5436

COMINCO LTD.

EXPLORATION DIVISION WESTERN DISTRICT

82G/11W & 12E

REPORT OF GEOCHEMICAL SURVEY
ON THE CEDAR EXTN. GROUP
FORT STEELE MINING DIVISION
LAT. 49° 44' - LONG. 115° 29'
N.T.S. 82G/11 & 82G/12

Report by

D.L. Pighin

Exploration Technician

COMINCO LTD.

Kootenay Exploration

Cranbrook, B.C.

under the supervision of

D.W. Heddle, P. Eng.

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1. SUMMARY:

The Cedar Extn. Group is located in the Fort Steele Mining District and consists of 34 full-sized claims, two fractions and and Mineral Lease 50.

A geochemical soil survey was conducted during July and August of 1974 over Cedar Group Extn. claims, New Cor 7, 5, and 4, Cor 1 and 2, L3535 and Cedar Extn. 5, 7, 9, 10, 11, and 13. Three separate soil sampling geochemical grids, were completed namely, the Coronado, Wallinger and Boulder grids. A total of 1020 samples were taken and assayed P.P.M. for lead, zinc and copper. Interesting lead and zinc anomalies were discovered on the Boulder and Wallinger grids.

2. INTRODUCTION:

a) Status of Ownership:

The claims that compose the Cedar Extn. Group are owned jointly, on a 50/50 basis by E. J. Frost of Fort Steele, B. C. and D. L. Pighin of Cranbrook, B.C. The operator, Cominco Ltd., entered into an Option to Purchase Agreement with the owners, on the 22 day of December, 1972.

b) Location and Accessibility:

The Cedar Group consists of 44 full-sized claims, two fractions and a 114.8 acre mineral lease. The claims are some 25 miles northeast of Cranbrook, B. C. They are located east of the Wild Horse River, between the drainage of the East Wild Horse River on the north and the Boulder Creek drainage on the south.

Access to the northern end of the property is gained by a good logging road that extends 11 miles up the west side of the Wild Horse River, to the confluence of the East Wild Horse River. A system of 4-wheel drive roads is developed within the drainage of the East Wild Horse River, thereby providing extensive but rough access to the northern portion of the Cedar Group. Access to the southern end of the property is by an old logging road that begins at Pighins Ranch. From there it extends some eight miles along the east side of the Wild Horse River and ends in the Boulder Creek drainage. From the end of this road a steep 4-wheel drive road extends a further two miles to the southern boundary of the property. Although there is no road access within the southern portion of the property, any point therein is accessible to daily traverses.

c) General Character of the Area:

The Cedar claims cover a section of steep mountainous terrain that forms part of the divide between the Wild Horse River and Bull River drainages. Elevations range from 4,200 feet to 8,421 feet above sea level. Outcrop generally is abundant above 6,000 feet of elevation and normally produces a precipitous terrain. The slopes are steep below 6,000 feet of elevation, but outcrop is rare. Instead the slopes are well forested with stands of immature to overmature timber. Underbrush rarely occurs in timbered areas or in the slide areas. However, in some cases windfall trees can be a problem, particularly in the Boulder Creek drainage. The drainage of East Wild Horse River has been completely logged and burnt off. The lower regions of the Boulder Creek Basin was logged about 20 years ago and is now nearly an impregnable jungle of logging slash and second growth timber.

Typical forms produced by alpine glaciation are in evidence throughout the map area, such as abandoned cirques edging the flanks of serrate ridges, tarn lakes, paternoster lakes and hanging and U-shaped valleys. The alpine glaciation has modified nearly all of the drainage lines except, for those small tributary systems that drain south facing slopes.

3. GENERAL GEOLOGY:

Geological survey(paper 58-10 by G.B.Leech) mapping shows that the Cedar property is located on the east limb of a major north plunging anticline. In the local of the claim group, the east limb becomes overturned, complicated by faults and is terminated on the south, by the Boulder Creek fault. The property is underlain by a northerly trending belt of clastic and carbonate Precambrian and Cambrain sediments. Detailed mapping by Cominco shows that the Cambrian sediments lie with angular unconformity on the Precambrian.

A number of monzonite, quartz monzonite and syenite bodies were intruded into the sediments of this belt during Mesozoic to Tertiary times. The largest of these is a "L" shaped stock that outcrops immediately east of the Cedar Group. A small monzonite body has been mapped on the property and is thought to be a cupola related to the large stock east of the property. Two small diorite sills intrude the Creston Formation near the northwestern corner of the property. The

Precambrian portion of this belt of sediments contains two flows of andesitic lava, known as the Purcell lava. These flows have been mapped on the property and are the regional contact marker between the Kitchener and Gateway Formations.

4. GEOCHEMISTRY:

Three separate soil geochemical grids were completed namely, the Coronadao, Wallinger, and Boulder grids. Sampling was done with a greek hoe, collected by hand, and stored in wet strength Kraft bags. The samples were then individually hung on racks and allowed to dry at atmospheric temperatures. Upon drying the samples were sieved through -80 mesh nylon screen, and then assayed by atomic absorption methods, for parts per million lead, zinc, and copper. Assaying was done by Cominco Ltd. Three separate maps plates 2 to 4 at 800 feet to the inch (see attachments) are produced to show the individual distribution of lead, zinc and copper. Shown, also on these plates are 1972 and 1973 grids it should be noted here that their cost are not included in the 1974 expenditures.

a) The Coronado Grid:

The Coronado Grid is developed on a baseline 5,200 ft. long at bearing 160°. Soil samples were taken at 100 foot intervals on crosslines 200 feet apart. Stratigraphically, the grid is underlain by overturned westerly dipping Precambrian sediments of the Kitchener Formation which is chiefly argillaceous carbonates, and steeply dipping Cambrian deposits of coarse clastics, carbonates and shales of the Cranbrook and Jubilee Formations. The grid is developed on the floor of an glacial abandoned hanging valley. Recent deposits of glacial till, talus and products of solifluction, for the most part cover the floor of the valley. The grid lies between elevations of 6,000 and 6,800 feet.

On the Coronado grid values of 100 ppm for lead and zinc are considered to be anomalous. A number of small sporadic highs occur along the western side of the grid. These highs are considered to reflect base of slope concentrations and concentration related to topographical depressions. Near the central and eastern part of the grid sporadic highs form a north trending linear some 1300 feet long. This anomaly, at present, is not given a high priority.

b) The Wallinger Grid:

The Wallinger grid is developed on a baseline 2,400 feet long on a bearing of 230°. Soil samples were taken at 100 foot intervals on crosslines 200 feet apart.

Stratigraphically the grid is underlain by steeply dipping Cambrian sediments that are mainly coarse clastics, carbonates and shales of the Cranbrook and Jubilee Formations.

The grid straddles an abandoned glacial cirque. Recent surficial deposits of residual soils, glacial till, talus and products of solifluction, cover the underlain stratigraphy. The grid is located between the elevations of 6,250 feet and 7,250 feet.

On the Wallinger grid values of 100 ppm for zinc and lead are considered anomalous. The grid has defined two lead and zinc anomalies. The small high on the southeast side of the baseline probably represents a base of slope concentration. The anomaly on the NW side of the line is some 2,200 feet long. The SW end of this anomaly is developed in a topographic depression, thereby makes this part of the anomaly questionable. The remaining 1,800 feet of anomaly cuts the slope of the hill at an acute angle, which corresponds to the trend of the underlying stratigraphy. It appears justifiable to conclude that this anomaly warrants further study.

c) The Boulder Grid:

The Boulder grid is developed on a baseline 2,600 feet long on a bearing of 350°. Soil samples were taken at 100 foot intervals on crosslines spaced 200 feet apart.

Stratigtaphically, the grid is underlain by steeply dipping, east striking, Cambrian sediments which consist of Carbonate and Shale unit of the Eager and Jubilee Formations.

The grid is located on a steep south facing slope. In the immediate vicinity of the grid, recent surficial such as residual soils, talus and products solifluction cover the underlying stratigraphy. The grid lies between the elevations of 6,150 feet and 7,250 feet.

On the Boulder grid values of a 100 ppm for lead and zinc are considered to be anomalous. The grid discovered a relatively large lead and zinc anomaly, with exceptionally high values for the latter element. This anomaly follows

the horizontal contour of the slope for 1,500 feet. The effects of down slope contamination are obvious, thereby, making it difficult to weigh the importance of the width of the anomaly. This anomaly is considered interesting.

5. BIBLIOGRAPHY:

Leech, G. B. 1958, Fernie West Half, G.S.C. paper 58-10

Pighin, D. L. 1974 Cedar Property Final Report(confidential Cominco Files)

6. ATTACHMENTS:

Plate 2: Cedar Extn. Group Geochemistry Pb values, scale 1" = 800'

Plate 3: Cedar Extn. Group Geochemistry Zn values, scale 1" = 800'

Plate 4: Cedar Extn. Group Geochemistry Cu values, scale 1" = 800'

Index map 1:50,000 scale 82G/12 and 82G/11

Statement of Expenditures

Statutory Declaration Relating to expenditures

Statement of Qualifications

Reported by: D. L. Pighin

D. L. Pighin
Exploration Technician

Endorsed by: D. W. Heddle

D. W. Heddle, P. Eng.
Chief Geologist, W.D.

Approved for Release by: W. T. Irvine

W. T. Irvine, P. Eng.,
Manager, Exploration, W.D.

DLP/dp
April 14, 1975

cc: Mining Recorder, Cranbrook, B.C.(2)
Vancouver Administration (1)
Vancouver Exploration (1)
File (1)

DOMINION OF CANADA)
)
PROVINCE OF BRITISH COLUMBIA) IN THE MATTER OF
)
TO WIT:)

STATUTORY DECLARATION RELATING TO EXPENDITURES ON A GEOCHEMICAL SURVEY OF CERTAIN MINERAL CLAIMS LOCATED IN THE FORT STEELE MINING DIVISION

I, DAVID LEO PIGHIN, Exploration Technician, of the city of Cranbrook in the Province of British Columbia, do solemnly declare that;

1) I am the person who prepared a geochemical report as a result of surveys carried out on certain mineral claims by Cominco Ltd., operators of the said claims.

2) Copies of said report are being filed with District Mining Recorder.

3) Attached hereto and marked with a letter "A" upon which I have signed my name at the time of declaring hereof, is a statement of expenditures incurred in connection with the geochemical survey of the said claims.

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of some force and effect as if made under oath and by virtue of the "Canada Evidence Act".

Declared before me at the CITY)
)
of CRANBROOK, in the)
)
Province of British Columbia, this)
)
25th day of April, 1973, A.D.)

~~Dave L. Pighin~~
Dave L. Pighin

[illegible]

a Commissioner for taking Affidavits within British Columbia

COMINCO LTD.

EXPLORATION DIVISION — WESTERN DISTRICT

GEOCHEMICAL SURVEY ON THE CEDAR EXTN. GROUP

STATEMENT OF EXPENDITURES

As a result of the pursuit of the Cedar Extn. Group Geochemical survey, the following expenditures were incurred by Cominco Ltd.:

Salaries:	
D.L.Pighin,Expl. Techn. 35 days @ $70 (Intermittent periods July 1 - August 31,1974)	$ 2,450
D. Meeks, Student Asst. 25 days @ $45 (Intermittent periods July 1 - August 31, 1974)	$ 1,125
J. McLay, Student Asst. 25 days @ $45 (Intermittent periods July 1 - August 31, 1974)	$ 1,125
Truck Rental - 4 wheel drive 1-1/4 mo. @ $500 (including gas)	$ 625
Geochem Analyses - 3060 @ 50¢	$ 1,530
Total Expenditure	$ 6,855

Dave L. Pighin

D. L. Pighin
Exploration Technician

This is Exhibit "A" to the Statutory Declaration of David Leo Pighin declared before me the 23rd day of April, A.D., 1975.

A Commissioner for taking Affidavits within British Columbia.

STATEMENT OF QUALIFICATIONS

D. L. Pighin has been involved in various types of mineral exploration work for Cominco Ltd. over the last ten years. I consider him well qualified to carry out and report on all phases of geological and geochemical work.

D. W. Heddle

D. W. Heddle, P.Eng.,
Chief Geologist, Exploration
Western District.

11 April 1975

GEOCHEMICAL SURVEY

Sampling

Due to terrain, uniformity in sampling was impossible to maintain.

Soil samples were collected from the B Horizon, if this horizon existed. If not, the soils were collected from a master horizon containing less than 30% organic matter. Most of the samples were of active material subject to rapid downhill transport. If soil horizons were not available, fines from talus and till were collected.

Material sampled was mainly from Base-of-slope, and freely-drained soils.

ASSAY EQUIPMENT AND METHOD

Equipment

Soil samples were assayed by a Varian Tectron, atomic absorbtion instrument made in Australia. Type AA3(154).

Method For Preparing Sample

Two grams of soil is weighed in a 250 ml beaker, 20 mls of HCl(conc.) is added and the sample is digested on a hot plate for approximately 20 minutes. HNO_3 (conc.) is added until sample is completely oxidized. Sample is taken up in 10% HCl, bulk to 100 ml and aspirated directly into the Atomic Absorbtion instrument. Blank determinations are used for background readings.

G. L. Webber
Geologist


CANADA
MINES AND TECHNICAL SURVEYS
SURVEYS AND MAPPING BRANCH
1:50,000
FIRST EDITION
CANADA SHEET
CANADA
CORONADO GRID
WALLINGER GRID
BOULDER GRID
KOOTENAY INDIAN RESERVE No. 1
KOOTENAY RIVER
ST. MARY RIVER
Fort Steele
Wycliffe
Kimberley
CRANBROOK
ELK
ROCKY
MOUNTAIN
CRANBROOK
BRITISH COLUMBIA
SCALE 1:50,000
PROVISIONAL MAP
REFERENCE
FERNIE
KOOTENAY LAND DISTRICT
Joins 82 G/6
Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5436 MAP 5
Cominco
5436 MAPS
Drawn by: D.L. PIGHIN
Traced by:
Revised by
Date
INDEX MAP
CEDAR EXTN. GROUP
GEOCHEMICAL SURVEY
Scale: 1" = 50,000"
Date: APRIL 12, 1975
Plate:

WALLINGER CREEK

WILD HORSE RIVER

CEDAR EXTN. 11

CEDAR EXTN. 9

CEDAR EXTN. 12

CEDAR EXTN. 7

CEDAR EXTN. 10.

CEDAR EXTN. 5

CEDAR EXTN. 8

CEDAR EXTN. 1

CEDAR EXTN. 13

CEDAR EXTN. 3

CEDAR EXTN. 6

CEDAR EXTN. 14

CEDAR EXTN. 4

CEDAR EXTN. 2

BOUNDARY OF CEDAR EXTN. GROUP

NEW COR FR 2

MINERAL LEASE 50

L 3536 L 3537 L 3535

NEW COR FR 1

NEW COR 3 NEW COR 4

NEW COR 9 NEW COR 11 NEW COR 13

COR 2 NEW COR 5 NEW COR 7

COR 1 NEW COR 6 NEW COR 8

CEDAR 14 CEDAR 15 CEDAR 6 CEDAR 5 CEDAR 9

CEDAR 13 CEDAR 11 CEDAR 2 CEDAR 4 CEDAR 8

CEDAR 12 CEDAR 10 CEDAR 1 CEDAR 3 CEDAR 7

CEDAR 29 CEDAR 28 CEDAR 22 CEDAR 23

EAST WILD HORSE RIVER

TANGLEFOOT CREEK

5436
MAP 1

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
5436 MAP 1
CONFIDENCE

GROUPING MAP

Drawn by: D.L. PIGEON | Traced by:
Revised by: Date: | Revised by: Date:

CEDAR EXTN. GROUP
NTS: 82G/11W

Scale: 1" = 800' Date: NOV 21, 1974 Plate:

FORM 210-DEAD

BOUNDARY OF CEDAR EXTN GROUP

CORONADO GRID 1974

1973 GRID

1972 GRID

WALLINGER GRID 1974

BOULDER GRID 1974

WALLINGER CREEK

BOULDER CREEK

LEGEND
- <25 PPM Cu.
- 25 to 50 PPM Cu.
- 50 to 100 PPM Cu.
- >100 PPM Cu.

5436
MAP 4

Cominco Ltd.

Drawn by: D.L.PAWLUK	Traced by:
Revised by / Date	Revised by / Date

CEDAR EXTN. GROUP
GEOCHEMISTRY Cu. VALUES
NTS 82G/11W

Scale: 1" = 800' Date: DEC. 10, 1974 Plate: 4

210-0670

BOUNDARY OF CEDAR EXTN GROUP

CORONADO GRID 1974

1973 GRID

1972 GRID

WALLINGER GRID 1974

BOULDER GRID 1974

WILD HORSE RIVER

WALLINGER CREEK

BOULDER CREEK

LEGEND

- < 50 P.P.M. Pb.
- 50 to 100 P.P.M. Pb.
- 100 to 200 P.P.M. Pb.
- 200 to 300 P.P.M. Pb.
- > 300 P.P.M. Pb.

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MAP 2

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5436 MAP 2

Cominco Ltd.

Drawn by: D.L. ADAMS | Traced by:
Revised by | Date | Revised by

CEDAR EXTN. GROUP
GEOCHEMISTRY Pb. VALUES
NTS: 82G/11W

Scale: 1" = 800' | Date: NOV. 10, 1974 | Plate: NO 2

BOUNDARY OF CEDAR EXTN. GROUP

1973 GRID

1972 GRID

CORONADO GRID 1974

WALLINGER GRID 1974

BOULDER GRID 1974

LEGEND

- < 50 PPM Zn.
- 50 to 100 PPM Zn.
- 100 to 300 PPM Zn.
- 300 to 600 PPM Zn.
- 600 to 900 PPM Zn.
- > 900 PPM Zn.

WILD HORSE RIVER

WALLINGER CREEK

BOULDER CREEK

5436
MAP3

Department of Mines and Petroleum Resources
ASSESSMENT REPORT NO. 5436 MAP 3

Cominco Ltd.

Drawn by:	Traced by:		
C.E. Pilgrim			
Revised by: Date:	Revised by: Date:		

CEDAR EXTN. GROUP
GEOCHEMISTRY Zn. VALUES
NTS 82G/1W

Scale: 1" = 800' | Date: NOV. 10, 1974 | Plate: 3