

### Location/Identification

<b>MINFILE Number:</b>	093E 046	<b>National Mineral Inventory Number:</b>	093E14 Cu1
<b>Name(s):</b>	<b><u>BERG</u></b>		
<b>Status:</b>	Developed Prospect	<b>Mining Division:</b>	Omineca
<b>Regions:</b>	British Columbia	<b>Electoral District:</b>	Nechako Lakes
<b>BCGS Map:</b>	093E083	<b>Resource District:</b>	Nadina Natural Resource District
<b>NTS Map:</b>	093E14W	<b>UTM Zone:</b>	09 (NAD 83)
<b>Latitude:</b>	53 48 13 N	<b>Northing:</b>	5962808
<b>Longitude:</b>	127 26 06 W	<b>Easting:</b>	603063
<b>Elevation:</b>	1690 metres		
<b>Location Accuracy:</b>	Within 100M		
<b>Comments:</b>	Located in the Tahtsa Mountain Ranges, approximately 84 kilometres southwest of the community of Houston.		

### Mineral Occurrence

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

**Minerals**

<b>Significant:</b>	Chalcopyrite, Molybdenite, Chalcocite, Covellite, Copper, Tenorite, Digenite, Sphalerite, Galena
<b>Significant Comments:</b>	Minor sphalerite, galena and sulphosalt minerals.
<b>Associated:</b>	Quartz, Pyrite, Carbonate
<b>Alteration:</b>	Biotite, Kaolinite, Clay, Silica, Epidote, Carbonate, Albite, Chlorite
<b>Alteration Type:</b>	Argillic, Propylitic, Potassic, Sericitic, Oxidation

**Deposit**

<b>Character:</b>	Stockwork, Disseminated
<b>Classification:</b>	Porphyry, Hydrothermal, Epigenetic
<b>Type:</b>	L04: Porphyry Cu +/- Mo +/- Au
<b>Shape:</b>	Irregular

### Host Rock

**Dominant Host Rock:** Plutonic

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Jurassic	Hazelton	Undefined Formation	-----
Lower Cretaceous	Skeena	Unnamed/Unknown Formation	-----
Eocene	-----	-----	Unnamed/Unknown Informal

Isotopic Age	Dating Method	Material Dated
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**Lithology:** Quartz Monzonite Porphyry, Quartz Diorite, Quartz Latite Porphyry Dike, Volcanic, Sediment/Sedimentary, Biotite Hornfels, Andesite

**Comments:** Berg Stock.

### Geological Setting

<b>Tectonic Belt:</b>	Intermontane	<b>Physiographic Area:</b>	Tahtsa Range
<b>Terrane:</b>	Stikine		

**Inventory**

**Ore Zone:** BERG **Year:** 2021  
**Category:** Combined **Report On:** Y  
**Quantity:** 609,986,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	3.01 grams per tonne
Copper	0.27 per cent
Molybdenum	0.03 per cent

**Comments:** Using a 0.20 per cent copper equivalent cut-off grade.

**Reference:** Tetra Tech Canada Inc. (2021-05-03): Updated Technical Report and Mineral Resource Estimate on the Berg Project, British Columbia

**Ore Zone:** BERG **Year:** 2021  
**Category:** Inferred **Report On:** Y  
**Quantity:** 28,066,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	3.75 grams per tonne
Copper	0.22 per cent
Molybdenum	0.02 per cent

**Comments:** Using a 0.20 per cent copper equivalent cut-off grade.

**Reference:** Tetra Tech Canada Inc. (2021-05-03): Updated Technical Report and Mineral Resource Estimate on the Berg Project, British Columbia

**Ore Zone:** BERG **Year:** 2009  
**Category:** Combined **Report On:** Y  
**Quantity:** 557,000,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	3.12 grams per tonne
Copper	0.3 per cent
Molybdenum	0.037 per cent

**Comments:** Measured and Indicated using a 0.3 per cent copper equivalent cut-off.

**Reference:** Exploration and Mining in British Columbia 2011, page 31.

**Ore Zone:** BERG **Year:** 2009  
**Category:** Inferred **Report On:** Y  
**Quantity:** 159,400,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	2.07 grams per tonne
Copper	0.23 per cent
Molybdenum	0.033 per cent

**Comments:**

**Reference:** Exploration and Mining in British Columbia 2011, page 31.

**Ore Zone:** BERG **Year:** 2008  
**Category:** Indicated **Report On:** N

Quantity: 372,500,000 tonnes

NI 43-101: Y

Commodity	Grade
Silver	2.1 grams per tonne
Copper	0.31 per cent
Molybdenum	0.036 per cent

Comments: Calculated using a 0.30 per cent copper equivalent cut-off grade.

Reference: Technical Report on the Berg Property prepared for Terrane Metals Corp.; Released June 13, 2008, www.sedar.com.

Ore Zone: BERG

Year: 2008

Category: Inferred

Report On: N

Quantity: 14,090,000 tonnes

NI 43-101: Y

Commodity	Grade
Silver	2.2 grams per tonne
Copper	0.25 per cent
Molybdenum	0.039 per cent

Comments: Calculated using a 0.30 per cent copper equivalent cut-off grade.

Reference: Technical Report on the Berg Property prepared for Terrane Metals Corp.; Released June 13, 2008, www.sedar.com.

### Capsule Geology

The Berg occurrence is located in the Taitsa Mountain Ranges, approximately 84 kilometres southwest of the community of Houston and 22 kilometres northwest of the Huckleberry copper mine (093E 037). Berg is 100 per cent owned by Berg Metals Limited Partnership (Berg Metals), a wholly-owned subsidiary of Thompson Creek Metals Company Inc. (ca. 2015).

The Berg is centred on one of several Early to Middle Eocene composite quartz monzonite stocks that intrude Middle Jurassic Hazelton Group and Lower Cretaceous Skeena Group rocks in the area. Hazelton Group rocks are well exposed west of the Berg stock. They consist of a sequence of green, grey, red and maroon lithic tuffs, tuff breccias and flows of andesitic composition. Skeena Group rocks overlie the Hazelton Group and are exposed mainly east of the property, but also cap the highest peaks north of the property. Amygdaloidal and vesicular andesites and basalts make up the lower part of the Skeena Group succession. Many of the flows exhibit trachytic texture that distinguishes them from the underlying Hazelton Group. Sandstones, siltstones and conglomerates comprise the upper part of the succession.

Two main intrusive bodies are exposed in the property area, a quartz diorite stock and the Berg stock. The largest consists of a north-trending, elongate body of quartz diorite that intrudes the contact between Hazelton Group and Skeena Group east of the mineralized area. The intrusion extends from about 750 metres north of the Berg stock to over 6.5 kilometres to the south. It ranges in width from 600 metres on the property area to over 2 kilometres at its southern extremity.

The Berg stock is a multi-phase composite quartz monzonite stock that intrudes the Hazelton Group andesitic rocks. It is broadly cylindrical and approximately 600 to 750 metres in diameter with typically sharp, subvertical contacts. Locally these contacts are complex with brecciated xenoliths of andesitic rocks with diffuse clast boundaries. This stock is the prime control on mineralization at the Berg as the deposit forms an annulus around the stock. This composite stock is subdivided into four main phases: a) a core of very coarsely porphyritic quartz monzonite, b) a coarse grained plagioclase-biotite-quartz porphyry that wraps around the northern flank of the porphyritic quartz monzonite core, c) a northwest trending medium grained porphyritic quartz plagioclase porphyry that extends to the west from the southern and western portion of the quartz monzonite core phase, d) a narrow, sub-vertical and northeast trending late- to post-mineral quartz feldspar porphyry dike or zone of dikelets that cuts across each of the above phases and also has been noted cutting quartz diorite along trend and northeast of the stock.

Mineralization at Berg is localized in and adjacent to the two Eocene intrusions in the area; the aforementioned quartz diorite and the quartz monzonite Berg Stock. Mineralization occurs in a highly fractured zone superimposed on hornfelsed Hazelton Group volcanic rocks and the adjacent quartz diorite intrusion.

Hydrothermal alteration zones are spatially related to the central quartz monzonite stock and extend up to 1000 metres from the intrusive contact. Alteration types are divided into potassic, phyllic, argillic and propylitic facies whose diagnostic mineral assemblages vary with lithology.

Potassic alteration is expressed as pervasive orthoclase alteration in the porphyritic quartz monzonite core unit, orthoclase on fracture/veinlet selvages

and pervasive fine-grained biotite in the matrix of the coarse-grained plagioclase-biotite-quartz porphyry unit, and pervasive fine grained biotite alteration and replacement of mafic minerals in the quartz diorite and andesite. A subzone of biotite alteration with anhydrite veining lies proximal to the inner contact of this biotite altered one against the Berg stock.

Similar to the zone of biotite alteration, propylitic alteration is also concentrically zoned about the Berg stock; a transitional zone of biotite-chlorite alteration lies inboard of a zone of chlorite-epidote-carbonate-albite as biotite decreases. Primary magnetite is also present, particularly within the biotite-chlorite zone, where not completely sulphidized to pyrite and chalcopyrite. A phyllically-altered zone is dominantly controlled by fractures with quartz and pyrite and is best developed in all units around the margins of the Berg stock. A cap of pervasive kaolinite-clay±silica (argillic alteration) overprints potassic and phyllic alteration within the supergene zone and is likely related to acidic solutions formed from the breakdown of pyrite.

Copper and molybdenum mineralization occur primarily in potassically altered rocks. The intrusion of the quartz diorite likely acted as a ground preparation event, hornfelsing and rendering andesitic rocks brittle. The subsequent intrusion of the Berg stock and the resultant hydrothermal system fractured the enclosing andesite and quartz diorite adjacent to the contacts of the stock. The strongest fracturing and best mineralization in the system developed where the hydrothermal system interacted with the previously hornfelsed volcanic rocks and quartz diorite in the North Shell.

Most hypogene mineralization occurs in several generations of quartz-sulphide veining. The earliest veins contain much of the copper and molybdenum mineralization. Associated alteration envelopes are either potassic or non-existent. Later veins are typically poor in copper plus/minus molybdenum sulphides and are associated with phyllic and propylitic alteration assemblages. Calcite plus/minus gypsum plus/minus quartz-sphalerite-pyrite plus/minus galena veins are a common late vein type and contain up to 1020 grams per tonne silver (Assessment Report 32692). This argentiferous mineralization is particularly prevalent within the coarse-grained plagioclase-biotite-quartz porphyry unit in the West Shell and to a lesser extent with coarse grained plagioclase-biotite-quartz porphyry unit in the North Shell. Disseminated mineralization is only important in the central part of the stock and in the adjacent quartz diorite where fracture intensities are low.

A well-developed supergene enrichment blanket is superimposed on hypogene mineralization. Three mineralogically distinct supergene zones have been recognized: supergene sulphide (covellite, chalcocite and digenite), supergene oxide (malachite/azurite, cuprite, tenorite and native copper) and leached capping.

Terrane conducted a 11,661-metre drilling program in 2008 which successfully connected the West, South and Northeast zones into a contiguous ring-shaped deposit with a strike length of 2.2 kilometres and depth of over 500 metres.

On June 13, 2008 Terrane released a National Instrument (NI) 43-101 compliant technical report containing a new Indicated resource estimate of 372.5 million tonnes grading 0.31 per cent copper, 0.036 per cent molybdenum, and 2.1 grams per tonne silver and a new Inferred resource estimate of 140.9 million tonnes grading 0.25 per cent copper, 0.039 per cent molybdenum, and 2.2 grams per tonne silver. The estimates were calculated using a 0.30 per cent copper-equivalent cut-off grade (Terrane Metals Corp. Technical Report, [www.sedar.com](http://www.sedar.com)).

Using a 0.3 per cent copper equivalent cut-off, measured plus indicated resources effective June 2009 totalled 557.8 million tonnes averaging 0.3 per cent copper, 0.037 per cent molybdenum and 3.12 grams per tonne silver; inferred resources total 159.4 million tonnes averaging 0.23 per cent copper, 0.033 per cent molybdenum and 2.07 grams per tonne silver (Exploration and Mining in British Columbia 2011, page 31).

The Taitsa Ranges were first prospected in the early 1900s after gold was discovered near Sibola Mountain. Prior to the late 1920s, several lead-zinc-silver, gold-tungsten and copper showings had been staked. In 1948, the Lead Empire Syndicate re-staked claims originally located by Cominco Ltd. in 1929 over several lead-zinc occurrences. These are now recognized as part of the Berg porphyry system. The potential for porphyry copper-style mineralization at Berg was first understood by Kennco Explorations (Western) Ltd. who recognized the prominent gossan and associated stream sediment anomaly. Kennco started an exploration program in 1968 that eventually discovered an extensive supergene enrichment blanket over hypogene chalcopyrite and molybdenite mineralization. Canex Placer Limited optioned the property in 1972 and by 1980 a total of 93 diamond-drill holes totalling 16,907.8 metres had been completed and a geological resource of 238 million tonnes of 0.40 per cent copper, 0.031 per cent molybdenum (0.052 per cent MoS<sub>2</sub>) and 2.84 grams per tonne silver (at a 0.25 per cent copper cut-off) outlined (CIM Special Volume 37, page 1986). Since 1982, the only activity on the project was the computerization of the drilling database by Placer Dome Inc. in 1992.

Between 1982 and 2007, there was no active exploration on the project, although Placer had arranged for or conducted in-house revised resource estimates, additional economic analyses, conceptual mine layouts, and environmental reports.

In 2006, Placer Dome was purchased by Barrick Gold, who sold the Canadian assets to Goldcorp Inc. Terrane Metals Corp purchased certain Canadian assets from Goldcorp, including their share of the Berg Project. In September 2006, Terrane purchased Kennecott's share of the Berg Joint Venture to become 100% owners.

An exploration program consisting of 11,288.8 metres of diamond drilling in 29 holes and a pole-dipole IP survey was performed in 2007 by Terrane Metals Corp. A subsequent follow-up exploration program was carried out on the property in 2008 by Terrane, consisting of 11,659.6 metres of diamond drilling in 31 holes and a total field ground magnetic survey performed in the deposit area to determine the geophysical characteristics of the

deposit. Terrane conducted a 11,661 metre drilling program in 2008 which successfully connected the West, South and Northeast zones into a contiguous ring-shaped deposit with a strike length of 2.2 kilometres and depth of over 500 metres.

In 2010 Thompson Creek Metals Company Inc. purchased Terrane Metals Corp. The Berg Project is consequently owned by Berg Metals Limited Partnership, a wholly-owned subsidiary of Thompson Creek Metals Company Inc. Aeroquest International conducted a helicopter-borne geophysical survey on behalf of Terrane Metals Corp., over the Berg property in August 2010. This survey utilized Aeroquest's AeroTEM III time domain helicopter electromagnetic system in conjunction with a high-sensitivity caesium vapour magnetometer. The total survey coverage is 754.35 line-kilometres, flown at 100 metre line spacing.

In 2011, exploration on the Berg property consisted of 10,677.6 metres of diamond drilling in 36 holes drilled on the Berg deposit in order to increase the tonnage, to upgrade inferred resources to the indicated category, and to upgrade indicated resources to the measured category. Drilling in 2011 has also better defined the outward extents of mineralization in the Northeast, South and West zones. Drilling completed in 2011 has continued to add significantly to the quantity and quality of the global resource of the deposit by targeting areas of wide-spaced drilling for confirmation of mineralization and by drilling to define the outer limits of the deposit. The 2011 drilling has also identified significant supergene mineralization towards the core of the Berg stock, which had been sparsely tested by previous drilling. In addition, significant mineralization was also intersected in association with the southwest extension of the porphyritic quartz plagioclase porphyry phase of the stock in the South and West zones. The program was carried out by Equity Exploration Consultants Ltd. under contract to Berg Metals Limited Partnership.

Environmental monitoring by Berg Metals is ongoing, with two weather stations on the property collecting data continuously. Two site visits were made in 2014 by ERM Consultants Canada Ltd. to collect data from the weather stations and to collect water samples from Bergeland Creek draining the area around the Berg deposit. In July 2014, Thompson Creek Metals Company Inc. contracted UTM Exploration Services Ltd. of Smithers, to conduct an approximate 21-day prospecting and sampling program of the Berg property claims. The program involved predominantly expansive, wide-reaching reconnaissance work on all of the "soon-to-lapse" peripheral claims surrounding the main Berg deposit. The design and intention of this program was to examine other areas that showed potential for continued mineralization and possible extension to known mineralization.

In 2015, a surface exploration program was conducted by Equity Exploration Consultants Ltd. on behalf of Berg Metals. A crew of four people was onsite for approximately five weeks, and conducted geological mapping and rock, soil and silt sampling on eight separate zones outside the main Berg deposit.

In 2017, Centerra Gold Inc. carried out mapping, sampling, and logging of historic drill core.

In March 2021, an updated mineral resource for the Berg deposit was reported at 609 986 000 tonnes measured and indicated grading 0.27 per cent copper, 0.03 per cent molybdenum and 3.01 grams per tonne silver with an additional 28 066 000 tonnes inferred grading 0.22 per cent copper, 0.02 per cent molybdenum and 3.75 grams per tonne silver using a 0.20 per cent copper equivalent cut-off grade (Tetra Tech Canada Inc. [2021-05-03]: Updated Technical Report and Mineral Resource Estimate on the Berg Project, British Columbia).

## ***Bibliography***

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<b>Date Coded:</b>	1985/07/24	<b>Coded By:</b>	BC Geological Survey (BCGS)	<b>Field Check:</b>	N
<b>Date Revised:</b>	2025/12/15	<b>Revised By:</b>	Kerri Shaw (KLS)	<b>Field Check:</b>	N