

84-1099-13243

COMINCO LTD.

EXPLORATION
NTS: 104 G 9W

WESTERN DISTRICT
December 1, 1984

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,243

ASSESSMENT REPORT
ON
SOIL AND SILT SAMPLING

FOR COPPER, GOLD, ARSENIC AND SILVER
ON

HAWK 1, 2, RED DOG, RED DOG, RED, RED DOG 3, RED DOG 4, PINK
MINERAL CLAIMS

RECORD NOS.
532(2), 533(2), 53(9), 116(4), 725(10), 2040(8), 2041(7), 724(10)

LIARD MINING DIVISION

Latitude: 57°40'N Longitude: 130°30'W

Work Date: July 15 - August 25, 1984

Operator: Cominco Ltd.
700-409 Granville St.
Vancouver, B.C. V6C 1T2

REPORT BY:

A.M. PAUWELS

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- 10. SPECTRUM WEST GRID A~~76~~ IN SOILS 1/10000 in pocket ✓

COMINCO LTD.

EXPLORATION
NTS: 104 G 9W

WESTERN DISTRICT
December 1, 1984

SPECTRUM PROJECT

ASSESSMENT REPORT

ON

SOIL AND SILT SAMPLING

ANALYSES FOR COPPER, GOLD, ARSENIC AND SILVER

ON

HAWK 1, 2, RED DOG, RED DOG, RED, RED DOG 3, RED DOG 4, PINK

MINERAL CLAIMS

RECORD NOS.

532(2), 533(2), 53(9), 116(4), 725(10), 2040(8), 2041(7), 724(10)

LIARD MINING DIVISION

INTRODUCTION:

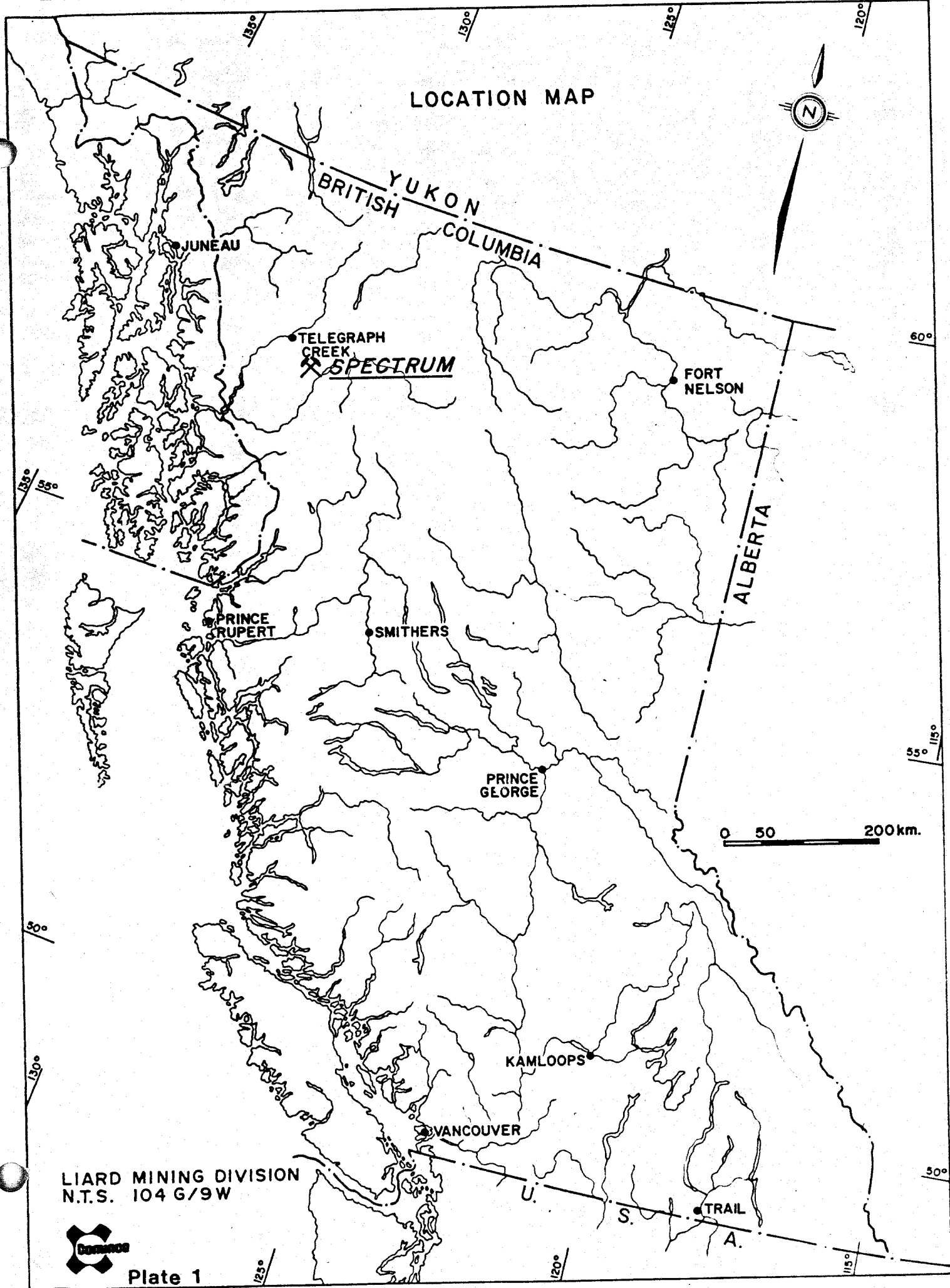
The Spectrum claims (see figures 1 and 2) are situated in northwestern British Columbia, 25 km due west of the village of Iskut on the Stewart-Cassiar Highway.

Access to the claims is by helicopter from Iskut or from Dease Lake (50 km north). Nuttlude Lake, situated in the northeastern corner of the claim block is suitable for float planes and a rough road exists from Nuttlude Lake to an elevation of 1500 m in the central portion of the property. Elevations on the property range from 1000 to 2100 m; steep (20 to 30°) slopes predominate. Work on the property started on July 15 and ended on August 25. This report concerns geochemical soil and silt sampling; additional geology and geophysics were also completed. Camp mobilization was done by truck from Vancouver to Iskut, from there by float plane to Nuttlude Lake (Transprovincial Airlines) and finally from the lake by helicopter (Frontier Helicopters Ltd.) to the campsite at 1750 m. Geochemical Surveys (lines, samples) were done by S. Noakes, technician and G. Mackay assistant under the supervision of A.M. Pauwels, geologist. Analyses were done by Cominco's Exploration and Research Laboratory at 1486 E. Pender St., Vancouver.

HISTORY:

In 1957 Torbrit Silver Mines staked 17 claims on a gold-silver discovery on Hawk Creek 2 1/2 kilometres west of Nuttlude Lake. Work consisted of mapping and sampling. Limited drilling was done on the same discovery in 1967 by a company named Shawnigan Mining and Smelting Co. Presently the HAWK 1 and 2 claims, owned by Newhawk Gold Mines Ltd. cover this area. Work by Newhawk from 1978 to 1980 consisted of geological mapping, rock and soil sampling, 300 m of underground tunneling, road construction and underground drilling. The property was optioned by Cominco Ltd. in 1984.

LOCATION MAP



YUKON
BRITISH COLUMBIA

ALBERTA

JUNEAU

TELEGRAPH CREEK
★ SPECTRUM

FORT NELSON

PRINCE RUPERT

SMITHERS

PRINCE GEORGE

KAMLOOPS

VANCOUVER

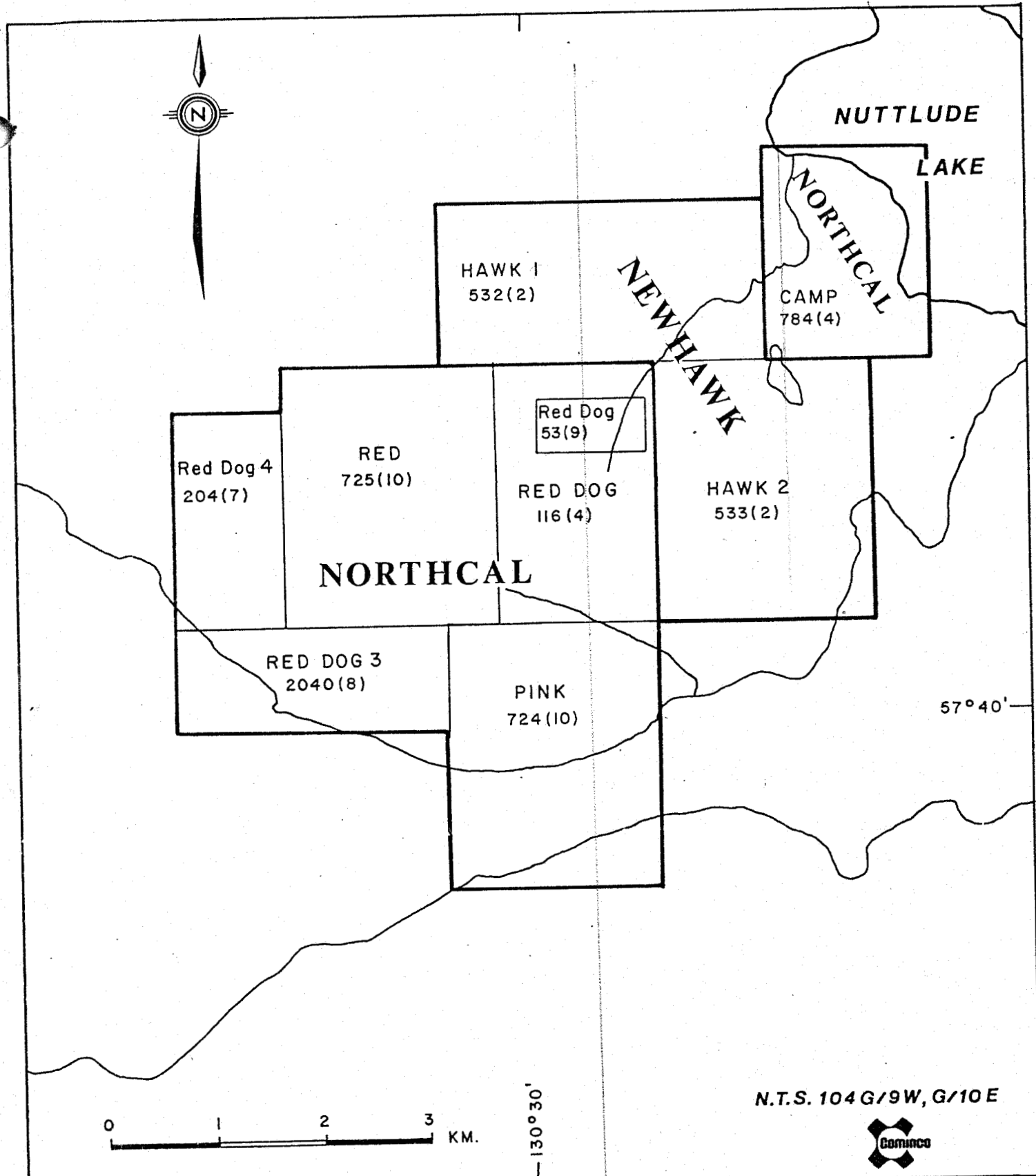
TRAIL

0 50 200 km.

LIARD MINING DIVISION
N.T.S. 104 G/9W



Plate 1



N.T.S. 104 G/9W, G/10 E



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

SPECTRUM PROJECT
CLAIM MAP

Scale: 1:50,000

Date: 23-11-1984

Plate: 2

The present Red Dog claims, situated south of the Newhawk ground, were originally staked in 1969 by Spartan Explorations to cover a porphyry copper occurrence 4 km southwest of Nuttlude Lake. Mitsui Mining and Smelting Company Ltd. optioned the property in 1970 and did some geological mapping as well as geophysical and geochemical surveys.

The property was then optioned to Imperial Oil Limited from 1971-3 and further geological, geochemical and geophysical surveys were done as well as 450 metres of diamond drilling in four holes. The Red Dog claims were staked for the Racicot Syndicate in 1975 and optioned to Consolidated Silver Ridge Mines Ltd. in 1977. Silver Ridge completed geological mapping and a geochemical soil survey on the property in 1978. In 1979, this company undertook extensive road building, bulldozer trenching and diamond drilling on the property. A total of 432 metres of BQ and 400 metres of NQ drilling was completed in 10 holes from July 8 to October 14, 1979. In 1980, Silver Ridge completed 18 NQ drill holes totalling 2462.2 metres. Recently, through corporate name change, Northcal Resources owns the property (Red, Red Dog claims etc.) Cominco Ltd optioned the property in 1984.

III. GEOCHEMICAL SAMPLING

A. Sampling Method

An east-west oriented grid was established with compass and hip chain and marked with plastic flagging. Stations were marked every 50 m along the lines with a picket and aluminum tag. Most lines are 100 m apart, some are 200 m apart. At every station soil samples were collected from the B horizon. Approximately 200 to 500 grams of material was collected at each location.

B. Analytical Methods

All samples were analysed for copper, silver, arsenic and gold at Cominco's Exploration and Research Laboratory, 1486 E. Pender, Vancouver. The analytical procedure is as follows. Each sample is dried and sieved to - 80 mesh. For copper and silver 0.5 grams of this fraction was decomposed in 20% HNO₃ solution and analyzed by atomic absorption spectrophotometry. For arsenic 0.5 grams was fused with pyrosulphate, digested and analysed through colorimetry. For gold 5 grams were decomposed in aqua regia, subjected to solvent extraction and analysed by atomic absorption spectrophotometry.

Detection Limits are 10 ppb for gold, 400 ppb for silver and 2 ppm for copper and arsenic.

C. Results

The results are illustrated on figures 3 to 10. The copper map shows values as high as 5930 ppm Cu; values over 60 ppm are considered anomalous. Anomalous values are widespread over the grid. Highest values are found from lines 9000 to 10000 N in the central part of the grid. Values over 60 ppm generally coincide with highly altered bedrock (pyritization, Kspar flooding, sericitization, biotitization).

High arsenic values, considered anomalous over 75 ppm, show a distribution very similar to copper. Highest values (up to 22,000 ppm) correspond with peak copper values. The exception is an area from 9000N to 10000N, 9500E to 9800E, where high copper values contrast with low arsenic values.

Silver values are considered anomalous over 0.9 ppm. Values over 0.9 ppm occur in restricted areas and some coincide with peak copper and arsenic values.

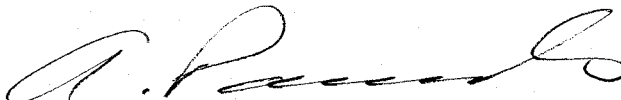
Gold values are high in many parts of the grid. Values over 60 ppb are considered anomalous. Anomalous gold values are less widespread than anomalous copper or arsenic values, and are found in a central area of the grid. Peak values (up to 8800 ppb Au) correspond with peak copper and arsenic values. These peak values occur in an area 100 m x 400 m located at 9700N - 10700N, 9800E to 9900E. Part of this area was drilled in detail from 1979 to 1980.

CONCLUSIONS AND RECOMMENDATIONS:

Soil sampling on the Spectrum claims delineated a large copper soil anomaly, originating from highly altered rocks. Most of this area is also high in arsenic and a few scattered highs of silver also occur. Gold is anomalous over the central part of the copper-arsenic anomaly.

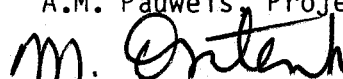
Peak values of copper, gold arsenic and silver occur in a small area measuring 100 m x 400 m (9900E, 9700N to 10100 N) Part of this area was drilled in detail from 1979 to 1980. More drilling will be necessary in this area and other areas to test all bedrock sources of high metal values in soils.

Respectfully
Submitted By:




A.M. Pauwels, Project Geologist

Endorsed By:



M.J. Osatenko, Senior Geologist

Approved for
Release By:



G. Harden, Manager
Exploration, Western District

APPENDIX 1

EXPENDITURES

1. GEOCHEMISTRY

Personnel:

S. Noakes lines, samples, July 12-Aug. 9 @ \$134.95	\$ 3,913.55
G. McKay lines, samples, July 15-Aug.25 @ \$95.12	3,995.04
S. Noakes drafting 5 days @ \$134.95	674.75
A. Pauwels supervision, planning 5 days @ \$219.12	1,095.60
A. Pauwels report 4 days @ \$219.12	876.48
<u>Analysis</u> for Cu,As,Au,Ag, 1260 samples @ \$15.40	19,404.00
Freight for samples	692.36
Supplies (bags, survey materials)	696.04
	<hr/> \$31,347.82

2. GENERAL COSTS

37.5% of the following charges are attributed to Geochemical surveys. This equals the percentage of time spent in field on Geochemistry.

Helicopter (Frontier Helicopters) as per invoices	\$14,656.00
Floatplane (Transprovincial Airlines) as per invoices	1,257.00
Truck rental (Airways) as per invoices	2,214.90
Camp costs (food, fuels, lumber)	7,985.77
Cook: P. Marr July 15-25	4,382.00
Hardware for camp	2,259.16
Travel expenses (air tickets, motels, food)	4,755.57
Radio communications (rental, use)	2,221.47
	<hr/>

Total: General Costs	39,731.87
37.5%	14,899.45

Total Geochemical Surveys 46,247.27

of this total	28.3% was spent on HAWK 1,2 claims	13,087.98
	71.7% was spent on RED, RED DOG, RED DOG	
	RED DOG 3,4, and PINK CLAIMS	33,159.29

Percentages correspond to field time spent on each claim group.

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EXPLORATION

WESTERN DISTRICT

APPENDIX II

STATEMENT OF QUALIFICATIONS

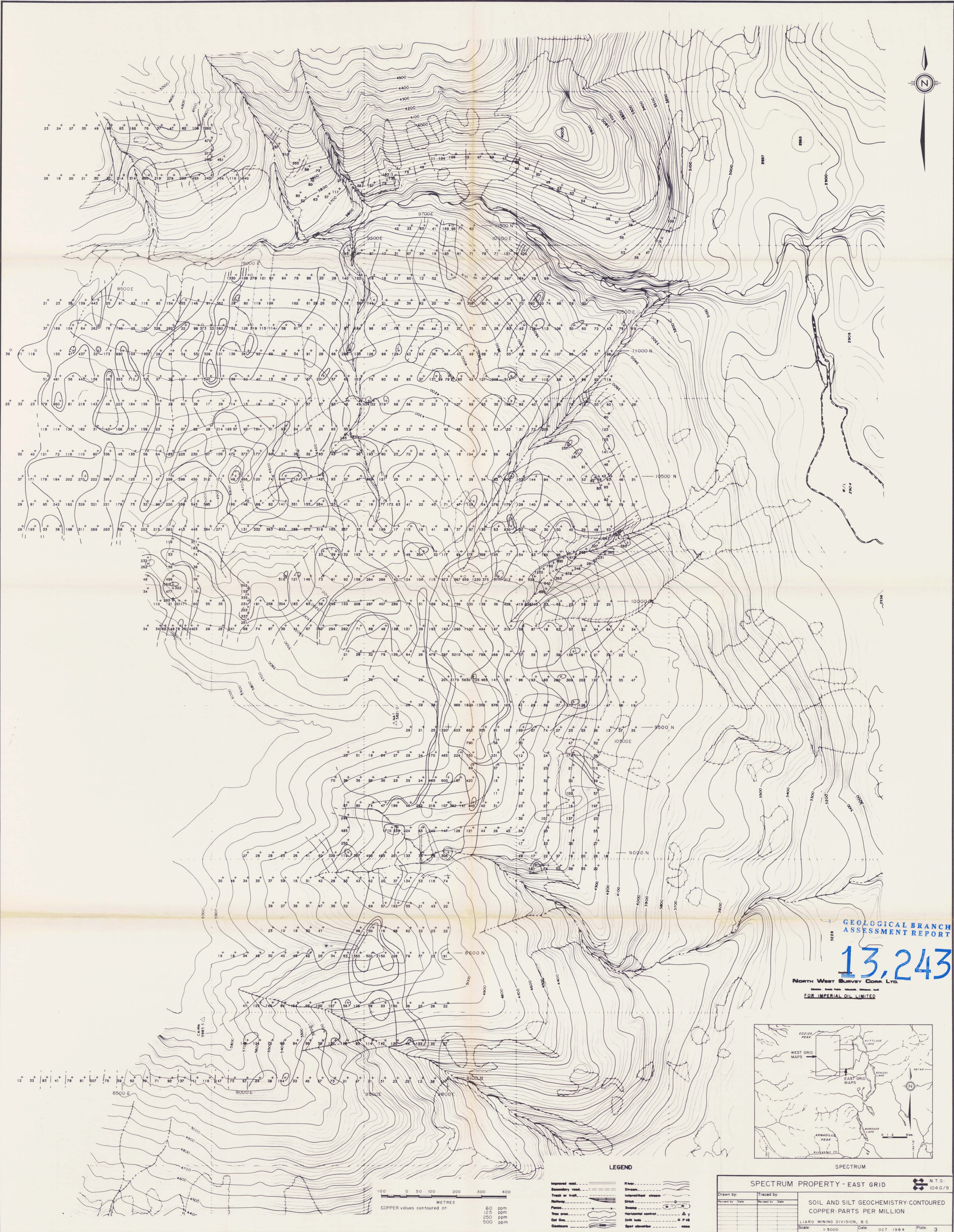
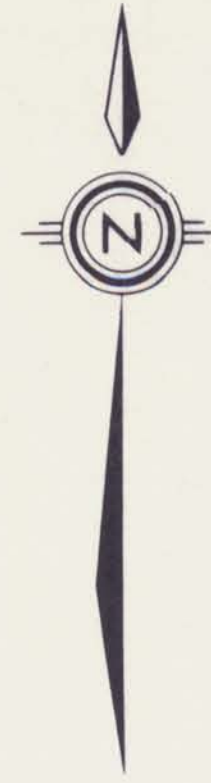
Andre M. Pauwels, 4900 Mariposa Court, Richmond, B.C. hereby declare that I:

1. Graduated from Rijksuniversiteit of Ghent, Belgium with a B.Sc., Geology in July, 1970.
2. Have been engaged in mineral exploration as a Geologist:
 - in Ontario from September, 1970 until April, 1972 with Union Miniere Explorations and Mining Corporation Limited.
 - in British Columbia and Yukon Territory since May, 1972 until December, 1980 with Union Miniere Exploration and Mining Corporation Limited.
 - with Bethlehem Copper Corporation from January until May 1, 1981
 - presently with Cominco Limited since May 1, 1981.
3. Was engaged from 1970 until present in numerous geochemical, geophysical and drilling programmes for mineral exploration in Ontario, British Columbia, the Yukon Territory, Arizona and Peru.
4. Am a Fellow of the Geological Association of Canada and the Association of Exploration Geochemists.



A.M. PAUWELS

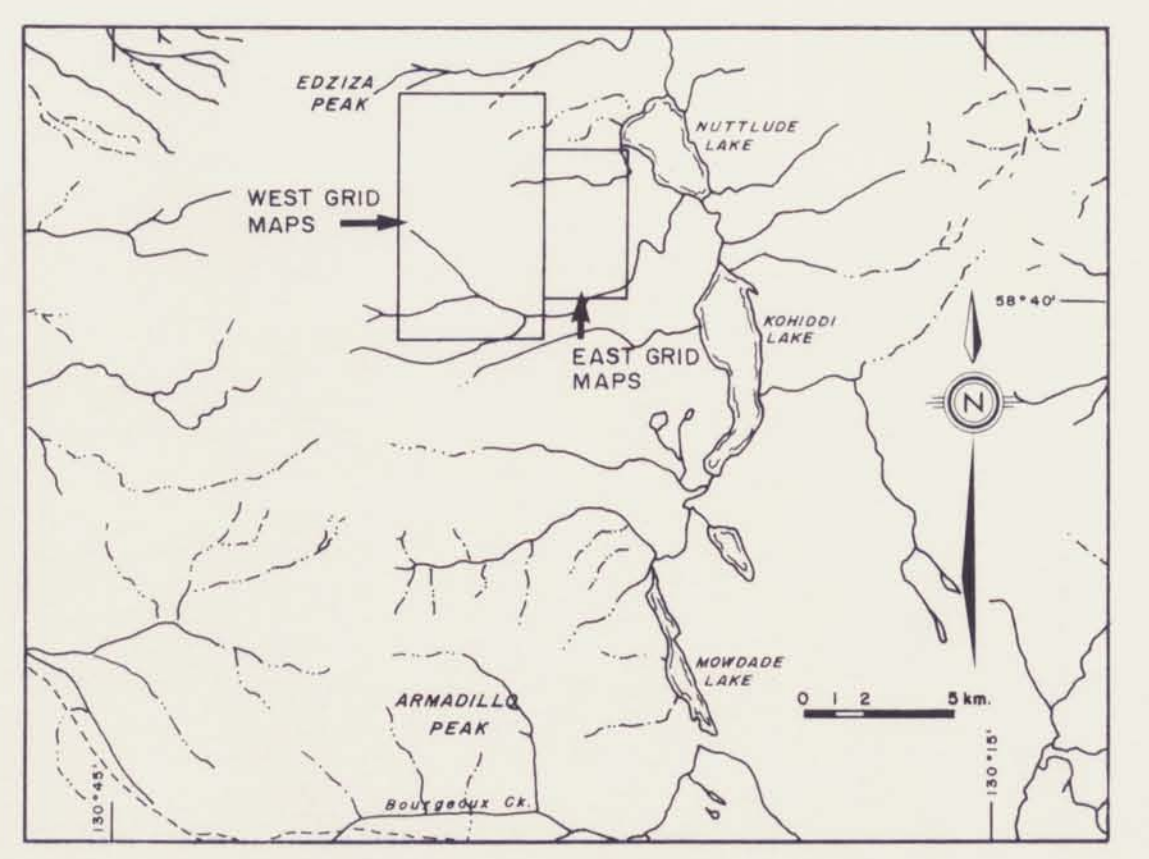
Dated this 28th day of November 1984.



GEOLOGICAL BRANCH
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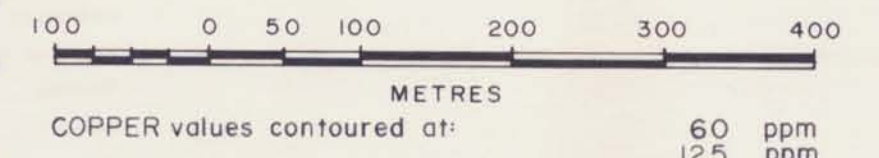
NORTH WEST SURVEY CORP. LTD.
FOR IMPERIAL OIL LIMITED



SPECTRUM

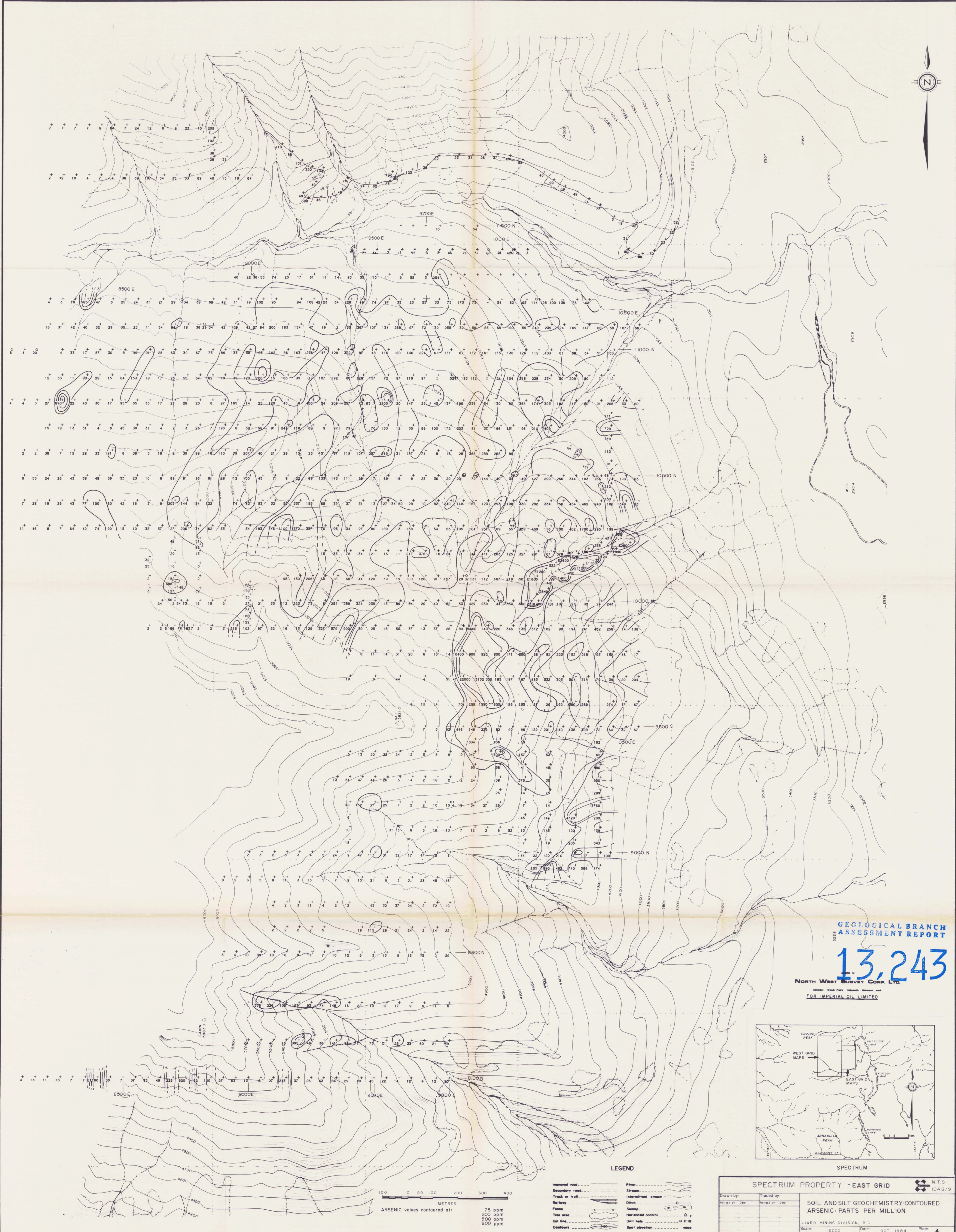
LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Pipe
- Power line
- Cell site
- Contours
- River
- Stream
- Intermittent stream
- Ditch
- Swamp
- Horizontal control
- Spot elevation



COPPER values contoured at:
60 ppm
125 ppm
250 ppm
500 ppm

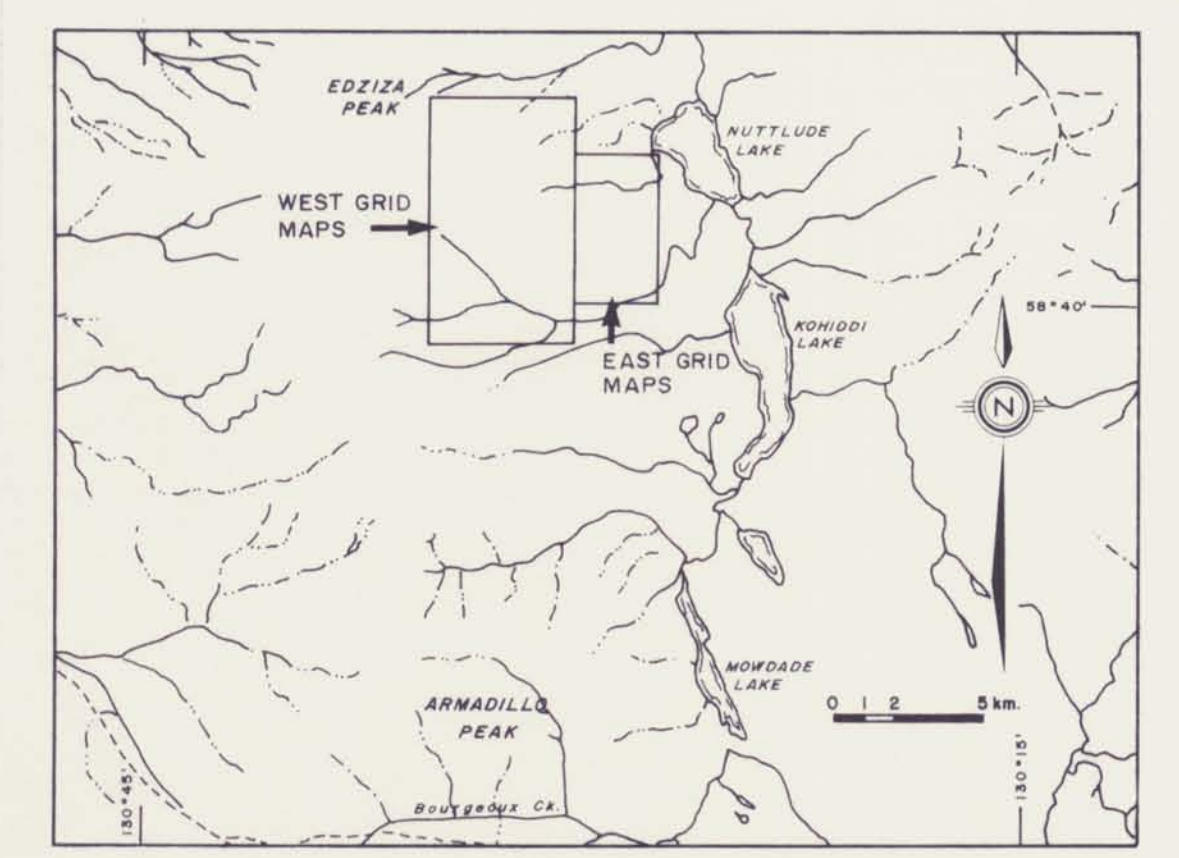
SPECTRUM PROPERTY - EAST GRID		N.T.S. 1046/9	
Drawn by:	Traced by:	SOIL AND SILT GEOCHEMISTRY: CONTOURED COPPER: PARTS PER MILLION	
Reviewed by:	Checked by:	LIARD MINING DIVISION, B.C.	
		Scale: 1:5000	Date: OCT. 1984
			Plate: 3



GEOLOGICAL BRANCH
ASSESSMENT REPORT

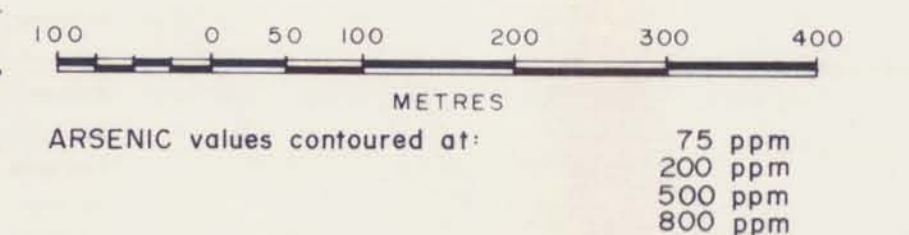
13,243

NORTH WEST SURVEY CORP. LTD.
FOR IMPERIAL OIL LIMITED



LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Tree area
- Out line
- Contours
- River
- Stream
- Intermittent stream
- Ditch
- Swamp
- Horizontal control
- Well hole
- Spot elevation



ARSENIC values contoured at:
75 ppm
200 ppm
500 ppm
800 ppm

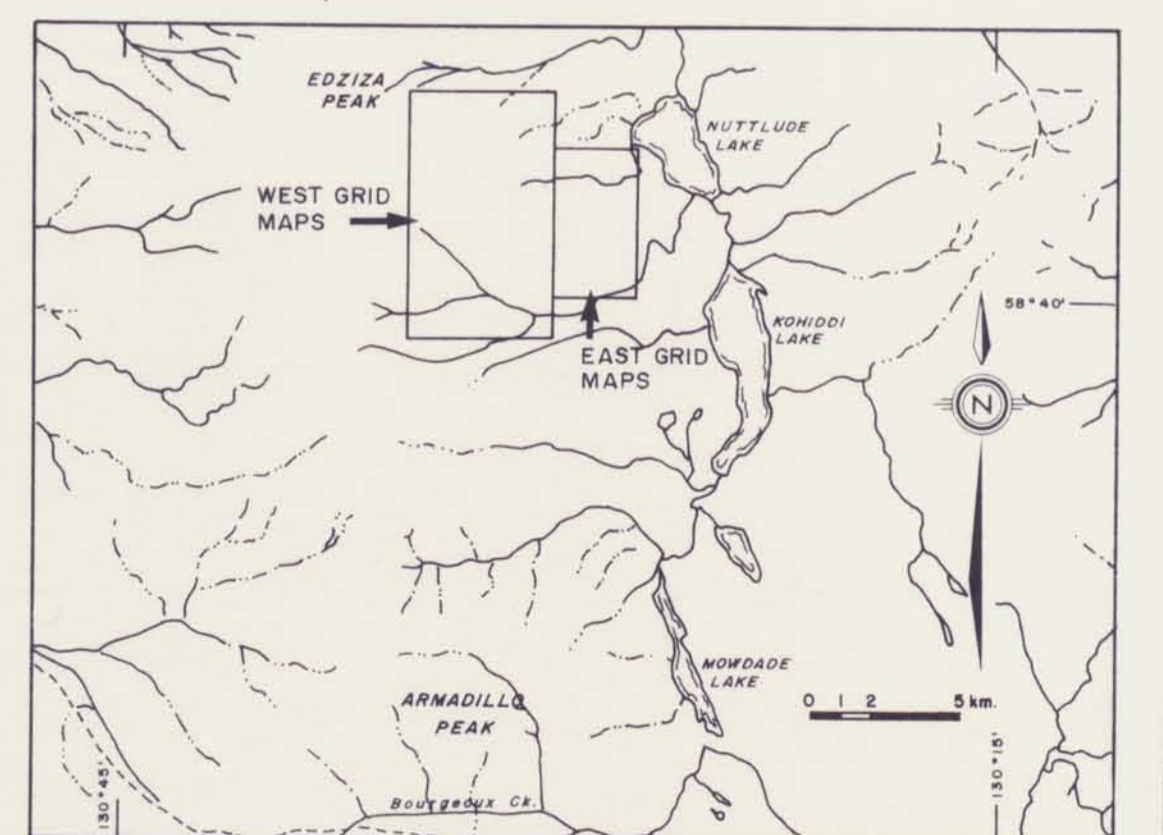
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SOIL AND SILT GEOCHEMISTRY: CONTOURED ARSENIC PARTS PER MILLION		
LIARD MINING DIVISION, B.C.		
Scale: 1:5000	Date: OCT 1984	Plate: 4



GEOLOGICAL BRANCH
ASSESSMENT REPORT

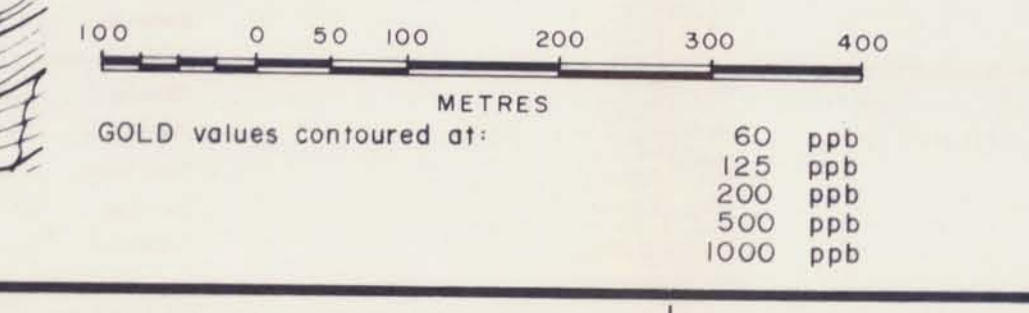
13,243

NORTH WEST SURVEY CORP. LTD.
FOR IMPERIAL OIL LIMITED



LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Tree area
- Drill hole
- Contours
- River
- Stream
- Intermittent stream
- Ditch
- Swamp
- Horizontal control
- Spot elevation



SPECTRUM PROPERTY - EAST GRID

Drawn by: _____ Traced by: _____
 Revised by: _____ Revised by: _____

**SOIL AND SILT GEOCHEMISTRY-CONTOURED
GOLD PARTS PER BILLION**

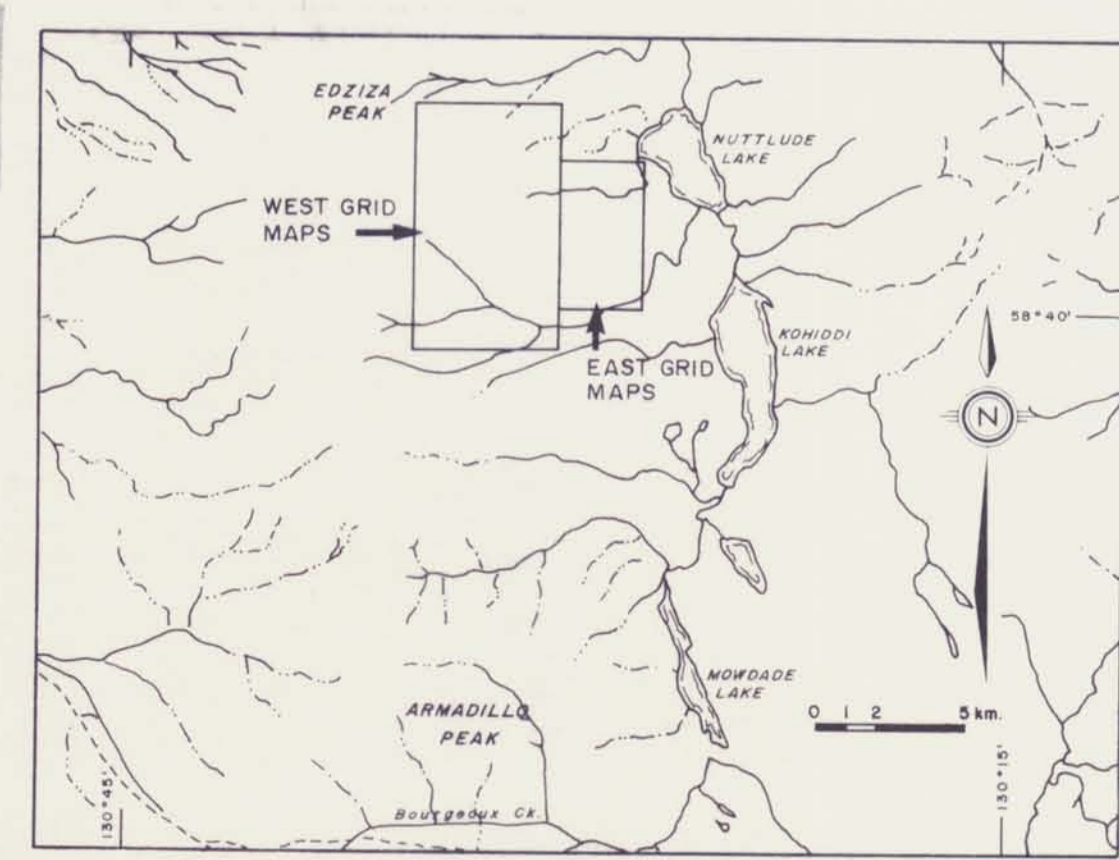
LIARD MINING DIVISION, B.C.
 Scale 1:5000 Date OCT 1984 Plate 5



CENTRAL BRANCH
ASSESSMENT REPORT

13,243

NORTH WEST SURVEY CORP. LTD.
FOR IMPERIAL OIL LIMITED



LEGEND

- | | |
|----------------|--------------------|
| Impaved road | Flow |
| Secondary road | Stream |
| Track or trail | Subsided stream |
| Railway | Ditch |
| Fence | Swamp |
| Tree area | Horizontal control |
| Out line | Cont. hole |
| Contours | Spot elevation |

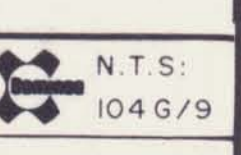
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METRES

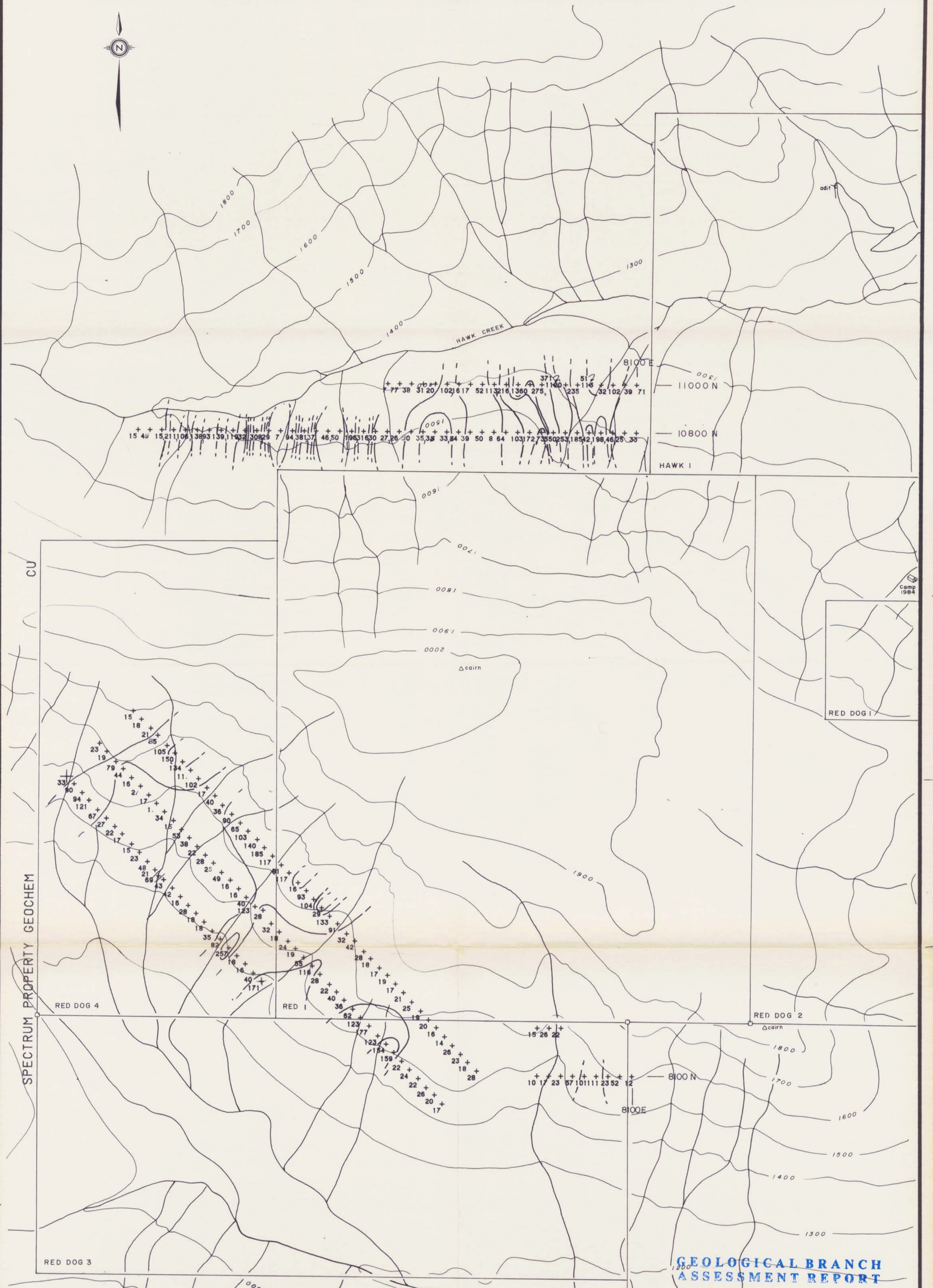
SILVER values contoured at:
0.9 ppm
1.6 ppm
2.2 ppm

SPECTRUM PROPERTY - EAST GRID

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

SOIL AND SILT GEOCHEMISTRY-CONTOURED
SILVER PARTS PER MILLION
LIARD MINING DIVISION, B.C.
Scale: 1:5000 Date: OCT 1984 Plate: 6

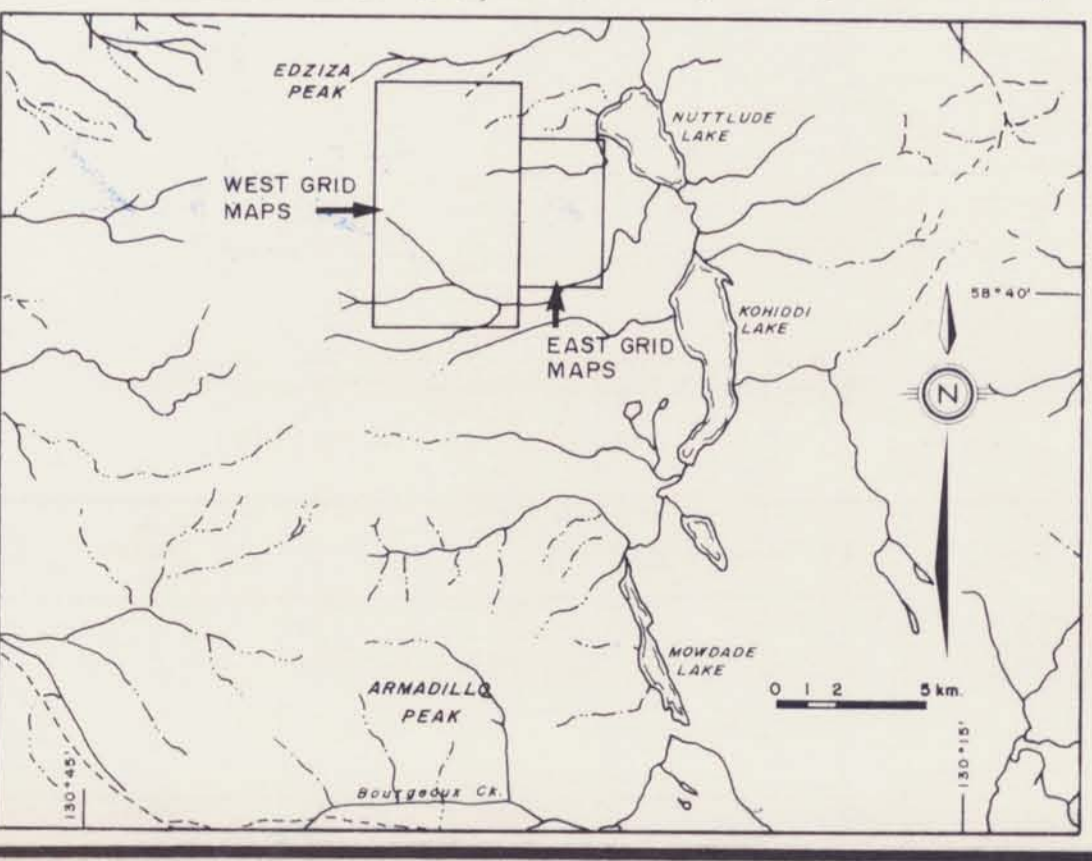




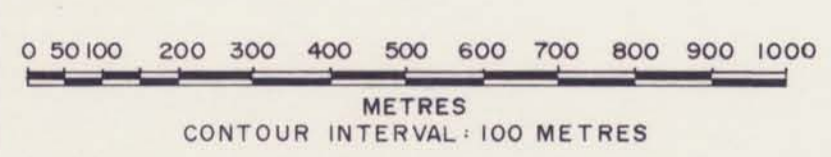
SPECTRUM PROPERTY GEOCHEM


GEOLOGICAL BRANCH
ASSESSMENT REPORT

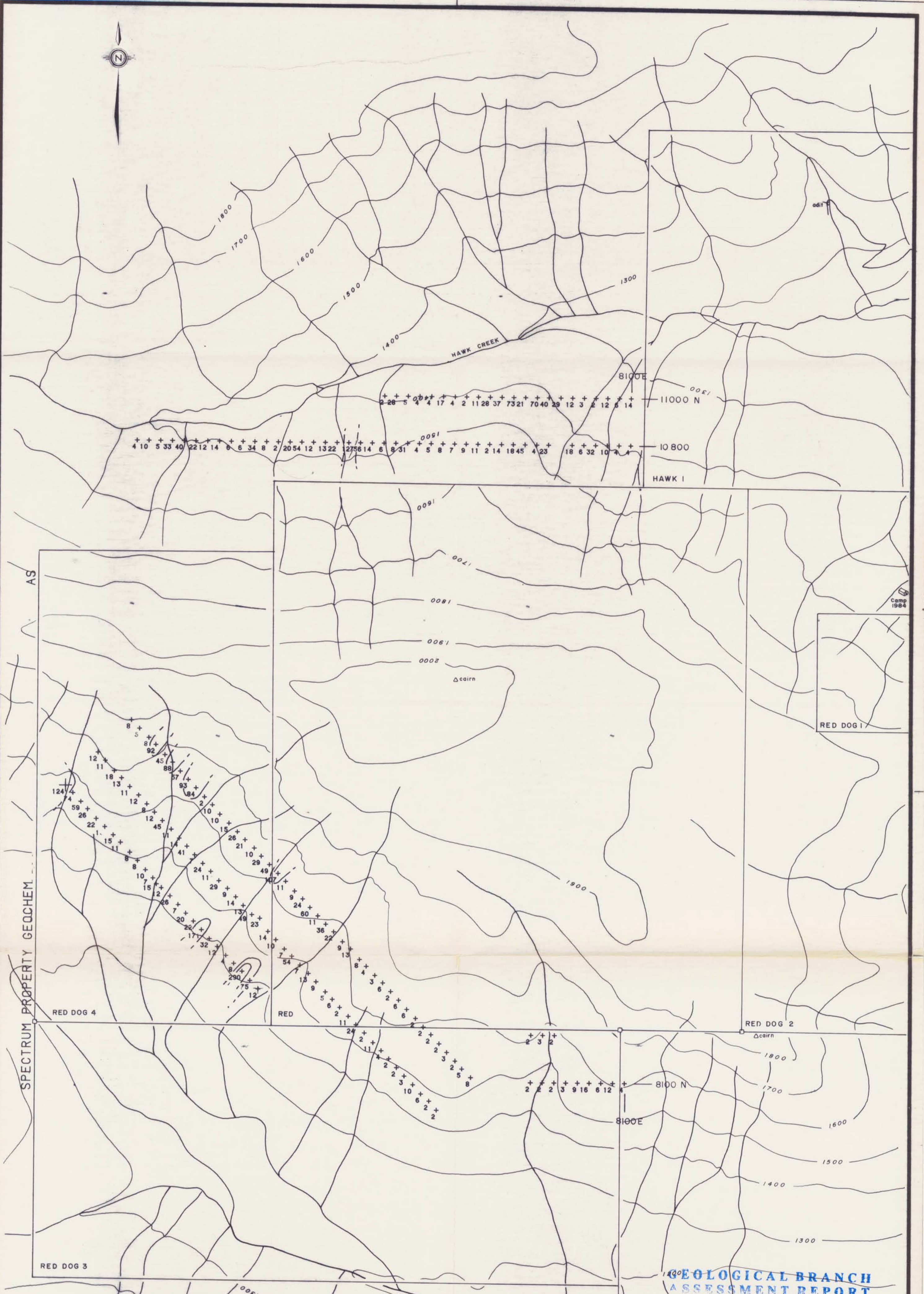
13,243



NOTE:
CONTOUR INTERVALS - 60, 125, 250, 500 ppm



SPECTRUM PROPERTY				 N.T.S: 104 G/9
Drawn by:	Traced by:			
Revised by	Date	Revised by	Date	WEST GRID GEOCHEMISTRY COPPER PARTS PER MILLION LIARD MINING DIVISION
Scale:	1:10,000	Date:	OCT. 1984	Plate: 7



SPECTRUM PROPERTY GEOCHEM

Camp 1984

RED DOG 1

RED DOG 4

RED

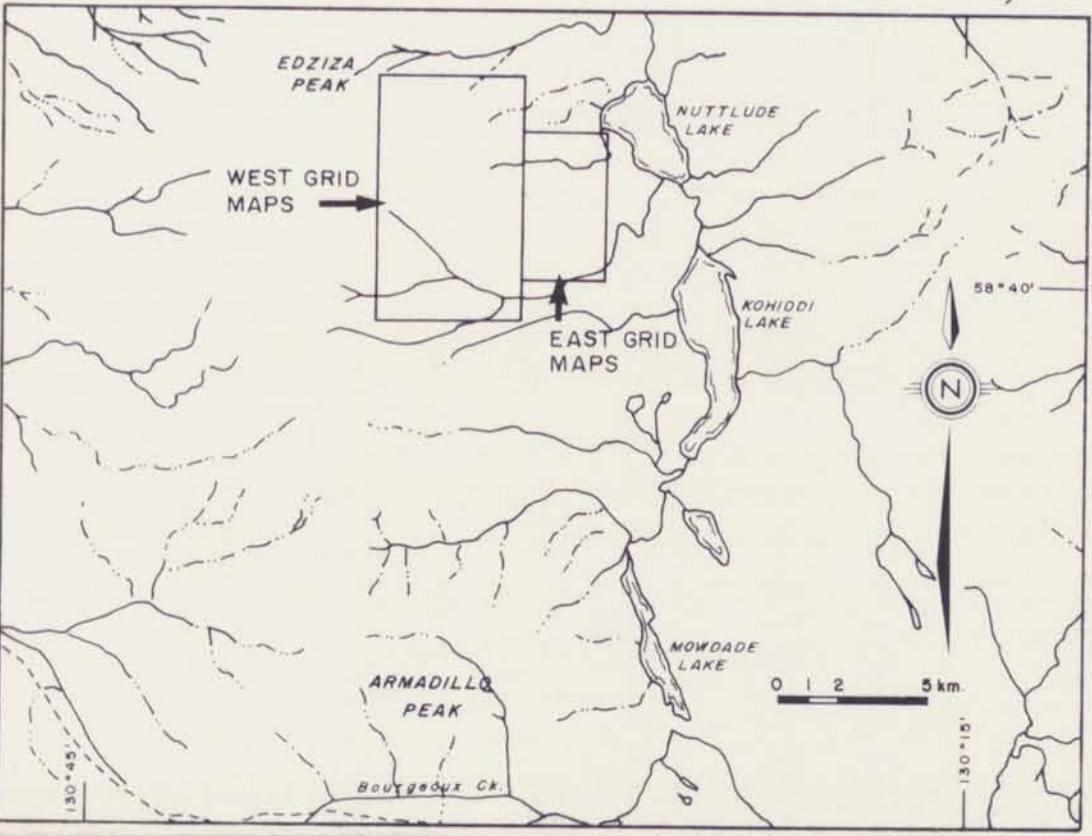
RED DOG 2

RED DOG 3

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NOTE:
CONTOUR INTERVALS - 75 ppm, 200 ppm

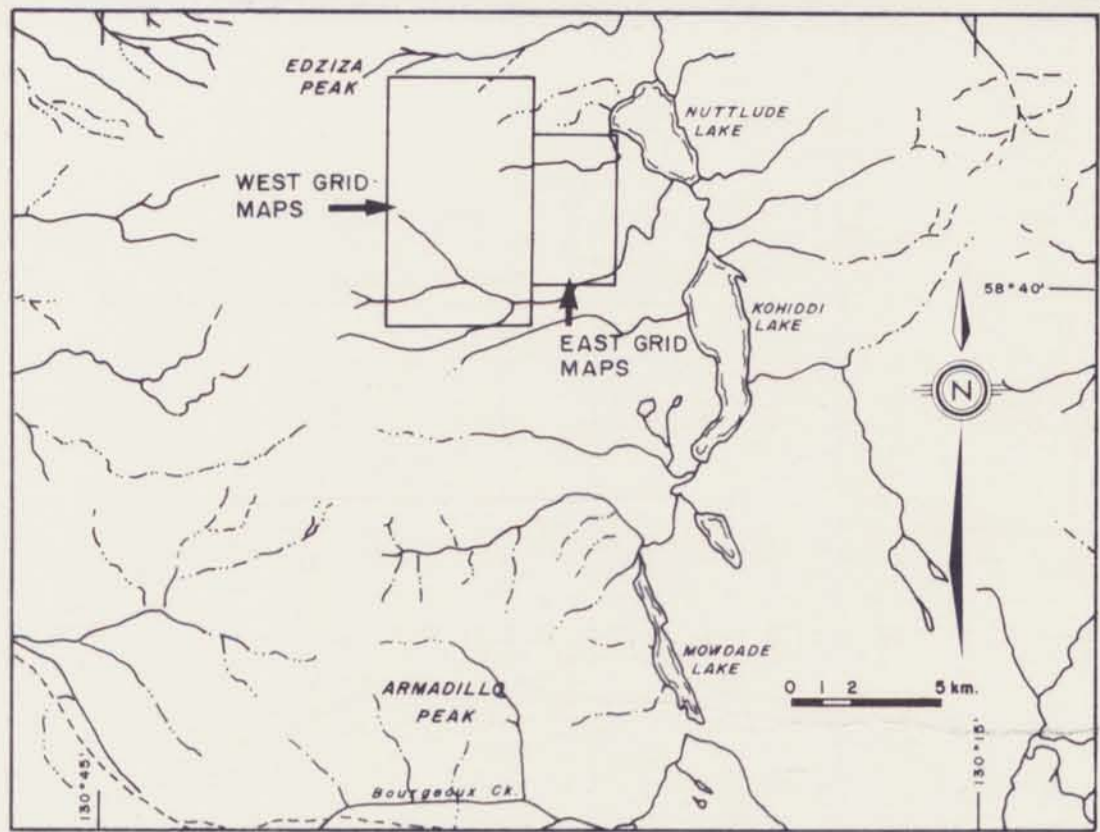


SPECTRUM PROPERTY

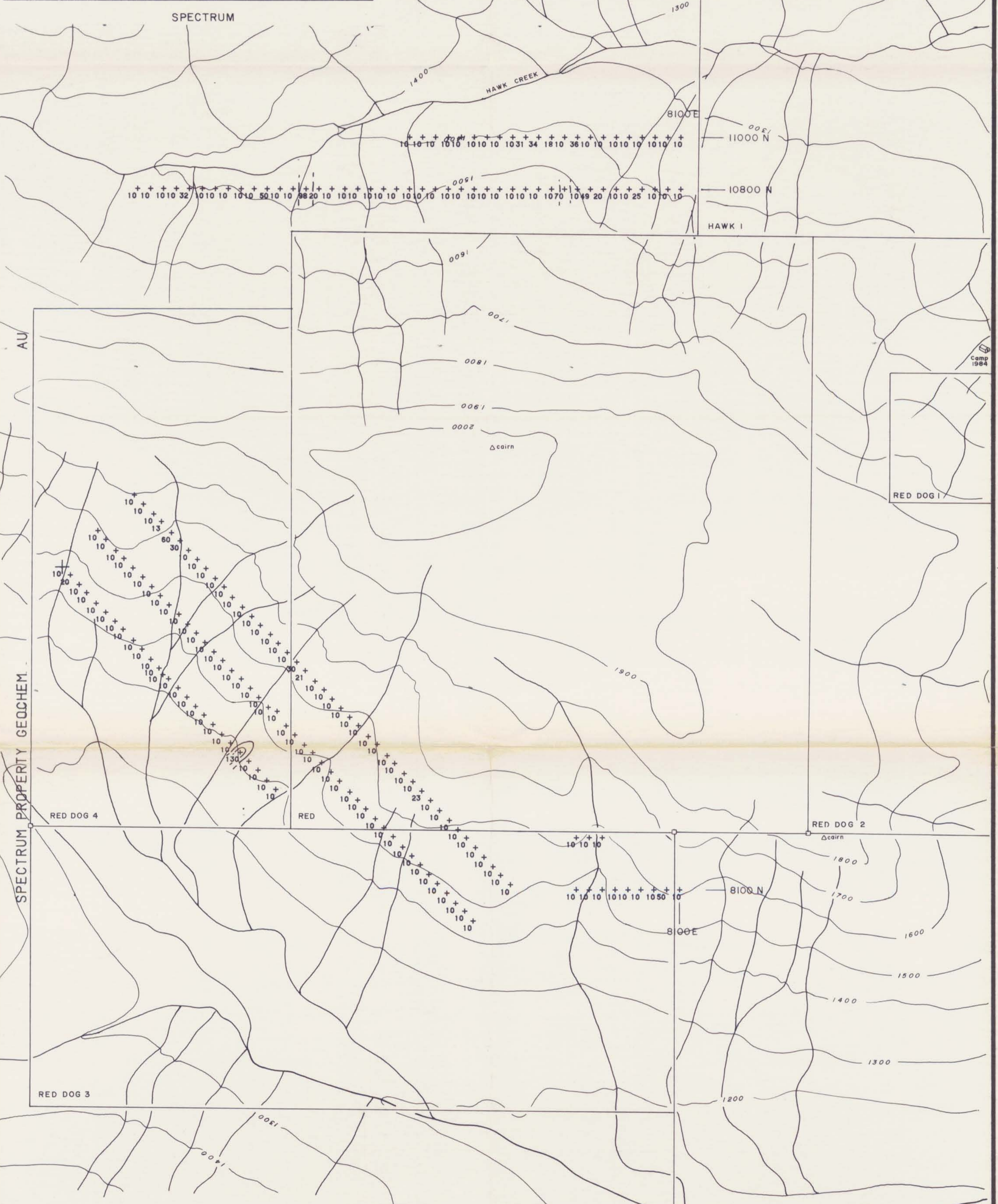
N.T.S:
104 G/9

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Revised by	Date	Revised by	Date

WEST GRID GEOCHEMISTRY
ARSENIC: PARTS PER MILLION
LIARD MINING DIVISION
Scale: 1:10,000 Date: OCT. 1984 Plate: 8



SPECTRUM



NOTE:
CONTOUR INTERVALS - 60 ppb, 120 ppb



SPECTRUM PROPERTY



N.T.S.
104 G/9

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

WEST GRID GEOCHEMISTRY
GOLD PARTS PER BILLION
LIARD MINING DIVISION

13,243

Scale: 1:10,000 Date: OCT. 1984 Plate: 9



AG

SPECTRUM PROPERTY GEOCHEM

RED DOG 4

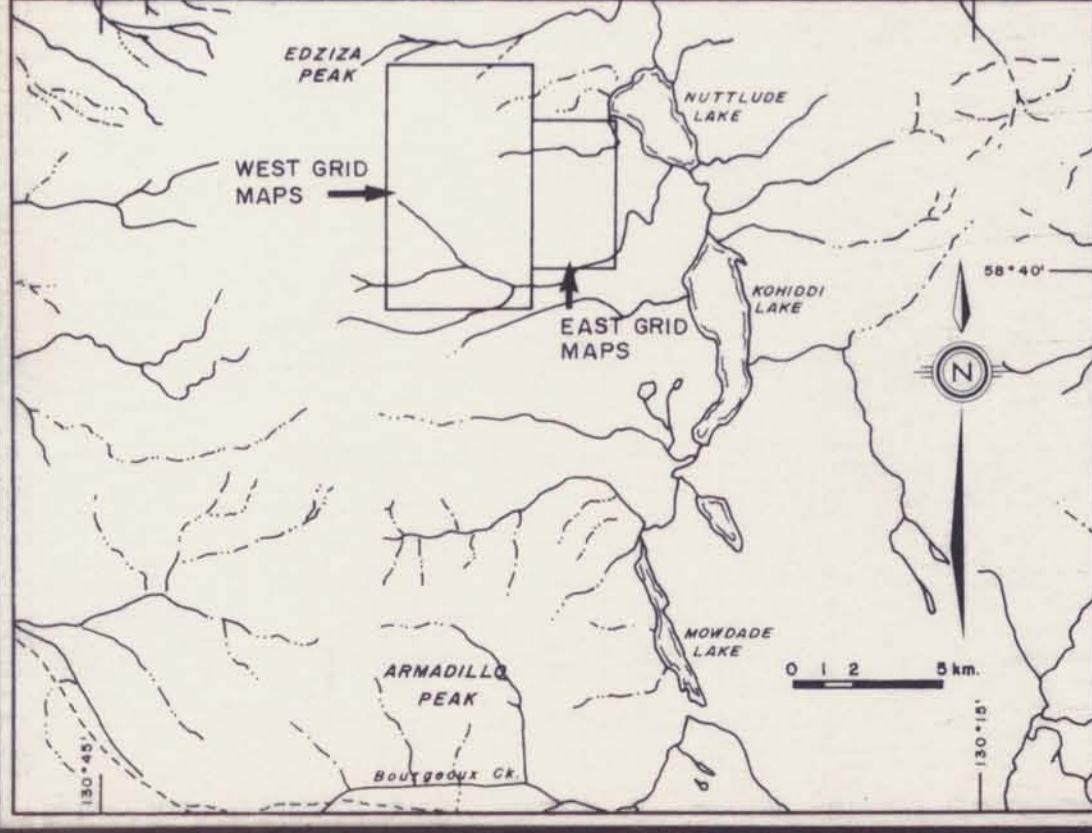
RED

RED DOG 2

RED DOG 3

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Silver contoured at:
0.9 ppm
1.6
2.2



SPECTRUM PROPERTY				N.T.S: 104 G/9
WEST GRID GEOCHEMISTRY SILVER: PARTS PER MILLION				
Drawn by:		Traced by:		LIARD MINING DIVISION
Revised by:	Date:	Revised by:	Date:	
Scale: 1:10,000		Date: OCT. 1984		Plate: 10