



MINFILE Detail Report
BC Geological Survey
Ministry of Energy, Mines and Petroleum Resources

Location/Identification

MINFILE Number: 093H 012 **National Mineral Inventory Number:** 093H4 Au2

Name(s): WINGDAM
MELVIN, SANDERSON, LIGHTNING CREEK

Status: Past Producer **Mining Division:** Cariboo

Mining Method: Underground **Electoral District:** Cariboo North

Regions: British Columbia **Resource District:** Quesnel Natural Resource District

BCGS Map: 093H001

NTS Map: 093H04W **UTM Zone:** 10 (NAD 83)

Latitude: 53 02 42 N **Northing:** 5877772

Longitude: 121 58 12 W **Easting:** 569051

Elevation: 975 metres

Location Accuracy: Within 500M

Comments: Mine symbol on 1:50,000 topographic map and near the area of induced polarization survey lines, along Lightning Creek just up from the confluence with Ramos Creek, about 27 kilometres west of Wells (Assessment Reports 34116, 32493).

Mineral Occurrence

Commodities: Gold

Minerals **Significant:** Gold
Mineralization Age: Unknown

Deposit **Character:** Unconsolidated
Classification: Placer, Residual
Type: C02: Buried-channel placers, C01: Surficial placers

Host Rock

Dominant Host Rock: Sedimentary

| Stratigraphic Age | Group | Formation | Igneous/Metamorphic/Other |
|---------------------|----------|-----------|---------------------------|
| Upper Triassic | Nicola | ----- | ----- |
| Proterozoic-Paleoz. | Snowshoe | ----- | ----- |
| Tertiary | ----- | ----- | Glacial/Fluvial Gravels |

| Isotopic Age | Dating Method | Material Dated |
|--------------|---------------|----------------|
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | - |

Lithology: Tertiary Gravel, Clay, Meta Sediment/Sedimentary, Sediment/Sedimentary

Comments: Area mainly underlain by metasediments of the Upper Proterozoic to Lower Paleozoic Snowshoe Group in the east and sediments of the Upper Triassic Nicola Group in the west.

Geological Setting

Tectonic Belt: Omineca **Physiographic Area:** Quesnel Highland

Terrane: Barkerville

Metamorphic Type: Regional

Grade: Greenschist

Inventory

Ore Zone: WINGDAM

Category: Indicated

Quantity: 80,308 tonnes

Year: 1986

Report On: Y

NI 43-101: N

| Commodity | Grade |
|-----------|-------------------------|
| Gold | 28.3500 grams per tonne |

Comments: Quantity in cubic yards and grade in grams per cubic yard.

Reference: Property File - Gold Ridge Resources Prospectus, 1987.

Summary Production

| | Metric | Imperial |
|-----------------|--------------|--------------|
| Mined: | 3,012 tonnes | 3,320 tons |
| Milled: | 0 tonnes | 0 tons |
| Recovery | | |
| Gold | 42,406 grams | 1,363 ounces |

Capsule Geology

The Wingdam placer occurrence is located near and along Lightning Creek just up from the confluence with Ramos Creek, about 27 kilometres west of Wells.

Placer gold deposits of the Quesnel Highland region, including the former rich producers of the Barkerville camp, have accounted for a large proportion of British Columbia's alluvial gold production. With the exception of a few producers in the Wingdam area, which are underlain by Upper Triassic sediments correlative with the Nicola Group, almost all the deposits are underlain by the Upper Proterozoic to Lower Paleozoic Snowshoe Group. These rocks have been metamorphosed to greenschist facies and are predominantly metasedimentary.

Placer gold deposits in the region are generally found in relatively young Pleistocene gravels. The morphology and mineral associations of the gold suggests that it was derived locally, the most obvious sources are the numerous auriferous veins in the Downey succession of the Snowshoe Group.

Near Wingdam, Lightning Creek crosses and re-crosses its buried pre-glacial channel. There are two distinct types of placer deposits, apart from minor post-glacial concentrations, in this area: 1) underlying the top boulder-clay at 36 metres below surface, possibly concentrated during an intra-glacial period, fairly coarse, flat and well-worn gold was extracted and 2) auriferous sand and gravels in the pre-glacial channel buried at a depth of about 50 metres, just above bedrock.

This deeper deposit attains up to 2.7 metres in pay thickness and is overlain by 4.5 to 7.5 metres of fine sand and gravel interbedded with lenses of very fine silt. The silty lenses have the physical property that when saturated with water they will flow very easily through small openings. These have been referred to as "slum" and have caused mining problems for previous operators. Gold reportedly also occurs in fractures and other irregularities in the channel bedrock.

In 1986, combined probable and possible reserves were estimated to be 80,308 cubic yards grading 28.35 grams per cubic yard in the deep channel deposits (Property File - Gold Ridge Resources Prospectus, 1987). A 550-metre decline and underground facilities were completed in December, 1991; gold recovery is expected to begin in February 1992 (George Cross News Letter, December 18, 1991).

The two major historical producers in the Wingdam area have been the Melvin and Sanderson mines. At the Melvin mine the gold-bearing gravels, about two metres thick and from 12 to 43 metres wide, lie on bedrock. The auriferous gravel occurs above bedrock under a boulder clay at the Sanderson mine.

Production from the deep channel in the years 1937 and 1938 is reported to be 37,212 grams of gold from 2872 cubic yards of mined ore (Property File - Gold Ridge Resources Prospectus, 1987).

Supergene leaching of gold, dispersed by Tertiary deep weathering and followed by Cenozoic erosion is the likely explanation for the occurrence of coarse gold nuggets in Quaternary sediments (Exploration in British Columbia 1989, page 147).

See nearby Rise occurrence (093H 153) for related information. It is located about 680 metres up Lightning Creek.

In 1861, gold was discovered in shallow gravels farther upstream from the Wingdam (Melvin) and Sanderson claims in which most of the Lightning

Creek development was done. However, it was not until the Lightning Creek Gold Gravels & Drainage Co. Ltd. acquired control of the placer leases on lower Lightning Creek in 1896 that any attempt was made to work the deep deposits. From then until 1921 various attempts were made at underground mining. The Melvin shaft was sunk in the rim-rock to a depth of 38 metres and a tunnel run 61 metres but the workings were flooded when the tunnel broke into the channel. Drilling was begun to find the depth of the old channel and 35 holes were eventually put down, giving six cross-sections of the creek over a 1.6 kilometre length. Farther upstream the Sanderson shaft was sunk to a depth of 38 metres and a 61-metre drift was driven to intersect the old channel but the workings were flooded out. In 1919, an attempt was made to sink a shaft in the creek gravels but it caved under the high water pressure. All work ceased in 1920.

In 1929, the company name was changed to Lightning Creek Gold Mines Ltd. and was reorganized in 1930 under the name of Consolidated Gold Alluvials of British Columbia Ltd. The Sanderson shaft was dewatered and the false bedrock at a depth of 38 metres was extensively followed upstream, by about 1067 metres of tunnel. At the same time, the Melvin shaft was deepened to 85 metres. From the bottom of the shaft, which is 18.3 metres below the bottom of the channel, drifts were run for 457 metres upstream and 488 metres downstream and at regular intervals 10 centimetre holes were drilled up into the channel to drain the water from the overlying gravel. By the following year, the water had been lowered to a point where it was possible to raise up from the main drift, break into the channel and start mining the gravel. During 1937, the Melvin and Sanderson workings were connected by a raise from the Melvin shaft. A second raise was put up into the channel but during 1938 one of the working faces encountered a weak section in the gravels and a heavy flow of water and clay broke through and flooded the Melvin workings. The Sanderson operation was closed in 1939 when exploratory drifts failed to find pay gravels. By this time the working area was reported to cover 20 acres.

In 1961, the Wingdam & Lightning Creek Mining Co. Ltd. began to pump out the Melvin shaft but the waters of Lightning Creek were still flowing into the old workings. A special cement grout was injected into the raise by means of a drillhole from the surface. The shaft was then dewatered. By the spring of 1962 it became evident that the grouting had not been entirely successful so six additional holes were drilled in and around the raise and cement grouting pumped in under high pressure. By the end of 1962 it appeared that an effective seal had been made in this area.

During 1963, the main haulageway in bedrock below the stream bed, was extended downstream. From the downstream end a crosscut was driven out to the rimrock and a ventilation raise put through to the surface. Three raises, numbers 2, 3 and 4, were put up into the overlying gravel, number 4 raise being the most westerly of the three which are approximately 230 metres apart. Drifting upstream and down from these raises was begun and the first production from this operation was in 1964. However, later in 1964 a flow of silt and water under high pressure flooded out the workings; the breakthrough continued through to the surface where a depression over 30 metres in diameter and 15 metres deep was formed over the area of the No. 4 raise.

Production figures are incomplete. Prior to 1937 the Sanderson mine was reported to have produced 47,777 cubic yards of gravel having a value of \$210,482. During 1937, 52,180 cubic yards of gravel were reported to have been extracted from the Sanderson workings and 1821 cubic yards from the Melvin.

In 1986, Gold Ridge Resources hydraulically jacked a 1-metre diameter pipe 18.6 metres out into the channel. It provided a stabilizing structure to prevent flooding of Cariboo Slum but it failed to intersect the bedrock and gravel interface; it was too high by approximately 0.6 metre.

In 2009, CVG Mining Ltd. acquired the property and in 2012, using a ground freeze method successfully excavated a 2.44 by 2.44 metre crosscut drift for the entire width of the channel - 23.5 metres. This represented the first time a drift across the channel had been accomplished. From a 140-bank cubic metre bulk sample, using a simple mechanical process of gravity separation, gold recovery was 5194 grams (167.0 ounces) of raw placer gold (900 fineness). The refined equivalent gold grade across the drift was 15 grams per tonne (33.4 grams per cubic metre or 0.438 ounce per tonne). The grade across a central portion of the paleochannel totalling 14.8 metres (3.8 to 18.6 metres) averaged 15.8 grams per tonne (49.45 grams per cubic metre or 0.652 ounce per tonne). Abundant elongated gold flakes up to 5 millimetres long were visible on bedrock across a 5.5 metre distance (6.5 to 12.0 metres). Seven consecutive discrete samples (0.036 to 0.054 cubic metres) collected along this distance yielded gold grades ranging from 32 to 83.6 grams per tonne (71.35 to 185.62 grams per cubic metre or 0.936 to 2.436 ounces per tonne) (Northern Miner - May 3, 2012).

In 2013, Omineca Mining and Metals Ltd. completed geophysical surveys on the Wingdam/Lightning Creek and Fraser Canyon projects. Omineca signed a Letter of Intent whereby Omineca Mining has the exclusive right to acquire all issued and outstanding shares of CVG Mining Ltd., a private British Columbia corporation which controls a 100 per cent interest in the two projects. This Reverse Takeover transaction is expected to be voted on by shareholders in late May, 2013. The geophysical survey was carried out by Ground Truth Exploration Inc. of Dawson City, Yukon and was designed to provide additional information with respect to sub-surface topography in under-explored areas of the two properties. The survey had two components, induced polarization/resistivity and magnetometer. A total of 2425 metres of surveying was completed at Wingdam and 4400 metres at Fraser Canyon.

Since acquiring control of CVG Mining Ltd. and the Wingdam project in late 2013, Omineca Mining and Metals has focused on developing a viable mine plan to bring the Wingdam project into production. This work has built upon the successful bulk sample completed by CVG in 2012.

Bibliography

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 PR REL CVG Mining Ltd., May *3, 2012; Omineca Mining and Metals Ltd., Apr.3, 2013, Mar.7,15, 2016
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| Date Coded: | 1985/07/24 | Coded By: | BC Geological Survey (BCGS) | Field Check: | N |
| Date Revised: | 2018/02/23 | Revised By: | George Owsiacki (GO) | Field Check: | N |