

# ANNUAL INFORMATION FORM



**ALEXCO**

## **ALEXCO RESOURCE CORP.**

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For the year ended December 31, 2015

Dated March 23, 2016

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## PRELIMINARY NOTES

In this Annual Information Form (“AIF”), Alexco Resource Corp. is referred to as the “**Corporation**” or “**Alexco**”. All information contained herein is as at and for the year ended December 31, 2015, unless otherwise specified. All dollar amounts in this AIF are expressed in Canadian dollars unless otherwise indicated.

### Cautionary Statement Regarding Forward-Looking Statements

This AIF contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995 and forward-looking information within the meaning of applicable Canadian securities laws (together, “**forward-looking statements**”) concerning the Corporation’s business plans, including but not limited to anticipated results and developments in the Corporation’s operations in future periods, planned exploration and development of its mineral properties, plans related to its business and other matters that may occur in the future, made as of the date of this AIF. Forward-looking statements may include, but are not limited to, statements with respect to the amendments to the silver purchase agreement with Silver Wheaton Corp. (“**Silver Wheaton**”) and its impact on the Corporation, the potential payment of US\$20 million by Alexco to Silver Wheaton and the resulting effect on pricing and other terms of the Silver Streaming Agreement, additional capital requirements to fund further exploration and development work on the Corporation’s properties, future remediation and reclamation activities, future mineral exploration, the estimation of mineral reserves and mineral resources, the realization of mineral reserve and mineral resource estimates, future mine construction and development activities, future mine operation and production, the timing of activities, the amount of estimated revenues and expenses, the success of exploration activities, permitting time lines, requirements for additional capital and sources and uses of funds. Any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions or future events or performance (often, but not always, using words or phrases such as “expects”, “anticipates”, “plans”, “estimates”, “intends”, “strategy”, “goals”, “objectives” or stating that certain actions, events or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved, or the negative of any of these terms and similar expressions) are not statements of historical fact and may be “forward-looking statements”.

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 from those expressed or implied by the forward-looking statements. Such factors include, but are not limited to, risks related to actual results and timing of exploration and development activities; actual results and timing of mining activities; actual results and timing of environmental services operations; actual results and timing of remediation and reclamation activities; conclusions of economic evaluations; changes in project parameters as plans continue to be refined; future prices of silver, gold, lead, zinc and other commodities; possible variations in resources, grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accidents, labour disputes and other risks of the mining industry; First Nation rights and title; continued capitalization and commercial viability; global economic conditions; competition; delays in obtaining governmental approvals or financing or in the completion of development activities, and inability of the Company to obtain additional financing needed to fund certain contingent payment obligations or the US\$20 million payment to Silver Wheaton referred to above on reasonable terms or at all.. Furthermore, forward-looking statements are statements about the future and are inherently uncertain, and actual achievements of the Corporation or other future events or conditions may differ materially from those reflected in the forward-looking statements due to a variety of risks, uncertainties and other factors, including but not limited to those referred to in this AIF under the heading “Risk Factors” and elsewhere.

Forward-looking statements are based on certain assumptions that management believes are reasonable at the time they are made. In making the forward-looking statements included in this AIF, the Corporation has applied several material assumptions, including, but not limited to, the assumption that: (1) additional financing needed to fund certain contingent payment obligations to Silver Wheaton and, the US\$20 million payment to Silver Wheaton referred to above will be available on reasonable terms; (2) additional financing needed for the capacity related refund under the silver purchase agreement with Silver Wheaton will be available on reasonable terms; (3) additional financing needed for further exploration and development work on the Corporation’s properties will be available on reasonable terms; (4) the proposed development of its mineral projects will be viable operationally and economically and proceed as planned;

(5) market fundamentals will result in sustained silver, gold, lead and zinc demand and prices, and such prices will not be materially lower than those estimated by management in preparing the annual financial statements for the year ended December 31, 2015; (6) market fundamentals will result in sustained silver, gold, lead and zinc demand and prices, and such prices will be materially consistent with or more favourable than those anticipated in the Preliminary Economic Assessment ("PEA") (as defined under "Description of the Business – KHSD Property"); (7) the actual nature, size and grade of its mineral resources are materially consistent with the resource estimates reported in the supporting technical reports; (8) labor and other industry services will be available to the Corporation at prices consistent with internal estimates; (9) the continuances of existing and, in certain circumstances, proposed tax and royalty regimes; and (10) that other parties will continue to meet and satisfy their contractual obligations to the Corporation. Statements concerning mineral reserve and resource estimates may also be deemed to constitute forward-looking information to the extent that they involve estimates of the mineralization that will be encountered if the property is developed. Other material factors and assumptions are discussed throughout this AIF and, in particular, under the heading "Risk Factors".

The Corporation's forward-looking statements are based on the beliefs, expectations and opinions of management on the date the statements are made and should not be relied on as representing the Corporation's views on any subsequent date. While the Corporation anticipates that subsequent events may cause its views to change, the Corporation specifically disclaims any intention or any obligation to update forward-looking statements if circumstances or management's beliefs, expectations or opinions should change, except as required by applicable law. For the reasons set forth above, investors should not place undue reliance on forward-looking statements.

#### Cautionary Note to U.S. Investors – Information Concerning Preparation of Resource Estimates

This AIF has been prepared in accordance with the requirements of the securities laws in effect in Canada, which differ from the requirements of United States securities laws. The terms "mineral reserve", "proven mineral reserve" and "probable mineral reserve" are Canadian mining terms as defined in accordance with Canadian National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("**NI 43-101**") and the Canadian Institute of Mining, Metallurgy and Petroleum (the "**CIM**") – *CIM Definition Standards on Mineral Resources and Mineral Reserves*, adopted by the CIM Council, as amended. These definitions differ from the definitions in the United States Securities and Exchange Commission's ("**SEC**") Industry Guide 7 under the United States Securities Act of 1933, as amended. Under SEC Industry Guide 7 standards, mineralization cannot be classified as a "reserve" unless the determination has been made that the mineralization could be economically and legally extracted at the time the reserve determination is made. As applied under SEC Industry Guide 7, a "final" or "bankable" feasibility study is required to report reserves, the three-year historical average price is used in any reserve or cash flow analysis to designate reserves, and all necessary permits and government authorizations must be filed with the appropriate governmental authority.

In addition, the terms "mineral resource", "measured mineral resource", "indicated mineral resource" and "inferred mineral resource" are defined in and required to be disclosed by NI 43-101; however, these terms are not defined terms under SEC Industry Guide 7 and are normally not permitted to be used in reports and registration statements filed with the SEC. Investors are cautioned not to assume that all or any part of a mineral deposit in these categories will ever be converted into reserves. "Inferred mineral resources" have a great amount of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Under Canadian rules, estimates of inferred mineral resources may not form the basis of feasibility or pre-feasibility studies, except in rare cases. Investors are cautioned not to assume that all or any part of an inferred mineral resource exists or is economically or legally mineable. Disclosure of "contained ounces" in a resource is permitted disclosure under Canadian regulations; however, the SEC normally only permits issuers to report mineralization that does not constitute "reserves" by SEC Industry Guide 7 standards as in place tonnage and grade without reference to unit measures.

Accordingly, information concerning mineral deposits contained in this AIF may not be comparable to similar information made public by U.S. companies subject to the reporting and disclosure requirements under the United States federal securities laws and the rules and regulations thereunder.

### Qualified Person Under NI 43-101

Except where specifically indicated otherwise, the disclosure in this AIF of scientific and technical information regarding exploration projects on Alexco's mineral properties has been reviewed and approved by Alan McOnie, FAusIMM, Vice President, Exploration, while that regarding mine development and operations has been reviewed and approved by Scott Smith, P.Eng., former Bellekeno Mine Manager, both of whom are Qualified Persons as defined by NI 43-101.

### **GLOSSARY OF TECHNICAL TERMS**

The following is a glossary of certain mining terms used in this AIF:

<b>Acre</b>	An area of 4,840 square yards or 43,560 square feet.
<b>Ag</b>	Silver.
<b>Assay</b>	In economic geology, to analyze the proportions of metal in a rock or overburden sample; to test an ore or mineral for composition, purity, weight or other properties of commercial interest.
<b>Au</b>	Gold.
<b>CIM</b>	Canadian Institute of Mining and Metallurgy.
<b>Deposit</b>	A mineralized body which has been physically delineated by sufficient drilling, trenching, and/or underground work, and found to contain a sufficient average grade of metal or metals to warrant further exploration and/or development expenditures; such a deposit does not qualify as a commercially mineable ore body or as containing ore reserves, until final legal, technical, and economic factors have been resolved.
<b>Dip</b>	The angle at which a stratum is inclined from the horizontal.
<b>Fold</b>	A bend in strata or any planar structure.
<b>g/t Au</b>	Grams per tonne gold.
<b>g/t Ag</b>	Grams per tonne silver.
<b>Grade</b>	The amount of valuable metal in each tonne of mineralized rock, expressed as grams per tonne (g/t) for precious metals, as percent (%) for copper, lead, zinc and nickel.
<b>Hectare</b>	An area equal to 100 meters by 100 meters.
<b>km</b>	Kilometers.
<b>m</b>	Meters.
<b>Mineral Reserve, Proven Mineral Reserve, Probable Mineral Reserve</b>	Under CIM standards, a Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by a preliminary feasibility study or feasibility study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

The terms "Mineral Reserve", "Proven Mineral Reserve" and "Probable Mineral

Reserve” used in this AIF are mining terms defined under CIM standards and used in accordance with NI 43-101. Mineral Reserves, Proven Mineral Reserves and Probable Mineral Reserves presented under CIM standards may not conform with the definitions of “reserves” or “proven reserves” or “probable reserves” under United States Industry Guide 7. See “Preliminary Notes – Cautionary Note to U.S. Investors – Information Concerning Preparation of Resource Estimates”.

Mineral Reserves under CIM standards are those parts of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the qualified person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant processing, metallurgical, economic, marketing, legal, environment, socio-economic and government factors. Mineral Reserves are inclusive of diluting material that will be mined in conjunction with the Mineral Reserves and delivered to the treatment plant or equivalent facility. The term ‘Mineral Reserve’ needs not necessarily signify that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.

Under CIM standards, Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proven Mineral Reserves. A Probable Mineral Reserve has a lower level of confidence than a Proven Mineral Reserve.

**Proven Mineral Reserve:** A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource demonstrated by at least a preliminary feasibility study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that the economic extraction can be justified.

**Probable Mineral Reserve:** A Probable Mineral Reserve is the economically mineable part of an Indicated and, in some circumstances, a Measured Mineral Resource demonstrated by at least a preliminary feasibility study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that the economic extraction can be justified.

**Mineral Resource,  
Measured Mineral  
Resource, Indicated  
Mineral Resource,  
Inferred Mineral  
Resource**

Under CIM standards, Mineral Resource is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the earth’s crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

The terms “mineral resource”, “measured mineral resource”, “indicated mineral resource”, and “inferred mineral resource” used in this AIF are mining terms defined under CIM standards and used in accordance with NI 43-101. They are not defined terms under United States Industry Guide 7 and generally may not be used in documents filed with the SEC by U.S. companies. See “Preliminary Notes – Cautionary Note to U.S. Investors – Information Concerning Preparation of Resource Estimates”.

A mineral resource estimate is based on information on the geology of the deposit and the continuity of mineralization. Assumptions concerning economic and operating parameters, including cut-off grades and economic mining widths, based on factors typical for the type of deposit, may be used if these factors have not been specifically established for the deposit at the time of the mineral

resource estimate. A mineral resource is categorized on the basis of the degree of confidence in the estimate of quantity and grade or quality of the deposit, as follows:

**Inferred Mineral Resource:** Under CIM standards, an Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

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

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

<b>Mineralization</b>	The concentration of metals and their chemical compounds within a body of rock.
<b>Ore</b>	A metal or mineral or a combination of these of sufficient value as to quality and quantity to enable it to be mined at a profit.
<b>Ounce or oz</b>	A troy ounce or twenty penny weights or 480 grains or 31.103 grams.
<b>Outcrop</b>	An exposure of bedrock at the surface.
<b>Pb</b>	Lead.
<b>Quartz</b>	A mineral composed of silicon dioxide.
<b>Strike</b>	Direction or trend of a geologic structure as it intersects the horizontal.
<b>Ton</b>	Also referred to as "short ton", a United States unit of weight equivalent to 2000 pounds.
<b>Tonne</b>	A metric unit of weight equivalent to volume multiplied by specific gravity; equivalent to 1.102 tons or 1,000 kilograms (2,204.6 pounds).
<b>Vein</b>	Thin sheet-like intrusion into a fissure or crack, commonly bearing quartz.
<b>Zn</b>	Zinc.



### **Metric Equivalents**

The following table sets forth the factors for converting between Imperial measurements and metric equivalents:

<b>To Convert From</b>	<b>To</b>	<b>Multiply By</b>
Feet	Meters	0.305
Meters	Feet	3.281
Miles	Kilometers (“ <b>km</b> ”)	1.609
Kilometers	Miles	0.6214
Acres	Hectares (“ <b>ha</b> ”)	0.405
Hectares	Acres	2.471
Grams	Ounces (Troy)	0.03215
Grams/Tonnes	Ounces (Troy)/Short Ton	0.02917
Tonnes (metric)	Pounds	2,205
Tonnes (metric)	Short Tons	1.1023

## CORPORATE STRUCTURE

The Corporation was incorporated under the *Business Corporations Act* (Yukon) on December 3, 2004 under the name “Alexco Resource Corp.” Effective December 28, 2007, it was continued under the *Business Corporations Act* (British Columbia).

The Corporation's head office is located at Suite 1225, Two Bentall Centre, 555 Burrard Street, Box 216, Vancouver, British Columbia, V7X 1M9, Canada, and its registered and records office is located at 10th Floor, 595 Howe Street, Vancouver, British Columbia, V6C 2T5, Canada.

At the end of its most recently completed financial year, the Corporation had the following wholly-owned subsidiaries:

- Alexco Keno Hill Mining Corp., organized under the laws of British Columbia;
- Alexco Exploration Canada Corp., organized under the laws of British Columbia;
- Elsa Reclamation & Development Company Ltd., organized under the laws of Yukon (“**ERDC**”);
- Alexco Environmental Group Inc. (formerly Access Mining Consultants Ltd.), organized under the laws of Yukon (“**AEG Canada**”);
- Alexco Environmental Group (US) Inc. (formerly Alexco Resource U.S. Corp.), organized under the laws of Colorado (“**AEG US**”); and
- Alexco Financial Guaranty Corp., organized under the laws of Colorado.

Unless otherwise indicated or the context otherwise requires, reference to the term the “Corporation” or “Alexco” in this AIF includes Alexco Resource Corp. and its subsidiaries.

## GENERAL DEVELOPMENT OF THE BUSINESS

### Formation of the Corporation

In 2005, the Corporation completed a series of transactions pursuant to which it acquired a number of mineral property interests and rights to certain operating contracts in Yukon Territory and British Columbia, the most significant of which properties are located in Yukon Territory's Keno Hill Silver District.

Alexco operates two principal businesses: (i) a mining business, comprised of mineral exploration and mine development and operation in Canada, primarily in Yukon Territory; and (ii) through its Alexco Environmental Group Division (through AEG Canada and AEG US), provision of a variety of mine and industrial site related environmental services including management of the regulatory and environmental permitting process, environmental assessments, and reclamation and closure planning in Canada, the United States and elsewhere.

### Three Year History and Significant Acquisitions

In June 2005, the Corporation was selected as the preferred purchaser of the assets of United Keno Hill Mines Limited and UKH Minerals Limited (collectively, “**UKHM**”) by a court appointed interim receiver and receiver-manager of UKHM. In February 2006, following negotiation of a subsidiary agreement (the “**Subsidiary Agreement**”) between the Government of Canada, the Government of Yukon (collectively, the “**Government Group**”) and the Corporation, the Supreme Court of Yukon conditionally approved the purchase of the assets of UKHM by Alexco through its wholly-owned subsidiary, ERDC, final closing of which acquisition was effected in December 2007. Under the terms of the Subsidiary Agreement, the Corporation is indemnified by the Government of Canada for all liabilities, including environmental liabilities, arising directly or indirectly as a result of the pre-existing condition of the Keno Hill mineral rights and other assets acquired from UKHM. The Subsidiary Agreement provides that ERDC may bring

any mine into production on the UKHM Mineral Rights (as hereinafter defined) by designating a production unit from the mineral rights relevant to that purpose and then assuming responsibility for all costs of the production unit's water related care and maintenance and water related components of closure reclamation. The Subsidiary Agreement further requires ERDC to pay into a separate reclamation trust a 1.5% net smelter return royalty, up to an aggregate maximum of \$4 million for all production units, from any future production from the UKHM Mineral Rights, commencing once earnings from mining before interest, taxes and depreciation exceed actual exploration costs, up to a maximum of \$6.2 million, plus actual development and construction capital.

Also under the Subsidiary Agreement, ERDC is retained through the Government Group as a paid contractor responsible on a continuing basis for the environmental care and maintenance and ultimate closure reclamation of the former UKHM Mineral Rights. The original Subsidiary Agreement provided that ERDC was responsible for the development of the ultimate closure reclamation plan for fees of 65% of agreed commercial contractor rates, and this plan development is currently ongoing. Upon acceptance and regulatory approval, the closure reclamation plan will be implemented by ERDC at full agreed commercial contractor rates. During the period required to develop the plan, the original Subsidiary Agreement also provided that ERDC was responsible for carrying out the environmental care and maintenance of the UKHM Mineral Rights for a reducing fixed annual fee adjusted each year for certain operating and inflationary factors.

In July 2013, an amended and restated Subsidiary Agreement (the "**ARSA**") was executed with the Government of Canada. Recognizing that developing the closure reclamation plan is more complicated than originally anticipated, the ARSA provides for the Government of Canada to contribute a higher proportion of closure plan development costs than provided for under the Subsidiary Agreement, retroactive to 2009. Going forward, ERDC will receive 95% of agreed commercial contractor rates for ongoing development of the closure reclamation plan. Furthermore, with respect to care and maintenance activity during the closure reclamation planning phase, the original reducing fee scale is replaced by a fixed fee of \$850,000 per year, representing approximately 50% of estimated fully-billable care and maintenance fees.

Since 2006, the Corporation has carried out exploration activities on several of its properties within the Keno Hill District, with a significant component of that activity having been focused on the Bellekeno property and the Bellekeno mine, which commenced commercial production effective January 1, 2011.

On October 2, 2008 (with subsequent amendments on October 20, 2008, December 10, 2008, December 22, 2009, March 31, 2010, January 15, 2013, March 11, 2014 and June 16, 2014), the Corporation entered into a silver streaming interest agreement (the "**Silver Streaming Agreement**") with Silver Wheaton under which Silver Wheaton will receive 25% of the life of mine silver produced by the Corporation from its Keno Hill Silver District properties. The Silver Streaming Agreement anticipated that the initial silver deliveries would come from the Bellekeno property.

Under the Silver Streaming Agreement, the Corporation received up-front deposit payments from Silver Wheaton totaling US\$50 million, and received further payments of the lesser of US \$3.90 (increasing by 1% per annum after the third year of full production) and the prevailing market price for each ounce of payable silver delivered, if as and when delivered.

As of September 2013, Bellekeno mining operations were suspended in light of a sharply reduced silver price environment.

On June 16, 2014, Alexco entered into an agreement with Silver Wheaton to amend the original Silver Streaming Agreement such that, upon payment of US\$20 million to Silver Wheaton on or before December 31, 2014 (the "Deadline"), the fixed US\$3.90 per ounce silver streaming production payment will be replaced with a variable production payment based on the spot price of silver.

The variable production payment was defined by a pricing curve with an apex at US\$19.45 spot silver price where Silver Wheaton would make a production payment to Alexco of US\$18.00 per ounce of silver delivered; that payment decreasing by US\$0.91 per ounce for each US\$1.00 increase or decrease in silver price, returning to a fixed US\$3.90 per ounce for spot silver prices of US\$35.00 per ounce and

higher. Upon payment of the US\$20 million to Silver Wheaton, the pricing amendment would be effective for a 10 year term from the time mining production re-commences in the district, with an option for Alexco to extend the amendment for another 5 or 10 years for an additional US\$10 million or US\$20 million, respectively.

The Deadline was initially extended until December 31, 2015 and Silver Wheaton subsequently confirmed that Alexco has the right, by written notice delivered at any time up to December 31, 2016, to extend the Deadline to December 31, 2016. If the Deadline is extended by Alexco and the US\$20 million payment is made to Silver Wheaton on or before the Deadline, the deposit owing under the original silver purchase agreement will be reduced from US\$50 million to US\$30 million and the deposit will be considered fully repaid.

Effective on signing the June 16, 2014 amending agreement, the date for completion of the 400 tonne per day mine and mill completion test date was extended to December 31, 2017. If the Deadline is extended by Alexco and the US\$20 million payment is made to Silver Wheaton on or before the Deadline, the amendments provide that the deadline for this completion test would be further extended to 24 months following the recommencement date.

In addition, pursuant to the June 16, 2014 amending agreement, the Silver Wheaton area of interest was expanded to include additional Alexco currently owned and future acquired properties within one kilometer of existing Alexco holdings in the Keno Hill District.

If Alexco decides to extend the June 16, 2014 amending agreement, it is not obligated to make the US\$20 million payment to Silver Wheaton. However, in order for certain of the amendments to take effect (including the amendment to the fixed price), the Corporation would need to make this payment. The Corporation would require additional financing to make this payment and there is no assurance that additional financing can be obtained by December 31, 2016 (or such later date as the parties may agree). If the Corporation is unable to, or chooses not to, make this US\$20 million payment, the fixed price payment terms of the original silver purchase agreement would remain in effect and, to satisfy the completion test under the Silver Purchase Agreement, the Corporation will need to recommence operations on the KHSD Property and operate the mine and mill at 400 tonnes per day on or before December 31, 2017. If the completion test is not satisfied by December 31, 2017, the Corporation would be required to pay a capacity related refund to Silver Wheaton in the maximum amount of US\$9.75 million. See "Risk Factors".

In addition to the mining business described above, the Corporation also operates an environmental services business through its Alexco Environmental Group division ("**AEG**"). Primarily through AEG Canada, AEG US and ERDC, AEG provides a variety of mine and industrial site related environmental services including management of the regulatory and environmental permitting process, environmental assessments and reclamation and closure planning. The AEG operations also include the care and maintenance and closure reclamation activities being conducted by the Corporation in the Keno Hill District under the Subsidiary Agreement. Alexco also owns certain patents (the "**Patents**") registered or in the process of being registered in the U.S., Canada and various other countries around the world, with terms that expire variously between 2015 and 2020. The Patents generally pertain to the in situ immobilization of metals, and are specifically suited to mine closure related remediation.

Further particulars relating to the business of AEG, including activities being conducted under the Subsidiary Agreement, are described below under "Description of the Business – Environmental Services".

## **DESCRIPTION OF THE BUSINESS**

The Corporation operates two principal businesses: a mining business, comprised of mineral exploration and mine development and operation in Canada, primarily in Yukon Territory; and through AEG an environmental services business, providing consulting, remediation solutions and project management services in respect of environmental permitting and compliance and site remediation, in Canada, the United States and elsewhere.

At December 31, 2015, the Corporation had 60 permanent and seasonal employees. A total of 7 were employed in the care and maintenance of the Bellekeno mine and mill site care and maintenance, and a further 2 were employed in mineral exploration and evaluation activities. A total of 44 were employed in the environmental services business, with the remaining 7 employed in respect of executive management and administrative support. Significant aspects of both the mining business and the environmental services business require specialized skills and knowledge in areas that include geology, mining, metallurgy, engineering, environmental contamination treatment, permitting and regulatory compliance, as well as environmental and social policy issues. In the period 2010 through 2012, skill shortages within the mining industry in general, and particularly within Yukon Territory, made it more challenging to recruit and retain qualified employees in these fields. Alexco was generally successful in recruiting and retaining the key personnel necessary to its operating needs, though recruitment of skilled mill operators was an ongoing challenge for Bellekeno mine operations through mid-2012. By the end of 2012, the mill work force complement had stabilized. However, recruitment and retention of qualified employees in the mining sector remains a risk factor, and a re-start of Alexco's mining operations will necessitate the re-hiring of mine and mill personnel.

### **Mining Business**

The Corporation's principal mining business activities are currently being carried out within the Keno Hill District in Yukon Territory. The Keno Hill District (the "**District**") is a storied silver mining region in Canada, encompassing over 35 former mines that produced variously from approximately 1918 through 1988, with published information from the Yukon Government's Minfile database reporting more than 217 million ounces of silver produced at average grades of 40.5 ounces per ton silver, 5.6% lead and 3.1% zinc.

The Corporation's mineral property holdings within the District span a significant majority of the regional area, and most of the former mines. The KHSD property comprises the Flame & Moth, Bellekeno and Lucky Queen deposits as well as the Onek, Birmingham properties and Elsa Tailings properties. The Corporation holds several other less advanced property interests within the District, including but not limited to the Silver King, Husky and McQuesten properties, which may potentially become material properties depending on the results of exploration programs the Corporation may carry out on them in the future. In aggregate, Alexco's various mineral properties within the Keno Hill District are comprised of mineral rights totaling approximately 725 surveyed quartz mining leases, 869 unsurveyed quartz mining claims, eight placer claims and two crown grants, in addition to five fee simple lots and seven surface leases. Of those, the mineral rights acquired from UKHM (the "**UKHM Mineral Rights**") and therefore subject to the capped 1.5% net smelter return royalty provided for under the Subsidiary Agreement (see "General Development of the Business – Three Year History and Significant Acquisitions") total 676 quartz mining leases, 121 quartz mining claims and two crown grants.

Other non-material mineral property interests of the Corporation include the Sprogge and Harlan properties in the Yukon, and certain net smelter return royalties in respect of the Brewery Creek and Ida-Oro (formerly Klondike) properties in the Yukon and the Telegraph Creek, Iskut River, Kiniskan Lake and Manson Creek properties in British Columbia.

On February 15, 2012, the Corporation entered into a sales and purchase agreement to sell 100% of its interest in the Brewery Creek property to an unrelated third party, Till Capital Ltd. (formerly Americas Bullion Royalty Corp.). Effective September 26, 2012, the sale was completed, for proceeds of \$3,205,000 cash plus 7,500,000 common shares of Till Capital Ltd. and purchase warrants to acquire a further 3,750,000 common shares for a price of \$1.15 per share at any time until September 25, 2014, as well as a net smelter return royalty on gold production from Brewery Creek of between 2% and 2.75%.

### **KHSD Property**

In December 2014, Alexco completed an NI 43-101 compliant preliminary economic assessment for certain of its holdings in the KHSD (the "**PEA**") filed on SEDAR and dated December 10, 2014, entitled "Updated Preliminary Economic Assessment for the Keno Hill Silver District Project – Phase 2, Yukon, Canada". The PEA was compiled by SRK Consulting (Canada) Inc. ("**SRK**") with contributions from a team of qualified persons.

The Corporation's 100% owned KHSD property encompasses the Bellekeno, Flame & Moth, Lucky Queen, Onek and Birmingham deposits and comprises 725 surveyed quartz mining leases and 869 unsurveyed quartz mining claims, half of which are UKHM Mineral Rights. Prior to their amalgamation within KHSD, each of the deposits was a separate property and had been subject to numerous technical reports, all filed on the SEDAR website at [www.sedar.com](http://www.sedar.com) and all NI 43-101 compliant. All of these past technical reports have now been superseded by the current PEA.

The KHSD PEA outlines a project with an initial nine-month construction period followed by a 5.75 year period of silver production anchored by the Flame & Moth deposit. It provides for an annual delivery of an average of 3.0 million ounces of payable silver, 6.6 million pounds of lead, 6.1 million pounds of zinc and 1,020 ounces of gold from approximately 140,000 tonnes per year of consolidated mine and mill production. The after-tax internal rate of return is 22.1% and the after-tax net present value at a 5% discount rate is \$23.3 million, with a 3.75 year payback period. Initial capital requirements are expected to be approximately \$45 million, of which US\$20 million is allocated to the Silver Wheaton payment prior to production. Of the remainder, roughly half the initial capital would be deployed to drive a decline and establish underground infrastructure at the Flame & Moth deposit, which is planned to deliver 72% of the tonnes in the current plan. The balance of the initial capital is planned for minor mill upgrades, additional surface facilities, recommissioning of the Bellekeno mine and working capital and inventory buildup. Approximately 15% or 143,000 tonnes of potentially mineable resource, primarily at Bellekeno and Flame & Moth, has been eliminated from the PEA mine plan and remains to be considered should underlying costs and obligations be further optimized.

The consolidated mine production under the KHSD PEA is primarily derived from indicated mineral resources, though approximately 6% is derived from inferred mineral resources. Readers are cautioned that mineral resources are not mineral reserves and do not have demonstrated economic viability. Furthermore, the PEA is preliminary in nature; it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves; and there is no certainty that the PEA will be realized.

Under the KHSD PEA, Flame & Moth mineral resources are estimated with an effective date of January 30, 2013 at 1,378,000 tonnes indicated grading 516 g/t Ag, 1.72% lead and 5.70% zinc plus another 107,000 tonnes inferred grading 313 g/t Ag, 0.86% lead and 4.21% zinc. The Bellekeno mineral resources are based on a geologic resource estimate having an effective date of May 31, 2012, with the indicated resources as at September 30, 2013 and reflecting the geologic resource less estimated subsequent depletion from mine production (Scott Smith is the qualified person responsible for the subsequent depletion of the May 31, 2012 indicated resources for production through September 30, 2013). The Bellekeno mineral resource estimate comprises 365,000 tonnes indicated grading 658 g/t Ag, 5.3% lead and 5.3% zinc plus another 243,000 tonnes inferred grading 428 g/t Ag, 4.1% lead and 5.1% zinc. The Lucky Queen mineral resources are estimated with an effective date of July 27, 2011 at 124,000 tonnes indicated grading 1,227 g/t Ag, 2.57% lead and 1.72% zinc plus another 150,000 tonnes inferred grading 571 g/t Ag, 1.37% lead and 0.92% zinc. The Onek mineral resources are estimated with an effective date of October 15, 2014 at 654,000 tonnes indicated grading 200 g/t Ag, 1.29% lead and 12.30% zinc plus another 234,000 tonnes inferred grading 134 g/t Ag, 1.24% lead and 8.86% zinc. The Birmingham mineral resources are estimated with an effective date of October 15, 2014 at 257,000 tonnes indicated grading 460 g/t Ag, 2.00% lead and 2.10% zinc plus another 102,000 tonnes inferred grading 372 g/t Ag, 1.12% lead and 1.83% zinc.

On April 30, 2015 the Company released updated mineral resource estimates for the Flame & Moth and Birmingham deposits (see press release dated April 30, 2015 titled "Alexco Announces Indicated Silver Resource Estimate Increases of 17% at Flame & Moth and 37% at Birmingham, Resulting in a 10% Increase Overall for Keno Hill Silver District"). With an effective date of April 28, 2015 the Flame & Moth mineral resources are estimated at 1,638,000 tonnes indicated grading 506 g/t Ag, 1.89% lead and 5.40% zinc plus another 348,000 tonnes inferred grading 366 g/t Ag, 0.47% lead and 4.37% zinc and the Birmingham mineral resources are estimated at 377,000 tonnes indicated grading 430 g/t Ag, 1.59% lead and 1.74% zinc plus another 52,000 tonnes inferred grading 477 g/t Ag, 1.22% lead and 1.88% zinc. The economic analysis presented in the KHSD PEA does not include, and may not necessarily be extrapolated to, the updated resource estimates.

The detailed disclosure contained in the PEA is hereby incorporated by reference, and the summary section from that report is reproduced as follows. It is noted that the PEA contains references and/or assumptions relating to the dates for re-starting or continuing mining operations or development work at certain of Alexco's mineral properties. Notwithstanding the incorporation by reference herein of the PEA and reproduction of the summary section thereof below, such dates were projections made at the time the PEA was prepared and are not necessarily reflective of Alexco's current plans. Re-start of mining operations and/or development work is dependent on a number of factors, including sustained improvements in silver markets and the effectiveness of cost structure reduction measures. Accordingly, there is no certainty as to when these factors will be achieved or that mining operations or development work will re-start.

#### Summary Section of December 2014 KHSD PEA:

##### **"1.1 Introduction**

Alexco Resource Corp. (Alexco) owns access to the majority of the historic Keno Hill Silver District, located in Yukon, Canada. It is comprised of polymetallic silver-lead-zinc deposits occurring in the historic Keno Hill Silver District located in the vicinity of the village of Keno City, Yukon. There are approximately 30 known deposits in the area, many of which have been subject to small scale mining operations over the last century, and numerous prospects.

Alexco's objective is to unlock value in the silver-rich Keno Hill Silver District, and is focused on growth by advancing its promising district properties to development decisions.

The Bellekeno mine is one of several mineral properties held by Alexco within the Keno Hill Silver District. The Bellekeno mine, which commenced commercial production at the beginning of calendar year 2011, operated as Canada's only primary silver mine until operations were temporarily suspended by Alexco at the end of August 2013 (refer to Alexco's July 17, 2013 news release).

The current status of Alexco's more advanced properties within the Keno Hill Silver District are listed below:

- Bellekeno mine: In production since 2011 until temporary suspension of operations at the end of August 2013. This preliminary economic assessment (PEA) assumes that production stopping will re-start in late July, 2015.
- Lucky Queen mine: Reconditioning and development work was undertaken from early 2012 into Q2 2013, with operations temporarily suspended in March 2013. The PEA assumes that pre-production development work will re-start in Q2 2016.
- Onek mine: Development work was undertaken from late 2012 into Q2 2013, with operations suspended at the end of May 2013. Onek is not included in the production plan presented in this PEA report but the mineral resources were updated to include the 2012 and 2013 drilling results.
- Flame & Moth deposit: Scoping level mine planning work has been completed by SRK Consulting (Canada) Inc. (SRK), and an internal company report has been provided to Alexco. Alexco began surface preparations earlier in 2014 which included road upgrades, installation of services, and construction of surface infrastructure and excavation of the portal. It is expected that by the end of 2014, Alexco crews will have completed the surface preparations and excavated the first 20m of the Main Lightning Ramp. The Updated PEA assumes that as of January 1<sup>st</sup>, 2015, the required men, equipment and materials will be in place to drive the ramp development at planned advance rates.
- Birmingham deposit: A historical, small scale silver producer, where additional exploration drilling has been done by Alexco and an updated resource block model has been completed. No mine planning has been completed on the new mineral resources. This deposit is not considered in this PEA report.

This PEA is based on Alexco's plan to resume underground development activities in the eastern part of the Keno Hill Silver District, specifically at the Bellekeno and Lucky Queen mines and the Flame & Moth deposit, followed by the commencement of production stopping and processing in Q3 of 2015. The project describing the development and production plans for these three properties that support the long

range feed schedule for Alexco's mill facility is referred to as the Keno Hill Silver District Project – Phase 2, which in this report is abbreviated as the KHSD project.

These deposits have mineral resource block models that were constructed using a geostatistical block modelling approach with the mineralization constrained by wireframes. Mineral resources are classified as Indicated or Inferred following the CIM *Definition Standards for Mineral Resources and Mineral Reserves* (CIM, 2014).

An updated mineral resource model for the Bellekeno deposit was constructed by Alexco during the third quarter of 2012 under the supervision of David Farrow, BSc (Hons), GDE, PrSciNat, PGeo (BC), a third party consulting geologist. The results of the mineral resource estimate are incorporated in this report.

A mineral resource estimate for the Lucky Queen deposit was previously prepared by SRK and published in an independent technical report on September 8, 2011 entitled "Technical Report on the Lucky Queen Deposit, Lucky Queen Property, Keno Hill District, Yukon" (SRK, 2011a). The results of the mineral resource estimate are incorporated in this report.

In 2013, a mineral resource block model for the Flame & Moth deposit was constructed by Alexco under the supervision of Mr. Farrow. The mineral resource estimate is documented in a March 15, 2013 technical report entitled "Updated Technical Report on the Flame & Moth Property, Keno Hill District, Yukon" (Farrow and McOnie, 2013). The results of the mineral resource estimate are incorporated in this report.

An updated mineral resource estimate for the Onek deposit was prepared by SRK and is included in this report.

A mineral resource estimate for the Birmingham deposit was prepared by SRK on August 8, 2012 and published in an independent technical report entitled "Technical Report on the Birmingham Deposit, Birmingham Property, Keno Hill District, Yukon". There has been no additional exploration work on the Birmingham deposit in the resource area since 2012 and the results of the mineral resource estimate are incorporated in this report.

This technical report documents the context and assumptions required to develop the economic analysis to support the PEA based on the three mineral resource estimates comprising the KHSD project. The report was prepared following the guidelines of the Canadian Securities Administrators National Instrument 43-101 and Form 43-101F1, and it is in conformity with the generally accepted *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* (CIM, 2003).

## **1.2 Property Description and Ownership**

The Keno Hill Silver District project is located near the village of Keno City, approximately 350 kilometres (km) north of Whitehorse, Yukon, within the KHSD. Alexco's administration and camp facilities are located at the historic company town of Elsa, which is accessible from Whitehorse via a 460 km all-weather road and by air via the Mayo airport, which is some 40 km to the southwest. A gravel road known as the Silver Trail Highway connects Mayo to the project area and the village of Keno City.

Alexco currently maintains an area that covers 239.016 km<sup>2</sup>, and comprises 695 quartz mining leases (88.141 km<sup>2</sup>) and 871 quartz mining claims (150.875 km<sup>2</sup>). Mineral exploration at Keno Hill Silver District is permitted under the terms and conditions set out by the Yukon Government in the Class IV Quartz Mining Land Use Permit – LQ00240, issued on June 17, 2008 and valid until June 16, 2018.

Central Yukon is characterized by a subarctic continental climate with cold winters and warm summers. Average temperatures in the winter are between -15 and -20 degrees Celsius (°C) while summer temperatures average around 15°C. Exploration and mining work can be carried out year-round. The landscape around the Keno Hill Silver District is characterized by rolling hills and mountains with a relief of up to 1,600 metres (m).

## **1.3 History**

The Keno Hill mining camp area has a rich history of exploration and mining with 21 deposits having documented silver production in excess of 3,110 kilograms (100,000 ounces). Silver was first found in 1901 but small-scale mining only began in 1913. High silver prices at the end of World War I led to renewed and ultimately successful exploration activity in the area. Since then, at least 65 deposits and



prospects have been identified within the area. Many small silver deposits were mined independently of each other throughout the area between 1913 and 1925.

The Treadwell Yukon Company Limited (TYC) consolidated a number of small mines and properties in the area in the 1920s. TYC continued to be the dominant company in the mining camp until it ceased operations in 1942 upon the untimely death of its founder Livingston Wernecke.

Keno Hill Mining Company Limited (KHM) acquired the interests formerly controlled by TYC in 1945. KHM was reorganized in November 1947 as United Keno Hill Mines Limited (UKHM) and by 1958 UKHM had acquired several properties, interests in properties, and other companies, including the assets of Galkeno Mines Limited and Canadian Northwest Mines and Oil.

Ventures Limited (later Falconbridge Nickel Mines Limited and Falconbridge Limited) acquired a controlling interest in UKHM in 1960 and assumed management control.

UKHM ceased all production in the area in 1989 and placed the active mines on care and maintenance, but continued to conduct limited underground exploration and development at the Bellekeno and Silver King mines. On February 18, 2000, UKHM was granted bankruptcy protection with PricewaterhouseCoopers Inc. (PwC) being appointed by the court as the interim receiver and receiver-manager of UKHM in 2001.

In June 2005, Alexco was selected as the preferred purchaser of the assets of UKHM by PwC. In February 2006, Alexco's purchase of UKHM's assets through a wholly-owned subsidiary, Elsa Reclamation & Development Company Ltd. (ERDC), was approved. Under the Keno Hill Subsidiary Agreement, ERDC is indemnified against all historical liability, has property access for exploration and future development, and is not required to post security against pre-existing liabilities. ERDC received a water licence from the Yukon government in November 2007, giving Alexco free and clear title to surface and subsurface claims, leases, free-hold land, buildings, and equipment at the Keno Hill Silver District.

Alexco embarked on an aggressive surface exploration program in 2006 with continued yearly exploration programs through 2013. The Bellekeno mine reached commercial production in January 2011 with at a nominal rate of 250 tonnes per day (tpd).

#### **1.4 Regional and Local Geological Setting**

The Keno Hill mining camp is located in the northwestern part of the Selwyn Basin in an area where the northwest-trending Robert Service Thrust Sheet and the Tombstone Thrust Sheet overlap. The area is underlain by Upper Proterozoic to Mississippian rocks that were deposited in a shelf environment during the formation of the northern Cordilleran continental margin. The area underwent regional compressive tectonic stresses during the Jurassic and the Cretaceous, producing thrusts, folds, and penetrative fabrics of various scales.

The Robert Service Thrust Sheet lying to the south of the Keno Hill Silver District is composed of a Late Proterozoic to Cambrian coarse grained quartz rich turbidite succession with interbedded shales and locally limestone of the Hyland Group, Yusezyu Formation.

The Tombstone Thrust Sheet that lies to the north and underlies the Keno Hill Silver District consists of Devonian phyllite, felsic meta-tuffs, and metaclastic rocks of the Earn Group that is conformably overlain by the Mississippian Keno Hill Quartzite. This latter unit is locally thickened due to folding and/or thrusting and is the predominant host of the silver-lead-zinc mineralization of the Keno Hill district. Four intrusive suites intrude the sedimentary sequence:

- Late Triassic gabbro to diorite sills.
- Early Cretaceous Tombstone granite to granodiorite.
- Mid Cretaceous diabase dykes and sills.
- Upper Cretaceous McQuesten peraluminous porphyritic granite.

The Mississippian Keno Hill Quartzite is composed of a thick Basal Quartzite Member that is overlain by the Sourdough Hill Member. The sequence was metamorphosed to greenschist facies during the Cretaceous. The Basal Quartzite Member is up to 1100 m thick and comprises quartzite interbedded with minor graphitic phyllite and is intruded by Triassic greenstone sills. The Basal Quartzite Member is

the dominant host to the silver mineralization in the Keno Hill Silver District. The overlying Sourdough Hill Member comprises graphitic and sericitic phyllite, chloritic quartz augen phyllite, and thin limestone units. To the south, the Robert Service Thrust Fault separates the Keno Hill Quartzite from the overthrust Upper Proterozoic Hyland Group, which is comprised of predominantly meta-sedimentary chlorite and quartz-rich schist. The Keno Hill Quartzite is intruded by quartz-feldspar aplite sills or dykes that are correlated with the Early Cretaceous intrusive suite found elsewhere in the district.

Three phases of folding are identified in the Keno Hill Silver District. The two earliest phases consist of isoclinal folding with subhorizontal, east- or west-trending fold axes. The later phase consists of a subvertical axial plane and moderate southeast-trending and plunging fold axis. In the Keno Hill Silver District, the first phases of folding formed structurally dismembered isoclinal folds of which the Basal Quartzite Member outlines synforms at Monument Hill where the Lucky Queen mine is located and at Caribou Hill, while the Bellekeno mine and the Flame & Moth prospect are located on the upper limb of a large scale anticline that closes to the north.

Within the Keno Hill Silver District, up to four periods of faulting are recognized. The oldest fault set consists of south-dipping foliation-parallel structures that developed contemporaneously with the first phase folding. The Robert Service Thrust Fault truncates the top of the Keno Hill Quartzite and sets the Precambrian schist of the Yusezyu Formation of the Hyland Group above the Mississippian Sourdough Hill Member of the Keno Hill Quartzite. The mineralization in the Keno Hill Silver District is hosted by a series of northeast-trending pre- and syn- mineral vein faults that display apparent left lateral normal displacement. These are commonly offset by post-mineralization high angle cross faults, low angle faults, and bedding faults. Most commonly, these comprise northwest-striking cross faults that show apparent right-lateral displacement.

### **1.5 Deposit Types and Mineralization**

The Keno Hill Silver District is a polymetallic silver-lead-zinc vein district with characteristics analogous to Kokanee Range (Slocan), British Columbia; Coeur d'Alene, Idaho; Freiberg and the Harz Mountains, Germany; and Příbram, Czech Republic. Common characteristics include the proximity to crustal-scale faults, affecting thick clastic metasedimentary rocks, and intrusion of felsic rocks that may have acted as a heat source driving the hydrothermal system. In the Keno Hill Silver District, the largest accumulation of silver, lead, and zinc minerals occurs in faults in structurally prepared competent rocks.

In general, gangue minerals include manganiferous siderite, minor calcite, and quartz. Silver occurs in argentiferous galena and argentiferous tetrahedrite. In supergene assemblages, silver can be native or in polybasite, stephanite, and pyrargyrite. Lead occurs in galena, and zinc in iron-rich sphalerite. Other sulphides include minor pyrite, arsenopyrite, and chalcopyrite.

At the district scale, the hydrothermal system exhibits sharp lateral mineralogical changes equivocally associated with temperature gradients around magmatic rocks. The hydrothermal veins also exhibit sharp vertical mineralogical zoning, historically interpreted to be lead-rich at the top to more zinc-rich at depth.

### **1.6 Exploration Status**

Most past exploration work in the Keno Hill Silver District was conducted as support to the mining activities until the mines closed in 1989. This historic work involved surface and underground drilling designed to explore areas surrounding the main underground working areas.

The current exploration program conducted by Alexco is the first comprehensive exploration effort in the Keno Hill Silver District since 1997. Alexco has conducted surface diamond drilling programs in the district every year since 2006.

No additional surface drilling has been completed on the Lucky Queen deposit since the independent technical report was published as the intent was to access the orebody and begin development. The updated mineral resource estimate on the Bellekeno deposit incorporated the knowledge gained in the last three years of production and the results of additional underground and surface exploration drilling. The Flame & Moth updated resource estimate incorporated all drilling completed through to the end of 2012.

### **1.7 Development and Operations Status**

Commercial production started at the Bellekeno silver mine on January 1, 2011 and continued at a nominal rate of 250 tpd with some 158,346 tonnes (t) being milled in 2011 and 2012. The average head

grades for this period have been 794 gpt silver, 9.9% lead, and 5.3% zinc. Operations at the site were temporarily suspended at the end of August 2013. The following is an excerpt from Alexco's July 17, 2013 news release.

*"...Alexco has developed a contingency plan to operate through the summer while beginning preparations to undergo a temporary and orderly suspension of operations at the Bellekeno mine and mill prior to the onset of winter. This avoids selling silver at current or weaker market prices, and positions the mine and mill for a re-opening after the winter, assuming the silver market has improved from current levels and underlying fixed costs have been reduced. Alexco plans to use the winter period to significantly restructure the underlying fixed costs at Keno Hill, as well as refine plans for a production ramp-up to 400 tonnes per day in the 2014 -- 2015 time period."*

Readers are referred to the complete text of the July 17, 2013 news release, available on Alexco's website [www.alexcoresource.com](http://www.alexcoresource.com).

This Updated PEA is based on Alexco's plan to resume production in the eastern portion of the Keno Hill Silver District in Q3 of 2015 and it describes mining plans for the Bellekeno and Lucky Queen mines, and the Flame & Moth deposit.

Alexco expects to resume commercial production at the Bellekeno mine in Q3 2015.

The permit and amendments to existing permits required to bring the Lucky Queen deposit into commercial production were received in Q4 2012.

Development of the Lucky Queen deposit began in January 2012 with Alexco re-establishing the existing portal, installing services, and beginning rehabilitation of the existing drift, which was driven in the 1980's by UKHM. Reconditioning of this drift progressed more slowly than planned with a bypass driven in one caved area, and ice occupying much of the 1,000 m length ultimately reconditioned. Despite these setbacks, the reconditioning was advanced to the planned ramp collar location prior to receiving the required permits and underground development began in early November 2012. The project was temporarily suspended in early March 2013, partly due to a need to amend the mining licence to allow storage of waste rock at the site to reduce waste haulage and storage constraints. These amendments have been put in place. The project is planned to resume during Q2 2016 and reach commercial production in Q3 of 2017.

Preliminary mine planning has been completed for the Flame & Moth deposit, and the required mining permit and amendments to existing permits/are expected to be received by the end of Q2, 2015. Earlier in 2014, Alexco began surface preparations including upgrading roads, installing utilities and other services to the site, installation of an office and dry facility and excavation of the portal site. By the end of 2014, Alexco expects to have advanced the Main Lightning Ramp approximately 20m from the portal. Flame and Moth mine is expected to reach commercial production in Q2 of 2016.

Mined tonnes produced from these three mine sites will be trucked to Alexco's nearby 400 tpd mill facility as scheduled in the PEA life-of-mine (LoM) plan. Prior to resuming production, several upgrades will be made to the mill including installation of a second ball mill which was purchased in 2013.

Development of the Onek deposit began in August 2012 with the building of a new road to access the proposed portal collar location, construction of a new haul road, excavation of the portal bench, establishing the ramp face, and the installation of ground support and services. The first ramp round was taken in early November 2012 and underground development began with the goal of reaching the target vein at the 960 elevation. On May 31, 2013, Alexco announced that operations at Onek would be temporarily suspended. Onek is not included in the PEA production plan.

## **1.8 Mineral Resources and Mineral Reserve Estimates**

This PEA technical report is based on mineral resource estimates for three deposits that are part of Alexco's KHSD project:

- Bellekeno deposit;
- Lucky Queen deposit; and
- Flame & Moth deposit.

The mineral resources have been estimated in conformity with the generally accepted CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* (CIM, 2003) and are reported in accordance with the Canadian Securities Administrators' National Instrument 43-101. Mineral resources are not mineral reserves and have not demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

In the opinion of SRK, the resource evaluations reported herein are a reasonable representation of the global polymetallic mineral resources in the Bellekeno and Lucky Queen mines, and Flame & Moth deposit at the current level of sampling.

### 1.8.1 Bellekeno Mineral Resources

The updated Bellekeno Mineral Resource Statement (Table 1.1) presented herein represents the third mineral resource evaluation prepared for the Bellekeno deposit in accordance with the Canadian Securities Administrators' National Instrument 43-101. The mineral resource model was prepared by Alexco personnel under the supervision of a third party consulting geologist David Farrow, BSc (Hons), GDE, PrSciNat, PGeo (BC), of GeoStrat Consulting Services Inc. The model considers 405 core drill holes drilled by Alexco during the period of 2006 to 2012 as well as historical drilling and chip data collection during production both historically and by Alexco. The resource estimation work was completed by Mr. Farrow, a Qualified Person as defined in National Instrument 43-101.

**Table 1.1: Updated Mineral Resource Statement for the Bellekeno Deposit, September 30, 2012**

Class	Tonnes	Ag (gpt)	Pb (%)	Zn (%)
Indicated*	365,000	658	5.3	5.3
Inferred*	243,000	428	4.1	5.1

\* Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates.

\*\* Reported at a cut-off value of C\$185 (US\$1 = C\$1)/t using consensus long term metal prices (US\$) and recoveries of Ag US\$22.50/oz, recovery 96%; Pb US\$ 0.85/lb, recovery 97%; Zn US\$ 0.95/lb, recovery 88%; Ag grades capped at 5,000 gpt.

SRK notes that since the date of the Bellekeno deposit mineral resource statement, Alexco reports actual tonnes processed from the Bellekeno mine of 124,000 t at average grades of 701 gpt silver, 8.3% lead, and 4.3% zinc (from June 1, 2012 to the temporary shutdown on September 1, 2013).

### 1.8.2 Lucky Queen Mineral Resources

The mineral resource estimate for the Lucky Queen deposit was previously prepared by SRK and published in an independent technical report on September 8, 2011 entitled "Technical Report on the Lucky Queen Deposit, Lucky Queen Property, Keno Hill District, Yukon," which is available on SEDAR. The Mineral Resource Statement from this report is restated below.

**Table 1.2: Mineral Resource Statement for the Lucky Queen Deposit, July 27, 2011**

Class	Tonnes	Ag (gpt)	Au (gpt)	Pb (%)	Zn (%)
Indicated*	124,000	1,227	0.17	2.57	1.72
Inferred*	150,000	571	0.16	1.37	0.92

\* Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates.

\*\* Reported at a cut-off value of \$185 (US\$1 = C\$1)/t using long term metal prices (US\$) and recoveries developed for the nearby Bellekeno deposit (Ag US\$18.50/oz, recovery 96%; Pb US\$ 0.90/lb, recovery 97%; Zn US\$ 0.95/lb, recovery 88%; Au US\$ 1,100/oz, recovery 72%). Ag grades capped at 6,300 gpt; Pb capped at 14.8%, Zn capped at 7%, Au grades capped at 2 gpt.

### 1.8.3 Flame & Moth Mineral Resources

The mineral resource estimate for the Flame & Moth deposit was previously prepared by Alexco under the supervision of Mr. Farrow and published in the technical report entitled "Updated Technical Report on the Flame & Moth Deposit, Flame & Moth Property, Keno Hill District, Yukon" (Farrow and McOnie, 2013) on March 15, 2013, which is available on SEDAR. The Mineral Resource Statement from this report is restated below.

**Table 1.3: Mineral Resource Statement for the Flame & Moth Deposit, January 30, 2013**

Class	Tonnes	Ag (gpt)	Au (gpt)	Pb (%)	Zn (%)
Indicated*	1,378,000	516	0.42	1.72	5.70
Inferred*	107,000	313	0.27	0.86	4.21

\* Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates.

\*\* Reported at a cut-off value of \$185 (US\$0.96 = C\$1)/t using consensus long term metal prices (US\$) and recoveries developed for the nearby Bellekeno deposit (Ag US\$24.00/oz, recovery 96%; Pb US\$ 0.85/lb, recovery 97%; Zn US\$ 0.95/lb, recovery 88%; Au US\$ 1,400/oz, recovery 72%). For all veins, Ag grades capped at 3,000 gpt; Pb and Zn capped at 15% and 20%, respectively; Au grades not capped.

#### **1.8.4 Onek Mineral Resources**

A mineral resource for the Onek deposit was prepared by SRK in 2011 and published in a technical report entitled "Technical report on the Onek deposit, Onek Property, Keno Hill District, Yukon" and filed on Sedar. The 2011 mineral resource was re-estimated as part of this report and is restated below in Table 1.4.

**Table 1.4: Mineral Resource Statement for the Onek deposit, SRK Consulting, October 15, 2014**

Class	Tonnes	Ag (gpt)	Au (gpt)	Pb (%)	Zn (%)
Indicated*	654,000	200	0.62	1.29	12.30
Inferred*	234,000	134	0.44	1.24	8.86

\* Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates.

\*\* Reported at a dollar cut-off grade of C\$185.00/t using metal prices (USD) and recoveries of Ag US\$20.00/oz, recovery 96%; Pb US\$ 0.90/lb, recovery 97%; Zn US\$ 0.95/lb, recovery 88%; Au US\$ 1,250/oz, recovery 72%. Confidence in the estimate of Inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure.

#### **1.8.5 Bermingham Mineral Resources**

A mineral resource estimate for the Bermingham deposit was prepared by SRK on August 8, 2012 and published in an independent technical report entitled "Technical Report on the Bermingham Deposit, Bermingham Property, Keno Hill District, Yukon". There has been no additional exploration work on the Bermingham deposit in the resource area since 2012 and the results of the mineral resource estimate are incorporated in this report. The Mineral Resource Statement from this report is restated below in Table 1.5.

**Table 1.5: Mineral Resource Statement for the Bermingham deposit, SRK Consulting, October 15, 2014**

Class	Tonnes	Ag (gpt)	Au (gpt)	Pb (%)	Zn (%)
Indicated*	257,000	460	0.06	2.00	2.10
Inferred*	102,000	372	0.09	1.12	1.83

\* Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates.

\*\* Reported at a dollar cut-off grade of C\$185.00/t using metal prices (USD) and recoveries of Ag US\$20.00/oz, recovery 96%; Pb US\$ 0.90/lb, recovery 97%; Zn US\$ 0.95/lb, recovery 88%; Au US\$ 1,250/oz, recovery 72%. Confidence in the estimate of Inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure.

#### **1.8.6 Mineral Reserves**

This PEA does not support a mineral reserve estimate. The "potentially mineable tonnes" on which the economic evaluation is based include both Indicated and Inferred mineral resources from all three deposits.

## **1.9 Mining**

### **1.9.1 Mine Geotechnical and Hydrogeology**

- The Keno Hill Silver District is known for locally challenging ground conditions that limit the choice of mining methods to fully supported methods with limited spans such as cut and fill and small scale longhole stoping with backfill.
- The Bellekeno mine was in production for close to three years. In that time, Alexco has successfully gained an understanding of the structural context of the deposit, how the ground responds to mining, and the best means of controlling the ground.
- Alexco has developed detailed and effective standards for ground support.
- In all mining areas, weak, wet ground conditions will result in elevated mining risk. Areas exhibiting these conditions will need to be exposed early and dewatered.
- The Flame & Moth deposit is in part situated below the floor of a valley and there is potential for water ingress from faulting, overburden materials, and surface water features.

### **1.9.2 Mining**

- Planned underground mining methods include mechanized cut and fill, and drift and fill, where spans are greater than 7 m, and small scale longhole stoping.
- Net smelter return (NSR) estimates were used as a measure of resource block value.
- All three deposits exhibit good vein continuity after application of cut-off NSR values.
- Nominal production rates are: Bellekeno mine 250 tpd, Lucky Queen 100 tpd, and Flame & Moth 320 to 370 tpd.
- Potentially mineable tonnes total of 812.9 kilotonnes (kt) with average metal grades of 754 gpt silver, 0.40 gpt gold, 2.71% lead, and 4.53% zinc, and an average NSR value of \$398 per tonne (/t).
- The NSR value accounts for the impact of the renegotiated Silver Purchase Agreement with Silver Wheaton Corp. (Amendment No.7).
- Contained silver in potentially mineable tonnes is estimated at 19.7 million ounces.
- The average percentage of Inferred mineral resources in the LoM plan is approximately 6%.
- Estimated average external dilution by deposit is Bellekeno 19%, Lucky Queen 44%, and Flame & Moth 15%.
- The LoM production schedule from July 2015 forward averages 398 tpd for 5.7 years through to March 2021.
- Waste development requirements for 2015 average 8 m/d and peak at 12 m/d in Q3.
- Average advance rates drop through 2016 and stabilize in the 4-6 m/d range from Q1 2017 until Q3 2019.

### **Bellekeno**

- The Bellekeno deposit was being mined by underground methods including mechanized cut and fill and small scale longitudinal retreat longhole incorporating full backfilling.
- Bellekeno potentially mineable tonnes, 11% of LoM plant feed, are estimated at 86 kt with average metal grades of 660 gpt silver, 6.74% lead, and 4.15% zinc, and NSR value of \$381/t.

- The mine reached commercial production at the start of 2011. Operations were temporarily suspended at the end of August 2013. A July 2015 production re-start is planned.

### **Lucky Queen**

- The Lucky Queen deposit requires the use of mechanized cut and fill methods in order to extract the mineral resource due to the average 45 degree (°) dip of the deposit. Cemented rockfill is planned to provide adequate support to the hangingwall.
- Lucky Queen potentially mineable tonnes, which account for 17% of LoM plant feed, are estimated at 142 kt with average metal grades of 1,059 gpt silver, 0.12 gpt gold, 2.40% lead, and 1.42% zinc, and NSR value of \$530/t.
- Based on a Q2 2016 development re-start, the project is expected to begin providing plant feed as of Q4 2016, with commercial production (+70% of its planned production rate) achieved by Q3 2017.

### **Flame & Moth**

- The Flame & Moth deposit can be mined by underground methods incorporating full backfilling without causing surface disturbance that could put the mill at risk.
- Flame & Moth's potentially mineable tonnes, 72% of LoM plant feed, are estimated at 585 kt with average metal grades of 693 gpt silver, 0.52 gpt gold, 2.19% lead, and 5.35% zinc, and NSR value of \$368/t.
- Based on work completed to date in 2014 and forecast development rates, the project is expected to begin providing plant feed in Q4 2015, with commercial production scheduled for Q2 2016.

## **1.10 Mineral Processing**

Metallurgical testwork has been conducted on each of the three deposits independently. Testwork performed from 1996 through 2009 was the basis for the design and construction of Alexco's mill facility in 2010. Results of this testwork have been compared to actual performance in the mill, which has been processing Bellekeno ore since late 2010. Since 2011, samples from Lucky Queen and Flame & Moth mineralization were tested to assess flotation performance only. To date, no testwork has been conducted on a blended sample from any of the three deposits.

As all three deposits appear to follow similar relationships between concentrate grade and recovery versus head grade, this suggests similar mineralogy but at significantly different grades and metal ratios. Mineralogical investigations should be conducted to confirm this assumption.

Testwork results indicated that a primary grind size finer than that currently achieved by the mill facility could increase flotation selectivity, especially for zinc, resulting in higher recoveries and concentrate grades.

The current PEA study assumes the mill facility's production will increase to the design capacity of 400 tpd once the additional ball mill is commissioned in Q1 2015.

The LoM plan is generally based on the mill processing a variable blend of two deposits at a time, first a Bellekeno and Flame & Moth blend, and later a blend of Lucky Queen and Flame & Moth. Flame & Moth represents 72% of the total plant feed.

Relationships between silver, lead, and zinc recovery and head grade were used to estimate the concentrate recoveries for the blends expected in the PEA production plan. In addition, based on the concentrate mass recovery, the grade of minor elements was also estimated on an annual basis for the PEA production plan. These relationships are preliminary in nature and it is SRK's opinion that they need to be verified with metallurgical testwork on actual blended samples.

## **1.11 Environmental and Permitting**

Key environmental and socio-economic considerations associated with this project include water quality, noise/traffic/dust, land/resource use and heritage resources, and community and First Nations relations. Discharges from the underground mines typically have neutral pH levels, but elevated

concentrations of zinc, and sometimes cadmium. Due to the close proximity of this site to the community of Keno City, noise, dust, and traffic have been high profile issues for the project, and are the subject of ongoing discussions with the community. Several specific issues were raised during the *Yukon Environmental and Socio-economic Assessment Act* (YESAA) process, and these will need to be addressed during permitting and the ongoing consultation with the community. Access to and through the site are key issues for the local community. Alexco has signed a comprehensive Cooperation and Benefits Agreement with the First Nation of Na-cho Nyak Dun to address environmental and social issues associated with the project.

The tailings and portions of the waste rock are a potential source of metal leaching. The Bellekeno mine tailings are currently stored in the dry stack tailings facility (DSTF), where they will be covered at closure. Progressive reclamation has already begun on the DSTF and the completed areas of the DSTF have been covered with soil and revegetated. This facility can be expanded to accommodate future production from other new mines (Lucky Queen and Flame & Moth). The Bellekeno underground mine practice was to use uncemented waste rock and a cemented waste rock/tailings blend as backfill. This same practice is planned to continue in future at the Bellekeno mine, but with more effort on utilizing tailings as backfill. A similar strategy is planned for the Flame and Moth deposit, while Lucky Queen requires the use of a cemented rockfill product that will be compacted to provide hangingwall support.

Waste rock generated at Bellekeno (and all of the planned mines) that has a minimal potential for metal leaching/acid rock drainage (ML/ARD) will be used in construction or stored in surface waste rock storage facilities. There are surface storage pads for temporary storage of mineralized waste rock prior to their transport underground for backfilling.

The development of the Flame & Moth deposit will generate relatively large amounts of waste rock in comparison to the Bellekeno mine, and will require a temporary stockpile (waste rock set aside for underground backfill) and a permanent stockpile for excess waste rock (potentially reduced by waste rock used for surface construction projects). Alexco plans to use the majority of the excess waste rock to construct a toe berm for the expansion of the DSTF.

Alexco recently revised its reclamation and closure plan to address the closure liabilities associated with the further development of Bellekeno and Lucky Queen (Alexco, 2012c). As part of the Quartz Mining Licence, the Government of Yukon currently holds \$4.2 million in security for these operations, including the mill area and dry stack facility. This is a reasonable level of security given the current understanding of liabilities at this site. Development of the Flame & Moth deposit may require additional financial security to cover the potential costs of additional liabilities from the site – principally, the expanded DSTF and additional waste rock storage facility. However, Alexco has indicated that the additional costs are likely to be offset by reclamation credits and security that is currently in place but no longer required for Onek. Post closure water treatment is not expected to be required at Flame & Moth.

All of the regulatory approvals required for mining activities associated with the Bellekeno and Lucky Queen deposits are currently in place. The required expansion of the DSTF and the addition of the Flame & Moth development have been reviewed under the YESAA process. YESAB has made a recommendation to the Yukon Government to allow the Project to proceed, subject to a number of specified terms and conditions (YESAB 2014). Pending formal approval, the Flame and Moth development will also require amendments to the Quartz Mining Licence and Water Use Licence, which could take two to three months and six-to nine months respectively from the time of submission. The terms and conditions for the Flame and Moth development, as recommended in the YESAB report include additional water treatment requirements, provision for a liner under the DSTF, additional equipment to reduce noise from the mill area crusher, and increased air quality and noise monitoring and community consultation and mediation to address community concerns regarding air quality and noise related issues.

## **1.12 Capital and Operating Costs**

### **1.12.1 Capital Cost Estimate**

Capital costs have been estimated in 2013 dollars on a quarterly basis for the period from January 1, 2015 to the end of the planned plant feed schedule in Q1 2021. In 2014, Alexco began surface preparations for the Flame and Moth deposit and is expected to complete the portal excavations and first 20m of the Lightning Main Ramp by the end of 2014, these costs are considered as sunk costs. In Q3 2015, production will start, sourced from the Bellekeno mine. The Flame & Moth mine will begin delivering tonnes in Q4 2015. The Lucky Queen mine will begin producing plant feed in Q4 2016, just as Bellekeno production is ending. For the two new mine start-ups, SRK considers commercial production



to have begun in the quarter that 70% of the planned production rate is achieved. This defines the following pre-production periods:

- Q3 2014 through Q1 2016 for the Flame & Moth mine, reaching commercial production in Q2 2016
- Q2 2016 through Q2 2017 for the Lucky Queen mine, reaching commercial production in Q3 2017.

Table 1.6 shows the LoM estimate of total capital. It is important to note that initial capital is distributed in time as defined by the pre-production periods described above. It is not all front-end loaded in the cash flow model.

**Table 1.6: Capital Cost Summary**

Area	Capital Costs (CDN\$x1,000,000)		
	Initial	Sustaining	Total
Silver Wheaton Payment	\$22.5	-	\$22.5
Bellekeno Mine	-	\$5.2	\$5.2
Lucky Queen Mine	\$9.3	\$9.8	\$19.1]
Flame & Moth Mine	\$26.2	\$10.7	\$36.9
Mill	-	\$2.0	\$2.0
Site Services	-	\$0.9	\$0.9
Health & Safety	-	\$0.9	\$0.9
Contingency	\$5.8	\$2.2	\$8.0
<b>Total Capital</b>	<b>\$63.8</b>	<b>[\$31.7]</b>	<b>[\$95.5]</b>

Capital cost estimation work was undertaken as follows:

- Mine capital by SRK, representing more than 90% of the total estimate.
- Mill, site services, and health and safety capital by Alexco with review by SRK.

SRK considers the accuracy of the capital cost estimate components to be at a scoping level.

### **1.12.2 Operating Cost Estimate**

Site operating costs have been estimated in 2013 dollars based on SRK's review of Alexco's 2012 and 2013 operating budgets and on actual reported operating costs for 2011 and 2012. SRK's operating cost estimates reflect Alexco's ongoing and planned initiatives aimed at reducing the site unit operating cost.

These initiatives include:

- Future mine operations including development and production are planned as owner operated (instead of contractor) using Alexco's own equipment and workforce.
- Direct purchasing of new and used equipment for Lucky Queen and Flame & Moth instead of paying contractor monthly rental costs.
- Establishing long term supply contracts with suppliers and eliminating dependence on a contractor to supply basic materials such as ground support, explosives, and other materials.
- Upgrading the mill facility to ensure that it can reliably process 400 tpd.
- Table 1.7 shows the LoM site operating cost estimate. It is based on a LoM plant feed of 812.9 kt as shown in the economic model.

**Table 1.7: LoM Site Operating Cost Summary**

Area	LoM Site	Unit Cost
	Opex (\$M)	(\$/tonne)
Mine	\$127.6	\$157
Mill	\$56.5	\$70
G&A	\$23.0	\$28
<b>LoM Total Site</b>	<b>\$207.1</b>	<b>\$255</b>

SRK's operating cost estimates for the three individual mines are shown in Table 1.8. The tonnes shown in the table exclude tonnes mined during pre-production. The Flame & Moth mine operating cost includes \$8.1 M for equipment lease payments, equivalent to \$14.39/t.

**Table 1.8: Individual Mine Operating Cost Estimates**

Mine	Individual	Operating	Mine
	Mine	Period	Unit Cost
	Opex (\$M)	kt	(\$/tonne)
Bellekeno Mine	\$12.3	85.7	\$143
Lucky Queen	\$32.56	142.2	\$228
Flame & Moth	\$82.9	585.0	\$142
<b>Subtotal Mines</b>	<b>\$127.6</b>	<b>812.9</b>	<b>\$157</b>

### 1.13 Economics

Alexco and Silver Wheaton Corp. (Silver Wheaton) entered into an agreement on October 2, 2008 (the "Silver Purchase Agreement") whereby 25% of all future silver production from Keno Hill Silver District properties owned or controlled by Alexco at the time of the consummation of the Silver Purchase Agreement will be delivered to Silver Wheaton in exchange for a payment of US\$3.90 per ounce (/oz) as well as a payment by Silver Wheaton of US\$50 M in 2009 and 2010 used for development and construction of the Bellekeno mine.

On June 16, 2014, the terms of this agreement were agreed to be altered, subject to as yet unfulfilled terms. The revised agreement becomes effective upon receipt by Silver Wheaton from Alexco a payment of US\$20,000,000. After the payment has been received, the agreement will be modified as follows:

During the period commencing on the earlier of (i) the first date from and after June 16, 2014 that the Owners receive payment or Refined Silver from an Offtaker for Payable Silver pursuant to and in accordance with any Mineral Offtake Agreement, and (ii) the date that is six (6) weeks from when the Mine first produced saleable concentrates at any time after June 16, 2014 (such earlier date being referred to as the "**Re-Commencement Date**"), which date shall be confirmed by way of written notice from the Owners to Silver Wheaton, and ending 10 years from such date (as may be adjusted pursuant to Section 5B) (the "**Fixed Price Amendment Term**"), the definition of "**Fixed Price**" set out at Section 1(nn) of this Agreement shall have the following meaning (with "**Minimum Silver Price**" meaning US\$3.90, subject to increase by one percent annually (compounded) beginning three years after the date of completion of the 400 tonne per day final completion test):

"Fixed Price" means:

- (a) if the Spot Silver Price is less than or equal to US\$19.45, the amount equal to the greater of: (A)  $(US\$18.00 + (\text{Spot Silver Price} - US\$19.45) \times 0.91)$ ; and (B) the Minimum Silver Price; or
- (b) if the Spot Silver Price is greater than US\$19.45, the amount equal to the greater of: (A)  $(US\$18.00 - (\text{Spot Silver Price} - US\$19.45) \times 0.91)$ ; and (B) the Minimum Silver Price.

This PEA is preliminary in nature. Approximately 6% of the "potentially mineable tonnes" disclosed in the mine plans are derived from Inferred mineral resources by the application of a cut-off net smelter return (NSR) value (\$/t), and dilution and mining recovery factors. Inferred mineral resources are

considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that this PEA will be realized.

Inputs to the economic assessment include:

- The terms of the amended Silver Purchase Agreement, Amendment No.7 dated June 16, 2014.
- LoM plant feed of 812.9 kt averaging 754 gpt silver, 0.40 gpt gold, 2.71% lead, and 4.53% zinc.
- The LoM production schedule from January 1, 2015 forward averages 398 tpd through to Q1 2021.
- Average NSR value of plant feed of US\$398/t using the prices and exchange rate listed below.
- Metal prices of US\$18.50/oz silver, US\$1210/oz gold, US\$0.98 per pound (/lb) lead, and US\$1.00/lb zinc.
- Exchange rate of US\$0.89/C\$1.00.
- Payable silver amounting to 17.1 million ounces.
- LoM revenue of US\$321 million (CDN\$361 million);
- A LoM average site operating cost of \$255/t processed comprised of \$157/t mining, \$70/t milling, and \$28/t G&A.
- Capital costs totalling CDN\$95.6 million including a CDN\$22.5 million payment to Silver Wheaton Corp. to finalize Amendment No.7 of the Silver Purchase Agreement.
- Equivalent to CDN\$117/t processed including Amendment No.7 payment, or CDN\$90/t processed excluding the Amendment No.7 payment.

The KHSD project indicative economic results on an after tax basis are:

- Net cash contribution of \$35.7 million.
- Internal rate of return (IRR) of 22.1%.
- Net present value (NPV) (5%) of \$23.3 million.
- Payback period is 3.75 years from January 1, 2015.

SRK notes that the LoM impact of the Silver Purchase Agreement is an undiscounted revenue reduction of \$5.85 million for Alexco.

SRK further notes that the PEA is based on a specifically selected mine sequencing strategy, however there are other possible scenarios for defining an overall production schedule that may warrant further study, particularly if changing metal prices or exploration results alter the mine planning context.

## **1.14 Risks and Opportunities**

### **1.14.1 Risks**

#### **Mining**

- Assessments of ground conditions at Lucky Queen and Flame & Moth are based solely on drill core review.
- As the overall level of extraction increases at the Bellekeno mine, it is likely that some stress induced failures will be encountered.

- Poor ground conditions, associated with a weak and wet rock masses, could increase mining costs and reduce planned extraction at Bellekeno and Lucky Queen.
- There is a possibility of significant water inflow to the planned Flame & Moth underground workings from faulting, overburden materials, and surface water features.
- Poor ground conditions, associated with a weak and wet rock mass, could increase Flame & Moth mining costs and reduce planned extraction.
- Alexco must build up a skilled underground workforce to achieve the planned development and production ramp up in 2015 and 2016. There is a risk that some contractor support could be needed, increasing operating costs.

### **Processing**

- Estimates of plant performance include uncertainty since they are based on metallurgical testwork conducted on unblended samples of grades much higher and lower than the production plan averages.
- No assessment of ball mill grindability has been done for Lucky Queen or Flame & Moth material.
- To date, only one composite sample from Flame & Moth has been tested and the results indicate that the current mill flowsheet could result in poor zinc flotation performance.

### **Environmental and Permitting**

- There is potential for additional post-closure costs related to water treatment at the Bellekeno workings.
- The potential for high groundwater inflows to the Flame & Moth mine could create additional costs related to management and treatment of mine water.
- Development of the Flame & Moth deposit as well as the expansion of the DSTF from the currently permitted size of 322,000 t to a capacity that will accommodate Flame & Moth (estimated at a minimum of 750,000 t) will require additional permitting and possibly environmental assessment. SRK considers this a low risk, and significant delays are not anticipated.

### **Project Economics**

- Unless underlying fixed costs are significantly reduced, project economic results will be significantly impacted by a 15% drop in metal prices below those used in this PEA.
- The KHSD project has relatively high fixed costs related to location, climate, and the fact that operations are spread out over a large area. Overall economic results are closely linked to plant throughput rate. The risk is in maintaining the necessary plant throughput from multiple mines that are characterized by narrow vein mining in locally poor ground conditions.

#### **1.14.2 Opportunities**

### **Mining**

- Depending on the impact of hydrogeology on the Flame & Moth mine plan, there may be an opportunity to achieve more than the 50% planned extraction of the barrier pillars along the Mill fault, and within crown pillar areas. Refer to report Section 0.
- Actual mining experience at Bellekeno mine has yielded more tonnage at a similar grade than predicted by previous versions of the underground mine plan (based on the same resource block model) such that the currently planned mine life could be extended.
- At the Bellekeno mine, the East zone represents an opportunity if economic conditions were to improve, particularly silver and zinc prices higher than the study prices.

- The Flame & Moth underground mine plan should be optimized based on the results of any additional metallurgical testwork and the results of further hydrogeology and mine geotechnical assessments. There may be an opportunity to increase the potentially mineable tonnes.
- Flame & Moth mining shapes are sensitive to the cut-off criteria, and higher metal prices or reduced royalties would increase the potentially mineable tonnes.
- In two of the three deposits there are some potentially mineable tonnes that were excluded from the PEA production plan for various reasons. This excluded tonnage amounts to 143 kt with average metal grades of 517 gpt silver, 3.00% lead, 4.00% zinc, and 0.07 gpt gold, representing a potential future mining opportunity.

### **Processing**

- Additional testing of blended samples representative of the LoM production plan blends and grades may result in better flotation results than the ones estimated in this PEA.
- Additional hardness tests on Lucky Queen and Flame & Moth samples may reveal better grindability than the current expectation. Better ball mill grindability has the potential to decrease power consumption, improve mill throughput, achieve finer flotation feed size and, therefore, higher recoveries and concentrate grades.

### **Project Economics**

- The project is sensitive to higher metal prices. A 20% increase in prices compared to the prices used in the study (silver price of US\$28.80/oz for example) would increase estimated after tax net cash flow by roughly 2.2 times.
- Within the Keno Hill Silver District, Alexco has identified several high grade silver exploration/development targets that represent a pipeline of potential projects. These represent a potential opportunity to sustain a nominal plant feed rate of 400 tpd beyond Q1 2021 (Table 16.23), thus improving the project economics.

## **1.15 Recommendations**

### **Mining**

- Mining sequences, monitoring, and tactical support requirements will need to be evaluated for the later stages of the Bellekeno mine plan.
- Additional hydrogeological and geotechnical evaluation needs to be undertaken at Flame & Moth to assess the impact of the hydrogeology on the proposed mining plan.
- For Flame & Moth, a system of barrier pillars will need to be designed along the Mill fault and below the overburden areas to minimize the potential for water inflow.
- The Lucky Queen underground mine plan should be optimized based on the results of additional metallurgical test results and increased understanding of the geology and geotechnical conditions resulting from planned sill drifting on vein.
- The Flame & Moth underground mine plan should be optimized based on the results of any additional metallurgical testwork and the results of further hydrogeology and mine geotechnical assessments.

### **Processing**

- Further metallurgical testing and mineralogical analysis are recommended on additional samples representing the blends of deposits and expected grades shown in the LoM production plan.
- Additional testwork should also include ball mill grindability, flotation performance, and a range of samples to measure variability.

- Flotation conditions for Flame & Moth zinc concentrate production need to be optimized.
- Testing of additional samples for settling and geochemical characteristics is also warranted.

### **Environmental and Permitting**

- Alexco has already initiated investigations on groundwater conditions at Flame & Moth, and geochemical characterization of waste rock from Flame & Moth. These studies will be important for developing appropriate waste and water management plans for these areas.
- Additional geochemical sampling and testing of both potentially acid or metal leaching and non-acid or metal leaching rock from all of the mines would provide a more robust data set for use in updating future closure plans."

### **Environmental Services**

#### ***General***

The Corporation's environmental services division, AEG, is in the business of managing risk and unlocking value at mature, closed or abandoned sites through integration and implementation of the Corporation's core competencies, which include management of environmental services, implementation of innovative treatment technologies, execution of site reclamation and closure operations, and, if appropriate, rejuvenation of exploration and development activity. The Corporation's principal markets for these services are in Canada, the United States and the Americas, with the Canadian market serviced primarily through AEG Canada and ERDC, the U.S. market through AEG US, and the balance of the Americas through either AEG Canada or AEG US. The Corporation provides its services to a range of industrial sectors, but with a particular focus on current and former mine sites.

The Corporation offers its clients a unique combination of environmental remediation expertise in the area of site reclamation and closure, an ability to manage complex permitting and regulatory programs on a turnkey basis, and strong operations management. In addition, the Corporation seeks to strategically leverage off its environmental services group, accessing opportunities to enhance asset value through effective liability risk management and efficient site operations. This is accomplished through unlocking potential exploration and development opportunities at contaminated or abandoned sites through cost effective and responsible environmental remediation and liability transfer.

The Corporation executes its environmental services business plan by using and applying the intellectual property assets, including the Patents, and the specialized skill sets and knowledge it maintains in-house. While there are a significant number of firms providing environmental services in North America, these assets, skill sets and knowledge provide Alexco with a strong competitive advantage. Consolidated revenue from environmental services for the year ended December 31, 2015 totaled \$14,662,000, compared to \$14,925,000 in 2014, all of which was derived from sales to external unrelated parties. During the year ended December 31, 2015, the Corporation recorded revenues from two customers representing 10% or more of total environmental services revenue, in the amounts of \$4,731,000 and \$2,556,000. During 2014, AEG had two customers representing 10% or more of total revenue, in the amounts of \$4,836,000 and \$4,471,000. AEG's largest single customer is the Government of Canada, with a substantial component of Government revenues earned from the Government of Canada's Aboriginal Affairs and Northern Development Canada.

#### ***Keno Hill Project***

As described above (see "General Development of the Business – Three Year History and Significant Acquisitions"), under the Subsidiary Agreement, Alexco's subsidiary ERDC was retained through the Government Group as a paid contractor responsible on a continuing basis for the environmental care and maintenance and ultimate closure reclamation of the former UKHM Mineral Rights.

Pursuant to the Subsidiary Agreement, ERDC shares the responsibility for the development of the ultimate closure reclamation plan with the Government of Canada, for which it would receive fees of 65% of agreed commercial contractor rates, and this plan development is currently ongoing. Upon acceptance

and regulatory approval, the closure reclamation plan will be implemented by ERDC at full agreed contractor rates. During the period required to develop the plan and until the closure plan is executed, ERDC is also responsible for carrying out the environmental care and maintenance at various sites within the UKHM Mineral Rights, for a fixed annual fee adjusted each year for certain operating and inflationary factors and determined on a site-by-site basis. Under the Subsidiary Agreement, the portion of the annual fee amount so determined which was billable by ERDC in respect of each site reduced by 15% each year until all site-specific care and maintenance activities were replaced by closure reclamation activities; provided however that should a closure reclamation plan be prepared but not accepted and approved, the portion of annual fees billable by ERDC would revert to 85% until the Subsidiary Agreement was either amended or terminated. ERDC receives agreed commercial contractor rates when retained by the Government Group to provide environmental services in the Keno Hill District outside the scope of care and maintenance and closure reclamation planning under the Subsidiary Agreement. As a result of these terms, the Corporation has previously recognized an environmental services contract loss provision to reflect aggregate future losses estimated to be realized with respect to care and maintenance activity during the closure planning phase.

In July 2013, the Corporation executed an amended and restated Subsidiary Agreement, the ARSA, with the Government of Canada. Recognizing that developing the closure reclamation plan is more complicated than originally anticipated, the ARSA provides for the Government of Canada to contribute a higher proportion of those costs than provided for under the Subsidiary Agreement, retroactive to 2009. As a result, included in revenues for AEG for 2013 is \$1,983,000 in one-time retroactive fees. Going forward, ERDC will receive 95% of agreed commercial contractor rates for ongoing development of the closure reclamation plan. Furthermore, with respect to care and maintenance activity during the closure planning phase, the original reducing fee scale is replaced by a fixed fee of \$850,000 per year, representing approximately 50% of estimated fully-billable fees. As a result, included in AEG cost of sales is an \$850,000 reduction in the Corporation's environmental services contract loss provision, partially offset by a \$107,000 increase due to an extension of the estimated date by which the care and maintenance phase will end to August 2018.

### **Social and Environmental Policies**

The Corporation maintains a written Code of Business Conduct and Ethics (the "**Code**"), compliance with which is mandatory for all directors, officers and employees, and the full text of which may be viewed at the Corporation's web site. Included within the Code is a requirement that all directors, officers and employees comply with all laws and governmental regulations applicable to Alexco's activities, including but not limited to maintaining a safe and healthy work environment, promoting a workplace that is free from discrimination or harassment and conducting all activities in full compliance with all applicable environmental laws. All directors, officers and employees are required to certify in writing their acknowledgement of and compliance with the Code, at the time of hiring and at least annually thereafter. A senior executive of the Corporation is formally appointed the role of Company Ethics Officer, responsible for ensuring adherence to the Code, investigating any reported violations, and ensuring appropriate responses, including corrective action and preventative measures, are taken when required.

### **RISK FACTORS**

The following are major risk factors management has identified which relate to the Corporation's business activities. Such risk factors could materially affect the Corporation's future financial results, and could cause events to differ materially from those described in forward-looking statements relating to the Corporation. Though the following are major risk factors identified by management, they do not comprise a definitive list of all risk factors related to the Corporation's business and operations. Other specific risk factors are discussed elsewhere in this AIF, as well as in the Corporation's consolidated financial statements (under the headings "Description of Business and Nature of Operations", "Significant Accounting Policies" and "Financial Instruments" and elsewhere within that document) and in management's discussion and analysis (under the headings "Critical Accounting Estimates" and "Risk Factors" and elsewhere within that document) for its most recently completed financial year, being the year ended December 31, 2015, and its other disclosure documents, all as filed on the SEDAR website at [www.sedar.com](http://www.sedar.com).

## **Negative Cash Flow From Operating Activities**

The Corporation has not yet consistently achieved positive operating cash flow, and there are no assurances that the Corporation will not experience negative cash flow from operations in the future. The Corporation has incurred net losses in the past and may incur losses in the future and will continue to incur losses until and unless it can derive sufficient revenues from its mineral projects. Such future losses could have an adverse effect on the market price of the Corporation's common shares, which could cause investors to lose part or all of their investment.

## **Forward-Looking Statements May Prove Inaccurate**

Readers are cautioned not to place undue reliance on forward-looking statements. By their nature, forward-looking statements involve numerous assumptions, known and unknown risks and uncertainties, of both a general and specific nature, that could cause actual results to differ materially from those suggested by the forward-looking statements. See "Preliminary Notes – Cautionary Statement Regarding Forward-Looking Statements".

## **Dilution**

The Corporation expects to require additional funds to finance its growth and development strategy. If the Corporation elects to raise additional funds by issuing additional equity securities, such financing may substantially dilute the interests of the Corporation's shareholders. The Corporation may also issue additional securities in the future pursuant to existing and new agreements in respect of its projects or other acquisitions and pursuant to existing securities of the Corporation.

## **Amendments to Silver Purchase Agreement with Silver Wheaton**

Certain of the June 16, 2014 amendments to the Silver Purchase Agreement with Silver Wheaton, including the variable production payment based on the spot price of silver, are subject to the Corporation making a US\$20 million payment to Silver Wheaton (see "Three Year History and Significant Acquisitions"). The Corporation will need to raise additional capital to finance this payment. There is no guarantee that the Corporation will be able to raise such additional capital. In the event that the Corporation is unable to raise such additional capital or is otherwise unable to, or elects not to, make such payment, such amendments will not take effect. If the US\$20 million payment is not made, the variable production payment based on the spot price of silver will not be implemented and, to satisfy the completion test under the Silver Purchase Agreement, the Corporation will need to recommence operations on the KHSD Property and operate the mine and mill at 400 tonnes per day on or before December 31, 2017. Both of these outcomes could materially adversely affect the Corporation. If the completion test is not satisfied by December 31, 2017, the Corporation would be required to pay a capacity related refund to Silver Wheaton in the maximum amount of US\$9.75 million. The Corporation would need to raise additional capital to finance the capacity related refund and there is no guarantee that the Corporation will be able to raise such additional capital. In the event that the Corporation cannot raise such additional capital, the Corporation will default under the terms of the Silver Purchase Agreement.

## **Re-Start of Mining Operations at the Bellekeno Deposit**

Mining operations at the Bellekeno deposit were suspended as of early September 2013 as a result of sharp and significant declines in precious metals prices during the second quarter of 2013. Re-start of mining operations is dependent on a number of factors, including sustained improvements in silver markets and the effectiveness of cost structure reduction measures, and the uncertainties around the achievement of these factors are significant. There is no guarantee that these factors will be achieved or that and mining operations will re-start.

## **Exploration, Evaluation and Development**

Mineral exploration, evaluation and development involves a high degree of risk and few properties which are explored are ultimately developed into producing mines. With respect to the Corporation's properties, should any ore reserves exist, substantial expenditures will be required to confirm ore reserves which are



sufficient to commercially mine, and to obtain the required environmental approvals and permitting required to commence commercial operations. Should any mineral resource be defined on such properties there can be no assurance that the mineral resource on such properties can be commercially mined or that the metallurgical processing will produce economically viable and saleable products. The decision as to whether a property contains a commercial mineral deposit and should be brought into production will depend upon the results of exploration programs and/or technical studies, and the recommendations of duly qualified engineers and/or geologists, all of which involves significant expense. This decision will involve consideration and evaluation of several significant factors including, but not limited to: (1) costs of bringing a property into production, including exploration and development work, preparation of appropriate technical studies and construction of production facilities; (2) availability and costs of financing; (3) ongoing costs of production; (4) market prices for the minerals to be produced; (5) environmental compliance regulations and restraints (including potential environmental liabilities associated with historical exploration activities); and (6) political climate and/or governmental regulation and control.

The ability of the Corporation to sell, and profit from the sale of any eventual production from any of the Corporation's properties will be subject to the prevailing conditions in the marketplace at the time of sale. Many of these factors are beyond the control of the Corporation and therefore represent a market risk which could impact the long term viability of the Corporation and its operations.

**Figures for the Corporation's Resources are Estimates Based on Interpretation and Assumptions and May Yield Less Mineral Production Under Actual Conditions than is Currently Estimated**

In making determinations about whether to advance any of its projects to development, the Corporation must rely upon estimated calculations as to the mineral resources and grades of mineralization on its properties. Until ore is actually mined and processed, mineral resources and grades of mineralization must be considered as estimates only. Mineral resource estimates are imprecise and depend upon geological interpretation and statistical inferences drawn from drilling and sampling which may prove to be unreliable. Alexco cannot be certain that:

- reserve, resource or other mineralization estimates will be accurate; or
- mineralization can be mined or processed profitably.

Any material changes in mineral resource estimates and grades of mineralization will affect the economic viability of placing a property into production and a property's return on capital. The Corporation's resource estimates have been determined and valued based on assumed future prices, cut-off grades and operating costs that may prove to be inaccurate. Extended declines in market prices for silver, gold, lead, zinc and other commodities may render portions of the Corporation's mineralization uneconomic and result in reduced reported mineral resources.

**Keno Hill District**

While the Corporation has conducted exploration activities in the Keno Hill District, further review of historical records and/or additional exploration and geological testing will be required to determine whether any of the mineral deposits it contains are economically recoverable. There is no assurance that such exploration and testing will result in favourable results. The history of the Keno Hill District has been one of fluctuating fortunes, with new technologies and concepts reviving the District numerous times from probable closure until 1989, when it did ultimately close down for a variety of economic and technical reasons. Many or all of these economic and technical issues will need to be addressed prior to the commencement of any future production on the Keno Hill properties.

**Mining Operations**

Decisions by the Corporation to proceed with the construction and development of mines, including Bellekeno, are based on development plans which include estimates for metal production and capital and operating costs. Until completely mined and processed, no assurance can be given that such estimates will be achieved. Failure to achieve such production and capital and operating cost estimates or material

increases in costs could have an adverse impact on the Corporation's future cash flows, profitability, results of operations and financial condition. The Corporation's actual production and capital and operating costs may vary from estimates for a variety of reasons, including: actual resources mined varying from estimates of grade, tonnage, dilution and metallurgical and other characteristics; short-term operating factors, such as the need for sequential development of resource bodies and the processing of new or different resource grades; revisions to mine plans; risks and hazards associated with mining; natural phenomena, such as inclement weather conditions, water availability, floods fire, rock falls and earthquakes, equipment failure and failure of retaining dams around tailings disposal areas which may result in, among other adverse effects, environmental pollution and consequent liability; and unexpected labour shortages or strikes. Costs of production may also be affected by a variety of factors, including changing waste ratios, metallurgical recoveries, labour costs, commodity costs, general inflationary pressures and currency rates. In addition, the risks arising from these factors are further increased while any such mine is progressing through the ramp-up phase of its operations and has not yet established a consistent production track record. See also "Re-Start of Mining Operations at the Bellekeno Deposit" above

### **Employee Recruitment and Retention**

Recruitment and retention of skilled and experienced employees is a challenge facing the mining sector as a whole. During the late 1990s and early 2000s, with unprecedented growth in the technology sector and an extended cyclical downturn in the mining sector, the number of new workers entering the mining sector was depressed and significant number of existing workers departed, leading to a so-called "generational gap" within the industry. Since the mid-2000s, this factor was exacerbated by competitive pressures as the mining sector experienced an extended cyclical upturn. Additional exacerbating factors specific to Alexco include competitive pressures in labour force demand from the oil sands sector in northern Alberta and the mining and oil & gas sectors in British Columbia, and the fact that Alexco's Keno Hill District is a fly-in/fly-out operation. Alexco has experienced employee recruitment and retention challenges, particularly with respect to mill operators in 2011 and through the first three quarters of 2012. There can be no assurance that such challenges won't continue or resurface, not only with respect to the mill but in other District operational areas as well including mining and exploration. Furthermore, any re-start of mining operations will necessitate the re-hiring of mine and mill personnel.

### **Permitting and Environmental Risks and Other Regulatory Requirements**

The current or future operations of the Corporation, including development activities, commencement of production on its properties and activities associated with the Corporation's mine reclamation and remediation business, require permits or licenses from various federal, territorial and other governmental authorities, and such operations are and will be governed by laws, regulations and agreements governing prospecting, development, mining, production, taxes, labour standards, occupational health, waste disposal, toxic substances, land use, environmental protection, mine safety and other matters. Companies engaged in the development and operation of mines and related facilities and in mine reclamation and remediation activities generally experience increased costs and delays as a result of the need to comply with the applicable laws, regulations and permits. There can be no assurance that all permits and permit modifications which the Corporation may require for the conduct of its operations will be obtainable on reasonable terms or that such laws and regulations would not have an adverse effect on any project which the Corporation might undertake, including but not limited to the Bellekeno mine project.

Any failure by the Corporation to comply with applicable laws, regulations and permitting requirements may result in enforcement actions including orders issued by regulatory or judicial authorities causing operations to cease or be curtailed, and may include corrective measures requiring capital expenditures, installation of additional equipment or remedial actions. against the Corporation. The Corporation may be required to compensate those suffering loss or damage by reason of the Corporation's mining operations or mine reclamation and remediation activities and may have civil or criminal fines or penalties imposed upon it for violation of applicable laws or regulations.

Amendments to current laws, regulations and permits governing operations and activities of mining companies and mine reclamation and remediation activities could have a material adverse impact on the

Corporation. As well, policy changes and political pressures within and on federal, territorial and First Nation governments having jurisdiction over or dealings with the Corporation could change the implementation and interpretation of such laws, regulations and permits, also having a material adverse impact on the Corporation. Such impacts could result in one or more of increases in capital expenditures or production costs, reductions in levels of production at producing properties or abandonment or delays in the development of new mining properties.

### **Environmental Services**

A material decline in the level of activity or reduction in industry willingness to spend capital on mine reclamation, remediation or environmental services could adversely affect demand for AEG's environmental services. Likewise, a material change in mining product commodity prices, the ability of mining companies to raise capital or changes in domestic or international political, regulatory and economic conditions could adversely affect demand for AEG's services.

Two of AEG's customers accounted for 32.3% and 17.4%, respectively, of environmental services revenues in the 2015 fiscal year. The loss of, or a significant reduction in the volume of business conducted with, either of these customers could have a significant detrimental effect on AEG's environmental services business and the Corporation.

The patents which the Corporation owns or has access to or other proprietary technology may not prevent AEG's competitors from developing substantially similar technology, which may reduce AEG's competitive advantage. Similarly, the loss of access to any of such patents or other proprietary technology or claims from third parties that such patents or other proprietary technology infringe upon proprietary rights which they may claim or hold would be detrimental to AEG's reclamation and remediation business and a material adverse impact on the Corporation.

AEG may not be able to keep pace with continual and rapid technological developments that characterize the market for AEG's environmental services, and AEG's failure to do so may result in a loss of its market share. Similarly, changes in existing regulations relating to mine reclamation and remediation activities could require AEG to change the way it conducts its business.

AEG is dependent on the professional skill sets of its employees, some of whom would be difficult to replace. The loss of any such employees could significantly affect AEG's ability to service existing clients, its profitability and its ability to grow its business.

### **Potential Profitability of Mineral Properties Depends Upon Factors Beyond the Control of the Corporation**

The potential profitability of mineral properties is dependent upon many factors beyond the Corporation's control. For instance, world prices of and markets for gold, silver, lead and zinc are unpredictable, highly volatile, potentially subject to governmental fixing, pegging and/or controls and respond to changes in domestic, international, political, social and economic environments. Another factor is that rates of recovery may vary from the rate experienced in tests and a reduction in the recovery rate will adversely affect profitability and, possibly, the economic viability of a property. Profitability also depends on the costs of operations, including costs of labour, materials, equipment, electricity, environmental compliance or other production inputs. Such costs will fluctuate in ways the Corporation cannot predict and are beyond the Corporation's control, and such fluctuations will impact on profitability and may eliminate profitability altogether. Additionally, due to worldwide economic uncertainty, the availability and cost of funds for development and other costs have become increasingly difficult, if not impossible, to project. These changes and events may materially affect the financial performance of the Corporation.

### **First Nation Rights and Title**

The nature and extent of First Nation rights and title remains the subject of active debate, claims and litigation in Canada, including in the Yukon and including with respect to intergovernmental relations between First Nation authorities and federal, provincial and territorial authorities. There can be no guarantee that such claims will not cause permitting delays, unexpected interruptions or additional costs

for the Corporation's projects. These risks may have increased after the Supreme Court of Canada decision of June 26, 2014 in *Tsilhqot'in Nation v. British Columbia*.

### **Title to Mineral Properties**

The acquisition of title to mineral properties is a complicated and uncertain process. The properties may be subject to prior unregistered agreements of transfer or land claims, and title may be affected by undetected defects. . Although the Corporation has made efforts to ensure that legal title to its properties is properly recorded in the name of the Corporation, there can be no assurance that such title will ultimately be secured. As a result, the Corporation be constrained in its ability to operate its mineral properties or unable to enforce its rights with respect to its mineral properties. An impairment to or defect in the Corporation's title to its mineral properties would adversely affect the Corporation' business and financial condition.

### **Capitalization and Commercial Viability**

The Corporation will require additional funds to further explore, develop and mine its properties. The Corporation has limited financial resources, and there is no assurance that additional funding will be available to the Corporation to carry out the completion of all proposed activities, for additional exploration or for the substantial capital that is typically required in order to place a property into commercial production. Although the Corporation has been successful in the past in obtaining financing through the sale of equity securities, there can be no assurance that the Corporation will be able to obtain adequate financing in the future or that the terms of such financing will be favourable. Failure to obtain such additional financing could result in the delay or indefinite postponement of further exploration and development of its properties.

### **General Economic Conditions May Adversely Affect the Corporation's Growth and Profitability**

The unprecedented events in global financial markets since 2008 have had a profound impact on the global economy and led to increased levels of volatility. Many industries, including the mining industry, are impacted by these market conditions. Some of the impacts 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 currency exchange and precious metal markets, and a lack of market liquidity. If the current turmoil and volatility levels continue they may adversely affect the Corporation's growth and profitability. Specifically:

- a global credit/liquidity or foreign currency exchange crisis could impact the cost and availability of financing and the Corporation's overall liquidity;
- the volatility of silver and other commodity prices would impact the Corporation's revenues, profits, losses and cash flow;
- volatile energy prices, commodity and consumables prices and currency exchange rates would impact the Corporation's operating costs; and
- the devaluation and volatility of global stock markets could impact the valuation of the Corporation's equity and other securities.

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

### **Operating Hazards and Risks**

In the course of exploration, development and production of mineral properties, certain risks, particularly including but not limited to unexpected or unusual geological operating conditions including rock bursts, cave-ins, fires, flooding and earthquakes, may occur. It is not always possible to fully insure against such risks and the Corporation may decide not to insure against such risks as a result of high premiums or

other reasons. Should such liabilities arise, they could reduce or eliminate any future profitability and result in increasing costs and a decline in the value of the securities of the Corporation.

Adverse weather conditions could also disrupt the Corporation's environmental services business and/or reduce demand for the Corporation's services.

### **Competition**

Significant and increasing competition exists for mining opportunities internationally. There are a number of large established mining companies with substantial capabilities and far greater financial and technical resources than the Corporation. The Corporation may be unable to acquire additional attractive mining properties on terms it considers acceptable and there can be no assurance that the Corporation's exploration and acquisition programs will yield any reserves or result in any commercial mining operation.

### **Certain of the Corporation's Directors and Officers are Involved with Other Natural Resource Companies, Which May Create Conflicts of Interest from Time to Time**

Some of the Corporation's directors and officers are directors or officers of other natural resource or mining-related companies. These associations may give rise to conflicts of interest from time to time. As a result of these conflicts of interest, the Corporation may miss the opportunity to participate in certain transactions.

### **The Corporation May Fail to Maintain Adequate Internal Control Over Financial Reporting Pursuant to the Requirements of the Sarbanes-Oxley Act.**

Section 404 of the Sarbanes-Oxley Act ("**SOX**") requires an annual assessment by management of the effectiveness of the Corporation's internal control over financial reporting. The Corporation may fail to maintain the adequacy of its internal control over financial reporting as such standards are modified, supplemented or amended from time to time, and the Corporation may not be able to ensure that it can conclude, on an ongoing basis, that it has effective internal control over financial reporting in accordance with Section 404 of SOX. The Corporation's failure to satisfy the requirements of Section 404 of SOX on an ongoing, timely basis could result in the loss of investor confidence in the reliability of its financial statements, which in turn could harm the Corporation's business and negatively impact the trading price or the market value of its securities. In addition, any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm the Corporation's operating results or cause it to fail to meet its reporting obligations. Future acquisitions of companies, if any, may provide the Corporation with challenges in implementing the required processes, procedures and controls in its acquired operations. No evaluation can provide complete assurance that the Corporation's internal control over financial reporting will detect or uncover all failures of persons within the Corporation to disclose material information otherwise required to be reported. The effectiveness of the Corporation's processes, procedures and controls could also be limited by simple errors or faulty judgments. Although the Corporation intends to expend substantial time and incur substantial costs, as necessary, to ensure ongoing compliance, there is no certainty that it will be successful in complying with Section 404 of SOX.

### **DIVIDENDS**

The Corporation has not paid any dividends on its common shares since its incorporation. Any decision to pay dividends on common shares in the future will be made by the board of directors on the basis of the earnings, financial requirements and other conditions existing at such time.

### **DESCRIPTION OF CAPITAL STRUCTURE**

The authorized capital of the Corporation consists of an unlimited number of common shares, without par value.

There are no special rights or restrictions of any nature attached to any of the common shares, which all rank equally as to all benefits which might accrue to the holders of the common shares.

## MARKET FOR SECURITIES

### Trading Price and Volume

The common shares of the Corporation are listed and posted for trading on the Toronto Stock Exchange (the “**TSX**”) under the symbol “AXR”, and on the NYSE MKT Equities Exchange (the “**NYSE MKT**”) under the symbol “AXU”. The following tables set forth the market price range and trading volumes of the Corporation’s common shares on each of the TSX and NYSE MKT for the periods indicated.

#### TSX

<b>Period</b>	<b>Volume</b>	<b>High (C\$)</b>	<b>Low (C\$)</b>
December 2015	1,554,400	\$0.53	\$0.43
November 2015	740,600	\$0.65	\$0.45
October 2015	505,600	\$0.68	\$0.53
September 2015	1,079,100	\$0.65	\$0.40
August 2015	966,500	\$0.49	\$0.39
July 2015	1,199,700	\$0.48	\$0.38
June 2015	677,000	\$0.61	\$0.41
May 2015	1,110,100	\$0.66	\$0.45
April 2015	1,460,100	\$0.52	\$0.39
March 2015	1,919,400	\$0.55	\$0.35
February 2015	855,500	\$0.68	\$0.52
January 2015	1,884,400	\$0.81	\$0.57

#### NYSE MKT

<b>Period</b>	<b>Volume</b>	<b>High (US\$)</b>	<b>Low (US\$)</b>
December 2015	3,044,400	\$0.41	\$0.31
November 2015	2,416,100	\$0.50	\$0.33
October 2015	2,866,500	\$0.52	\$0.40
September 2015	3,832,100	\$0.49	\$0.30
August 2015	2,865,700	\$0.38	\$0.30
July 2015	3,375,800	\$0.37	\$0.29
June 2015	2,762,400	\$0.48	\$0.33
May 2015	3,151,100	\$0.55	\$0.40
April 2015	3,594,300	\$0.44	\$0.31
March 2015	6,751,700	\$0.44	\$0.26
February 2015	4,020,500	\$0.55	\$0.42
January 2015	6,508,300	\$0.68	\$0.48

### Securities Not Listed or Quoted

The only classes of securities of the Corporation that are not listed or quoted on a marketplace are stock options, restricted shares units (“RSU”) and broker warrants. During the year ended December 31, 2015, 1,341,000 stock options, 135,000 RSUs and 368,063 warrants were issued.

## DIRECTORS AND OFFICERS

### Name, Occupation and Security Holding

The name, province or state, country of residence, position or office held with the Corporation and principal occupation during the past five years of each director and executive officer of the Corporation as at December 31, 2015 and as at the date hereof are described as follows:

Name and Address <sup>(1)</sup>	Office or Position Held	Principal Occupation During the Past Five Years	Previous Service as a Director
Clynton R. Nauman Washington, USA	President, Chief Executive Officer and Director <sup>(4)</sup>	President and Chief Executive Officer of the Corporation, since December 2004.	Since December 3, 2004
Michael Winn California, USA	Chairman and Director <sup>(2)(3)(5)</sup>	President of Seabord Capital Corp., providing investment analysis and financial services to companies in the oil & gas, mining and energy sectors, since January 2013; President of Terraresearch Inc., a consulting company providing analysis on mining and energy companies, from 1997 through 2012.	Since January 11, 2005
Rick Van Nieuwenhuysse British Columbia, Canada	Director <sup>(3)(4)</sup>	President and Chief Executive Officer of NovaCopper Inc., a mineral exploration and development company, since November 2011; President and Chief Executive Officer of NovaGold Resources Inc., a mineral exploration and development company, from May 1999 to November 2011.	Since January 11, 2005
Terry Krepiakovich British Columbia, Canada	Director <sup>(2)(3)(5)</sup>	Member of the Board of Directors of several publicly-listed and private companies since July 2011; Chief Financial Officer of SouthGobi Resources Ltd., a mining company, from June 2006 to July 2011.	Since July 22, 2009
Richard N. Zimmer British Columbia, Canada	Director <sup>(2)(4)(5)</sup>	Member of the Board of Directors of several publicly-listed and private companies since June 2011; President and Chief Executive Officer of Far West Mining Ltd., a mining company, from 2008 to June 2011.	Since May 2, 2012
Bradley Thrall Washington, USA	Executive Vice President and Chief Operating Officer	Chief Operating Officer of the Corporation, since December 2004.	N/A
Michael Clark British Columbia, Canada	Chief Financial Officer, Corporate Secretary and Company Ethics Officer	Chief Financial Officer of the Corporation, since December 2014.	N/A
Alan McOnie Bay of Plenty, New Zealand	Vice President, Exploration	Vice President, Exploration of the Corporation, since December 2010; consulting geologist from 2002 to December 2010.	N/A

(1) The information as to the jurisdiction of residence and principal occupation, not being within the knowledge of the Corporation, has been furnished by the respective individuals individually.

(2) Member of the Audit Committee.

(3) Member of the Nominating & Corporate Governance Committee.

(4) Member of the Environmental, Health, Safety & Technical Committee.

(5) Member of the Compensation Committee.

Each of the Corporation's directors is elected by the Corporation's shareholders at an annual meeting to serve until the next annual meeting of shareholders or until a successor is elected or appointed. The board of directors appoints the Corporation's executive officers annually after each annual meeting, to serve at the discretion of the board of directors.

Based on information provided by such persons, as at the date hereof the directors and executive officers of the Corporation as a group beneficially owned, directly or indirectly, or exercised control or direction

over, an aggregate of 4,540,223 common shares of the Corporation (including 1,940,299 shares owned by ALM Investments ULC (formerly Asset Liability Management Group ULC), a company controlled by Mr. Nauman), representing approximately 6% of the issued and outstanding common shares of the Corporation. In addition, the directors and executive officers of the Corporation as a group held stock options for the purchase of an aggregate of 2,227,500 common shares in the capital of the Corporation, representing approximately 50% of all outstanding options. In addition, the directors and executive officers of the Corporation as a group held RSUs that can be settled by way of shares issued from treasury for a further 241,667 common shares.

### **Cease Trade Orders, Bankruptcies, Penalties or Sanctions**

To the knowledge of the Corporation, none of the Corporation's directors or executive officers is, as at the date of this AIF, or has been, within ten years before the date of this AIF, a director, chief executive officer or chief financial officer of any Corporation (including the Corporation) that:

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

“**Order**” means a cease trade order, an order similar to a cease trade order, or an order that denied the relevant Corporation access to any exemption under securities legislation and, in each case, that was in effect for a period of more than 30 consecutive days.

None of the Corporation's directors or executive officers or, to the Corporation's knowledge, any shareholder holding a sufficient number of securities of the Corporation to affect materially the control of the Corporation:

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

### **Conflicts of Interest**

The directors of the Corporation are required by law to act honestly and in good faith with a view to the best interest of the Corporation and to disclose any interests which they may have in any project or opportunity of the Corporation. If a conflict of interest arises at a meeting of the board of directors, any director in a conflict will disclose his interest and abstain from voting on such matter. In determining



whether or not the Corporation will participate in any project or opportunity, that director will primarily consider the degree of risk to which the Corporation may be exposed and its financial position at that time.

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

The directors and officers of the Corporation are aware of the existence of laws governing accountability of directors and officers for corporate opportunity and requiring disclosures by directors of conflicts of interest and the Corporation relies 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. Such directors or officers in accordance with the *Business Corporations Act* (British Columbia) are required to disclose all such conflicts and to govern themselves in respect thereof to the best of their ability in accordance with the obligations imposed upon them by law.

## **AUDIT COMMITTEE INFORMATION**

### **Audit Committee Charter**

The following is the text of the Audit Committee's Charter:

#### **GENERAL**

The primary function of the Audit Committee, under the supervision of the Board, is to assist the Board in fulfilling its oversight responsibilities regarding the integrity of the Company's accounting and financial reporting processes and provision of financial information to the shareholders and others, the systems of internal controls and disclosure controls, the Company's internal and external audit process, the Company's policies with regard to ethics and business practices, and monitoring compliance with the Company's legal and regulatory requirements with respect to its financial statements.

The Audit Committee is accountable to the Board. In the course of fulfilling its specific responsibilities hereunder, the Audit Committee is expected to maintain open communications between the Company's external auditor, senior management and the Board.

The Audit Committee does not plan or perform audits or warrant or attest to the accuracy or completeness of the Company's financial statements or financial disclosure or compliance with generally accepted accounting procedures as these are the responsibilities of management and the external auditor.

#### **COMPOSITION**

The Audit Committee shall be comprised of at least three directors, who generally shall be appointed or confirmed by the Board annually. The Chair of the Audit Committee shall be appointed by the Board, failing which the members of the Audit Committee may designate a Chair by a majority vote of the full Audit Committee membership. All members of the Audit Committee shall be directors and shall meet the independence, financial literacy and experience requirements under applicable laws, rules and regulations binding on the Company from time to time, including without limitation the applicable rules of any stock exchanges upon which the Company's shares are listed and the requirements for independence and financial literacy under National Instrument 52-110 *Audit Committees* ("NI 52-110") in Canada, Section 803A of the NYSE Amex Company Guide and Rule 10A-3 of the United States Securities Exchange Act of 1934, as amended (the "Exchange Act"). Furthermore, at least one member of the Audit Committee shall qualify as a "financial expert" as such term is defined in Item 407 of Regulation S-K under the Exchange Act.

## **PROCEDURAL MATTERS**

The Audit Committee:

- (a) Shall meet at least four times per year on a quarterly basis, either by telephone conference or in person. Any member of the Audit Committee may call such a meeting. A majority of the members appointed to the Audit Committee shall constitute a quorum. For clarity, quorum may be reached in person, or by telephone, video conference, or other communication facilities acceptable to the Board. Matters decided by the Audit Committee shall be decided by majority votes, and the Chair of the Audit Committee shall only have an ordinary vote with no additional tie-breaking powers.
- (b) May invite the Company's external auditor, the CFO, and such other persons as deemed appropriate by the Audit Committee to attend meetings of the Audit Committee. As part of its mandate to foster open communication, the Audit Committee shall meet at least annually with the CFO and the external auditor in separate sessions, and to that end the Audit Committee generally shall have as a standing agenda item an in-camera meeting with the external auditors for any meeting at which they attend.
- (c) Shall report material decisions and actions of the Audit Committee to the Board, together with such recommendations as the Audit Committee may deem appropriate, at the next Board meeting.
- (d) Shall review the performance of the Audit Committee on an annual basis and report the results of such review to the Nominating & Corporate Governance Committee.
- (e) Shall review and assess this Charter for the Audit Committee at least annually and submit any proposed revisions to the Board for approval.
- (f) Has the power to conduct or authorize investigations into any matter within the scope of its responsibilities. The Audit Committee has the right to engage independent counsel and other advisors as it determines necessary to carry out its duties, and the right to set and pay, without restriction, the compensation for any such counsel or advisors engaged by the Audit Committee.
- (g) Has the right to communicate directly with the CFO and other members of management who have responsibility for the audit process ("**Internal Audit Management**"), as well as directly with the external auditor.
- (h) Has the right to require payment of (i) compensation to any external auditor engaged for the purpose of preparing or issuing an audit report or performing audit, review or attest services for the Company and (ii) all ordinary expenses of the Audit Committee that are necessary or appropriate in carrying out its duties.

## **RESPONSIBILITIES**

Subject to the powers and duties of the Board, the Board hereby delegates to the Audit Committee the following powers and duties to be performed by the Audit Committee on behalf of and for the Board.

### *Financial Reporting, Accounting and Financial Management*

The Audit Committee has primary responsibility for overseeing the actions of management in all aspects of financial management and reporting. The Audit Committee shall:

- (a) Review and recommend to the Board for approval the Company's annual and interim financial statements, annual and interim Management's Discussion and Analysis, Annual Information Form, annual report filed pursuant to the Exchange Act on Form 20-F (or such other form as may apply), future-oriented financial information or pro-forma information, and other financial disclosure in continuous disclosure documents, including within any annual or interim profit or loss press releases, and any certification, report, opinion or review rendered by the external auditor, before the Company publicly discloses such information. (See also "*Interim Financial Statements*" below.)

- (b) Ensure that it is satisfied that adequate procedures are in place for the review of the Company's public disclosure of financial information extracted or derived from the Company's financial statements (other than public disclosure referred to in subsection (a) immediately above) and periodically assess the adequacy of those procedures as necessary.
- (c) Review material financial risks with management, the plan that management has implemented to monitor and deal with such risks, and the success of management in following the plan.
- (d) Consult annually and otherwise as required with the Company's CEO and CFO respecting the adequacy of the internal controls and review any breaches or deficiencies.
- (e) Review as necessary the process with regard to certifications, and ensure certifications by the CEO and CFO attesting to disclosure controls and procedures and internal control over financial reporting are obtained and filed as required under National Instrument 52-109 *Certification of Disclosure In Issuers' Annual and Interim Filings* and the Exchange Act in connection with the Company's annual and interim financial reporting filings.
- (f) Review management's response to significant written reports and recommendations issued by the external auditor and the extent to which such recommendations have been implemented by management. Review such responses with the external auditor as necessary.
- (g) Review with management the Company's compliance with applicable laws and regulations respecting financial matters.
- (h) Review with management proposed regulatory changes and their impact on the Company.
- (i) Review with management and approve public disclosure of the Audit Committee Charter.

*External Auditor*

The Audit Committee has primary responsibility for the selection, appointment, dismissal, compensation and oversight of the external auditor, subject to the overall approval of the Board. For this purpose, the Audit Committee may consult with management, but the external auditor shall report directly to the Audit Committee. The specific responsibilities of the Audit Committee with regard to the external auditor are to:

- (a) Recommend to the Board annually:
  - (i) the external auditor to be nominated (whether the current external auditor or a suitable alternative) for the purpose of preparing or issuing an auditor's report or performing other audit, review, or attest services for the Company; and
  - (ii) the compensation of the external auditor.
- (b) Oversee the work of the external auditor engaged for the purpose of preparing or issuing an auditor's report or performing other audit, review or attest services for the Company.
- (c) Resolve disagreements, if any, between management and the external auditor regarding financial reporting. To resolve such disagreements, the Audit Committee shall query management and the external auditor and take other steps as necessary. The Audit Committee shall provide the Board with such recommendations and reports with respect to the financial statements of the Company as it deems advisable.
- (d) Take reasonable steps to confirm the independence of the external auditor, including but not limited to ensuring receipt from the external auditor of a formal written statement delineating all relationships between the external auditor and the Company, actively engaging in a dialogue with the auditor with respect to any disclosed relationship or services and pre-approving any non-audit related services provided by the external auditor to the Company or the Company's subsidiaries, if any, with a view to ensuring

independence of the auditor. If necessary, recommend to the Board to take appropriate corrective action to ensure the independence of the external auditor.

- (e) Review and pre-approve all audit and audit-related services and the fees related thereto, provided by the Company's external auditor.
- (f) Review and pre-approve all non-audit services to be performed by the Company's external auditor in accordance with any applicable regulatory requirements, including but not limited to NI 52-110, the Exchange Act and the requirements of any stock exchange upon which the Company's shares are listed. The Audit Committee may delegate pre-approval authority for non-audit services to one or more independent members of the Audit Committee provided that any such pre-approval decisions must be presented to the full Audit Committee at its next meeting thereafter. The Audit Committee may also satisfy this pre-approval requirement if it first adopts specific policies and procedures respecting same in accordance with NI 52-110 such that the pre-approval policies and procedures are detailed as to the particular service, the Audit Committee is informed of each such non-audit service, and the procedures do not include delegation of the Audit Committee's responsibilities to management.
- (g) Obtain from the external auditor confirmation that the external auditor is a 'participating audit' firm for the purpose of National Instrument 52-108 *Auditor Oversight* and is registered with the Public Company Accounting Oversight Board in the United States, and is otherwise in compliance with all applicable governing regulations.
- (h) Review and evaluate the performance of the external auditor.
- (i) Review and approve the Company's hiring policies regarding partners, employees and former partners and employees of the Company's present and former external auditors.

#### *Audit and Financial Reporting Process*

The Audit Committee has a duty to receive, review and make any inquiry regarding the completeness, accuracy and presentation of the Company's financial statements to ensure that the financial statements fairly present the financial position and risks of the organization and are prepared in accordance with the applicable generally accepted accounting principles. To accomplish this, the Audit Committee shall:

- (a) Review at least annually the Company's internal system of audit and financial controls, internal audit procedures and results of such audits, and receive regular, generally quarterly, updates from management on such controls, procedures and audit activities.
- (b) Prior to the annual audit by the external auditor, consider the scope and general extent of the external auditor's review, including its engagement letter. Review with management the external auditor's audit plan and intended template for financial statements.
- (c) Ensure the external auditor has full, unrestricted access to required information and has the cooperation of management.
- (d) Review with the external auditor, in advance of the audit, the audit process and standards, as well as regulatory or Company-initiated changes in accounting practices and policies and the financial impact thereof, and selection or application of appropriate accounting principles.
- (e) Review with the external auditor and, if necessary, legal counsel, any litigation, claim or contingency, including tax assessments, or significant judgments made by management that could have a material effect upon the financial position of the Company and the manner in which these matters are being disclosed in the financial statements. Review the appropriateness and disclosure of any off-balance sheet matters. Review disclosure of any related-party transactions.
- (f) Receive and review with the external auditor, the external auditor's audit report and the audited financial statements. Make recommendations to the Board respecting approval of the audited financial statements.

- (g) Review annually the integrity of the Company's internal and external financial reporting and accounting principles, including the clarity, completeness and accuracy of financial disclosure and the degree of conservatism or aggressiveness of the accounting policies and estimates, performance of Internal Audit Management, any significant disagreements or difficulties in obtaining information, adequacy of internal controls over financial reporting and the degree of compliance of the Company with prior recommendations of the external auditor. The Audit Committee shall direct management to implement such changes as the Audit Committee considers appropriate, subject to any required approvals of the Board arising out of the review.
- (h) Meet at least annually with the external auditor, independent of management, consider external auditor's judgments about the quality and appropriateness of the Company's accounting principles and practices, and report to the Board on such meetings.

#### *Interim Financial Statements*

Pursuant to its mandate, the Board shall generally approve the Company's annual and interim financial statements. Notwithstanding the foregoing, on an exceptions basis the Board may from time to time delegate to the Audit Committee the power to approve the Company's interim financial statements.

The Audit Committee shall:

- (a) Review on an annual basis the Company's practice with respect to review of interim financial statements by the external auditor.
- (b) Review the interim financial statements with the external auditor if the external auditor conducts a review of the interim financial statements.
- (c) Conduct all such reviews and discussions with the external auditor and management as the Audit Committee deems appropriate.
- (d) Review and, if such authority has been delegated to the Audit Committee by the Board, approve the interim financial statements.
- (e) If authority to approve the interim financial statements has not been delegated to the Audit Committee, make appropriate recommendation to the Board respecting approval of the interim financial statements.

#### *Code of Ethics*

The Audit Committee has primary responsibility for overseeing the application of, and compliance with, the Company's Code of Business Conduct and Ethics (the "**Code**"). The Audit Committee shall review at least annually:

- (a) the Code,
- (b) management's approach to business ethics and corporate conduct; and
- (c) programs used by management to monitor compliance with the Code.

#### **COMPLAINTS UNDER WHISTLEBLOWER POLICY**

To ensure that the Company has adequate procedures in place for the confidential and anonymous (where permitted by law) receipt, retention, and treatment of complaints received by the Company regarding (a) accounting, internal accounting controls, or auditing matters, and (b) compliance with the Code and all applicable government laws, rules and regulations, the Committee has recommended and the Board has adopted a Company Whistleblower Policy. All such complaints shall be dealt with under the terms of that Policy."

## **Composition of the Audit Committee**

As at December 31, 2015 and the date of this AIF, the members of the Audit Committee are Terry Krepiakevich, Michael Winn and Richard Zimmer, with Mr. Krepiakevich serving as the Chair of the Audit Committee. All of these members are financially literate and independent for the purposes of National Instrument 52-110 (“**NI 52-110**”).

Mr. Krepiakevich qualifies as a financial expert and is financially sophisticated, in that he has an understanding of generally accepted accounting principles and financial statements; is able to assess the general application of accounting principles in connection with the accounting for estimates, accruals and reserves; has experience analyzing or evaluating financial statements that entail accounting issues of equal complexity to the Corporation's financial statements (or actively supervising another person who did so); and has a general understanding of internal controls and procedures for financial reporting and an understanding of audit committee functions.

Mr. Krepiakevich is a member of the Board of Directors of several publicly-listed and private companies since July 2011. From June 2006 to July 2011, Mr. Krepiakevich was the Chief Financial Officer of SouthGobi Resources Ltd., a publicly-listed mining company focused on exploring and developing coal deposits in Mongolia's South Gobi Region. Previously, Mr. Krepiakevich was Chief Financial Officer for Extreme CCTV Inc., a publicly traded company on the TSX involved in manufacturing high tech surveillance equipment, and Vice-President Finance and Chief Financial Officer of Maynards Industries Ltd., a private firm specializing in retailing, auctioneering, liquidating, and mergers and acquisition services. Prior to his position with Maynards, Mr. Krepiakevich was a senior officer in a number of private and public issuers. He is a Canadian qualified Chartered Professional Accountant and was employed with the international accounting firm Peat Marwick Thorne (KPMG), where he worked with a number of companies in mining and related industries.

Mr. Winn is currently President of Seabord Capital Corp., and was previously President of Terrasearch Inc., both consulting companies providing investment analysis and financial services to companies in the oil and gas, mining and energy sectors. He is also a member of the Board of Directors of several publicly-listed companies, serving for certain of which as a member of the audit committee. Mr. Winn has worked in the oil and gas industry since 1983 and the mining industry since 1992. He completed graduate course work in accounting and finance and received a BSc in geology from the University of Southern California. Mr. Winn is financially literate, possessing extensive senior management experience within the natural resource sectors including experience as a public company audit committee member.

Mr. Zimmer is a corporate director and is the former President and Chief Executive Officer of Far West Mining Ltd., which was acquired by Capstone Mining Corp. in 2011. Prior to Far West, Mr. Zimmer worked for Teck Corporation, Teck-Cominco and Teck-Pogo Inc. From 1992 to 2007 he served in various engineering and operating roles and from 1998 to 2007, as Vice President and Project Manager for Teck-Pogo. on the design and construction of the Pogo Mine near Fairbanks, Alaska. Before joining Teck, Mr. Zimmer was employed with Bow Valley Industries as Senior Staff Engineer responsible for evaluation of new mining ventures. Mr. Zimmer has over 35 years of experience in the mining industry and has a B.Sc. degree, B. Eng., MBA and is a P.Eng in the Province of British Columbia.

## **Reliance on Certain Exemptions**

At no time since the commencement of the Corporation's most recently completed financial year has the Corporation relied on the exemption in Section 2.4 of NI 52-110 (De Minimis Non-audit Services), Section 3.2 of NI 52-110 (Initial Public Offerings), Section 3.3(2) of NI 52-110 (Controlled Companies), Section 3.4 of NI 52-110 (Events Outside Control of Member), Section 3.5 of NI 52-110 (Death, Disability or Resignation of Audit Committee Member), Section 3.6 of NI 52-110 (Temporary Exemption for Limited and Exceptional Circumstances) or Section 3.8 of NI 52-110 (Acquisition of Financial Literacy), or an exemption from NI 52-110, in whole or in part, granted under Part 8 of NI 52-110 (Exemptions).

### **Audit Committee Oversight**

At no time since the commencement of the Corporation's most recently completed financial year was a recommendation of the Committee to nominate or compensate an external auditor not adopted by the board of directors.

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

The Audit Committee nominates and engages the independent auditors to audit the financial statements, and approves all audit, audit-related services, tax services and other services provided by the Corporation's independent auditors, PricewaterhouseCoopers LLP, Chartered Professional Accountants. Any services provided by PricewaterhouseCoopers LLP that are not specifically included within the scope of the audit must be pre-approved by the audit committee prior to any engagement. The audit committee is permitted to approve certain fees for audit-related services, tax services and other services pursuant to a de minimus exception before the completion of the engagement. No fees paid to PricewaterhouseCoopers LLP in either of the fiscal years ended December 31, 2015 or 2014 were approved pursuant to the de minimus exception.

### **External Auditor Service Fees (By Category)**

PricewaterhouseCoopers LLP, Chartered Professional Accountants, serve as the independent auditors for the Corporation and have acted as the Corporation's independent auditor for the years ended December 31, 2015 and 2014. The chart below sets forth the total amount billed the Corporation by PricewaterhouseCoopers LLP for services performed in these periods and breaks down these amounts by category of service (for audit fees, audit-related fees, tax fees and all other fees):

#### **External Auditor Service Fees (By Category)**

<b>Financial Period</b>	<b>Audit Fees</b>	<b>Audit Related Fees</b>	<b>Tax Fees</b>	<b>All Other Fees</b>
Year ended December 31, 2015	\$190,000	\$45,000	\$Nil	\$Nil
Year ended December 31, 2014	\$288,500	\$45,000	\$Nil	\$19,075

"Audit Fees" are the aggregate fees billed by PricewaterhouseCoopers LLP for the audits of the Corporation's consolidated annual financial statements and internal control over financial reporting that are provided in connection with statutory and regulatory filings or engagements.

"Audit-Related Fees" are fees charged by PricewaterhouseCoopers LLP for assurance and related services that are reasonably related to the performance of the audit or review of the Corporation's financial statements and are not reported under "Audit Fees". This category includes but is not limited to fees billed for independent accountant review of the interim financial statements, advisory services associated with the Corporation's financial reporting and fees charged for services rendered in connection with registration statements and other securities offering documents.

"Tax Fees" are fees for professional services rendered by PricewaterhouseCoopers LLP for tax compliance, tax advice on actual or contemplated transactions.

"All Other Fees" include all fees charged by PricewaterhouseCoopers LLP for products or services other than those charged for "Audit Fees", "Audit-Related Fees" and "Tax Fees".

### **LEGAL PROCEEDINGS AND REGULATORY ACTIONS**

The Corporation is not a party to any legal proceedings involving a claim for damages in excess of ten percent of the Corporation's current assets, nor is a party to any regulatory actions, and is not aware of any such proceedings or actions known to be contemplated.

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

The directors, executive officers and principal shareholders of the Corporation or any associate or affiliate of the foregoing have had no material interest, direct or indirect, in any transactions in which the Corporation has participated within the three most recently completed financial periods prior to the date of this AIF or in the current financial year, and do not have any material interest in any proposed transaction, which has materially affected or is reasonably expected to materially affect the Corporation, except as set out elsewhere in this AIF or as follows:

Certain directors and/or officers of the Corporation have subscribed for common shares of the Corporation pursuant to the public and private placement financings of the Corporation.

## **TRANSFER AGENTS AND REGISTRARS**

The registrar and transfer agent for the common shares of the Corporation in British Columbia and Ontario is Computershare Investor Services Inc., Vancouver, British Columbia.

## **MATERIAL CONTRACTS**

The Silver Wheaton Streaming Agreement, as amended (as described under the heading “General Development of the Business – Three Year History and Significant Acquisitions”), is the only material contracts entered into by the Corporation within the year ended December 31, 2015 or before such time that are still in effect, other than in the ordinary course of business. The Silver Streaming Agreement and subsequent amendments are available on the SEDAR website at [www.sedar.com](http://www.sedar.com) under the Corporation’s profile.

## **INTERESTS OF EXPERTS**

### **Names of Experts**

The following are the named persons responsible for the preparation of the PEA (see “Description of Business – Keno Hill Silver District”), and at the date of that report were “qualified persons”, and where indicated were independent, as then defined in NI 43-101:

#### Independent

Gilles Arseneau, Ph.D., P.Geo., of SRK Consulting (Canada) Inc.  
Ken Reipas, P.Eng., of SRK Consulting (Canada) Inc.  
Bruce Murphy, FSAIMM, of SRK Consulting (Canada) Inc.  
Dr. Adrian Dance, P.Eng., of SRK Consulting (Canada) Inc.  
Kelly Sexsmith, P.Geo., of SRK Consulting (Canada) Inc.  
Stephen Taylor, P.Eng., of SRK Consulting (Canada) Inc.  
David Farrow, Pr.Sci.Nat,P.Geo., of GeoStrat Consulting Services Inc.  
James Richard Trimble, P.Eng., of Tetra Tech EBA (formerly EBA Engineering Consultants Ltd.)

#### Non-Independent

Alan McOnie, FAusIMM, Vice President, Exploration, Alexco  
Laura Battison, P.Geo., Geologist, Alexco (no longer employed with Alexco)  
Scott Smith, P.Eng., consulting engineer to Alexco

The Corporation’s current Vice President, Exploration is, and has been through its most recently completed financial year, Alan McOnie, FAusIMM, a “qualified person” as defined in NI 43-101. Through its most recently completed financial year and until October 2013, the Corporation’s Bellekeno Mine Manager was Scott Smith, P. Eng., and from October 2013 and continuing through the date hereof Scott Smith has acted as a consulting engineer to the Corporation. Scott Smith is a “qualified person” as defined in NI 43-101. Except where specifically indicated otherwise, during its most recently completed financial year and through the date hereof, disclosures by the Corporation of scientific and technical



information regarding exploration projects on Alexco's mineral properties have been approved by Alan McOnie, while those regarding mine development and operations have been approved by Scott Smith.

The audited financial statements of the Corporation have been subject to audit by PricewaterhouseCoopers LLP, Chartered Professional Accountants.

### **Interests of Experts**

Based on information provided by the other experts named above, other than with respect to Alan McOnie, Laura Battison and Scott Smith as described below, none of the experts named under "Names of Experts", when or after they prepared the statement, report or valuation, has received any registered or beneficial interests, direct or indirect, in any securities or other property of the Corporation or of one of the Corporation's associates or affiliates (based on information provided to the Corporation by the experts) or is or is expected to be elected, appointed or employed as a director, officer or employee of the Corporation or of any associate or affiliate of the Corporation.

At the time of the preparation of the PEA, Alan McOnie was the Corporation's Vice President, Exploration, and Laura Battison was a Geologist for the Corporation, and accordingly neither was considered independent as defined in NI 43-101. Alan McOnie is currently an executive officer and Scott Smith was formerly the Bellekeno Mine Manager and is currently a consulting engineer of the Corporation, as described above. All of Alan McOnie, Laura Battison and Scott Smith have been granted stock options of the Corporation through the course of their respective employments; however, the individual interests held by each of them throughout their respective employment terms at all times represented less than one percent of the issued and outstanding common shares of the Corporation.

PricewaterhouseCoopers LLP, Chartered Professional Accountants, as auditors of the Corporation, report that they are independent with respect to the Corporation within the meaning of the Rules of Professional Conduct of the Chartered Professional Accountants of British Columbia, Canada. PricewaterhouseCoopers LLP is registered with the Public Company Accounting Oversight Board.

### **ADDITIONAL INFORMATION**

Additional information relating to the Corporation may be found on SEDAR at [www.sedar.com](http://www.sedar.com), as well as at the Corporation's web site at [www.alexcoresource.com](http://www.alexcoresource.com).

Additional information, including directors' and officers' remuneration and indebtedness, principal holders of the Corporation's securities, and securities authorized for issuance under equity compensation plans, where applicable, is contained in the Corporation's information circular for its most recent annual general meeting of securityholders that involved the election of directors.

Additional financial information is provided in the Corporation's consolidated financial statements and management's discussion and analysis for its most recently completed financial period, being the year ended December 31, 2015.