

PROGRESS REPORT - AUGUST, 1973MACKENZIE VALLEY AREA

The Kee Scarp reef (time equivalent to the Presquille) structure was examined in the Norman Wells area. The Kee Scarp Reefs are generally of a non-porous nature and would not be expected to contain orebodies. However certain portions of the reefs are known to be porous since they contain the Norman Wells oil reservoirs. All the reefs that we have seen have been non-porous.

Exposures of the Bear Rock breccia were also examined in the Norman Wells Area. The Bear Rock is a porous brecciated limestone. It would be a favourable host rock at a facies front. There were no limestone shale contacts in the Norman Wells vicinity.

The second area to be examined was the Wrigley area where the Arnica were examined. This is in the vicinity of Cominco's property, which was not examined however a report is available from the Department of Indian Affairs and Northern Development.

The Cominco mineralization occurs in the Nahanni formation near the facies change to headless shales.

In the Fort Simpson Area Arnica reefs, and reef equivalent to the Kee Scarp have been examined.

From the Fort Simpson area the crew will be moving to Northern British Columbia.

N.W. Reynolds

REPORT ON  
BARRIER REEF MINES LTD.

BONNET PLUME ZINC-LEAD PROPERTY

BONNET PLUME - GOZ CREEK AREA, YUKON TERRITORIES

MAP SHEET 106B-5, 106B-6

MAYO MINING DISTRICT

64<sup>o</sup> 26'N Latitude

133<sup>o</sup> 31'W Longitude

by

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## INTRODUCTION

In 1973, a small field party from Barrier Reef Mines Ltd. located a promising zinc-lead prospect in the Upper Bonnet Plume River area, on lower Goz Creek, near the junction of Goz and Duo Creeks, both of which are southwesterly draining tributaries of the Bonnet Plume River.

Access to the area is via Mayo, 130 miles distant, via Rackla Lake, or from Godlin Lake via Ross River, Y.T. The Barrier Reef property is 200 miles northwest of Summit Lake (Placer Development's property), and 140 miles west-northwest of Godlin Lakes (Welcome North Mines prospects).

The Barrier Reef property and surrounding claim groups were examined by the writer between the dates of August 9th and 13th inclusive.

Poor visibility due to rain and snow between August 11th and 13th hampered detailed examination of the properties. Consequently, a number of specific details concerning the various mineral occurrences were not determined.

The Barrier Reef property consists of three known groups of zinc occurrences over a distance of 14 miles - from 2800 feet to 5500 feet above sea level. The three areas are the western, central and eastern groups, linked by a line trending N.65°E.

### Western Group (not examined)

Sphalerite mineralization in a cream coloured dolomite was pointed out by Mr. Hamilton of Barrier Reef Mines Ltd., outcropping in a moderate-sized, south draining creek, tributary to the Bonnet Plume River about 10 miles downstream from the confluence of Goz Creek and Bonnet Plume River. The mineralization outcrops in the creek at the 2800 ft. elevation and strikes westerly as a steep-dipping, light coloured gossan. The gossan extends westerly up to the 4500 ft. elevation for approximately one mile. Its continuity is interrupted by erosion in several small creek valleys flowing southerly down the rock side of the Bonnet Plume Valley. The mineralization is contained in a steep-dipping dolomite that strikes approximately N.60°W. The dolomite is part of a dolomite-slate sequence that may be in fault contact.

### Central Group

The central group is located between 8 and 10 miles, N.65°E. of the western group, on and west of Goz Creek, a southwesterly flowing tributary to Bonnet Plume River, and 2 miles above the junction of Goz and Duo Creeks.

Zinc mineralization occurs from the 3500 feet to 5500 feet elevations, on top of and on the southerly slope of an E-W knoll, approximately 1500 feet high and 4000 feet across.

High grade zones of yellow to light brown and red sphalerite with minor galena (and possibly jamesonite) occur in seven known zones in dolostone over a 10,000 feet by 3,000 feet area trending approximately N.60°W.

The known horizontal dimensions of the high grade zones vary between 50 feet by 50 feet and 300 feet by 75 feet. There is no apparent continuity between the individual high grade zones, which are locally separated by several hundred feet. Low grade zinc mineralization extends laterally from the high grade localities for distances at least equal to the apparent width of the richer occurrences.

The host rock for the sulphide mineralization is a gentle, southerly dipping, slightly rusty to cream sandy dolomite (dolostone). This rock unit is locally approximately one mile wide, bounded on the north by a steep-dipping fault contact with dark slates and massive white quartzite, and bounded on the south by Goz Creek Valley and a gentle, south-dipping red slate.

The red slate-dolostone contact may be a low angle thrust fault with very little angular disconformity between the bedding planes of the two units.

Some sphalerite zones are parallel to the dolostone bedding, but others appear to crosscut the bedding at acute angles.

Surface exposures of the high grade sphalerite zones consist of a pale yellow to green coloured recessive sphalerite matrix, enclosing white quartz fragments to form a distinctive breccia texture.

White crystalline aggregates and irregular veinlets and patches of quartz are generally dispersed throughout certain portions of the dolostone in varying quantity. The larger aggregates and bodies of quartz are intensely broken, comprising randomly oriented, angular fragments. Commonly, one side of the quartz fragments is smooth-surfaced, and the opposite side is faced with well formed quartz crystals. The breccia fragments appear to have been derived from equi-dimensional quartz aggregates and broken veinlets held in coarse-grained sphalerite matrix. One third to one half of the breccia by volume is

composed of sphalerite, although some quartz-rich zones appear to contain decreased amounts of zinc.

Most of the high grade zinc mineralization observed is associated with breccia zones; however, some of the well mineralized zones occur parallel to the bedding plane with very little visible quartz.

Broad areas of fine-grained, disseminated zinc mineralization in porous dolostone adjacent to the higher grade sphalerite, as determined by a zinc-indicator solution, were observed. Several non-selective grab samples of this apparent low grade mineralization were collected by the writer for assay.

Irregular patches of galena and minor quantities of possible jamesonite mineralization occur in small quantities in the higher grade zones.

#### Eastern Group

The eastern group is located approximately 3 miles N.65°E. from the central zone on the lowest south-draining tributary of Duo Creek, at the 4800 ft. elevation, on the south side of the creek valley.

Mineralization consists of sphalerite in a porous dolostone, with aggregates and irregular patches of crystalline quartz in a porous, buff to slightly rusty dolostone. The bedding dips at a gentle, southerly attitude, and the mineralization outcrops in small rocky spurs in a steep talus slope. The sphalerite is of a lower grade and appears to be bedded in the dolostone, close to the overlying red slate contact, described previously. No trace of the possible thrust fault

contact was determined between the two rock units. The strike length and thickness of the mineralization was not determined, but was briefly examined in outcrop on two rocky spurs separated by 500 feet of talus cover.

Low grade sphalerite-pyrite-bearing breccia occurs in a cherty dolomite, exposed in Goz Creek at the 3500 ft. contour. These showings lie midway between the Central and Eastern groups of showings, and close to the overlying red slate contact exposed lower in Goz Creek. The showings occur in the dolomite at several localities as separate, slightly rusty zones for one mile in the creek bottom. The Goz Creek showings were not examined on the ground by the writer, but were pointed out by Mr. Hamilton of Barrier Reef Mines Ltd. and observed from the helicopter.

#### CONCLUSIONS

The several high grade zinc-bearing zones appear to be localized with no apparent continuity between them. Their location may be due to primary depositional features in a dolostone reefoid environment with associated algae deposits on an ancient drainage surface. The deposits may have been subsequently modified by slump structures and attendant minor ruptures due to open folding and fracturing. It is also possible that the zones are the remains of a once-more continuous zinc-bearing zone that has been eroded away.

The zinc deposits do appear to have a crudely bedded aspect and individual zones have no vertical continuity in the gentle, south-dipping beds.

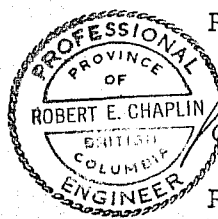
The possibility of extensive, "low grade" mineralization (3% - 5% zinc) with "high grade" sections (10% - 20% zinc) is the attractive feature of the property.

Extensive surface sampling and geological mapping is required to determine the possibility of a larger, low-grade open pit zinc deposit; if the exposed mineralization represents a depositional feature that repeats throughout the thickness of the dolostone section.

The dolostone host rock occurs on surface over an area of no less than 40 square miles, including a central window of slate-quartzite probably in fault contact with the dolostone.

The Barrier Reef claims cover approximately 15 square miles of the dolostone; therefore, surrounding claim blocks deserve careful prospecting, including geological mapping and rock geochemistry for zinc and lead.

Spectrographic analyses should be run on various samples of mineralization in the district to determine the presence of any unknown valuable minerals.



Respectfully submitted,

*Robert E. Chaplin, P. Eng.*

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Vancouver, B.C.  
August 15th, 1973.

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