Location/Identification

MINFILE Number: 082ESE152
National Mineral Inventory Number: 082E2 Au3
Name(s): **NORTH STAR (L.1165)**

Status: Past Producer
Mining Method Underground
Regions: British Columbia
BCGS Map: 082E017
NTS Map: 082E02E
Latitude: 49 10 04 N
Longitude: 118 36 03 W
Elevation: 2385 metres
Location Accuracy: Within 500M

Mining Division: Greenwood
Electoral District: Boundary-Similkameen
Resource District: Selkirk Natural Resource District

UTM Zone: 11 (NAD 83)
Northing: 5447341
Easting: 383307

Comments: No. 1 (Upper) adit, 1.25 kilometres south-southwest from the summit of Mount Pelly, east of Jewel Lake, 10.25 kilometres north-northeast from the town of Greenwood (Minister of Mines, Annual Report 1933-A159; 1936-D24).

Mineral Occurrence

Commodities: Silver, Gold, Lead, Zinc, Copper

Minerals
Significant: Pyrite, Galena, Sphalerite, Chalcopyrite, Telluride, Sylvanite
Associated: Quartz
Mineralization Age: Unknown

Deposit
Character: Vein, Discordant
Classification: Hydrothermal, Epigenetic
Type: H08: Alkalic intrusion-associated Au
Shape: Cylindrical
Modifier: Fractured
Strike/Dip: 030/40E
Comments: Strike and dip are variable.

Host Rock

Dominant Host Rock: Metasedimentary

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Carboniferous	Knob Hill	Undefined Formation	------
Tertiary	------	------	Unnamed/Unknown Informal

Isotopic Age	Dating Method	Material Dated
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Lithology: Quartz Wacke, Lithic Wacke, Lamprophyre Dike, Pulaskite Dike

Geological Setting

Tectonic Belt: Omineca
Physiographic Area: Okanagan Highland
Terrane: Plutonic Rocks, Quesnel

Metamorphic Type: Regional
Relationship: Pre-mineralization
Grade: Greenschist

Inventory

Ore Zone: SAMPLE
Year: 2014
Category: Assay/analysis
Report On: Y
NI 43-101: N

Sample Type: Grab

Commodity	Grade
Silver	744 grams per tonne
Gold	159 grams per tonne
Lead	17.0 per cent

Comments: Assay from sample labelled GD-R-15-25.

Reference: Martin, D. (2016-07-12): National Instrument 43-101 Technical Report on the Gold Drop Property.

Ore Zone: SAMPLE
Year: 2013
Category: Assay/analysis
Report On: Y
NI 43-101: N

Sample Type: Chip

Commodity	Grade
Silver	427.0 grams per tonne
Gold	81.0 grams per tonne

Comments: Mineralization from a 0.22 metre chip sample 5453.

Reference: Caron, L. (2014-01-21): National Instrument 43-101 Technical Report on the Gold Drop Property.

Summary Production

		Metric		Imperial	
Mined:		6,178	tonnes	6,810	tons
Milled:		5,309	tonnes	5,852	tons
Recovery	Silver	475,285	grams	15,281	ounces
	Gold	23,700	grams	762	ounces
	Lead	9,155	kilograms	20,183	pounds
	Zinc	5,307	kilograms	11,700	pounds

Capsule Geology

The Jewel Lake area is underlain by a complex of metamorphic rocks mostly of sedimentary and volcanic origin correlative with the Carboniferous or older Knob Hill Group, and a large granodiorite intrusion correlative to the Juro-Cretaceous Nelson Plutonic Rocks. Small dykes and sill-like bodies, feeders to nearby Tertiary lavas, pervade these units.

Locally the metamorphosed volcanic and sedimentary rocks are not always distinguishable, both being fine-grained and medium or dark coloured with primary structures such as bedding and flow banding being confused with foliation or gneissosity. Generally the sedi- mentary rocks are brittle and quartz-rich, however, compositions vary and some biotitic varieties have the same competence as the amphibole- rich volcanic rocks. These rocks are locally called quartzites but few are true quartzites and more appropriate terms would be quartz wacke or lithic wacke. The massive character of the volcanic rocks is due to a combination of intense regional metamorphism and primary structures. Field and petrographic data indicate that at least some of the original rock formed as a result of massive accumulations of lava flows and pillow lava. Crosscutting feeder dykes and sills are significant and contribute to the massive aspect of the volcanic rocks. The metamorphosed schistose volcanic rocks are compositionally basalts. These metasedimentary and metavolcanic rocks form part of the Carboniferous (Pennsylvanian-Mississippian) or older Anarchist Group.

Igneous intrusions in the Jewel Lake camp include a large Lower Cretaceous granodiorite pluton and a host of younger pulaskite and lamprophyre dykes. The granodiorite is correlative with Nelson Plutonic Rocks. It is a homogeneous medium-grained grey body which intrudes the metavolcanic rocks along a northwest trending contact in the southwest part of the camp. The intrusive has produced little effect in both the metavolcanic and metasedimentary rocks. Grano- diorite dykes occur and are compositionally similar to the main grano- diorite body and are probably offshoots from it. Pulaskite dykes are numerically most important. Several types are evident including both quartz-bearing and undersaturated types. Post-vein lamprophyre dykes as well as the pulaskite dykes are of probable Lower Tertiary age and cut all other major geological units.

On the North Star claim (L.1165), the North Star quartz fissure- vein crosscuts northwest striking metasedimentary rocks comprised of quartz wackes and lithic wackes which form part of the Carboniferous (Pennsylvanian-Mississippian) or older Anarchist Group. The quartz vein strikes 030 degrees across the metasedimentary rocks and dips 40 to 60 degrees southeast. The vein is highly irregular and dis- jointed with widths ranging from 10 centimetres to 1.2 metres and locally to 3.4 metres. The quartz vein has a tendency to either increase or decrease in width or split at the changes in attitude of the vein. Lower Tertiary pulaskite and lamprophyre dykes cut both the metasedimentary rocks and vein and locally has shattered or displaced the vein.

Mineralization consists of pyrite, galena, sphalerite, chal- copyrite and tellurides (possibly sylvanite). Some ore shoots average 20 centimetres in width and are localized at abrupt changes in attitude of the vein and are generally not continuous.

The North Star quartz vein is the northern extension of the adjoining Gold Drop quartz vein (L.1415, 082ESE153) to the south.

Past development consists of two shafts and two adits with considerable drifting, crosscutting and stoping. In addition, numer- ous open cuts have traced the surface expression of the vein.

Near the North Star occurrence, a set of geologically similar veins are noted. Their locations are not given. The Old Bird vein is found just east of the North Star occurrence. The crystalline and brecciated north-trending quartz vein is contained within metasediments. A highlighted grab sample graded 7.3 grams per tonne gold (Caron, L. (2014-01-21): National Instrument 43-101 Technical Report on the Gold Drop Property). The Silent Friend vein is a of similar geology to the North Star vein located just east of the Old Bird vein. Trench samples returned highlighted values of 16.83 grams per tonne gold over 0.50 metres, and 17.21 grams per tonne gold over 0.20 metres (Caron, L. (2014-01-21): National Instrument 43-101 Technical Report on the Gold Drop Property). The Ken vein is located approximately 400 metres south of the geologically similar Silent Friend veins. Highlighted grab samples from the vein graded 18.79 grams per tonne gold, and 6.03 grams per tonne gold (Caron, L. (2014-01-21): National Instrument 43-101 Technical Report on the Gold Drop Property).

The North Star occurrence was first discovered in 1895 to 1907.

In 1919, a small shipment of ore was made from the North Star occurrence although no further details were given.

In 1981 to 1986, Kenar Resources Ltd. conducted an exploration program including the occurrence. Sampling on the North Star historic workings gave a grade of 9.05 grams per tonne gold, and 46.08 grams per tonne over 0.30 metres (Caron, L. (2014-01-21): National Instrument 43-101 Technical Report on the Gold Drop Property). Exploration included a small drilling program, and a soil geochemical survey over the areas of Gold Drop, North Star, and Lake View.

In 2013, A.J. Beaton Mining completed an underground rehabilitation program on the North Star vein. Sampling was completed on the North Vein at various levels. Highlighted results include but at not limited to a 0.22 metre chip sample grading 81 grams per tonne gold, and 427.0 grams per tonne silver in sample 5453, and a 0.20 metre chip sample grading 11.25 grams per tonne gold, 52.1 grams per tonne silver, and 0.23 percent lead in sample 5451 (Caron, L. (2014-01-21): National Instrument 43-101 Technical Report on the Gold Drop Property).

In 2014 to 2015, Ximen Mining Corp. completed an exploration program over the Gold Drop, North Star, and Ken areas. Trenching, sampling, and geological mapping was completed. Highlighted results included a grab sample GD-R-15-25 grading 159 grams per tonne gold, 744 grams per tonne silver, and 17.0 percent lead, and sample GD-R-15-8 grading 7.03 grams per tonne gold, and 48 grams per tonne silver, 0.55 percent lead, and 0.01 percent copper (Martin, D. (2016-07-12): National Instrument 43-101 Technical Report on the Gold Drop Property).

Bibliography

EMPR AEROMAG MAP 8497G
EMPR AR 1896-578; 1897-590; 1898-1124; 1899-765; 1901-1056;
*1931-A125; 1932-A130; 1933-A28,A159,A160; *1934-A25,D5,D6;
*1935-A25,D3-D5,G52; *1936-D23-D25; 1937-A30,A36,D32;
1938-A34,D37; 1939-A37,A77
EMPR ASS RPT 9961, 11932
EMPR BULL 1, (1932), p. 85; 20, Part III, p. 12
EMPR ENG INSP (Geological Plan, 1936)
EMPR EXPL 1981-166; 1983-9
EMPR MR MAP 6 (1932)
EMPR OF 1990-25
EMPR P 1986-2
EMPR PF (*Hedley, M.S., (1941): Geology of Jewel Lake Camp and of the Dentonia Mine; *082ESE153; 082ESE152; Kenar Resources (1980-08-01): Work Sketch Map of Gold Drop and North Star Properties)
EMPR PRELIM MAP 59
EMR MP CORPFILE (Askalta Oil Company Ltd.; Superior Gold Mines Ltd.;

Greenbridge Gold Mines Ltd.)
GSC MAP 828; 45-20A; 6-1957; 10-1967; 1500A; 1736A; 828
GSC OF 481; 637; 1969
GSC P 67-42; 79-29
CANMET IR 1937, No. 785, p. 146
GEM 1974, pp. 39-51

EMPR PFD 1046, 1328, 1335, 752709

*Caron, L. (2014-01-21): National Instrument 43-101 Technical Report on the Gold Drop Property.
*Martin, D. (2016-07-12): National Instrument 43-101 Technical Report on the Gold Drop Property.

Date Coded:	1985/07/24	**Coded By:**	BC Geological Survey (BCGS)	**Field Check:**	N
Date Revised:	2020/07/08	**Revised By:**	Nicole Barlow (NB)	**Field Check:**	N