



News Release

Alexco Releases Positive Preliminary Economic Assessment for Expanded Silver Production from Eastern Keno Hill Silver District, Yukon

December 5, 2013 - Alexco Resource Corp. (NYSE-MKT:AXU, TSX:AXR) today announces the release of a National Instrument 43-101 compliant Preliminary Economic Assessment (PEA) for the eastern portion of its 100% owned Keno Hill Silver District in Canada's Yukon Territory. The PEA, which was compiled by SRK Consulting (Canada) Inc. (SRK) with contributions from a team of qualified persons, assesses an expanded operations phase of silver, lead, zinc and gold production in the Eastern Keno Hill Silver District (EKHSD). The study is focused on construction and operation of a new underground mine and ancillary production facilities at the recently defined Flame & Moth silver deposit and consolidates supplemental production initially from the Bellekeno mine and subsequently from the Lucky Queen deposit. The document also includes a revised resource statement for the Bellekeno deposit. The PEA reflects one of a number of production strategies considered, and work is ongoing to optimize the EKHSD plan inputs. Alexco is also considering an expanded surface exploration program in the EKHSD area.

The PEA outlines:

- A production strategy comprising an initial nine-month construction period in 2014, followed by a 5.5 year period of silver production anchored by the Flame & Moth deposit.
- Annual delivery of an average 3.1 million ounces of payable silver, 6.8 million pounds of lead, 6.6 million pounds of zinc and 1,050 ounces of gold from approximately 150,000 tonnes per year of consolidated mine and mill production.
- An after tax internal rate of return (IRR) of 38%, an after tax net present value (NPV) (5%) of \$29.6 million and a 3.5 year payback from January 1, 2014. The PEA fully incorporates Alexco's Silver Purchase Agreement with Silver Wheaton requiring delivery of 25% of payable silver ounces to Silver Wheaton for an agreed payment of \$3.90 per ounce.
- Initial capital requirements of approximately \$25 million, with roughly half the initial capital deployed to drive a decline and establish underground infrastructure at the Flame & Moth deposit, which is planned to deliver 73% of the tonnes in the current plan. The balance of the initial capital is planned for mill upgrades, additional surface facilities, and recommissioning of the Bellekeno mine.
- Approximately 17% or 163,000 tonnes of 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.

Alexco's President and Chief Executive Officer Clynt Nauman said, "Earlier in 2013, in the face of declining silver prices and reduced operating margins, we elected to suspend winter operations at our Bellekeno mine and mill facilities at Keno Hill. We did so with the knowledge that we had a rapidly growing silver resource at our recently defined Flame & Moth deposit, and that a revised operations strategy was required to integrate production from known and previously developed deposits (i.e. Bellekeno, Lucky Queen) with the new and larger but as yet undeveloped Flame & Moth deposit. In addition, simple economics drive us to fully utilize our mill capacity when re-initiating silver production. To do that, the PEA outlines a strategy to initiate development of the Flame & Moth mine in 2014 as a first step to achieving commercial production from this deposit in 2015. Meanwhile, we would begin recommissioning the Bellekeno mine later in 2014 and have it ready to simultaneously go into production along with Flame & Moth

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near the beginning of 2015. Bellekeno production would eventually be replaced by higher grade, lower volume silver production from the Lucky Queen mine in 2017.”

Nauman continued, “By following this plan, we would also retain short term optionality to accelerate Bellekeno production or development at Lucky Queen should conditions warrant in 2014. Concurrently in 2014, we intend to mobilize an expanded exploration program to evaluate previously identified extensions to the Flame & Moth deposit. With 23 million ounces of silver already indicated in resource, the Flame & Moth deposit is the third largest silver deposit discovered at Keno Hill in the last 50 years, and remains open. In my view, when ultimately delineated this deposit will become the cornerstone asset of Alexco’s operations in the District, with the potential to anchor future production into the 2020s.”

Key PEA metrics and assumptions are as follows:

Consolidated production	806,900 tonnes (t)
Consolidated production grade	745 grams per tonne (gpt) silver (Ag), 0.4 gpt gold (Au), 2.7% lead (Pb), 4.7% zinc (Zn)
Commercial production period	Q2 2015 – Q2 2020
Development, construction period	Q2 2014 – Q1 2015
Mill throughput	Average 406 tonnes per day (tpd)
Mill recoveries	Ag 93.6%, Au 71.3%, Pb 83.9%, Zn 60.4%
Concentrate produced (6% moisture)	30,685 tonnes Pb con, 51,026 tonnes Zn con
Total payable metal production	Ag 16.8Moz, Au 5,800oz, Pb 37.7Mlb, Zn 36.4Mlb
Production cost (mining, milling and G&A)	\$253 per tonne of ore
Net Smelter Return (NSR) per tonne of ore (after incorporation of Silver Purchase Agreement)	\$419 per tonne of ore
Total capital (life of mine)	\$76 million, including \$37 million underground development
Initial capital to achieve positive cash flow	\$25 million
Net Cash Contribution Pre-Tax	\$53.7 million
IRR Pre-tax	45%
NPV Pre-tax (5%)	\$39.9 million
Net Cash Contribution After Tax	\$41.4 million
IRR After Tax	38%
NPV After Tax (5%)	\$29.6 million
Prices Used in PEA	Ag US\$24.00/oz, Pb US\$0.95/lb, Zn US\$0.85/lb, Au US\$1,300/oz

The 806,900 tonnes of the consolidated mine production 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.*

The PEA contemplates an initial development and construction period beginning in the second quarter of 2014, with startup of commercial production in the second quarter of 2015. Commencement of development and construction remains dependent on Alexco making a development decision, which would be dependent on a number of factors, including but not limited to expectations regarding market prices for silver, lead, zinc and gold as well as the US-Canadian dollar exchange rate, and the availability of development capital. Additionally, a production decision which is made without a feasibility study of mineral reserves demonstrating economic and technical viability carries additional potential risks which include, but are not limited to, the risk that additional detailed work may be necessary with respect to mine design and mining schedules, metallurgical flow sheets and process plant designs, and the inherent risks noted above pertaining to the inclusion of approximately 6% inferred mineral resources in the mine plan.



Bellekeno Mine

The Bellekeno Mine achieved commercial production under Alexco ownership in January 2011. In the period from January 2011 until August 2013, the mine produced 223,552 tonnes of ore with an average grade of 768 gpt Ag, 9.2% Pb and 4.9% Zn, producing 31,838 tonnes of lead concentrate and 16,036 tonnes of zinc concentrate. Metal recoveries to concentrate over the 32-month operating period were 5.58 million ounces of silver, 44.96 million pounds of lead and 16.34 million pounds of zinc.

Revised Bellekeno Resource Statement

Over the course of 2012, the mineral resources for the Bellekeno Mine were revised using a combination of original resource data, new drilling, underground production data, and revised pricing and recoveries. A revised mineral resource statement for the Bellekeno deposit is tabulated below and is reported relative to a cut-off value of C\$185/tonne.

Mineral Resource Statement*, Bellekeno Deposit, GeoStrat Consulting Services Inc., September 30, 2012

Vein	Class	Tonnes	Ag (gpt)	Pb (%)	Zn (%)	Ag Oz
SW	Indicated	195,000	602	6.7%	5.7%	3,773,000
	Inferred	136,000	427	4.5%	3.5%	1,871,000
99	Indicated	95,000	760	4.0%	3.5%	2,320,000
	Inferred	20,000	715	4.1%	2.9%	455,000
East	Indicated	75,000	675	3.3%	6.9%	1,635,000
	Inferred	87,000	364	3.4%	8.1%	1,013,000
Total	Indicated	365,000	658	5.3%	5.3%	7,728,000
	Inferred	243,000	428	4.1%	5.1%	3,338,000

* Reported at a cut-off value of C\$185.00/t considering metal prices of US\$22.50/oz for Ag, US\$0.85/lb for Pb, and US\$0.95/lb for Zn; and recovery of 96% for Ag, 97% for Pb, and 88% for Zn. All numbers have been rounded to reflect the relative accuracy of the estimates.

Mineral resources are not mineral reserves and have not demonstrated economic viability. 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.

The Bellekeno mineral resource estimate has an effective date of May 31, 2012, based on a mine survey documenting mining progress up to that date.

As noted by SRK pursuant to Alexco reports, since the effective date of the Bellekeno deposit mineral resource statement, actual tonnes processed from the Bellekeno Mine totalled 124,000 tonnes at average grades of 701 gpt silver, 8.3% lead and 4.3% zinc (from June 1, 2012 to the temporary suspension of operations on September 1, 2013).

Mining

The PEA lays out a mine plan centered on Flame & Moth production with supplemental mine production coming from the Bellekeno deposit early in the production period followed by Lucky Queen mine production later in the period. The life of mine (LOM) production schedule from January 1, 2015 averages 406 tpd for 5.5 years through to mid-2020. Nominal production rates are 250 tpd for Bellekeno, 100 tpd for Lucky Queen and 320 to 370 tpd for Flame & Moth which also supplies about 73% of the mill feed over the study period. In designing the production schedule,



approximately 163,000 tonnes of mineable resources were eliminated from the plan for various reasons, but remain as future resource.

In production, mined resources from underground will be extracted using a combination of mining methods depending on the characteristics of the resource zone and ground control conditions. The PEA anticipates a variety of mining methods based on deposit characteristics: Lucky Queen would be primarily a mechanized cut and fill mining operation, whereas Bellekeno would be mined primarily by long-hole stoping and mechanized cut and fill mining. Flame & Moth would use a combination of mechanized cut and fill, long-hole stoping and drift and fill methods.

Processing and Infrastructure

The Alexco mill facility has a nameplate capacity of 407 tonnes per day and employs conventional crushing, grinding, differential flotation and dewatering processes to produce a lead concentrate, a zinc concentrate and a filtered tailings product for storage in an established dry stacked tailings facility. Silver and lead minerals are recovered together in the silver-lead bulk concentrate and zinc minerals in a separate zinc concentrate.

The current process flowsheet includes the following main unit operations:

- a crushing unit consisting of a jaw crusher, cone crusher and screen
- primary grinding circuit
- silver-lead flotation and concentrate regrinding circuit
- zinc flotation circuit
- pyrite flotation unit
- concentrate dewatering circuit
- tailings dewatering

Prior to resumption of concentrate production in 2015, an additional 1.8 meter x 3 meter, 130kW ball mill will be retrofit to provide expanded grinding capacity ahead of the flotation circuit.

Metallurgical recoveries in the PEA were determined by SRK using a combination of historical performance and test work from each of the deposits slated for production in the EKHSD project.

All of the regulatory approvals required for mining activities associated with the Bellekeno and Lucky Queen deposits are currently in place. Preliminary mine planning has been completed for the Flame & Moth deposit, and permitting for development and production from the deposit is underway.

In terms of infrastructure, the EKHSD project is supported by an already established modern camp with capacity for approximately 150 people. The project is on the Yukon electric grid and is serviced by all-weather roads. Concentrates are shipped in sealed aluminum containers by road to the Port of Skagway in Alaska and transloaded to southbound tug and barge service for ultimate delivery to smelter facilities.

Next Steps

The PEA reflects one of a number of production strategies being considered by Alexco. Work is ongoing to optimize various aspects of this project, including a careful review of underlying fixed costs and existing third party arrangements. As with most smaller, higher grade deposits, consolidated mine economics are sensitive to commodity price, the tenor and grade of ore delivered to the mill, and efficiency with which the mill operates. At Keno Hill, achieving and maintaining proper mine output and mill throughput is also paramount and Alexco is continuing to investigate specific production strategies to further improve the efficiency of mine and mill operations.



An equally important Company objective is to continue expansion of the Keno Hill silver resource inventory through exploration, a strategy which has met with considerable success and remains unchanged from prior years.

National Instrument 43-101 and Qualified Persons

The PEA has been prepared in compliance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101), and was compiled by SRK Consulting (Canada) Inc. with contributions from a team of Qualified Persons as defined by NI 43-101. The Bellekeno resource estimate update has been completed by David Farrow, P.Geo (BC) of GeoStrat Consulting Services Inc., a Qualified Person independent of Alexco, based upon data that was reviewed, verified and compiled by Laura Battison, P.Geo, former Senior Mine Geologist with Alexco and also a Qualified Person. The mineral resource is classified following the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resource and Mineral Reserves (December 2005), in accordance with the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines and with NI 43-101 guidelines. An NI 43-101 compliant technical report is in the process of being prepared in support of the PEA and Bellekeno mineral resource update, which Alexco expects will be filed on SEDAR no later than 45 days from the date hereof.

The disclosure of scientific and technical information about Alexco's mineral projects contained in this news release has been reviewed and approved by Ken Reipas, P.Eng, Principal Mining Engineer with SRK, Mr. Farrow and Ms. Battison.

Conference Call

Alexco will be holding a conference call and webcast to further discuss the information contained in the PEA. The conference call will be held at 8 a.m. Pacific time (11 a.m. Eastern) tomorrow, Friday, December 6, 2013. The webcast may be accessed at www.alexcoresource.com. To participate in the live call, please use one of the following methods:

Dial toll free from Canada or the US:	1-877-407-8031
Dial from outside Canada or the US:	1-201-689-8031
Live audio webcast:	www.alexcoresource.com

Participants should connect five to ten minutes before the call.

The conference call will be recorded, and an archived audio webcast will be available at www.alexcoresource.com. Through January 5, 2014, a replay of the call will be available by telephone at the following:

Dial toll free from Canada or the US:	1-877-660-6853
Dial from outside Canada or the US:	1-201-612-7415
Replay Passcodes:	Conference ID #13573332

About Alexco

Alexco Resource Corp. owns the Bellekeno silver mine, one of several mineral properties held by Alexco which encompass substantially all of the historical Keno Hill Silver District located in Canada's Yukon Territory. Bellekeno, which commenced commercial production at the beginning of calendar year 2011, was Canada's only operating primary silver mine from 2011 to 2013. Alexco recently announced a suspension of operations at Bellekeno in order to decrease costs and reposition the District for long-term, sustainable operations. The Keno Hill Silver District lies



within the traditional territory of the First Nation of Na-Cho Nyak Dun who have a fully settled land claim agreement with the Government of Canada and the Yukon, and Alexco operates within the District under a comprehensive cooperation and benefits agreement with the First Nation. Alexco's primary near-term exploration objective is to unlock value in the silver-rich Keno Hill District, and is focused on growth by advancing its promising District properties to development decisions. Employing a unique business model, Alexco also provides mine-related environmental services, remediation technologies and reclamation and mine closure services to both government and industry clients through the Alexco Environmental Group, its wholly-owned environmental services division.

Keno Hill Silver District History

Between 1921 and 1988, the Keno Hill Silver District was a world-class silver producer, with 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 (Yukon Government's Minfile database). These historical production grades would rank Keno Hill in the top 3% by grade of today's global silver producers.

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Some statements ("forward-looking statements") in this news release contain forward-looking information concerning the Company's anticipated results and developments in the Company's operations in future periods, planned exploration and development of its properties, plans related to its business and other matters that may occur in the future, made as of the date of this news release. Forward-looking statements may include, but are not limited to, statements with respect to 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 and reports, 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. 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, among others, 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 activities; 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 mineable 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; and delays in obtaining governmental approvals or financing or in the completion of development activities. 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 news release, the Company has applied several material assumptions, including, but not limited to, the assumption that market fundamentals will result in sustained silver, gold, lead and zinc demand and prices. There can be no assurance that forward-looking statements will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements. The Company expressly disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise, except as otherwise required by applicable securities legislation.