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CLISBAKO (093C 016) **881808** **By Tom Schroeter and Bob Lane**

LOCATION:	UTM Zone: 10U Northing: 5841300 Easting: 429415 (093C/09E) Cariboo Mining Division, 105 km west-southwest of Quesnel and about 40 km southwest of Nazko. The claims are situated between Mt. Dent, immediately to the west, and an unnamed mountain to the east.
CLAIMS:	Clisbako 1 - Clisbako 15.
ACCESS:	West along Quesnel-Nazko Highway for about 100 km then southwest along Forest Service gravel roads for approximately 55 km to the property. Road access exists to all zones.
OWNER/OPERATOR:	Eighty-Eight Resources Ltd. / Minnova Ltd.
COMMODITIES:	Gold

AN EPITHERMAL PRECIOUS METAL PROSPECT

INTRODUCTION

The Clisbako epithermal prospect was discovered in June of 1990 by Eighty-Eight Resources Ltd. personel during a regional exploration programme designed to locate bulk tonnage epithermal gold targets in the low, rolling topography of the Nechako Plateau area of central British Columbia. Glacial outwash deposits containing extensive epithermal quartz float was discovered and was traced back to it's sources where the main mineralized outcrops were located. This lead to the discovery of the main mineralized zones. The main mineralized zones are characterized by alteration centres that display an internal zone of intense silicification +/- breccia flanked by widespread bleaching and argillic alteration accompanied by a well developed quartz stockwork. Very fine grained sulphide minerals accompany the more intense phases of the alteration and average less than 1%.

There is no record of previous exploration activity on the property.

RECENT EXPLORATION

A preliminary exploration programme carried out in 1990 consisted of prospecting, geological mapping, grid layout, geochemical soil sampling and extensive rock chip sampling. Minnova optioned the property in the spring of 1991 and during the summer conducted extensive trenching on three zones and completed a 19 hole preliminary diamond drill programme.

* NOTE: * sentences in bold not in final draft copy!

REGIONAL SETTING

The Clisbako property is situated in the south-central part of the Anahim volcanic belt (Souther, 1977) -- a 600 km long east-trending belt of continentally derived Miocene and younger volcanic rocks (Bevier et al., 1979) that extends from Bella Coola to Clearwater. To the west of the claims three peralkaline shield volcano complexes (Rainbow Range, Ilgachuz Range and Itcha Range) comprise the western part of the Anahim volcanic belt. The three volcanic centres form an east-west trend along which the Clisbako property lies. The claim group is underlain predominantly by Eocene Ootsa Lake Group volcanic rocks (Tipper, 1971) as shown by the most recent regional geology map for NTS 93C (Anahim Lake Area). **The area of interest appears to be located near the northeast rim of a large cauldera feature that has been identified using satellite imagery (pers. comm., Alex Davidson).**

The oldest rocks in the area are Lower and Middle Jurassic Hazelton Group volcanic rocks which crop out well to the north and southwest of the property. Intrusive rocks are not known to exist in the aea.

Ootsa Lake Group volcanic rocks are flat-lying to gently warped and rest with angular discordance on all older rocks. The assemblage has an estimated maximum thickness of about 500 metres (Tipper, 1971). In the Mt. Dent area Ootsa Lake Group strata is overlain unconformably by voluminous Late Miocene and/or Pliocene andesite and basalt flows, breccias and tuffs (Endako Group equivalents?).

PROPERTY GEOLOGY

The Clisbako property consists of 15 contiguous, 20 unit claim blocks totalling 7,500 hectares. The claims are underlain predominantly by a well-differentiated sequence of subaerial tuffs, rhyolite flows and volcanic breccias of probable Eocene age (Ootsa Lake Group). Remants of rhyolitic ash-flow tuff units (Oligocene age?) unconformably overlie the Eocene volcanic rocks in the east-central part of the property, but are more prevalent outside the claim boundaries. To the north and east of the claim block flat-lying, red scoriaceous, and black vesicular basaltic flows of Oligocene and Miocene age crop out. Extensive normal faulting has resulted in the development of numerous tilted blocks that are most apparent in the Eocene volcanic rocks, and to a lesser extent in the Oligocene(?) ash flow tuffs (may be syndepositional).

Two recent hot spring (tufa) deposits occur on the property and represent the shallowest level of the hydrothermal system. They suggest a long-lived, multistage hydrothermal system and that erosion in the area has been limited.

Outcrop accounts for less than 4 % of the area that has been mapped and for the most part is restricted to gullies, incised drainages and road cuts. Eight lithologic units have been mapped by Eighty-Eight Resources Ltd. Eocene rocks, units 1 to 6, occur in variably tilted blocks and consist of dacitic to andesitic tuffs, rhyolitic ash-flow tuffs, andesitic to basaltic flows, and a mudstone/siltstone unit. They are unconformably overlain by flat-lying to gently dipping densely welded dacitic tuffs and rhyolitic flows and ash-flow tuffs.

Three known hydrothermal alteration centres, as well as numerous less intense alteration zones (Figure B-x-x) and extensive areas of quartz float, occur within the eastern half of the claim area. The three separate northeast trending mineralized zones (South, Central and North) occur in an "en echelon" manner over a collective strike length of about 2500 metres (Figure B-x-x). **All showings appear to be on or near fault breaks between footwall rhyolites and hanging wall andesites (+/- sedimentary rocks).** A platy pale to medium green fine-grained andesitic tuff, appears to be the main host lithology for the Discovery, Trail and South zones (and possibly the North zone). White to grey rhyolitic ash-flow tuffs are the principal host of the Central zone. Intensely altered varieties may also be present in the North zone.

The **South Zone** has been exposed by trenching over a strike length of 250 metres and a width of 150 metres. Host rocks include interbedded coarse rhyolite breccia (including some flattened fragments) and tuffaceous breccia. **Mineralization is concentrated in the core of the zone in a hydrothermal explosion breccia that is crosscut by quartz veins.**

The **Central Zone** was also trenched and appears to be less well defined, but is at least 150 metres in width.

The **North Zone** consisting of pervasive silicification and argillization, was exposed over a strike length of about 450 metres and a width of 350 metres. Host rocks tend to be relatively flat-lying. **Mineralization appears to be associated with fault splays off a 'feeder' fault that dips 45 - 60 to the west.** An interesting well-bedded lithophyse-bearing unit interbedded with a flow banded rhyolite, **as well as beds of perlite and obsidian, are peripheral to the more intensely altered zone which hosts the most sulfide-rich mineralization.**

Two zones of less intense alteration, **Trail** and **Discovery**, are located 750 metres and 1,250 metres, respectively, along a northeast trend from the South Zone. The Trail zone is exposed in a single trench that displays argillically

altered rhyolite breccia with local weak silicification and poor development of quartz veining and stockwork. Sulphides are rare. The Discovery zone is exposed in several trenches in what is now a clearcut area topographically higher than any of the other zones. Intensely clay altered and iron oxidized, fine-grained thinnly bedded tuffaceous rocks are strongly contorted and tightly folded.

STRUCTURE, ALTERATION AND MINERALIZATION

A series of steeply west dipping north northeast-trending normal faults developed during a Late Eocene extensional tectonic event. A complex of closely spaced sub-parallel, smaller-scale faults appears to have localized the hydrothermal fluids leading to alteration and mineralization (i.e. were low pressure zones that concentrated the flow of hydrothermal fluids and were the focus of intense, repeated brecciation and veining). In the North and South zones, areas between fault segments are highly fractured, intensely hydrothermally altered and flooded with a pervasive quartz stockwork. Hydrothermal fluids also migrated along and replaced the more permeable beds in the stratigraphy. This is especially prevalent in the North and Central zones.

The three main mineralized/altered zones are characterized by pronounced bleaching of the host rocks accompanied by intense argillic and silicic alteration, as well as extensive development of quartz veining and stockwork zones. Multiple stages of fracturing, brecciation and veining are displayed by the hydrothermal centres. Several varieties of quartz (eg. colourless comb quartz, grey to black chalcedonic quartz, white opaline quartz and yellowish vein quartz; Plate B-x-x) occur, especially in the South zone. Carbonate minerals are uncommon. However, quartz pseudomorphs after coarse bladed calcite (Plate B-x-x) have been noted in several zones and are thought to be evidence of boiling (REF).

Quartz veins and stockwork zones appear to have a preferred orientation of 025 . Local, poorly to moderately developed, banding in silica flooded zones parallels this trend. Repeated sealing and fracturing of the system, is postulated to have resulted in the local development of zones of intense brecciation and permitted hydothermal fluids to periodically pass through the system. Open space filling textures are common; where small they are typically infilled and display comb, cockade and crustiform textures. Larger drusy cavities commonly are not infilled and display well-developed comb quartz.

Sulphide minerals constitute less than 1% by volume overall, but locally reach a maximum of about 5%. Pyrite is the dominant sulphide mineral present in the system and typically is extremely fine-grained. Pyrite (marcasite?) most commonly occurs as very fine-grained disseminations in dark chalcedonic quartz. It also infills quartz-lined cavities. Marcasite and arsenopyrite are locally associated with more coarse-grained pyrite. Pyargyrite has been identified in two zones and may be the main silver-bearing mineral (Dawson, 1991). **Hematite appears to be more prevalent in the footwall zone of mineralization.** Low sulphide concentrations are typical of an acid-sulphate epithermal system.

Geochemical signatures for the main zones are consistant with an epithermal model (i.e. anomalous to highly anomalous As, Sb, Mo and Ba values). Gold and silver are also generally anomalous with rock geochemical samples reaching grades of 31 grams gold per ton and 170 grams silver per ton in grab samples (Dawson, 1991).

Four samples from outcrop were selected for gold assay and epithermal deposit trace element (Ag, As, Hg and Sb) geochemical analysis. Five outcrop and diamond drill core samples were analyzed for their clay mineralogy using x-ray diffraction techniques. The results are shown in Table ? One of the four samples yielded moderately anomalous results for gold and silver while all showed weak to moderately elevated levels in all 5 elements.

TABLE B-x-x

ASSAY AND X-RAY DIFFRACTION RESULTS FROM GRAB AND DRILL CORE SAMPLES FROM THE CLIBAKO PROPERTY

GOLD ASSAY AND PATHFINDER ELEMENT RESULTS

Lab Number	Sample Number	Sample Type	Zone	Au ppb	Ag ppm	As ppm	Hg ppm	Sb* ppm	Sample Description
43739	91TGS-C1	grab	South	760	15.8	460	1000	18	breccia: 1% diss & fracture controlled py; argillically altered and silica altered fragments in sil. matrix; vuggy cavities.
43740	91TGS-C2	grab	South	160	8.8	530	1500	57	breccia: silica altered fragments in a sil. matrix with 2% py/marc in matrix.
43741	91TGS-C4 (dup)	grab	South	50	5.5	570	820	34	breccia: see 91TGS-C4 description
43742	91TGS-C3	grab	South	210	5.0	260	3300	24	breccia: pale grey, silica flooded, <1% py, comb quartz veinlets.
43743	91TGS-C4	grab	South	50	5.7	570	850	34	breccia: 95% silica, multiple cross cutting phases, 1-2% v. f-gr. py/marc in black chalcedonic quartz.

X-RAY DIFFRACTION RESULTS

data not yet recieved

91TGS-C5	ddh core	South	ddh CL91-5 (95 m): intensely altered qtz eye rhyolite; vuggy.
91TGS-C6	grab	South	intensely clay alt. rhyolite(?); qtz stockwork; abdt jarosite staining.
91TGS-C7	grab	South	intensely clay alt. rhyolite(?); weak qtz stockwork; abdt jarosite staining.
91TGS-C8	grab	North	intensely clay alt. and oxidized rhyolite tuff (?); abdt qtz lined vugs.
91TGS-C9	grab	North	pale green/brown clay alt. rhyolotic tuff(?) with qtz-carb veinlet.

*average of two runs.

EXPLORATION POTENTIAL

This new discovery of a classic high-level, volcanic-hosted, acid sulphate, epithermal precious metal system, is similar to many deposits (eg. Round Mountain, Aurora, Bullfrog) currently being mined in the Great Basin of the Western United States. This new find is further evidence of the potential of this underexplored area of the province (i.e. the northwesterly trend from Blackdome to Endako).

FUTURE WORK

The authors intend to continue their investigations of Tertiary metallogenic events in the Interior Plateau region of central B.C. as part of the *Interior Plateau Project,* a mutlidisciplinary geoscience project jointly managed and executed by the British Columbia Geological Survey Branch and the Geological Survey of Canada under a renewed Canada-British Columbia Mineral Development Agreement.

ACKNOWLEDGEMENTS

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