GEOLOGICAL REPORT ON

THE BAR 1 - 40 CLAIM GROUP

BONNET PLUME RIVER AREA, YUKON TERRITORY

SHEET 106-C-10

LAT. 64°~~30~~ 35'N LONG. 132°~~30~~ 33'W

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

$16,000 16,000

D. B. Craig

Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

EDWARD O. CHISHOLM, P.ENG.

Vancouver, B.C.

June 25,1974

A. Harmon and C. Toporowski BAR.

[redacted]

Remarks:

The property is underlain by flat-lying Middle Devonian limestone and dolomite, which is overlain by black to brown shale of Upper Devonian age. Five showings have been discovered in the carbonate unit. These occur in two modes: as massive light brown resinous sphalerite replacing fragments in an algal reef, and as veinlets of sphalerite and [redacted] sparry calcite in breccia zones. [redacted]

Work consisted of prospecting, rock sampling and geological mapping. Additional geological mapping, and geochemical and I.P. surveys are recommended.

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SUMMARY

The 40 claim Bar group is located ten miles north of a new major zinc discovery in the Bonnet Plume area of the Yukon Territory, made in the summer of 1973 by Barrier Reef Resources Ltd. of Vancouver.

It is classified as a partially explored prospect underlain by Mid-Devonian dolostone containing recently discovered stratabound zinc-lead deposits. It is recommended that a staged exploration programme be carried out with a total expenditure of $50,000.00.

INTRODUCTION

This report is based on information gathered by the writer from available government and private reports on the area and personal examination of the property. It was prepared at the request of A. Harman and C. Toporowski of Vancouver, B. C., owners of the claims. The claims were examined June 28 - 30, 1974. Their location on the attached plan is approximately correct.

PROPERTY

The Bar Property comprises a rectangular block of 40 unpatented mining claims two miles long by one mile wide. They were staked on 27th March, 1974 and recorded at Mayo, Yukon Territory. Due dates are April 7 and 11, 1975. Several parts were examined and found to be staked in accordance with the Yukon Quartz Mining Act.

Name of Claims	Grant Numbers	Due Date
Bar 1 - 8	Y88096 - Y88103	April 11, 1975
Bar 9 - 40	Y88064 - Y88095	April 8, 1975

LOCATION AND ACCESS

The claims are located approximately ~~135~~ 122 miles NE of Mayo, Y.T. near the Snake River. Approximate coordinates are as follows:

LAT. 64°35' North; LONG. 132°~~30~~ 33' W, NTS Sheet 106-C-10

Access to the property is by helicopter. Fixed-wing aircraft can land on Goz Lake or Goz Creek approximately eight miles southeast of the property.

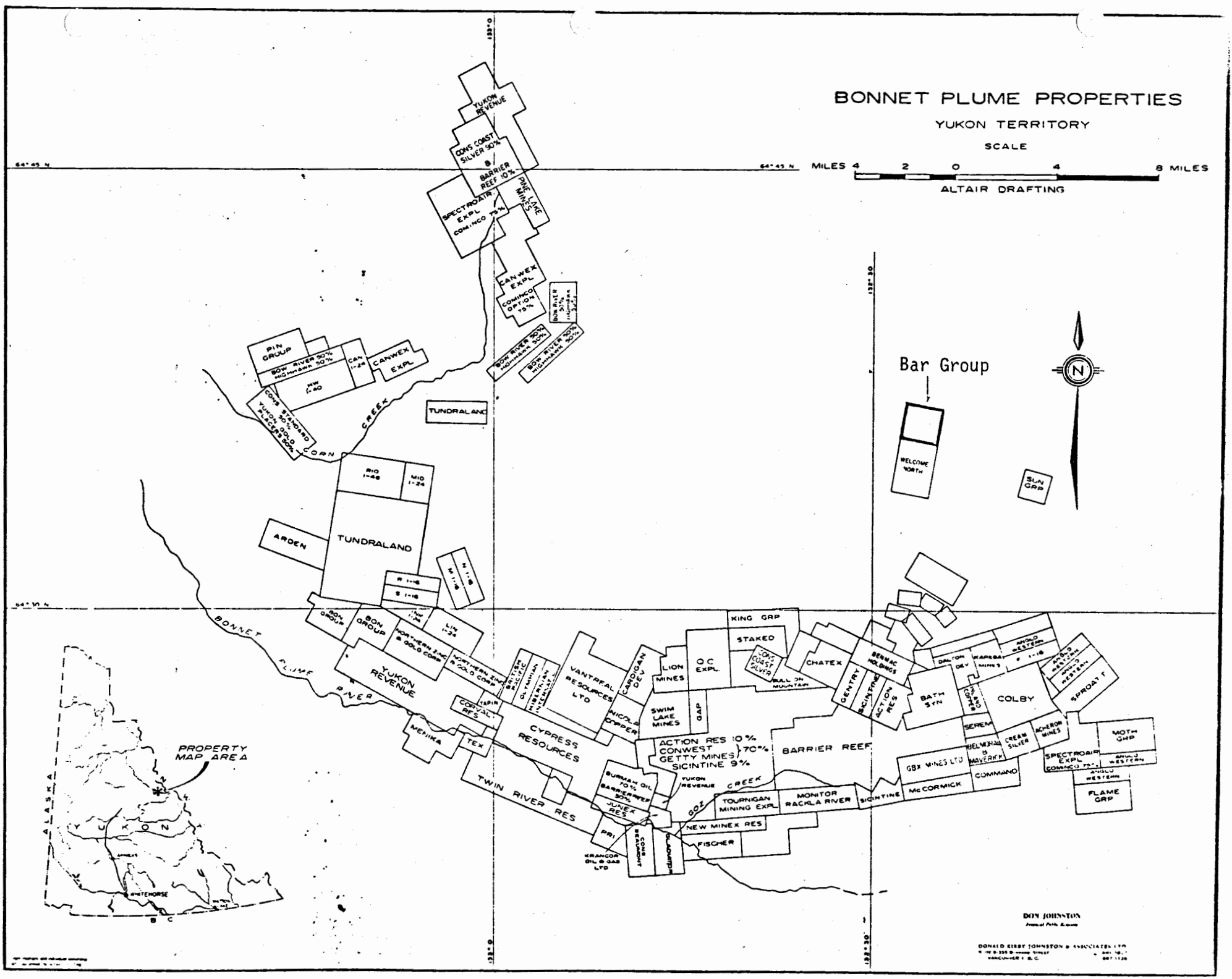
Barrier Reef Resources is constructing a winter airstrip in the Creek Valley, about ten miles south of the property. An all-weather strip suitable for DC-3 aircraft is being planned which will greatly improve operating cost in the area. A winter tote road is also planned to the area from Mayo.

The Mayo-Elsa, all-weather highway ends at Keno City, 80 miles south-west of the property. A winter caterpillar road, extends from the end of the Mayo Highway a distance of 40 miles to Kathleen Lake, about 50 miles west of the property.

TOPOGRAPHY

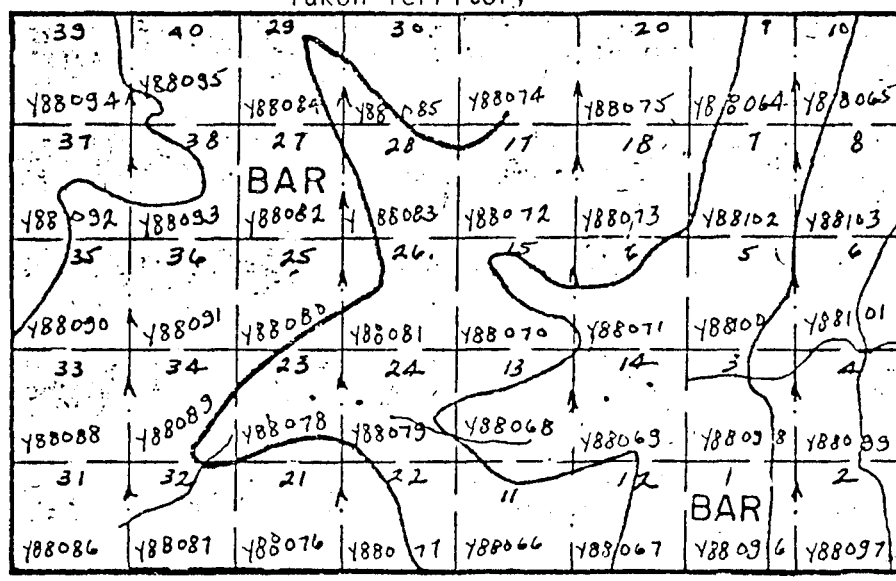
The claim group is located ten miles north of the Goz Creek at elevations from 3,000 to 5,000 feet. The topography is a moderately sloping upland plateau incised by two canyons.

The water supply in the nearby creeks is suitable for all purposes.


BONNET PLUME PROPERTIES
YUKON TERRITORY
SCALE
MILES 4 2 0 4 8 MILES
ALTAIR DRAFTING
64° 45' N
64° 30' N
132° 0
132° 30
YUKON REVENUE
CONS COAST SILVER 50% & BARRIER REEF 10%
SPECTROAIR EXPL COMINCO 75%
PINE LAKE MINES
CANWEX EXPL
COMINCO OPT. 10% 75%
BOW RIVER 50% HOMESTAKE 50%
PIN GROUP
CANWEX EXPL
CONS STANDARD YUKON GOLD 50% & 50%
CORN CREEK
TUNDRALAND
RIO 1-48
MIO 1-24
ARDEN
TUNDRALAND
BONNET PLUME RIVER
BON GROUP
LIN 1-24
NORTHERN EMPIRE GOLD CORP
BRITISH PACIFIC
OLYMPIAN
HIBERNIAN INTEREST
YUKON REVENUE
CYPRESS RESOURCES
TWIN RIVER RES
MEJIKA
TEX
TAPIN
CORVAL RES
VANTREAL RESOURCES LTD
CARIBOU DEV
NICOLA COPPER
LION MINES
OC EXPL
SWIM LAKE MINES
GAP
KING GRP
STAKED
CONS COAST SILVER
BALL JM MOUNTAIN
ACTION RES 10%
CONWEST
GETTY MINES } 70%
SICINTINE 9%
BARRIER REEF
BURMAH OIL 70% BARRIER REEF 30%
JUNEX RES
PRI
KRANCOR OIL & GAS LTD
CONS BEAUMONT
GLADSTONE
NEW MINEX RES
FISCHER
YUKON REVENUE
60¢ CREEK
TOURNIGAN MINING EXPL
MONITOR RACKLA RIVER
SICINTINE
McCORMICK
GBX MINES LTD
COMMANO
MAVERICK
CREAM SILVER
ACHERON MINES
SPECTROAIR EXPL COMINCO 75%
ANGLO WESTERN
MOTH GRP
FLAME GRP
CHATEX
BENNAC HOLDINGS
GENTRY
SCINTAR
ACTION RES
BATH SYN
DALTON DEV
WARREAU MINES
INLAND COPPER
SEREM
COLBY
SPROAT
Bar Group
WELCOME NORTH
SUN GRP
N
PROPERTY MAP AREA
ALASKA
YUKON
WHITEHORSE
B C
DON JOHNSTON
DONALD KIRBY JOHNSTON & ASSOCIATES LTD

CLAIM MAP OF BAR 1-40 CLAIMS

Portion of 106-C-10
Yukon Territory



Scale ½ mile to 1 inch

E. O. CHISHOLM, M.A., P.ENG.
CONSULTING GEOLOGIST

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 discoverd 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 Prospector 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 Ordivician 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 ten miles to the south of the Bar 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. ten miles to the west of Barrier Reef. Some twelve separate occurrences of zinc-lead mineralization have been reported in the area to date at widely separated areas within the Bonnet Plume staking belt. Six additional occurrences of sphalerite mineralization in flat lying mid-Devonian dolostone and limestone have recently been found on the Bar claims.

GENERAL GEOLOGY

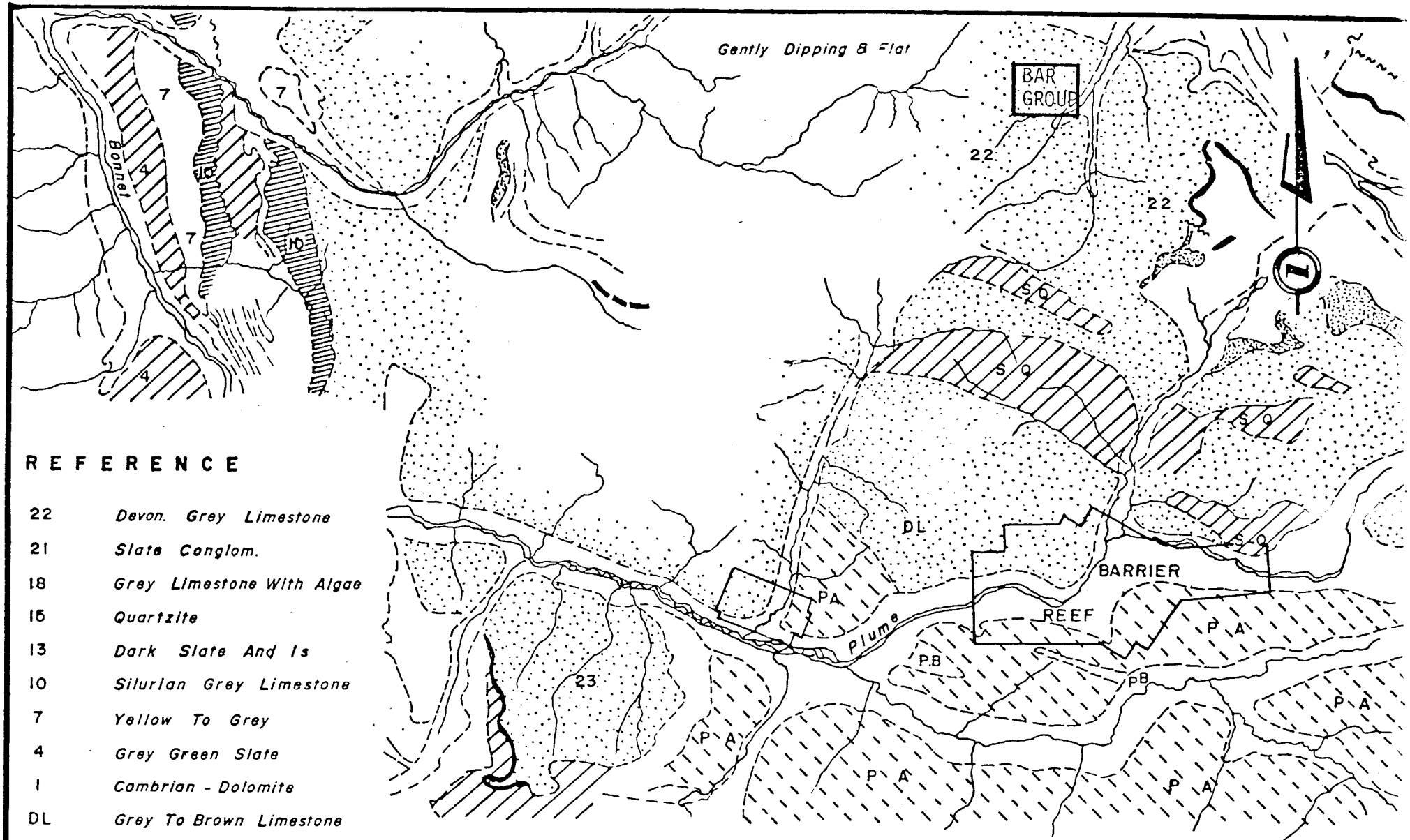
The area of the recent staking along the Bonnet Plume River is underlain by closely folded rocks of probable Cambrian or earlier age. Recent mapping places them as Proterozoic in age. The most widespread and believed to be the oldest formation, is composed of reddish-brown weathering dolomite and sandy 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 thick. 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, platey, 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.



REFERENCE

22	*Devon. Grey Limestone*
21	*Slate Conglom.*
18	*Grey Limestone With Algae*
16	*Quartzite*
13	*Dark Slate And Is*
10	*Silurian Grey Limestone*
7	*Yellow To Grey*
4	*Grey Green Slate*
1	*Cambrian - Dolomite*
DL	*Grey To Brown Limestone*
SQ	*Brown Slate & Quartzite*
PA	*Grey Green Slate*
PB	*Grey Limestone*

Geology From G.S.C. Map 53-7

BAR CLAIMS

Scale: 1 inch = 4 miles

AXTEN DRAFTING ' LIMITED

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 $5\frac{1}{2}$ 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 galena and minor quantities of possibly Jamesonite 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.

GENERAL DISCUSSION OF GEOLOGY ON BAR CLAIMS:

The Bar Group claims are underlain by a flat-lying pile of Middle Devonian limestone and dolomite sediments. Their age has been definitely determined by the identification of the presence of mid-Devonian brachiopod fossils in dark grey limestone beds overlying a biotherm algal deposit in which the sphalerite replacement occurs. The limestone unit is exposed over a vertical height of at least 200 feet in bluffs along the east border of the claims and on the walls of a north-south creek crossing the claims from east to west. The unit is quite regular to the south and east but shows thrust faulting and attitude change to the north.

The unit is overlain by black to brown shale, locally well shattered. It forms rounded hummocks up to 500 feet or so in height. It may be Upper Devonian in age. The sequence of Devonian limestone and dolomites, overlain by black shales, resembles the Upper Devonian shale/mid-Devonian limestone/unit of the Pine Point area, well known for the prolific lead-zinc deposits within the Presqu'ile sediments.

The presence of algal reef fragments replaced by massive sphalerite in colloform structures, also characteristic of the Pine Point deposits, supports this view.

The claim group is located on a gently sloping upland, plateau for the most part, on which rounded hills of upper black shale provide the principal topographic relief.

The plateau is incised at the edges by creek canyons that lead into the main north-south tributary of the Snake River

that borders the property on the east. The mineralized showings found to date, are on the gently sloping limestone shelf within a few feet of surface. Since there are large areas of flat-lying limestone bare of overburden, the prospecting is easier than normal and frequent patches of sphalerite mineralization occur across the claims group on surface. These provide a unique situation for exploration and future development.

The mineralization so far encountered occurs in two principal modes:

1) Massive light-brown resinous sphalerite often in colloform masses up to two inches in thickness, replacing fragments of algae from a bioherm reef.

2) Veinlets and intergrowths of resinous sphalerite and white, coarse grained calcite in brecciated zones. Sphalerite often makes up to 50 percent of the zone. Galena is sparingly present but no pyrite.

In the discovery zone on claim Bar 10 both types of occurrence are present. These modes of occurrence resemble the main deposit at the Barrier Reef property ten miles to the south although they occur there in dolostones of Proterozoic age stratigraphically much lower than the Bar group.

In many respects the occurrence of the Barrier Reef and Bar Group stratigraphic deposits resemble those of such well known lead-zinc fields as the Tristate deposits in the Mississippi Valley, Pine Point, and elsewhere; and warrant careful detailed exploration.

A possible explanation for the formation of this type

of occurrence in carbonate basins has been recently proposed by A. R. Renfro in an article in ECONOMIC GEOLOGY, Vol. 59, 1974, pp. 33-45. As an aid to identification of similar conditions, it is quoted as follows:

" GENESIS OF EVAPORITE-ASSOCIATED STRATIFORM METALLIFEROUS DEPOSITS - A SABKHA PROCESS

A. R. Renfro

Abstract

Stratiform metalliferous deposits underlain by continental red beds or other oxidized strata and overlain by evaporites account for approximately thirty percent of the world's copper production. The origin of such deposits, including those in the Kupferschiefer of Germany and the Roan of Zambia and Rhodesia, long has been a controversy that defies explanation by traditional means. Recently discovered sedimentary and geochemical processes of coastal sabkhas provide the foundation for a hypothesis that successfully explains the genesis of these deposits.

Coastal sabkhas are evaporite flats that form along the subaerial landward margins of regressive seas. Because of their unique position, coastal sabkhas are nourished by subsurface flow of landward migrating, low Eh-high pH sea water and by seaward-migrating, high Eh-low pH terrestrial water. Commonly they are bordered on the seaward by intertidal mudflats and lagoons that are carpeted by leather-like mats of sediment-binding, blue-green algae. Fetid ooze consisting of interbedded decaying algae and detrital sediment occurs immediately beneath the living algal mat. On the landward side, the coastal sabkhas give way to, and initially rest on, sterile, oxygenated desert sediments.

Coastal sabkhas and their related evaporite facies prograde seaward across adjacent algal-mat facies. Upon burial the algal-mat facies become saturated with hydrogen sulfide generated by anaerobic bacteria. Concurrently, the trailing, landward edges of coastal sabkhas are buried by prograding terrigenous clastics of the desert. As sabkhas migrate basinward, terrestrial-formation water

" eventually must pass upward through the buried, strongly reducing algal mat in order to reach the surface of evaporation.

Terrestrial-formation water initially has low pH and high Eh and thus can mobilize and transport trace amounts of such elements as copper, silver, lead, and zinc. As terrestrial-formation water passes through the hydrogen sulfide-charged algal mat, its load of solute metals is reduced and precipitated interstitially as sulfides. Resulting metal deposits generally are conformable to the geometry of hydrogen sulfide-bearing host strata. Such deposits contain suites of metals that are zoned from landward to seaward according to their relative solubilities in the presence of hydrogen sulfide. These deposits are underlain by oxidized continental strata and are overlain by dolomite, gypsum, anhydrite, and/or halite. Grade and size of the deposits are dependent upon:

(1) quantity of available reductant, (2) duration of the sabkha process, and (3) quantity and chemistry of the metal-bearing, terrestrial water. "

Identification of the reef structures themselves in the sedimentary sequences is a requisite for further exploration and once it has been identified, careful prospecting within it for sphalerite replacements should follow. This is greatly facilitated by equipping prospectors with the new dithizone sprays that immediately identify zinc-oxide coatings on the rocks. Since pyrite is absent, gossans in the dolostones are rare, and the sphalerite is difficult to identify by eye. It has remained undetected in this area until the modern geochemical methods were used. Placing the field geochemical sprays in the hands of the prospecting personnel themselves; and guiding them to the correct geological environment will continue to turn up many new deposits of zinc in the vast carbonate basin sequence of the Bonnet Plume River and surrounding areas.

The flatness of the limestone beds on the Bar group do not indicate as a whole any apparent structural disturbances of

the beds. However, the large thrust fault on the north side of the group may have caused pressure on the block and subjected it to compressive stresses that opened up later tensional fracturing which provided channel ways for ore solutions. The overlying black shales may be the source beds from which percolating surface water brought the zinc ions into the reef areas where they were precipitated by sulphides generated from algal decomposition, In which case the contact between the shales and the underlying limestone would be good areas to search in detail.

Although the massive sphalerite itself is a poor conductor, there is locally enough galena present to warrant the use of the induced polarization geophysical method in the search for ore deposits. Frequency tests were carried out on a well mineralized specimen of sphalerite containing less than 1% galena and no pyrite. A rating of 100 units was obtained. This compares with 300 units on a similar test of good conductive rock from another area. The I.P. method could thus be of value in searching for ore deposits.

DESCRIPTION OF SHOWINGS ON THE BAR GROUP:

1) Claim Bar 10:

An occurrence of high grade sphalerite in a bioherm reef structure associated with a breccia zone was sampled on claim Bar 10 on two parallel east-west lines 300 feet apart. The results were as follows:

Line 1 (E-W Surface)

From 50 - 100 assayed 21.54% Zinc over 50'
0 - 50 assayed 3.76% Zinc over 50'

Line 2 (300' North of Line 1) (Surface)

From 0 - 50' assayed 12.96% Zinc over 50'

50 - 100' assayed 17.34% Zinc over 50'

The samples taken were equal sized chips of surface rock approximately 1 inch in diameter at 1 foot intervals along the sample lines. Each 50 foot sample weighed approximately 10 lbs. and contained considerable light-brown sphalerite in calcite limestone matrix.

The true thickness of the mineralized bed was difficult to determine because of the gentle 10^{o} surface slope, but appeared to be in the order of 20 feet. The zinc oxide Smithsonite often forms coatings on the sphalerite. The length of the showing is about 500 feet. The dip appears flat. The outcrop is light grey hackly limestone with a brecciated appearance caused by a network of sphalerite and calcite filled fractures. Individual stringers of sphalerite up to 1 inch wide were noted.

No. 2 Claim Bar 19 (approx. 1,000 feet W of No. 1)

A 25 lb. float of massive galena sphalerite assayed 47.8% lead; 26.7% zinc.

No. 3 Claim Bar 4 (4,600 feet South of No. 1)

A representative bulk sample of 10 lb of mineralized sphalerite-calcite breccia taken along a length of 25 feet assayed 21.9% Zinc. The width of the mineralized bed is not ~~brown~~ known exactly but is estimated to be 12 feet in true width.

No. 4 Claim Bar 1 (4,600 feet approx. South and East of No. 1)

A random grab sample of 10 lb. of talus material containing sphalerite, exposed on a small slide 45 feet in diameter, assayed 28.9% Zinc. The source is nearby but not exposed.

No. 5 Claim Bar 1 (near No. 4)

A canyon wall exposes a brecciated zone in the limestone, filled with coarse calcite. Coarse disseminated sphalerite was noted over a vertical width of 12 feet in a flat-lying limestone bed.

A traverse at N15°E was made a distance of 4,600 feet from showing No. 4 to showing No. 1. The rock exposed was mainly flat-lying grey limestone in which mid-Devonian fossils were noted locally. Showings were noted as follows:

At 130 feet. Outcrop of black limestone containing some brachiopod fossils and disseminated sphalerite.

At 260 feet. Outcrop of grey limestone - 10 feet in diameter with good grade sphalerite in fossil bed of mid-Devonian brachiopods.

At 330 feet. Small outcrop of grey limestone, 20 ft. x 3 ft. containing 5 to 10% sphalerite.

At 460 feet. Grey hackly limestone outcrop of small size containing heavy sphalerite.

From 460 - 1,100 feet. Mostly grey limestone with occasional local occurrence of disseminated sphalerite in calcite veinlets. No continuous beds containing sphalerite like the No. 1 showing were noted.

From 1,100 - 1,500 feet. Shallow overburden.

At 1,600 feet. Creek gorge with flat lying limestone walls. Zinc oxide noted in fractures in limestone.

From 1,600 - 1,700 feet. Grey limestone, no zinc noted.

At 1,700 feet. Face of flat-lying limestone 25 feet high showing considerable secondary zinc and disseminated sphalerite. The mineralized bed here is from 15 to 20 feet thick and more or less continues for several hundred feet. A push-up in this locality, 25 ft. x 3 to 4 ft., exhibits heavy sphalerites.

From 1,700 to 4,600 ft. The flat-lying limestone is more or less continued and no sphalerite was noted on surface with the exception of one location at 3,700 feet where a solution cavity 8' x 3' x 12' deep shows heavy sphalerite on the wall over a width of 5 to 10 feet.

At 4,600 feet. Showing No. 1 described above.

CONCLUSIONS & RECOMMENDATIONS:

The start of the traverse at Showing No. 3 is 200 feet above the end of the traverse at Showing No. 1. Visual evidence shows that the limestone pile contains a series of sphalerite bearing strata that appear as flat-lying exposures at various locations over a 4,500 foot horizontal distance. Careful topographic and geological mapping is needed to evaluate their continuity, extent and significances. From the extensive lateral and vertical spread of individual high grade showings however it is apparent that a significant stratiform zinc discovery in favorable Middle Devonian limestone-dolomite sediments has been discovered. The most important zinc bearing bed is a hackly surfaced grey dolomitic limestone that is flat-lying or dips gently east. This horizon contains collapse breccia zones and bioherm reef structures that have replacements of heavy calcite containing light brown sphalerite with minor galena. Local concentrations of economic grade material averaging 15 to 20% zinc are present. The mineralized beds vary from 12 to 25 feet in thickness and lengths up to 500 feet have been indicated. Continuity between

various showings has not yet been established. The possibility of finding a substantial strata-bound lead-zinc deposit on the property is considered excellent and a detailed exploration program including topographic, geological, geochemical and geophysical survey followed by trenching and diamond drilling is recommended immediately. The cost is estimated at $50,000.00. The program could be completed this season in two months.

ESTIMATED COST:

An initial exploration programme is warranted on the claims, totalling $50,000 as follows:

Phase I:

Line cutting - 40 miles	$ 4,000.00
Geological Survey	2,500.00
Geochemical Survey	4,000.00
Induced Polarization Survey	4,500.00
Prospecting and Trenching	2,000.00
Helicopter - 20 hours @ $200	4,000.00
Fixed Wing	2,000.00
Camp and Supplies	2,000.00
Assay	2,000.00
Supervision and Consulting	5,000.00
Contingencies @ 20%	6,000.00
Total Phase I	$38,000.00

Phase II:

Winkie Diamond Drilling 2,000 feet @ $6.00/foot	12,000.00
Total Phases I & II	$50,000.00

Respectfully submitted,

E.O. Chisholm, M.A., P.Eng.
Vancouver, B.C.
June 25, 1974

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA E. O. CHISHOLM

CERTIFICATE

I, Edward O. Chisholm, of the City of Vancouver in the Province of British Columbia, hereby certify that:

1) I am a geologist with offices at 821-602 West Hastings Street, Vancouver, B. C.

2) I am a graduate of the University of Toronto, Ontario, Master of Arts, 1945.

3) I am a member of the Professional Engineers of Ontario and British Columbia.

4) I have no direct or indirect interest in the Bar Group property.

5) Permission is granted for submission of the report to the Vancouver Stock Exchange.

6) This report is based on my personal visit to the area and published geological literature.

DATED at Vancouver, British Columbia this 4th day of July, 1974.

EDWARD O. CHISHOLM, P.ENG.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
E. O. CHISHOLM

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, Yukon Territory 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.

HARMAN EXPLORATIONS LIMITED
821-602 West Hastings St.
Vancouver, B.C.

August 27,1974.

Work contracted for

Canorex Developments Ltd.
821-602 West Hastings Street
Vancouver, B.C.

From April 8th to Sept.15th 1974
Attention: Mr. E.O. Chisholm, President

INVOICE: PER geologic consultant services of Chuck Ikona as outlined below (please see atached invoices of Pamicon):

June 21	property examination of Bar Group & scetch	1.0 days
July 3	property examination of Bar Group with Brinco personnel (Barry McHaley & Niel Westenphel)	1.0 days
July 10 & 11	property examination of Bar Group with New Jersey Zinc (Fred Main)	2.0 days
July 17	property examination of Bar Group with Amoco (Colin Harivel) and St. Joe Lead Corp.	1.0 days
July 19	property examination of Bar Group with W.G. Grace Ltd	1.0 days
July 26	property examination of Bar Gropp with Cypress Resources Ltd (Glen Simpson)	1.0 days
July 27	property examination of Bar Group with IMC	1.0 days
Auby 2	property examination of Bar Group with Conwest	1.0 days
August 3	property examination of Bar Group with Brinco	1.0 days
August 7	property examination of Bar Group with Cominco	1.0 days
	TO charge you with 11 days at a daily rate of $ 110/day	$ 1,100.00
	TO charge you with related camp costs (meals and other camp costs at a daily rate of $ 10/man/day for Ikona	110.00
	at a daily rate of$ 10/man/day for guests	110.00
TOTAL on account:		$ 1,320.00

Note: helicopter charges not included.
terms: payment upon receipt of same.

Appendix No. 2

Staement of Personnel , dates and cost summary re Bar Group1-40 Y.T.

Harman Explorations Ltd.,
821-602 West Hastings St.,
Vancouver, B.C.

Work contracted for
Canorex Development Ltd.,
821-602 West Hastings St.,
Vanoouver, B.C.
Work carried out between the dates April 8th to Sept. 15th 1974

Invoice: Per work program on Bar Mineral Claim Group as follows:

A) Re-Staking & Calim Survey

- M. Brodribb & J. Toporowski (Prospectors)
  12 man days

- B. Yorston, A. Fabbro
  K. Milledge, August 19 - 22 (Prospectors)
  12 man days

B. Yorston (Geologist)	$ 240.00	
Crew ($30/man/day)	600.00	
Camp Costs ($10/man/day)	240.00	
Field Equp Expense ($7/man/day)	168.00	$ 1,248.00

B) Trenching:

- Ace Explosives	14281	$ 47.24	
	14224	132.00	
	9875	134.59	313.83
- Drill Steel - Northern Metalic 70188			57.43
- Drill Rental 10 days at 55/day			550.00
- Crew H. Buczko Contract			1,250.00
M. Brodribb & K. Milledge 10 days			300.00

- Camp Costs	$ 200.00	
- Field Equip Expense ($4.00/man/day)	80.00	
- Buczko Expenses incurred to line up drill program	341.23	
- Yukon Air 2484	321.50	
Yukon Air 2488	205.75	$ 3,619.74

C) Mapping

B. Yorston	August 23 - 30	480.00	
A. Fabbro	August 23 - 30	240.00	
J. Toporowski	18 days	540.00	
M. Brodribb	18 days	540.00	
Camp Costs	($10/man/day)	520.00	
Equip Expense	($7 / man/ day)	364.00	2,684.00

D) Property Examinations

- C. Ikona and related expenses (Miming Engineer) per invoice enclosed 1,320.00

E) Fixed Wing Flying - E. O. Chisholm (ConsultingGeologist) and C. Toporowski

Yukon Air Charter Tickets:

2480	411.50	
2482	240.00	
2487	475.25	
2490	240.00	
2493	217.75	
2569	401.50	1,986.00

G) Helicopter CGHFA

Charter Tickets		
275815	$ 378.10	
275819	597.00	
275820	437.80	
275626	358.20	
275624	179.10	
275620	59.70	
275835	636.80	
275833	616.90	
275822	398.00	
275821	398.00	
275832	318.40	
June flying for John Toporowski and Brodribb (est.)	790.00	$ 5,168.00

H) Pro Rata General Expenses Per Mineral Claim Group (40/700) 2,428.46

I) Rece Program in Bar Group adjoining Mineral Claim Groups:

B. Yorston	July 29 - Aug 18	1,260.00	
A. Fabbro	July 29 - Aug 18	630.00	
Camp Costs	Aug 1 - 18	360.00	
Field Equip Expense	Aug 1 - 18	252.00	2,502.00

J) Harman Explorations Management Fee (15%) 3,126.00

TOTAL EXPENDITURES 23,697.09

Note

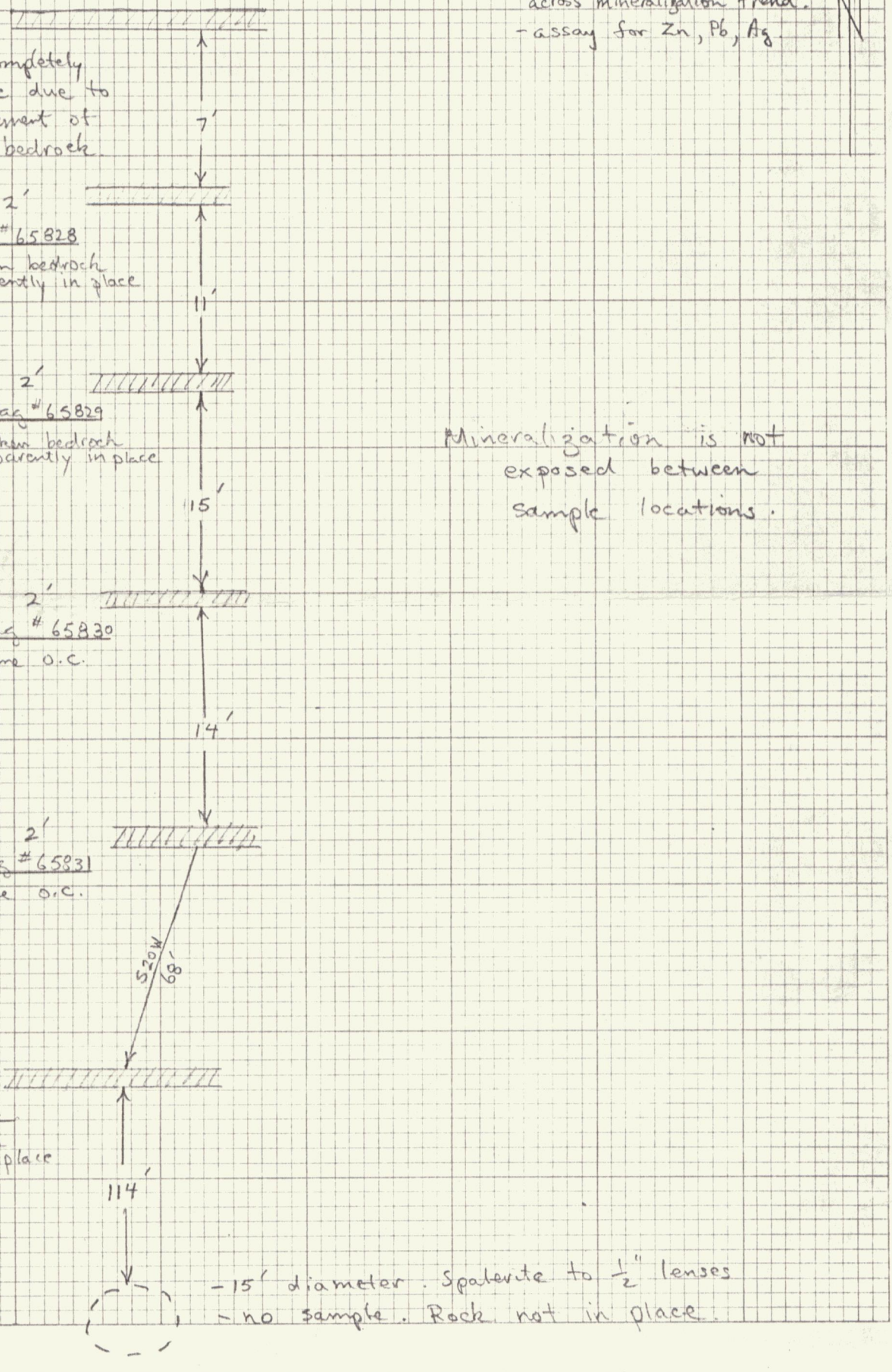
Items H and J are ca mp costs.

Bar Group Sample Map

Zone #2 Showing

Location 1000' south from Post #1 Bar 7+8

- Trend of mineralization is N-S
- continuous chip sampling across mineralization trend.
- assay for Zn, Pb, Ag.



Mineralization is not exposed between sample locations.

T.C.

ALGAL

R10

BAR

MIKE

ZONE 1

ZONE 3

64°-35'N

132°-35'W

T. N.

GEOLOGICAL PLAN BAR GROUP
Canorex Development Ltd.
Snake River Area Y.T.
Mayo Mining Division

Mapping control from expanded Aerial Photo No.20694-191 National Air Photo Library

aided by tape and compass survey of claims.

Mapping scale approx. 800 ft. to 1 inch

TABLE OF FORMATIONS

DMs--Devonian Besa River shale and siltstone
SDc--Devonian limestone and dolomite, well bedded flat lying, grey in color.

TRENCH MAP

Bar Group Claim #10

ZONE 1

Post 2
#10

970'

S60E

Trench #4
Avg depth 1'

1 2 3 4

Assay tag 1-4

Trench #5
Avg depth 18"

5 6 7

Assay tag 5-7

152'

Trench #1
Avg depth 1'

Assay tag
65833 - 34

65833 65834

45°

Trench #6
not sampled

150'

100'

Trench #2
Avg. depth 2'

Assay tag
65835 - 65843

65835

65843

galena

65844

65850

Trench #3
Avg. depth 18"

Assay tag
65844 - 65850

A ☐ light grey, fine grained dolostone

B ▨ milk white, coarse grained calcite often containing secondary zinc

C ▩ sphalerite, minor galena

N

1" = 10'