Jersey-
Emerald 082FSW010

MINFILE NUMBER: 082FSW010 NATIONAL MINERAL INVENTORY: 082F3 W1

NAME(S): EMERALD TUNGSTEN, JERSEY

STATUS: Past Producer Underground MINING DIVISION: Nelson
NTS MAP: 082F03E UTM ZONE: 11
LATITUDE: 49 06 25 NORTHING: 5439150
LONGITUDE: 117 13 37 EASTING: 483435
ELEVATION: 1160 Metres
LOCATION ACCURACY: Within 500M
COMMENTS: The Emerald Tungsten deposit lies east of Emerald lead-zinc mine (082FSW310). The production is included with Jersey mine (082FSW009).

COMMODITIES:	Tungsten	Molybdenum	Bismuth	Gold	
MINERALS					
SIGNIFICANT:	Scheelite	Wolframite	Molybdenite	Pyrrhotite	Pyrite
	Chalcopyrite	Bismuth	Arsenopyrite	Gold	Telluride
COMMENTS:	Molybdenum is only a minor constituent of the ore.				
ASSOCIATED:	Quartz	Apatite	Cassiterite	Vesuvianite	Fluorite
	Wollastonite				
ALTERATION:	Garnet	Pyroxene	Tourmaline	Powellite	Calcite
	Biotite	K-Feldspar	Sericite		
COMMENTS:	Kaolinite, tremolite and silica are also reported as alteration types.				
ALTERATION TYPE:	Skarn	Tourmalinz'n	Oxidation	Potassic	
MINERALIZATION AGE:	Unknown				

DEPOSIT

CHARACTER:	Disseminated	Vein
CLASSIFICATION:	Skarn	Replacement
TYPE:	W skarn	
SHAPE:	Regular	
MODIFIER:	Folded	

HOST ROCK
DOMINANT HOST ROCK: Sedimentary

STRATIGRAPHIC AGE	GROUP	FORMATION	IGNEOUS/METAMORPHIC/OTHER
Lower Cambrian	Undefined Group	Laib	
Jurassic			Emerald Stock

LITHOLOGY: Limestone
Argillite
Granite
Black Quartz Breccia
Dolomite

HOST ROCK COMMENTS: Mineralization occurs at the contact of the Reeves and Argillite members of the Laib Formation.

GEOLOGICAL SETTING
TECTONIC BELT: Omineca PHYSIOGRAPHIC AREA: Selkirk Mountains
TERRANE: Kootenay Plutonic Rocks

CAPSULE GEOLOGY

The Emerald Tungsten zone is located on the west side of the Emerald Stock granite of the Middle to Late Jurassic Nelson Intrusions. The zone occurs within the Lower Cambrian Laib Formation along the contact of the Reeves Member limestone with the Emerald Member argillite as well as on the limestone-granite contact.

The strata strike about 020 degrees and dip between 45 and 70 degrees east; many of the beds are actually overturned. The granite appears at the surface as a north trending elongate stock. West of the stock are argillite and skarn bands of the Truman Member (Laib Formation), which forms an isoclinal anticline overturned to the west. The Reeves limestone is on the west limb of this anticline, and dips 25 to 70 degrees east, terminating at depth against granite. It is succeeded on the west by the Emerald argillite that also dips east. Both the Emerald and nearby Feeney (082FSW247) ore zones are transected by the Granite fault; drilling, east and north of the fault, located the Invincible (082FSW218) tungsten zone at the same stratigraphic horizon.

Within the deposit four distinct types of mineralization can be recognized: sulphide, "greisen", skarn, and quartz ores. The sulphide-type consists of irregularly shaped "replacement" bodies in limestone and dolomite, consisting of pyrrhotite, calcite, biotite and scheelite. Locally quartz, pyrite, molybdenite and chalcopyrite may be present. The "greisen"-type of ore is in altered granite and extends as much as 12 metres into the granite from the contact with the limestone. The ore consists of potash feldspar, in some places

CAPSULE GEOLOGY

completely kaolinized, abundant quartz, sericite, pyrite, tourmaline and scheelite. Locally, calcite or ankerite, apatite, pyrrhotite or molybdenite may be present. The skarn-type of ore, ocurring mainly at or near the contact of limestone and argillite, consists of garnet, diopside, calcite and quartz with small amounts of pyrrhotite, pyrite, scheelite and molybdenite. The quartz-type ore, which in many places grades into greisen, is silicified limestone intersected by numerous veins of quartz containing abundant ankerite, large crystals of scheelite, a few flakes of molybdenite, and orange-fluorescing crystals of apatite. Near the veins are found disseminated scheelite and pyrite with some pyrrhotite and tremolite. Also reported are native bismuth, arsenopyrite, gold, tellurides, cassiterite, vesuvianite, fluorite, and wollastonite (G. Ray, 1995).

Scheelite is the main tungsten mineral but minor powellite and wolframite have also been reported. Most of the scheelite occurs as fine, disseminated grains in lenticular skarn zones which extend an average of about 5 to 6 metres from the granite contact along the limestone-argillite contact. Grades are 0.5 to 1.5 per cent WO3.

The Emerald Tungsten mine was worked in 1943, 1947 to 1949 (inclusive) and again from 1951 to 1958 (inclusive). Production to the end of 1957 amounted to 597,100 tonnes of ore (Bulletin 41, page 119). Production for the Emerald deposit, combined with that of the Feeney (082FSW247) and Dodger (082FSW011) deposits, is recorded with the production statistics of the Jersey mine (082FSW009).

BIBLIOGRAPHY

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PERS COMM Gerry Ray, 1995

DATE CODED: 850724 CODED BY: GSB FIELD CHECK: N
DATE REVISED: 950313 REVISED BY: GR FIELD CHECK: Y

Jan. 23/07 PRODUCTION
Feeney (1951-1955) = [60,000]
Dodger (1951-1958) = [285,000]
Emerald (1943-1958) = [597,100 tons]
Totals - 1,003,317 tons
= 13,048,963 lbs WO_3

Yearly Production?