**ASSESSMENT REPORTS**

**WATSON LAKE M.D.**

**REPORT NO.** 105 F 10  **TYPE OF WORK:** GEOPHYSICAL, GEOLOGICAL, GEOCHEMICAL

<table>
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<tr>
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<th>COMINCO LTD.</th>
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<tr>
<td><strong>DATE PERFORMED</strong></td>
<td>30 June - 5 July, 1985</td>
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<td>LOCATION - LONG.</td>
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</tr>
<tr>
<td></td>
<td>LP 7-63 YA72530-YA72586</td>
</tr>
</tbody>
</table>

**MAP No.**

**WORK DONE BY** COMINCO LTD.

**WORK DONE FOR** COMINCO LTD.

**REMARKS**

The property is underlain by flat lying Cambro-Ordovician quartzite, quartz-biotite-muscovite schist and banded limestone. East of the property, these rocks are in thrust fault contact with Devono-Mississippian shales, volcanics and syenites. A plug of quartz monzonite lies to the west.

Mineralization on the property consists of boulders of quartz and pyrrhotite + chalcopyrite + galena + arsenopyrite. The mineralization is a replacement of schistose rocks.
The 1985 work program consisted of geological mapping, soil and silt sampling, linecutting and grid establishment, airborne EM and magnetic geophysical surveys and diamond drilling.

A total of 40.8 km of linecutting was done. Soil and silt sampling detected a weak Cu, Au anomaly which coincides with float mineralization.

The airborne geophysical surveys consisted of 161 line km flown by helicopter. A large area of strong, sub-parallel conductors was defined near the eastern edge of the claims.

Drilling was done over coincident EM, magnetic and geochemical anomalies. A total of 532.8 m of drilling was done in five holes. The best value was 2.8 g/t Au over 4.9 m in DDH 85-1.
COMINCO LTD.

EXPLORATION

NTS: 105F/10

AIRBORNE GEOPHYSICAL SURVEYS

ON THE

TAY AND LP CLAIMS

PELLY MOUNTAINS

WATSON LAKE M.D., YUKON TERRITORY

Latitude : 61°33'N
Longitude : 132°40'W

Field Work Performed : June 30 - July 5, 1985
Claims : TAY 1-21, LP 7-63

- ASSESSMENT REPORT -

SEPTEMBER 1985

J. KLEIN
This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $19,650.

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

- **INTRODUCTION**
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- **CLAIMS**
- **GEOPHYSICAL EQUIPMENT**
- **DATA PRESENTATION**
- **DESCRIPTION OF RESULTS**
- **RECOMMENDATIONS**
- **APPENDIX A - STATEMENT OF EXPENDITURES**
- **APPENDIX B - AFFIDAVIT**
- **APPENDIX C - STATEMENT OF QUALIFICATIONS**
- **FIGURE 1 - LOCATION MAP**
- **FIGURE 2 - CLAIM MAP AND SURVEY LINES**

<table>
<thead>
<tr>
<th>Plate/Location</th>
<th>Description</th>
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| 286-85-1       | Coax 932 Hz Profiles Along NW-SE Lines  
                 Vertical Scale 1 mm = 2 ppm  
                 Scale 1:10,000 |
| 286-85-2       | Coax 4600 Hz Profiles Along NW-SE Lines  
                 Vertical Scale 1 mm = 2 ppm  
                 Scale 1:10,000 |
| 286-85-3       | Coplanar 4186 Hz Profiles Along NW-SE Lines  
                 Vertical Scale 1 mm = 8 ppm  
                 Scale 1:10,000 |
| 286-85-4       | Coax 932 Hz Profiles Along E-W Lines  
                 Vertical Scale 1 mm = 2 ppm  
                 Scale 1:10,000 |
| 286-85-5       | Coax 4600 Hz Profiles Along E-W Lines  
                 Vertical Scale 1 mm = 2 ppm  
                 Scale 1:10,000 |
| 286-85-6       | Coplanar 4186 Hz Profiles Along E-W Lines  
                 Vertical Scale 1 mm = 8 ppm  
                 Scale 1:10,000 |
| 286-85-7       | Magnetic Contours for NW-SE and E-W Lines  
                 Scale 1:10,000 |
EXPLORATION

AIRBORNE GEOPHYSICAL SURVEYS
ON THE
TAY AND LP CLAIMS

INTRODUCTION

An airborne electromagnetic and magnetic survey was conducted during the period June 30 - July 5, 1985, over the TAY-LP claims. A total of 161 line kilometres of survey was flown under contract by Aerodat Ltd. of Toronto.

The purpose of the survey was to map the area for conductors and magnetic bodies.

LOCATION AND ACCESS

The property is located in the Pelly Mountains on the east side of Seagull Creek about 50 km south-southwest of Ross River and 26 km east of the Canol Road (Fig. 1). Access is provided by four-wheel drive vehicle along a road starting from the junction of the South Canol Road and Groundhog creeks. The elevation difference of the survey areas is 1,800' (from 3,700' to 5,500').

CLAIMS

The claims covered by this airborne survey are TAY 1 to 21 and LP 7 to 63. The claims are shown together with the survey lines on Fig. 2.

GEOPHYSICAL EQUIPMENT

The geophysical equipment was installed in a helicopter and consists of the following:

Aerodat HEM System

The Aerodat 3-frequency HEM system has two coaxial coil pairs and one coplanar coil pair, all at a separation of 7 metres. In-phase and quadrature response are measured. The two coaxial coil pairs are operated at 932 and 4600 Hz and the coplanar coil at 4186 Hz.
Airborne Magnetometer

A Geometrics G-803 magnetometer was used to record the total magnetic field. The instrument was operating at 1 gamma sensitivity.

Together with this basic equipment, the following auxiliary equipment was used:

- A Hoffman HRA 100 altimeter
- A Geocam 35mm Tracking Camera
- A RMS GR-33 Dot Matrix Analogue Recorder
- Base Station Magnetometer

The survey was flown at an average air speed of 130 km/hr and in two directions (Fig. 2) to permit the detection of conductors with different strike. Line spacing was 200 m with the electromagnetic sensor being towed approx. 30-40 m above the ground surface.

The crew consisted of a senior operator/navigator, an operator assistant, a pilot and a helicopter engineer. The survey was flown out of Ross River.

DATA PRESENTATION

The results are shown on seven plates (286-85-1 to 7) on a scale of 1:10,000 as follows:

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<tr>
<th>Plate</th>
<th>Description</th>
<th>Vertical Scale</th>
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<tr>
<td>286-85-1</td>
<td>Coax 932 Hz Profiles Along NW-SE Lines</td>
<td>1 mm = 2 ppm</td>
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<tr>
<td>286-85-2</td>
<td>Coax 4600 Hz Profiles Along NW-SE Lines</td>
<td>1 mm = 2 ppm</td>
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<td>286-85-3</td>
<td>Coplanar 4186 Hz Profiles Along NW-SE Lines</td>
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<td>286-85-5</td>
<td>Coax 4600 Hz Profiles Along E-W Lines</td>
<td>1 mm = 2 ppm</td>
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<tr>
<td>286-85-6</td>
<td>Coplanar 4186 Hz Profiles Along E-W Lines</td>
<td>1 mm = 8 ppm</td>
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<tr>
<td>286-85-7</td>
<td>Magnetic Contours for NW-SE and E-W Lines</td>
<td></td>
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</table>
DESCRIPTION OF RESULTS

A large area of nearly parallel conductors was detected near the eastern end of the E-W lines grid. The obliqueness of the NW-SE lines to these conductors causes the responses along the latter lines to be less continuous. The coplanar coil system shows more extensive conductivity, mainly in the out-of-phase channel reflecting most likely an overburden conductivity.

The magnetic results show a quiet relief in the western part of the grid area. Several highs were detected in the east, some of which correlate with the conductors.

RECOMMENDATIONS

It is recommended to conduct mapping and prospecting near the conductors detected. Ground geophysical work should be executed in the event economic interesting sources can be correlated with these conductors.

Report by: J. Klein
Chief Geophysicist

Approved for Release by: G. Harden
Manager, Exploration Western District

Distribution:
Mining Recorder (2)
Western District (1)
Geophysics (1)
APPENDIX A

STATEMENT OF EXPENDITURES

TAY AND LP CLAIMS

JUNE 30 - JULY 5, 1985

Airborne EM/Mag. Survey:

161 km @ $64.00/km

$10,304.00

TOTAL $10,304.00
APPENDIX B

AFFIDAVIT

I, JAN KLEIN, OF THE CORPORATION OF RICHMOND, IN THE PROVINCE OF BRITISH COLUMBIA, MAKE OATH AND SAY:-

1) THAT I am employed as a geophysicist by Cominco Ltd., and as such have a personal knowledge of the facts to which I hereinafter depose;

2) THAT the annexed hereto and marked as "Appendix A" to this statement is a true copy of expenditures incurred on geological survey on the TAY and LP mineral claims;

3) THAT the said expenditures were incurred for the purpose of mineral exploration of the above-noted claims between 30th day of June and the 5th day of July, 1985.

Signed:  
J. Klein  
Chief Geophysicist
I, JAN KLEIN, of the Corporation of Richmond, in the Province of British Columbia, do hereby certify: -

1) THAT I am a geophysicist residing at 4371 Coventry Drive, Richmond, British Columbia, with a business address at 853 - 409 Granville Street, Vancouver, British Columbia.

2) THAT I graduated from the Technological University of Delft, Netherlands in 1965 with a M.Sc. in Geophysics.

3) THAT I have practiced geophysics for the past twenty years.

Signed: J. Klein
Chief Geophysicist
TAY - LP CLAIMS

LOCATION MAP

WATSON LAKE M.D.; YUKON

Scale: 1:250,000  Date: SEPTEMBER 1985  Figure: 1
TAY - LP CLAIMS

CLAIM MAP and SURVEY LINES

WATSON LAKE M.D.; YUKON

Scale: 1:50,000
Date: SEPTEMBER 1985
Figure: 2
COMINCO LTD.

EXPLORATION

NTS: 105 F/10

WESTERN DISTRICT

ASSESSMENT REPORT

GEOLOGICAL MAPPING AND GEOCHEMICAL SAMPLING

CARRIED OUT ON TAY AND LP CLAIMS

LATITUDE: 61°33'N

LONGITUDE: 132°38'W

PERIOD OF FIELD WORK

JULY 9 TO JULY 15, 1985

SEPTEMBER 19, 1985

I.A. PATERSON
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<th>Title</th>
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<td>II.</td>
<td>INTRODUCTION</td>
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<td>III.</td>
<td>LOCATION AND ACCESS</td>
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<td>IV.</td>
<td>TOPOGRAPHY AND VEGETATION</td>
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<td>V.</td>
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<td>GEOCHEMISTRY</td>
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## APPENDICES

- APPENDIX I - Exhibit A: Statement of Expenditures
- APPENDIX II - Exhibit B: Statement of Qualifications
- APPENDIX III - Exhibit C: Statement

## LIST OF FIGURES AND PLATES

- FIGURE 1 - Location Map, LP and Tay Claims
- PLATE 1 - Claim Map, LP 7 to 63, Tay 1-21; 1" = 1/2 mile
- PLATE 2a - Geology, Distribution of Mineralized Boulders and Geochemical Sample Locations (1:5000)
- PLATE 2b - Geochemistry; Au, As (1:5000)
- PLATE 2c - Geochemistry; Cu, Bi (1:500)
EXPLORATION
NTS: 105 F/10

COMINCO LTD.
WESTERN DISTRICT
19 September 1985

ASSESSMENT REPORT

GEOLOGICAL MAPPING AND GEOCHEMICAL SAMPLING

CARRIED OUT ON TAY AND LP CLAIMS

DURING PERIOD JULY 9-21, 1985

I. SUMMARY

The property is underlain by banded crystalline limestone and quartz + muscovite ± chlorite ± biotite schists of possible Cambro-Ordovician age and is traversed by the Seagull Creek fault which juxtaposes these rocks against Devonian-Mississippian shales and siltstone on the eastern side of the property. An altered quartz monzonite intrusive with associated garnet + diopside skarn is present in the valley floor.

A number of boulders containing quartz + pyrrhotite ± chalcopyrite ± galena ± arsenopyrite have been located along the road which runs down the east side of Seagull Creek. As some of these boulders contain Au values, a soil silt geochemical survey was carried out along the road which traverses the property. An anomalous region showing low Au and Cu values was found. This area corresponds approximately to the distribution of the mineralized boulders. Arsenic showed no obvious correlation with boulder distribution.

II. INTRODUCTION

The Tay claims (1-21) were staked in July 1984 by three prospectors from Faro. The LP claims (7-63) were added by Cominco in November and the Tay property was optioned by Cominco from Messrs. Long, Schnare and Bartsch in the spring of 1985.

Work commenced on the property in June 1985 when an airborne magnetometer and electromagnetic survey was flown by Aerodat Ltd. of Mississauga, Ontario. Subsequently a Cominco crew comprised of I.A. Paterson, M.J. Gray and M.E. Baknes (all of business address - 7th Floor, 409 Granville Street, Vancouver, B.C., V6C 1T2) carried out geological and geochemical work between 9th and 21st July, 1985.

III. LOCATION AND ACCESS

The LP and Tay claim group are located 165 km northeast of Whitehorse and 60 km south-southwest of Ross River. The claims can be reached by helicopter from Whitehorse, or floatplane to Seagull Lake. A four-wheel drive road connects the property with Seagull Lake (9.5 km) and the South Canal road (30 km, 1.5 hour drive). Chains and a winch may be necessary in places.

IV. TOPOGRAPHY AND VEGETATION

The claims are located in the valley and on the flanks of Seagull Creek. Elevation of the valley floor is between 1100 and 1150 metres. Mountains on either side rise to 1900 m.
Rock exposure is generally poor as much of the valley floor is covered with a mantle of fluvio-glacial material or river-gravels. Some rock exposures are present on the banks of Seagull Creek.

The valley floor is flat and generally covered with muskeg, willow or alder. Seagull Creek meanders along the valley creating numerous sloughs, gravel banks and ponds along its length. Between elevations 1150 and 1450 m the flanks of the valley are forested with Northern Black Spruce and dwarf birch. Above 1450 m alpine vegetation is present.

V. TENURE

The Tay and LP claims (Plate 1) are held by Cominco under option from Peter Long, Jim Schnare and Ted Bartsch formerly from Faro and now residing in Ontario, Victoria, B.C. and Whitehorse respectively.

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<th>RECORD NO.</th>
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<td>August 1, 1985</td>
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<td>LP 7-63</td>
<td>YA72530-YA72586</td>
<td>December 7, 1985</td>
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VI. GEOLOGY

The northwesterly trending Seagull Creek Fault bisects the property (Plate 2a). This fault juxtaposes Cambro-Ordovician recrystallized limestone and schist to the west against Devono-Mississippian black siltstone, phyllites and volcanics to the east. The fault has been mapped as a thrust (Templeman-Kluit, 1977).

Cambro-Ordovician (or older) rocks underlie the greater part of the claim group. They consist of a flat-lying sequence of buff weathering banded crystalline limestone, locally interfoliated with greenish quartz + muscovite ± chlorite ± magnetite schists or grey phyllites. The other main rock type is quartz + muscovite ± biotite schist. Its relationship to the buff limestone is not known.

The Cambro-Ordovician(?) rocks have been penetratively deformed and metamorphosed in the upper greenschist facies. The S1 foliation parallels the axis of recumbent isoclinal folds and is defined by parallel orientation of muscovite and chlorite. This foliation is cut by a fracture cleavage (160-175° trend, steep dip) well exposed in outcrop along the banks of Seagull Creek. Kink folds are parallel to a crenulation lineation.

The Cambro-Ordovician(?) rocks have been intruded by a plug of biotite quartz monzonite well exposed on the mountain to the west of the Tay claims. The intrusive at this locality has undergone pervasive sericitic alteration. Down in the valley of Seagull Creek garnet diopside skarn rocks are found in close association with large blocks of quartz monzonite containing quartz + muscovite veins.

The Devono-Mississippian rocks are poorly exposed. Angular float consisting of grey siltstone, black chert, grey black phyllite or slate and dark grey limestone is found in the southern part of the property where the road crosses the Seagull Fault. In the southeastern part of the claim group the Devono-Mississippian shales have been intruded by a medium-grained hornblend syenite containing disseminated magnetite.
VII. MINERALIZATION

Attention was drawn to this area with the discovery of a number of gossaned boulders lying beside the road along the east bank of Seagull Creek. These boulders are composed of:

a) quartz + muscovite + biotite schist with pyrrhotite + quartz on fractures

b) quartz + pyrrhotite ± chalcopyrite ± pyrite ± arsenopyrite ± galena ± sphalerite

The boulders are up to 1 m in diameter and vary from being well rounded to angular.

It is possible that some of these boulders may have been transported by glaciers advancing southwards along the valley of Seagull Creek. Similar boulders have been reported 4 km further north on the former Anise claims (assessment report 090200, P. Dean). It is also considered possible that some of the boulders could have a local source beneath the glacial overburden in the Tay or LP claims.

VIII. GEOCHEMISTRY

A series of soil and silt samples were taken along the roadside to check if there was a geochemical halo associated with the mineralized boulders. A total of 84 soil samples were taken from various horizons in glacial till and fluvio-glacial material exposed along road cuts. Where possible, samples were taken at 50 m intervals. Eight silt samples were also taken from creeks traversing the road.

Samples were dried and sieved to -80 mesh fraction and analysed by the Cominco Exploration Laboratory in Vancouver for Au, As, Cu, Bi. Details of the analytical techniques are as follows:

Au: 10 gm sample/aqua regia decomposition/solvent extraction/atomic absorption
As: pyrosulphate fusion/colorimetric
Cu: 20% NNO3 decomposition/atomic absorption
Bi: 20% NNO3 decomposition/atomic absorption

Results are shown in Plates 2b and 2c. The following observations can be made:

a) There is an association between the distribution of the mineralized boulders and anomalous Cu, Bi and Au values in soils. Anomalous values are as follows: Cu > 40 ppm, Au > 10 ppb, Bi > 5 ppm

b) Arsenic has a fairly high background (20-100 ppm As) with values >140 ppm considered anomalous. The anomalous values are sporadically distributed along the road with a tendency for a greater concentration at the northern end.
IX. RECOMMENDATIONS

1. A 3x1 km grid should be established with cut lines at 200 m intervals.

2. Ground magnetic and electromagnetic surveys should be carried out to check for a local source for the mineralized boulders.

Reported by:  
I.A. Paterson  
Project Geologist

Endorsed by:  
W.J. Wolfe  
Assistant Manager

Approved for Release by:  
G. HARDEN, Manager  
Expl., Western District

IAP/cgs

Distribution
Western District  
Mining Recorder

X. REFERENCES


EXHIBIT "A"

STATEMENT OF EXPENDITURES
FOR THE PERIOD JULY 9-21, 1985

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<td>M.J. Gray 12 days @ $128.04</td>
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<td>M.E. Baknes 12 days @ $108.24</td>
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<td>Fixed Wing</td>
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<td><strong>Geochemistry:</strong></td>
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<td>$10,637.48</td>
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I.A Paterson,
Project Geologist
STATEMENT OF QUALIFICATIONS

I, Ian A. Paterson, with business address at 700-409 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 programme on the LP and Tay mineral claims.

I also certify that:

1. I graduated from the University of Aberdeen, Scotland with B.Sc. (Hons.) degree in 1967.

2. I graduated from the University of British Columbia with a Ph.D. degree in 1973.

3. I am a registered Professional Engineer of the Province of British Columbia, a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.

4. I have been engaged in my profession since my graduation in 1973.

5. I have been employed by Cominco Ltd. since 1974.

Respectfully Submitted:

[Signature]

I.A. Paterson,
Project Geologist
EXHIBIT "C"


STATEMENT

I, Ian A. Paterson of the City of Vancouver in the Province of British Columbia, make oath and say:

1. THAT I am employed as a geologist by Cominco and, as such, have personal knowledge of the facts to which I hereinafter depose;

2. THAT included in this report and marked as Exhibit "A" is a true copy of expenditures incurred on a geological and geochemical programme on the Tay and LP mineral claims;

3. THAT the said expenditures were incurred between the 9th to the 21st of July, 1985 for the purpose of mineral exploration on the above claims.

Dated this 23 day of September, 1985
at Vancouver, British Columbia

I.A. Paterson,  
Project Geologist
Tay - LP Claims

Scale: 1" = 1/2 mile  Date: Sept. 85  Plate: 1