

**REPORT 1: GEOLOGY OF THE CHACO BEAR CLAIMS,
OMINECA MINING DISTRICT,
NORTH-CENTRAL BRITISH COLUMBIA**

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1. INTRODUCTION

This preliminary account of the geology of the Chaco Bear claims incorporates the results of 13 days of fieldwork between July 25 and August 6, 1997. The fieldwork was helicopter-supported with daily layouts and pickups. The mapped area forms a northwesterly trending belt extending 6 km from the East Ridge, across "Big Lake" to the head of Upper Driftwood (Bearnx) Creek.

Lord (1948) provided the first regional geology of the claim area in his memoir on McConnell Creek (94D E/2). Richards (1975; 1976) remapped the geology of the area and revised the stratigraphy which included subdividing the stratigraphy of the Takla (Upper Triassic), Hazelton (Lower and Middle Jurassic) and Bowser Lake groups (Middle and Upper Jurassic) into formations.

2. STRATIGRAPHY

2.1. INTRODUCTION

Richards (1975; 1976) subdivided the Hazelton Group into three formations of which the lowest, or Telkwa Formation, consists of calcalkaline basalt, andesite, dacite and rhyolite flows, breccia tuff and lahar, intravolcanic fanglomerate, conglomerate, sandstone and siltstone. According to Richards (1975), this formation underlies the entire area of the claims. In the claim area area, I have subdivided the formation into the following map units described below in ascending stratigraphic order.

2.2. GREY AND MAROON "BASALT" (IJrvb)

To date, this unit underlies part of "West Ridge" to a point as far south as the limit of my geological mapping one kilometre north of Peteyas Peak. Maroon "basalt" lapilli tuff is widespread and dark grey and maroon glomeroporphyritic (plagioclase, 10%) "basalt" flows are uncommon. The unit is coarsely bedded and dips moderately to the northeast on cliff-scale but bedding is rare on outcrop-scale. At present, the top of the unit is defined by a thin (7 m), well-bedded lithic tuff sequence with grey and maroon layers which passes through the "Goat Cave". The base is presently undefined.

2.3. GREEN ANDESITE (IJgva)

At this stage, this unit is best exposed along the base of the valley walls near the head of Upper Driftwood Creek. It extends southerly along the east side of "Big Lake" and down the Driftwood River for another three kilometres to the southern limit of mapping. The grey-green andesite is aphyric to fine (1 mm) plagioclase-bearing flows and some lapilli tuffs. Some of the flows below the overlying plagiophyric andesite unit are amygdaloidal (calcite and chlorite). The upper contact lies at the base of the lowest overlying plagiophyric andesite flow which is usually separated from the green andesite unit by a maroon, bedded andesite lithic tuff and lapilli tuff. The base of the unit lies at the top of the first underlying grey or maroon "basalt".

2.4. PLAGIOPHYRIC ANDESITE (IJvap)

The plagiophyric andesite consists of 10 to 20% plagioclase phenocrysts up to 3 or 4 mm set in a light to medium grey aphanitic matrix. The unit extends the length of the property from "East Ridge" to the "Razorback Ridge" for a distance of 6 km. Here and there the unit contains interflow lenses of bedded

maroon andesite tuff and lapilli tuff up to 15 m thick. The bottom and top boundaries of this unit are the base of the lowest and top of the highest plagiophyric flows respectively.

2.5. RHYOLITE TUFF AND FLOWS (IJvr)

For a 3 km stretch on "East Ridge" south of "Big Lake", rhyolite forms a sequence of welded and unwelded tuff and lapilli tuff with rare spherulitic flows. The rocks weather a characteristic cream colour, have ubiquitous flow layering and yield platy talus. The rhyolite unconformably overlies the plagiophyric andesite south of the "Saddle Zone" where the southeasterly dipping rhyolite overlies the northeasterly dipping plagiophyric andesite.

2.6. APHYRIC ANDESITE (IJva)

Within and above the rhyolite on "East Ridge", grey-green aphyric andesite flows up to 50 m thick lie within the rhyolite and an undetermined thickness overlies the rhyolite. Where the andesite overlies the dacite, the basal andesite breccia contains angular clasts of light-weathering dacite.

2.7. DACITE FLOWS (IJvd)

On the "East Ridge" above the rhyolite is a light to medium grey and locally maroon sequence of flows with 5% fine (1 mm) plagioclase laths set in an aphanitic matrix. In contrast to the underlying rhyolite, the dacite weathers grey, lacks flow layering and yields blocky talus.

2.8. VALIDITY OF THE TELKWA FORMATION

According to Richards (1975), all of the described rock units belong to the Telkwa Formation. The present detailed geological mapping indicates at least a local angular unconformity beneath the rhyolite implying that the Telkwa Formation as defined by Richards (1975; 1976) spans an unconformity and may need to be modified to exclude the rocks above the unconformity. Possibly the formation should include only those rocks above the Takla Group and below the rhyolite.

3. STRUCTURE

3.1. INTRODUCTION

The units underlying the rhyolite form a moderate northeasterly dipping sequence younging to the northeast. South of the "Saddle Zone", the overlying flow-layered rhyolite outlines an arcuate pattern convex to the west.

3.2. FAULTING

Shear zones and faults are widespread in the rock units beneath the rhyolite and offset all intrusions. The offsets of dike contacts and closely positioned rock unit boundaries indicate northwesterly and north to northeasterly striking fault sets. Both sets are subvertical or have a westerly component of dip. So far, the northerly to northeasterly set has right-lateral offsets up to a few tens of metres. To date, the northwest set is restricted to the Driftwood and Upper Driftwood valleys where exposures are sparse to nonexistent. Both fault sets are pre-vein and provide channelways and open space for the vein mineralization on the claims. At present, the relative ages of the two sets are unknown so that synchronicity is not eliminated.

3.2.1. Bearnx Fault

This fault follows the creek bed of the Upper Driftwood Creek above "Big Lake" in the area of the 1996 drilling program. The offset base of a 30 degree north-dipping plagiophyric andesite flow and right-laterally offset felsite dike yields a fault movement of 82 m of right lateral normal faulting with a movement direction (trend/plunge) of 288/30NW, southwest side down. This calculated movement direction compares favourably with a single set of slickensides of 302/20NW measured on a subsidiary fault of 318/39SW which dips more gently than the 318/50SW fault attitude derived from the 1996 drill sections (drill sections, W.Raven).

3.2.2. Upper Driftwood Fault

To date, mapping indicates that the base of the plagiophyric andesite is offset about 100 m left-laterally at the head of the Upper Driftwood Valley. Although presently unmapped, a westerly dipping felsite dike may be offset left laterally across the fault trace by as much as 500 m. These offset rock units imply an apparent left-lateral displacement of hundreds of metres in contrast to the right-lateral movement of less than 100m on Bearnx Fault. A possible position for the trace of the unexposed Upper Driftwood Fault probably lies southwest of Bearnx Fault and may project along "Big Lake" to pass through the northwesterly oriented veins of the Dave/Ron Showing.

3.3. RELATIONSHIP BETWEEN STRUCTURE AND MINERALIZATION

To date, all specularite-copper-precious metal-carbonate-quartz mineralization forms veins with very limited dissemination in the adjacent wallrock. Wherever faults have been defined, they are filled by undeformed veins with wallrock inclusions and some ribboning implying pulses of open space filling in the wider veins such as in the Bearnx Fault. Faulted veins have not been discovered yet.

REFERENCES

Lord, C.S. (1948):

McConnell Creek Map-Area, Cassiar District, British Columbia; Geological Survey of Canada, Memoir 251.

Richards, T.A. (1975):

Geology, McConnell Creek Map-Area (94D/E); Geological Survey of Canada, Open File 342.

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Takla Project (Reports 10-16): McConnell Creek Map-Area (94D, East Half) British Columbia; in Report of Activities, Part A, Geological Survey of Canada, Paper 76-1A, p. 43-50.

INCOMPLETE LEGEND

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JURASSIC

LOWER AND MIDDLE JURASSIC

HAZELTON GROUP

Unnamed Formation

- IJvd** 941 Light grey fine (1 mm) plagioclase-bearing dacite flows; locally maroon
- IJva** 948 Grey-green aphyric andesite flows; where overlying **IJvr** a basal volcanic breccia with dacite clasts
- IJvr** 956 Rhyolite tuff, ash and lapilli tuff; rare spherulitic flows; andesite lapilli tuff where speckled

Telkwa Formation

Undefined unit

- IJvap** 911 Grey plagiophyric (1-4mm, 5-20%) andesite flows
- IJvaf** 912 Maroon and grey lithic andesite tuff and lapilli tuff
- IJgva** 908 Grey-green, aphyric to fine (1 mm) plagioclase-bearing andesite flows; minor lapilli tuff
- IJvb** 905 Interbedded grey and maroon "basalt" flows and lapilli tuff
- Undefined units

INTRUSIONS

- y** 921 Pink leucogranite
- f** 929 Felsite dike
- di** 937 Metadiorite and plagiophyric meta-andesite dike
- m** 931 Mafic dike