## Occurrence Details

**Occurrence Number:** 105M 083
**Occurrence Name:** Elsa Tailings
**Occurrence Type:** Hard-rock
**Status:** Deposit
**Date printed:** 8/5/2025 6:06:27 PM

## General Information

**Primary Commodities:** gold, lead, silver, zinc
**Deposit Type(s):** Tailings Reprocessing
**Location(s):** 63°55'22" N - -135°29'58" W
**NTS Mapsheet(s):** 105M14
**Location Comments:** location coordinates provided by Alexco
**Hand Samples Available:** No
**Last Reviewed:**

### Capsule

Work History

This occurrence covers the tailing impoundment area associated with the former Elsa milling facility located north of the Town of Elsa. Milling operations at Elsa started in the 1930s and operated almost continually until 1988. Two mills have occupied the site. The original mill was destroyed by fire in 1945 and a second one was completed in 1949 and operated until United Keno Hill Mines Ltd stopped mining operations in late 1988. It is estimated that in total approximately 3,675,136 tonnes (4,050,000 tons) of tailing were deposited at the Elsa site.

United Keno Hill Mines carried out two major percussion drill programs on the tailings: the first in 1970 and the second in 1987 and 1988. In Aug/88 the company combined the results of these programs with other historical data to calculate a historical resource of approximately 3,675,000 tonnes (4,050,000 tons) grading approximately 108 g/t silver. These figures do not meet current National Instrument 43-101 standards and are reported for historical purposes only.

The tailings are located on Quartz Leases: Orchid 1 (62950), 3 (62952), 15 (62962), 26 (62973) 31 (80117), 37 (80162), Betty (16105), Mud (62297 &98) Mud 2 (62299). These leases are currently owned by Alexco Resources Corp which purchased United Keno Hill Mines entire Keno District property holdings in 2006 from the Bankruptcy Trustee appointed to sell the assets of the bankrupt company.

In Jun/2009 Alexco Resources commissioned SRK Consulting (Canada) Inc to prepare a mineral resource estimate for the Elsa Tailings Project. During 2009 Alexco drilled 283 vertical sonic drill holes (910 m) into the tailings resulting in 546 cored samples that were assayed for silver, lead, zinc and gold.

In May/2010 Alexco and SRK Consulting released an initial resource estimate for the historical tailings. The newly designated Elsa Tailings deposit hosts an indicated resource of 2,490,000 tonnes grading 119 g/t silver, 0.12 g/t gold, 0.99% lead and 0.70% zinc. The study employed a 50 g/t silver cut-off grade and assumed a silver metal price of US $17.00 per troy ounce silver and US $1 000.00 per troy ounce gold.

Capsule Geology

The occurrence is located north-northeast of the town of Elsa, on the south slope of the McQuesten valley between the Flat and Porcupine Creek drainages. The tailings overly a sequence consisting of Devonian to Mississippian Earn Group graphitic schist, phyllite and sericite schist and Mississippian Central Quartzite also known as Keno Hill Quartzite.

The tailings cover an irregular area of approximately 130 hectares and range in thickness from 0.1 to over 4 m. Tailings were originally deposited directly into Porcupine Creek with the material being mostly flushed downstream into Flat Creek. Beginning in 1946, tailings were directed away from the creek producing small terraced accumulations immediately below the mill. Somewhat later a pipeline was constructed that discharged tailings further into the valley. Ten major mines supplied feed to the mill during its operational life. From the 1960s to 1980s ore processed by the mill underwent transition from high grade mineralization to lower grade mineralization from small open pits and underground operations.

The tailings consist of generally unconsolidated silty fine grained sand with minor medium sand grained material of a variably grey to light brown color characterized by thin beds to laminae. Detailed mineralogical examination shows that the sand grains are angular and locally aggregated and cemented by limonite. The dominant minerals are quartz and siderite (80%) with the balance composed of muscovite and other silicate minerals along with pyrite. Localized grains contain lead and zinc sulphides and trace amounts of lead and zinc oxide materials have been identified.

During the 1970 drill program United Keno Hill Mines drilled a total of 114 vertical percussion drill holes on the northern portion of the tailings. Drill holes were collared on 60 m centres and averaged 3 m in depth. Very few records survive from this program. A second drill program was completed by United Keno in 1987 and 1988. This program which targeted the southern portion of the tailings employed a rotary drill. A total of 379 vertical holes (1,770 m) spaced approximately 30 m (100 feet) a part were completed. The depth of each hole was determined by scrutinizing the drill cuttings for organic material and change in sample grades.
United Keno calculated the Aug/88 historical resource based on the following information:

Source Tonnes Silver Total Silver
Grams/tonne Grams

1987/88 Drilling 1 542 110 152.57 259 273 726
1970 Drilling 1 956 602 65.48 141 194 886
1950 Terraced 14 065 366.85 2 257 654
New Discharge 63 521 188.57 13 199 648
Under 2nd Pond 98 539 158.74 17 237 438

Total 3 674 837 107.65 433 163 352

From: Hawthorn (1996). Figures are rounded off and converted from imperial to metric using 1 tonne = 1.102 short tons, 1 troy ounce = 34.2848 grams/tonne. This figure does not meet current National Instrument 43-101 standards and reported for historical value only.

SRK Consulting examined United Keno Hill Mines historical drilling data and decided against using any of it for a resource calculation. SRK's main reason for this were: 1) the drilling methods

used likely led to sample contamination from borehole walls; 2) poor accuracy determining the bedrock contact and 3) they were unable to locate the majority of assay certificates.
The 2009 drill program employed a sonic drill mounted on a tracked carrier. A total of 283 vertical sonic drill holes (910 m) spaced at 50 m were completed. Average thickness of each hole was 2.3 m with holes ranging in depth from 0.2 m to a maximum thickness of 7.5 m. Drilling procedures consisted of drilling 1.5 m runs, removing the drill stem and then removing the core. Core for each run was removed by vibrating the drill pipe so that the core was slowly vibrated out of the pipe and into a polyethylene sleeve, thus preventing contamination of the sample. The samples were assayed using coupled plasma-atomic emission spectrometry and gold assay were analyzed using fire assay with atomic absorption spectrometry on a 30 gram sample charge.
SRK Consulting took the data obtained from the sonic drill program and subjected it to the usual parameters (see Mineral resource Estimation Report for details) to prepare the initial Nation Instrument 43-101 mineral resource estimate for the tailing. On May 6, 2010 SRK Consulting released the mineral resource estimate for the Elsa Tailing;

*Category/ Tonnes/ Silver/ Gold/ Lead/ Zinc
(g/t) (g/t) (%) (%)

Indicated 2,490,000/119.0/0.12/0.99/0.70

*employs a 50 g/t silver cut-off grade assuming metal prices of US$17 per try ounce silver and US$1,000 per troy ounce gold, silver recovery of 85% and gold recovery of 35%. Lead and zinc values not considered.

SRK Consulting generated 6 non-contiguous and in some cases overlapping domains to separate high grade zones for silver, lead and gold. An additional domain was generated for a physically distinct tailings area that is separated from the main tailings area. After employing various statistical and economic models SRK Consulting determined that all material in the tailings area is economic.
Under the terms of a legal agreement with the Government of Canada and the Government of the Yukon, Alexco Resources is indemnified from any and all environmental liability that may be presented by the historic tailings. However if Alexco elects to re-process the tailings, responsibility for addressing the water related environmental liabilities would fall onto Alexco.

Since the calculation of this mineral resource estimate Alexco has concentrated their exploration and mining activities to on achieving commercial production at the Bellekeno Mine ( Minfile Occurrence 105M 082) located approximately 11.5 km to the southeast.

## Work History

| Date | Work Type | Comment |
|---|---|---|
| 12/31/2010 | Studies | |
| 12/31/2009 | Drilling | 283 holes; 910 m. All holes drilled vertical. |
| 12/31/2009 | Other | A total of 546 core samples assayed. |
| 12/31/1988 | Drilling | 379 holes; 1770 m |
| 12/31/1987 | Drilling | |
| 12/31/1970 | Drilling | Little data remains. |
| 12/13/2006 | Airphotography | |
| 12/13/2006 | Airphotography | |
| 12/13/2006 | Airborne Geophysics | |
| 12/13/2006 | Airborne Geophysics | |
| 12/13/2006 | Pre-existing Data | |
| 12/13/2006 | Remote Sensing | |

## 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 | | |
| 060942 | 1970 | Report on Aeromagnetic Survey-Keno Area, Yukon Territory | Magnetic - Airborne Geophysics | | |

## Related References

| Number | Title | Page(s) | Reference Type | Document Type |
|---|---|---|---|---|
| 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 |

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|---|---|---|---|---|
| 1996-3(T) | Investigation into the Reprocessing of Elsa Tailings | | Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division | Open File (General) |
| 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) |
| 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 |
| ARMC014865 | Surface plan map of Yukeno shaft area, Elsa, Y.T. | | Property File Collection | Geoscience Map (General) |
| ARMC014866 | Map - Yukeno workings of A. Smith | | Property File Collection | Geoscience Map (General) |
| ARMC014748 | Current operations at United Keno Hill Mines | | Property File Collection | Report |

## Resource/Reserve

| Year | Zone | Type | Commodity | Grade | Tonnage | Amount | Reported Amount | 43-101 Compliant | Cut-off |
|---|---|---|---|---|---|---|---|---|---|
| 2010 | Elsa Tailings (Open Pit) | Indicated | silver | 119 g/t | 2,490,000 | 296310000 | Yes | Yes | Unknown |
| 2010 | Elsa Tailings (Open Pit) | Indicated | gold | .1 g/t | 2,490,000 | 249000 | Yes | Yes | Unknown |
| 2010 | Elsa Tailings (Open Pit) | Indicated | lead | 1 % | 2,490,000 | 24900000 | Yes | Yes | Unknown |
| 2010 | Elsa Tailings (Open Pit) | Indicated | zinc | .7 % | 2,490,000 | 17430000 | Yes | Yes | Unknown |