



Location/Identification

MINFILE Number: 092GNW025 **National Mineral Inventory Number:** 092G11 Cu7

Name(s): GAMBIER ISLAND
GAMBIER ISLAND COPPER, MB, DAYBREAK, GAMBIER CREEK, JON, GALE, B, C

Status: Developed Prospect **Mining Division:** Vancouver

Regions: British Columbia **Electoral District:** Powell River-Sunshine Coast

BCGS Map: 092G054 **Resource District:** Sunshine Coast Forest District

NTS Map: 092G11W **UTM Zone:** 10 (NAD 83)

Latitude: 49 30 45 N **Northing:** 5484496

Longitude: 123 22 04 W **Easting:** 473377

Elevation: 150 metres

Location Accuracy: Within 100M

Comments: Centre of mineralized zone along Gambier Creek on the north end of Gambier Island in Howe Sound, 28 kilometres north from the city of Vancouver (Property File - Report by Acres Consulting).

Mineral Occurrence

Commodities: Copper, Molybdenum, Zinc, Lead, Silver, Gold

Minerals **Significant:** Pyrite, Chalcopyrite, Molybdenite, Sphalerite, Galena, Bornite

Significant Comments: Rare bornite.

Associated: Quartz

Alteration: Sericite, Biotite, Chlorite, Epidote

Alteration Type: Sericitic, Propylitic, Potassic

Mineralization Age: Unknown

Deposit **Character:** Stockwork, Disseminated, Vein

Classification: Porphyry, Hydrothermal

Type: L04: Porphyry Cu +/- Mo +/- Au

Shape: Irregular **Modifier:** Faulted

Dimension: 1200x200x0 metres

Comments: Mineralized zone.

Host Rock

Dominant Host Rock: Plutonic

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Lower Cretaceous	Gambier	Undefined Formation	-----
Jurassic-Cretaceous	-----	-----	Coast Plutonic Complex

Isotopic Age	Dating Method	Material Dated
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Lithology: Quartz Porphyry, Andesite, Andesite Breccia, Volcanic Wacke, Volcanic Breccia, Argillite, Diorite, Granite, Hornfels, Dacite Porphyry Dike

Geological Setting

Tectonic Belt: Coast Crystalline **Physiographic Area:** Fiord Ranges (Southern)

Terrane: Gambier, Plutonic Rocks

Metamorphic Type: Regional
Grade: Greenschist

Inventory

Ore Zone: GAMBIER ISLAND **Year:** 1981
Category: Measured **Report On:** Y
Quantity: 114,000,000 tonnes **NI 43-101:** N

Commodity	Grade
Copper	0.2900 per cent
Molybdenum	0.0180 per cent

Comments: Calculated at 0.30 per cent copper equivalent cut-off
Reference: Property File - Report by Acres Consulting, 1981.

Ore Zone: GAMBIER ISLAND **Year:** 1981
Category: Possible **Report On:** N
Quantity: 198,000,000 tonnes **NI 43-101:** N

Commodity	Grade
Copper	0.24 per cent
Molybdenum	0.015 per cent

Comments: Calculated at 0.20 per cent copper equivalent cut-off
Reference: Assessment Report 15792

Ore Zone: GAMBIER ISLAND **Year:** 1979
Category: Inferred **Report On:** N
Quantity: 251,400,000 tonnes **NI 43-101:** N

Commodity	Grade
Silver	1.3 grams per tonne
Gold	0.04 grams per tonne
Copper	0.27 per cent
Molybdenum	0.014 per cent

Comments:
Reference: Assessment Report 7730

Ore Zone: C **Year:** 1978
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Silver	2.4 grams per tonne
Copper	0.36 per cent
Molybdenum	0.030 per cent

Comments:
Reference: Assessment Report 7126

Capsule Geology

The Gambier Island (B and C zones) occurrence is located on the northern end of Gambier Island in Howe Sound, along Gambier Creek at elevation of

approximately 150 metres.

Most of Gambier Island is underlain by mafic volcanic strata and associated sediments of the Lower Cretaceous Gambier Group. Granitic rocks of the Jurassic to Cretaceous Coast Plutonic Complex underlie the southern part of the island. The volcano-sedimentary rocks generally strike northwest with steep northeast dips.

The Gambier Island deposit area is underlain by rocks of the Gambier Group, dioritic rocks of the Coast Complex and related, possibly Tertiary, granitic rocks and isolated post-mineral dacite porphyry dikes. Gambier Group rocks consist of a northwest- trending series of argillites, volcanic wackes and breccias, propylitic rocks and massive andesitic rocks and related breccias, which comprise a broad zone of hydrothermally altered and hornfelsed rock. Within this zone at its south end, andesitic rocks have been converted to a granoblastic assemblage of quartz, sericite, biotite, chlorite and epidote, a result of complex multistage overprinting of phyllic, potassic and propylitic mineral assemblages. Dioritic rocks are barren except for small amounts of pyrite. Tertiary(?) granitic rocks are a heterogeneous assemblage of quartz porphyry, breccia and subporphyritic granite. They form a northwest-trending, oval-shaped stock approximately 500 metres in diameter. Quartz forms conspicuous phenocrysts up to 2 centimetres, enclosed by altered feldspar phenocrysts and anhedral aggregates of chlorite, sericite and quartz.

An area comprised of a broad, arcuate zone of mineralized rock is concordant to the south and west contact of the quartz porphyry stock, and encloses a low- grade core rich in quartz veinlets. The quartz veinlets range from a few isolated veins to intense stockworks and are common throughout the porphyry body and enclosing volcanics. Most veinlets trend northwest and form a south-closing arcuate stockwork zone with the porphyry mass, and the peripheral altered and mineralized volcanic rocks. The veinlets are selvage-free and generally contain small amounts of pyrite, molybdenite and chalcopyrite, but many are barren.

Mineralization in the quartz porphyry stock and the enclosing volcanic strata form a broad, west-closing arcuate zone, 1200 metres long and 200 metres wide, and extends for 100 to 400 metres outward from its south and west contact. Barren to low-grade pyritic rocks, locally containing small veins rich in sphalerite, galena and chalcopyrite, are more or less concentric to the porphyry stock. Fracture coatings, veinlets and finely disseminated aggregates of pyrite, chalcopyrite and molybdenite occur in altered volcanic rocks close to the south contact of the quartz porphyry and in a narrow extension of the deposit north of Gambier Creek. Chalcopyrite, pyrite and rare bornite occur as widely dispersed, fine-grained disseminated aggregates and fracture-coatings within this zone. Molybdenite forms small rosettes in quartz stringers and is locally present on fracture surfaces.

Dacite porphyry dikes intrude both the quartz porphyry unit and the enclosing volcanic strata. The dikes strike northeast, are subvertical and commonly fill fault zones. The dikes range from 20 centimetres to 3 metres wide, have fine-chilled margins, and grade inward to medium-grained quartz feldspar porphyry. The dikes are notably barren and locally contain inclusions of mineralized wallrock.

Major fault zones are believed to exist along Gambier Creek valley, South Fork Creek and East Fork Creek. The Gambier Creek shear zone is thought to be a broad, northeast- trending cataclastic zone that passes through the north part of the mineralized zone, the quartz porphyry unit and much of the enclosing volcanic and sedimentary strata. The South Fork fault is considered to be a bounding fault that separates most of the mineralized volcanic rocks to the west from the barren, dioritic rocks to the east. The East Fork fault is a parallel fault along which the north contact of the diorite stock has been displaced southward.

In 1978, three diamond drill holes on the C zone, later referred to as the B zone, yielded arithmetic averages of (Assessment Report 7126):

Drill hole	Length (m)	Copper (%)	Molybdenite (%)	Silver (g/t)
78-1	73.74	0.28	0.017	1.4
78-2	149.62	0.26	0.014	1.0
78-3	153.84	0.36	0.030	2.4

In 1979, an overall weighted mean assay of 12 drill holes completed in 1978 and 1979, totalling 2125.8 metres, yielded 0.27 per cent copper, 0.014 per cent molybdenite, 1.3 grams per tonne silver and 0.04 gram per tonne gold, with a preliminary estimate of inferred geological reserves of 251.4 million tonnes and a waste to ore ratio of 1.1 to 1 (Assessment Report 7730).

In 1981, potential estimated reserves, based on 5,558 metres of diamond drilling, were reported at 198 million tonnes averaging 0.24 per cent copper and 0.015 per cent molybdenite with a 0.20 per cent copper equivalent cut-off, or 56 million tonnes averaging 0.36 per cent copper and 0.021 per cent molybdenite with a 0.40 per cent copper equivalent cut off (Assessment Report 15792).

Measured reserves are 114 million tonnes of ore grading 0.29 per cent copper and 0.018 per cent molybdenum at a 0.30 per cent copper equivalent cutoff (Property File - Report by Acres Consulting Services Ltd., 1981).

The first claim on Gambier Island was staked in 1905 and coincided with exploration and development of the Britannia mine (MINFILE 092GNW003).

In the early 1970s, Gaylord Mines staked the northern section of Gambier Island to cover old known copper showings and completed programs of rock and soil sampling and airborne and ground geophysical surveys. Their exploration work defined two anomalies: the A zone (N and J Claims) on Copper Cove and the B and C zones (Jon and Gale claims) on Gambier Creek.

The property was again staked in 1978 as the MB 1-18 claims by 20th Century Energy Corp. During 1978 through 1980, a comprehensive exploration program including 53 diamond drill holes, totalling 6246.8 metres, geological mapping, approximately 15 line-kilometres of ground magnetic and induced polarization surveys and a 402.0 line-kilometres airborne magnetic survey were carried out on the C zone. This work outlined a large zone, 1000 metres long and 500 metres wide, of copper-molybdenum mineralization.

In 1984, the claims lapsed and were restaked by J.P. McGoran and R.M. Durfeld. A program of rock, silt and soil sampling was carried out in 1985. In 1987, Condorado Mines completed a program of geological mapping and rock, silt and soil sampling.

During 1990 through 1993, Douglas Bay Resources completed programs of geological mapping and rock, soil and historic (1978 and 1979) drill core sampling on the area. A 20 parts per billion gold isopleth was defined at the Gambier Creek zone, as the result of rock sampling in 1992 (Assessment Report 22232). In 1993, strongly anomalous copper values from soil sampling in the vicinity of the Gambier Creek zone indicated the limits of mineralization may extend beyond the present defined limits.

During 1994 through 1996, programs of rock, silt and soil sampling, geological mapping and a 1.4 line-kilometre ground magnetic survey were completed on the MB 1, 10, 11 and 18 claims. During 2010 through 2013, programs of rock and historic drill core sampling were conducted. This work confirmed previous sample assays and tested rhenium values, which yielded up to 332 parts per million (Assessment Report 31624)

Bibliography

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Date Coded:	1985/07/24	Coded By:	BC Geological Survey (BCGS)	Field Check:	N
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