

Location/Identification **MINFILE Number:** 082FSW199 HOWARD (L.12538) Name(s): DURANGO, UNION JACK, PECK Past Producer **Mining Division:** Nelson Status: Underground **Electoral District:** Nelson-Creston **Mining Method** Arrow Boundary Forest District **Regions:** British Columbia **Resource District:** 082F025 **BCGS Map:** 082F03E **UTM Zone:** NTS Map: 11 (NAD 83) 49 14 18 N Latitude: 5453957 Northing: Longitude: 117 06 46 W Easting: 491791 1708 metres **Elevation:** Within 500M **Location Accuracy:** The Howard Crown grant (Lot 12538) is on the east side of Active Creek (Geological Survey of Canada Memoir 172, pages **Comments:** 70-73). **Mineral Occurrence** Silver, Lead, Zinc, Gold, Cadmium, Copper **Commodities:** Pyrite, Pyrrhotite, Galena, Gold, Sphalerite, Chalcopyrite Minerals Significant: Quartz Associated: Silica Alteration: Silicific'n **Alteration Type: Mineralization Age:** Unknown **Character:** Vein, Disseminated, Massive, Shear Deposit Hydrothermal, Epigenetic **Classification:** I05: Polymetallic veins Ag-Pb-Zn+/-Au Type: Regular Modifier: Folded, Faulted Shape: 016/45W 2x0x0 metres Strike/Dip: **Dimension:** Queen A type veins are up to 1.8 metres wide. **Comments:** Host Rock **Dominant Host Rock:** Plutonic Igneous/Metamorphic/Other Stratigraphic Age Group Formation Middle Ordovician Undefined Group Active Jurassic Nelson Intrusions ----------**Isotopic Age Dating Method Material Dated** --------------------Quartzite, Granodiorite, Argillite, Granite, Lamprophyre Dike Lithology: **Geological Setting Tectonic Belt:** Omineca Selkirk Mountains **Physiographic Area:** Ancestral North America, Plutonic R **Terrane:** 

**Inventory** 

Summary Production									
	Metric		c Imperial						
	Mined:	20,091	tonnes	22,146	tons				
	Milled:	19,806	tonnes	21,832	tons				
Recovery	Silver	1,613,871	grams	51,887	ounces				
	Gold	212,121	grams	6,820	ounces				
	Lead	1,059,009	kilograms	2,334,715	pounds				
	Zinc	343,307	kilograms	756,862	pounds				
	Cadmium	68	kilograms	150	pounds				
Capsule Geology									

Quartzites and argillites of the Middle Ordovician Active Formation are intruded by granodiorite of the Middle to Late Jurassic Nelson Intrusions. The intrusive-quartzite contact is highly irregular, strikes generally northwest and dips gently in a south direction under the sediments. Lamprophyre dykes typically occur near faults.

Heavy mineralization, consisting of pyrrhotite, pyrite, sphalerite, galena, chalcopyrite and quartz occurs in a fissure vein called the Peck zone which strikes south across the intrusive- quartzite contact and has a west dip. Some visible gold has been observed. There are also two Queen vein (082FSW048) types of sulphide-bearing quartz veins which crosscut the fissure ore. The Queen A type are steeply dipping quartz veins that are from 1.5 to 1.8 metres wide and have associated minor parallel quartz stringers that occur up to a metre away from the vein. There are at least 3 of these large Queen A type veins in the mine area. The Queen B types is more of a fault than a quartz vein but irregular masses of quartz that do occur contain minor sulphides and some precious metal values. These veins branch and dip rapidly while the Queen A types do not.

The Queen vein strikes east-west with a steep south dip. Within the granite it is narrow and hosts some quartz and tourmaline and the granite is silicified. To the west the Queen vein becomes mineralized locally and intersects the Peck zone. Where the Peck zone intersects the granite to the north, mineralization consisting of pyrite, pyrrhotite, sphalerite, and galena dies out and the granite-quartzite contact area is intensely silicified. To the south, the ore becomes massive and is up to 1.25 metres wide with some disseminated sulphides in the wallrocks. The ore zone is cut off to the south by the Queen fissure which exhibits sinistral movement in drag folds in the sulphide ores.

The total Howard mine production indicates grades of 17.15 grams per tonne gold, 85.7 grams per tonne silver and 12 per cent combined lead and zinc. The ore was confined to the zone between the granite- quartzite contact and the fault zone of the Queen fissure. In 10 years between 1937 and 1970 the Howard mine produced 20,091 tonnes of ore, of which 19,216 tonnes were mined in 1938. Recovery of elements from all ore mined, totalled 212,121 grams of gold, 1,613,871 grams of silver, 1,059,009 kilograms of lead, 343,307 kilograms of zinc and 68 kilograms of cadmium.

## **Bibliography**

EMPR AR 1897-531,574; 1898-1012; 1906-251; 1926-276,278,448; 1927-303,307; 1928-339,342; 1929-350; 1930-274; 1935-A31,E28,G50; 1936-E46; 1937-A39,E50; 1938-A36,E3,E42; 1939-39,91; 1941-26, 66; 1942-63; 1968-241 EMPR ASS RPT \*7010, \*9521 EMPR BC METAL MM01016 EMPR BULL 1, p. 108; 3, p. 25; 109 EMPR EXPL 1978-E50 EMPR FIELDWORK 1987, pp. 19-30; 1988, pp. 33-43; 1989, pp. 11-27; 1990, pp. 9-31 EMPR GEM 1969-316; 1970-440,480 EMPR OF 1988-1; 1989-11; 1990-8; 1990-9; 1991-2; 1991-16 EMPR PF (Starr, C.C. (1926-02-16): Brief Report on the Howard Mine; Starr, C.C. (1929-08-10): Report on the Preliminary Examination of the Howard Mine; Starr, C.C. (1930): Howard Mine - Separate Level Map; Starr, C.C. (1930): Blueprint Map - Howard Mine; Starr, C.C. (1930): Howard Mine Map - tracing of blueprint; A.H. Green Co. Engs. (1930): Map of the Mine Workings - Howard Mines; Fyles, J.T., (1954-07-02): Report on the Howard Mine) GSC MAP 299A; 1090A; 1145A GSC MEM 94, p. 121; \*172, p. 70; 308, pp. 120,132 GSC OF 1195 GSC P 49-22; 50-19

## EMPR PFD 650038, 223, 224, 225, 226, 227, 229, 230, 650025, 750019, 750020, 750021, 750022, 884083

Date Coded:	1985/07/24	Coded By:	BC Geological Survey (BCGS)	Field Check:	Ν
Date Revised:	2008/02/09	<b>Revised By:</b>	Karl A. Flower (KAF)	Field Check:	Ν