

Location/Identification

MINFILE Number:	092ISE006	National Mineral Inventory Number:	09217 Cu1
Name(s):	<u>BETHLEHEM (IONA)</u> IONA, HIGHLAND VALLEY COPPER		
Status:	Past Producer	Mining Division:	Kamloops
Mining Method	Open Pit	Electoral District:	Yale-Lillooet
Regions:	British Columbia	Resource District:	Kamloops Forest District
BCGS Map:	0921046		
NTS Map:	092107W	UTM Zone:	10 (NAD 83)
Latitude:	50 29 29 N	Northing:	5595217
Longitude:	120 58 48 W	Easting:	643281
Elevation:	1475 metres		
Location Accuracy:	Within 500M		
Comments:	Open pit		

Mineral Occurrence

Commodities:	Copper, Molybdenum		
Minerals	Significant:	Bornite, Chalcopyrite, Molybdenite, Chalcocite	
	Alteration:	Sericite, Kaolinite, Quartz, Epidote, Malachite	
	Alteration Type:	Sericitic, Argillic, Propylitic, Oxidation	
	Mineralization Age:	Lower Jurassic	
Isotopic Age:	199 +/- 8 Ma	Dating Method:	Potassium/Argon
		Material Dated:	Biotite
Deposit	Character:	Breccia, Disseminated	
	Classification:	Hydrothermal, Porphyry	
	Type:	L04: Porphyry Cu +/- Mo +/- Au	
	Shape:	Cylindrical	Modifier: Fractured
	Comments:	Age date sample is a mixture of magmatic and hydrothermal biotite (Canadian Institute of Mining and Metallurgy Special Volume 15, page 114).	

Host Rock

Dominant Host Rock:	Plutonic		
Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Triassic-Jurassic	-----	-----	Guichon Creek Batholith
Isotopic Age	Dating Method	Material Dated	
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Lithology:	Breccia, Quartz Diorite, Granodiorite, Dacite Porphyry Dike, Porphyritic Quartz Latite Dike		

Geological Setting

Tectonic Belt:	Intermontane	Physiographic Area:	Thompson Plateau
Terrane:	Quesnel		

Inventory

Ore Zone:	IONA	Year:	1988
Category:	Unclassified	Report On:	Y

Quantity: 6,000,000 tonnes

NI 43-101: N

Commodity	Grade
Copper	0.4000 per cent

Comments: Oxide ore.

Reference: CIM Special Volume 46, page 175.

Capsule Geology

The Bethlehem (Iona) property lies within the Early Jurassic- Late Triassic Guichon Creek batholith and straddles an intrusive contact where younger Bethlehem phase quartz diorite and granodiorite forms an irregular embayment in older Guichon variety granodiorite. Igneous breccias are believed to have been forcefully emplaced. The granodiorites and breccias are intruded by north trending, steeply dipping dacite porphyry and porphyritic quartz latite dykes up to 60 metres in width.

The ore deposits are controlled by intrusive contacts, faulting and fracturing. The Iona deposit is cut by several northwest to northeast trending faults and is highly fractured.

The deposit is mostly confined to a north trending pear-shaped breccia zone. The breccia pipe contains vugs, mushrooms near the surface, narrows with depth, and contains fragments of most major rock types found on the property. The mineralization consists mainly of bornite and chalcopyrite in varying ratios, along with minor amounts of molybdenite and chalcocite. The deposit contains an extensive oxide zone which reaches a depth of 60 metres. Malachite is the most common oxidation product. Hydrothermal alteration, similar to the other Bethlehem deposits, consists of sericite, kaolinite, quartz and epidote. An age date from a sample of a mixture of magmatic and hydrothermal biotite returned 199 Ma +/- 8 Ma (Canadian Institute of Mining and Metallurgy Special Volume 15).

The Iona pit was mined from 1976 to 1979. See Bethlehem mine (092ISE001) for production statistics.

Oxide reserves for Iona are 6,000,000 tonnes of 0.40 per cent copper (CIM Special Volume 46, page 175).

Bibliography

EMPR AR 1917-224; 1919-183; 1920-168,172; 1955-34; 1956-45; 1957-26; 1958-21; 1965-146; 1966-152; 1967-153

EMPR ASS RPT 116

EMPR BULL 56

EMPR EXPL 1989-119-134

EMPR GEM 1973-179; 1974-146

EMPR MAP 30; 65 (1989)

EMPR MINING 1975

EMPR PF (see 092ISE005, plans maps and reports; see 092ISE001 for numerous maps, reports, etc.)

EMR MP CORPFILE (Bethlehem Copper Corp. Ltd.)

GSC MEM 249, p. 121

GSC OF 980; 2167, pp. 99-114

CIM Special Volume *15, pp. 105-119; 46, pp. 161-191

Field Trip Guidebook (GAC-MAC-CGU Victoria, B.C. May 11-13, 1983), Trip 10, Porphyry Deposits of Southern British Columbia, pp. 85-104

Placer Dome File

Falconbridge File

EMPR PFD 10101, 10102, 10103, 10104, 10109, 10110, 10111, 10117, 10118, 10119, 10120, 10121, 10122, 10127, 10132, 10280, 10775, 10776, 10779, 10780, 10782, 810718, 810752, 820314, 820907, 820931, 820932, 820933, 883958, 883986, 802049, 802050, 802425, 802091, 861759, 861760, 843003, 843005, 843022, 843026, 502425, 502966, 502987, 502988, 502989, 502990, 502992, 502993, 502995, 502999, 503850, 505980, 896316, 896318, 896327, 896330, 896432

Date Coded: 1985/07/24

Coded By: BC Geological Survey (BCGS)

Field Check: N

Date Revised: 1988/03/15

Revised By: Lori K. Walters (LKW)

Field Check: N