

**Report  
on  
Corporate and Development History  
of the  
Silver King, Hector Calumet, Galkeno 300& 900,  
Onek and Bellekeno Mines**

**Keno Silver Camp  
Galena-Keno-Sourdough Hills  
Central Yukon**

**for**

**Abandoned Mines and Assessment Branch  
Energy Mines & Resources  
Yukon Territorial Government**

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## **Introduction**

The writer was contracted by Hugh Copland of EM&R to prepare this report. The writer first worked for United Keno Hill Mines as a geologist in the mid 1960s, again in the mid 1990s and is familiar with the history and geology of the Keno Silver Camp.

## **History** (See Figure 1 & 2)

The search for placer gold by prospectors on the Stewart and McQueston Rivers started in the mid 1880s. From 1892 to 1898 small amounts of placer gold were found and mined on tributaries of the South McQueston River about 35 miles southwest of what was later to become the Keno Silver Camp.

In the fall of 1901 a small party of prospectors staked placer claims near the headwaters of Duncan Creek to cover an unstaked profitable placer operation. This led in the spring 1902 by over 200 prospectors on a staking rush on Duncan Creek and the search for placer gold over a wider area.

The first recorded lode staking in the Keno Silver Camp was in July 1903 by Jacob Davidson to cover galena float below a narrow vein on the southwest wall of a box canyon on Galena Creek. This vein in 1913 became the Silver King mine.

## **Major Mining Companies** (See Figure 1)

### **Keno Hill Limited**

The first major mining company in the Keno Silver Camp was Keno Hill Limited [KHL] who at Keno Summit on Keno Hill from 1919 to 1924 carried out underground development and mined silver ore mainly on the 9 vein. KHL was owned by the Yukon Gold Company who had extensive placer mining operations in the Dawson Goldfields. The ore was hand sorted on surface, sacked and shipped, initially by horse and sleigh and later by tracked vehicle and sleigh to Mayo for transportation by paddle wheelers to Whitehorse during the summer months.

The settlement of Keno City began in 1919 and rapidly expanded to a population of over 300 to become a transportation, service and government center for the Keno Silver Camp.

### **Treadwell Yukon**

In the summer of 1921 Livingston Wernecke, a geologist/engineer for the Treadwell Company arrived in the Keno Silver Camp to examine it's potential. The Treadwell Company up to 1916 had operated two gold mines in the Juneau Alaska area and was looking for promising mining prospects that could be brought into production. Wernecke optioned the Ladue vein where by the fall of 1921 surface trenching had exposed a rich silver vein. By year-end a camp called Wernecke townsite had been built, road constructed to Keno City, shaft sinking and underground development program started and a new company called Treadwell Yukon incorporated. Soon afterwards the Friendship and Sadie claims that cover the extension of the Ladue vein were acquired. By 1924 enough ore had been found to justify a 135 ton per day mill that was brought to the property, assembled and in operation by early 1925. In 1928 Treadwell Yukon purchased the Lucky Queen claim and immediately started shaft sinking and underground development on the vein. Ore was transported to the Wernecke townsite by a 4500 ft aerial tramline.

The October 1929 stock market crash and start of the Depression saw a dramatic drop in the price of silver from 60 to 26 cents per ounce. It was only the rich silver ore at the Lucky Queen- about double that at Sadie-Ladue- Friendship mine, that allowed the operation to continue. The last ore was mined, milled and the operation shut down in November 1932.

In 1928 Treadwell Yukon optioned the Elsa mine, set up a camp, carried out underground development on the vein and until 1933 shipped sacked hand sorted unusually rich silver ore. In March 1929 Treadwell Yukon started underground development at the Silver King but stopped work by year-end because of Depression induced low silver prices. By 1935 when silver had risen in price to 65 cents per ounce Treadwell Yukon decided to dismantle the mill at Wernecke and move it to Elsa where in March 1936 it was in operation at 175 ton per day. This mill treated ore from the Elsa mine as well as the Silver King and Hector Calumet mines. At all of these mines richer massive silver rich ore was sorted and sacked for shipment

Treadwell Yukon shut their operation down in October 1941 when it was no longer profitable as silver had steadily dropped from 65 cents per ounce in 1935 to 38 cents per ounce in 1941. Treadwell Yukon decided to sell the property and assets but little interest shown by other mining companies. Treadwell Yukon was dissolved in May 1942. Everything salable was salvaged and sold with most of it going to the Americans for use in the construction of the Alaska Highway.

#### **United Keno Hill Mines Limited [UKHM]**

Keno Hill Mining Company Limited [KHMC] was formed in November 1945 to acquire the property and assets of Treadwell Yukon. This new company was finance by Frobisher Limited, a subsidiary of Ventures Limited and Conwest Exploration Company Limited who had control and management. KHMC started work reopening the Hector-Calumet and Elsa mines in the spring of 1946. In April 1947 the old Treadwell Yukon mill started processing ore mainly from the Hector Calumet mine and some from the Elsa mine. The reopening was more difficult and expensive than expected so additional funds were raised by KHMC being reorganized into UKHM in January 1948.

By 1950 the encouraging financial results of UKHM came to the attention of eastern Canadian mining promoters and about 42 junior mining companies were formed to acquire mining properties in the Keno Silver Camp. Many incorporated the word Keno in their company name. Most of the mining companies were gone by 1953.

In 1960 Venture Limited obtained control and management of UKHM by the purchase of the shares owned by Conwest and through the merger with Frobisher Limited. In 1962 Ventures interest in UKHM was absorbed by Falconbridge Nickel Mines Ltd. and in 1982 renamed Falconbridge Limited.

In January 1989 UKHM decided because of low silver prices and high operating costs to close the operation down and place it on a care and maintenance basis.

In July 1990 Falconbridge transferred their interest [44.83%] to BLM Mines Inc. and agreed to provide \$2.4 million for a variable net smelter from future production. The company 844271 Ontario Inc. in March 1994 acquired BLM Mines' interest. During the period 1994-98, UKHM conducted underground development at the Silver King and

Bellekeno mines, completed a positive feasibility study, obtained government production licenses and were planning, subject to obtaining financing, to resume production. The Dominion Mineral Resources and Sterling Frontier Properties of Canada in April 1995 held 35.6% of the UKHM shares that by May 1998 had dropped to 12.16%. In December 1999 Energold Minerals Inc. became a major shareholder in UKHM with a 12.2% interest.

From September 1999 to March 2001, the UKHM property was under a Yukon Supreme Court protection order brought by the creditors. In September 2001 AMT [Advance Mineral Technology] Inc. were awarded the UKHM property and assets but lost it in February 2003 when it failed to live up to the terms of the Court purchase agreement. The Court immediately afterwards awarded the property to Nevada Pacific Gold who after a due diligence period declined to go ahead with the purchase.

In June 2003 the Yukon Territorial Government took over interim care and maintenance of the UKHM property. The Toronto Stock Exchange delisted UKHM in May 2002. In April 2004 the Yukon Supreme Court appointed PricewaterhouseCoopers Inc. as interim receiver to sell the UKHM property and assets.

#### **Silver King – Galena Hill Area** (See Figures 1,2,3 & 4)

The Silver King vein was the first silver vein to be discovered and mined in the Keno Silver Camp. It was first staked in July 1903 to cover galena float below a narrow vein exposed in a box canyon on Galena Creek. Henry McWhorter later had a sample of the galena float assayed and found it to be rich in silver [300oz.per ton] and low in gold but he showed little interest until February 1913 when he restaked the vein as the Silver King. Later in the year McWhorter drove a short adit on the narrow vein that soon widened to a two ft. band of galena.

Jack Alverson and Grant Huffman, who leased the Silver King claim from McWhorter, carried out underground development and mined ore during the winter of 1913-14. The ore was hand sorted, high- grade placed in sacks and hauled by sleigh and horse to Mayo for transportation by paddle wheeler during the summer months. This mining venture proved profitable and this gave an impetus for other prospectors to turn their search away from placer gold towards bedrock silver veins.

McWhorter sold the Silver King claim to Thomas King and his partner who from late 1914 to 1916 sank a 200ft. shaft, carried out underground development, mined and shipped high-grade silver ore.

Two prospectors, in the period 1928- March 1929 on their adjoining claims independently discovered rich silver ore on the Silver King vein system. Treadwell Yukon immediately optioned the claims and started sinking two shafts [2 & 3] on the vein. Work on the two shafts was stopped towards the end of 1929 because of the Depression induced sharp drop in the price of silver. A small shipment of high-grade ore was made before the work ceased. The improvement in silver price by 1935 resulted in the resumption of shaft sinking by Treadwell Yukon followed by underground development on the 100ft., 200ft. and 300ft, levels and mining of the oreshoots. The ore was treated at the Elsa mill and ceased in 1939 when all of the ore had been mined.

In 1947-48 UKHM drove a 75ft, level adit and carried out limited development on the vein but no oreshoots were found

From 1960 to 1965 UKHM reopened the old 325ft. Treadwell Yukon shaft [3], conducted development on the three levels and mined out the oreshoots.

In 1980 a small open pit was established to mine the ore pillars left in the old Treadwell Yukon shaft [3].

Two new veins [4&5] located about 350 ft. southeast of the old mine workings were found by surface drilling in 1983. Between 1984 and January 1989 a 100ft. adit was driven to the new veins, development on the vein at the 100ft. level conducted and the oreshoots mined. A trackless decline was also driven to the 300 ft. level where development and mining of the oreshoots was conducted.

UKHM between December 1994 and September 1996 carried a limited amount of underground development on the 100ft. and 300ft. levels.

The Silver King vein system has been developed underground about 2,000 ft along strike and to a vertical depth of about 325ft. below surface.

### **Hector Calumet-Galena Hill Area** (See Figures 1, 5, 6 &7)

The adjoining Hector and Calumet claims were staked in the mid 1920s and by 1934 silver veins had been independently found on both claims. In 1935 Treadwell Yukon purchased the Calumet claim and had an option the Hector claim until 1937. Treadwell Yukon set up a camp, drove a 400ft adit, sank a 300 ft. shaft, carried out underground development on the 100ft., 300ft. and 400ft. levels and mined the oreshoots. High grade was sorted and shipped directly while lower grade ore, initially trucked to the mill at Elsa was, after 1936 transported by a 14,200 ft. aerial tramline to the Elsa mill. Development and mining of the ore at Calumet continued until October 1941 when Treadwell Yukon shut their operation down due to low silver prices. A prospector leased the Calumet claim in 1941 and made shipments of high grade ore in 1942-43

Underground development resumed at Hector Calumet mine in the spring of 1946 after the Calumet claim had been purchased. Underground development and the mining of the oreshoots continued up to October 1972 when the mine was shut down. Underground development consists of a 1065 ft internal vertical shaft from the 300ft. to 1300ft. levels, levels at 100 to 125ft. intervals from surface to the 1165ft. level and mining of the oreshoots between the levels. The main access to surface is by a 400ft. adit developed by Treadwell Yukon in the mid 1930s. On the north east end of the Hector Calumet mine on the 775ft. level a connection was made in the early 1960s from the Galkeno mine 300 ft level.

In 1983-88 UKHM mined ore in three small open pits - 1-15, Hector and 4-11.

The Hector Calumet vein system has been developed underground over a strike length of about 7,000ft. to a vertical depth of about 1200ft below surface.

The Hector Calumet mine has produced 45% of the total silver from 50% of the total tonnage mined in the Keno Silver Camp.

### **Galkeno 300 & 900 Mine - Galena Hill Area** (See Figures 1, 6, 8, 9, & 10)

The McLeod and Sime veins on the Galkeno property were independently staked in the early to mid 1920s. Underground work prior to 1940 consists of a shaft with limited level development on the McLeod vein and on the Sime vein by shallow shafts and adits.

Yukon Northwest Exploration Company between 1946 and 1948 optioned the McLeod vein and carried out a limited amount of rehabilitation on the old workings.

Mayo Mines Limited acquired the Sime property and in 1946 drove an 80ft. adit on the 200ft. level. Noranda Mining in 1947 optioned the Sime property from Mayo Mines and it is reported to have carried out considerable work. It is likely that this work was extending the 200ft level adit.

In 1948 Yukon Galena Hill Mines optioned the claims covering both the Sime and McLeod properties. The McLeod shaft was deepened to 100ft and limited lateral work exposed an oreshoot. On the Sime vein the 200 ft. level adit was de-iced and a small amount of high-grade ore mined.

In 1949 Yukon Galena Hill Mines transferred their interest to Consolidated Yukeno Mines limited who carried out minor underground development on both veins.

Mackeno Mines in 1950 acquired Consolidated Yukeno's interest and soon afterwards started underground development on the Sime and McLeod property as well as on the 35[Sugiyama] vein. To provide underground access and development on all of the veins a 300ft. adit was driven. As well short adits were developed on the 100ft. and 200ft. levels to provide access only the McLeod vein. Development was carried out on the 100ft, 200ft. 300 ft., 400ft. and 500ft. levels. The 400 ft. and 500ft.levels were accessed by a winze [No 2] from the 300 ft. level. The Sime vein 200ft level adit, first developed in 1946-47, may have been extended by Mackeno. The Sime was explored on the 300ft. and 400ft. levels. Access to the 400ft. level was by a vertical shaft between the two levels. Starting in 1953, ore was treated at a 150 ton per day mill located on the northeast shore of Christal Lake.

In January 1957 Mackeno was reorganized and renamed Galkeno Mines. In September 1957 production and milling was suspended and work concentrated on driving a 900ft.level adit. The purpose of the adit, collared about 550 ft vertically below the 500ft. level, was to drain the large quantities for water intersected in the upper levels of the McLeod vein.

In June 1958 the Galkeno mine assets and property were sold to UKHM who until 1965 carried out underground development at Galkeno. Up to 1963 development was concentrated largely on driving the 900ft. level adit. When the adit was about 1,000ft. from the McLeod vein a large water flow was intersected on a fault and work stopped for about two years to allow the water to drain. The adit was continued to the McLeod vein but ground conditions were so poor on the vein that work had to be discontinued. In 1959-60 about 1500 tons of ore were mined on and above the McLeod 200ft. level. In 1964 on the 300 ft. level development was carried out from the McLeod vein to a point about 60ft. below the Calumet 775 ft. level and a raise connection made. Development in 1964-65 was largely concentrated on the Sime vein where work was carried out on the 300ft. and 400ft. levels and as well as on the 500ft. level after the shaft had been

deepened. At that time a connection was made from the Sime 500ft level. to the McLeod 500 ft level. Operations were suspended after 1965 because of a serious shortage of miners.

The McLeod vein underground has been developed on five upper levels over a strike level of about 2,500 ft and to a vertical depth of about 800ft. below surface. The McLeod vein on the 900ft. level is about 1550 ft below surface. The Sime vein underground has been developed on four levels over a strike level of about 1,100 ft and to a vertical depth of about 500ft. below surface.

Between 1978 and 1985 the Sime vein was mined in two adjoining open pits and by another smaller open pit on the 35[Sugiyama] vein.

In 1993 UKHM a 25 ft concrete plug was installed on the 900ft level adit to halt high water flows.

### **Onek Mine-Keno Hill Area** (See Figures 1, 11 &12)

Claim to cover the Onek vein were staked in mid 1919. Onek Mining Company was formed to option and explore the claims and their operation discontinued later in 1922. Both the Fisher and Lone Star shafts were probably sunk by Onek Mining. The shafts, about 600ft. apart, were both about 135 ft deep and both have had limited lateral development. Some 500 tons of high grade silver ore was mined and shipped from the two shafts probably sometime before or in the 1930s.

At an unknown date Reserve Mining Company, an American mining company, acquired the Onek property. In 1950 it was purchased by UKHM who up to 1952 reopened the two old shafts, drove a 400ft. level adit, carried out development on the 300ft. and 400ft. levels and had raises driven to connect the 400ft. level to the bottom of the two old shafts. Development ore was shipped to and treated at the Elsa mill.

From late1964 to mid 1965 UKHM started rehabilitation on the 400ft. level workings but this work was suspended due to a shortage of miners.

Between December 1986 and January1989 the Onek vein was mined by a small open pit. The open pit is about 1500ft. in length and up to 75ft. vertically below surface. Underground the vein has been developed up to 1800ft. along strike and to a vertical depth of 350ft below surface.

### **Bellekeno Mine-Sourdough Hill Area** (See Figures 1, 13 &14)

The Bellekeno vein system consists of two main sub parallel veins [48 and 50] and six other nearby veins. All of the veins were staked in the early 1920s and explored with pits, trenches, shallow shafts and short adits. Small shipments of hand sorted silver ore were made by prospectors in the 1920s.

From November 1950 to September 1954, Bellekeno Mines carried out underground development on the 48 and 50 veins by adits on the 100ft. and 200ft. levels on the 48vein and a 100ft. level driven on the 50 vein. Access to the 300ft. and 400ft. levels on the 48 vein was by a decline. Two oreshoots were developed and mined. In 1953-54 the ore was treated at the Mackeno mill on Christal Lake and as well shipments of high grade ore was directly shipped.



In 1951-52, Mayo Mines Limited on the optioned 48 vein drove a 400ft. adit collared a short distance northeast of the Bellekeno Mines adits. Mayo Mines in 1951 on one of the other veins [Ram] mined and shipped directly some 80 tons of ore.

In 1965 UKHM acquired the claims covering most of the Bellekeno veins. Between 1984 and January 1989, UKHM drove a 650ft. level adit and conducted underground development on the 48 vein from the 500ft. to the 800ft. levels. The old Bellekeno Mines workings on the 400ft. level were connect with the UKHM 500ft. level by a raise. Oreshoots above the 650ft. level were developed and mined. Below the 650ft. level development was done using trackless mining methods.

Between October 1994 and September 1996 UKHM reopened the 650ft. adit and conducted underground development on levels below the 650ft level.

To date the Bellekeno 48 vein has been explored along strike up to about 3,000 ft. and to a vertical depth below surface of some 1150ft.

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