Occurrence Details

Occurrence Number: 105M 085
Occurrence Name: Lucky Queen
Occurrence Type: Hard-rock
Status: Deposit
Date printed: 12/15/2025 10:15:21 PM

General Information

Primary Commodities: gold, lead, silver, zinc
Deposit Type(s): Vein Polymetallic Ag-Pb-Zn+/-Au
Location(s): 63°57'1.21" N - -135°15'14.35" W
NTS Mapsheet(s): 105M14
Location Comments: Location equals approximate centre of deposit.
Hand Samples Available: No
Last Reviewed:

Capsule

WORK HISTORY

The Lucky Queen property currently consists of 51 surveyed quartz mining leases and six unsurveyed quartz mining claims. The mineral resources reported to date for the Lucky Queen property are located within 4 quartz mining leases: the Uncle Sam (12923), Mayo (12919) staked in Dec/19, Mathole (12937), staked in Jan/20 and Lucky Queen (13201) staked in May/20.

The claims were staked by Hector Morrison and optioned to Livingston Wernecke and Treadwell Yukon Corporation in 1927.The Lucky Queen mine operated intermittently between1923 and 1990. In 1923, it produced a small amount of ore (20 tonnes) underKeno Hill Mines Ltd. The next period of operation was from 1929 to 1932, the most productive years, when it was owned by Treadwell Yukon Company Ltd. The mine was then shut down, until 1947, when W. Williamson shipped 23 tonnes of direct shipping ore. In 1989 and 1990, Archer, Cathro and Associates shipped 250 tonnes of direct shipping ore. Overall, the mine produced 340,874,444 grams of silver (10,959,368 oz), 7,785,119 kg of lead and 3,017,960 kg of zinc from 123,530 tonnes of ore grading an average of 3,042 g/t silver (88.72 oz/t), 6.95% lead and 2.69% zinc.

The Lucky Queen vein and strike extensions were explored by United Keno Hill Mines Ltd intermittently by surface overburden drilling, trenching and soil sampling throughout the 1950s, 1960s, 1970s and early 1980s. Between 1985-87 United Keno attempted to drive an exploration adit underneath the historical workings but poor ground conditions combined with difficulty locating the vein and an overall manpower shortage throughout the Keno Hill district lead the company to abandon the adit.

In 2000 United Keno Hill Mines declared bankruptcy resulting in the Lucky Queen property and United Keno's other various claim holdings remaining tied up in bankruptcy court proceedings due to the pre-existing environmental clean-up costs associated with the property. In 2004 PricewaterhouseCoopers Inc the court-appointed receiver and receiver-manager of the Keno Hill properties advised the Federal and Territorial governments that United Keno Hill Mines former properties could likely be sold if the pre-existing environmental clean-up costs could be separated from the property. The governments held an open season for bids and in June 2005 Alexco Resource Corporation was selected as the preferred purchaser of the mining assets.

Alexco Resource Corp entered negotiations with the Federal and Territorial governments and in Feb/2006 finalized a purchase agreement. As part of the agreement Alexco assigned its interests in the purchase agreement to its wholly owned subsidiary, Elsa Reclamation and Development Company Ltd. In addition to purchasing all of the assets of United Keno Hill Mines Ltd and UKH Minerals Limited, the subsidiary entered into Sub-Agreement with Alexco, the Federal and Yukon governments in respect of the pre-existing environmental condition and the environmental care and maintenance and reclamation of the United Keno Hill Mines site. As part of the Sub-Agreement, the Federal Government indemnified Elsa Reclamation and Development Company Ltd and Alexco for all liabilities arising directly or indirectly as a result of the pre-existing condition of United Keno Hill Mines various properties. In a separate agreement the Yukon Government hired Elsa Reclamation and Development as a paid contractor to assume responsibility for the environmental care and maintenance of the properties. On February 15, 2006 the Supreme Court of the Yukon Territory granted a vesting order approving the sale of assets to Alexco and its subsidiary Elsa Reclamation and Development Company Ltd.

Following acquisition of United Keno Hill Mines' properties, Alexco began a program of scanning and digitizing all historic documents related to the various historic mines and exploration properties. The company used the resulting database to build 3-D models reflecting the geology, mineralization, structure, grade and configuration of known mineralization.

In 2006 Alexco collared 4 diamond drill holes (875 m) on the Lucky Queen property. The holes targeted the vein structure located below the south-western end of the historical workings and around the lowermost reaches of the internal winze. In 2007 Alexco focused their exploration efforts on other parts of their large property. As such diamond drilling at the Lucky Queen property was delayed until the end of the exploration season, resulting in only 3 holes (557 m) being collared of which only one reached the targeted depth. Diamond drilling in 2008 (12 holes – 2,999 m) was focused on stepping out to the southwest along the strike of the mineralized vein while the 2009 (14 holes – 3,048 m) and 2010 (14 holes – 3,625 m) drill programs focused on closer spaced infill drilling. In addition to diamond drilling Alexco carried out geological mapping and flew an airborne electromagnetic and magnetic geophysical survey over the property.

In Jul/2011 the company released a NI 43-101 Compliant Technical Report which included an initial mineral resource estimate for the Lucky Queen deposit. Following release of the mineral resource estimate, Alexco immediately initiated rehabilitation of the historical Lucky Queen 500 level portal and began preliminary mine planning and metallurgical testing. Planning work continued into 2012 and included underground diamond drilling and engineering studies related to bringing the deposit into production.

In Jan/2013 Alexco was granted a Quartz Mining License by the Yukon Government. Following issuance of an amended water license the Lucky Queen deposit is scheduled to enter production in the third quarter of 2013, following a revision to the waste rock management program intended to eliminate material re-handling and provide more efficient long term storage of tailings.

An updated Preliminary Economic Assessment was prepared by SRK Consulting for Alexco Resource Corp in a report dated November 15, 2013. The updated resource statement for the Lucky Queen deposit remains unchanged from the one dated July 2011 and is quoted below.

GEOLOGY

The Lucky Queen property is situated within the Keno Hill mining district in central Yukon. The property lies northeast of the town of Keno City, Yukon although the actual mineralized vein lies approximately 5.5 km northeast of the town and 6 km northeast of Alexco's new Keno Hill district ore processing mill. Mineralization at the Lucky Queen deposit is confined to the Mississippian Keno Hill Quartzite formation. This formation is about 700 m thick and is structurally overlain by phyllite and sericite schist of the Late Proterozoic-Early Cambrian Hyland

Group, and underlain by graphitic schist, phyllite and sericite schist of the Devonian-Mississippian Earn Group. The sequence is cut by greenstone sills which consist predominantly of meta-diorite and have yielded a U-Pb age of 232.2 ± 1.5 Ma (Triassic).

The Lucky Queen vein structure has been outlined over a distance of approximately 650 m and is open along strike in both the northeast and southwest directions. The vein has an average strike of approximately 43° with local variations ranging from 25 to 60° and an average dip of around 45° to the south, within a range of 30 to 55°. The deposit consists of a relatively narrow, high-grade zones of mineralization ranging in thickness from just a few centimetres to several metres. Mineralized zones are largely composed of brecciated wallrock, siderite (± limonite), vein quartz and ore minerals including silver sulphosalts, galena, sphalerite and native silver. Minor primary minerals present include arsenopyrite and pyrite.

Historical production from the Lucky Queen deposit is estimated at 112,150 tonnes of ore grading 3,058 g/t silver, 7.0% lead and 2.7% zinc (Cathro, 2006). Four levels of underground workings (50, 100, 200 and 300) totaling approximately 1,085 m were developed, with level development roughly coincident with extensive stoping. Ore mined from the deposit returned the highest average silver grade in the Keno Hill district, 3,058 g/t (89.2 oz./ton) and the second highest silver/lead ratio at 12 to 8. Much of the silver was present in pyrargyrite rather than freibergite, which is unusual within the district.

In the early 1970s United Keno Hill Mines re-timbered the upper mine shaft to the 300 level and built a new headframe over the opening. Between 1985 and 1987 United Keno collared a drift on the Black Cap lease (12869) located approximately 1.25 km to the south west and drifted at the 500 level approximately 1,800 m to the northeast intending to come in under the historical workings and connect with the No. 2 Inclined Shaft. Poor ground conditions, difficulty locating the main vein and man power shortages thwarted the plan.

The 2006 drilling program confirmed the presence of mineralization down dip of the historic workings and its bonanza grades of mineralization. Hole K06-018 intersected an interval grading 13,800 g/t silver, 16.7% lead and 0.21% zinc over 0.30 m from 160.3 to 160.6 m. Subsequent drilling programs followed the trend of the vein and further defined and collaborated the location of the mineralization.

The July/2011 NI 43-101 compliant technical report reviewed Alexco's exploration work and outlined the various steps undertaken to calculate the initial resource estimate for the deposit. The consulting engineer was satisfied by the steps Alexco had taken to date to bring the deposit into production. The resource estimate was broken two parts; 1) the Main vein and 2) a separate splay.

Zone	Class	Tonnes	Silver g/t	Lead %	Zinc %	Gold g/t
Main Lucky Queen Vein	Indicated	124 000	1 227	2.57	1.72	0.17
	Inferred	133 000	564	1.33	0.89	0.18
Splay	Inferred	17 000	626	1.68	1.21	0.05
Total	Indicated	124 000	1 227	2.57	1.72	0.17
	Inferred	150 000	571	1.37	0.92	0.16

Cut-off = Net Smelter Return of C$185.00/t

Prices and Recoveries = Silver US$ 18.50/oz, recovery 96%, Lead US$ 0.90/lb, recovery 97%, Zinc = US$0.95/lb, recovery 88%, Gold US$1,100.00/oz, recovery 72%.

The Initial Resource Estimate released in July/2011 allowed Alexco to begin the process of rehabilitating the workings, and initiate the various studies needed to obtain various licenses and permits required to bring the deposit into production. Lucky Queen ore will be processed at the company's "new" ore processing mill located 1 km east of Keno City. Although little information has been released publicly it appears the ore can be processed with only minor adjustments to the mill. Production is currently scheduled for the third quarter of 2013. 2011-2014 not summarized yet.

An updated Preliminary Economic Assessment was prepared by SRK Consulting for Alexco Resource Corp in a report dated November 15, 2013. The updated resource statement for the Lucky Queen deposit remains unchanged from the one dated July 2011 and quoted above. The PEA lists the following features: 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° dip of the deposit. Cemented rockfill is planned to provide adequate support to the hangingwall. Lucky Queen potentially mineable tonnes, which account for 16% of LoM plant feed, are estimated at 129 kt with average metal grades of 1,054 gpt silver, 0.12 gpt gold, 2.35% lead, and 1.47% zinc, and NSR value of $557/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.

Work History

Date	Work Type	Comment
12/13/2013	Studies	Granted Quartz Mining License by Yukon Government.
12/13/2012	Studies	Rehabilitated underground workings, began mine planning and metallurgical testing.
12/13/2011	Studies	Also rehabilitated underground workings, began mine planning and metallurgical testing.
12/13/2010	Drilling	14 holes; 3,625 m. Designed as infill drilling.
12/13/2010	Airborne Geophysics	Electromagnetic and magnetic surveys.
12/13/2009	Drilling	14 holes; 3,048 m. Designed as infill drilling.
12/13/2008	Drilling	12 holes; 2,999 m. Focused on stepping out on previous holes.
12/13/2007	Drilling	3 holes; 557 m
12/13/2006	Airphotography	
12/13/2006	Airphotography	

12/13/2006	Drilling	4 holes; 875 m
12/13/2006	Pre-existing Data	Alexco digitized all historical data and created 3-D models of potential mineralization location.
12/13/2006	Airborne Geophysics	
12/13/2006	Airborne Geophysics	
12/13/2006	Pre-existing Data	
12/13/2006	Remote Sensing	
12/13/1987	Development, Underground	UKHM attempted to drive exploration adit.
12/13/1965	Pre-existing Data	
12/13/1965	Pre-existing Data	
12/13/1940	Pre-existing Data	
12/13/1940	Other	
12/13/1932	Development, Underground	Deposit was mined between 1927 and 1932 by Treadwell Yukon Corp.
11/15/2013	Studies	SRK, 2013.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
096732	2014	Assessment Report Describing Metallurgical Test Pits, Metallurgical Auger Drilling, Geotechnical Auger Drilling, Geotechnical Study, Environmental Baseline Studies, Heritage Evaluation, and Water Quality and Climate Monitoring Surveys	Auger - Drilling, Water - Geochemistry, Metallurgical Tests - Lab Work/Physical Studies, Environmental Assessment/Impact - Studies, Geotechnical - Studies, Heritage/Archeological - Studies	9	96.77
094943	2006	2006 Geological, Aerial Photography and Orthophoto Assessment Report on the Keno Hill Property	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics, Interpretation - Airphotography, Orthophoto - Airphotography, Digitizing Data - Pre-existing Data, Photogrammetry - Remote Sensing		
090564	1979	Geological, Geochemical, and Geophysical Report	Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, EM - Ground Geophysics, Seismic - Ground Geophysics, Research/Summarize - Pre-existing Data		

Related References

Number	Title	Page(s)	Reference Type	Document Type
YEG2007_OV	Yukon Exploration and Geology Overview 2007	17, 37.	Yukon Geological Survey	Annual Report
YEG2008_OV	Yukon Exploration and Geology Overview 2008	17, 31, 36.	Yukon Geological Survey	Annual Report
YEG2011_OV	Yukon Exploration and Geology Overview 2011	22-23.	Yukon Geological Survey	Annual Report
YEG2012_OV	Yukon Exploration and Geology Overview 2012	30.	Yukon Geological Survey	Annual Report
GM1997-1	Bedrock geology of Mayo map area, central Yukon (NTS 105M)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Geoscience Map (Geological - Bedrock)
7	Geology of the Mayo Map Area, Yukon Territory (NTS 105M)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Bulletin
GM1996-5	Geological map of Keno Hill area, Yukon (105M/14)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Geoscience Map (Geological - Bedrock)
1989-3	Yukon Gold-Silver File Description of Occurrences		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Open File (Geological - Bedrock)
6	Geology of the McQuesten River Region, Northern McQuesten and Mayo Map Areas, Yukon Territory (115P/14, 15, 16; 105M/13, 14)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Bulletin

Resource/Reserve

Year	Zone	Type	Commodity	Grade	Tonnage	Amount	Reported Amount	43-101 Compliant	Cut-off
2019	Lucky Queen (Underground)	Probable	gold	.12 g/t	70,717	8486.04	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Probable	lead	2.6 %	70,717	1838642	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Probable	zinc	1.4 %	70,717	990038	Yes	Yes	Unknown

2019	Lucky Queen (Underground)	Probable	silver	1244 g/t	70,717	87971948	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Indicated	silver	1167 g/t	132,300	154394100	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Indicated	gold	.2 g/t	132,300	26460	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Indicated	lead	2.4 %	132,300	3175200	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Indicated	zinc	1.6 %	132,300	2116800	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Inferred	silver	473 g/t	257,900	121986700	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Inferred	gold	.1 g/t	257,900	25790	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Inferred	lead	1 %	257,900	2579000	Yes	Yes	Unknown
2019	Lucky Queen (Underground)	Inferred	zinc	.8 %	257,900	2063200	Yes	Yes	Unknown