

MAP No.

106-C-7

ASSESSMENT REPORT
N. M. E. A. P.
CONFIDENTIAL
OPEN FILE

X
X

TYPE OF
WORK:

Geol

REPORT FILED UNDER

Lion Mines Ltd.

DOCUMENT NO 061162

DATE PERFORMED

Sept., 1973.

DATE FILED June 4, 1974.

LOCATION - LAT.
LONG.

64° 24' N

AREA Bonnet Plume Area, Yukon.

132° 55' W

CLAIM NO.

HARRY 1-24 YB5010 33

VALUE \$

WORK DONE BY

H.A. Quin

WORK DONE FOR

Lion Ms L

REMARKS

The claims are thought to be underlain by dolostones of Proterozoic age which contain zinc mineralization on the nearby Barrier Reef property.

GEOLOGICAL REPORT ON
THE HARRY (1 - 24) CLAIM GROUP
BONNET PLUME RIVER, YUKON TERRITORY
FOR
LION MINES LTD. (N.P.L.)

061162

64° 24' N
132° 55' W
106-C-7

BY

HAROLD A. QUIN P.ENG.

VANCOUVER, B.C.
SEPTEMBER 25, 1973

N.M.E.A.P.
Received Ottawa
June 4, 1974



TABLE OF CONTENTS

	<u>Page No.</u>
SUMMARY	1
INTRODUCTION	1
PROPERTY	1
LOCATION AND ACCESS	2
HISTORY	2
GENERAL GEOLOGY	4
MINERALIZATION	5
LOCAL GEOLOGY OF THE HAPPY GROUP...	6
CONCLUSIONS	7
RECOMMENDATIONS	8
APPENDIX	9
CERTIFICATE	10



SUMMARY

The 24 claim group of Lion Mines Limited (N.P.L.) is located 3 miles northwesterly of a new major zinc discovery in the Bonnet Plume River area of the Yukon Territory, made in the summer of 1973 by Barrier Reef Resources Ltd. of Vancouver.

The property is classified as an unexplored prospect underlain by sedimentary rocks favourable for the deposit of strata bound zinc, lead deposits. A two phase program of exploration totalling expenditures of \$25,000 is recommended.

INTRODUCTION

This report is based on information gathered by the writer from available government and private reports on the discovery area and personal knowledge of the geological condition from work carried out in the area in previous years. It was prepared at the request of Lion Mines Limited (N.P.L.) (N.P.L.), the present holder of the claims. The claims were not examined due to snow coverage in January. Their location on the attached plan is approximately correct.

PROPERTY

The Lion Mines Limited Harry group comprises a rectangular block of 24 unpatented mining claims 1 mile long by 1 miles wide. The were staked on August 11, 1973 and recorded at Mayo, Yukon Territory on September 4, 1973. Due date is September 4, 1974.

<u>Name of Claims</u>	<u>Grant Numbers</u>	<u>Due Date</u>
Harry 1-24	Y 85010-Y 85033	September 4, 1974



LOCATION AND ACCESS

The Lion claims are located approximately 125 miles N.E. of Mayo Y.T. on the Bonnet Plume River, approximate co-ordinates are as follows:
LAT. $64^{\circ} 24'$ North; LONG. $132^{\circ} 55'$ NTS sheet 106 C.

Access to the property from Mayo is by helicopter. Fixed-wing aircraft can land on a small lake on the south side of the Bonnet Plume River approximately four miles south-west of the property.

Barrier Reef Resources is constructing a winter airstrip in the Goz Creek Valley, 5 miles south-east of the property. An all-weather strip suitable for DC-3 aircraft is being planned which will greatly improve operating cost in the area. A winter tote road is also planned to the area from Mayo.

The May-Elsa, all-weather highway ends at Keno City, 80 miles south-west of the Bonnet Plume property. A winter caterpillar road, extends from the end of the Mayo Highway a distance of 40 miles to Kathleen Lake, 40 miles west of the property.

TOPOGRAPHY

The Harry claim group is located 4 miles north of the Bonnet Plume River valley at elevations from 4,500 to 6,000 feet. The topography is rugged.

HISTORY

The geology of the area was first mapped by Dr. J. O. Wheeler of the Geological Survey of Canada in 1952 (Preliminary Map 53 - 7), at a scale of four miles to the inch and covers the claims group. A more detailed map has recently been completed by S. L. Blusson for release this winter. As early as 1950 lead-zinc occurrences were discovered in dolomite-breccia, similar in many respects to the present finds, by the K. J. Springer interests. In recent years these were further explored by Gordon Dickson, prospector and founder of Rackla River Mines. Further exploration to the east along the belt of Palaeozoic sedimentary rocks, led to the discovery of the Hudson Bay Mining and Smelting stratiform, lead-zinc deposit, known as the TOM property



located at McMillan Pass on the Canol Road 160 miles to the south east. Other large stratiform lead-zinc deposits were found by Prospectors Airways Co. Ltd. under my direction at Vangorda Creek in the 1950's; and later by Kerr Addison in the 1960's at Swim Lake nearby. The most significant of these was discovered by A. Kulan. It became the ANVIL MINE of Cyprus Mining Corp. and Dynasty Exploration Ltd. and is currently in production at a rate of 7,500 tons per day from a 60 million ton ore body of 10 percent combined Pb-Zn. The Vangorda Swim and Anvil deposits are stratiform lenses in Middle-Upper Cambrian phyllite host rocks. Also discovered during this period was the FORTIN LAKE deposit of Dynasty. It is a 3 mile long zone of zinc mineralization in Silurian dolomitic argillites. Preliminary drilling was done under my direction and later by Mitsui Mining and Smelting Corporation. During the period 1965 to 1972 low metal prices discouraged exploration in this remote area. Then a major find aroused new interest in the belt when CANEX PLACER LTD. discovered a 25 mile long belt of lead-zinc mineralization in tightly folded graphitic argillites Ordovician age. A large staking rush developed in the area and intensive drilling was carried out in 1973, with indications of a possible producer.

Also in 1972 important base metal discoveries were made by Welcome North Mines Ltd. in the Godlin Lakes area in the Northwest Territories, 100 miles to the north of Summit Lake. Numerous major companies conducted work in 1973, such as COMINCO, Bethlehem Copper, Conwest and Dynasty. Dr. Clyde L. Smith, a prominent Yukon geologist, who was associated with the development of several of the Yukon deposits reports that the recognition of the GODLIN deposits as excellent examples of the world renowned, MISSISSIPPI VALLEY type deposits, has spurred activity over a 300 mile length, within a belt of open-folded and faulted Lower Palaeozoic carbonate rocks known as the MACKENZIE fold-belt. This laterly resulted in the significant finds in the Bonnet Plume region by Barrier Reef Mines Ltd.



It is believed that the Yukon and adjacent Northwest Territories is entering a period of new and highly active base metal exploration

The significant find of Barrier Reef, near the confluence of GOZ and DUO creeks, lies about 4 miles to the S.E. of the Harrv property. The news of this discovery precipitated a staking rush that resulted in the location of over 2,000 contiguous claims in a belt 35 miles long and up to five miles wide. Another significant find has been made by CYPRESS RESOURCES LTD. 10 miles to the west of Barrier Reef. This lies 3 miles S.W. of the Harrv claims group. Some 12 separate occurrences of zinc-lead mineralization have been reported in the area to date at widely separated areas within the Bonnet Plume staking belt.

GENERAL GEOLOGY

The area of the recent staking along the Bonnet Plume River is underlain mainly by closely folded rocks of probable Cambrian or earlier age. Recent mapping places them as Proterozoic image. The most widespread, and believed to be the oldest formation, is composed of reddish-brown weathering dolomite and sandy dolomite, with minor amounts of grey limestone, dark grey slate, and quartzite. The sandy, cherty or argillaceous facies stand out in relief over the dolomite facies, to produce a very rough surface. The rock is composed mostly of fine-grained dolomite. The dolomite does not react to hydrochloric acid. Some bands contain considerable proportions of dark clay, minerals, and local chert nodules. There are numerous quartz veinlets 2 to 3 inches wide.

Most rocks show irregular banding. They have a rough, sandy texture. Concretions are common.

A distinctive feature is the presence of concentric, banded, circular forms 4 to 6 inches across and up to 14 inches. Some are columnar. These are believed to be algal structures, and they appear in great numbers suggesting colonies that form bioherms.



These structures are believed to be important from the standpoint of mineral deposition and sphalerite often replaces them locally.

Within the dolomitic formation are a few beds of grey limestone, bluish grey, platy, pyritic slates, and quartzites. A banded pale-green, chloritic, limestone overlies the algal bearing dolomites in places and elsewhere a grey weathering pale grey limestone occurs. Also dark grey and black slates, associated with varying amounts of grey and white quartzite, overlie the dolomite conformably at many localities.

The thickness of this sequence of dolomites, grey limestone and slates is not known. Smith (15) states the principal lead-zinc deposits of the larger sedimentary belt known as the Selwyn Basin and Mackenzie Fold Belt fall within two distinct classes: stratiform types of marine-volcanic association (ANVIL, TOM, HOWARD PASS, FORTIN); and MISSISSIPPI VALLEY TYPE (BARRIER REEF, GODLIN, NAHANNI).

Preliminary mapping of the Barrier Reef Property Bonnet Plume area, has outlined a breccia zone of high grade Zn-Pb averaging about 20% combined metal having a strike length of greater than 1,800 feet and a width of 30-40 feet. More detailed sampling, and diamond drilling is required to assign tonnage and grade to the deposit. Extensive outcrops, containing zinc sulphides in bedded carbonate rocks, have been found elsewhere on the claims by preliminary prospecting. These outcrops represent a mineralized "belt" about 5½ miles in length according to company reports.

MINERALIZATION

Mineralization on the Barrier Reef and other properties in the area generally is comprised of light buff-colored, to reddish-brown, sphalerite in porous dolostone, with aggregates and irregular patches of crystalline quartz. Irregular patches of galena and minor quantities of possibly Jam esonite mineralization, are reported in higher grade zones.



Most of the high-grade mineralization is associated with breccia zones, but some occurs parallel to bedding planes with very little associated quartz.

Surface outcrops in mineralized areas, contain considerable secondary zinc carbonate (Smithsonite). This is readily detected by modern geochemical sprays which aids considerably in the identification of zinc bearing zones.

LOCAL GEOLOGY OF THE HARRY GROUP

No detailed mapping has been done on the property since it was staked. G.S.C. MAP 53 - 7 shows it is favorably located within the favorable zinc bearing dolostones of Proterozoic age. The rocks strike in an east-west direction and generally dip at moderate angles to the south.

Glacial ice-movement is from east to west, along and any glacial debris would originate from the east.

The nearest reported occurrence of zinc mineralization lies about 4 miles to the S.E. on the Conwest property.



CONCLUSIONS

The Harry claims group of Lion Mines Ltd.(N.P.L) lies along a belt of significant, strata-bound, lead-zinc deposits, that have recently been discovered in the Bonnet Plume River area. Insufficient exploration has been carried out yet to determine the economic potential of the area but results so far obtained in surface prospecting and sampling on the Barrier Reef property to the south-east four miles, and the Cypress Resources property to the S.W. three miles, are encouraging. The presence of extensive low-grade, zinc mineralization over strike lengths of thousands of feet; with high-grade sections above 20% zinc, is an attractive feature in the area.



RECOMMENDATIONS AND ESTIMATED COST

Detailed surface mapping and prospecting followed by diamond drilling if warranted is recommended in a two phase programme, as follows:

PHASE I

Geological survey	\$1,000.00
Prospecting and sampling	1,500.00
Camp and accomodations	500.00
Transportation	1,000.00
Contingencies and overhead	500.00

TOTAL PHASE I \$4,500.00

PHASE II

<u>Diamond drilling</u> 1,000 feet at overall cost of \$20.00 per foot	\$20,000.00
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TOTAL PHASE I & II \$24,500.00
SAY \$25,000.00

H. A. Quin



APPENDIX NO. 1

1. J.O. Wheeler - GSC Paper 53-7
A geological Reconnaissance of the Northern Selwyn Mountains
2. GSC Report of Activities 1969-1970
3. Mineral Industry Report 1969-1970 Vol. 1
4. S.L. Blusson GSC Paper 71-22
Sekwi Mountain Map Area, Yukon Territory and District of McKenzie
5. 1972 Composite Geological Map of the Yukon Territory
6. Statement of Material Facts. Barrier Reef Resources Ltd. July 24, 1973
7. Barrier Reef Resources Ltd. (N.P.L.) Report to Shareholders Nov. 23, 1973.
8. E.O. Chisholm P.Eng private report Rackla River Mines Ltd.
Yukon Territory dated March 30, 1968
9. P.W. Sevensma P.Eng report Rackla River Mines Ltd. dated Sept. 13, 1969
10. R.E. Chaplin P.Eng Report on Barrier Reef Mines Ltd. Bonnet Plume
lead-zinc Property dated Aug. 15, 1973
11. R.E. Chaplin P.Eng Report of HELI Claims Godlin Lakes Area N.W.T.
dated March 15, 1973
12. John S. Brock V.P. Welcome North Mines Ltd.,
Exploration Progress Report dated Aug. 29, 1973
13. R.E. Chaplin P.Eng Report on PAL (1-51)
Mineral claims, Bonnet Plume-Goz Creek Area Y.T. dated Aug. 15, 1973
14. R.E. Chaplin P.Eng Report on Ann 1-64 Mineral Claims
Bonnet Plume - Goz Creek Area dated Aug. 15, 1973
15. G.C. Gutrath P.Eng Report on CYPRESS Resources property Bonnet Plume
Zinc-Lead Property dated Sept. 1973
16. Clyde L. Smith Ph.D P.Eng report on Ogilvie Joint Venture dated Dec. 1973
17. A. Harman, Harman Management Ltd., personal communications

