Location/Identification

MINFILE Number: 092F 120
National Mineral Inventory Number: 092F5 Cu2
Name(s): **CATFACE**
CLIFF
Status: Developed Prospect
Mining Division: Alberni
Electoral District: Alberni-Pacific Rim
Regions: British Columbia
Resource District: South Island Natural Resource District
BCGS Map: 092F021
NTS Map: 092F05W
UTM Zone: 10 (NAD 83)
Latitude: 49 15 23 N
Northing: 5460234
Longitude: 125 58 51 W
Easting: 283110
Elevation: 820 metres
Location Accuracy: Within 500M
Comments: Centre of main showing on the Catface peninsula, 3 kilometres west of Hecate Bay (Canadian Institute of Mining and Metallurgy Special Volume 15). See also Irishman Creek (092F 251) and Hecate Bay (092F 231).

Mineral Occurrence

Commodities: Copper, Molybdenum, Silver, Gold, Rhenium

Minerals
Significant: Chalcopyrite, Bornite, Chalcocite, Molybdenite, Covellite, Digenite, Copper, Valleriite, Tenorite, Cuprite, Scheelite
Associated: Pyrite, Pyrrhotite, Quartz, Magnetite, Idaite, Chalcedony
Alteration: Malachite, Chlorite, Epidote, Zoisite, Sericite, Kaolinite, Biotite, Hematite
Alteration Type: Oxidation, Propylitic, Argillic
Mineralization Age: Tertiary

Deposit
Character: Stockwork, Disseminated
Classification: Porphyry, Hydrothermal, Industrial Min.
Type: L04: Porphyry Cu +/- Mo +/- Au
Dimension: 650x350x0 metres
Comments: Zone of greater than 0.2 per cent copper measures 650 metres in diameter to a depth of 350 metres.

Host Rock

Dominant Host Rock: Volcanic

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Upper Triassic	Vancouver	Karmutsen	------
Paleozoic	Sicker	Undefined Formation	------
Jurassic	------	------	Island Plutonic Suite
Eocene	------	------	Tofino Intrusive Suite

Isotopic Age	Dating Method	Material Dated
------	------	------
------	------	------
166 +/- 8 Ma	Potassium/Argon	Biotite
48 +/- 12 Ma	Potassium/Argon	Biotite

Lithology: Basalt, Andesite, Tuffaceous Breccia, Quartz Monzonite, Diorite, Quartz Diorite, Porphyritic Granodiorite, Porphyritic Dacite, Andesite Dike, Dacitic Dike
Comments: Age dates from Geological Survey of Canada Paper 72-44.

Geological Setting

Tectonic Belt: Insular
Physiographic Area: Vancouver Island Ranges
Terrane: Wrangell, Pacific Rim

Metamorphic Type: Contact
Grade: Hornfels

Inventory

Ore Zone: CLIFF
Year: 2009
Category: Indicated
Report On: Y
Quantity: 56,863,000 tonnes
NI 43-101: Y

Commodity	Grade
Copper	0.40 per cent

Comments:
Reference: Selkirk Metals News Release September 2, 2009 (www.sedar.com)

Ore Zone: CLIFF
Year: 2009
Category: Inferred
Report On: Y
Quantity: 262,448,000 tonnes
NI 43-101: Y

Commodity	Grade
Copper	0.38 per cent

Comments:
Reference: Selkirk Metals News Release September 2, 2009 (www.sedar.com)

Capsule Geology

The Catface occurrence is located in the southern Catface Range, approximately 6.5 kilometres southeast of the community of Marktosis, and 13 kilometres north-northwest of Tofino, B.C.

The deposit lies at the contact between mafic volcanics (Sicker(?) or Vancouver(?) groups rocks) and diorite of the Mesozoic and/or Paleozoic Westcoast Complex. The area of the contact has been intruded by the Early to Middle Jurassic Island Plutonic Suite and several phases of the Early to Middle Eocene Tofino Intrusive Suite (formerly Catface Intrusions, Personal Communication, N. Massey, May 1990). See also Irishman Creek (092F 251) and Hecate Bay (092F 231).

The mafic rocks consist of basalt and andesite flows, tuff breccia and agglomerate. It remains unclear as to whether these rocks belong to the Paleozoic Sicker Group or to the Upper Triassic Karmutsen Formation, Vancouver Group. The volcanic rocks have been weakly hornfelsed near the intrusions.

Rocks of the Westcoast Complex are considered to be intrusive and/or dioritized pre-Jurassic rocks that include Sicker Group rocks (Canadian Institute of Mining and Metallurgy Special Volume 15, page 301).

A sill-like quartz monzonite intrusion, containing xenoliths of volcanic rocks, was emplaced along the volcanic-diorite contact. The age of this quartz monzonite is unknown, but is probably related to the Island Intrusions. Propylitic alteration minerals in the quartz monzonite include chlorite, epidote, zoisite, and sericite. Kaolinite, quartz, biotite and magnetite are also recognized as alteration products.

Several phases of the Tertiary intrusions have intruded all other rocks. These include the Hecate Bay quartz diorite, dated at 48 million years, three porphyritic granodiorite phases and a late-stage porphyritic dacite. Their emplacement was, to some extent, controlled by pre-existing structures or contacts. Late (but pre-ore) andesite, dacite and quartz feldspar porphyry dykes trend north to northwest and dip 50 to 70 degrees east. Faults predate mineralization and strike northerly and easterly.

Jointing in the younger intrusive rock trends north to northeast, dipping 50 to 70 degrees east. A less persistent joint set in these intrusions trends east to southeast and dips steeply north. Joints in the volcanic rocks trend 156 degrees and dip 51 degrees east.

Copper and molybdenum mineralization occur on dry fractures and in quartz veinlets. Molybdenite also occurs as rosettes in quartz veins, and

disseminated copper mineralization is associated with mafic minerals.

Copper minerals include chalcopyrite, bornite and some chalcocite, with significant secondary carbonate and copper oxide minerals occurring on fractures. Other minerals recognized include pyrite, pyrrhotite, covellite, idaite, digenite, native copper, cuprite, valleriite, tenorite, limonite, goethite, magnetite, hematite, cupriferous chalcedony-opal and scheelite.

Mineralization shows distinct zoning, with a core of bornite- pyrite-pyrrhotite surrounded by a zone in which chalcopyrite predominates. The area of 0.2 per cent copper mineralization extends over 650 metres, to a depth of approximately 350 metres. The best mineralization is located in the volcanic rocks and in the younger porphyritic phases, but the grade is not consistent.

The earliest evidence of exploration at Catface is a caved adit driven about 5 metres into a highly fractured and oxidized shear; the main property was evidently not investigated between the turn of the century and 1960. In 1960, a local mine operator, John Jackson, and G. Davis, pilot prospector for Falconbridge Nickel Mines, made a brief visit to a cliff face displaying a conspicuous copper stain. Mineralized and high oxidized samples prompted a more thorough examination by Falconbridge geologist J. McDougall and company helicopter pilot R. Hepworth who then staked the property.

Falconbridge, through Catface Copper Mines Ltd., conducted exploration between 1961 and 1979. This included driving an 857-metre adit and drilling more than 19,000 metres in 127 surface and underground holes. Numerous metallurgical tests were conducted, and a bulk sample was shipped to Falconbridge's Tasu mine (103C 003) on the west coast of the Queen Charlotte Islands for processing. The geology of the property was mapped; soil and silt geochemical surveys were completed. Limited geophysical test surveys including I.P./resistivity, self-potential and magnetic surveys were conducted in selected areas. The claims were also surveyed at this time.

In 1989 and 1990, Falconbridge Limited re-activated the project to increase the resource and to determine gold content of the copper mineralization. The program included detailed adit sampling for copper and gold, geological mapping of selected areas, a 19 line-kilometre I.P./resistivity, VLF and magnetometer survey to cover accessible areas, 150 line-kilometre of combined airborne magnetometer and VLF (EM) surveys covering most of the claim block and metallurgical tests. An environmental base-line survey was also carried out. Four holes (1628 metres) were drilled to test chargeability anomalies.

Between 1960 and 1990, total expenditures by Falconbridge Limited on the Catface project amounted to nearly $10 million (constant $1990). In 1990, Falconbridge Limited planned to take the claims to mining lease status and a drilling program to test the large IP anomalies south of South Peak. Granting of required work permits was delayed by the Clayoquot Land Use dispute; consequently, the Catface project was abruptly cancelled, and exploration funding was transferred to other projects. Catface lies within a General Integrated Management Zone designation (multiple use). In 1999, Doublestar Resources Ltd. acquired the property.

Unclassified reserves in 1971 were 181.4 million tonnes grading from 0.45 to 0.50 per cent copper (EMR Mineral Bulletin MR 223 B.C. 95). In 1990, Falconbridge calculated a drill indicated resource of 188 million tonnes of 0.42 per cent copper and 0.0084 per cent molybdenum (0.014 per cent M0S2) at a 0.30 per cent copper cutoff and 1.1:1 stripping ratio (CIM Special Volume 46, page 325). Other calculations are listed in Special Volume 46.

In 1999, Doublestar Resources Ltd. acquired the property from Falconbridge Limited. Doublestar has reported the following resources: 78.2 million tonnes 0.53 per cent copper at 0.4 per cent cutoff or 158.4 million tonnes at 0.44 per cent copper with 0.31 per cent copper cutoff. In 2005, Catface Copper Mines Ltd. and Doublestar had Eagle Mapping conduct a 1:20,000 aerial photographic and 2 metre contour topographic survey over their tenure, including the Catface prospect.

In 2007, Doublestar was bought by Selkirk Metals Corp. Selkirk completed a diamond drill program in 2008 comprised of 8 holes totalling 2383 metres of drilling. In 2009 the company released an updated resource estimate for the Cliff Zone based on the 2008 drilling.

Classification	Amount (tonnes)	Grade Cu(%)
Indicated	56,863,000	0.40
Inferred	262,448,000	0.38

Selkirk Metals Corp. News Release September 2, 2009 (www.sedar.com)

In November 2009, Selkirk was bought by Imperial Metals Corporation. In 2010, Imperial completed a diamond drilling program of thirteen holes, totalling 3548.0 metres. Hole CF-10-56 intersected 275.5 metres grading 0.60 per cent Cu and 0.014 Mo within a 755.0 metre mineralized section grading 0.46 per cent Cu and 0.006 per cent Mo (News Release September 8, 2010 - www.imperialmetals.com). Other drill holes yielded intercepts of 0.280 per cent copper over 34.7 metres from 445.5 metres to 480.2 metres depth in CF-10-66 extending the southern extent of the cliff zone (Assessment Report 31894)

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Date Coded:	1985/07/24	**Coded By:**	BC Geological Survey (BCGS)	**Field Check:**	N
Date Revised:	2022/01/12	**Revised By:**	Del Ferguson (DF)	**Field Check:**	N