

Hot Punch (au, ag, pb, zn)

Summary

The Hot Punch property consists of 412 hectares located approximately 45 minutes west of Invermere, BC. The initial claims were staked in 1996 to cover historical mineral showings and adits located on 4 Crown Grants. The Hot Punch Claims have seen limited

Hot Punch Project Area



past production from a quartz shear zone. A 1996 work program by Miner River Resources on the property delineated a number of geochemically anomalous zones believed to be extensions of this high grade precious and base and metal mineralization.

A report on the property, based on the results from the field program, recommended a two phase program to follow up the 1996 results and better define the extent and nature of the mineralization. The 2005 program by

Eagle Plains Resources consisted of soil sampling in areas recommended in the 1996 report.

The Hot Punch property consists of 411.848 hectares located approximately 45 minutes from Invermere following the Toby Creek Road, then northward up the Delphine Creek road to the headwaters of Delphine Creek. These claims lie within the Golden Mining Division. Elevations range from 1680 m to 3040 m (5500 feet to 9500 feet) with a variety of alpine and sub alpine vegetation ranging from slide alder to mature stands of fir and pine. Topography varies from a basin in the northeast of the property to steep outcrop and an unusually steep glacial moraine in the western part of the property.

History and Previous Work

It is believed that the Hot Punch mineralization was first discovered in 1899. A total of six historical Crown Grants have been held on the property and three separate adits and two small shafts were driven on the Hot Punch vein system between 1908 and 1926. A fourth adit was apparently developed in waste. A total of 74 tonnes of ore were mined which yielded 108,582 gm of silver, 27,268 kilograms of lead, 904 kg of zinc and 62 gm of gold. Most of this production was reported to be from the 78 foot deep shaft and the No.2 adit.

Prior to 1996, the most recent documented work was in 1949 when Gwillim Lake Gold Limited extended the No.2 adit 150 feet. Concurrent with this development, the camp was renovated and a compressor and pipeline were installed.

Eagle Plains first acquired tenure in the Hot Punch area through a subsidiary company, Miner River Resources, which staked the Hot Punch 1-9 claims in 1996. A 1996 work program by Miner River delineated a number of geochemically anomalous zones believed to be extensions of the high grade precious and base and metal mineralization that was the focus of historic work on the property. A two phase work program was recommended to follow up 1996 results and better define the extent and nature of the mineralization. 2005 work was based in part on these recommendations.

Regional Economic History

The area encompassing Delphine, Toby and Horsethief Creeks has over 80 documented mineral occurrences for commodities such as lead, silver and copper. These occurrences vary in size from small showings up to the 1.2 million tonne Mineral King deposit just north of Toby Creek and west of Jumbo Creek. Other mineral deposits include (from south to north): Silver Spray, Mineral King, Kootenay Queen, Hot Punch, Delphine, Nip and Tuck, Silver Queen, Ptarmigan and the Iron King. The majority of the mineral occurrences are fault and/or vein type deposits and are coincident with a north-south belt of lamprophyric to kimberlitic dykes interpreted to be closely associated with the locus of the "Windermere High".

Mineral King Mine

The Mineral King mine is located north of Toby Creek and west of Jumbo Creek, approximately 15 km south of the Hot Punch Claims, at an elevation between 1220 metres (4005 feet) and 1670 metres (5480 feet). The mine produced a total of 1,334,400 tons of ore at a reported grade of 8 percent zinc and 3 percent lead per ton before suspending operations in 1964 (Pope 1990). The deposit is interpreted as a Stratabound Massive Replacement in a high angle fault panel within the Mineral King duplex system in the footwall of the Mount Forster fault. The orebody is hosted in brecciated dolomite of the Lower Gateway Formation and consists of galena, sphalerite, tetrahedrite (containing 6 to 7 percent silver), pyrite and barite with minor chalcopyrite and pyrrhotite (Pope 1990).

Kootenay Queen Group

The Kootenay Queen Mine is located in a cirque south of Delphine Creek at an elevation of 1980 metres (6495 feet). The orebody is hosted within the Mount Nelson Formation (white marker member), immediately below the interpreted position of the Windermere Unconformity. The orebody consists of galena, tetrahedrite and sphalerite with reported recovery of less than 100 tons having a grade of 2400 grams per tonne silver and 70 percent lead.

Silver Queen Mine

The Silver Queen mine is present at the base of a cliff on the west side of Mt. Slade at an elevation of 2900 metres. The deposit consists of a system of small veins situated in the lower main dolomite of the Hadrynian Mount Nelson Formation and is associated with a green metadiabase dyke. The main workings were within a 20 centimetre wide vein hosting galena and sphalerite with minor chalcopyrite having a reported production of less than 100 tons with a grade of 2.35 kilograms per tonne silver and 59 percent lead.

Silver Spray Mine

The Silver Spray Mine is situated on the west side of Coppercrown Creek at an elevation of 2290 metres and is part of a group of claims which includes the Lady Bing, Gracie Fraction, Betsy and IOU properties. The workings are contained in the dolomite dominated upper portion of the Lower Gateway Formation immediately below the unconformably overlying Dutch Creek Formation. Up to 50 tons of ore were recovered consisting of galena, tetrahedrite and cerussite with minor sphalerite and copper carbonates in vertical and bedding parallel fractures.

Pretty Girl Group

The Pretty Girl Group is situated on the ridge crest between Law and Bruce Creeks at an elevation of 2720 metres (8925 feet). Stratigraphically the Pretty Girl Group is located within argillites of the Horsethief Creek Formation. The mineralization is reported to consist of tetrahedrite and chalcopyrite in a discontinuous quartz vein with less than 50 tons recovered at grades up to 188 grams per tonne silver and 27 per cent copper.

The Delphine

The Delphine Mine is located approximately 5 km north-northeast of the Hot Punch Property. Discovered in 1896 the mine shipped approximately 150 tons of Bonanza grade silver-lead-copper in the early 1900's. Grades of 2400 to 5000 gm/T Ag with lead and copper were reported from a 0.3 - 1 meter thick vein over a strike length of some 50m. The vein occurs within a steeply dipping fault zone near the Windermere unconformity. Mineralization includes massive galena, tetrahedrite, sphalerite and chalcopyrite.

The Black Diamond

The Black Diamond property is located approximately eleven km south of the Hot Punch property. The Black Diamond structure is hosted by nearly flat lying, east-west striking quartzites and schists of the Lower Gateway Formation, which also hosts the Mineral King and Silver Spray deposits. The structure is exposed continuously over a vertical distance of approximately 2500 feet between 5000 feet and 8500 feet elevation on the

north side of Toby Creek near its confluence with Jumbo Creek. Mineralization consists of shear hosted, high-grade silver-lead-zinc within late quartz veining, often associated with a parallel diorite dyke. Quartz veining within the shear system locally swells from 3 to 8 meters in width, with late-stage high-grade stringers following the same orientation, cutting the barren quartz. A total of 47 tons of ore was produced from the Black Diamond vein, containing 1929 oz. Ag (40.0 oz./t), and 15801 lbs. Pb (63 %)(MEMPR MINFILE REPORT). Zinc-rich material was probably left as waste.

Geology

Regional Geology

Stratigraphy

The stratigraphy of the Purcell Mountains in the area of the Hot Punch Claims has most recently been correlated by Alasdair Pope in MEMPR Open File 1990-26. Lithologies consist of four separate and distinct, megascopic miogeoclinal sequences interpreted to have been deposited on passive North American continental crust. This Helikian to Lower and Upper Paleozoic package has undergone four major phases of deformation and local thermal metamorphism related to the Horsethief Creek Batholith. Igneous activity has episodically affected the sedimentary sequence and includes syndepositional basaltic to andesitic flows and/or sills to post depositional intrusive dykes, sills and batholiths.

The sedimentary sequence exposed between Toby and Horsethief Creeks (the Toby Creek area) comprises the uppermost Helikian Belt-Purcell Supergroup, the Hadrynian Windermere Supergroup, and Lower Paleozoic strata to the Middle Devonian Starbird Formation. These strata are exposed in six separate panels bounded by thrust faults, and carried in the hanging wall of the northeast vergent Purcell Thrust (Pope 1990).

Proterozoic

Belt-Purcell Supergroup

The Helikian Belt-Purcell Supergroup has an exposed thickness of 4300 metres (14,100 feet), from within the Van Creek Formation to the Mount Nelson Formation. The Belt-Purcell Supergroup is comprised predominantly of cliff-forming, buff weathering dolomitic lithologies with intercalated siliciclastic intervals.

The Van Creek Formation is the lowest formation exposed in the Toby Creek area. It consists of approximately 500 metres of medium- to coarse-grained, light grey to dark green quartzites, siltstones and silty argillites exposed in the core of an anticline. The Nicol Creek Formation is absent as the Van Creek quartzites apparently grade upward into over 1000 metres of pale green quartzites, silts and buff-weathering dolomitic silts of the Lower Gateway Formation.

The Lower Gateway Formation has been subdivided into two members, a basal transitional sequence and an upper dolomite dominated sequence. The transitional sequence is up to 100 metres thick. The base is identified as the first occurrence of carbonate above which are distinctive thin bedded, red spotted quartzites with interbedded green siltstone and buff weathering dolomitic siltstone and dolomite.

The Upper Gateway Formation is dominated by thin bedded dolomite which passes upward into a 90 metre thick, cream to buff weathering dolomitic unit. The dolomite has

cryptalgal and stromatolitic laminations and cream coloured chert intercalations. The dolomite ranges from blue-grey micrite to light coloured coarse sucrose textured dolomite.

A sharp contact has been mapped separating the Upper Gateway Formation from the overlying Dutch Creek Formation. The contact is a narrow, rusty-weathering zone interpreted to represent a hiatus along a parallel unconformity. The Dutch Creek Formation varies from 300 to 1000 metres over less than 5 lateral kilometres and consists of dark coloured, fine-grained quartzite-argillite couplets.

The contact with the overlying Mount Nelson Formation is always very sharp with an abrupt change in facies and sedimentary characteristics evident across the contact, which is interpreted as a paraconformity.

The Mount Nelson Formation is approximately 1300 metres thick, consisting of thick, well-bedded white orthoquartzite, buff weathering dolomites and purple weathering dolomites and argillites.

The Mount Nelson Formation has been subdivided into the:

- a) lower quartzite, a useful 50 to 150 metre thick marker horizon consisting of white, well-sorted, fine- to medium-grained pure quartz arenites,
- b) lower main dolomite - an approximately 400 metre thick sequence which conformably overlies and is gradational with the lower quartzite, comprised of cryptalgal to stromatolitic laminated, pale grey weathering dolomites with interbedded carbonaceous argillites capped by a cream-coloured stromatolitic, crystalline cherty-dolomite unit approximately 20 metres thick overlain in sharp contact by,
- c) the middle quartzite - an apple green coloured sequence consisting of massive, fine- to coarse-grained quartz arenites, impure sandstones and argillites having A-B to A-E Bouma sequences evident,
- d) orange dolomite sequence - approximately 180 metres thick consisting of varicoloured buff weathering dolomitic siltstones, argillites and impure sandstones underlying bright orange-buff weathering silty and sandy crystalline dolomites with abundant cryptalgal and stromatolitic laminations and intercalated chert.
- e) white markers conformably overlie the orange dolomite and are up to 70 metres thick. The white markers consist of cream, buff and silver-grey dolomites with purple, green and buff dolomitic mudstones and local interbeds of pure white magnesite up to 1 metre thick,
- f) purple sequence - gradationally overlies the white markers, consisting of purple weathering dolomitic sandstones and siltstones which grade upward into purple weathering argillite. Mudchip breccias and monomict pebble conglomerates are interbedded with siltstones and argillites and the sequence is overlain by a pebble to boulder conglomerate with a purple weathering sandy argillitic matrix in sharp contact with the purple shales. The pebble to boulder conglomerate is interpreted as the locus of an intraformational unconformity with a thickness between 2 and 10 metres thick,
- g) upper middle dolomite - approximately 80 metres thick and similar to the lower main dolomite. It is distinguished by abundant algal allochems which are typically replaced by black chert,

h) upper quartzite - a distinctive cliff-forming unit consisting of white quartzites more than 260 metres thick (equivalent to the upper Mount Nelson Quartzite (Atkinson 1975)). The upper quartzite consists of well sorted medium- to coarse-grained, essentially pure arenites. They are distinguished from the lower quartzite on the basis of massive bedding and poorly preserved sedimentary structures.

i) upper dolomite - the uppermost unit in the Belt-Purcell exposed below the Windermere unconformity. The upper dolomite is gradational with the underlying quartzite over 10 metres consisting of interbedded purple argillite, quartzite and dolomite. The upper dolomite is comprised of pale to dark grey dolomite interbedded with quartz and dolomite pebble conglomerates with dolomitic quartz sands.

Windermere Supergroup

The Windermere Supergroup varies in thickness in the Toby Creek area, from 80 metres to over 3 kilometres and is in sharp contact with the underlying Belt-Purcell Supergroup across an unconformity with considerable topography, interpreted as a result of a local basement high, the "Windermere High" (Reesor 1973). The Windermere Supergroup was deposited above this unconformity and consists of a basal conglomeratic unit, the Toby Formation, and the overlying argillite and pebble conglomerate dominated Horsethief Creek Formation.

The Toby Formation is the basal unit of the Windermere Supergroup and overlies different levels of the Belt-Purcell stratigraphy in the separate fault panels, interpreted to indicate active faulting during sedimentation (Pope 1990). Four distinct facies have been identified in the Toby Creek area but their stratigraphic position relative to one another is uncertain due to rapid lateral facies changes.

The Toby Formation consists of:

a) a basal boulder breccia lithofacies consisting of monomict clast-supported boulder breccias.

b) a diamictite lithofacies - the most commonly developed facies consisting of rounded quartzite and subangular dolomite boulders (derived from the immediately underlying Mount Nelson Formation) in a sandy argillite matrix.

c) a sparse clast diamictite lithofacies consisting of graded fine- to coarse-grained, poorly sorted arenites and argillites with a minor component of rounded quartzite pebbles or cobbles.

d) a siltstone-argillite lithofacies which comprises the bulk of, and is the dominant lithology in, the upper portion of the Toby Formation, consisting of well-sorted and graded fine quartz arenites and argillites which typically exhibit complete Bouma sequences. The Toby volcanics are the oldest igneous rocks identified in the Toby Creek area and are believed to be altered submarine basalts related to regional Hadrynian extension. The flows are holocrystalline and glomeroporphyritic basaltic andesites, having plagioclase phenocrysts in a fine-grained plagioclase groundmass. Green metadiabase dykes have also been identified and have been interpreted as the metamorphic equivalent to the Toby volcanics. They are the most common igneous rocks and are always intruded at a high angle to bedding. They are typically altered, consisting of anhedral masses of chlorite, anhedral to euhedral carbonate and sericite and skeletal opaques. Chlorite pseudomorphs after pyroxene and amphibole have been identified.

Bulk mineralogical proportions indicate these dykes were most probably originally basaltic in composition and have been subsequently hydrated.

The Toby Formation is gradational into the overlying Horsethief Creek Formation, in which five lithofacies have been identified. These lithofacies define a rudimentary stratigraphy of facies within the Horsethief Creek Formation as individual lithological units are inconsistent due to rapid lateral thickness and facies variations.

The lithofacies identified in the Horsethief Creek Formation are as follows:

- a) siltstone-argillite - dominant in the lower half of the Horsethief Creek Formation and separate the remaining lithofacies throughout the formation. This lithofacies consists of thick sequences of thin bedded, graded siltstone and argillite and finely laminated black, green and grey argillite.
- b) black carbonate - an easily traced marker used to identify and map the base of the Horsethief Creek Formation consisting of thin bedded, dark grey to black limestone with variable quartz sand and silt in a calcitic matrix and thin calcareous quartz-arenite beds.
- c) dolomite - buff weathering dolomite, up to 30 metres thick, dolomite pebble-conglomerate beds and dolomite supported quartzite occur throughout the Horsethief Creek Formation.
- d) quartz feldspar arenites and pebble conglomerates - consist of pebble conglomerates comprised of grainsupported crystalline quartz and quartz feldspar grains with variable red jasper, green to grey argillite, quartzite and dolomite clasts in a quartz, feldspar, carbonate, sericite and chlorite matrix. Clasts are generally 1 to 2 centimetres in diameter but may exceed 10 centimetres in length. Quartz feldspar arenite beds are similar to the pebble conglomerates but have a greater proportion of matrix and are generally poorly sorted.
- e) red and varicoloured argillites - are present at the top of the Horsethief Creek Formation and consist of variably coloured argillites with interbedded pink carbonate, and varicoloured impure arenites.

Lower Paleozoic

The Paleozoic succession is comprised of the Lower Cambrian Cranbrook Formation, Middle Cambrian Jubilee Formation, Ordovician-Silurian Beaverfoot Formation, Middle Devonian Mount Forster Formation and the Upper Devonian Starbird Formation. The Paleozoic stratigraphy neither hosts nor have Paleozoic clasts been identified in kimberlitic dykes and therefore will not be described at this point. The reader is referred to Pope (1989), Root (1985, 1983) and Reesor (1973), for a complete description of Paleozoic stratigraphy in the Invermere area of the Purcell Mountains.

Middle Cretaceous

The Horsethief Creek Batholith is a quartz monzonite intrusion present north of Horsethief Creek and therefore out of the Toby Creek area. However, granitic apophyses and aplitic dykes are present throughout the Toby Creek area and thermal metamorphism related to the batholith has affected the strata of the area.

Structure

Four major phases of deformation have been identified in the Toby Creek area, Helikian-Devonian extension (D1), Jurassic-Paleocene contraction (D2-D3) and Eocene extension (D4). The first phase of deformation resulted in unconformities at the base of the Dutch Creek and Mount Nelson Formations (D1a) and the unconformity at the base of the Windermere Supergroup (D1b). Thinning of Paleozoic strata onto the Windermere High is interpreted to reflect the effects of D1c deformation together with the development of small fault-bounded sub-basins. Contraction during the Columbian (D2) and Laramide (D3) orogenies resulted in a series of northeast vergent thrust faults and the development of a regional foliation (S1). Three major thrust sheets are evident in the Toby Creek area with one, the Mount Nelson thrust sheet, comprised of four smaller fault panels. The three major thrust sheets represent out-of-sequence faults, having propagated toward the hinterland, carried in the hanging wall of the Purcell Thrust. Contraction during D2 and D3 produced east-vergent imbricate thrust faults and west vergent backthrusts. Many of these faults were subsequently reactivated during the fourth phase (D4) of deformation. High angle brittle faults are also a result of D4.

Property Geology

The Hot Punch claims are underlain by orange weathering to purple dolomites assigned to the Helikian Mount Nelson Formation, mixed argillite - dolomite -limestone of the Horsethief Creek Formation and Toby Formation diamictites and conglomerates. Mineralization occurs in a northwest trending series of fissure veins and shear zones which dip west at 50 to 80°. The structures are developed in orange weathering dolomite of the Mount Nelson Formation and may possibly also be hosted by the Toby Creek Conglomerate. Vein widths vary from 0.1 to 1.0 m. Vein mineralogy is quartz with galena, sphalerite, tetrahedrite and minor chalcopyrite and accessory sericite. The mineralization occurs along the trend of a larger structure referred to as the Hot Punch Fault.

2005 Work Program

The 2005 work program consisted of soil geochemical sampling. A total of 16 soil samples were collected in areas identified by the 1996 report (Downie, Betker 1996). The soil samples were shipped to Eco-Tech Laboratories in Kamloops, B.C. for analysis. The samples were analyzed for 30 element ICP using aquaregia digestion. The field program was carried out over two days from June 16-17, 2005. Fieldwork was hampered by both steep terrain and a freak heavy rainstorm which flooded Delphine Creek and stranded the crews. All samples were collected, handled, catalogued and prepared for shipment by Bootleg Exploration Inc.

Overall project supervision was by C.C. (Chuck) Downie, P.Geo Exploration Manager, Bootleg Exploration.

All exploration and reclamation work was carried out in accordance to Ministry of Environment, Ministry of Mines and WCB regulations.

Conclusions and Recommendations

Although the 2005 work program only returned two anomalous soil samples, the Hot Punch property remains an attractive exploration target.

The Hot Punch Property is the site of high-grade precious and base metal mineralization. The 1996 exploration program defined a 1.1 km length multi element geochemical anomaly which is open to the north and south. The anomaly has a well defined linear trend and it is believed to be an extension of the vein system that the two historical adits were driven on. Mineralization in outcrop consists of galena, sphalerite, tetrahedrite, and minor chalcopyrite hosted by 0.1 to 1.0m wide quartz shear zones and quartz veins generally oriented 165 - 174/60 - 85°W. Mineralization grades from rock samples collected during the 1996 program reflected past production grades with assay values of up to 7.09 gm/T Au and 1655 gm/T Ag. Although the mineralization observed in outcrop thus far has been restricted to the Mount Nelson Formation Lower orange dolomite and possibly the Toby Creek Formation, results from the 1996 program suggest that the mineralization may also be hosted by Horsethief Creek Formation rocks and possibly Mount Nelson Formation purple dolomite.

The soil geochemical survey defined two different types of anomalous zones. The signature in the area of the historical adits is strongly linear in nature and oriented generally north - northwest, parallel to the shear orientation observed in outcrop. A similar, somewhat wider zone was outlined in the northernmost part of the grid. Two much broader geochemical anomalies were defined in the area of L4 + 00N and along the southernmost line L4 + 00S. Both sets of anomalies occur along a linear trend that coincides with a 1996 VLF - EM geophysical anomaly and is believed to be the Hot Punch Fault referred to by Pope in his 1990 MEMPR Open File. It appears from the data collected that the Hot Punch Fault may be acting as a locus for a number of subparallel northwest trending mineralized shears, but may not be everywhere mineralized.

The geochemical data suggests that the historical adits were not driven in the area of the largest geochemical anomaly which is located in the valley bottom approximately 300m north of the No. 2 Adit. A similar broad geochemical anomaly on the southern part of the grid is open to the south.

A two-phase exploration program is recommended for the property. The first phase of this program should focus on prospecting in the areas of known open geochemical anomalies south of L4 +00S, east of L3 + 00S, northwest of L7 +00N and in the area of the Au geochem anomaly on L 2+00S along the Baseline.

The entire trace of the Hot Punch Fault should be prospected and evaluated with soil geochemistry where topographic constraints permit. Air photo interpretation might be used to delineate both the Hot Punch Fault and the northwest trending structures that appear to host the mineralization. Detailed geologic mapping should also be applied to determine the relationships between structure, rock type and mineralization. The possibility of using a deeper looking geophysical tool such as UTEM to better define mineralized structures associated with the soil geochemical anomalies should be explored.

The second phase of the program should consist of a 1000m (3300') diamond-drilling program, contingent on favorable results from Phase 1 work. The drilling should be directed toward evaluating the source of the largest geochemical anomalies and defining structural controls on mineralization.

This project is available for option

Updated July 14, 2009