

LOG NO:	81 0 1 1993 RD
ACTION:	
FILE NO:	

COMINCO LTD.

EXPLORATION

WESTERN CANADA

NTS: 93L9

ASSESSMENT REPORT

I.P./RESISTIVITY SURVEY  
ON THE  
LENNAC PROPERTY

LATITUDE: 54° 45' N

LONGITUDE: 126° 20' W

OMINECA MINING DISTRICT, B.C.

CLAIMS COVERED : JAKE 4,5,6,8,9,10

TIME PERIOD: MAY 10 -16, 1993

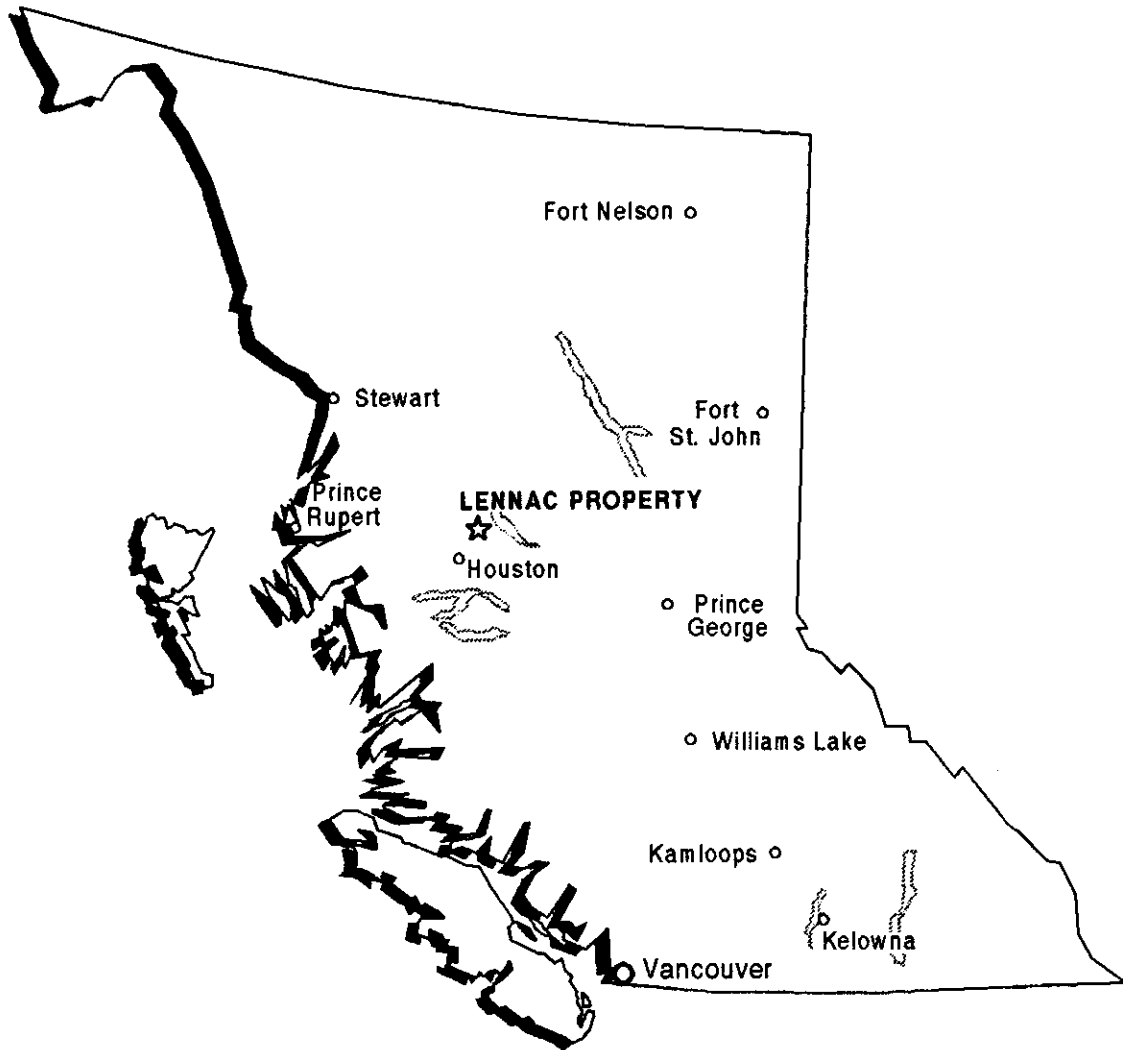
ASSESSMENT REPORT

JULY 1993

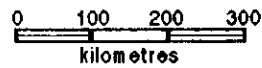
23,048

INGO JACKISCH

PART 1 OF 2



**British Columbia**



**LENNAC PROPERTY LOCATION**

Date : July 1993

Plate : 401-93-1

## TABLE OF CONTENTS

	PAGE
I INTRODUCTION .....	1
Property History .....	1
Geology .....	1
Location and Access .....	1
II GEOPHYSICAL SURVEYS .....	2
Equipment and Procedures .....	2
Presentation of Results .....	3
III INTERPRETATION .....	3
IV CONCLUSIONS .....	4
APPENDIX I STATEMENT .....	5
APPENDIX II STATEMENT OF EXPENDITURES .....	6
APPENDIX III CERTIFICATION OF QUALIFICATIONS .....	7

## LIST OF PLATES

	PLATE NO.
LOCATION MAP	401-93-1
Induced Polarization/Resistivity Pseudosections Lines 2000N, 1000N, 0N	401-93-2
Induced Polarization/Resistivity Pseudosections Line D	401-93-3
Claim Map and Chargeability [a=100m, n=1]	401-93-4
Claim Map and Resistivity [a=100m, n=1]	401-93-5

## REPORT

ON

## I.P./RESISTIVITY SURVEY

## ON THE LENNAC PROPERTY

I INTRODUCTION

During the time period May 10 - 16, 1993, an Induced Polarization/Resistivity [I.P./Res.] survey was carried out by an in-house Cominco Ltd. geophysical crew on the Lennac Property. Geophysicists I. Jackisch, D.C. Hall, and F. Dziuba were present for the survey, which totaled 17.1 km.

The purpose of the geophysical survey was to test the south east part of the property for evidence of a major porphyry Cu-Mo mineralized system. This area of the property is mainly covered by swampy lowland with exposure masked by extensive glacial cover. This severely limits geological mapping and meaningful geochem results.

This report discusses the geophysical equipment and procedures, then presents and interprets the results.

**PROPERTY HISTORY**

Subsequent to discovery of mineralization in 1971, Amax Canada Ltd. conducted mapping, soil geochemistry, I.P., VLF-EM, trenching, percussion drilling [3642m in 44 holes] and diamond drilling [919m in 5 holes] on the central part of the property.

In 1991 prospecting identified two new showings. These showings, together with porphyry style chalcopyrite-molybdenite mineralization and alteration intersected in drill core at the Jacob showing suggest possible continuity of the Lennac porphyry system to the southeast.

**GEOLOGY**

Cu-Mo porphyry style mineralization and alteration on the property is localized within and peripheral to a series of north trending biotite-feldspar-hornblende porphyry dykes of late Cretaceous age which intrude early Jurassic Hazelton Group volcanics.

LOCATION AND ACCESS

The Lennac Property is located 30 km north of Topley, B.C., at latitude 54°45'N, longitude 126°20'W, on N.T.S. 93L9. Access is via a logging road from Topley.

## II GEOPHYSICAL SURVEYS

### EQUIPMENT AND PROCEDURES

Two Hunttec Mark 4 time domain receivers and a Hunttec 7.5 KW Mark 4 constant current transmitter were used for the I.P.\Res. survey. A pole/dipole electrode array was used, with the current electrode to the east of the potential electrodes. The standard 2 second ON/OFF alternating square wave was transmitted.

The Mark 4 receivers were set to a delay time of 120 msec. and an integration time of 900 msec. Data was recorded both in notepad form and on a Solid State Memory [SSM] unit, manufactured by Lloyd Geophysics Ltd., which is installed inside the receivers. The SSM dumps directly onto a personal computer running on Geosoft software.

The Hunttec receiver measures the chargeability in 10 windows, each 90 msec. in duration, for a total of 900 msec. The instrument displays and records each of the 10 windows as well as the total chargeability, which is the value plotted on the pseudo-sections. This chargeability value is equivalent to the eighth slice [M7, measuring from 690 to 1050 msec. after transmitter shutoff] of the Scintrex IPR-11 receiver.

The resistivity values [R] are in units of ohmmetres [ohmm] and are calculated from the formula:

$$R = \frac{V K}{I} \quad \text{where } K = 2\pi a n [n+1] \quad a=100\text{m}, n=1,2,3,4$$

V = voltage at receiver [volts]  
I = transmitter current [amperes]

The survey procedure was to reel out the wire [leading from the transmitter] to the end of the survey line, leaving a stainless steel rod at each 100 metre interval. The survey line is then read back to the beginning of the line by the following procedure. The current electrode man cuts the wire at each 100 metre picket and attaches the end leading to the transmitter to the steel electrode. The wire and rods discarded by the current man are used as potential electrodes by the receiver operators [one receiver taking n=2,1 readings, the other taking n=4,3 readings]. The current electrode man moves up in 100 metre intervals and hammers the rod into the ground while the readings are in progress. When both receiver operators are finished with their readings, the current is shut off, and the current man cuts the wire for the new current station and connects the wire to the rod, then asks for the power to be turned on at the new station. This procedure is repeated in 100 metre increments until the entire line is read.

## PRESENTATION OF RESULTS

The I.P./Resistivity data is presented in pseudosection form on Plates 401-93-2 and -3, with chargeability and apparent resistivity plotted at a scale of 1:6000 for each survey line. Apparent Resistivity is in units of ohm-metres, chargeability values are in units of milliseconds [msecs.].

Chargeability anomaly bars are categorized as strong [ $>30$  msecs.], moderate [20-29 msecs.], and weak [9-19 msecs.]. These bars are plotted on the pseudosections to highlight anomalous chargeability zones.

### III INTERPRETATION

The chargeability values on Lines 2000N, 1000N, and 00N [see Plate 401-93-2] range from a background of 5 msec. to values in the mid-twenties [Line 2000N, anomaly A]. Resistivities are moderately low and flat, ranging from 100 to 700 ohm-metres, with local isolated values of up to 2300 ohm-metres.

Line 2000N shows a moderately strong chargeability response [A] at 1600 to 1800W, with a weaker and deeper response [B] at 2000 to 2150W. These features are southeast of the east zone of Cu/Mo mineralization discovered in 1971. A DDH at 1920W, 800m north of the Jacob Showing, intersects moderately high chargeabilities situated in between the peaks of A and B. A corresponds with resistivities in the 400-600 ohmm range; B with 150-200 ohmm. Anomalies D and E are of minor importance.

The chargeability response of A and B on Line 1000N is smaller in amplitude than on Line 2000W. A correlates with a sharp resistivity high of 1000 ohmm; B also correlates with a resistivity high of over 2000 ohmm. Anomaly D is of minor importance.

A and B are weaker on Line 00N, continuing the trend established on the previous two lines of becoming increasingly weaker to the south. A is associated with a minor, local resistivity high.

Minor chargeability anomalies C, D, E, and G on Line 00N are though to be of no significance. G is an inverted "V" or pantleg anomaly, but is not of sufficient strength to be important. There is no associated resistivity anomaly with any of these features.

In order to better determine the relation of A on Line 2000N to the main body of mineralization, Line D of the main grid was re-surveyed [see Plate 401-93-3]. High chargeability values, up to 113 msec., in agreement with the old survey [in units of pfe], were detected. The high response on this line did not yield ore-grade sulphides when it was drilled years ago. Hence the much smaller response [in amplitude as well as size] of A on Line 2000N is not likely of economic importance.

#### IV CONCLUSIONS

17.1 kms of I.P./Resistivity were surveyed by Cominco Ltd. from May 10-16, 1993, on the Lennac Property.

The continuation of the east mineralized zone was detected [as chargeability anomalies A and B] and followed to the southeast. The response became increasingly weaker in the southerly direction until it all but disappeared on Line 00N.

No significant chargeability anomalies indicating a large Cu-Mo porphyry system were detected.

Report by :

Ingo Jackisch  
Ingo Jackisch  
Geophysicist

Approved for

John Hamilton  
Release by : J.M. Hamilton, P.Eng/P.Geo  
Manager, Exploration  
Western Canada

#### Distribution:

- [2] Mining Recorder
- [1] N.J. Callan - Geologist, Western District
- [1] Western District, Central Files
- [1] Geophysics File, Vancouver, B.C.
- [1] L. Bourgh, Owner

APPENDIX I  
 IN THE MATTER OF THE B.C. MINERAL ACT  
 AND IN THE MATTER OF A GEOPHYSICAL PROGRAMME  
 CARRIED OUT ON THE LENNAC PROPERTY  
 LOCATED 30 KMS NORTH OF TOPLEY, B.C.  
 IN THE OMENICA MINING DIVISION OF THE  
 PROVINCE OF BRITISH COLUMBIA,  
 MORE PARTICULARLY  
 N.T.S. 93L/9

S T A T E M E N T

I, Ingo Jackisch, of 424 Somerset Street, in the City of North Vancouver, 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 herein-after depose;
2. That annexed hereto and marked as "Exhibit A" to this statement is a true copy of expenditures incurred on a geophysical survey on the LENNAC Property;
3. That the said expenditures were incurred from May 10-16, 1993, for the purpose of mineral exploration on the above noted property.

*Ingo Jackisch*  
 \_\_\_\_\_  
 Ingo Jackisch  
 Geophysicist  
 Cominco Ltd.

Dated this 3 day of August, 1993  
 at Vancouver, B.C.




APPENDIX II - EXHIBIT "A"  
STATEMENT OF EXPENDITURES  
LENNAC PROPERTY - OCT. 10-16, 1993

1. SALARIES [6 MAN CREW]	\$14019.00
2. REPORT WRITING, DRAFTING	3115.00
3. EQUIPMENT RENTAL	4000.00
4. EXPENSE ACCOUNTS [HOTEL, MEALS, GAS, ETC.]	3524.75
5. RENTAL OF 2 TRUCKS	1800.00
	-----
	\$26,458.75
minus 12% for work done off claims	-3324.06
	-----
TOTAL	\$23,134.69

**APPENDIX III****CERTIFICATION OF QUALIFICATIONS**

I, INGO JACKISCH, of 424 Somerset Street, in the City of North Vancouver, in the Province of British Columbia, do hereby certify:

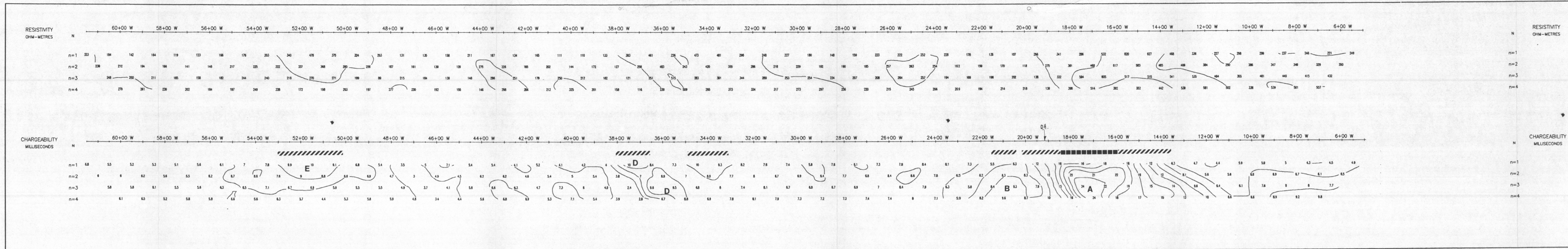
- i. THAT I graduated with a B.Sc. in Geophysics from the University of British Columbia in 1975.
- ii. THAT I am a member in good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
- iii. THAT I have been actively practising Geophysics from 1975 to 1993, and have been an employee of Cominco Ltd. from 1980 to 1993.



---

Ingo Jackisch, B.Sc. P.Geo.  
Geophysicist

July, 1993



**Line 2000 N**

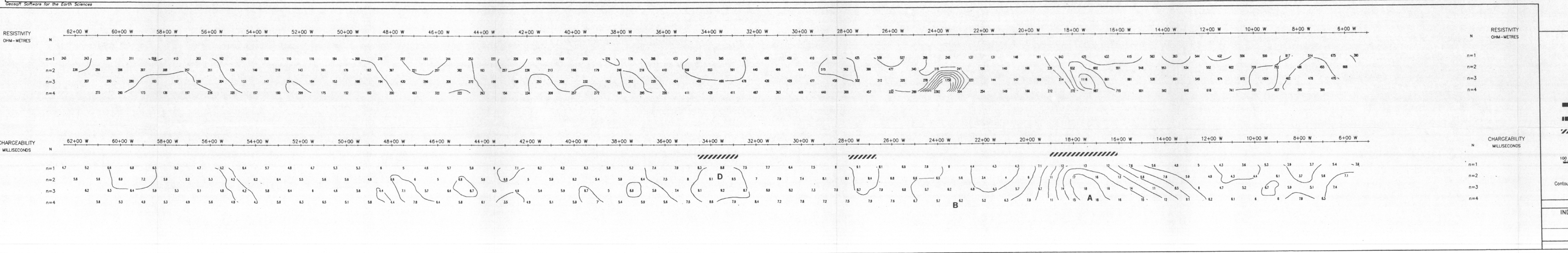
Dipole-Pole Array  
 $a = 100 \text{ M}$   
 plot point

STRONG IP RESPONSE  
 MODERATE IP RESPONSE  
 WEAK IP RESPONSE

Scale 1:6000  
 100 0 100 200 300 (meters)

Contour Interval: Chargeability - 2.0 ms  
 Resistivity - 250 ohm-m

COMINCO LTD.  
 INDUCED POLARIZATION SURVEY  
 LENNAC  
 POLE-DIPOLE  
 Date: 93/05/15  
 Interpretation: INGO JACKISCH  
 GEOPHYSICS



**Line 1000 N**

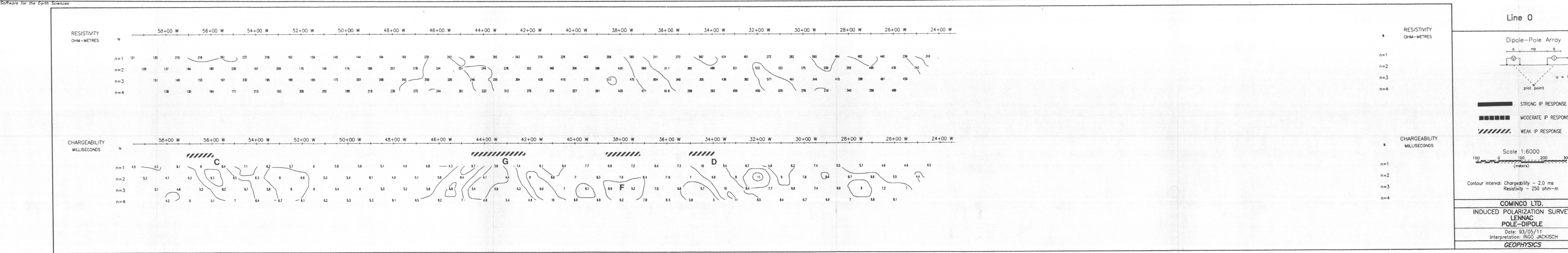
Dipole-Pole Array  
 $a = 100 \text{ M}$   
 plot point

STRONG IP RESPONSE  
 MODERATE IP RESPONSE  
 WEAK IP RESPONSE

Scale 1:6000  
 100 0 100 200 300 (meters)

Contour Interval: Chargeability - 2.0 ms  
 Resistivity - 250 ohm-m

COMINCO LTD.  
 INDUCED POLARIZATION SURVEY  
 LENNAC  
 POLE-DIPOLE  
 Date: 93/05/13  
 Interpretation: INGO JACKISCH  
 GEOPHYSICS



**Line 0**

Dipole-Pole Array  
 $a = 100 \text{ M}$   
 plot point

STRONG IP RESPONSE  
 MODERATE IP RESPONSE  
 WEAK IP RESPONSE

Scale 1:6000  
 100 0 100 200 300 (meters)

Contour Interval: Chargeability - 2.0 ms  
 Resistivity - 250 ohm-m

COMINCO LTD.  
 INDUCED POLARIZATION SURVEY  
 LENNAC  
 POLE-DIPOLE  
 Date: 93/05/11  
 Interpretation: INGO JACKISCH  
 GEOPHYSICS

GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

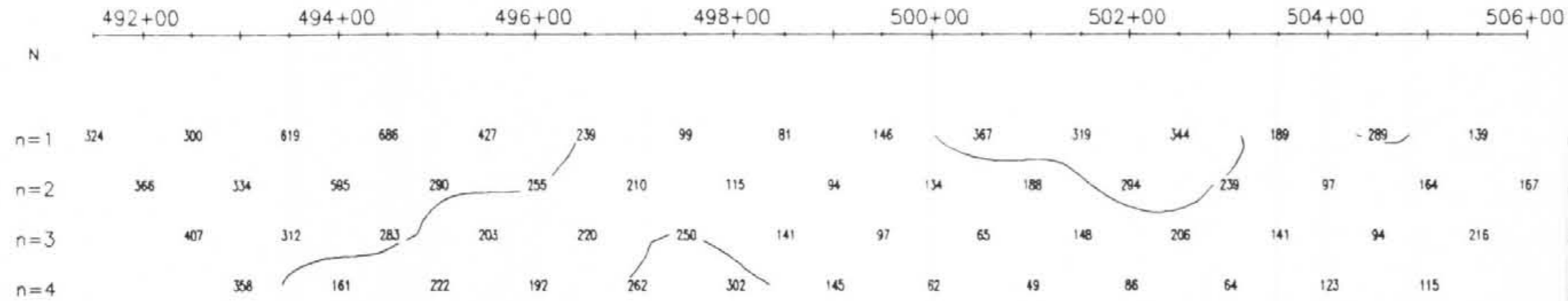
**23,048** PART 1 OF 2

LENNAC PROPERTY Omeneca M.D., B.C. NTS 93-L/9

Drawn by:	Traced by:
Checked by:	Checked by:
Date:	Date:

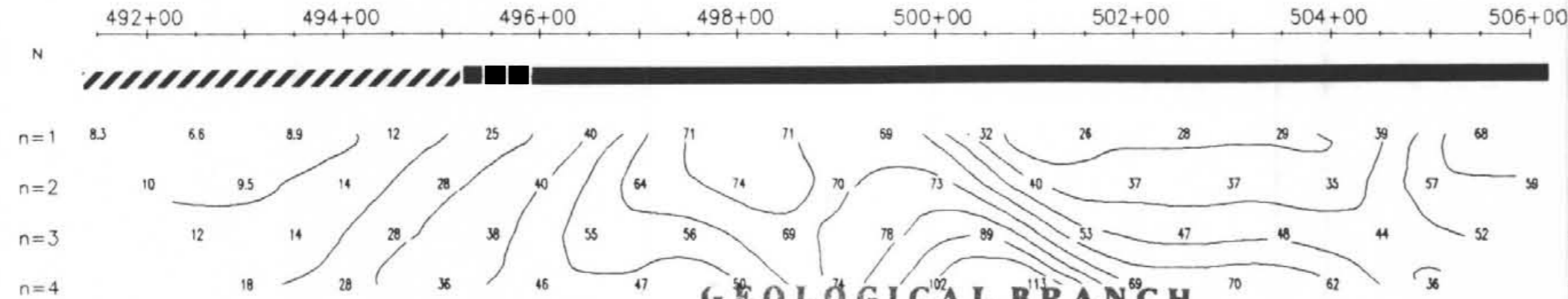
INDUCED POLARIZATION / RESISTIVITY  
 PSEUDOSECTIONS  
 Lines 2000N, 1000N, 0N  
 Scale: 1:6000 Date: July 1993 Plate: 401-93-2

RESISTIVITY  
OHM-METRES



RESISTIVITY  
OHM-METRES

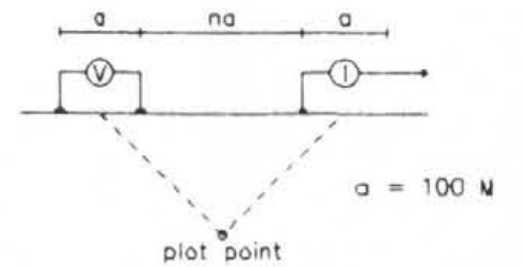
CHARGEABILITY  
MILLISECONDS



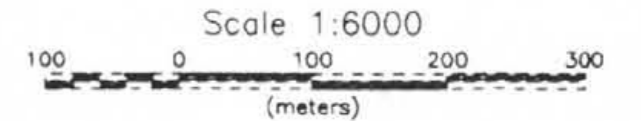
CHARGEABILITY  
MILLISECONDS

Line D

Dipole-Pole Array



- STRONG IP RESPONSE
- MODERATE IP RESPONSE
- WEAK IP RESPONSE



Contour Interval: Chargeability - 10.0 ms  
Resistivity - 250 ohm-m

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

23,048

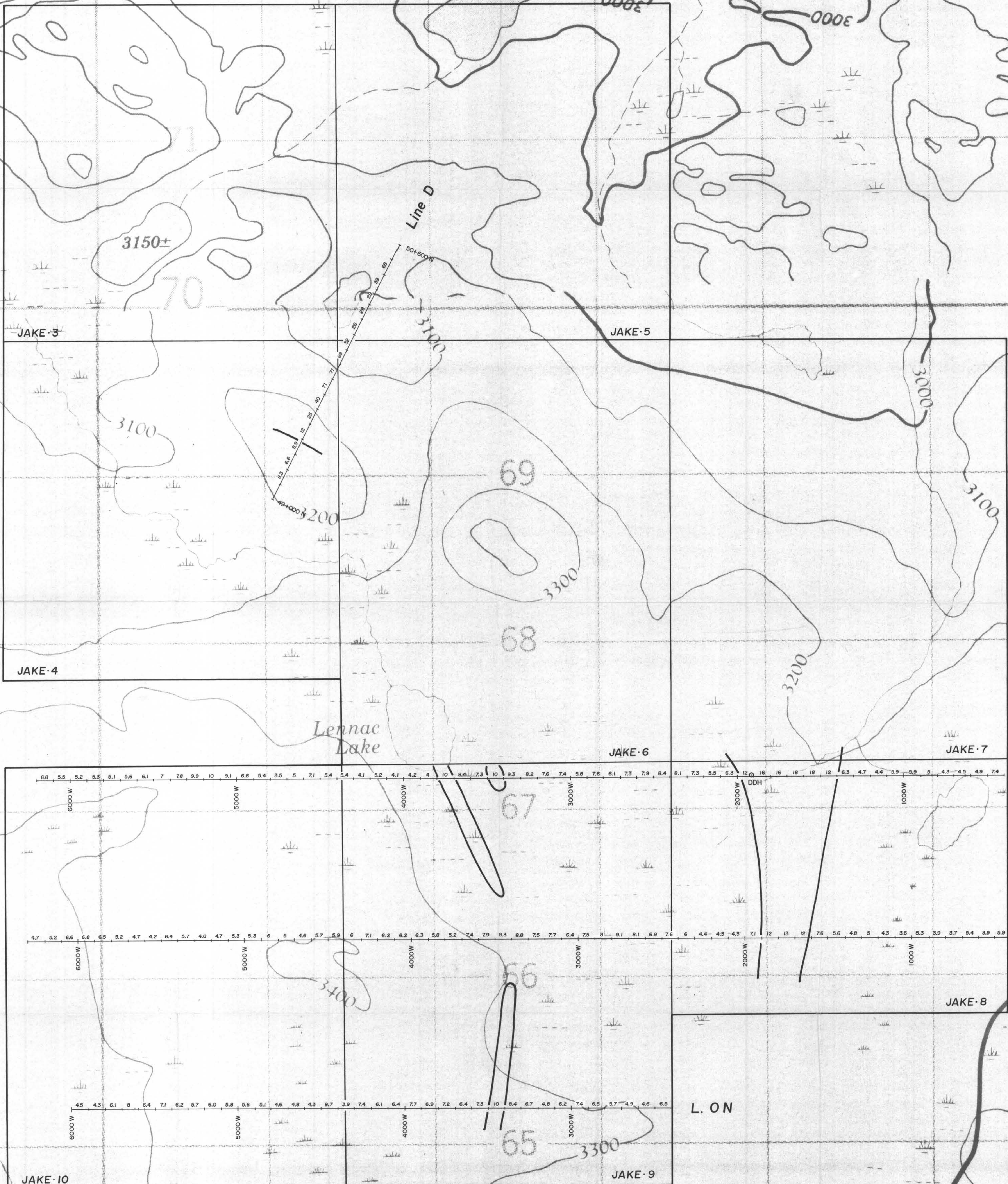
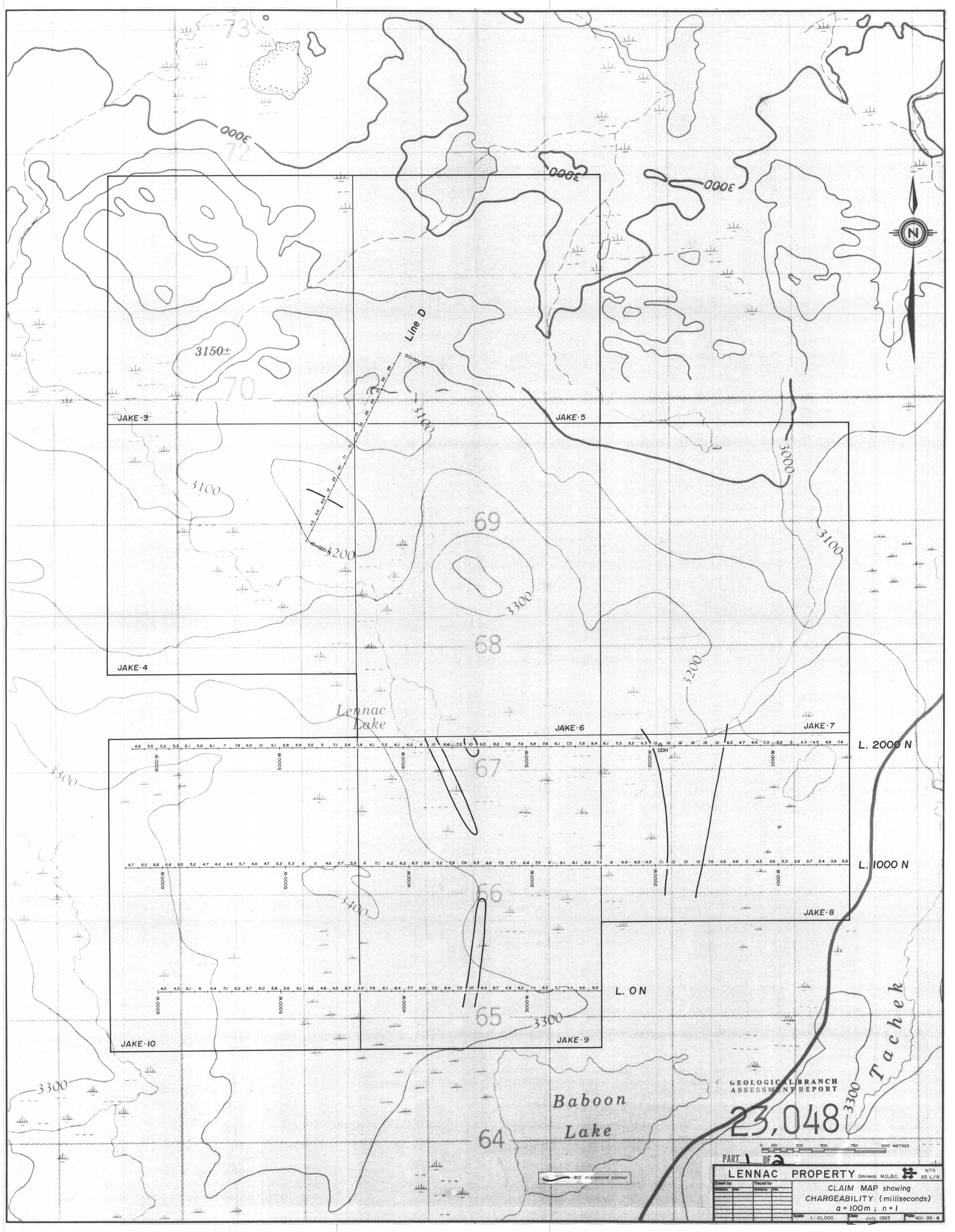
PART 1 OF 2

COMINCO EXPLORATION  
INDUCED POLARIZATION SURVEY  
LENNAC  
POLE-DIPOLE

Date: 93/05/16  
Interpretation: IJ

GEOPHYSICS

Plate : 401-93-3



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

23,048

Tacheek

Scale: 1:10,000 Date: July 1993 Plate: 401-93-4

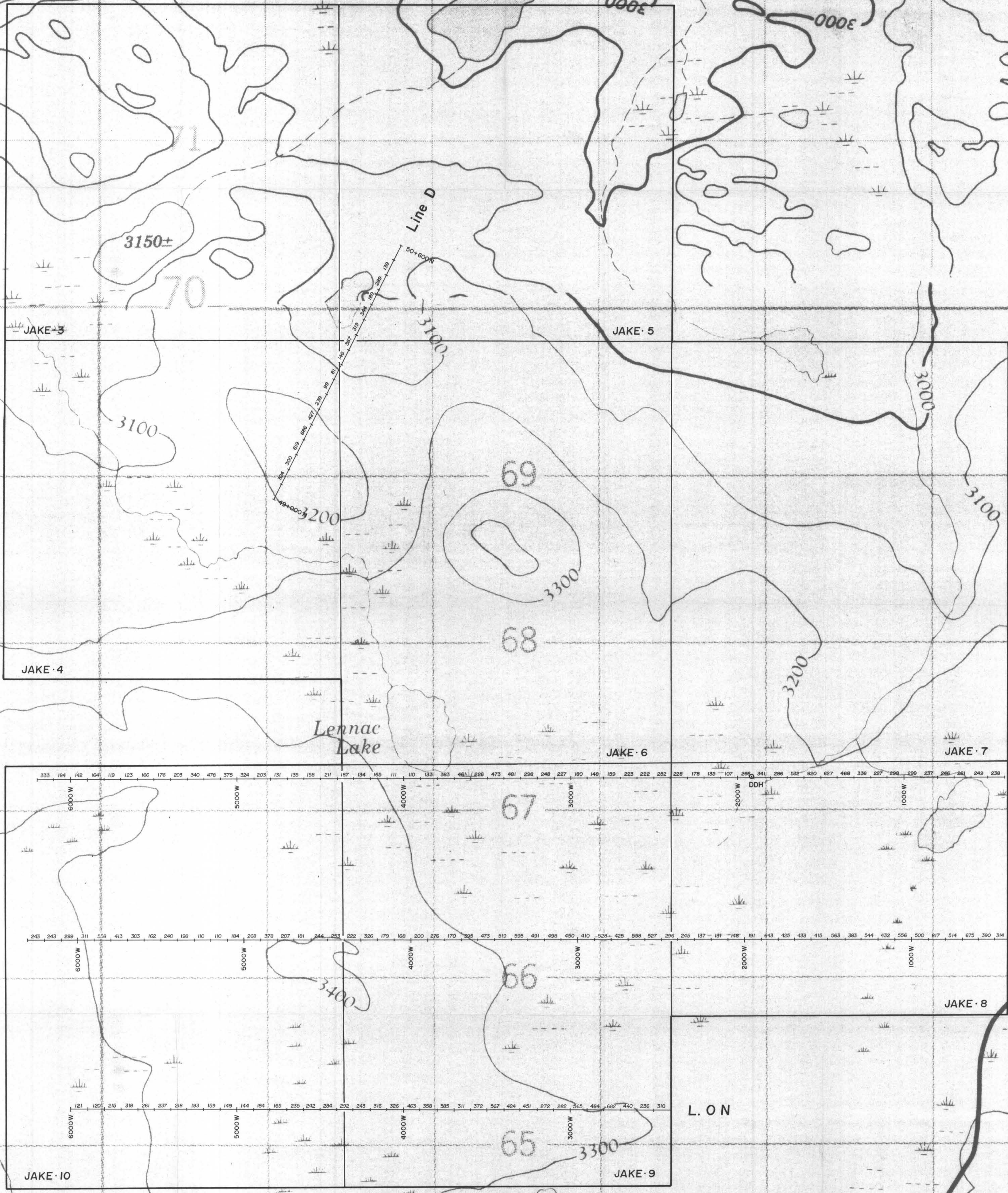
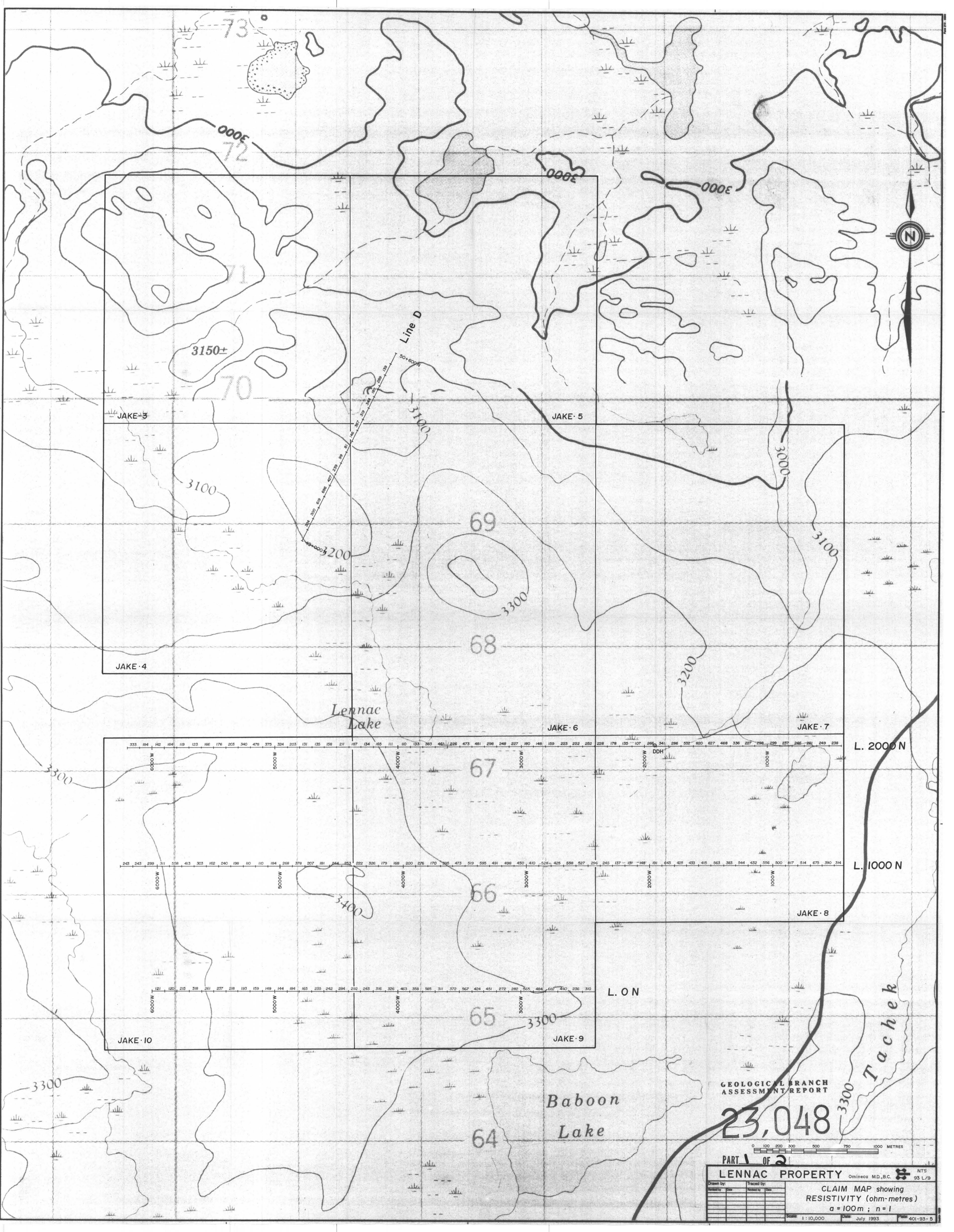
NTS  
93 L/79

PART 1 OF 2

**LENNAC PROPERTY**

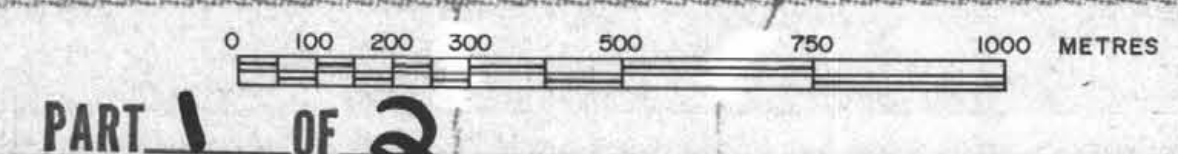
Drawn by:	Traced by:

CLAIM MAP showing  
CHARGEABILITY (milliseconds)  
a = 100m ; n = 1



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

**23,048**



PART 1 OF 2

**LENNAC PROPERTY** Omineca M.D., B.C. NTS 93 L/9

Drawn by:	Traced by:

CLAIM MAP showing  
RESISTIVITY (ohm-metres)  
a = 100m ; n = 1

Scale: 1:10,000 Date: July 1993 Plate: 401-93-5

LOG NO:	OCT 04 1993	RD.
ACTION:		
FILE NO:		

COMINCO LTD.

EXPLORATION

WESTERN CANADA

NTS 93L9

ASSESSMENT REPORT  
GEOLOGY AND GEOCHEMISTRY - LENNAC PROPERTY

LATITUDE: 54 45 N

LONGITUDE: 126 20 W

OMINECA MINING DISTRICT, B.C.

CLAIMS COVERED: JAKE 7,8,9,10

WORK PERFORMED: MAY 11 - 16

OWNER: L. Bourgh

OPERATOR: Cominco Ltd.

AUGUST 1993

NICK CALLAN

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**23,048**

PART 2 OF 2

## CONTENTS

1.0	SUMMARY.....	1
2.0	INTRODUCTION.....	1
3.0	LOCATION AND ACCESS.....	1
4.0	PHYSIOGRAPHY.....	1
5.0	TENURE.....	2
6.0	REGIONAL GEOLOGY.....	2
7.0	PROPERTY GEOLOGY.....	2
8.0	SUMMARY OF PREVIOUS WORK.....	3
9.0	1993 WORK.....	4
10.0	CONCLUSIONS.....	5
11.0	REFERENCES.....	5

## APPENDICES

- A Affidavit
- B 1993 Expenditures
- C Analytical data
- D Statement of qualifications

## LIST OF FIGURES

- Figure 1: Lennac Property - Location Map
- Figure 2: Lennac Property - Claim Map
- Figure 3: Lennac Property - Compilation map showing geology, geophysical and geochemical data including 1993 grid, 1993 IP survey chargeability highs (chargeability > 10ms), 1993 soil sample locations and values
- Figure 4: Lennac Property - Trench chip/grab sample locations and values



COMINCO LTD.

EXPLORATION  
NTS 93L9

WESTERN CANADA

ASSESSMENT REPORT

GEOLOGY AND GEOCHEMISTRY - LENNAC PROPERTY

1.0 SUMMARY

Prospecting, rock sampling and soil geochemistry conducted over the south and south-easterly extension (as delineated by trenching and the 1993 IP survey) of the Lennac porphyry Cu-Mo system returned only very localized Cu, Mo and Au values in rock samples. There is no evidence for grade improvement in the system in this direction, though current sampling is limited, by poor exposure, to trenched areas. Glacial overburden may have masked any geochemical response over zones of elevated chargeability defined by IP surveys.

2.0 INTRODUCTION

Over the period 11-16 May 1993, a programme of prospecting, soil geochemical sampling and rock chip sampling was carried out on the Lennac property. The programme was designed to complement geophysical surveys run concurrently on the property (see Jackisch, 1993).

3.0 LOCATION AND ACCESS

The Lennac property is located ( Fig. 1) approximately 30 km north of Topley, B.C. at latitude 54 45 and longitude 126 20 (NTS 93L9). Access is via a 7 km four-wheel drive trail from the Fulton Lk. logging road, the latter leaving the Granisle highway 30 km north of Topley.

4.0 PHYSIOGRAPHY

The property lies in an area of subdued to rolling topography ranging from 880 to 1050 m in elevation and characterized by numerous low ridges and moraines of continental glacial origin. Extensive swamps and shallow lakes occupy topographic lows. Outcrop is sparse in the northern part of the property to non-existent in the southern part. Glacial till and outwash sands/gravels cover much of the property.

Vegetation comprises lodgepole pine, spruce, balsam fir and poplar with local alder thickets.

## 5.0 TENURE

The property, located in the Omineca Mining Division, B.C., comprises 8 mineral claims totalling 140 units (Fig. 2) as detailed below:

Claim Name	No. of units	Record #	Due date
JAKE 3	16	301613	10/7/96
JAKE 4	16	301614	10/7/96
JAKE 5	16	301615	10/7/96
JAKE 6	20	301616	10/7/96
JAKE 7	20	301617	11/7/96
JAKE 8	12	301618	09/7/96
JAKE 9	20	315709	07/2/96
JAKE 10	20	315708	12/2/96

The Jake 3 - 8 claims are owned by L. Bourgh of Perow, B.C.. The adjoining ground to the south was staked as the Jake 9 and 10 claims for Cominco in February, 1993.

## 6.0 REGIONAL GEOLOGY

L. Jurassic Hazelton Gp. volcanics and sediments underlie much of the area around the Lennac property. To the east these units are in fault-bounded contact with Triassic Takla Gp. volcanics and sediments. To the north the Hazelton Gp. is overlain by Cretaceous Skeena Gp. sediments, whilst Tertiary Ootsa Lk. Gp. rhyolites and Endako Gp. andesites and basalts overlie the Hazelton rocks to the south.

Intrusive suites in the area include (i) Jurassic age, quartz-monzonitic to granodioritic Topley Intrusions, (ii) late Cretaceous quartz monzonitic to quartz-dioritic Bulkley Intrusions, and (iii) quartz-monzonitic to quartz dioritic dykes and plugs, commonly showing biotite-feldspar porphyritic textures, comprising the Babine intrusives.

Major structures in the area show NNW to NW and NE trends and their intersections appear to have been important in localizing intrusions and associated porphyry mineralization.

Porphyry-style mineralization is associated with all three suites, though the most important deposits in the area (ie the Granisle and Bell deposits) are associated with the Babine intrusive suite.

## 7.0 PROPERTY GEOLOGY

The property geology, based on detailed, comprehensive mapping

by Amax in 1971, is summarized in Figure 3. Geological mapping was not carried out as part of this programme and reference should be made to Leary and Allen, 1972 (summarized in Smit and Harivel, 1992) for details of lithologies, mineralization and alteration.

A NW-SE trending zone of porphyry Cu-Mo mineralization, containing two main centres (Amax E and W zones) is associated with a similarly oriented zone of ENE trending hornblende-biotite-feldspar-quartz dykes of possible Cretaceous age (c. 77Ma.). Mineralization comprises stockwork, fracture controlled and disseminated pyrite, chalcopyrite, chalcocite, magnetite, molybdenite and sphalerite, locally with minor quartz and carbonate gangue. Alteration includes extensive propylitic assemblages and lesser argillic and potassic (secondary biotite and K-spar) types. Best Cu grades (0.2%), defined by drilling, are associated with intrusive material in the Amax W zone, though mineralization does occur in propylitically altered volcanics (Amax E zone) and in silicified, brecciated, volcanic rocks (unit 4 - "rhyolite breccia") localized at the poorly defined contact between volcanic units 3 and 5.

#### 8.0 SUMMARY OF PREVIOUS WORK

- |               |  |
|---------------|--|
| 1971          | Ground staked by Amax as the Thezar 1-132 claims; mapping, prospecting, soil geochemistry, mag-VLF, trenching; initial definition of Amax W and E zones  |
| 1972          | Amax IP survey identified a 600 x 900m zone of mineral potential in W zone; weak, indistinct anomaly associated with E zone  |
| 1973          | Amax drilled 44 percussion holes (3462m); 36 holes in W zone defined a 300 x 300 x 100m zone @ c. 0.2% Cu; 8 holes in E zone suggest c. 0.1% Cu over 800 x 800m area with best i/s of 0.17% Cu /90.5m  |
| 1974          | Amax drilled 5 diamond drill holes (919m) in W zone, confirming grades indicated in percussion drilling; property allowed to lapse   |
| 1970-<br>1974 | British Newfoundland Exploration carry out IP, mapping, diamond drilling (3 holes - 180m) and percussion drilling (11 holes - 450m) in Baboon Lk. area (Jacob Cu-Mo showing); weak chalcopyrite, molybdenite mineralization associated with propylitic and weak potassic altered volcanics |
| 1990          | Partial re-staking of property by L. Bourgh as Cu 1-6 claims   |
| 1991          | Re-staking by L. Bourgh as Alex 1-9 claims; Alex claims optioned by Kennecott and overstacked as Jake 1-9;   |

Kennecott carry out geological mapping, prospecting, trenching, chip sampling; 2 new showings located to E and SE of Amax showings - (i) Suratt disseminated chalcopyrite, pyrite, tetrahedrite (up to 2455 ppm Cu in chip samples) showing hosted in unit 4 "rhyolite breccia", (ii) South of Suratt quartz-molybdenite stockwork; re-evaluation suggests low Cu-Au potential; some claims reduced

- 1992 Ground returned to L. Bourgh (Jake 3-8); minor trenching to trace S extension of Suratt trend;
- 1993 Cominco option Jake 3-8 from L. Bourgh and stake adjacent ground to S as Jake 9, 10.

### 9.0 1993 WORK

Work described in this report comprised 16 km of line-cutting and chaining, prospecting of the cut-lines, soil geochemistry in selected areas (26 samples) and chip/grab sampling of previously unsampled trenches excavated by L. Bourgh (17 samples).

(i) **Prospecting** - the area covered by the 1993 grid is essentially devoid of outcrop. Boulder float of probable local derivation was noted on line ON (see Fig. 3) and comprised maroon, andesitic lapilli tuffs and agglomerate (unit 2 ?).

(ii) **Soil geochemistry** - sampling was carried out at 25m spacing over areas of elevated chargeability identified by the IP survey (see Fig. 3). Samples were taken from the B horizon, placed in kraft paper bags, air dried and sent to the Cominco Exploration Laboratory in Vancouver. Here, samples were oven dried, sieved to -80 mesh and analysed for Cu and Mo using 20% nitric acid digestion, followed by AA. Sample locations and results are shown in Figure 3 and tabulated in Appendix C. No significant geochemistry is associated with the samples collected. Glacial till overburden is likely to mask any bedrock mineralization geochemical expression.

(iii) **Chip/grab rock geochemistry** - 17 chip and grab rock samples were taken from a series of small trenches excavated in the fall of 1992. The location of the trenches, sample locations and analytical results are shown in Figure 4. Geochemical data and analytical methods are included in Appendix C. Brief geological descriptions of the trenches are provided below:

Trench #1 - rusty yellow weathering, duck-egg blue, hard, fine-grained, granular, leucocratic unit (altered felsite) with 1-2% disseminated pyrite and 2% disseminated hematite.

Trench #2 - pyritized, weakly sericitic, oxidised quartz-feldspar-biotite-hornblende porphyry with minor malachite locally on

fractures.

Trench #3 - rusty weathering purple-green-grey, fine-grained, feldspar porphyritic (1-2 mm porphs.) dyke or volcanic; weakly magnetic; hosts weakly disseminated pyrite up to 1% and fracture controlled quartz-carbonate-pyrite (-chalcopyrite) veinlets/stringers; local fine-grained quartz-molybdenite seams.

Trench #4 - weathered, oxidised, variably bleached and sericitized feldspar-quartz-hornblende porphyry; grey white to greenish on fresh surface; epidotic alteration of feldspars; disseminated and fracture controlled pyrite c. 2%, local cpy (1-2%); non-magnetic.

Trench #5 - rusty weathering, pale grey-green, fine-grained, altered porphyry similar to that in trenches #3 and #4; disseminated to fracture controlled pyrite (1-2%) and chalcopyrite (tr-1%); local fine-grained quartz-?molybdenite veinlets and stockworks.

Few significantly elevated Cu, Mo or Au values were obtained. Best values were 2540 ppm (NCL 93-15), 420 ppm Mo (NCL93-9) and 6000 ppb Au (NCL93-10), respectively.

## 10.0 CONCLUSIONS

Geochemical prospecting (soils and rock chip/grab samples) of the S and SE extension of the main NW-SE trending Lennac Cu-Mo mineralized zone, as defined by trenching and the 1993 IP survey, returned only very local elevated Cu, Mo and Au values in rock chip samples. There is presently no indication of grade improvement in the mineralized system in this direction, though sample coverage is limited to trenched bedrock exposure. Soil geochemistry is of little use in evaluating areas of elevated chargeability due to glacial overburden on the Lennac property.

## 11.0 REFERENCES

- Jackisch, I., 1993, IP/Resistivity survey on the Lennac property, Assessment Report.
- Leary, G.M., and Allen, J.F., 1972, 1971 Geochemical and Geological report, Lennac Lake Cu Property, Assessment Report 3807.
- Smit, H., and Harivel, C., 1992, Geology and Trenching on the Lennac Lake Property; Kennecott Canada Inc., Internal report.

Report by: N. J. Callan

N.J. Callan  
Geologist

Approved for release by: John Hamilton

J. M. Hamilton P.Eng./P.Geo  
Manager, Exploration  
Western Canada

Distribution:

- (2) Mining Recorder
- (1) Western District, Central Files
- (1) Leonard Bourgh, Owner
- (1) N.J. Callan, Geologist, Western District

APPENDIX A

IN THE MATTER OF THE B.C. MINERAL ACT AND IN THE MATTER OF A GEOPHYSICAL PROGRAMME CARRIED OUT ON THE LENNAC PROPERTY LOCATED 30 KMS NORTH OF TOPLEY, B.C. IN THE OMINECA MINING DIVISION OF THE PROVINCE OF BRITISH COLUMBIA, MORE PARTICULARLY NTS 93L9

STATEMENT

I, **NICK CALLAN**, of the City of Vancouver, in the Province of British Columbia, make oath and say:

i. **THAT** I am employed as a geologist by Cominco Ltd. and, as such have a personal knowledge of the facts to which I herein-after depose;

ii. **THAT** annexed hereto and marked as "Exhibit A" to this statement is a true copy of expenditures incurred on a geological and geochemical survey on the Lennac property;

iii. **THAT** the said expenditures were incurred from May 11 - 16, 1993, for the purpose of mineral exploration on the above noted property.



Nick Callan  
Geologist  
Cominco Ltd.

Dated this *31* day of *August*, 1993  
at Vancouver, B.C.

APPENDIX B - "EXHIBIT A"

1993 EXPENDITURES - LENNAC PROPERTY

Staff Costs (incl. 5% report preparation)	6600
Line-cutting (16 line kms)	8560
Geochemistry	460
Helicopter	800
Truck/Gas	1288
Domicile	515
Communications	107
Geology Supplies	120
Drafting and Reproduction	<u>500</u>
<b>TOTAL</b>	<b>19050</b>



APPENDIX C

ANALYTICAL DATA

## LENNAC LAKE--WD

Job V 93-0169R

Report date 14 JUN 1993

LAB NO	FIELD NUMBER	Cu ppm	Au ppb	Wt Au gram	Mo ppm
R9302815	NCL93-1	68	20	5	<2
R9302816	NCL93-2	18	<10	5	<2
R9302817	NCL93-3	43	<10	5	<2
R9302818	NCL93-4	11	<10	5	<2
R9302819	NCL93-5	8	<10	5	<2
R9302820	NCL93-6	1	<10	5	<2
R9302821	NCL93-7	215	24	5	5
R9302822	NCL93-8	253	<10	5	35
R9302823	NCL93-9	349	230	5	420
R9302824	NCL93-10	464	6000	5	7
R9302825	NCL93-11	480	<10	5	5
R9302826	NCL93-12	452	20	5	10
R9302827	NCL93-14	970	20	5	6
R9302828	NCL93-15	2540	40	5	9
R9302829	NCL93-16	1200	20	5	6
R9302830	NCL93-17	474	16	5	7

I=insufficient sample X=small sample E=exceeds calibration C=being checked R=revised  
If requested analyses are not shown ,results are to follow

## ANALYTICAL METHODS

Cu Aqua Regia decomposition / AAS

Au Aqua regia decomposition / solvent extraction / AAS

Wt Au The weight of sample taken to analyse for gold (geochem)

Mo HNO3 - HClO4 decomposition / AAS

Report date 9 JUL 1993

EXP LAB	FIELD										DEPTH	WIDTH	FLOW			Cu	Mo		
NUMBER	NO	MAP ZONE	EAST	NORTH	#	MAT'L	ORIG	SITE	COLOUR	SIZE	ORG	WET	cm	SLOPE	HORIZ	PPT	pH	ppm	ppm
S9317049	213101		-550	+0	1	Soil	Glac	Dry	Med-brown	silt	Low	M'st	15	Flat	B	.		20	<2
S9317050	213102		-600	+0	1	Soil	Glac	Dry	Yel-brown	Silty-gravel	Low	M'st	20	Flat	B	.		25	<2
S9317051	213104		-700	+0	1	Soil	Resid	Dry	Yel-brown	Gravly-silt	Low	M'st	10	Flat	B	.		10	<2
S9317052	213105		-750	+0	1	Soil	Glac	Dry	Yel-brown	Gravly-silt	Low	Dry	15	Low	B	.		13	<2
S9317053	213107		-750	+1000	1	Soil	Glac	Dry	Med-brown	Gravly-silt	Low	M'st	20	Flat	B	.		10	<2
S9317054	213108		-700	+1000	1	Soil	Glac	Dry	Med-brown	Gravly-silt	Low	M'st	20	Flat	B	.		11	<2
S9317055	213109		-650	+1000	1	Soil	Glac	Dry	Med-brown	Gravly-silt	Low	Dry	20	Flat	B	.		2	<2
S9317056	213110		-600	+1000	1	Soil	Glac	Dry	Yel-brown	Gravly-silt	Low	M'st	20	Flat	B	.		32	<2
S9317057	213111		-550	+1000	1	Soil	Glac	Dry	Yel-brown	Gravly-silt	Low	M'st	20	Flat	B	.		15	<2
S9317058	213112		-500	+1000	1	Soil	Glac	Dry	Red-brown	Gravly-silt	Low	Dry	25	Low	B	.		8	<2
S9317059	213113		-450	+1000	1	Soil	Glac	Dry	Gry-brown	B'ldry-silt	Low	Dry	15	Flat	B	.		7	<2
S9317060	213114		-400	+1000	1	Soil	Glac	Dry	Gry-brown	Gravly-silt	Low	M'st	15	Flat	B	.		<1	<2
S9317061	213115		-350	+1000	1	Soil	Glac	Seep	Gry-brown	Gravly-silt	Med	Wet	25	Flat	B	.		9	<2
S9317062	213116		-300	+1000	1	Soil	Glac	Dry	Red-brown	Gravly-silt	Low	Dry	15	Flat	B	.		6	<2
S9317063	213117		-250	+1000	1	Soil	Glac	Dry	Yel-brown	Gravly-silt	Low	M'st	20	Flat	B	.		9	<2
S9317064	213118		-1600	+1000	1	Soil	Glac	Dry	Red-grey	B'ldry-silt	Low	Wet	15	Flat	B	.		3	<2
S9317065	213119		-1650	+1000	1	Soil	Glac	Dry	Red-grey	B'ldry-silt	Low	Wet	20	Flat	B	.		7	<2
S9317066	213120		-1700	+1000	1	Soil	Glac	Dry	Brn-grey	B'ldry-silt	Med	M'st	15	Flat	B	.		10	<2
S9317067	213121		-1750	+1000	1	Soil	Glac	Dry	Gry-brown	B'ldry-silt	Med	Wet	25	Flat	B	.		13	<2
S9317068	213122		-1800	+1000	1	Soil	Glac	Dry	Brn-grey	B'ldry-silt	Med	Wet	20	Flat	B	.		20	<2
S9317069	213123		-1850	+1000	1	Soil	Glac	Dry	Med-brown	B'ldry-silt	Low	M'st	25	Flat	B	.		40	<2
S9317070	213124		-1900	+1000	1	Soil	Glac	Dry	Med-brown	B'ldry-silt	Low	Dry	20	Low	B	.		5	<2
S9317071	213125		-1450	+2000	1	Soil	Glac	Dry	Yel-brown	B'ldry-silt	Low	Dry	25	Low	B	.		6	<2
S9317072	213126		-1500	+2000	1	Soil	Glac	Dry	Gry-brown	Gravly-sand	Low	Wet	25	Low	B	.		14	<2
S9317073	213127		-1550	+2000	1	Soil	Glac	Dry	Yel-brown	B'ldry-silt	Low	Dry	20	Flat	B	.		11	<2
S9317074	213128		-1600	+2000	1	Soil	Glac	Dry	Med-brown	B'ldry-silt	Med	Wet	25	Flat	B	.		55	<2
S9317075	213129		-1650	+2000	1	Soil	Glac	Dry	Med-brown	Gravly-silt	Low	M'st	40	Low	B	.		29	<2
S9317076	213131		-1750	+2000	1	Soil	Resid	Dry	Red-brown	B'ldry-silt	Low	Dry	20	Low	B	.		11	<2
S9317077	213132		-1800	+2000	1	Soil	Glac	Dry	Yel-brown	Gravly-silt	Low	M'st	20	Flat	B	.		6	<2
S9317078	213135		-1950	+2000	1	Soil	Glac	Dry	Yel-brown	Gravly-silt	Low	Dry	20	Flat	B	.		14	<2
S9317079	213136		-2000	+2000	1	Soil	Glac	Dry	Red-grey	B'ldry-silt	high	Dry	20	Flat	B	.		7	<2

I=insufficient sample X=small sample E=exceeds calibration C=being checked R=revised  
 If requested analyses are not shown ,results are to follow

APPENDIX D

CERTIFICATION OF QUALIFICATIONS

I, NICK CALLAN, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

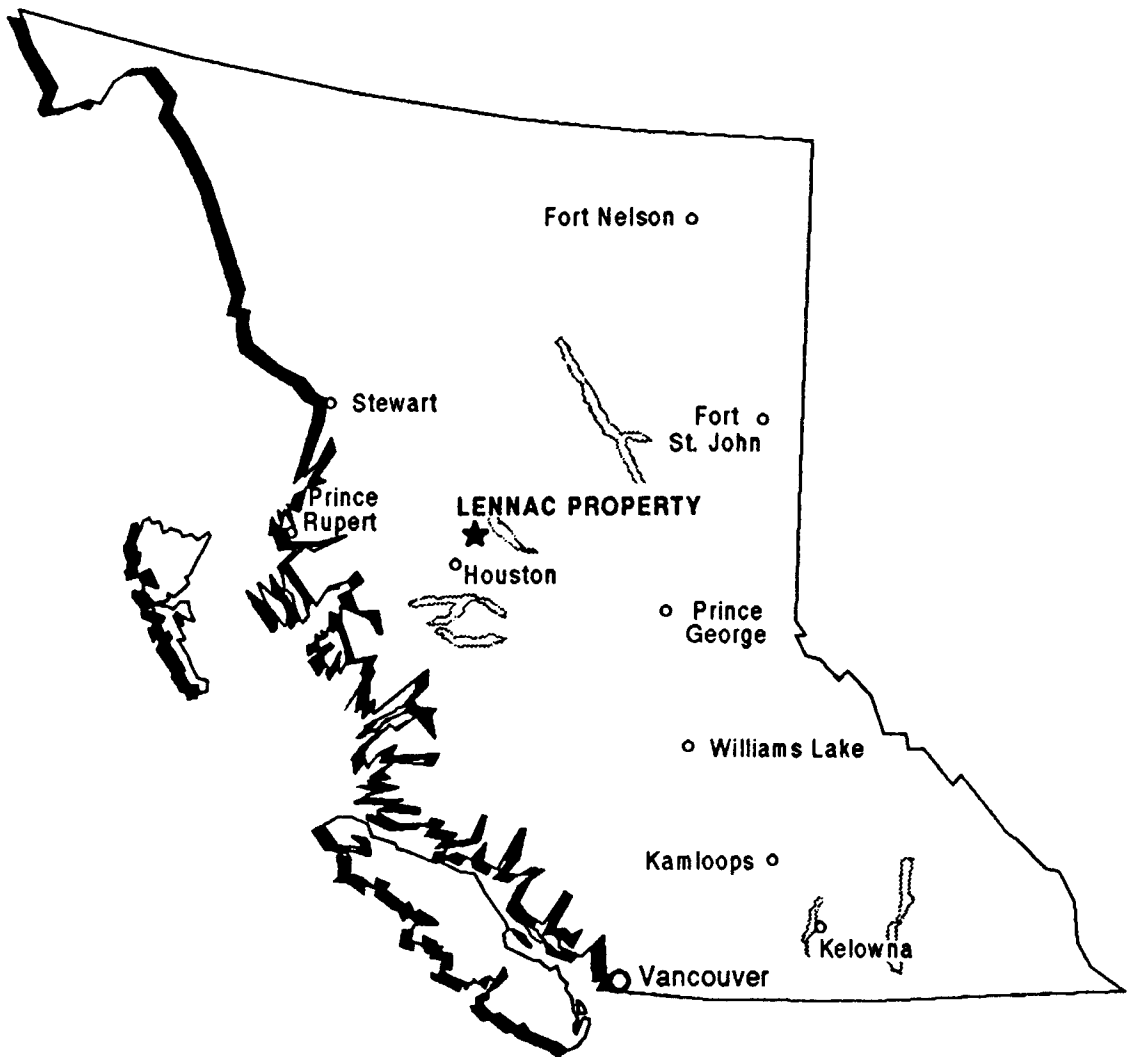
i. THAT I graduated with a B.A.(Hons) in Geology from the University of Oxford in 1985, and a M.Sc. in Geology from the University of Toronto in 1988.

ii. THAT I have been actively engaged in mineral exploration from 1988 to 1993, and have been an employee of Cominco Ltd. from 1990 to the present.

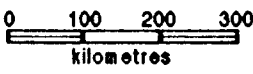
A handwritten signature in cursive script, appearing to read "N.J. Callan", written in black ink. The signature is positioned above a horizontal line.

N.J. Callan  
Geologist

August 1993

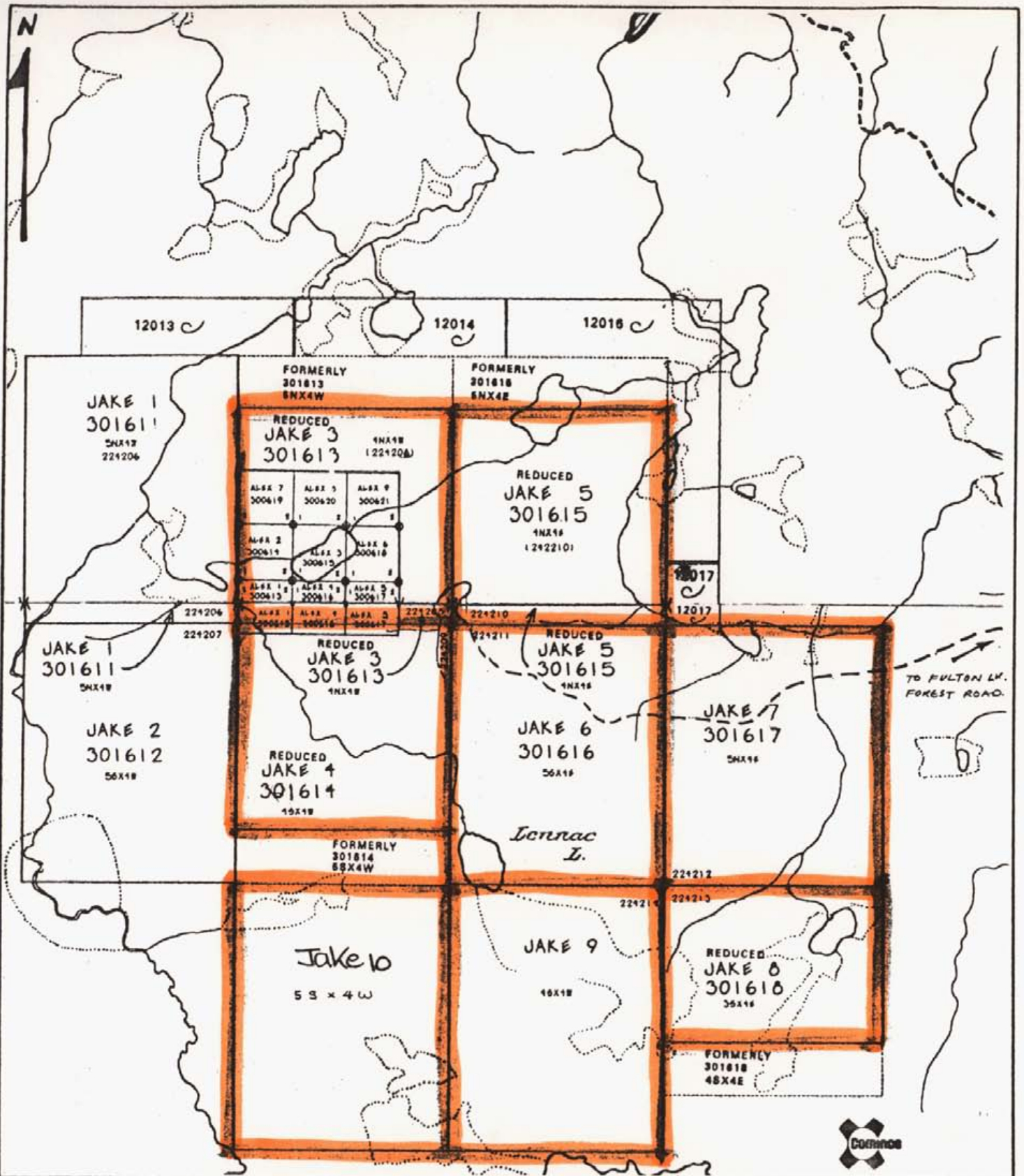


**British Columbia**



Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

**LENNAC PROPERTY  
LOCATION MAP**



Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

# LENNAC PROPERTY CLAIM MAP

Scale: 1 : 50,000

Date: Aug. '93

Figure: 2

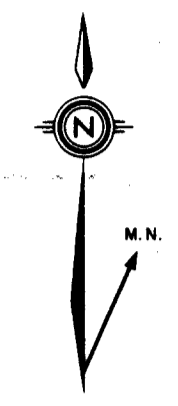


116m. to Claim Post  
 Jake 7 ; 2N,OE  
 Jake 6 ; 4E,3S

4  
 NCL 93-11 (1m. chip)  
 NCL 93-12 (1.5m. chip)

3  
 NCL 93-8 (2m. chip)  
 NCL 93-9 (2m. chip)  
 NCL 93-10 (1m. chip)

5  
 NCL 93-17 (2m. chip)  
 NCL 93-16 (2m. chip)  
 NCL 93-15 (2m. chip)  
 NCL 93-14 (2m. chip)



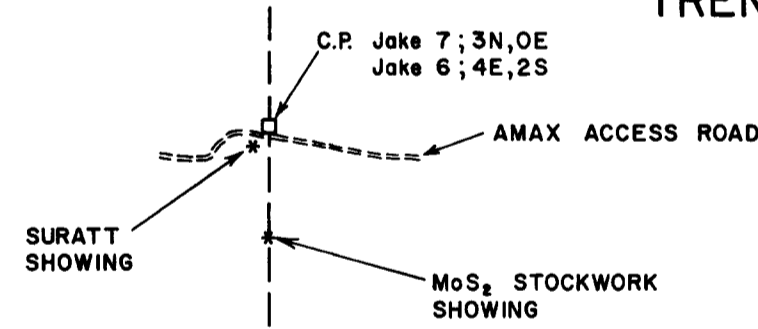
LAB NO	FIELD NUMBER	Cu ppm	Au ppb	Wt Au gram	Mo ppm
R9302815	NCL93-1	68	20	5	<2
R9302816	NCL93-2	18	<10	5	<2
R9302817	NCL93-3	43	<10	5	<2
R9302818	NCL93-4	11	<10	5	<2
R9302819	NCL93-5	8	<10	5	<2
R9302820	NCL93-6	1	<10	5	<2
R9302821	NCL93-7	215	24	5	5
R9302822	NCL93-8	253	<10	5	35
R9302823	NCL93-9	349	230	5	420
R9302824	NCL93-10	464	6000	5	7
R9302825	NCL93-11	480	<10	5	5
R9302826	NCL93-12	452	20	5	10
R9302827	NCL93-14	970	20	5	6
R9302828	NCL93-15	2540	40	5	9
R9302829	NCL93-16	1200	20	5	6
R9302830	NCL93-17	474	16	5	7

JAKE 6      JAKE 7

Claim Line

NCL 93-1 (2m. chip)  NCL 93-7 (4m. rubble grab)

TRENCH LOCATION MAP  
 1 : 5,000

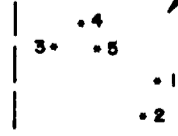


JAKE 6      JAKE 7

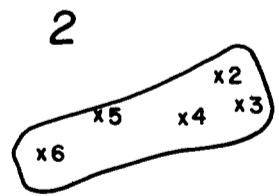
100m.

C.P. Jake 7; 2N,OE  
 Jake 6; 4E,3S

1993 TRENCH SAMPLING



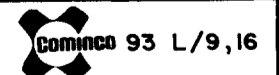
g. s. NCL 93-



0 5 10 15 20 25 metres

GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

23,048 PART 2 OF 2

LENNAC PROPERTY 

Drawn by: N.J.C.	Traced by: g. m. d.
Revised by: _____	Revised by: _____
Date: _____	Date: _____

1993 TRENCH CHIP / GRAB  
 SAMPLE LOCATION and VALUES

Scale: 1 : 250      Date: July, 1993      Figure: 4