in La Cecilia by making $250,000 in cash payments and issuing 1,000,000 common shares of Riverside to Gunpoint per the following schedule:

- A payment of $10,000 upon execution of the Riverside Option Agreement (received);
- A $15,000 cash payment and issuance of 100,000 common shares of Riverside concurrent with the execution of registerable agreement in Mexico (the "**Effective Date**") (received);
- A $25,000 cash payment and issuance of 200,000 common shares of Riverside on or before the first anniversary of the Effective Date;
- A $75,000 cash payment and issuance of 300,000 common shares of Riverside on or before the second anniversary of the Effective Date; and
- A $125,000 cash payment and issuance of 400,000 common shares of Riverside on or before the third anniversary of Effective Date.

Riverside will be responsible for the property taxes and holding costs to maintain La Cecilia in good standing during the term of the Riverside Option Agreement. As at December 31, 2016, the Company had recorded La Cecilia at nil value in its consolidated financial statements due to a previous impairment. The consideration received from Riverside will be recognized as income in Chesapeake's consolidated financial statements.

La Gitana Project

In November 2010, Gunpoint also acquired from Chesapeake the La Cecilia Project located in Oaxaca State, Mexico. La Gitana is a large low sulphidation epithermal system hosting precious metals mineralization that is both structurally and lithologically controlled. During 2005 and 2006, the Company completed 40 diamond drill holes comprising 8,462 m on the La Gitana project. The drill program primarily tested Cerro di Oro, a 1.5 km long, northwest-trending, structurally-controlled, epithermal system where gold-silver mineralization is found as high-grade shoots in a set of northwest-trending, sub-vertical structures, and as low grade disseminations within broad zones of quartz stockworks and breccias.

A NI 43-101 technical report on the La Gitana Project concluded that the exploration program undertaken by the Company on the Cerro di Oro zone of the La Gitana project (including detailed surface mapping and sampling, ground geophysics and diamond drilling) provided sufficient information to confirm the existence of well-defined gold-silver mineralization extending 500 m in length, 50 to 150 m wide and 50 to 300 m deep. Step-out drilling also discovered additional gold-silver mineralization along strike for over 300 m to the southeast. La Gitana is held by Gunpoint.

Tatatila Project

In 2007, Chesapeake acquired through purchase and staking the Tatatila project, a precious metal and polymetallic mining district in Veracruz State, Mexico. Chesapeake acquired seven concessions of a National Mineral Reserve totalling 2,767 ha in staged payments totalling US$56,000 from the Consejo de Recursos Minerales de Mexico, a mining division of the Mexican government. The Company also staked one concession comprising 25,602 ha. The staked concession surrounds Mexican Gold Corp.'s Las Minas project where a promising grassroots discovery has been announced.

The Tatatila project covers a 200 km^2 district characterized by Cretaceous limestones and sedimentary rocks affected by multi-phase intrusions. The main intrusive complex is more than 10 kilometres in diameter and consists of granodiorites, quartz-diorites and granites of Tertiary age. Igneous activity generated intermittent hydrothermal events that formed widespread skarn-type alteration zones along the contact between the calcareous and intrusive rocks. Porphyry and epithermal occurrences have also been found in this district.

Rio Minas Project

Rio Minas is a silver – rich, polymetalic skarn prospect located in Oaxaca State, Mexico. To date, five major skarn zones have been identified within a 6 km long, northeast trending corridor associated with a northeast-trending regional fault system. Rio Minas comprises one mineral concession that was acquired through staking totalling 7,425 ha.

El Escorpion

The Company has an option to purchase a 100% interest in the El Escorpion property ("**El Escorpion**"), a 900 ha concession in eastern Guatemala. To earn the 100% interest, the Company would have to make option payments totalling U.S.$351,000 over five years. As at December 31, 2016, the Company has only U.S.$20,000 remaining to be paid to acquire a 100% interest in El Escorpion. The Company may also purchase a 1% NSR for U.S.$585,000.

On June 14, 2013, the Company sold 100% of its interest in the El Escorpion project to Gunpoint in consideration for the following:

- 500,000 common shares of Gunpoint;
- 500,000 warrants of Gunpoint, each warrant being exercisable to purchase one common share of Gunpoint at $1.50 per share for a five-year term expiring June 14, 2018;
- A 1.5% NSR if Chesapeake purchases the existing 1% NSR;
- 1,000,000 common shares of Gunpoint if a NI 43-101 measured and indicated resource estimate of 1,000,000 gold equivalent ounces is achieved on the El Escorpion property.

In August 2015, the Ministry of Energy and Mines granted title to the concession to the Company. In late 2016, the Constitutional Court of Guatemala temporarily suspended permits for several mineral concessions in the country, including El Escorpion. The Constitutional Court is seeking a review of the stakeholder engagement process. Gunpoint has initiated a follow-up consultation with the local community to support the lifting of the suspension. The property vendor has agreed to an extension of the final payment of $20,000 to purchase El Escorpion until the exploration suspension is lifted.

El Escorpion is located 85 km by paved road southeast of Guatemala City. El Escorpion is situated 7 km southwest and along trend of Tahoe Resources Inc.'s Escobal mine ("**Escobal**"). A NI 43-101 technical report prepared for and filed by Tahoe Resources Inc. on SEDAR reports that Escobal has a mineral resource of 367 million ounces of silver grading 422 g/t, plus 37 million ounces of silver grading 254 g/t in the inferred category. Mineralization at Escobal is associated with steeply dipping and northeast-southwest trending intermediate sulfidation epithermal silver rich quartz veins with significant values in gold, lead and zinc. The Escobal land package completely surrounds the Escorpion project.

Mapping and sampling by Chesapeake has identified two prospective areas with intermediate sulfidation epithermal precious and base metal mineralization. The outcropping mineralization at El Escorpion appears to have many similarities to that at Escobal and occurs in a fault controlled, intermediate sulfidation epithermal system characterized by several multistage, subparallel silver-lead-zinc quartz-carbonate veins and stockworks. To date, the northeast-southwest trending system has been traced for over 1,500 m along strike and remains open to the northeast and southwest. The system is characterized by carbonate-minor quartz vein swarms in the southwest (Mina Blanca zone) and quartz stockworks and quartz veins in the northeast part of the concession (Escorpion–Los Pozos zones). The epithermal system is hosted in volcaniclastic sediments, porphyritic andesites and rhyodacitic rocks, the same rock types which host mineralization at Escobal.

Regional Exploration

The Company continues to explore for additional gold and silver prospects in western Mexico. The Company has an ongoing program of systematic regional exploration focused within a 100 km radius of Metates and the El Paso plant site near Cosala in Sinaloa State, Mexico. To date, four precious and base metal projects with district scale potential have been identified. The four projects are located along a mineralized corridor that parallels the Pacific coast and lies along the western margin of the Sierra Madre Occidental. Excellent infrastructure exists in the region with close proximity to a paved highway, power grid and a new natural gas pipeline constructed by the Mexican government.

In Sinaloa State, the Company is focused on the Yarely project located 20 kilometres northwest of the El Paso process site. An exploration program including mapping, sampling and mechanized trenching is underway on several areas of extensive alteration within an open corridor four kilometres long and over two kilometres wide. An 80 line-kilometre IP/Resistivity geophysical survey has been recently completed. Several multiphase mineralized

zones have been discovered and drill targets are being prioritized for a 5,000 metre drill program scheduled for late Q3 2017. Chesapeake has, through staking and acquisition, assembled a 65,000 hectare land package at Yarely.

During the first quarter of 2017, the Company spent $354,000 exploring and advancing the Yarely project.

DIVIDENDS

Since the date of incorporation, the Company has not declared or paid any dividends or made any other distributions on the Common Shares, and does not currently intend to pay dividends. Earnings, if any, will be retained to finance future growth and development of the business of the Company.

CAPITAL STRUCTURE

Chesapeake's authorized capital consists of the following:

(a) an unlimited number of Common shares without par value ("**Common Shares**");

(b) an unlimited number of Class A shares without par value ("**Class A Shares**"), issuable in series, the first series of which is 902,060 Class A, Series 1 Restricted Voting Shares; and

(c) an unlimited number of Preferred shares without par value ("**Preferred Shares**").

As at December 31, 2016, 44,517,606 Common Shares were issued and outstanding and no Class A Shares (or Series 1 thereof) or Preferred Shares were issued and outstanding.

Common Shares

Each Common Share ranks equally with all other Common Shares with respect to dissolution, liquidation or winding up of Chesapeake and payment of dividends. The holders of Common Shares are entitled to one vote for each share of record on all matters to be voted on by such holders and are entitled to receive pro rata such dividends as may be declared by Chesapeake's board of directors out of funds legally available therefor and to receive pro rata the remaining property of Chesapeake on dissolution. The holders of Common Shares have no pre-emptive or conversion rights. The rights attaching to the Common Shares can only be modified by the affirmative vote of at least two-thirds of the votes cast at a meeting of shareholders called for that purpose.

Class A Shares

The Class A Shares may be issued from time to time in one or more series, each consisting of such number of Class A Shares as determined by the board of directors of Chesapeake, who may also fix the designations, rights, privileges, restrictions and conditions attaching to the shares of each series of Class A Shares. No special rights and restrictions attached to a series of the Class A Shares may, however, confer upon a series priority over any other series of the Class A Shares then outstanding respecting dividends or a return of capital (whether on the dissolution of the Chesapeake or on the occurrence of any other event that entitles the shareholders holding the shares of all series of shares of the same class of share to a return of capital). Except as required by law or by the Articles of Chesapeake or in accordance with any voting rights which may from time to time be attached to any series of Class A Shares, the holders of Class A Shares as a class shall not be entitled as such to receive notice of, to attend or to vote at any meeting of the shareholders of Chesapeake. The rights and restrictions attaching to the Class A Shares as a class or to a series thereof may be added to, changed or removed but only with the approval of the holders of the Class A Shares of the class or series given as specified in the Articles of Chesapeake, including a minimum requirement that such approval be given by two-thirds of the votes cast at a meeting of holders of Class A Shares of the class or series duly called for such purpose and held upon at least 21 days' notice at which a quorum is present comprising at least two persons present holding or representing by proxy at least 50% of the outstanding Class A Shares of the class or series, unless there is only one person holding Class A Shares, in which case, that person shall

constitute a quorum. On every vote taken at every such meeting or adjourned meeting, each holder of a Class A Share in the class or series shall be entitled to one vote in respect of each Class A Share held.

Preferred Shares

The Preferred Shares may be issued from time to time in one or more series, each consisting of such number of Preferred Shares as determined by the board of directors of Chesapeake, who may also fix the designations, rights, privileges, restrictions and conditions attaching to the shares of each series of Preferred Shares. The Preferred Shares of each series shall, with respect to payment of dividends and distribution of assets in the event of voluntary or involuntary liquidation, dissolution or winding up of Chesapeake or any other distribution of the assets of Chesapeake among its shareholders for the purpose of winding-up its affairs, rank on a parity with the Preferred Shares of every other series and shall be entitled to preference over the Common Shares and the shares of any other class ranking junior to the Preferred Shares. After payment to the holders of Preferred Shares of the amounts so payable to them in the event of voluntary or involuntary liquidation, dissolution or winding up of Chesapeake or any other distribution of the assets of Chesapeake among its shareholders for the purpose of winding up its affairs, holders of Preferred Shares shall not be entitled to share in any further distribution of the property or assets of Chesapeake except as specifically provided in the special rights and restrictions attached to any particular series. Except for such rights relating to the election of directors on a default in payment of dividends as may be attached to any series of the Preferred Shares by the directors, holders of Preferred Shares are not entitled to receive notice of, or to attend or vote at, any general meeting of shareholders of Chesapeake.

MARKET FOR SECURITIES

Trading Price and Volume

The Common Shares of the Company are listed and posted for trading on the TSX-V under the symbol "CKG". The following table sets out the share price trading range and volume of shares traded on the TSX-V by month during the financial year ended December 31, 2016:

Month	High ($)	Low ($)	Volume
January	2.10	1.75	171,455
February	2.59	1.78	340,527
March	2.90	2.00	525,377
April	3.85	2.05	993,901
May	4.00	3.30	728,444
June	5.55	3.00	1,465,222
July	6.50	4.25	1,078,917
August	6.28	5.31	921,523
September	5.95	5.20	450,546
October	5.29	4.40	425,955
November	4.89	3.40	519,175
December	4.19	3.25	564,020

ESCROWED SECURITIES AND SECURITIES SUBJECT TO CONTRACTUAL RESTRICTION ON TRANSFER

The following table sets out information on securities of the Company that were held in escrow or were subject to a contractual restriction on transfer as at December 31, 2016:

Designation of Class	Number of securities held in escrow or that are subject to a contractual restriction on transfer	Percentage of class
Common	375,000[(1)]	100%

(1) These shares will be released from escrow upon application to and approval of the British Columbia Securities Commission

DIRECTORS AND OFFICERS

The following is information on the directors and executive officers of the Company as at the date of this Annual Information Form.

Name, Occupation and Security Holding

Name and province/state and country of residence	Positions within the Company and period served as a director	Principal occupations in past five years
P. Randy Reifel[(1)] British Columbia, Canada	Chairman and President; Director (since April 2002)	President of the Company
Gerald L. Sneddon[(3)] Idaho, U.S.A.	Executive Vice-President, Operations; Director (since April 2002)	Mining Engineer; Executive Vice-President, Operations of the Company
Daniel J. Kunz[(1)(2)(3)] Idaho, U.S.A.	Director (since April 2002)	Principal, Daniel Kunz & Associates LLC (mining advisory firm) and Chief Executive Officer of Gold Torrent, Inc. since 2013; prior thereto, Chief Executive Officer and Director of U.S. Geothermal Inc.
Lian Li[(2)] British Columbia, Canada	Director (since December 2013)	International Business Consultant; Partner of Causeway Consulting and Capital LLC since April 2017; Director of China Education Resources Inc. since December 2016
John Perston[(2)] Isle of Man, United Kingdom	Director (since April 2002)	President, JWP Consulting (geological consulting firm)

Name and province/state and country of residence	Positions within the Company and period served as a director	Principal occupations in past five years
Greg D. Smith[(1)] British Columbia, Canada	Director (since December 2013)	Chartered Accountant; President, Trek Mining since March 2017; President and Chief Executive Officer, JDL Gold Corp. from October 2016 to March 2017; President and Chief Executive Officer, Anthem United Inc. from September 2013 to September 2016; prior thereto, President, Esperanza Resources Corp.
Sam Wong British Columbia, Canada	Chief Financial Officer	Chief Financial Officer of the Company; President of Samina Capital Ltd. (finance advisor firm)
Alberto Galicia Sinaloa, Mexico	Vice-President, Exploration	Professional Geologist; prior thereto, Project Manager of the Company
Gary Parkison Colorado, U.S.A.	Vice President, Development	Professional Geologist; Vice President, Development of the Company

(1) Member of the Audit Committee.
(2) Member of the Corporate Governance and Compensation Committee.
(3) Member of the Technical Committee.

Each director of the Company is elected to serve until the next annual general meeting of shareholders of the Company or until his or her successor is elected or appointed, or unless his or her office is earlier vacated under any of the relevant provisions of the Articles of the Company or the Business Corporations Act (British Columbia).

As at December 31, 2016, the directors and executive officers of the Company as a group beneficially owned, or controlled or directed, directly or indirectly, 4,059,734 Common Shares representing approximately 9% of the issued and outstanding Common Shares of the Company.

Cease Trade Orders, Bankruptcies, Penalties or Sanctions

No director or executive officer of the Company is, as at the date of this Annual Information Form, or has been, within the ten years preceding the date of this Annual Information Form, a director, chief executive officer or chief financial officer of any company (including the Company) that

(a) was subject to a cease trade or similar order or an order that denied the relevant company access to any exemption under securities legislation, that was in effect for a period of more than 30 consecutive days, when such order was issued while the person was acting in the capacity of a director, chief executive officer or chief financial officer of the relevant company, or

(b) was subject to a cease trade or similar order or an order that denied the relevant company access to any exemption under securities legislation, that was in effect for a period of more than 30 consecutive days, that was issued after such person ceased to be a director, chief executive officer or chief financial officer of the relevant company, and which resulted from an event that occurred while the person was acting in the capacity of a director, chief executive officer or chief financial officer of the relevant company.

No director or executive officer of the Company or any shareholder holding a sufficient number of common shares of the Company to affect materially the control of the Company:

(a) is, as at the date of this Annual Information Form, or has been, within the ten years preceding the date of this Annual Information Form, a director or executive officer of any company (including the Company) 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,

(b) has, within the ten years preceding the date of this Annual Information Form, 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 that person,

(c) has been subject to 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

(d) has been subject to any other penalties or sanctions imposed by a court or regulatory body that would likely be considered important to a reasonable investor in making an investment decision regarding the Company.

Conflicts of Interest

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

The directors of the Company are required to act honestly, in good faith and in the best interests of the Company. The directors and officers of the Company are aware of the existence of laws governing the accountability of directors and officers for corporate opportunity and requiring disclosures by directors and officers of conflicts of interest and the Company will rely upon such laws in respect of any directors' and officers' conflicts of interest or in respect of any breaches of duty by any of its directors or officers. All such conflicts will be disclosed by such directors or officers in accordance with the articles of the Company and the Business Corporations Act (British Columbia), and they will govern themselves in respect thereof to the best of their ability in accordance with the obligations imposed upon them by law.

To the best of the Company's knowledge, and except as disclosed herein, there are no known existing or potential conflicts of interest between the Company or any of its subsidiaries and any director or officer of the Company.

AUDIT COMMITTEE DISCLOSURE

Pursuant to the Business Corporations Act (British Columbia) and National Instrument 52-110 on "Audit Committees" ("**NI 52-110**"), the Company is required to have an audit committee.

Audit Committee Charter

Pursuant to NI 52-110, the Company's Audit Committee is required to have a charter. A copy of the Company's Audit Committee Charter is set out in Appendix A to this Annual Information Form**.**

The Audit Committee assists the Board of Directors in fulfilling its responsibilities relating to the Company's corporate accounting and reporting practices. The Audit Committee is responsible for ensuring that management

has established appropriate processes for monitoring the Company's systems and procedures for financial reporting and controls, reviewing all financial information in disclosure documents, monitoring the performance and fees and expenses of the Company's external auditors, and recommending external auditors for appointment by shareholders.

Composition of the Audit Committee

As at the date of this Annual Information Form, the following is information on the members of the Company's Audit Committee:

Name	Independent	Financial Literacy
Greg Smith (Chair)	Yes	Yes
Daniel J. Kunz	Yes	Yes
P. Randy Reifel	No	Yes

Relevant Education and Experience

All of the members of the Audit Committee are graduates of post-secondary education, with two members, Daniel J. Kunz and P. Randy Reifel, holding a Masters of Business Administration degree. Greg D. Smith is a Chartered Accountant and held senior management positions as well as being a member of the audit committee for various publicly traded mining companies. Each member of the Audit Committee has assisted several resource industry companies with strategic focus and corporate finance. Messrs. Kunz, Reifel and Smith each have many years' experience in the management and administration of publicly owned mining exploration companies. This experience in the mining industry has provided each member of the Audit Committee with an understanding of the accounting principles used by the Company to prepare its financial statements, the ability to assess the general application of such accounting principles and analyze or evaluate financial statements, and an understanding of internal controls and procedures for financial reporting.

Audit Committee Oversight

At no time since January 1, 2016 was a recommendation of the Audit Committee to nominate or compensate an external auditor not adopted by the Company's Board of Directors.

Reliance on Certain Exemptions

At no time since January 1, 2016 has the Company relied on the exemption in section 2.4 of NI 52-110 (*de minimis non-audit services)* or an exemption from NI 52-110, in whole or in part, granted under Part 8 of NI 52-110 by a securities regulatory authority or regulator.

Pre-approval Policies and Procedures for Non-Audit Services

The Audit Committee has not adopted any specific policies and procedures for the engagement of non-audit services.

External Auditor Service Fees (By Category)

The aggregate fees billed by the Company's external auditor in each of the last two financial years of the Company for services in each of the categories indicated are as follows:

Financial Year Ended	Audit Fees	Audit Related Fees[(1)]	Tax Fees[(2)]	All Other Fees[(3)]
December 31, 2016	$47,000	Nil	Nil	Nil
December 31, 2015	$60,000	Nil	Nil	Nil

(1) Pertains to assurance and related services that are reasonably related to the performance of the audit or review of the Company's financial statements and that are not reported under "Audit Fees".
(2) Pertains to professional services for tax compliance, tax advice and tax planning.
(3) Pertains to products and services other than services reported under the other categories.

Venture Issuers Exemption

The Company is relying upon the exemption in section 6.1 of NI 52-110 that exempts "venture issuers" from the requirements of Part 3 (*Composition of the Audit Committee)*and, to the extent applicable, Part 5 *(Reporting Obligations)* of NI 52 110.

LEGAL PROCEEDINGS AND REGULATORY ACTIONS

The Company is not a party to any legal proceedings, and there are no legal proceedings to which any of the Company's property is subject, and no such proceedings are known to the Company to be contemplated.

During the financial year ended December 31, 2016:

(a) no penalties or sanctions were imposed against the Company by a court relating to securities legislation or by a securities regulatory authority;

(b) no other penalties or sanctions were imposed by a court or regulatory body against the Company that would likely be considered important to a reasonable investor in making an investment decision in the Company's securities; and

(c) no settlement agreements of the Company were entered into with any court relating to securities legislation or with any securities regulatory authority.

INTERESTS OF MANAGEMENT AND OTHERS IN MATERIAL TRANSACTIONS

No director or executive officer of the Company, no person or company that beneficially owns, or controls or directors, directly or indirectly, more than 10% of the Common Shares, and no associate or affiliate of any of such persons or companies has any material interest, direct or indirect, in any transaction since December 31, 2013 that has materially affected or is reasonably expected to materially affect the Company.

TRANSFER AGENTS AND REGISTRARS

Computershare Investor Services Inc. (at its principal transfer office in Vancouver, British Columbia) is the transfer agent and registrar for the Common Shares of the Company.

MATERIAL CONTRACTS

There are no contracts that are material to the Company that were entered into during the financial year ended December 31, 2016 or prior thereto but which are still in effect, other than contracts entered into in the ordinary course of business of the Company.

INTERESTS OF EXPERTS

Names of Experts

Deloitte LLP, Chartered Professional Accountants, is the external auditor of the Company who reported on the audited annual financial statements of the Company for the financial years ended December 31, 2016 and 2015.

The Qualified Persons who prepared the Updated PFS in respect of the Metates Project are Douglas C. Austin, P.E., Art S. Ibrado, Ph.D. and Richard K. Zimmerman, M.Sc., R.G., SME-RM of M3 Engineering and Technology Corp., Michael G. Hester, FAusIMM of Independent Mining Consultants, Inc., Deepak Malhotra, Ph.D., SME-RM of Resource Development Inc. (RDi), Grenvil Dunn, PrEng., CEng. of Hydromet (Pty) Ltd., and Gary A. Parkison of Chesapeake.

Interests of Experts

Deloitte LLP is independent with respect to the Company within the meaning of the Rules of Professional Conduct of the Chartered Professional Accountants of British Columbia.

To the Company's knowledge, none of the Qualified Persons named above (other than Gary A. Parkison), has any registered or beneficial interest, direct or indirect, in any securities or other property of the Company and none of the aforementioned persons had any such interest when such persons prepared the Updated PFS. Gary A. Parkison is not an independent Qualified Person in relation to Chesapeake as he is Vice-President, Development of Chesapeake and holds a stock option to purchase 365,000 common shares of the Company.

ADDITIONAL INFORMATION

Additional information relating to the Company may be found on SEDAR at www.sedar.com.

Additional information, including directors' and officers' remuneration and indebtedness (if any), principal holders of the Company's securities and securities authorized for issuance under equity compensation plans, is contained in the Company's management proxy information circular dated November 10, 2016 filed on SEDAR in respect of the Company's annual general meeting of shareholders held on December 14, 2016. Information on directors' and officers' remuneration is also contained in the Company's Statement of Executive Compensation on Form 51-102F6V for the year ended December 31, 2016. filed on the SEDAR on June 27, 2017.

Additional information is provided in the Company's audited consolidated financial statements and management's discussion and analysis for its most recently completed financial year ended December 31, 2016.

APPENDIX A

CHESAPEAKE GOLD CORP.
(the "Company")

AUDIT COMMITTEE CHARTER

Mandate

The primary function of the audit committee (the "**Committee**") is to assist the Board of Directors ("**Board**") in fulfilling its financial oversight responsibilities by reviewing the financial reports and other financial information provided by the Company to regulatory authorities and shareholders, the Company's systems of internal controls regarding finance and accounting and the Company's auditing, accounting and financial reporting processes. The Committee's primary duties and responsibilities are to:

- serve as an independent and objective party to monitor the Company's financial reporting and internal control systems and review the Company's financial statements;
- review and appraise the performance of the Company's external auditor; and
- provide an open avenue of communication among the Company's auditor, financial and senior management and the Board of Directors.

Composition

The Committee shall be comprised of a minimum of three directors as determined by the Board, which directors may be "non-independent" directors so long as the Company is a "Venture Issuer" within the meaning of applicable securities legislation. A quorum of the Committee shall be a majority of the members. Each member will be a member of the Board. In the event of an equality of votes, the Chair of the Committee shall not have a second casting vote.

The members of the Committee shall be elected by the Board at its first meeting following the annual shareholders' meeting. Unless a Chair is elected by the Board, the members of the Committee may designate a Chair by a majority vote of the full Committee membership.

Meetings

The Committee shall meet at least once annually, or more frequently as circumstances dictate or as may be prescribed by securities regulatory requirements. As part of its job to foster open communication, the Committee will meet at least annually with the Chief Financial Officer (or such person acting in that capacity) and the external auditor in separate sessions.

Responsibilities and Duties

To fulfill its responsibilities and duties, the Committee shall:

1. Documents/Reports Review

   (a) review and update, if applicable or necessary, this Audit Committee Charter annually; and

   (b) review the Company's financial statements, MD&A and any annual and interim earnings press releases before the Company publicly discloses this information and any reports or other financial information (including quarterly financial statements), which are submitted to any governmental body, or to the public, including any certification, report, opinion, or review rendered by the external auditor.

2. External Auditor

(a) review annually, the performance of the external auditor who shall be ultimately accountable to the Board and the Committee as representatives of the shareholders of the Company;

(b) obtain annually, a formal written statement of external auditor setting forth all relationships between the external auditor and the Company;

(c) review and discuss with the external auditor any disclosed relationships or services that may impact the objectivity and independence of the external auditor;

(d) take, or recommend that the Board take, appropriate action to oversee the independence of the external auditor, including the resolution of disagreements between management and the external auditor regarding financial reporting;

(e) recommend to the Board the selection and, where applicable, the replacement of the external auditor nominated annually for shareholder approval;

(f) recommend to the Board the compensation to be paid to the external auditor;

(g) at each meeting, where desired, consult with the external auditor, without the presence of management, about the quality of the Company's accounting principles, internal controls and the completeness and accuracy of the Company's financial statements;

(h) review and approve the Company's hiring policies regarding partners, employees and former partners and employees of the present and former external auditor of the Company;

(i) review with management and the external auditor the audit plan for the year-end financial statements; and

(j) review and pre-approve all audit and audit-related services and the fees and other compensation related thereto, and any non-audit services, provided by the Company's external auditor. The pre-approval requirement is waived with respect to the provision of non-audit services if:

(i) the aggregate amount of all such non-audit services provided to the Company constitutes not more than five percent (5%) of the total amount of fees paid by the Company to its external auditor during the fiscal year in which the non-audit services are provided,

(ii) such services were not recognized by the Company at the time of the engagement to be non-audit services, and

(iii) such services are promptly brought to the attention of the Committee by the Company and approved prior to the completion of the audit by the Committee or by one or more members of the Committee who are members of the Board to whom authority to grant such approvals has been delegated by the Committee.

Provided the pre-approval of the non-audit services is presented to the Committee's first scheduled meeting following such approval, such authority may be delegated by the Committee to one or more independent members of the Committee.

3. Financial Reporting & Internal Controls

(a) in consultation with the external auditor, review with management the integrity of the Company's financial reporting process, both internal and external;

(b) consider the external auditor' judgements about the quality and appropriateness of the Company's accounting principles as applied in its financial reporting;

(c) consider and approve, if appropriate, changes to the Company's auditing and accounting principles and practices as suggested by the external auditor and management;

(d) review significant judgements made by management in the preparation of the financial statements and the view of the external auditor as to appropriateness of such judgements;

(e) following completion of the annual audit, review separately with management and the external auditor any significant difficulties encountered during the course of the audit, including any restrictions on the scope of work or access to required information;

(f) review any significant disagreement among management and the external auditor in connection with the preparation of the financial statements;

(g) review with the external auditor and management the extent to which changes and improvements in financial or accounting practices have been implemented;

(h) review any complaints or concerns about any questionable accounting, internal accounting controls or auditing matters;

(i) review certification process;

(j) establish a procedure for the receipt, retention and treatment of complaints received by the Company regarding accounting, internal accounting controls or auditing matters; and

(k) establish a procedure for the confidential, anonymous submission by employees of the Company of concerns regarding questionable accounting or auditing matters.

4. Other

(a) review any related-party transactions;

(b) engage independent counsel and other advisors as it determines necessary to carry out its duties; and

(c) set and pay compensation for any independent counsel and other advisors employed by the Committee.