

Geophysical and Geochemical Report

on the

TL 2 AND TL 3 CLAIMS

(Bodine Group)

Located at Coordinates: 55 deg. 36.5 min. N, 125 deg. 48 min. W

Omineca Mining Division, B.C.

FILMED

by: Gordon Maxwell & Lyndon Bradish

Owner/Operator: NORANDA EXPLORATION COMPANY, LIMITED
(NO PERSONAL LIABILITY)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

N.T.S. 93 N/12W

February 1986

14,780

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SUMMARY:

The property is located approximately 20 kilometers north/northeast of Takla Landing and was staked to cover a previously known sulphide occurrence on the northeast flank of Mount Bodine. The property is underlain by intermediate and felsic volcanic stratigraphy of the Sitlika Assemblage. These Sitlika volcanics are similar in age and appearance to that of the Kutcho formation which hosts the Sumac Esso volcanogenic massive sulphide deposit in north central B.C.

In September of 1985, Noranda Exploration crews established 9 kilometers of grid and collected 224 B horizon soil samples which were analyzed for Cu, Zn and Ag. The geochem survey outlined several Cu-Zn anomalies in the area of the Eureka showing. The geophysical survey, which consisted of 0.60 kilometers of HLEM and Mag, outlined one conductor found to be coincident with a graphitic phyllite horizon east of the Eureka showing.

INTRODUCTION:

The TL 2 and TL 3 claims were staked by Noranda Exploration personnel to cover two previously known sulphide occurrences on Mount Bodine. During September and October, Norex crew established 9.0 kilometers of grid to facilitate a geochem survey in which 224 samples were taken. In addition, 0.60 kilometers of HLEM and Mag survey were performed.

LOCATION AND ACCESS:

The Bodine Group (TL 2 and TL 3 claims) is located approximately 20 kilometers north/northeast of the village of Takla Landing in north central B.C. (see Figure 1). The claims are situated on the northeast flank of Mount Bodine (Figure 2). Access to the property is via helicopter out of Smithers or Fort St. James.

CLAIM STATISTICS:

The TL 2 and TL 3 claims were staked using the modified grid system. They are located in the Omineca Mining Division. The two claims have been grouped for the purpose of assessment.

<u>Claim Name</u>	<u># Units</u>	<u>Record #</u>	<u>Record Date</u>
TL 2	16	6837	Feb. 12/85
TL 3	9	7029	May 16/85

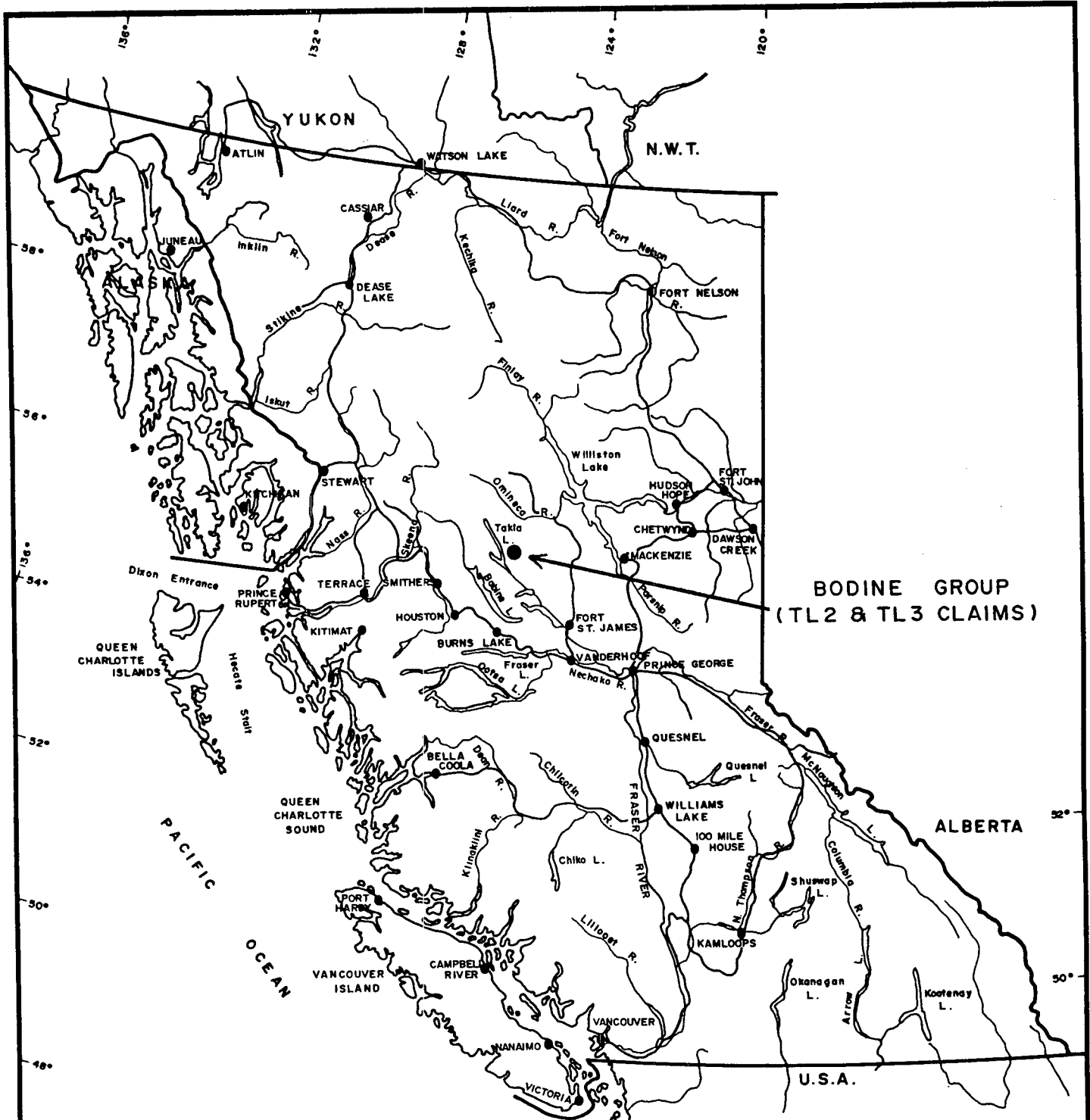
REGIONAL GEOLOGY:

The area is underlain by Upper Triassic to Lower Jurassic volcanic and sedimentary rocks of the Sitlika Assemblage which have been regionally metamorphosed to greenschist facies (Paterson, 1974). This assemblage is composed mainly of well foliated andesitic to rhyolitic pyroclastics and flows with lesser amounts of greywacke, siltstone and phyllite. The Sitlika volcanics are characterized by local development of sericite, quartz-sericite and chlorite schists. The Takla Fault separates the Sitlika rocks from the Tertiary Sustat Group to the west. The Permian Cache Creek rocks to the east are separated from the Sitlika by the Vital Fault and a serpentinite melange. The Cache Creek Group is bounded to the east by the Pinchi Fault and the Jurassic Hogem Batholith (Figure 3).

PREVIOUS WORK:

1974: Kennco Exploration Inc. -- regional silt sampling, JEM survey and geologic mapping in Mount Bodine area.

1975: McIntyre Mines Ltd. -- reconnaissance geology and regional silt geochem.

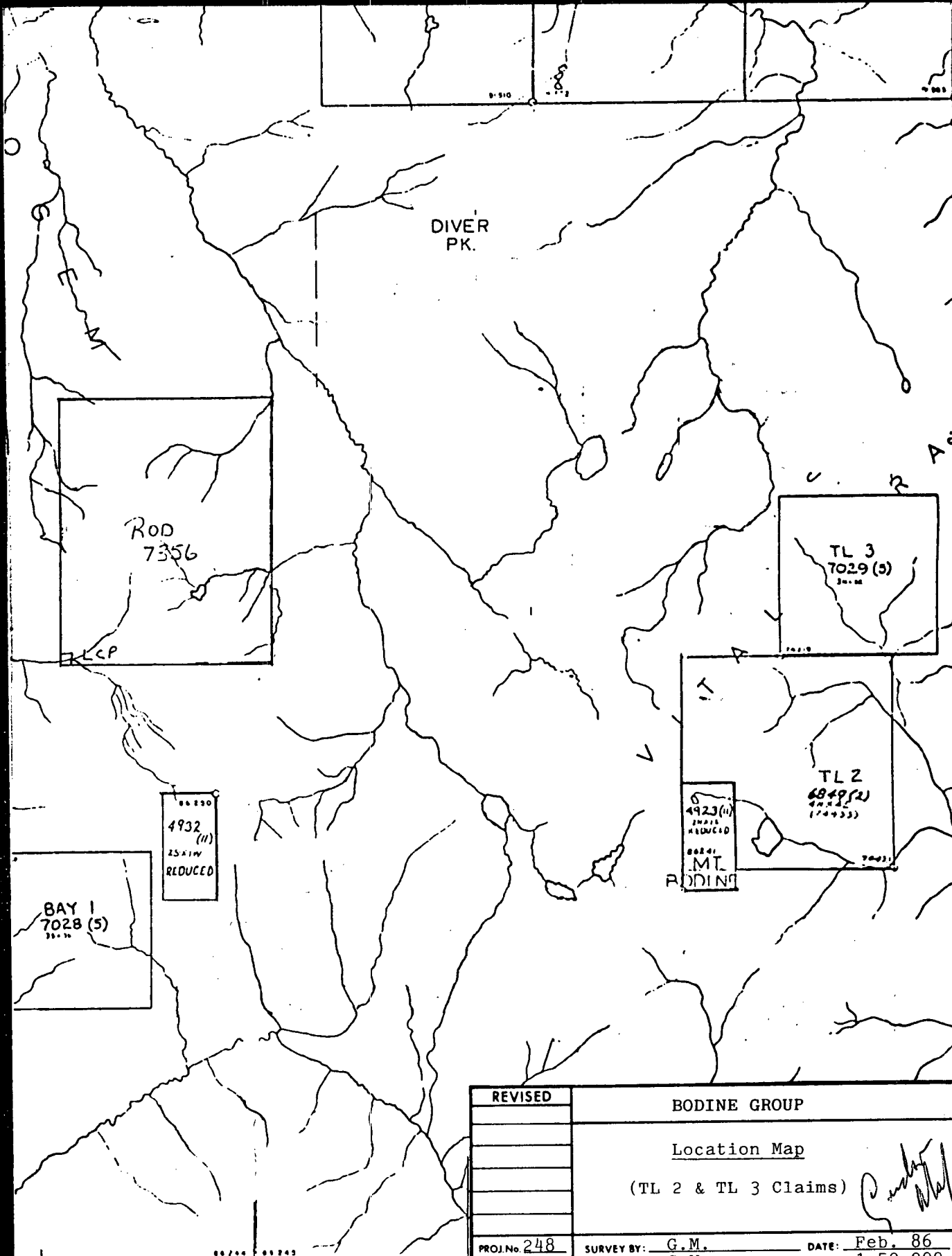


**BODINE GROUP
(TL2 & TL3 CLAIMS)**

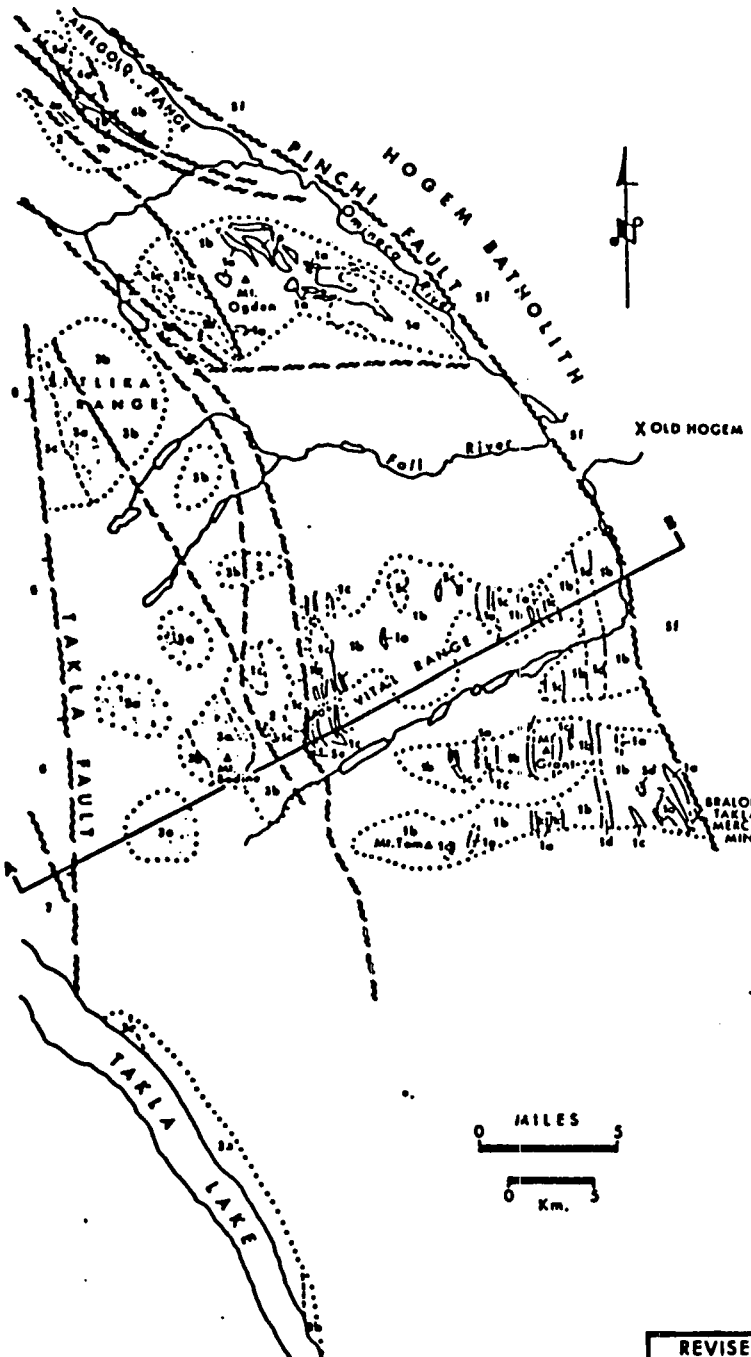
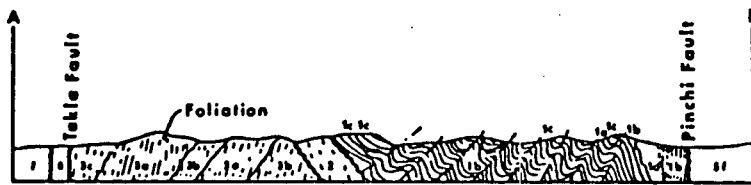
0 100 200 KILOMETRES
SCALE: 1:8,000,000

REVISED	BODINE GROUP	
	Location Map	
	<i>Robert M. Wood</i>	
PROJ. No. 248	SURVEY BY: G.M.	DATE: Feb. 86
N.T.S. 93N/1	DRAWN BY: S.K.B.	SCALE: 1:8,000,000
DWG. No. 1	NORANDA EXPLORATION	
	OFFICE: PRINCE GEORGE, B.C.	

VANCAL 11827



REVISED	BODINE GROUP	
	Location Map	
	(TL 2 & TL 3 Claims)	
PROJ. No. 248	SURVEY BY: G.M.	DATE: Feb. 86
N.T.S. 93N/12	DRAWN BY: G.M.	SCALE: 1:50,000
DWG. No. 2	NORANDA EXPLORATION	
	OFFICE: Prince George, B.C.	



LEGEND

**UPPER CRETACEOUS and PALEOCENE
SUSTUT GROUP**

7 conglomerate, shale, graywacke

JURASSIC

HAZELTON GROUP

8 tuff, volcanic breccia

UPPER TRIASSIC and JURASSIC

TAKLA GROUP (?)

4 (4a) chert pebble conglomerate;
(4b) graywacke, argillite

UPPER TRIASSIC (?), JURASSIC (?)

SITLIKA ASSEMBLAGE

3 (3a) tuff, volcanic breccia, rhyolite, feldspar porphyry
(3b) graywacke, siltstone
(3c) black phyllite or argillite

UPPER PALEOZOIC

CACHE CREEK GROUP

5 (1a) limestone; (1b) chert & phyllite;
(1c) greenstone; (1d) graywacke, laminated siltstone

INTRUSIVES

MESOZOIC or TERTIARY

6 (5a) syenite; (5b) granite; (5c) biotite, hornblende feldspar porphyry; (5d) biotite, granodiorite; (5e) felsite

JURASSIC (Mainly ?)

51 granodiorite (Hogem Batholith)

PERMO-TRIASSIC

2 serpentinite, hornburgite

FAULT (defined, approximate, inferred).....
THRUST or high angle REVERSE FAULT.....
CONTACT (defined, approximate).....
LIMIT of MAPPING.....

REVISED	BODINE GROUP	
	Regional Geology	
	<i>G.M.</i>	
PROJ. No. 248	SURVEY BY: G.M.	DATE: Feb. 1986
N.T.S. 93N/12	DRAWN BY: G.M.	SCALE: 1:500,000
DWG. No. 3	NORANDA EXPLORATION	
	OFFICE: Prince George, B.C.	

1977: McIntyre Mines Ltd. -- helicopter-borne EM and Mag survey and subsequent geophysical, geochemical and geologic follow-up. Staking Ruth claims on Mount Bodine. Discovery of Eureka and Crystal Showings.

1978: Shell Canada Resources Ltd. -- reconnaissance geology in Bodine area and staking Sykes 7 claim.

1979: Shell Canada Resources Ltd. -- soil geochemistry and geologic mapping on Sykes 7 claim.

1979: Canadian Superior Exploration Ltd. -- options Ruth claims from McIntyre.

1980: Canadian Superior Exploration Ltd. -- rock geochemistry, sampling and geologic mapping on Ruth claims.

1981: Shell Canada Resources Ltd. -- option Ruth claims from Canadian Superior, geologic mapping, soil geochemistry and CEM shootback survey.

1982: Chris Graf -- stake Sitlika 1-4 claims on Mount Bodine.

1984: Chris Graf - geologic mapping and soil sampling on Sitlika 2 claim.

MINERALIZATION:

Two sulphide showings were examined on the TL 2 property, the Crystal and the Eureka. The Crystal showing was found to consist of finely disseminated pyrite within a narrow chert horizon. Although the sulphides appear to be barren, the surrounding felsic volcanics seem somewhat altered.

The Eureka showing occurs 200 meters east of the Crystal showing and is exposed in a ravine wall of a small creek. The mineralization consists of stringer type chalcopyrite and pyrite associated with what appears to be a quartz rich shear within a felsic volcanoclastic unit. Assays as high as 4.34% Cu, 0.05% Zn, 0.058 opt Au and 2.25 opt Ag have been reported.

GRID:

The grid was established to cover an area of anomalous Cu Zn Pb soil geochem reported in the area of the Crystal and Eureka showings and consists of 8.1 kilometers of line controlled by 800 meters of baseline. The grid was flagged with stations marked at 25 meter intervals along wing lines running at an azimuth of 050 deg. In addition, one 600 meter line was established at 085 deg. to facilitate the HLEM and Mag surveys. The line is shown on Figure 5.

SOIL GEOCHEMISTRY:

Soil samples were taken from the "B" horizon using a grub hoe from depths ranging from 25 to 38 cm. The samples were placed in Kraft wet strength paper bags, dried, then shipped to Noranda Labs in Vancouver, B.C. for analysis (for analytical procedure see Appendix III).

A total of 224 samples were taken and analyzed for Cu, Zn and Ag. The results are plotted on 1:5000 scale maps (in pocket).

OBSERVATIONS:

COPPER Copper values range from 2 ppm to 800 ppm, with the survey outlining several anomalous trends and isolated anomalies. Two parallel trends are outlined in the area of the Eureka showing on lines 4300N to 4600N, with maximum values of 220 to 370 ppm. A large anomalous area restricted to line 4900N centered at 4650E. "Bulls eye" type anomalies occur at L4300N/4475E, L4200N/4275E and L4200N/4700E.

ZINC The grid covers a large area of anomalous zinc geochem with values ranging from 28 ppm to 1800 ppm. The highly anomalous zinc values (less than 500 ppm contour) show wide discontinuous zones with large highly anomalous cores centered at L4900N/4675E, L4900N/4650E, L4500N/4575E, L4400N/4675E and L4200N/4350E. In addition, several other "bulls eye" type anomalies are located at L4900N/4750E, L4500N/4475E, L4300N/4550E and L4200N/4700E.

SILVER The silver values range from the detection limit of 0.2 ppm to a high of 6.0 ppm. There are several scattered "bulls eye" type silver anomalies delineated by the greater than 1.0 ppm contour, but no obvious anomalous trends that correlate with either the copper or zinc geochem. The 6.0 ppm value corresponds with the 1800 ppm zinc value.

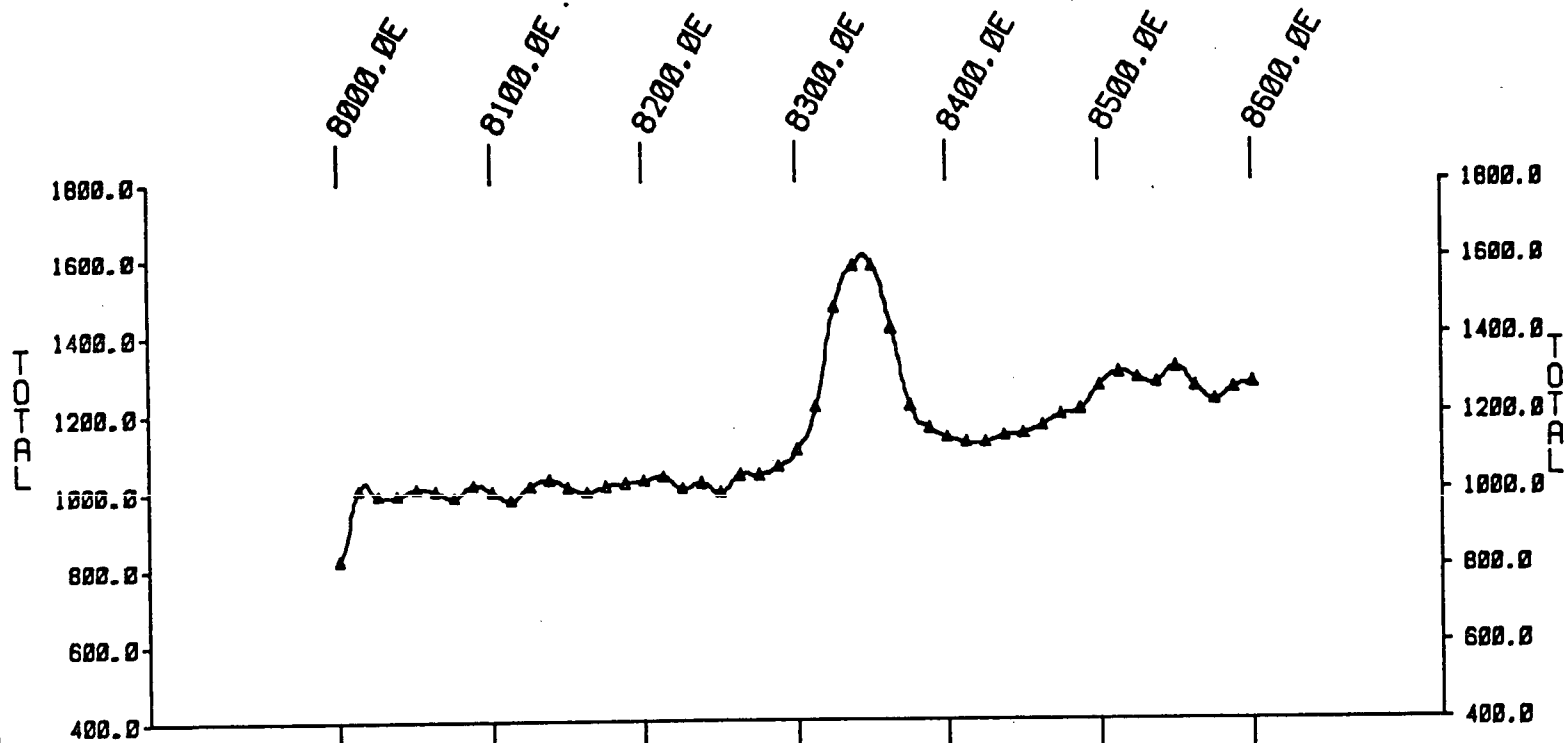
GEOPHYSICS:

INSTRUMENTATION

SE-88 EM System The SE-88 unit differs from the normal HLEM systems such as the MaxMin II above in that it measures without regard to phase, the ratio of signal amplitude between two frequencies which are transmitted and received simultaneously. A low frequency of 112 Hz is used as a reference frequency. The signal difference is integrated or averaged over a period of time in order to improve the signal to noise ratio.

The survey parameters employed on the follow-up programme are as follows:

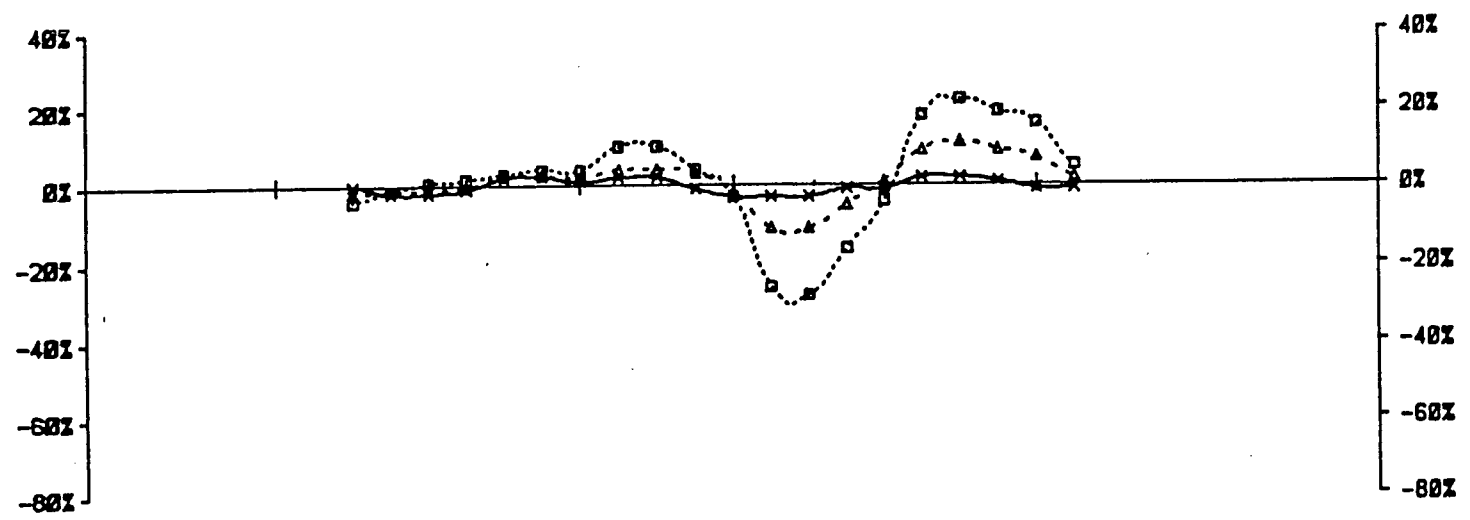
GEOCOMPILATION
 TL-2
 LINE : 8000.0N.
 PROJ : 248
 SCALE : 1 : 5000
 DATE : 8/8/8
 N.T.S. : 93 N/12
 NORANDA EXPLORATION



MAGNETOMETER SURVEY

Field : Total
 Instr : MP-3
 Datum : 57000.0 nT

Scale : 200 nT / cm



SE-88 SURVEY

337 Hz — x —
 1012 Hz - - - Δ - - -
 3037 Hz - - - □ - - -
 Integration : 16 Sec
 Coll sep. : 100 m
 Ref. Frequency: 112
 Vert. Scale : 20% / cm

Jonathan M. Powell

Coil separation	: 100 meters
Frequencies	: 3037, 1012, 337 Hz
Reference frequency	: 112 Hz
Integration period	: 16 or 8 seconds
Reading interval	: 25 meters
Measurement	: ratio of amplitude between reference and signal frequencies (%).

MP-3 Magnetometer System Magnetometers manufactured by Scintrex Ltd. of Concord, Ontario were employed for these surveys. The MP-3 Total Field Magnetometer System consists of one or more field units and a base station. Diurnal and day to day variations are automatically corrected at the end of the survey by the built in microprocessor giving the data a usable accuracy of 1 gamma.

DISCUSSION OF RESULTS

The ground survey consisted of a single line of SE-88 E.M. and mag. The E.M. survey defined a conductor axis of moderate conductivity which is coincident with a 400 nT magnetic high.

CONCLUSIONS:

A brief geologic examination and descriptions in previous literature about the property conclude the property is underlain by favourable volcanic stratigraphy for hosting volcanogenic massive sulphide deposits. The grid area appears to be underlain by a thick sequence of porphyritic rhyolite flows and dacitic pyroclastics of the Upper Triassic-Lower Jurassic Sitlika Assemblage.

The HLEM conductor was found to coincide with a graphitic phyllite horizon within a large sedimentary package in contact with the Sitlika volcanics. The single line of geophysics was not conducted over the Eureka showing, but was near enough to conclude that the sulphides near surface were not conductive.

The zinc and copper geochemical surveys outlined large geochemical anomalies in the area of the Eureka showing. The anomalous trends show the mineralization may be stratiform and possibly enriched along strike.

RECOMMENDATIONS:

1. The grid should be extended to the north and south and additional soil sampling conducted to determine the extent of the geochemical anomalies.
2. A detailed geologic mapping program is recommended for the entire area.

3. All geochem anomalies should be field checked by chip sampling or shallow hand trenching.
4. Several lines of I.P. should be run over the most attractive geochem targets along with a detailed magnetometer survey over the entire grid.
5. More extensive trenching and sampling is warranted for the Eureka showing.

REFERENCES:

- Crosly, R.O. Airborne Geophysical Surveys, Ruth Mineral Claims, TAKLA LAKE Area, B.C., Assessment Report for McIntyre Mines Limited, 1977.
- Francoer, D. Geological, Geophysical and Geochemical Report on TAKLA Project for McIntyre Mines Limited, 1977.
- Graf, C., 1984: Assessment Report of Work Performed on Sitlika 2, 11 Claims. Report #12, 916.
- MacLeod, W.A., 1979: Assessment Report on Geological and Geochemical Surveys, Skye 1, 3 through 17, Mineral Claims, (July 1 - August 27, 1979), Omineca Mining District, B.C. Shell Resources Report. BCDM Sdd. Rpt. #7642.
- MacLeod, W.A., 1981 Report on Geological, Geochemical and Geophysical Surveys, Ruth 1-4, SKYE 7 Claims, BCDM Ass. Rpt. #9547.
- Monger, J.W.H. Lower Mesozoic Rocks in McConnell Creek Map Area, (94E), British Columbia. Geological Survey of Canada, Paper 76-1A.
- Paterson, I.A. Geology of Cache Creek Group and Mesozoic Rocks at the Northern end of the Stuart Lake Belt, Central B.C., Geol. Survey of Canada, Paper 74-1, Part B, 1974.
- Watkins, J., 1980: Geology of the Ruth Claims, Canadian Superior Company Report, BCDM Ass. Rpt. #8485.

APPENDIX I

STATEMENT OF COST

PROJECT: TAKLA-NAK, 248 (BODINE GROUP)
(TL 2 & TL 3 CLAIMS)

REPORT TYPE: Geochemical & Geophysical

a) WAGES:

Geophysics	-- 4 mandays @ \$125.00/day	\$	500.00
Linecutting	-- 4 mandays @ \$110.00/day	\$	440.00
Soil Geochem	-- 8 mandays @ \$110.00/day	\$	880.00

b) FOOD & ACCOMODATION:

16 mandays @ \$ 50.00/day	\$	800.00
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c) ANALYSIS:

224 samples @ \$ 4.00/sample	\$	896.00
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d) TRANSPORTATION: (206 Helicopter) \$ 1,384.00

e) COST OF PREPARATION OF REPORT:

Authors	\$	260.00
Drafting	\$	230.00
Typing	\$	110.00

TOTAL: \$ 5,500.00

COST BREAKDOWN:

Geophysics:

HLEM	\$	1,009.00
Mag	\$	375.00
Linecutting	\$	924.00

Geochemistry	\$	3,192.00

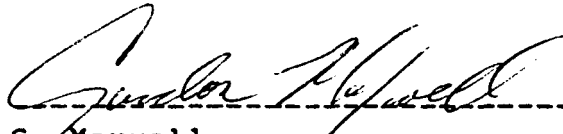
TOTAL: \$ 5,500.00

APPENDIX II

STATEMENT OF QUALIFICATIONS

I, Gordon Maxwell of Prince George, Province of British Columbia, do hereby certify that:

1. I am a Geologist residing at 6162 Caledonia Crescent, Prince George, British Columbia.
2. I am a graduate of the University of Manitoba with an Hons. B. Sc. (geology).
3. I am a member in good standing of the Canadian Institute of Mining and the Prospector's and Developer's Association.
4. I presently hold the position of Project Geologist with Noranda Exploration Company, Limited and have been in their employ since 1980.



G. Maxwell

APPENDIX II

STATEMENT OF QUALIFICATIONS

I, Lyndon Bradish of Vancouver, Province of British Columbia, do hereby certify that:

1. I am a Geophysicist residing at 1826 Trutch Street, Vancouver British Columbia.
2. I am a graduate of the University of British Columbia with a B.Sc. (geophysics).
3. I am a member in good standing of the Society of Exploration Geophysicists, Canadian Institute of Mining and the Prospector's and Developer's Association.
4. I presently hold the position of Division Geophysicist with Noranda Exploration Company, Limited and have been in their employ since 1973.



L. Bradish.

APPENDIX III

ANALYTICAL METHOD DESCRIPTIONS FOR GEOCHEMICAL ASSESSMENT REPORTS

The methods listed are presently applied to analyse geological materials by the Noranda Geochemical Laboratory at Vancouver.

Preparation of Samples

Sediments and soils are dried at approximately 80°C and sieved with a 80 mesh nylon screen. The -80 mesh (0.18 mm) fraction is used for geochemical analysis.

Rock specimens are pulverized to -120 mesh (0.13 mm). Heavy mineral fractions (panned samples * from constant volume), are analysed in its entirety, when it is to be determined for gold without further sample preparation.

Analysis of Samples

Decomposition of a 0.200 g sample is done with concentrated perchloric and nitric acid (3:1), digested for 5 hours at reflux temperature. Pulps of rock or core are weighed out at 0.4 g and chemical quantities are doubled relative to the above noted method for digestion.

The concentrations of Ag, Cd, Co, Cu, Fe, Mn, Mo, Ni, Pb, V and Zn can be determined directly from the digest (dissolution) with a conventional atomic absorption spectrometric procedure. A Varian-Techtron, Model AA-5 or Model AA-475 is used to measure elemental concentrations.

Elements Requiring Specific Decomposition Method:

Antimony - Sb: 0.2 g sample is attacked with 3.3 ml of 6% tartaric acid, 1.5 ml conc. hydrochloric acid and 0.5 ml of conc. nitric acid, then heated in a water bath for 3 hours at 95°C. Sb is determined directly from the dissolution with an AA-475 equipped with electrodeless discharge lamp (EDL).

Arsenic - As: 0.2 - 0.3 g sample is digested with 1.5 ml of perchloric 70% and 0.5 ml of conc. nitric acid. A Varian AA-475 equipped with an As-EDL is used to ~~measure~~ arsenic content in the digest.

Barium - Ba: 0.1 g sample digested overnight with conc. perchloric, nitric and hydrofluoric acid; Potassium chloride added to prevent ionization. Atomic absorption using a nitrous oxide-acetylene flame determines Ba from the aqueous solution.

Bismuth - Bi: 0.2 g - 0.3 g is digested with 2.0 ml of perchloric 70% and 1.0 ml of conc. nitric acid. Bismuth is determined directly from the digest with an AA-475 complete with EDL.

Gold - Au: 10.0 g sample is digested with aqua regia (1 part nitric and 3 parts hydrochloric acid). Gold is extracted with MIBK from the aqueous solution. AA is used to determine Au.

Magnesium - Mg: 0.05 - 0.10 g sample is digested with 4 ml perchloric/nitric acid (3:1). An aliquot is taken to reduce the concentration to within the

range of atomic absorption. The AA-475 with the use of a nitrous oxide flame determines Mg from the aqueous solution.

Tungsten - W: 1.0 g sample sintered with a carbonate flux and thereafter leached with water. The leachate is treated with potassium thiocyanate. The yellow tungsten thiocyanate is extracted into tri-n-butyl phosphate. This permits colourimetric comparison with standards to measure tungsten concentration.

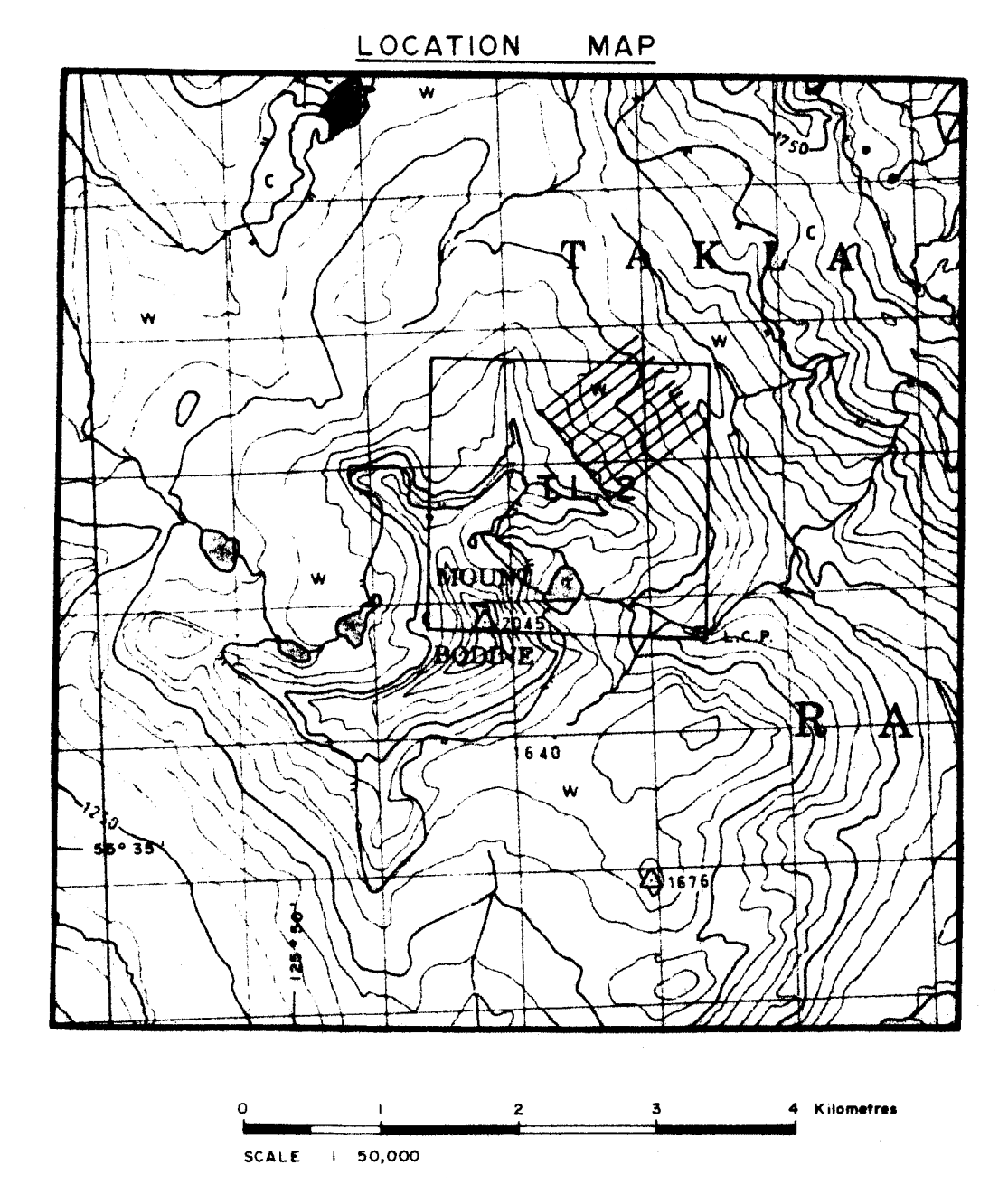
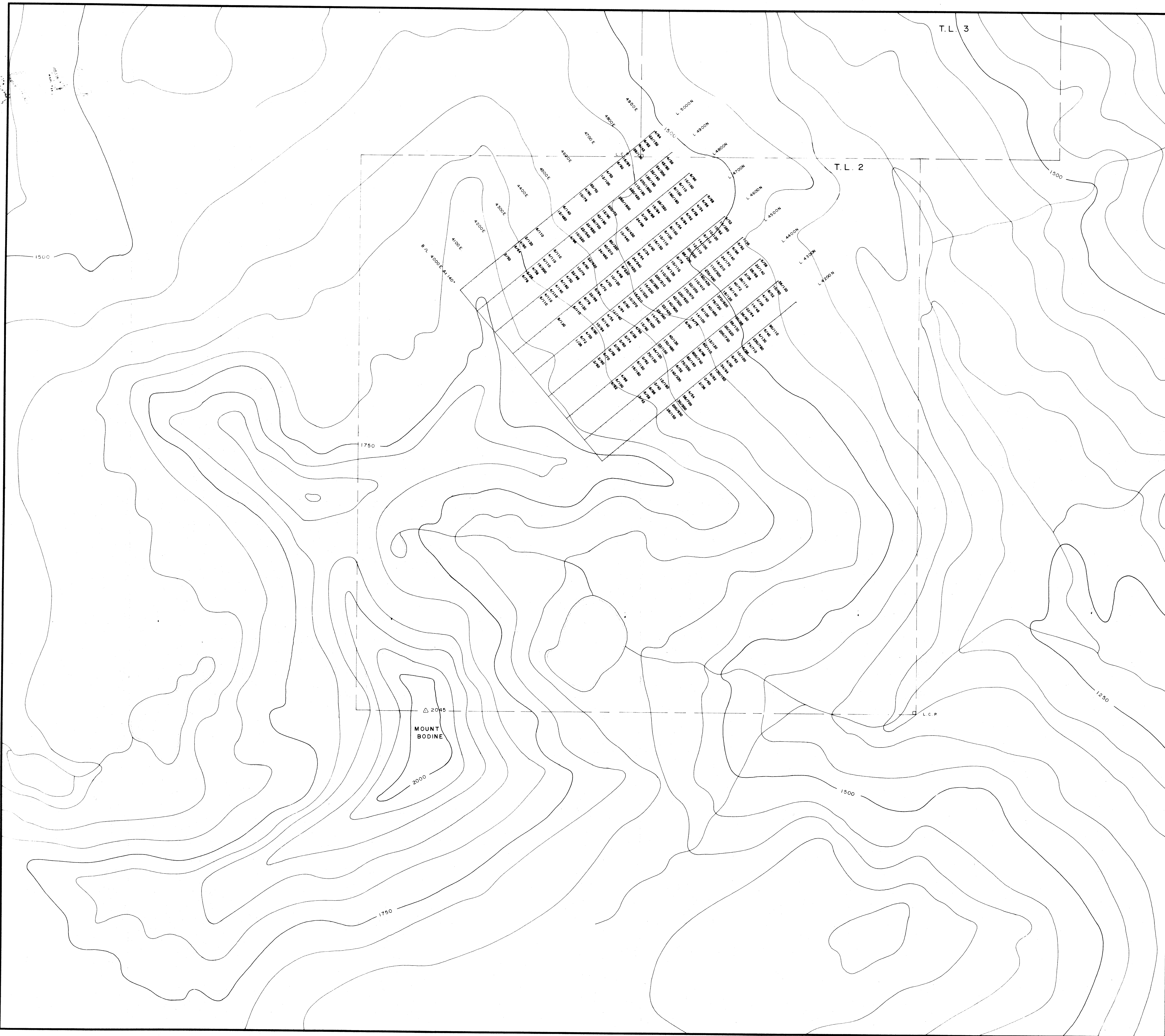
Uranium - U: An aliquot from a perchloric-nitric decomposition, usually from the multi-element digestion, is buffered. The aqueous solution is exposed to laser light, and the luminescence of the uranyl ion is quantitatively measured on the UA-3 (Scintrex).

• N.B. If additional elemental determinations are required on panned samples, state this at the time of sample submission. Requests after gold determinations would be futile.

LOWEST VALUES REPORTED IN PPM

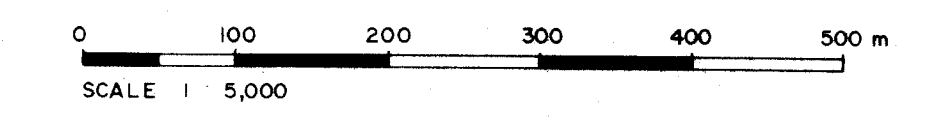
Ag - 0.2	Mn - 20	Zn - 1	Au - 0.01
Cd - 0.2	Mo - 1	Sb - 1	W - 2
Co - 1	Ni - 1	As - 1	U - 0.1
Cu - 1	Pb - 1	Ba - 10	
Fe - 100	V - 10	Bi - 1	

EJvL/ie
March 14, 1984

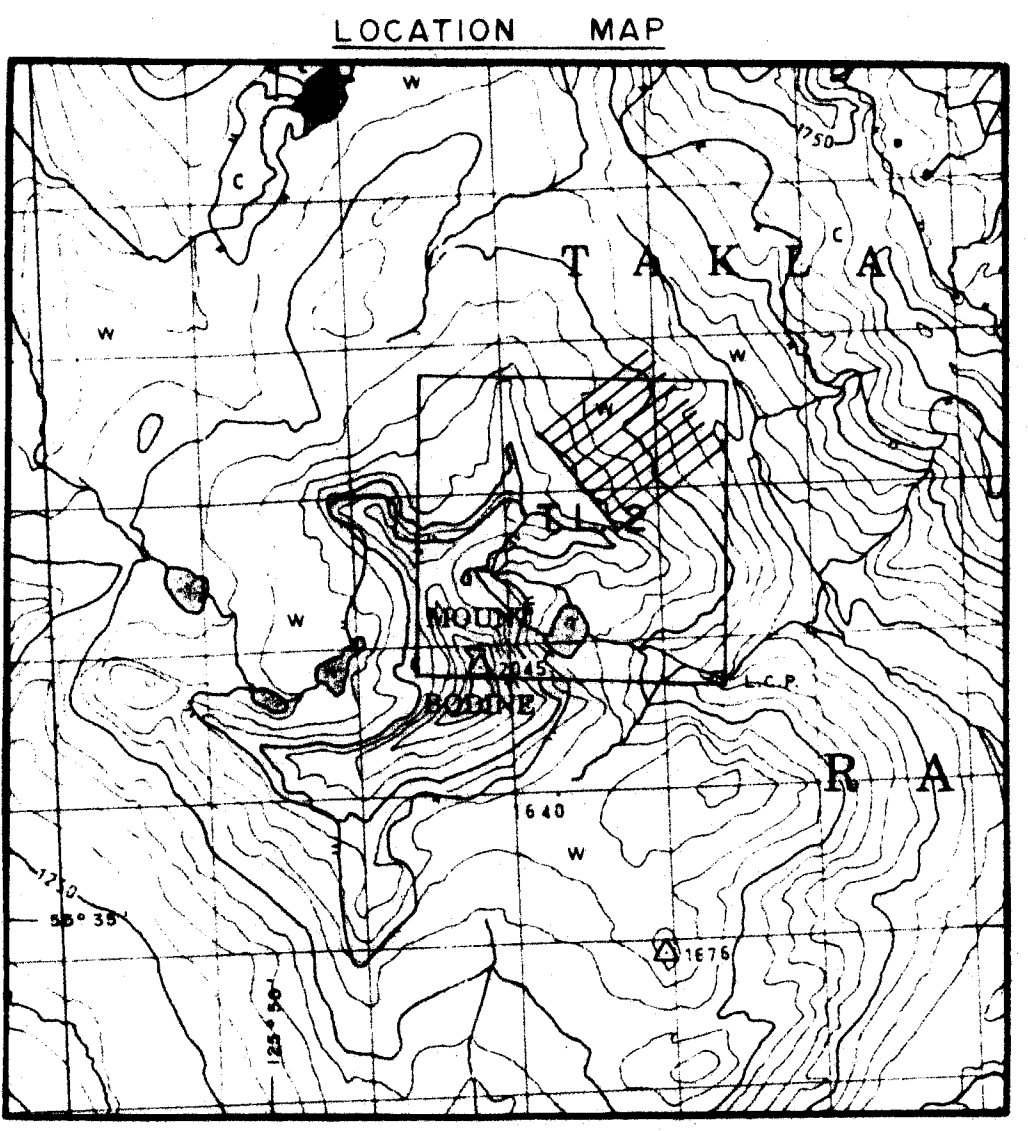
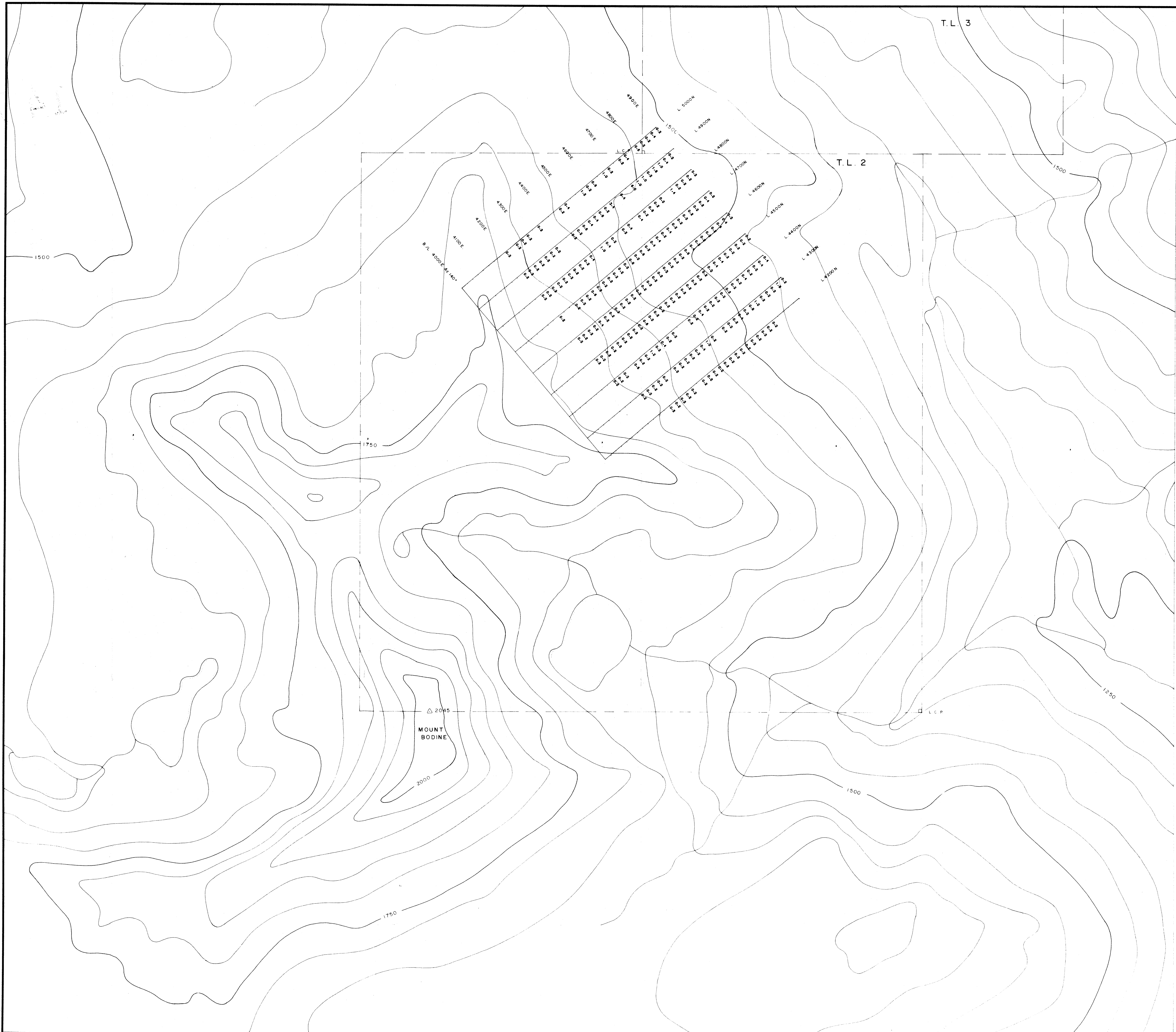


**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

14,780



REVISED	TAKLA NAK	
	TL 2 CLAIM	
	CU, ZN IN PPM.	
PROJ. No.	SURVEY BY:	DATE:
N.T.S. 93 N/12	S.K.B.	1 5000
DWG. No.	DRAWN BY:	
FIG. 6	NORANDA EXPLORATION	
	OFFICE PRINCE GEORGE, B.C.	



SCALE 1:50,000

GEOLOGICAL BRANCH
ASSESSMENT REPORT
14-780
SCALE 1:5,000

REVISED	TAKLA NAK	
	TL 2 CLAIM	
	AG IN PPM <i>[Signature]</i>	
PROJ. No.	SURVEY BY:	DATE:
N.T.S. 33N/12	S.K.B.	SCALE 1:5000
DWG. No.	NORANDA EXPLORATION	
FIG. 7	OFFICE PRINCE GEORGE, B.C.	