



Location/Identification

MINFILE Number: 082ESW102

Name(s): **CRYSTAL PEAK GARNET**
MOUNT RIORDAN, SHAMROCK (L.3123), BILLY GOAT (L.3122), POLESTAR, CRYSTAL PEAK

Status: Developed Prospect

Regions: British Columbia, Kootenay Region

BCGS Map: 082E031

NTS Map: 082E05W

Latitude: 49 23 35 N

Longitude: 119 55 51 W

Elevation: 2073 metres

Location Accuracy: Within 500M

Comments: Centred on surface trace of garnet mass at the summit of Mount Riordan (Property File - Polestar Exploration Prospectus, 1989).

Mining Division: Osoyoos

Electoral District: Penticton-Okanagan Valley

Resource District: Okanagan Shuswap Forest District

UTM Zone: 11 (NAD 83)

Northing: 5475282

Easting: 287337

Mineral Occurrence

Commodities: Garnet, Tungsten, Copper, Silver, Gold, Zinc

Minerals

Significant: Garnet, Andradite, Grossularite, Scheelite, Axinite, Pyrite, Pyrrhotite, Chalcopyrite, Bornite, Powellite

Associated: Diopside, Quartz, Calcite, Epidote, Actinolite, Magnetite, Hedenbergite, Clinopyroxene

Associated Comments: Also garnet and pyroxene.

Alteration: Garnet, Diopside, Quartz, Epidote, Actinolite, Magnetite, Wollastonite, Chlorite

Alteration Type: Skarn

Mineralization Age: Unknown

Deposit

Character: Stratabound, Massive, Disseminated

Classification: Replacement, Skarn, Industrial Min.

Type: K08: Garnet skarn, K01: Cu skarn, K05: W skarn, K04: Au skarn

Shape: Bladed

Dimension: 800x300x30 metres

Comments: Garnetite mass, trending north-northwest.

Host Rock

Dominant Host Rock: Metasedimentary

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Triassic	Nicola	French Mine	-----
Lower Jurassic	-----	-----	Bromley Batholith
Middle Jurassic	-----	-----	Nelson Intrusions

Isotopic Age	Dating Method	Material Dated
-----	-----	-----
194.8+/-2.4 Ma	Uranium/Lead	Zircon
-----	-----	-

Lithology: Limestone, Carbonate Sediment/Sedimentary, Garnet Skarn, Garnetite, Hornblende Porphyry Granodiorite, Microdiorite, Marble, Gossan

Comments: Granodiorite (Mount Riordan stock) surrounding the Crystal Peak occurrence.

Geological Setting

Tectonic Belt: Intermontane

Physiographic Area: Thompson Plateau

Terrane: Okanagan, Plutonic Rocks

Metamorphic Type: Regional, Contact

Relationship: Pre-mineralization, Syn-mineralization

Grade: Greenschist

Inventory

Ore Zone: WEST

Year: 1991

Category: Indicated

Report On: Y

Quantity: 11,848,200 tonnes

NI 43-101: N

Commodity	Grade
Garnet	78.0000 per cent

Comments: Drill indicated reserves. An average rock density value of 3.5 grams per cubic centimetre was used to determine tonnage.

Reference: MDAP - Crystal Peak Garnet, Stage 1 Report, March 1991.

Ore Zone: NORTH

Year: 1991

Category: Indicated

Report On: Y

Quantity: 17,955,000 tonnes

NI 43-101: N

Commodity	Grade
Garnet	80.0000 per cent

Comments: Drill indicated reserves. An average rock density value of 3.5 grams per cubic centimetre was used to determine tonnage.

Reference: MDAP - Crystal Peak Garnet, Stage 1 Report, March 1991.

Ore Zone: SOUTH

Year: 1991

Category: Indicated

Report On: Y

Quantity: 10,663,380 tonnes

NI 43-101: N

Commodity	Grade
Garnet	77.0000 per cent

Comments: Drill indicated reserves. The South zone is the proposed open pit. An average rock density value of 3.5 g/cm³ was used to determine tonnage.

Reference: MDAP - Crystal Peak Garnet, Stage 1 Report, March 1991.

Capsule Geology

The Crystal Peak Garnet deposit is centred on Mount Riordan, 26 kilometres west-southwest of Princeton.

The deposit is located on the eastern edge of the Hedley Mascot and Nickel Plate mining camp. The general area has been extensively prospected.

The deposit is hosted in a roof pendant of carbonate-rich sediments (limestone) of the Upper Triassic French Mine Formation, Nicola Group that has been almost completely replaced by garnet-rich skarn. The roof pendant is intruded from the north and east by hornblende porphyritic granodiorite of the Middle Jurassic Bromley batholith (locally known as Mount Riordan stock), part of the Middle Jurassic Nelson intrusions (Bulletin 101).

An elongate mass of garnetite trending north-northwest for up to 900 metres lies centred on Mount Riordan. The deposit contains three major, high grade zones (60 to 100 per cent garnet) outcropping over a total area of 3.35 hectares. Remnant bodies of microdiorite up to 30 metres in diameter are scattered about a broad zone lying in the centre of the skarn.

The skarn consists of massive and coarsely crystalline garnetite comprised of approximately 90 per cent andradite and 10 per cent grossularite.

Garnet crystals typically contain andradite-rich cores and grossularite-rich margins. The garnet is usually brown and green, with minor black, red-brown, pink and yellow-green varieties. Diopside, quartz, calcite, epidote, actinolite, hedenbergite, clinopyroxene and magnetite occur in relatively low quantities. Traces of chlorite, wollastonite, scheelite and various sulphides are also present. Total impurities amount to 5 to 15 per cent of the skarn. Calcite occurs as rare flat lying or gently dipping marble layers, as interstitial blebs 1 to 3 millimetres in diameter, and as small veins developed near the summit of Mount Riordan.

Scheelite mineralization tends to occur as small crystals less than 1 millimetre in diameter sparsely disseminated or clustered throughout the skarn, and as blebs, coarse crystalline masses and veinlets up to 5 centimetres in width and 3 metres in length near the summit of Mount Riordan. A grab sample of scheelite-rich mineralization taken near the summit contained in excess of 5 per cent tungsten (Fieldwork, 1987). Some scheelite-rich sections also contain coarse axinite.

Pockets, irregular veinlets and blebs of magnetite intergrown with variable amounts of pyrrhotite, pyrite, chalcopyrite and traces of bornite are also present in the skarn. This mineralization is best developed in a series of gossanous zones found along a west trending linear structure in the northern half of the deposit. A grab sample of magnetite-rich mineralization assayed 1.69 grams per tonne gold, 19 grams per tonne silver, 0.74 per cent copper and 0.11 per cent zinc (Fieldwork, 1987).

Indicated reserves at the North zone are 17,955,000 tonnes grading 80 per cent garnet; indicated reserves at the West Zone are 11,848,200 tonnes grading 78 per cent garnet; indicated reserves at the South zone are 10,663,380 tonnes grading 77 per cent garnet (Mineral Development Assessment Process - Crystal Peak Garnet, Stage 1 Report, March 1991).

Bibliography

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GSC MAP 341A; 538A; 539A; 541A; 628A; 15-1961; 1736A; 2389

GSC MEM 38; 179

GSC OF 481; 637; 1505A; 1565; 1969

GSC P 37-21; 72-53

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EMPR PFD 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 904185, 904613, 904882, 904883, 127778, 905479, 906518, 907377, 882178, 882179, 882180, 882182, 882361, 882181, 675530

Date Coded:	1989/04/11	Coded By:	George Owsiacki (GO)	Field Check:	N
Date Revised:	2008/02/23	Revised By:	Karl A. Flower (KAF)	Field Check:	N