



MINFILE Detail Report
BC Geological Survey
Ministry of Energy, Mines and Petroleum Resources

Location/Identification

MINFILE Number:	092HNE056	National Mineral Inventory Number:	092H16 Cu2
Name(s):	PRIMER (NORTH ZONE) PRIME, OB, KING GEORGE		
Status:	Developed Prospect	Mining Division:	Nicola, Similkameen
Regions:	British Columbia	Electoral District:	Fraser-Nicola
BCGS Map:	092H078	Resource District:	Cascades Natural Resource District
NTS Map:	092H16W	UTM Zone:	10 (NAD 83)
Latitude:	49 46 04 N	Northing:	5515872
Longitude:	120 28 29 W	Easting:	681840
Elevation:	1280 metres		
Location Accuracy:	Within 500M		
Comments:	Collar of drillhole 68-8, 1.7 kilometres east of the south end of Missezula Lake and 34.5 kilometres north-northeast of Princeton (Assessment Report 2354, Map 2).		

Mineral Occurrence

Commodities:	Copper, Gold, Silver		
Minerals	Significant:	Pyrite, Chalcopyrite	
	Associated:	Gypsum, Quartz, Carbonate, Magnetite	
	Alteration:	Chlorite, Epidote, Albite, Carbonate, Sericite, Kaolinite, Limonite, Malachite	
	Alteration Comments:	Also azurite.	
	Alteration Type:	Propylitic, Carbonate, Sericitic, Argillic, Oxidation	
	Mineralization Age:	Unknown	
Deposit	Character:	Vein, Stockwork, Disseminated, Shear	
	Classification:	Porphyry, Hydrothermal, Epigenetic	
	Type:	L03: Alkalic porphyry Cu-Au	
	Dimension:	850x200x170 metres	
	Comments:	Copper mineralization in a zone trending west-southwest for 850 metres and up to 170 metres wide.	

Host Rock

Dominant Host Rock:	Volcanic		
Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Upper Triassic	Nicola	Undefined Formation	-----
Triassic-Jurassic	-----	-----	Unnamed/Unknown Informal
Isotopic Age	Dating Method	Material Dated	
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Lithology: Plagioclase Hornblende Porphyritic Andesite, Diorite, Microdiorite, Schist, Diorite Hornblende Porphyritic Dike

Comments: This prospect is in the Eastern volcanic facies of the Nicola Group (Geological Survey of Canada Map 41-1989).

Geological Setting

Tectonic Belt:	Intermontane	Physiographic Area:	Thompson Plateau
Terrane:	Quesnel		
Metamorphic Type:	Regional		

Grade: Greenschist
Comments: This occurrence is in the east-central part of the Nicola belt.

Inventory

Ore Zone: SAMPLE **Year:** 2018
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Rock

Commodity	Grade
Copper	0.117 per cent

Comments: Two samples (D7 and D10), taken approximately 450 metres west and 450 metres east, respectively, of the main trenched area yielded 0.117 and 0.110 per cent copper, respectively.

Reference: Assessment Report 37988

Ore Zone: TRENCH **Year:** 2018
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Grab

Commodity	Grade
Gold	0.785 grams per tonne
Copper	1 per cent

Comments: Two samples (D22 and D23) from a historic trench yielded greater than 1 per cent copper each, and up to 0.785 gram per tonne gold.

Reference: Assessment Report 37988

Ore Zone: DRILLHOLE **Year:** 2013
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Gold	0.016 grams per tonne
Copper	0.075 per cent

Comments: Drillhole PR13-01, collar to test the historic hole 67-7, yielded 0.10 per cent copper and 0.043 gram per tonne gold over its entire length of 460.9 metres (7.7 to 468.6 metres down-hole), including 0.25 per cent copper and 0.085 gram per tonne gold over 123.6 metres (345.0 to 468.6 metres). The hole was terminated in a mineralized potassium feldspar altered monzonite due to further advancement becoming impossible. A second hole (PR13-02) collar at the same location as the previous hole, intercepted an andesite/diorite with monzodiorite sections hosting disseminated bornite from approximately 400.0 to the end of the hole at 821.3 metres down-hole yielding 0.075 per cent copper and 0.016 gram per tonne gold over 807.3 metres (14.0 to 821.3 metres down-hole), including 0.206 per cent copper and 0.045 gram per tonne gold over 153.0 metres (668.3 to 821.3 metres down-hole).

Reference: Assessment Report 34889

Ore Zone: ROADCUT **Year:** 2008
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Chip

Commodity	Grade
Gold	0.17 grams per tonne
Copper	0.265 per cent

Comments: Chip sampling of a road cut from the western end of the mineralized zone yielded 0.265 and 0.112 per cent copper and 0.17 and unknown gram per tonne gold over 7.5 and 10.0 metres, respectively.

Reference: Assessment Report 31709

Ore Zone: TRENCH **Year:** 2008
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Chip

Commodity	Grade
Copper	0.894 per cent

Comments: Chip sampling of a historic trench yielded 0.894 per cent copper over 20 metres, including 2.33 per cent copper and 1.39 grams per tonne gold over 2 metres.

Reference: Assessment Report 31709

Ore Zone: DRILLHOLE **Year:** 2007
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Copper	0.17 per cent

Comments: Diamond drilling yielded intercepts of up to 0.19 and 0.17 per cent copper over 24.0 and 32.0 metres in holes 694-018 and 694-016, respectively. The holes were located on the southwestern end of the mineralized zone.

Reference: Assessment Report 31709

Ore Zone: SAMPLE **Year:** 1987
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Grab

Commodity	Grade
Silver	3.1 grams per tonne
Gold	0.149 grams per tonne
Copper	0.708 per cent

Comments: A select sample (K0106) of copper (malachite?) stained volcanics.

Reference: Assessment Report 17077

Ore Zone: SAMPLE **Year:** 1987
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Chip

Commodity	Grade
Silver	2.6 grams per tonne
Gold	0.210 grams per tonne
Copper	0.382 per cent

Comments: A 3.0-metre chip sample (K0107).

Reference: Assessment Report 17077

Ore Zone: PRIMER (NORTH)

Year: 1973

Category: Unclassified

Report On: Y

Quantity: 23,000,000 tonnes

NI 43-101: N

Commodity	Grade
Copper	0.2000 per cent

Comments:

Reference: CIM Special Volume 15, Table 1, Occurrence No. 20.

Ore Zone: DRILLHOLE

Year: 1968

Category: Assay/analysis

Report On: N

NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Copper	0.119 per cent

Comments: Hole 68-2 drilled approximately 440 metres west and over 128.0 metres.

Reference: Assessment Report 2354

Ore Zone: DRILLHOLE

Year: 1967

Category: Assay/analysis

Report On: N

NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Copper	0.495 per cent

Comments: Hole 67-7 drilled approximately 130 metres north over 43.1.

Reference: Assessment Report 2354

Ore Zone: DRILLHOLE

Year: 1966

Category: Assay/analysis

Report On: N

NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Copper	0.28 per cent

Comments: Drillholes 66-4 and 66-3, located approximately 90 metres west and 130 metres north of hole 65-1 yielded 0.28 and 0.34 per cent copper over 65.7 and 30.0 metres, respectively.

Reference: Assessment Report 2354

Ore Zone: DRILLHOLE
Category: Assay/analysis

Year: 1965
Report On: N
NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Copper	0.47 per cent

Comments: An angled drillhole (65-1) over 30.5 metres in the eastern part of the deposit.

Reference: L. Manning and Associates Ltd, 1968).

Ore Zone: TRENCH
Category: Assay/analysis

Year: 1962
Report On: N
NI 43-101: N

Sample Type: Chip

Commodity	Grade
Copper	0.70 per cent

Comments: Eight continuous chip samples from trench 8A yielded an average of 0.24 per cent copper, while two separate but converging sections of six and four continuous chip samples from trench 7A yielded an average of 0.46 and 0.70 per cent copper, respectively.

Reference: Assessment Report 493

Capsule Geology

The Primer (North Zone) occurrence is located approximately 1.4 kilometres east of the south end of Missezula Lake and 34.5 kilometres north-northeast of Princeton.

This region in the vicinity of Missezula Lake is underlain by the Eastern volcanic facies of the Upper Triassic Nicola Group, comprising mafic to intermediate, augite and hornblende porphyritic pyroclastics and flows, and associated alkaline intrusions. The intrusions vary in composition from diorite to monzonite and are thought to be comagmatic with the Nicola Group, ranging in age from Upper Triassic to Lower Jurassic. Much of the copper mineralization and associated alteration frequenting this portion of the Nicola Belt can be attributed to the emplacement of such intrusions.

The deposit is largely hosted in variably plagioclase and hornblende porphyritic andesite of the Nicola Group (Eastern Belt, Bulletin 69). A body of diorite and microdiorite, possibly related to the andesite, lies immediately northwest of the deposit. Short sections of schist and occasional hornblende porphyritic diorite dikes occur at depth in the andesite.

The hostrocks are hydrothermally altered in areas of stronger shearing and fracturing. Secondary minerals include chlorite, epidote, albite, carbonate, sericite and kaolinite. The andesite is cut by a prominent set of steeply dipping, north-northwest–striking shears and fractures. Numerous northwest- and northeast-striking shear zones are also evident. Gypsum (selenite) veins are frequent, while quartz and calcite veins are less common.

Mineralization consists of pyrite and chalcopyrite, generally as veins and fracture fillings, but also as disseminations and blebs. Gossanous zones of stronger shearing, fracturing and alteration contain 3 to 20 per cent pyrite, 1 to 3 per cent magnetite and trace to 1 per cent chalcopyrite. Chalcopyrite to pyrite ratios are approximately 1 to 3. Malachite and azurite accompany chalcopyrite and pyrite in trenches with intensely fractured and sheared andesite. These surface exposures suggest stronger mineralization is controlled by shearing. Disseminated chalcopyrite and pyrite are also found in chloritized andesite. Magnetite occurs as veinlets and is present in chalcopyrite seams in minor amounts. Chalcopyrite is also associated with epidote alteration and to a minor extent, carbonate-quartz veining.

Exploration work has outlined a zone of erratic copper mineralization with anomalous gold values that trends west-southwest for 850 metres and varies from 150 to 170 metres wide over most of its length. Diamond drilling intersected significant copper mineralization to depths of 200 metres.

In the creek canyon of Dillard Creek, approximately 1.1 kilometres west of the main mineralized zone, a series of east-west–trending and intensely oxidized and pyritized shear zones in altered and fractured andesites hosts minor malachite mineralization.

In 1962, eight continuous chip samples from trench 8A yielded an average of 0.24 per cent copper, whereas two separate but converging sections of six and four continuous chip samples from trench 7A yielded an average of 0.46 and 0.70 per cent copper, respectively (Assessment Report 493).

In 1965, an angled drillhole (65-1) in the eastern part of the deposit yielded 0.47 per cent copper over 30.5 metres (L. Manning and Associates Ltd, 1968). The following year, drillholes 66-4 and 66-3, located approximately 90 metres west and 130 metres north of hole 65-1, yielded 0.28 and 0.34 per cent copper over 65.7 and 30.0 metres, respectively (Assessment Report 2354). In 1967 and 1968, two other holes (67-7 and 68-2), drilled approximately 130 metres north and 440 metres west of hole 65-1, yielded 0.495 and 0.119 per cent copper over 43.1 and 128.0 metres, respectively (Assessment Report 2354).

Unclassified reserves are 23 000 000 tonnes grading 0.20 per cent copper (CIM Special Volume 15, Table 1, Occurrence No. 20). Gold values in drillcore ranged from nil to 1 gram per tonne (Assessment Report 2354).

In 1987, a select sample (K0106) of copper (malachite?)-stained volcanics assayed 0.708 per cent copper, 0.033 per cent molybdenum, 3.1 grams per tonne silver and 0.149 gram per tonne gold, whereas a 3.0-metre chip sample (K0107) assayed 0.382 per cent copper, 2.6 grams per tonne silver and 0.210 gram per tonne gold (Assessment Report 17077).

A grab sample of brecciated calcic volcanics with abundant chalcopyrite assayed 4.81 per cent copper, 2.7 grams per tonne gold and 51.1 grams per tonne silver (Assessment Report 21198, section 11.0 - analytical results, sample PN-R3).

In 2007, diamond drilling yielded intercepts of up to 0.19 and 0.17 per cent copper over 24.0 and 32.0 metres in holes 694-018 and 694-016, respectively (Assessment Report 31709). The holes were located on the southwestern end of the mineralized zone.

In 2008, chip sampling of a historical trench yielded 0.894 per cent copper over 20 metres, including 2.33 per cent copper and 1.39 grams per tonne gold over 2 metres, whereas chip sampling of a roadcut from the western end of the mineralized zone yielded 0.265 and 0.112 per cent copper and 0.17 and unknown gram per tonne gold over 7.5 and 10.0 metres, respectively (Assessment Report 31709).

In 2013, drillhole PR13-01, collared to test historical hole 67-7, yielded 0.10 per cent copper and 0.043 gram per tonne gold over its entire length of 460.9 metres (7.7 to 468.6 metres down hole), including 0.25 per cent copper and 0.085 gram per tonne gold over 123.6 metres (345.0 to 468.6 metres; Assessment Report 34889). The hole was terminated in a mineralized potassium feldspar-altered monzonite when further advancement became impossible. A second hole (PR13-02) collared at the same location as the previous hole, intercepted an andesite/diorite with monzodiorite sections hosting disseminated bornite from approximately 400.0 to the end of the hole at 821.3 metres down hole that yielded 0.075 per cent copper and 0.016 gram per tonne gold over 807.3 metres (14.0 to 821.3 metres down hole), including 0.206 per cent copper and 0.045 gram per tonne gold over 153.0 metres (668.3 to 821.3 metres down hole; Assessment Report 34889).

In 2018, two samples (D22 and D23) from a historical trench yielded greater than 1 per cent copper each, and up to 0.785 gram per tonne gold, whereas two samples (D7 and D10), taken approximately 450 metres west and 450 metres east, respectively, of the main trenched area yielded 0.117 and 0.110 per cent copper, respectively (Assessment Report 37988).

Work History

The occurrence was initially staked and trenched by local prospectors during 1937 through 1941 as the King George group of mineral claims.

Primer Group Minerals Ltd. acquired the Primer property in 1961 and optioned it to McIntyre Porcupine Mines Ltd. in 1962. McIntyre Porcupine Mines Ltd. completed various geological, soil geochemical and ground geophysical surveys before giving up the option. During 1965 through 1968, Primer Group Minerals continued to explore the occurrence area as the Prime claims and completed programs of geological mapping, 15 diamond drill holes, totalling 1402 metres, and seven percussion holes, totalling 390 metres. Additional geological, soil geochemical and airborne magnetometer surveys were completed by the company in 1969.

During 1977 through 1984, Giant Piper Exploration Inc. (formerly Piper Petroleums Ltd.) completed programs of geological mapping, trenching, geochemical sampling and ground magnetic and electromagnetic surveys on the area as the Prime claims. In 1987, Consolidated Silver Butte Mines Ltd. completed a program of soil and rock sampling program on the Prime claims on behalf of Giant Piper Exploration Inc.

In 1997, Discovery Consultants completed a soil sampling program on the area as the Prime North property.

During 2007 through 2010, Candorado Operating Co. Ltd. completed programs of geological mapping, geochemical (soil and rock) sampling, a 56.1 line-kilometre ground magnetic and induced polarization survey and 35 diamond drill holes, totalling 6881.3 metres, on the area as the Prime/Man property.

In 2012, Questex Gold and Copper Ltd. completed a program of geochemical (rock and soil) sampling and an 18.4 line-kilometre induced polarization survey on the area immediately north of the occurrence as the Hit Aspen Grove North property.

In 2013, Sunrise Resources Ltd. completed two diamond drill holes, totalling 1289.9 metres, on the occurrence as part of the Man Prime property.

In 2018, Rene Bernard completed a minor program of rock sampling on the area as the Man-Prime property.

Bibliography

EMPR AR *1963-57,58; 1965-157; *1966-176; 1968-204

EMPR ASS RPT *493, *2354, 2355, 2356, *6412, 6877, *6900, 7340, 7521, 8241, 8364, 13231, 16985, *17077, *21198, 25189, 29381, 30033, *31709, 33779, *34889, *37988

EMPR BULL 69

EMPR EXPL 1977-E137; 1978-E154; 1980-209,210; 1988-C108, C109

EMPR GEM 1969-279; 1972-128; 1973-160

EMPR P 1981-2

EMPR PF (*Pringle, D.W. (1969): Primer Group Minerals Ltd., Missezula Lake Area, Geological and Engineering Report, with accompanying 1 to 2400 scale plan of drilling and trenching on the North zone prepared by L.J. Manning and Associates Ltd (1968), and 1 to 12,000 scale tectonic anomaly map prepared by D.A. Chapman and Associates Ltd. (1968) (see 092HNE055); Malcolm, D.C. (1976): Report on the Prime Group of Claims, in Piper Petroleums Ltd. (1977): Prospectus, Vancouver Stock Exchange, pp. 28-42)

EMR MIN BULL MR 223 B.C. 126

EMR MP CORPFILE (Lada Development Ltd., Cordero Mining Company, Piper Petroleums Ltd.)

GSC MAP 888A; 889A; 1386A; 41-1989

GSC MEM 243, pp. 92,93

GSC OF 2167, pp. 93-98

GSC P 85-1A, pp. 349-358

CIM Special Volume 15, Table 1, Map B (Occurrence 20) (1976)

CJES Vol. 16, pp. 1658-1672 (1979); Vol. 24, pp. 2521-2536 (1987)

EMPR PFD 8518, 8519, 800191, 800287, 826663, 826690, 826706, 826721, 671404, 671405, 896733, 681171, 681172, 681173, 681174, 681175, 681209, 681213, 681214, 681215, 681216

Date Coded: 1985/07/24

Coded By: BC Geological Survey (BCGS)

Field Check: Y

Date Revised: 2021/12/07

Revised By: Karl A. Flower (KAF)

Field Check: Y