Location/Identification

MINFILE Number: 104N 053
National Mineral Inventory Number: 104N11 W1
Name(s): **BLACK DIAMOND**
SOUTH, GARNET, TUNGSTEN, WOLFRAMITE, NORTH

Status: Showing
Mining Method Underground
Regions: British Columbia
BCGS Map: 104N063
NTS Map: 104N11W
Latitude: 59 40 27 N
Longitude: 133 25 33 W
Elevation: 1326 metres
Location Accuracy: Within 500M

Mining Division: Atlin
Electoral District: Stikine
Resource District: Skeena Stikine Natural Resource District

UTM Zone: 08 (NAD 83)
Northing: 6616176
Easting: 588660

Comments: Showing consists of several quartz veins located on the west side of Boulder Creek near the Boulder Creek dam, about 20 kilometres northeast of the community of Atlin (Assessment Report 2461).

Mineral Occurrence

Commodities: Tungsten, Gold, Molybdenum, Copper, Lead, Tin, Silver

Minerals
Significant: Wolframite, Ferberite, Gold, Tetrahedrite, Galena, Chalcopyrite, Molybdenite
Significant Comments: Patchy tungsten and gold mineralization.
Associated: Quartz, Pyrite
Associated Comments: Sulphide mineralization is minor.
Alteration: Kaolinite
Alteration Comments: Clay alteration of hostrock near veins. Strong jarosite alteration present as well.
Alteration Type: Argillic, Oxidation
Mineralization Age: Unknown

Deposit
Character: Vein
Classification: Epigenetic, Hydrothermal
Type: I12: W veins, I05: Polymetallic veins Ag-Pb-Zn+/-Au
Dimension: 80x0x0 metres **Strike/Dip:** 030/60W
Comments: Two parallel veins with mineralization. The main vein has been traced for 80 metres and is 2 to 10 metres wide. Dips 60 degrees northwest.

Host Rock

Dominant Host Rock: Plutonic

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Upper Cretaceous	------	------	Surprise Lake Batholith

Isotopic Age	Dating Method	Material Dated
70.6 +/- 3.8 Ma	Potassium/Argon	Biotite

Lithology: Alaskite, Porphyritic Felsic Dike

Comments: Fine- to coarse-grained quartz monzonite (alaskite). Veins hosted in pluton near its contact with the Cache Creek Complex. Map 52, notes, page 3.

Geological Setting

Tectonic Belt: Intermontane
Physiographic Area: Teslin Plateau

Terrane: Plutonic Rocks, Cache Creek

Inventory

Ore Zone: SAMPLE
Year: 2002
Category: Assay/analysis
Report On: N
NI 43-101: N

Sample Type: Chip

Commodity	Grade
Silver	178.1 grams per tonne
Gold	13.1 grams per tonne
Copper	0.18 per cent

Comments: A 0.3-metre chip sample (BD-AR-6) of mineralized quartz vein.

Reference: Assessment Report 26895.

Ore Zone: VEIN
Year: 1943
Category: Assay/analysis
Report On: N
NI 43-101: N

Sample Type: Bulk Sample

Commodity	Grade
Gold	10.6000 grams per tonne
Tungsten	15.2000 per cent

Comments: 15.2 per cent tungsten oxide. Trace tin, lead, copper and bismuth. In 1941, 20 samples over a 70-metre vein length yielded 0.60 per cent tungsten oxide.

Reference: Minister of Mines Annual Report 1950, page 72.

Capsule Geology

The Black Diamond occurrence is located on the west side of Boulder Creek near the Boulder Creek dam, about 20 kilometres northeast of the community of Atlin.

The showing is located within the southernmost zone of the Mount Leonard Boss, a small stock removed from the main body of the Late Cretaceous Surprise Lake batholith (Surprise Lake Plutonic Suite) which covers approximately 1100 square kilometres east and northeast of Atlin. The stock is composed of a fine to coarse-grained quartz monzonite (alaskite) which is occasionally feldspar porphyritic. The intrusion is often kaolinitized near mineralized quartz veins. The pluton has intruded into mafic volcanic, ultramafic, and sedimentary rocks of the Upper Paleozoic Cache Creek Complex which is exposed about 1 kilometre south of the occurrence.

The main vein of the Garnet occurrence is comprised of dark smokey quartz, strikes 030 degrees and dips 60 degrees to the northwest. The vein varies from 2 to 10 metres in width and has been traced for about 80 metres. Light grey, porphyritic felsic dikes occur both in the immediate footwall of the vein and about 16 metres west of the vein. Mineralization comprises patchy and erratic wolframite, ferberite, and rare gold. Sulphide mineralization is minor and is composed of pyrite, chalcopyrite, molybdenite, tetrahedrite and galena.

In 2002, a 0.3-metre rock chip sample (BD-AR-6) from a quartz vein with pyrite, chalcopyrite, galena, arsenopyrite and strong jarosite alteration analyzed 13.1 grams per tonne gold, 178.1 grams per tonne silver and 0.18 per cent copper (Assessment Report 26895).

In 1903, the first work done on the property was during the Atlin Gold Rush. An opencut was dug on the vein on the Black Diamond ground, and a 2.4-metre shaft was sunk on the vein on the North showing.

In 1939, The Consolidated Mining and Smelting Company of Canada Limited, while placer mining on Boulder Creek, found wolframite with the placer gold in the sluice boxes. The old workings were then examined, and wolframite and ferberite were discovered in the quartz veins. The Black Diamond group of claims were located in 1939 by MacLeod White, who was superintendent for the company. Surface stripping and trenching were done in 1939-41 on three showings, which were named the South, the North, and the Wolframite. The South showing is on ground now forming part of the Black Diamond group. The North showing (104N 054) is 2.4 kilometres to the northeast at an elevation of 1585 metres, and the Wolframite (104N 006) is 2.4 kilometres to the north of the Black Diamond group at an elevation of 1768 metres. In 1941, 20 samples taken by Cominco over a length of

70 metres and average width of 3 metres averaged 0.60 per cent tungsten. In 1942, Fisher and Olsen leased the Boulder Creek Placers from the Consolidated Company. Some further stripping and trenching were done on the South vein, and in 1943 a small shipment of cobbed ore was sent to the Prince Rupert Sampling Plant. In 1943, a shipment made from this vein yielded 15.2 per cent tungsten oxide and 10.6 grams per tonne gold; this material was likely selective high-grade (Minister of Mines Annual Report 1950). In 1949, a quantity of black sand concentrate from the placer clean up was re-concentrated in Atlin and yielded 2.7 tonnes of cleaned concentrate that was shipped to Derby and Co., Ltd., of London, England. The shipment included coarse concentrates that weighed approximately 589 kilograms, and fine concentrates that weighed approximately 2132 kilograms. The coarse concentrates assayed: tungstic oxide, 46.88 per cent; tin, 7.42 per cent. The fine sands assayed: tungstic oxide, 49.01 per cent; tin, 10.75 per cent. The tungsten minerals recovered in the placer operation come from broken-down vein matter and are concentrated on the bedrock by stream action. The source of the tin is not known. It may have been a constituent of the igneous rocks of the area or of the veins or stringers of quartz.

In 1993, a ground magnetometer and VLF-EM survey along 4 kilometres of grid was conducted on the BOCR claim on behalf of owner, M. Sherman.

In 2002, Stirrup Creek Gold Ltd. conducted exploration on the Black Diamond and Silver Diamond (104N 069) areas. A total of 28 rock chip, 142 soil and 7 silt samples were taken in addition to geological mapping and 4.1 kilometres of ground magnetometer surveying.

Between July 2007 and March 2008, Adanac Molybdenum Corporation conducted a major diamond drill-program on the Adanac/Ruby Creek "porphyry molybdenum" property, near Atlin (Assessment Report 30306).

In 2016, two holes were drilled by Global Drilling Solutions on behalf of Zinex Mining Corporation on the Ruby Creek Property, targeting native gold (Assessment Report 36658). In 2017, Global conducted geochemical sampling, drilling and ground geophysics on this property (Assessment Report 37171). In 2018 Global carried out further drilling, prospection, augering and geochemical sampling on this property. It’s mentioned that the Ruby Creek property remains of high interest for not only gold/molybdenum but also for silver and copper based on the exploration work during 2017/2018 (Assessment Report 38256).

In 2020, Stuhini Exploration conducted mapping, prospection, ground geophysics and geochemical sampling on the Ruby Creek property (Assessment Report 39374). In 2021, an airborne SkyTEM survey was conducted by Stuhini on this property, which revealed a number of regional trends across the property (Assessment Report 39553).

Bibliography

EMPR AR 1940-86; 1942-31; 1943-52; 1949-238; *1950-A72,A73; 1951-A73; 1952-A75
EMPR ASS RPT *2461, 2462, 3732, 14438, 22945, 23980, *26895, 30306, 36658, 37171, 38256, *39374, 39553
EMPR BULL *10 (Rev.), p. 51; 94
EMPR EXPL 1979-302
EMPR GEM 1970-30; 1972-557
EMPR MAP 52 (10 pages of notes)
EMPR OF 1989-15; 1989-24; 1991-17; 1996-11; 1999-3
EMPR PF (Black, J.M. (1953): Atlin Placer Camp, Unpublished Report, 116 pages)
EMPR PFD 20067, 20113, 20114, 20115, 20116, 810840, 680805, 680806, 680807, 680809, 680813, 680814, 680819, 680820, 680821
GSC MEM 307, p. 72
GSC OF 864
GSC P 74-47

Date Coded:	1985/07/24	**Coded By:**	BC Geological Survey (BCGS)	**Field Check:**	N
Date Revised:	2021/10/19	**Revised By:**	George Owsiacki (GO)	**Field Check:**	N