Ministry of
Energy, Mines and
Petroleum Resources
GEOLOGICAL SURVEY BRANCH

001038

MINFILE

NEW ☐ REVISION ☒ MODIFIED ☐

IDENTIFICATION

MINFILE NO. 082ESE055 NAT'L MINERAL INV. NO. 82E2 AU2

CANMINDEX NO.

NAME(S) 1. Jewel (L.850) 5. Anchor (L.1021)
2. Dentonia
3. Denero Grande (L.851)
4. Enterprise (L.1022)

STATUS: ☐ SHOWing ☐ PROSpect ☐ DEveloped PRospect ☐O ☒N PRODucer ☐O ☐U PAst PRoducer

LOCATION:

NTS MAP: 082E02E

BC MAP:

MINING DIVISION: GRWD Greenwood

UTM ZONE: 11 NORTHING: 5446175 EASTING: 382475

LATITUDE: ° ' " LONGITUDE: ° ' "

ELEVATION: 1225 (metres)

LOCATION CERTAINTY: ☒ within 500 m ☐ 2 within 1 km ☐ 3 within 5 km

Comment on Identity: Denero Grande shaft is 2.5 kilometres south-southwest of the summit of Mount Polly, near the south tip of Jewel Lake, 9 kilometres north-northeast of the town of Greenwood. EMPR GEM 1974-40

MINERAL OCCURRENCE

COMMODITIES: AG AU PB CU ZN CD SI

MINERALOGY:

SIGNIFICANT Minerals: PYRT GLEN CLCP SPLR TLRD GOLD

Comment:

ASSOCIATED Minerals: QRTZ ARPR

Comment:

ALTERATION Minerals:

Comment:

ALTERATION Type:

DEPOSIT CHARACTER

(1) ☒ 01 Vein
☐ 02 Stockwork
☐ 03 Breccia
☐ 04 Pipe
☐ 05 Unconsolidated
☐ 06 Podiform
☐ 07 Layered
☐ 08 Stratabound
☐ 09 Stratiform
☐ 10 Concordant
(2) ☒ 11 Discordant
☐ 12 Massive
☐ 13 Disseminated
☐ ** Unknown

DEPOSIT CLASSIFICATION

☐ 01 Replacement
☐ 02 Magmatic
☐ 03 Volcanogenic
☐ 04 Sedimentary
☐ 05 Syngenetic
(2) ☒ 06 Epigenetic
(1) ☒ 07 Hydrothermal
☐ 08 Residual
☐ 09 Porphyry
☐ 10 Igneous-contact
☐ 11 Skarn
☐ 12 Pegmatite
☐ 13 Placer
☐ 14 Precipitate
☐ 15 Exhalative
☐ 16 Diatreme
☐ 17 Epithermal
☐ 18 Mesothermal
☐ 19 Fossil Fuel
☐ ** Unknown

AGE OF MINERALIZATION: 217 Lower Cretaceous ISOTOPIC AGE: 125 Ma ± 5 Ma

MATERIAL DATED: Granodiorite DATING METHOD: 07 K-Ar

SHAPE OF DEPOSIT: ☐ 1 Regular ☐ 2 Tabular ☐ 3 Cylindrical ☒ 4 Bladed ☐ 5 Irregular

SHAPE MODIFIER: ☐ 1 Folded ☐ 2 Faulted ☐ 3 Fractured ☒ 4 Sheared ☐ 5 Other

DEPOSIT DIMENSION: X X (metres)

ATTITUDE: STRIKE/DIP 020 45E TREND/PLUNGE

Comment: Age date by W.H. Mathews (1964), Geochron Laboratories Ltd. K^{40}/K constant = 1.22×10^{-4} g/g

DATE CODED: Y M D CODED BY FIELD CHECKED ☐ YES ☐ NO

Y 89 M 02 D 06 REVISED BY GO ☐ YES ☒ NO

MINFILE NO. 082ESE055

HB-936

HOST ROCK

DOMINANT HOST ROCK: [1] Sedimentary [3] Volcanic [5] Metaplutonic [7] Metamorphic [X] Plutonic [4] Metasedimentary [6] Metavolcanic

FORMAL HOST:

1. **Group:** 365 Anarchist Group **Formation:** _____
   Strat-Age: ~~340~~ 329 ~~Permian~~ Carboniferous or older (Pennsylvanian-Mississippian) **Isotopic Age:** _____
   Dating Method: _____ **Material Dated:** _____
2. **Group:** _____ **Formation:** _____
   Strat-Age: _____ **Isotopic Age:** _____
   Dating Method: _____ **Material Dated:** _____

INFORMAL HOST:

1. **Igneous/Metamorphic/Other:** **Name:** 283 Nelson Plutonic Rocks
   Strat-Age: 219 Juro-Cretaceous **Isotopic Age:** _____
   Dating Method: _____ **Material Dated:** _____
2. **Igneous/Metamorphic/Other:** **Name:** 390 Unknown
   Strat-Age: 120 Tertiary (Lower) **Isotopic Age:** _____
   Dating Method: _____ **Material Dated:** _____

Comment on Host Rock: _____

ROCK TYPE/LITHOLOGY:

MODIFIER CODE(S)			ROCK CODE	ROCK NAME
			GRDR	granodiorite
	SCTS	META	BSLT	schistose metabasalt
		QRTZ	WCKE	quartz wacke
		LTHC	WCKE	lithic wacke
		GRDR	DYKE	granodiorite dyke
		PLSK	DYKE	pulaskite dyke
		LMPP	DYKE	lamprophyre dyke

GEOLOGICAL SETTING

TECTONIC BELT: [IN] INsular [CC] Coast Crystalline [IM] InterMontane [X] OMineca [EA] EAstern

TERRANE: 1. M Undivided Metamorphic Assemblages 2. CPC Plutonic Rocks

PHYSIOGRAPHIC AREA: OKHL Okanagan Highland

METAMORPHISM:

TYPE	RELATIONSHIP
[1] Contact	[X] Pre-Mineralization
[2] Regional	[2] Syn-Mineralization
	[3] Post-Mineralization

GRADE:

[ZL] Zeolite	[BS] Blueschist	[MV] Med. Vol. Bituminous
[X] Greenschist	[EC] Eclogite	[HV] Hi Vol. Bituminous
[AM] Amphibolite	[AN] Anthracite	[SB] Sub Bituminous
[HF] Hornfels	[SA] Semi-Anthracite	[LI] Lignite
[GL] Granulite	[LV] Low Vol. Bituminous	

Geological Setting Comment: _____

(1)

CAPSULE GEOLOGY

The Jewel Lake area is underlain by a complex of metamorphic rocks, mostly of sedimentary and volcanic origin correlative with the ~~Permian~~ Carboniferous or older Anarchist Group and a large granodiorite intrusion correlative to the Juro-Cretaceous Nelson Plutonic Rocks. ~~(According to Little, H.W. GSC P 79-29, the mapped "Anarchist Group" is not recommended to be used in the Greenwood area. The host metavolcanic and metasedimentary rocks are determined to be pre-Carboniferous and may include metamorphosed Carboniferous Permian Knob Hill Group rocks).~~ Small dykes and sill-like bodies, feeders to nearby Tertiary lavas, pervade these units. Four north striking and one northwest striking quartz fissure vein structures are known in the Jewel Lake ~~Group~~ camp all of which have received some development. Most of the production from the camp has come from what is known as the Dentonia vein.

The Dentonia quartz vein structure is exposed over a length of approximately 1828 metres and can be traced from a point 457 metres north of the Ethiopia adit (MINFILE 082ESE151, L.932) and south a distance of 1371 metres to the extremity of the Denero Grande workings (L.851). Essentially it follows a fracture zone which strikes south across the trend of the metamorphosed rocks. The fracture zone dips east to southeast at 30 to 60 degrees with variable strike, widths and amount of shearing. It has been developed on the Jewel (L.850), Enterprise (L.1022), Anchor (L.1021), Ethiopia (MINFILE 082ESE151, L.932) and most recently on the Denero Grande (L.851) claims.

Previous development work centred on two areas of the vein referred to as the Jewel and Enterprise sections with a combined length of 731 metres. The Jewel section comprises slightly less than half of the total development and extended from the north boundary of the Denero Grande claim to 158 metres north of the Jewel shaft. Much of the ore was taken from a thickened part of the vein where it traverses the contact between granodiorite and schistose volcanic rocks. The Enterprise section is 425 metres to the north of the Jewel shaft with the main orebody lying between the White and Enterprise shafts. The orebody had a length of more than 122 metres averaging 1.9 metres wide and [redacted] ranging to 4.8 metres wide. The Rowe ore shoot, located midway between the Jewel and the main Enterprise workings was comparatively small and high grade. A pulaskite dyke followed, displaced and eventually cut the vein. The Anchor ore shoot, 150 metres north of the Enterprise orebody was small and detached from the Enterprise.

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 sedimentary rocks are brittle [redacted] and quartz-rich, however compositions vary and some biotite varieties have the same competence as the amphibole-rich volcanic rocks. The bulk of the northwest striking and steeply northeast dipping sedimentary rocks are located in the north part of the property near the Anchor workings. They are locally called quartzites but few are true quartzites and more appropriate terms would be quartz wacke or lithic wacke. The volcanic rocks are most abundant on the Jewel claim (L.850). 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 [redacted] Carboniferous (Pennsylvanian-Mississippian) or older Anarchist Group.

Igneous intrusions in the Jewel mine area include a large Lower Cretaceous

(2)

CAPSULE GEOLOGY

granodiorite pluton and a host of younger pulaskite and lamprophyre dykes. The granodiorite returned a K-Ar age date of 125 ± 5 Ma and is correlative with Nelson Plutonic Rocks. The granodiorite is a homogeneous medium-grained grey body intruding the metavolcanic rocks along a northwest trending contact in the southwest part of the camp. Alteration is minor with some replacement of amphibole by epidote. The intrusive has produced little effect on both the metavolcanic and metasedimentary rocks. Granodiorite dykes occur and are compositionally similar to the main granodiorite body and are probably offshoots from it. Pulaskite dykes are numerically most important. Several types are evident including both quartz-bearing and undersaturated types. The largest pulaskite dyke is exposed between the Enterprise portal and the Jewel shaft. A second smaller dyke is located midway between the Enterprise portal and Enterprise shaft. 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 property.

The Dentonia vein ranges widely in attitude with strikes varying from 000 to 050 degrees, averaging about 020 degrees and dipping between 30 and 60 degrees southeast. As the dip increases, the vein generally narrows, merging with steeply dipping joints and shears, also striking about 020 degrees, and a set of strong crossjoints at roughly 045 degrees and vertical dips developed at right angles to the strike and foliation of the local country rocks. The age of the Dentonia vein is bracketed by the granodiorite which locally hosts the vein and by crosscutting pulaskite and lamprophyre dykes. The dykes are correlated with petrographically similar Tertiary lavas at the summit of Mount Pelly and with volcanic rocks which occur to the west near Midway, dated at 49 ± 2 Ma. In general, the Dentonia vein cuts granodiorite in the south, metasedimentary rocks in the north and intervening metavolcanic rocks. Vein widths vary from an average of 0.9 metres to a maximum of 4.8 metres.

Mineralization within the quartz vein includes mostly pyrite, galena and chalcopyrite with sphalerite, tellurides, native gold and possible arsenopyrite. The minerals are not especially abundant, occurring mainly as grey streaks and fine dissemination or as small pockets and lenses. At a number of places granodiorite (EOSS) dykes interrupt the vein and locally cut the vein off. Splays and screens of country rock as well as post-vein pulaskite or lamprophyre dykes cause considerable dilution in some areas. There is generally very little alteration or silicification of the wallrock, but minor shattered zones or minute parallel cracks contain stringer-type mineralization. Ore controls are attributed to several factors, the most important of which are deflections in the vein attitude and the response of the main fissure zone to sudden changes in the composition of the host rock. Ore shoots tend to pitch directly down the dip of the vein and occur in the flatter sections. Post-vein and post-dyke faulting is not prevalent, however, the vein some ~~has~~ have produced offsets up to a couple of metres and to some extent parallel the vein. In the Jewel orebody, the quartz vein is enlarged and somewhat refracted at the intersection of brittle granodiorite and the less competent volcanic rocks. At the Enterprise orebody the great width of the quartz vein appears to be solely the result of a major variation in the direction of the fissure zone in the homogeneous volcanic rock.

The continuation of the Dentonia vein 183 metres south of the Jewel workings to the Denero Grande (L.851) claim has resulted in the Denero Grande shaft being sunk to a depth of 155 metres followed by extensive underground development. Silica smelter credits have been received from some shipments of ore.

CAPSULE GEOLOGY

WORK HISTORY

FROM	TO	WORK TYPE	AMOUNT (m/km/ha/No.)	COMMENT (Owner/Operator/Results)
		UNDV		Dentonia ~~Mines~~ Res. Ltd. EMPR PF(082ESE055)
		DIAD		

The Dentonia Mine, Boundary District, 40 pp.; Regional Hy...
EMPR MAP 65

RESERVES

ORE ZONE NAME: Denero Grande YEAR: 1986

CATEGORY: [MR] Measured Recoverable [IN] Indicated Ore [UN] Unclassified
[MG] Measured Geological [X] Inferred Ore [BA] Best Assay

SAMPLE TYPE: [CHIP] Chip [GRAB] Grab [CHNL] Channel [BULK] Bulk [DIAD] Drill Core [ROCK] Rock

CALCULATION A: QUANTITY: 27000 (tonnes)

Commodity	Grade	Commodity	Grade	Commodity	Grade
AU	10.0				
AG	86.0				

(Precious metals in grams, others in per cent)

Comment:

Reference: EMPR MAP 65

ADD
EMPR AR 1896-582
1898-1194
1937-A29, A36, A41, D32
1938-A27, A34
1939-A29, A36
1940-A17
1941-A18, A24, A25
1942-A20, A59
1943-A37
1947-A276
1948-A192, A193
EMPR BULL 1 (1932), pp. 84, 85
EMPR FIELDWORK 1986, p. 19

QUANTITY: (tonnes)

Commodity	Grade	Commodity	Grade

(Precious metals in grams, others in per cent)

EMPR INF CIRC 1988-1, pp. 20, 59; 1986-1, p. 45, 41; 1985-1, p. 42; 1985-1, p. 22

ORE MINED: (tonnes) MILLED: (tonnes)

Commodity	Commodity	Quantity

(Precious metal quantities in grams others in kilograms)

Comment:

Reference:

BIBLIOGRAPHY

(place * before significant references)

GSC OF 1969

EMPR AR 1897-588, 589; 1898-1124, 1195; 1899-604, 764, 765, 817; 1900-878; 1901-1056; 1902-H176, H179, H180; 1903-H166, H171; 1905-J183; 1906-H159; 1909-K131, K132; 1910-K120; 1912-K167, K323; * 1913-K146-K149, K163, K421; 1914-K334, K399, K511; 1915-K201, K446; 1916-K21, K518; 1917-F20; 1921-G184; 1922-N176, N177; 1926-A215; 1927-G237; 1928-C250; 1930-A222, A223; 1931-A125; 1932-A130; 1933-A158-A160; 1934-D5; 1935-A25, A30, D10, G52; 1936-D25, D56; 1937-D32; 1938-D37; 1939-A77; 1940-A63; 1941-A61; 1942-A26, A59; 1943-A63; 1944-A33; 1945-A95; 1946-A135; 1947-A155; 1948-A127

GSC SUM RPT 1901, p. 65; 1902, p. 127

GSC MAP 828; 6-1957; 10-1967

GSC P 79-29

EMR MP CORPFILE (Dentonia Mines Ltd., Colt Res. Ltd., Dentonia Res. Ltd.)

EMR MP RESFILE (Dentonia Mines Ltd.)

EMR MIN BULL MR 166

CANMET IR 1933-743; pp. 101-106; 1935-763, p. 226

EMPR BULL 20, Part III, pp. 11, 12

EMPR MINING 1975-1980, Volume I, pp. 8, 9

EMPR GEM 1973-41; * 1974-39-51

EMPR FIELDWORK 1974, pp. 56-58

EMPR EXPL 1975-E15; 1980-21, 22; 1984-7

EMPR ENG INSP (Mine plans, geology)

EMPR PF (* 082ESE0055 Regional File) Hedley, M.S. (1941): Geology of the Jewel Lake Camp (Eastern Part) and of the Dentonia Mine, Boundary District, 40 pp.; Regional File)

EMPR MAP 65