COMINCO LTD.

EXPLORATION

NTS: 116A/12

WESTERN DISTRICT

ASSESSMENT REPORT

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE BOYLE GROUP OF MINERAL CLAIMS

SITUATED AT 137°40' Long., 64°37' Lat.

MAYO M.D., YUKON TERRITORY


JUNE 1982

E.G. OLFERET
This report has been examined by
the Geological Evaluation Unit
under Section 53 [4] Yukon Quartz
Mining Act and is allowed as
representative work in the amount
of $4,000.

Regiona Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.
TABLE OF CONTENTS

INTRODUCTION. ........................................ 1
LOCATION AND ACCESS ............................. 1
SUMMARY ............................................. 1
FIELD PROCEDURES. ................................. 2
GEOLOGY .............................................. 2
MINERALIZATION .................................... 2
GEOCHEMISTRY ..................................... 3
CONCLUSIONS AND INTERPRETATION OF RESULTS ... 3

ATTACHMENTS

STATEMENT OF EXPENDITURES

STATEMENT OF QUALIFICATIONS

1. Location Map
2. Claim Map
3. Geological Map
4. Geochem Map Pb/Zn/Ba
INTRODUCTION

The BOYLE CLAIMS were staked in August 1981 to cover an area containing laminated stratiform barite mineralization in outcrop and talus float. The host rocks consist of black silty mudstones, shales and volcanics of the Ord./Sil. Road River Formation which trend east-west across the property.

This report is based on field work done between August 20-30, 1982 on the property and regional work done at the same time outside of the claim group. The aim of this field study was to investigate the nature of the barite mineralization and location of associated base-metal Pb/Zn sulphides.

Personnel involved in field work on the property include:

Bill Kiesman 6 days
Dan Brodsky 1 day
Bruno Wiskel 1 day
Jerry Blackwell ½ day
E. Olfert ½ day plus 1 day report writing

LOCATION AND ACCESS

The BOYLE claims are located on the West Hart River, 21 miles east of the Dempster Highway and approximately 150 miles NW of Mayo.

The claims lie within the Mayo Mining District and are located at 137° 40' Long. and 64°37' Lat. Access is by helicopter from Dawson City. The old winter road to Hart River mines runs along the West Hart River within a mile of the claim group.

SUMMARY

Significant beds of stratiform barite mineralization up to 12 m thick were discovered on this property within graptolitic shales and mudstones.
of the Road River Formation. The best mineralized occurrence was sampled and returned 32% BaSO₄ across 7 meters. No Pb/Zn sulphides were found associated with the barite; pyrite mineralization was found in this stratigraphic section in the creek bed approximately 500 meters west of the above sampled barite occurrence.

FIELD PROCEDURES

Mapping was conducted on a scale of 1:10,000 using pace and compass and altimeter for control. Soil sampling was done on 25 meter intervals along 4 north-south lines across the favourable stratigraphy in unit 5. All streams and tributaries were silt sampled. Rock sampling was conducted where mineralization was suspected. The best mineralized outcrop occurrence was chip sampled across a width of 12.5 meters.

GEOLOGY

The claims are underlain by a thick sequence 500-1000 meters of grapto- lithic shale, silty mudstones and basic volcanics of the Road River Fm. structurally bounded by two sections of massive grey Cambro-Ordovician carbonates. Because of the structural complexity on the claim group, being near the Dawson thrust, the stratigraphic relationships between the various units are unclear; however, from a regional interpretation the stratigraphic relationships are as follows:

Unit 1 and 2 Carbonates are a shelf assemblage of Cambro-Ord. age.  
Unit 3 to 8 are a basinal assemblage of Cambrian to Silurian age which have been thrusted and folded into the shelf assemblage units 1 and 2.

The basin assemblage consists of the following: the lowest stratigraphic unit (Unit 8) consists of several hundred meters of intermediate to basic volcanic flows containing amygdules and pillow-structures. The volcanics are overlain by black calcareous shales and mudstones containing biserial graptolites (Units 3, 4, 7). This is further overlain by a thick sequence of silty siliceous cherty grey weathering mudstones 300-500? meters thick which hosts the barite mineralization (Unit 5). The top of the sequence (Unit 6) consists of green, brown to orange weathering flaggy mudstone, minor sandstone and basalt. Units 3-7 belong to the Road River Formation.

The regional DAWSON THRUST forms the contact between the shelf carbonates and basal shales and volcanics along the northern edge of the property. Enechelon thrusts and associated drag-folds occur further south on the property and explain the repeated section of volcanics and carbonates.

MINERALIZATION

Laminated stratiform barite occurs intermittently within a cherty, silty, grey mudstone 300-500 meters thick (Unit 5). The most significant barite horizon was chip sampled and returned 32% BaSO₄ across 7 m. Barite mineralization was found along strike in this stratigraphic horizon at
many locations along the whole length of the claim group but usually as float occurrences. One outcrop occurrence about one kilometer west of the above Main showing was sampled and returned 33% Ba or 53% BaSO₄ across 0.5 meters. No Pb/Zn sulphides were found associated with the barite mineralization. Hydrozincte staining was found without sulphides in black graptolitic shales of Unit 7. Pyrite was found in shears and fractures in the creek bed about ½ km west of the Main Showing.

GEOCHEMISTRY

A total of 125 soil, rock, and silt samples were collected and analyzed for Pb, Zn, Ba; about half of the samples were analyzed for Cu and Ag as well. Results of some of the sampling outside the claim group have also been plotted for sake of completeness.

Soil-lines 1 and 2 indicate a barite soil anomaly approximately 400-500 meters wide on line 1 narrowing to about 200 meters wide on line 2. Anomalous Ba values range from 3000 ppm to over 1%. This anomaly is open to the east and partly open to the west, north of line 3. Smaller Ba anomalies occur near the south end of line 2, line 3 and along line 4.

Pb and Zn soil anomalies are much more erratic than Ba anomalies and usually restricted to one or two sample anomalies except along line 2, where several larger Zn anomalies are located. No coincident anomalous Pb values occur with the Zn anomalies on line 2. Anomalous values for Pb and Zn in soils and silts are estimated to be 50 and 1000 ppm respectively. The highest Pb value in soils occurs near the north end of line 1 near the Main Showing; the highest Zn values occur in the middle of line 2.

CONCLUSIONS AND INTERPRETATION OF RESULTS

A large Ba geochem anomaly overlies the main showing area and extends at least 500 meters west. This anomaly reflects stratiform barite mineralization in bedrock and is open at both ends. Prospecting and mapping indicate that the stratiform barite at the main showing extends along the full length of the property, a distance of 3-4 kilometers. Higher grade economic sections may occur along strike from the main showing. Prospecting and mapping did not locate any visible Pb/Zn sulphides associated with the barite. Minor Pb and Zn geochem anomalies appear to be erratically associated with the barite but no significant target areas have been located.

Report by:
E.G. Olfert, Geologist

Distribution
Mining Recorder (2)
Western District (1)
EGO

Endorsed by:
A.B. Mawer, Senior Geologist

Approved for Release by:
G. Harden, Manager
EGO/skm Exploration, Western District
## Statement of Expenditures

**Boyle Property, Mayo M.D., Y.T.**

**August 1, 1981 to May 31, 1982**

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Cominco Ltd.
Vancouver Office
June 10th, 1982

Copies: S. S. Selke, Senior Technician
E. G. Olbert, Geologist III
File

R. L. Woods
Supervisor, Exploration Accounting
STATEMENT OF QUALIFICATIONS

I, Ernest Olfert with business address at 409 Granville Street, Vancouver, British Columbia, do hereby certify that I have supervised the field work and have assessed and interpreted the data resulting from this geological and geochemical survey on the Clip mineral claims.

I also certify that:

1. I am a graduate of University of Calgary, Alberta, B.Sc. Honours Geology;

2. I have engaged in mineral exploration since graduation.

Respectfully submitted:

[Signature]

ERNEST G. OLFTER

Ernest Olfert was responsible for supervising the geological and geochemical survey described herein. Mr. Olfert received his B.Sc. degree in Honours Geology from the University of Calgary in 1970. He has worked for Cominco Ltd. for 12 summer field seasons and has been a permanent employee since December 1, 1971. I consider him a competent geologist.

Signed by:

[Signature]

G. HARDEN, Manager
Exploration
Western District
LITHOLOGICAL LEGEND

SEDIMENTARY ROCKS
1. Dolomite, massive, sbarite, bioclastic (uniaxial crinoid ossicles) white to gray
2. Dolomite, massive to thinly bedded to laminated, cross bedded to cross laminated vuggy, unlusserilous, buff to gray
3. Mudstone, silty, black, gray weathering
4. Mudstone, silty, black, calcareous, locally fissilferous (biotite) graptolitic buff weathering
5. Mudstone, silty to siliceous, thinly bedded to laminated, locally hosting stratiform barite withersite mineralization, gray weathering
6. Mudstone, silty, green, locally interbedded with quartzite, well sorted, thinly bedded (flaggy) and rare calcarenite
7. Mudstone, siliceous, intensely fractured, abundant hydrozincite, black, gray weathering

EXTRUSIVE ROCKS
8. Volcanic, intermediate, pillowd, massive, vesicular, amygdaloidal, abundant coarse crystalline calcite filling pillow interiors and amygdaloids

SYMBOLS
- Outcrop boundaries
- Geologic contacts, defined, assumed
- Strike, amount of dip
- Thrust fault
- Claim post, boundary limits
- Fossil locality

SCALE

MINERAL OCCURRENCES
ba = barite
wth = witherite
py = pyrite

BOYLE PROPERTY

GEOLOGY
SOIL LINE
GEOCHEMISTRY

MAP OF MAIN SHOWING

SPOILS AND S. M.

- 750 ppm Pb
- 2000 ppm Ag
- 7000 ppm Ag

VALUES

ROADS
- 750 ppm Pb
- 2000 ppm Ag
- 7500 ppm Ag

SYMBOLS

- 750 ppm Pb
- 2000 ppm Ag
- 7000 ppm Ag
- 7500 ppm Ag

SCALE

0 - 1000 metres