

Annual Report 2012

ALEXCO

RIGHT TIME » RIGHT PLACE » RIGHT PRIORITIES

ALEXCO RESOURCE CORP.

*Producing Silver while
Achieving Environmental Excellence*

RIGHT TIME

Alexco has been fortunate to have been founded and grown at a time when the silver market and price are conducive to development of silver resources. Strategically speaking, Canada has only one primary silver producing mine – our Bellekeno mine – uniquely positioned as industrial and investor demand in the precious metal continues to grow. Orphaned and abandoned in the late 1980s, now is the perfect time to be rejuvenating the Keno Hill Silver District in the Yukon.

RIGHT PLACE

There's no better place to be working than in the Yukon. It is a safe jurisdiction geopolitically, a place where sanctity of title is recognized and respected. There is a good, reasonable regulatory regime in place along with a supportive government for natural resource development. We have good infrastructure at our location, even though it is generally thought of as 'remote'. Alexco's operations are on the power grid and we have full road access to the site, thanks to the development of the District during its historic operation. And importantly, Keno Hill is one of the highest-grade silver mining districts in the world – what better place to be?

RIGHT PRIORITIES

Through environmental work in this historic mining area over the past five years, Alexco has invested over \$17 million to remediate legacy health and wildlife hazards throughout the Keno Hill District and has reduced zinc release from the historic Galkeno 300 mine by 99.5%, which is just one example of the environmental improvements in the area. And in an area that was desperately under-employed just a few years ago, Alexco now provides work for up to 280 Canadian employees and contractors – and more than 50% of our employees are Yukon residents. Alexco has contributed more than \$53 million to the region via business with Yukon-based vendors and through donations to community organizations.



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HISTORY

2005

- Alexco formed

2006

- Listed on Toronto Stock Exchange
- Acquired properties in Yukon's historic Keno Hill Silver District
- Began systematic mineral exploration program in Keno Hill District
- Acquired Whitehorse-based environmental consulting firm
- Awarded Keno Hill District environmental services contract

2007

- Listed on NYSE-AMEX stock exchange
- Released initial estimate of silver resources at Bellekeno

2008

- Executed silver purchase agreement with Silver Wheaton, securing US\$50 million to finance Bellekeno development and mine/mill construction
- Increased Bellekeno resource estimate
- Signed Cooperation Agreement with First Nation of Na-Cho Nyak Dun

2009

- Increased Bellekeno resource again
- Initiated construction of Bellekeno mine
- Expanded exploration success at Lucky Queen and Onek
- Continued expansion of environmental services business with new projects in the U.S. and South America

2010

- Closed \$25.7 million equity financing
- Announced initial Elsa Tailings resource
- Discovered Bermingham and Flame & Moth deposits
- Completed construction on Bellekeno mine and mill, on time and on budget
- Closed \$41 million bought deal financing

2011

- Began commercial production at Bellekeno mine
- Announced initial resource estimates at Lucky Queen and Onek

2012

- Issued initial resource estimate for Flame & Moth and Bermingham exploration properties, leading to a 52% increase in overall silver resource

INVESTOR HIGHLIGHTS

100% Owned

Holds the entire Keno Hill Silver District, historically one of the world's highest-grade silver producing regions

2 New mines under development

A 10-fold increase in silver resource since start up

2 Million Ozs

Annual silver production from Bellekeno

35

Former silver mines in the District, with more than 200 million ounces of past production at 40 oz/ton average silver grade

TRADED ON:
NYSE-MKT: AXU
TSX: AXR

No long-term debt

\$23 Million

CASH ON HAND AT DECEMBER 31, 2012



Location, Location, Location

Canada's Yukon: A resource-friendly jurisdiction

FINANCIAL HIGHLIGHTS

As of December 31 <i>(expressed in thousands of dollars, except per share amounts)</i>	2012	2011
		Calendar Year Ended (unaudited)
Revenue from mining operations	76,725	76,908
Gross profit from mining operations	15,034	24,786
Revenue from environmental services	7,983	7,323
Gross profit (loss) from environmental services	2,886	(727)
Revenue from all operations	84,708	84,231
Gross profit from all operations	17,920	24,059
Net income for the year	3,420	5,979
Earnings per share – Basic and Diluted	\$0.06	\$0.11
Recognized metal prices ¹		
Silver (USD per ounce)	\$31.54	\$34.56
Lead (USD per pound)	\$0.95	\$1.08
Zinc (USD per pound)	\$0.89	\$0.97

¹ Recognized metal prices represent average metal prices for revenue recognized over the period, weighted by dollar of revenue recognized.

OPERATING HIGHLIGHTS

BELLEKENO MINE PRODUCTION STATISTICS		
Full Year Ended	Dec. 31, 2012	Dec 31, 2011
Ore tonnes mined	86,354	71,992
Ore tonnes processed	94,810	81,064
Mill throughput (tonnes per day)	260	222
Grade of ore processed:		
Silver (grams per tonne)	760	834
Lead	9.6%	10.2%
Zinc	4.8%	6.0%
Recoveries:		
Silver	93%	92%
Lead in lead concentrate	90%	90%
Zinc in zinc concentrate	56%	65%
Concentrate production:		
Lead concentrate:		
Tonnes produced	13,000	11,042
Concentrate grade:		
Silver (grams per tonne)	4,965	5,280
Lead	63%	67%
Zinc concentrate:		
Tonnes produced	5,685	6,901
Concentrate grade:		
Silver (grams per tonne)	413	583
Zinc	45%	46%
Production – contained metal:		
Silver (ounces)	2,150,959	2,020,644
Lead in lead con (pounds)	18,183,755	16,454,334
Zinc in zinc con (pounds)	5,676,284	7,220,514
Cash costs of production¹:		
Per ounce of payable silver produced	\$11.89	\$10.17

¹ Cash costs of production per ounce of payable silver produced is a non-GAAP measure with no standardized meaning prescribed under Canadian GAAP. See Alexco's 2012 MD&A at www.alexcoresource.com for explanation and reconciliation.

Highlights

Producing Silver while Achieving Environmental Excellence



TO OUR SHAREHOLDERS

Without a doubt, the improving performance of our Bellekeno Mine operations and our exploration success were the highlights of the year 2012 for Alexco. Our annual silver production increased by more than 130,000 ounces. And on the exploration front, since the beginning of 2012 through the first quarter of 2013, we increased our Indicated silver resource 80% to 51.3 million ounces, and we have an additional 7.7 million ounces of Inferred resource. We estimate a discovery cost of less than 60 cents per ounce for this increase in resource. When people ask me whether we intend to acquire new properties outside our Keno Hill Silver District in the Yukon, I point out that although we'll always consider opportunities, we'd be hard pressed to find new resources at a lower cost and a faster pace than we're discovering them right on our own property. Our major accomplishment is the discovery and growth of our new Flame & Moth deposit. Additionally, we continue to experience encouraging exploration results at Bellekeno, with the ultimate goal of extending its mine life.

We had other highlights in 2012 as well: better development and training of our people on site, achieving our silver production estimate at Bellekeno, a turnaround in cash costs from the second quarter to the third quarter, developing two mines which are poised to begin production in 2013, and our Alexco Environmental Group secured the major Globeville smelter cleanup project in Denver, Colorado.

Along with these successes came the challenges. We have recognized that attracting and retaining good people at a remote site takes more than money, and to address that we've continued our efforts to reduce employee turnover across the operations. We did this not so much with compensation adjustments, but through a process of discovering and addressing the quality of life issues that are important in this fly-in, fly-out camp – with a focus on camp improvements, employee benefits and performance incentives.

As a small volume, high grade operation, our Bellekeno mine has a relatively high fixed cost structure with all its profits at the margin. Our opportunity, as well as our challenge, is to squeeze down those costs that are controllable and increase our efficiency at the site overall by increasing both mine production and mill throughput. Nevertheless, this type of deposit is going to naturally lead to variability in cash costs per ounce from quarter to quarter based on changes in the lead and zinc by-product prices, increases or decreases in ore grades depending upon the area of the mine we're in, the mining methods we use during the quarter, and timing of ore shipments and payments. But our plan never was to run this company for the longer term off the back of the little Bellekeno mine, great as it may be. Our larger vision is that Bellekeno is just the first building block to a much larger operating base, as it will be when we get our two additional new mines on stream. My expectation is that we will continue to grow our income and lower our cash costs per ounce of production as we continue to implement our larger vision for the District. With new mine production coming online in 2013 from Onek and Lucky Queen, we are continuing to make progress toward that vision.

Operations

The Bellekeno mine produced nearly 2.2 million ounces of silver during 2012, in range with our estimate made earlier in the year. Our quarterly average cash costs per ounce of silver ranged from a high of \$15.53 in the second quarter to a low of \$10.48 in the third quarter, with an average per ounce cash cost of \$11.89 for the year. Importantly, we've continued to find more silver at Bellekeno and expect to continue to expand its mine life. We've seen the skill level of



CLYNTON R. NAUMAN
PRESIDENT, CHIEF EXECUTIVE
OFFICER & DIRECTOR

“Exploration
success was
the highlight
of the year
2012 for
Alexco.”



our operators continually improve to the point where they are making positive things happen in sometimes difficult circumstances, such as brutally cold weather conditions. The Bellekeno mine on its own is essentially supporting the whole company, consisting of all of the site services, corporate functions, and a very large exploration program, something it was never intended to do.

STRATEGY – Our short term focus is to achieve design capacity operation at the facility and continue our efforts at training and retaining our good people. Our primary strategy is to lower costs by increasing production volume. Twelve months from now, I envision Alexco as a very different company: one with three operating mines, more silver resource on the books, excess stockpiles of ore to be processed, higher output and lower unit costs.

Development

During 2012 we developed two new mines in the Keno Hill Silver District, Onek and Lucky Queen, and prepared them to go into production during 2013. We drove about 1,300 meters of rehabilitation and development drift, installed infrastructure, negotiated the permitting process and readied them for mining, at a cost of about \$11 million during 2012. While Onek and Lucky Queen are the next two mines off the starting blocks, the Keno Hill Silver District has many more near-term targets for development as we continue to move exploration targets up the property development pipeline.

STRATEGY – Our strategy in terms of initiating production at these two mines is to concentrate on optimizing cash generation, as well as mitigate business risk inherently attached to a 'single-mine company'. We will adjust the run time of our operations as conditions change, whether it be weather, metals prices or mill capacity. Our plan is to constantly evaluate economics and optimize operations to improve earnings.

Exploration

It is through our exploration program that I am confident the tremendous upside potential at Keno Hill will be realized. Once again, in 2012 we completed the most ambitious District-wide exploration season since arriving at Keno Hill in 2006, drilling more than 25,000 meters from surface. Clearly, our work is paying off, with substantial increases in silver resource announced during 2012, and more than a 10-fold increase since we started our work here. Already in 2013, we have increased that resource once again. That is an astounding result after starting with essentially nothing just six years ago.

STRATEGY – We now have so much data and have been so successful on the exploration front in the past several years that we haven't had the time or capacity to process it all. 2013 is the year to dial back a bit on our data collection and drilling, and strategically analyze how the future at the Keno Hill Silver District unfolds. Consequently, I expect to narrow our surface exploration focus in 2013 mainly to Flame & Moth extensions, as well as a rejuvenated effort at Bellekeno where new geology models are indicating potential for discovery in relatively shallow areas surrounding the existing mine. Flame & Moth remains our flagship discovery, we have progressed a long way in a short time and in 2013 we will bring on board the development group to investigate the best path forward to production for this particular deposit.

Financial

Alexco had a cash position of \$23.1 million as of the end of 2012, and we have no long term debt. We recorded \$3.4 million, or \$0.06 per share, of net income during 2012, as we made the transition to matching our fiscal year to the calendar year. 2012 results include \$3.2 million in cash from the sale of our Brewery Creek property and our cash flow from operations was reported at \$14.1 million during 2012.

Vision

As Alexco's largest individual shareholder, my interests are tightly aligned with all of you who have placed your trust in our vision. When our share price falls, it is painful for all of us – whether it is market driven or company driven, as in the case of the second quarter which had higher than expected cash costs. While I cannot control what market forces do to our share price and that of our peers, we can apply ourselves conscientiously to lowering our costs and improving our efficiencies, and that's where our daily focus lies.

What I am most excited about is getting people to appreciate the scale of the Keno Hill property and the huge exploration upside we have here. Near term, I'm eager to see what the alternatives may be for moving Flame & Moth toward a production decision, and understanding the strategic options we now will have for future district development. Our larger vision, coming to fruition as we speak, is that we will no longer be a single-mine company. Over the next year, as we continue to build a cash-sustainable business, we'll also be analyzing our exploration data, the performance of three mines on line, and the opportunities provided by increased resources. These will be the keystones for building the strategic plan that will take us down the road at Keno Hill for the next five to ten years with confidence.

The right time, the right place and the right priorities have come together to provide a great opportunity for Alexco. We're proud of the jobs we've created and the meaningful impact we've had on the Yukon economy. We're steadily improving the environment with our remediation programs. And we're grateful for the cooperative spirit of the First Nation of Na-Cho Nyak Dun, the Yukon government and the support of our loyal shareholders and employees.



Clynton R. Nauman

PRESIDENT, CHIEF EXECUTIVE OFFICER & DIRECTOR

April 3, 2013

“What I am most excited about is getting people to appreciate the scale of the Keno Hill property and the huge exploration upside we have here.”

SHARE STRUCTURE

Trading symbols: NYSE-MKT: AXU | TSX: AXR

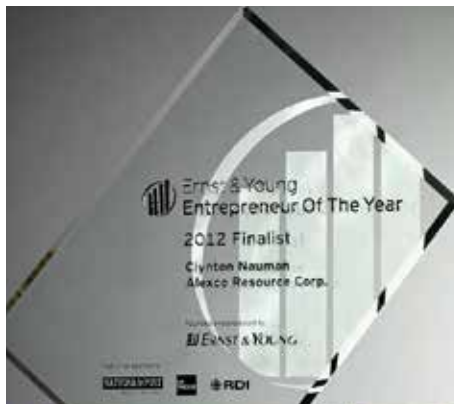
As at December 31, 2012

2012 Trading History

Shares issued and outstanding	60.4 million
Options	4.6 million
Total shares, fully diluted	65.0 million
Management and directors	11.2%

	NYSE-MKT	TSX
High	US\$8.48	C\$8.39
Low	US\$3.21	C\$3.19
Average	US\$5.23	C\$5.09
Average daily volume	306,266	76,984

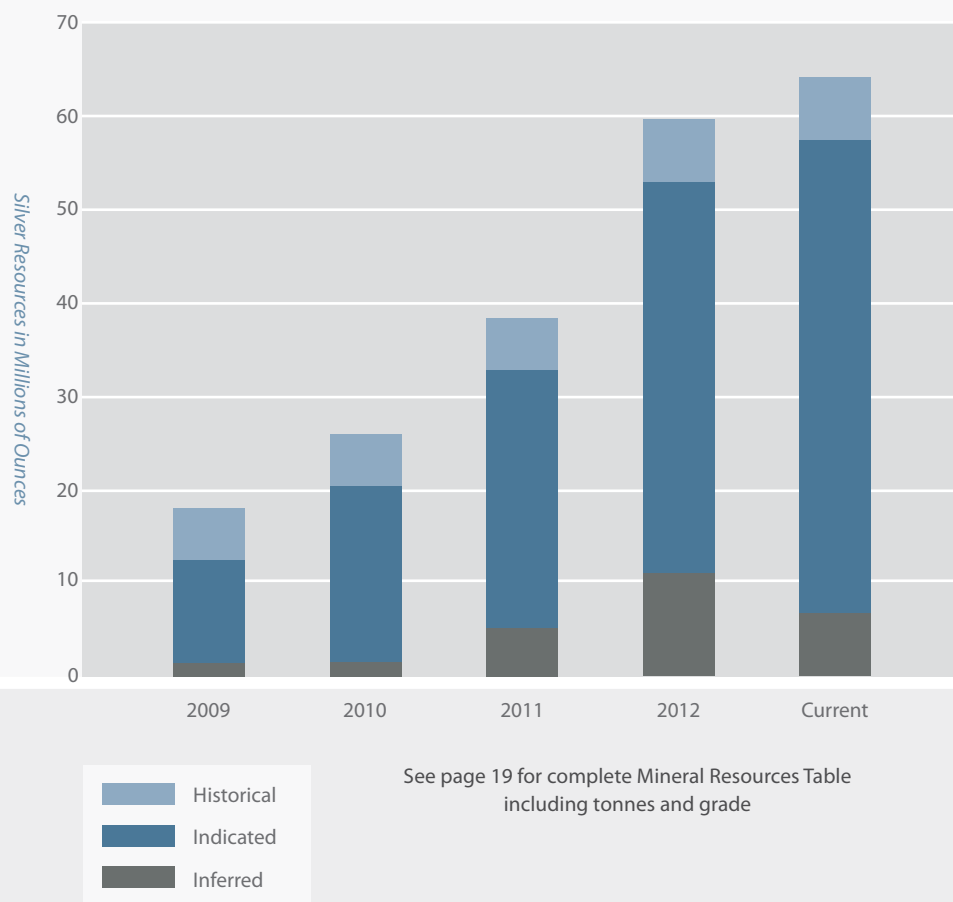




As a finalist for the Ernst & Young Entrepreneur of The Year® 2012 Pacific Region Award, **Clynt Nauman** was recognized for his combination of vision and tenacity. "In eight short years, he's taken his company from an idealistic business model combining environmental remediation and mining to a publicly traded company that operates Canada's only primary silver mine – one of the world's highest-grade silver mines..."

BCBusiness magazine, October 2012

EXPLORATION SUCCESS – STEADY SILVER RESOURCE GROWTH





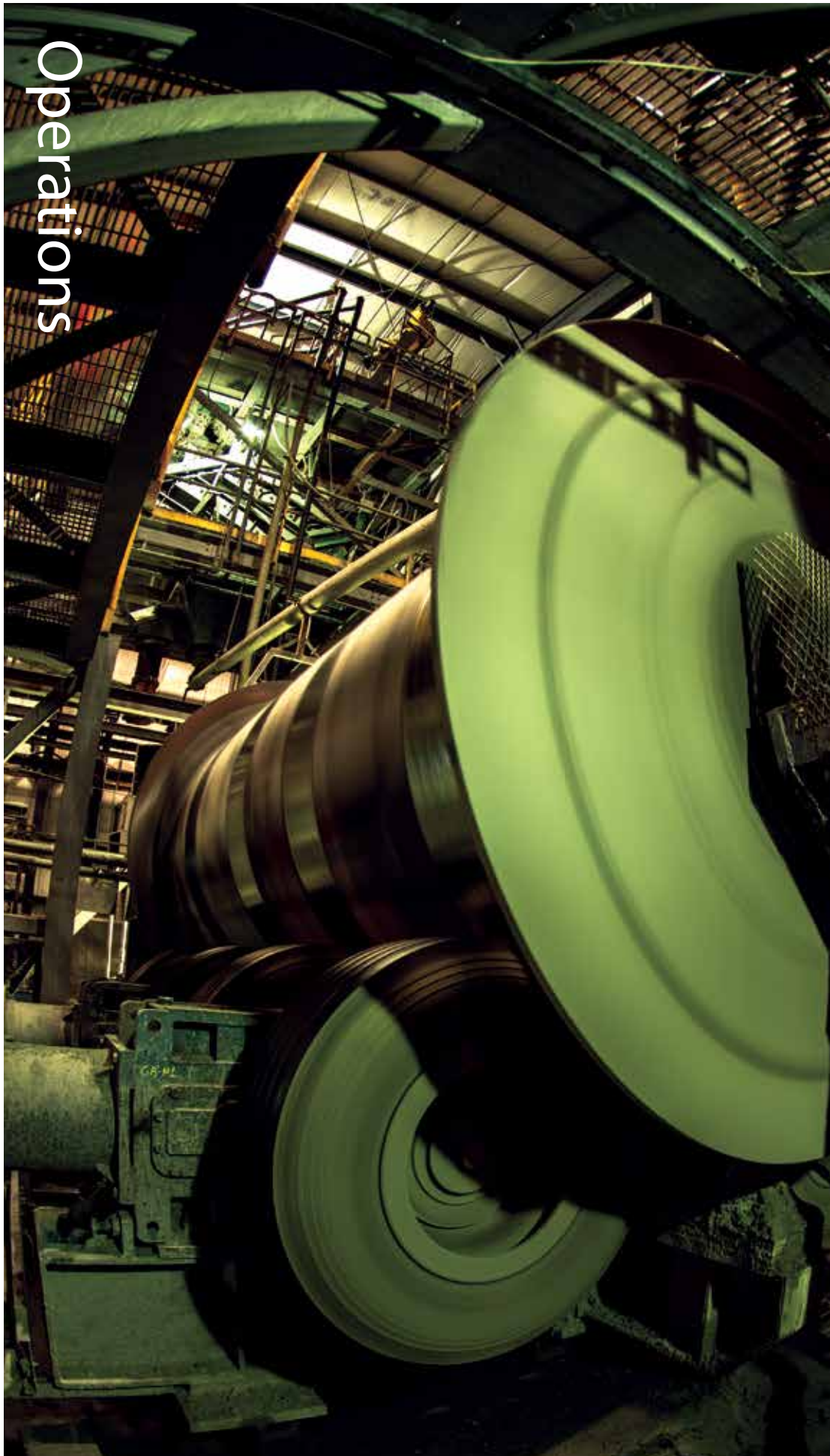
A NEW HISTORY IN THE MAKING

The opening of Alexco's Bellekeno silver mine at the start of 2011 marked the rebirth and rejuvenation of one of Canada's most famous and prolific historic mining districts: the Keno Hill Silver District. Alexco is now in the midst of re-awakening this valuable resource, using a combination of contemporary environmental technology woven together with modern mechanized mining methods. The Company is proud to be part of this new era of mine production and growth in a District that many thought had long finished its contributions to Yukoners and Canadians.

This District has a rich history of mining and exploration dating back to the beginning of the twentieth century. Silver was first discovered here in 1901, with the first silver mine in operation in 1913. Over time, Keno Hill became the second-largest historical silver producer in Canada, with some of the highest-grade silver ore in the world. Between 1921 and 1988, more than 217 million ounces of silver were produced at Keno Hill from more than 35 mines, with average grades of more than 40 ounces per ton of silver, along with significant amounts of lead and zinc. The last of those mines closed more than 20 years ago, mainly due to a long period of depressed metals prices and environmental challenges....leaving a lot of silver in the ground.

Located in Yukon, Canada, the Keno Hill Silver District is located approximately 330 kilometers north of Whitehorse, and lies within the traditional territory of the First Nation of Na-Cho Nyak Dun, with whom Alexco has a comprehensive cooperation and benefits agreement. The District, which Alexco controls, comprises 233.5 square kilometers and has numerous mineral occurrences, deposits and prospects, contributing to an impressive exploration and development pipeline and tremendous exploration upside potential.





2.2
Million

OUNCES OF SILVER
PRODUCTION IN 2012

Bellekeno began
producing ore just
three years after
initial exploration



CANADA'S ONLY PRIMARY SILVER MINE

Mining

In its second full year of production, the Bellekeno silver mine – Alexco's first operating mine in the Keno Hill Silver District – produced approximately 2.2 million ounces of silver during 2012. Bellekeno began commercial production at the beginning of 2011 and produced about 2 million ounces of silver during its startup year. Mine production is expected to remain in the range of 2 million ounces of silver during 2013. Significant amounts of lead and zinc are also mined at Bellekeno, which produced approximately 18.2 million pounds of lead and nearly 5.7 million pounds of zinc during 2012. Bellekeno's average cash cost per ounce of silver, net of by products, was \$11.89 per ounce in 2012, providing a margin large enough to create cash flow from operations during the year of \$14.1 million.

Although the current mine plan at Bellekeno extends through the next two years, successful exploration in 2012 has indicated good potential to replace some of the resource already mined and extend the mine plan. An updated recalculation of the resource at Bellekeno is anticipated during 2013.

It took just three years from initial exploration, through permitting, construction and development for Alexco to put Bellekeno into operation, a feat rarely seen in the mining industry. As a result, the Company's founders, Chief Executive Officer Clynt Nauman and Chief Operating Officer Brad Thrall, were named the recipients of the 2011 E.A. Scholz Award for Excellence in Mine Development. This prestigious AME BC award recognized them for their technical skills, environmental control expertise and cooperative relationship with the local Na-Cho Nyak Dun First Nation.



Mining operations at Bellekeno are managed by Alexco under contract by Procon Mining and Tunnelling, a highly experienced mining contractor, in a joint venture with the Nacho Nyak Dun Development Corporation. Although the initial mine plan was to utilize the cut-and-fill method of mining, the mine began to transition over to long-hole mining once enough field experience with the ground conditions was obtained. Bellekeno began producing ore from long-hole stopes in 2011, which was the first time this mining method was attempted in the history of the District.

In places where large blocks of ore are identified and the adjoining rock is relatively competent, then a long-hole mining method is generally the lowest-cost mining technique. Alexco was able to begin using this method with a targeted approach in some areas of the mine, successfully lowering costs and increasing production output at Bellekeno in the latter part of 2012.

Milling

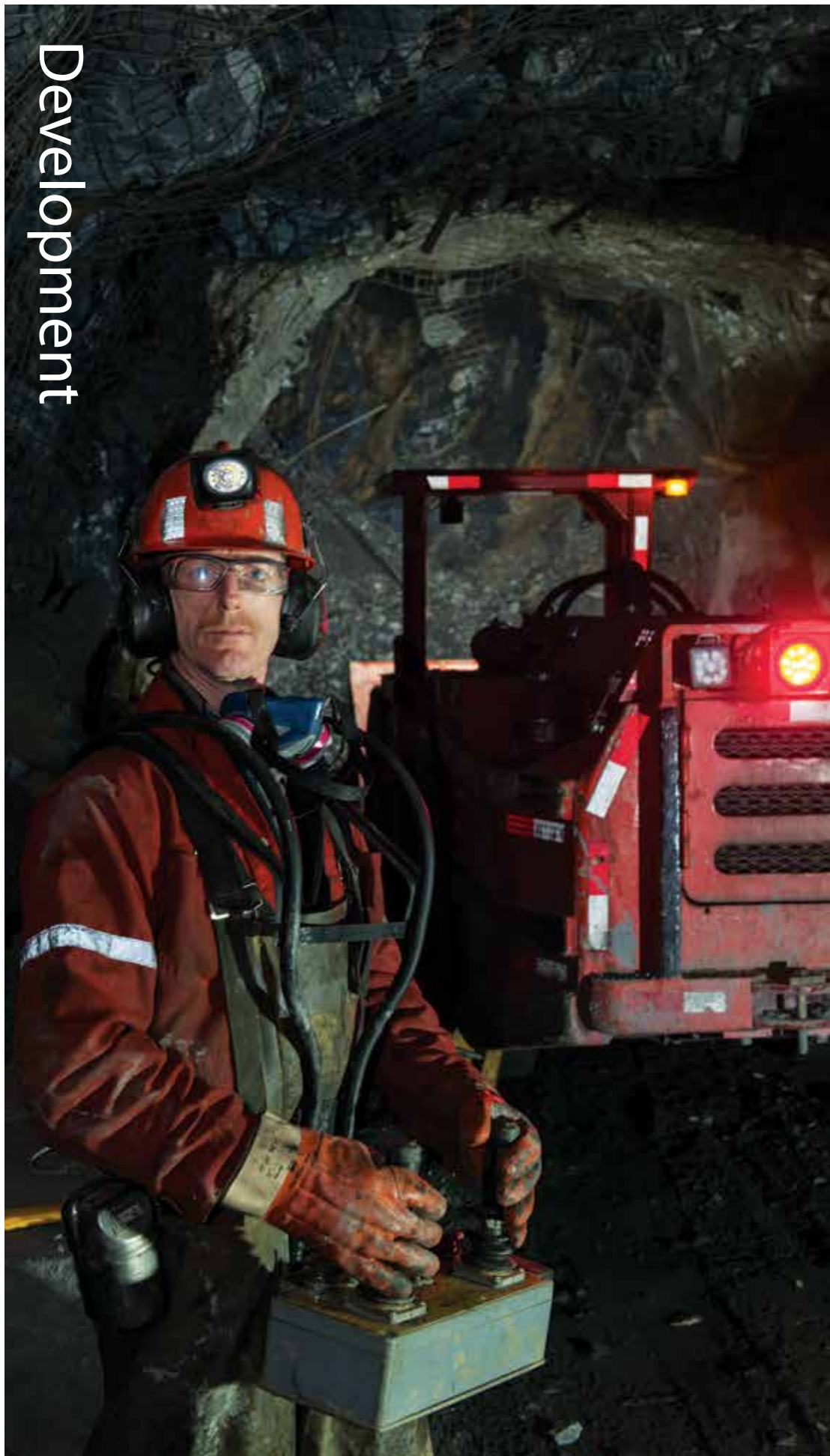
The processing mill at Keno Hill has been ramping up toward full capacity over the past two years of operations, and in the fourth quarter of 2012 hit a record average throughput of 291 tonnes per day. For the full year 2012, average mill throughput increased 17% over 2011 to 260 tonnes per day. The nameplate capacity of the mill is 400 tonnes per day, with the Bellekeno mine expected to provide around 200 to 250 tonnes per day of feed. The additional capacity will be used to process the feed from the newly developed Onek and Lucky Queen mines.

The mill, located approximately 4.5 kilometers from the Bellekeno mine, uses conventional crushing, grinding and flotation processes, followed by concentrate and tailings dewatering. The tailings are filtered and either used as backfill for the mine or stored in a dry stack tailings facility, ensuring the highest environmental integrity at the site. The mill produces both lead and zinc concentrates, which are transported by truck in specially designed, environmentally protective metal pods to Alaska, shipped by barge to Seattle and then taken by truck to a smelter in southern British Columbia for treatment and refining.

Silver Purchase Agreement

The Bellekeno mine and mill were built at a cost of C\$61 million, including US\$50 million provided by Silver Wheaton Corp. as part of its 2008 silver purchase agreement with Alexco. In return, Alexco is selling Silver Wheaton 25% of the payable silver produced from the Keno Hill District at a price of \$3.90 per ounce. The agreement does not include any of the lead, zinc or other by-product production.

Development



\$11
Million

IN CAPITAL IN 2012 TO
DEVELOP TWO NEW MINES

Keno Hill Silver
District provides
an outstanding
pipeline of
both near-term
development
projects and
longer-term
exploration
prospects



GROWING PRODUCTION

Alexco's Bellekeno silver mine is the just the first building block to a much larger operating base at the Keno Hill Silver District. The upside potential exists to discover the next 100 million ounce silver deposit in the District for the ultimate reward. In the meantime, Alexco has already identified resources that can be developed and put into production in the fairly near-term future. Under development in 2012 and going into production in 2013 are two additional mines – Onek and Lucky Queen. Alexco spent approximately \$11 million in 2012, readying these two mines for production, including rehabilitation and development drifting, infrastructure and permitting costs. The ore from both mines will be processed through the Keno mill, which was designed with the capacity to handle the additional ore feed.

Onek

The Onek property ('Keno' spelled backwards) currently contains more than 3.6 million Indicated and 1.5 million Inferred ounces of silver. Exploration drilling in the Onek historical mine area has revealed a distinctly zoned body of mineralization, with high silver grades in the upper portion and high percentages of zinc mineralization at depth, ranging from an average of 11.5% zinc in the Inferred resource to 13.7% zinc in the Indicated resource. The importance of the Onek deposit is enhanced by its proximity to the Keno District Mill, ease of underground access and the identification of newly defined areas of the deposit with significant silver values. The deposit remains open to the southwest and down-dip. During 2012 a new portal into the deposit was sited and

underground development was initiated, to drive 270 meters of development drift to access the silver-rich southwest zone of the deposit. Alexco anticipates startup of production from Onek during 2013, subject to final positive development decisions and receipt of a water license amendment.

Lucky Queen

Operating from 1927 to 1932, Lucky Queen was the highest-grade silver producer in the Keno Hill District – and one of the highest-grade silver mines in the world – producing 11 million ounces of silver from 123,500 tons of ore for an average recovered production grade of 88.7 ounces of silver per ton. Rehabilitation and redevelopment of the historic underground mine began in April 2011, with the aim of accessing underground drilling targets by the end of 2011. In August 2011, Alexco announced an estimated resource at its Lucky Queen property of nearly 4.9 million Indicated plus 2.8 million Inferred ounces of silver. Metallurgical testing and preliminary mine planning and engineering studies were initiated in 2011. Development of the ore body began in 2012 with plans to initiate silver mining there during 2013. Underground rehabilitation of 1,200 meters of the old mine workings has been completed toward accessing the first new area of deposit, with 100 meters of development drift driven during the year. As supplemental feed along with the Bellekeno and Onek operations, Lucky Queen is expected to be operated on an as-needed basis to ensure optimal mill feed blending for the best overall economic results.

Elsa Tailings Project

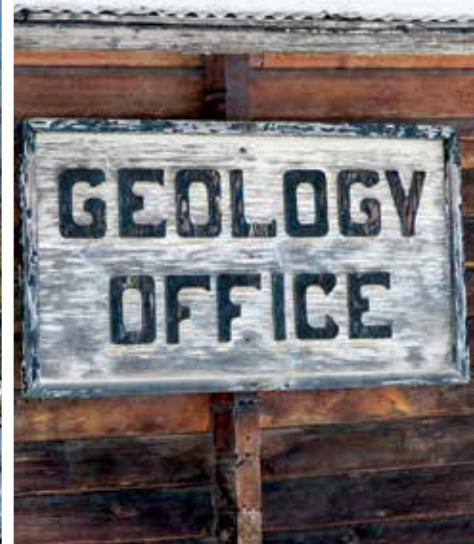
Elsa is the site of Alexco's administrative offices in the Keno Hill Silver District, and also the site at which historical milling operations took place, starting in the 1930s and continuing until 1988. Because of the high grade silver nature of the District and the lower recoveries at the time, it is estimated that the tailings contain an average of more than three ounces per ton of silver, which is higher than many silver mines in the world. The Indicated resource at the Elsa tailings is more than 9.5 million ounces of silver. As part of Alexco's contract with the government whereby the Company gets paid for performing environmental remediation of the District, the tailings must be moved. Alexco is considering re-processing the tails during that process. As a result of the encouraging data gathered from the Elsa tailings, engineering work is underway to determine the viability of recovering the silver in this valuable resource. Because the metallurgy of the tails is different from that of the mines, the project would require building a new processing facility and would be more capital intensive than the other projects under development.



Exploration

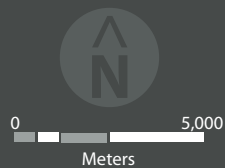


2012 was without precedent on the exploration front, with 25 thousand meters of surface drilling and a 52% increase in silver resource



2012 SURFACE DRILL PROJECTS BY METERS

- 6,000 – 9,930
- 5,000 – 6,000
- 4,000 – 5,000
- 1,000 – 4,000
- 0 – 1,000



EXPLORATION

Alexco's 2012 exploration program at its Keno Hill Silver District properties was its most aggressive to date, with more than 25,000 meters of surface drilling and about 4,700 meters of underground drilling completed. The year was without precedent on the exploration front with a 52% increase announced by the end of 2012 in the District-wide Indicated silver resources to 40.2 million ounces of Indicated silver resource and 10.5 million ounces of Inferred resource, plus more than 5 million ounces of historical silver resource. Already in 2013, Alexco has released new resource calculations for its Flame & Moth deposit, further ramping up the total consolidated silver resource for the District to 51.3 million ounces of Indicated silver resource and 7.7 million ounces of Inferred silver resource.

Flame & Moth

The Flame & Moth deposit is a new discovery in the Keno Hill District, a target first unearthed by Alexco's exploration team in 2010 after thorough interpretation of the District's geological trends. The Flame & Moth is located next to the District processing mill. Additional positive drill results were announced in January 2013, underscoring the robust nature of the deposit, and by the end of January 2013, the Flame & Moth resource estimate was nearly 23 million ounces of Indicated and 1 million ounces of Inferred silver resource and growing.

The mineralization here is wider than many of the historical mines in the District, comes nearly to the surface, and could represent a paradigm change in the type of mining for the District. Depending upon final results, this deposit could potentially lend itself to more economic bulk mining with lower dilution. Mineralization now extends 600 meters along strike and 350 meters down dip, while remaining open to the south and east, and westerly toward the surface. The Flame and Moth deposit is divided into two zones, the Lightning and the Christal Zones, southwest and northeast of the Mill Fault, respectively. The results from both zones continue to increase the confidence in the Flame & Moth deposit, which could represent the most significant near-term production growth opportunities in the Keno Hill District. In addition, exploration drilling has identified a new discovery similar in appearance to the Flame Vein about 600 meters to the west-southwest of the Flame & Moth deposit, with a single drill hole intersecting 10.7 ounces per ton silver over a 0.85 meter interval, significantly expanding the area of potential mineralization likely related in some manner to the Flame & Moth deposit.

In 2013, Alexco plans to initiate baseline geotechnical, metallurgical and environmental work as well as preliminary engineering on the Flame & Moth deposit. This work is expected to include studies of future potential production options in context with existing mines and other opportunities in the District.

Birmingham

During 2012, an initial resource estimate was released for the Birmingham exploration project, which is in the area of the historical Birmingham mine, totaling nearly 4 million ounces of silver in the Indicated resource category and more than 1 million ounces of silver in the Inferred resource category. Seventeen drill holes comprising both infill and extension drilling were completed into the Birmingham target during the year for an approximate total of 6,000 meters of drilling. Silver mineralization is now known to extend at least 500 meters along strike and 400 meters down dip in the Birmingham area, and remains open. Review and update of the Birmingham resource is ongoing.

A Plethora of Targets

Alexco's exploration team was kept busy with a number of other, earlier stage targets as well during the year, conducting drilling programs on no fewer than 10 targets in 2012. This prolific and historic silver district encompasses geology that lends promise of many more discoveries to come. The Husky prospect, at the site of yet another historical mine near Alexco's site administration offices, was drilled at depth below the main historical mine workings with 14 drill holes. Results included a new footwall vein discovery that assayed 14.5 ounces of silver per ton over 0.65 meters, providing yet another new future target. Other prospects included in the 2012 exploration drilling program were Mackeno, McQuesten and Mom & Son.

2013

Alexco's exploration success on its large land package and the mineralized nature of the Keno Hill District have resulted in dramatic growth in the Company's silver resource over the past few years. There is so much data on hand that the strategy for 2013 will be to drill fewer new targets in order to give the exploration team time to analyze the current abundance of data to determine the direction for the future of the whole District. Consequently, the drilling focus in the coming year will be mainly on Flame & Moth and Birmingham extensions, as well as at the Bellekeno mine where new models are indicating potential for further extension of mine life.

ALEXCO ENVIRONMENTAL GROUP

Alexco's success in rapidly exploring and developing the Keno Hill Silver District is in good part due to the expertise of its wholly owned subsidiary, Alexco Environmental Group (AEG). Through AEG, Alexco operates an environmental services business providing a range of services to the mining industry and other clients. These services include management of the regulatory and environmental permitting process, environmental assessments, remediation solutions and reclamation and closure planning. AEG owns six patents and has additional U.S. patents allowed and pending for the in-situ use of nutrients in earthen materials for in-situ immobilization of metals in groundwater, soils, waste stacks and pit lakes.

Today's mining industry is highly regulated and the thorough environmental assessment and permitting requirements in Canada and the United States help ensure best practices in every area, including safety, health and the environment. AEG is well respected in Canada, the U.S. and abroad as an innovative and comprehensive environmental remediation solution, with special emphasis and patents related to water treatment. For example, AEG has been entrusted with cleaning up major projects such as the former Globeville smelter within the City of Denver, Colorado, and that type of expertise is being used at the Keno Hill Silver District.

It is because of this expertise that Alexco was awarded the contract with the Government of Canada to remediate the historical impacts of mining at Keno Hill, and gained access to the mining rights there. This work is done under a stand-alone unit within AEG called the Elsa Reclamation & Development Company Ltd. (ERDC). Other units within the division include Access Consulting Group, based in Whitehorse, Yukon, and Alexco Resource U.S. Corp., which both provide their specialized environmental services for a growing number of clients across northern Canada, the United States and elsewhere. These skill sets enabled Alexco to go from discovery to permitting to development to production within three short years at the Bellekeno mine. Alexco's AEG is unique in the mine reclamation and closure business as it provides the full cycle of closure project services including technical closure studies, plan development, permitting, regulatory management, execution and long-term monitoring.

The Company's senior management team has been recognized for its award-winning reclamation and closure performance at the Brewery Creek mine, which received the Department of Indian Affairs and Northern Development Robert E. Leckie Award for Outstanding Reclamation Practices in both 1999 and 2002. In 2003, industry and government representatives praised the work completed at Brewery Creek for leadership and innovation in mine reclamation technology.

AEG provides a small but significant stream of annual revenue for the Company. During 2012, AEG continued its strong performance, with gross profit increasing to \$2.9 million and a gross margin of 36%. About 30% of AEG's business is connected with remediation work at Keno Hill under the long-term arrangement with the Government.

With offices in Vancouver, Whitehorse, Denver and Toronto, the Alexco Environmental Group provides a variety of environmental services to organizations ranging from government agencies to junior exploration and development companies to major global mining firms. AEG endeavors to exceed client expectations, identify and unlock hidden project value and share in the benefits of success achieved for clients.

COMMITTED TO SOCIAL RESPONSIBILITY

Alexco has a commitment to continue its contributions to the economy, the environment and the communities in and around the Keno Hill Silver District. The goal is to help provide the minerals that every Canadian needs, while doing it an environmentally and socially responsible manner.

The two sides of Alexco's business – mining and environmental remediation – are often viewed as disparate, yet they form the fundamental components of Alexco's core mission. The Company's vision is to operate mines that have traditionally been viewed as having high environmental or social risk, bring them back to profitable production, and then return them to an uncontaminated, environmentally healthy state.

Environmental

Through its agreement and partnership with the Government of Canada, Alexco has invested more than \$17 million to remediate historical health and wildlife hazards throughout the Keno Hill District and has reduced zinc release from the historical Galkeno 300 mine by 99.5%. This also includes the permanent removal of over half a million kilograms of zinc and other heavy metals pollution from water that continues to discharge from historical adits – an effort which has resulted in a 75% reduction in the amount of zinc entering Christal Creek alone. Alexco has also removed hazards such as open shafts and collapsing buildings to make Keno Hill a safer place for the public and tourists, and expects continued significant savings to taxpayers in the future as Alexco carries on its work at Keno Hill.

Community Contributions

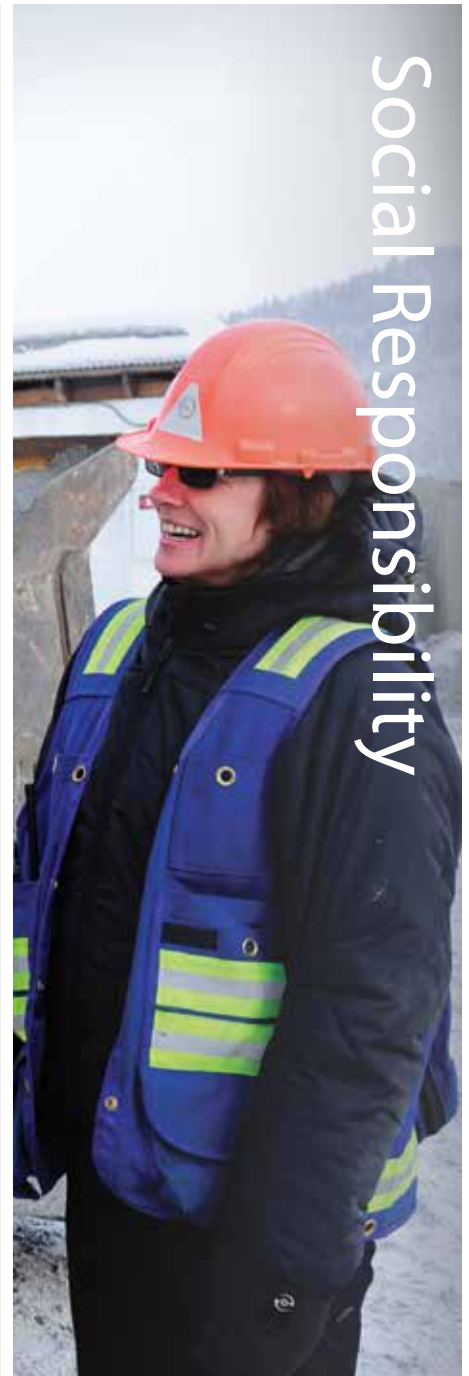
"Giving back" isn't something Alexco does only as a philanthropic gesture; it's what the Company does wherever they live and work. Over the past five years, Alexco has contributed more than \$53 million to the region via community donations and business contracts with Yukon-based vendors and suppliers. In an area that was experiencing a shortage of jobs just a few years ago, Alexco now provides work for more than 280 Canadian employees and contractors, with more than 50% of Alexco employees being Yukon residents. The operations at Keno Hill alone supply a \$22 million annual payroll.

First Nations

Alexco is fortunate to be able to operate on lands located within the traditional territory of the First Nation of Na-Cho Nyak Dun (NND). Among other things, NND has stepped forward to participate commercially in two of the major vendor opportunities at the Keno Hill Silver District site: food service catering, and in a joint venture partnership with Procon for the underground mining work. Alexco and the NND have a Comprehensive Cooperation and Benefits Agreement (CCBA) that guides today's interaction. Importantly, the CCBA both acknowledges the NND aboriginal rights and title, and recognizes the legitimacy of Alexco's mining leases and grants and other property rights at Keno Hill. Equally important, the CCBA provides significant social and financial components, including a drug and alcohol policy, regular business liaison meetings, a full time NND Liaison Officer, scholarships, funding to hire consultants so they can participate in environmental permitting reviews, and more.

Health & Safety

Social responsibility also includes paying close attention to the daily welfare of employees through extensive health and safety programs, providing intensive safety training for workers at site. Alexco makes promoting a corporate culture of safe working habits a high priority, and in 2012 received recognition from the PDAC and AME BC "Safe Day Every Day" program for working lost time accident-free in 2011.



SILVER – THE INDISPENSABLE METAL

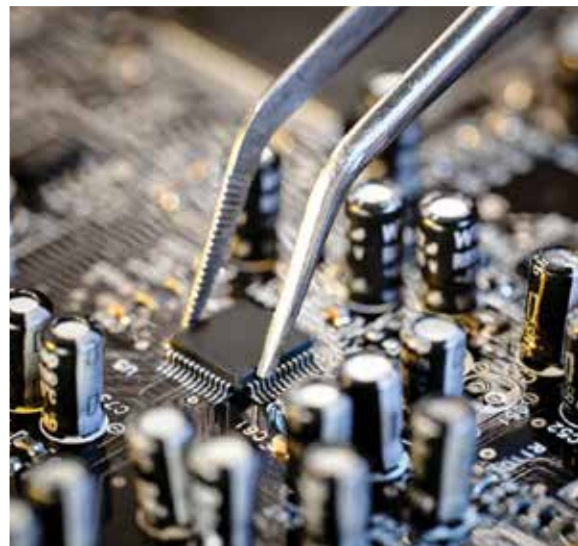
The rejuvenation of the Keno Hill Silver District by Alexco comes at the right time to take advantage of what has been a long-term bull market for silver, and there are indications that this bull market could continue to run for the foreseeable future.

In the past 20 years, the industrial demand for silver has increased 70%. This does not include investment demand, which has skyrocketed over the past five years. The manufacturing demand for silver is in the things used every day, such as nearly all electronics – cell phones, televisions, computers, electronic notebooks and more. Silver is a critical element in photo voltaic cells, an industry that is rapidly expanding in the quest for clean solar energy. It is also an emerging and increasingly important antibacterial, used in medicines, for water purification and food preparation, and it fights infections.

Silver has a number of characteristics which make it ideal for a huge range of industrial applications. It is one of the best electrical and thermal conductors, which makes it the metal of choice for many applications of all types of contacts used in the electronics mentioned above, as well as LEDs and radio frequency identification tags. Silver reflective properties make it useful in mirrors and glass coatings, and its fluidity and strength make it perfect for alloys used in batteries and in applications from air conditioning to power distribution devices used in the automobile industry. The unique combination of characteristics enjoyed by silver makes it difficult for manufacturers to find economic substitutions for the metal.

According to “The Future of Silver Industrial Demand” written by Gold Fields Mineral Services for the Silver Institute in 2011, “The forecast for silver industrial demand...points to robust growth in the global total through to 2015,” and “...industrial off take is expected to achieve a period of uninterrupted growth.” This growth in industrial usage, as well as robust demand for silver as an investment vehicle, has led to a nearly seven-fold increase in the price of silver over the past decade. The average price of silver in 2012 was \$31.15 per ounce, dramatically increased from the price of just \$4.60 per ounce in 2002.

Silver has been considered a precious element for 6,000 years. It was first used as a currency in 700 B.C. and has had a role as a trading metal in nearly every ancient and modern culture. Since the drachma of the ancient Greeks silver has long held a special place as a store of value. Today, its intrinsic value persists. It is considered a secure and affordable investment and has earned a place in the portfolios of many different types of investors for that reason.



SUMMARY OF MINERAL RESOURCES

Estimated resources for Alexco's mineral properties within the Keno Hill District:

Category ^{1,2,10}	Property	Tonnes	Ag (g/t)	Au (g/t)	Pb (%)	Zn(%)	Contained Ag (oz)
Indicated	Bellekeno ³	224,100	913	0.5	7.3%	7.1%	6,577,000
	Lucky Queen ⁴	124,000	1,227	0.2	2.6%	1.7%	4,891,000
	Onek ⁵	585,000	194	0.7	1.2%	13.7%	3,648,000
	Flame & Moth ⁶	1,378,000	516	0.4	1.7%	5.7%	22,859,000
	Birmingham ⁷	257,000	460	0.1	2.0%	2.1%	3,800,000
	Total Indicated – Sub-Surface Deposits	2,568,100	506	0.4	2.2%	7.1%	41,775,000
	Elsa Tailings ⁸	2,490,000	119	0.1	1.0%	0.7%	9,526,000
	Total Indicated – All Deposits	5,058,100	316	0.3	1.6%	3.9%	51,301,000
Inferred	Bellekeno ³	111,100	320	0.3	3.1%	17.9%	1,143,000
	Lucky Queen ⁴	150,000	571	0.2	1.4%	0.9%	2,753,000
	Onek ⁵	236,000	203	0.4	1.1%	11.5%	1,540,000
	Flame & Moth ⁶	107,000	313	0.3	0.9%	4.2%	1,081,000
	Birmingham ⁷	102,000	372	0.1	1.1%	1.8%	1,220,000
	Total Inferred	706,100	341	0.3	1.4%	7.8%	7,737,000
Historical Resources	Silver King ⁹						
	– Proven, probable and indicated	98,998	1,354	n/a	1.6%	0.1%	4,310,000
	– Inferred	22,581	1,456	n/a	0.1%	n/a	1,057,000

Notes:

- ¹ All mineral resources are classified following the CIM Definition Standards for Mineral Resources and Mineral Reserves (December 2005), in accordance with the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines and the guidelines of NI 43-101.
- ² Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect the relative accuracy of the estimates.
- ³ The resource estimates for Bellekeno are based on the geologic resource estimate made effective November 9, 2009, supported by the technical report dated December 2, 2009 entitled "Bellekeno Project -- Updated Preliminary Economic Assessment Technical Report". The Bellekeno indicated resources are as at December 31, 2012, and reflect the geologic resource less estimated subsequent depletion from mine production.
- ⁴ The resource estimates for Lucky Queen have an effective date of July 27, 2011, and are supported by disclosure in the news release dated July 27, 2011 entitled "Alexco Announces Initial Resource Estimates for Lucky Queen and Onek" and by a technical report filed on SEDAR dated September 8, 2011 entitled "Technical Report on the Lucky Queen Deposit, Lucky Queen Property, Keno Hill District, Yukon".
- ⁵ The resource estimates for Onek have an effective date of July 27, 2011, and are supported by disclosure in the news release dated July 27, 2011 entitled "Alexco Announces Initial Resource Estimates for Lucky Queen and Onek" and by a technical report filed on SEDAR dated September 8, 2011 entitled "Technical Report on the Onek Deposit, Onek Property, Keno Hill District, Yukon".
- ⁶ The resource estimates for Flame & Moth have an effective date of January 30, 2013, and are supported by disclosure in the news release dated January 31, 2013 entitled "Alexco Expands Flame & Moth Indicated Resource to 22.9 Million Ounces of Silver; Resource Grade Increased, Deposit Remains Open" and by a technical report filed on SEDAR dated March 15, 2013 entitled "Updated Technical Report on Flame & Moth Deposit, Flame & Moth Property, Keno Hill District, Yukon".
- ⁷ The resource estimates for Birmingham have an effective date of June 27, 2012, and are supported by disclosure in the news release dated June 28, 2012 entitled "Alexco Announces Initial Resource Estimates for Flame & Moth and Birmingham" and by a technical report filed on SEDAR and signature dated August 8, 2012 entitled "Technical Report on the Birmingham Deposit, Birmingham Property, Keno Hill District, Yukon".
- ⁸ The resource estimate for the Elsa Tailings has an effective date of April 22, 2010, and is supported by the technical report dated June 16, 2010 entitled "Mineral Resource Estimation, Elsa Tailings Project, Yukon, Canada".
- ⁹ Historical resources for Silver King were estimated by United Keno Hill Mines Limited, as documented in an internal report entitled "Mineral Resources and Mineable Ore Reserves" dated March 9, 1997. The historical resources were estimated based on a combination of surface and underground drill holes and chip samples taken on the vein and calculated using the polygonal (block) method and the 1997 CIM definitions for resource categories. These estimated historical resources include a total of 55,674 tonnes classified as proven and probable reserves and 43,324 tonnes classified as indicated resources, plus an additional 22,581 tonnes classified as inferred resources. Though believed by Alexco management to be relevant and reliable, this estimate of historical resources has not been verified by Alexco, pre-dates NI 43-101 and is not compliant with NI 43-101 resource categories. Verification of the estimate would require new drill holes into a statistically significant number of the historical resource blocks and/or a combination of on-vein sampling. A qualified person has not done sufficient work to classify this estimate of historical resources as current, nor is Alexco treating this historical estimate as a current mineral resource.
- ¹⁰ The disclosure regarding the summary of estimated resources for Alexco's mineral properties within the Keno Hill District has been reviewed and approved by Scott Smith, P.Eng., Bellekeno Mine Manager with Alexco and a Qualified Person as defined by NI 43-101.

Senior Management



L > R Vicki Veltkamp, James Harrington, Brad Thrall, Clynton Nauman, Alan McOnie, David Whittle, Rob McIntyre

SENIOR MANAGEMENT

Clynton R. Nauman, BSc (Hons)
President & Chief Executive Officer

Brad Thrall, BSc, MBA
Executive Vice President & Chief Operating Officer

David Whittle, CA
*Senior Vice President, Chief Financial Officer
& Company Ethics Officer*

Alan McOnie, MSc (Geology), FAusIMM
Vice President, Exploration

James Harrington, MSc
President, Alexco Environmental Group

Rob McIntyre, R.E.T., CCEP
Vice President, Sustainability & Regulatory Affairs

Vicki Veltkamp
Vice President, Investor Relations

Not pictured:

Joe Harrington, BSc
*Vice President, Technology & Strategic Development,
Alexco Resource U.S. Corp.*

Tim Hall, BSc
*Vice President & General Manager,
Keno Hill District*

*Photography: Richard Hartmier, Clint Hussey, Al McOnie
Design: Brenda Hewer Design*

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Vancouver, British Columbia

CAUTIONARY NOTES

Qualified Persons

Except where specifically indicated otherwise, the disclosure in this annual report 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 approved by Scott Smith, P.Eng., Bellekeno Mine Manager, both of whom are Qualified Persons as defined by National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101"). All material technical information included herein has previously been disclosed by Alexco, and the viewer is particularly directed to the company's most recently filed AIF and U.S. Form 40-F and its most recently filed interim and annual financial reports; as well as the remaining filings completing Alexco's continuous disclosure records.

Cautionary Statement Regarding Forward-Looking Statements

This annual report 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 Alexco's business plans, including but not limited to anticipated results and developments in Alexco'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 annual report. Alexco does not intend, and does not assume any obligation, to update these forward-looking statements, except as required by applicable law.

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, 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, 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 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. Furthermore, forward-looking statements are statements about the future and are inherently uncertain, and actual achievements of Alexco 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 the section entitled "Risk Factors" in the MD&A included in Alexco's most recent interim and annual financial reports, its current AIF and U.S. Form 40-F, and various of its other continuous disclosure documents.

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 presentation, Alexco has applied several material assumptions, including, but not limited to, the assumption that: (1) the proposed development of its mineral projects will be viable operationally and economically and proceed as planned; (2) market fundamentals will result in sustained silver, gold, lead and zinc demand and prices, and such prices will be materially consistent with or more favorable than those anticipated in the Bellekeno Development Plan, (3) the actual nature, size and grade of its mineral resources are materially consistent with the resource estimates reported in the supporting technical reports; and (4) any additional financing needed will be available on reasonable terms.

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

Information in this annual report has been prepared in accordance with the requirements of the securities laws in effect in Canada, which differ from the requirements of U.S. securities laws. Unless otherwise indicated, all resource and reserve estimates included in this presentation have been prepared in accordance with NI 43-101 and the Canadian Institute of Mining and Metallurgy Classification System. NI 43-101 is a rule developed by the Canadian Securities Administrators which establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects. NI 43-101 permits the disclosure of an historical estimate made prior to the adoption of NI 43-101 that does not otherwise comply with NI 43-101, using the historical terminology, if the disclosure: (a) identifies the source and date of the historical estimate; (b) comments on the relevance and reliability of the historical estimate; (c) to the extent known, provides the key assumptions, parameters and methods used to prepare the historical estimate; (d) states whether the historical estimate uses categories other than those prescribed by NI 43-101 and if so includes an explanation of the differences; (e) includes any more recent estimates or data available to the issuer; (f) comments on what work needs to be done to upgrade or verify the historical estimate as current mineral resources or mineral reserves; and (g) states with equal prominence that a qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves and that the issuer is not treating the historical estimate as current mineral resources or mineral reserves.

Canadian standards, including NI 43-101, differ significantly from the requirements of Industry Guide 7 promulgated by the United States Securities and Exchange Commission ("SEC") under the United States Securities Act of 1933, as amended, and resource and reserve information contained herein may not be comparable to similar information disclosed by U.S. companies. In particular, and without limiting the generality of the foregoing, the term "resource" does not equate to the term "reserves". Under U.S. standards, mineralization may not be classified as a "reserve" unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time the reserve determination is made. The SEC's disclosure standards under Industry Guide 7 do not define the terms and normally do not permit the inclusion of information concerning "measured mineral resources", "indicated mineral resources" or "inferred mineral resources" or other descriptions of the amount of mineralization in mineral deposits that do not constitute "reserves" by U.S. standards in documents filed with the SEC. U.S. Investors should also understand that "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, estimated "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 standards as in place tonnage and grade without reference to unit measures. The requirements of NI 43-101 for identification of "reserves" are also not the same as those of the SEC's Industry Guide 7, and reserves reported by the Corporation in compliance with NI 43-101 may not qualify as "reserves" under Industry Guide 7 standards. Accordingly, information concerning mineral deposits set forth herein may not be comparable with information made public by companies that report in accordance with U.S. standards.



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