4697

GEOPHYSICAL AND GEOCHEMICAL REPORT

ON

THE 93A/3 SL GROUP

OF

CRAIGMONT MINES LIMITED

AT

LAC LA HACHE, B.C.

BY

N.B. Vollo, P.Eng.

Nov. 13th, 1973

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Maps in pocket

SUMMARY

Geochemical, electromagnetic and magnetic surveys were completed over approximately 95 miles of grid, covering the central low of a large annular magnetic high, northeast of Spout Lake. Several copper soil anomalies were defined, some of which should be checked by Induced Polarization surveys.

GENERAL

The SL Group is located northeast of Spout Lake, approximately 15 miles northeast of Lac La Hache, and is accessible by good secondary roads. Elevations range from 3400' to 4300' above sea level. A mature timber cover is present, with lodgepole pine on south slopes, spruce and fir with a heavy deciduous undergrowth on north slopes. Rainfall is light to moderate, with two to three feet of snow on the ground in February.

CLAIMS

The group consists of 245 claims as follows:

SL - 1 to 208,	Record	Numbers	68335R - 68542R
SL - 219 to 220,	"	"	68582B - 68583B
SL - 227 to 228,	"	"	68584B - 68585B
SL - 233 to 240,	"	"	68586B - 68593B
SL - 242 Fr.,	"	"	68750D
SL - 243 to 245 Frs.		"	70950P - 70952P

all in the Cariboo Mining Division and:

SL - 209 to 218,	Record	Numbers	30434B - 30443B
SL - 221 to 226,	"	"	30444B - 30449B
SL - 229 to 232,	"	"	30450B - 30453B
SL - 241 Fr.,	"	"	30604D

all in the Clinton Mining Division.

HISTORY AND PREVIOUS WORK

A strong, annular magnetic high which surrounds the group has been staked and explored by various companies since 1968. The SL group was located to cover the magnetic low within this high, an area of little or no outcrop and on which little work has been done.

FIELD WORK

Two to three men were employed in the field intermittantly from February 12th to October 17th, 1973, for a total of 233 man days. Approximately 95 miles of grid were blazed and chained, 2500 soil samples collected and 90 miles of VLF-EM and magnetic surveys completed.

GENERAL GEOLOGY

The group lies within the Takomkane batholith (Campbell & Tipper, GSC Mem. 263, 1971) at or near its west margin. Miocene plateau basalt extends as a tongue easterly from the west boundary and may reach as far as the east boundary as very sparse outcrops of volcanic rock are present along the height of land. The extreme southwest, northwest and northeast corners of the group are underlain by hornblende and biotite granodiorite which appears to be peripheral to a body ofmedium grained pink syenite or monzonite. Outcrop is extremely sparse in the central part of the group.

GEOCHEMICAL SURVEY

Samples were taken at 200' intervals along east-west lines 1000' apart and north-south lines 3000' apart. Silt samples were taken from streams crossed by these lines. Soil augers were used for the area north of line 130N; mattocks for the area south of this line. Samples were placed in Kraft paper envelopes and sent to Placer Research Laboratories in Vancouver. Analysis of the -80 mesh fraction were made for total copper, zinc and molybdenum, using 1:2 nitric to perchloric acid extraction and the atomic absorption method. High samples were diluted with 15% perchloric acid and rerun. Molybdenum was analized in a nitrous oxide flame.

A podzol type soil profile is fairly well developed on the south, predominantly lodgepole pine, half of the group and samples were taken from the "B" horizon. On the north half, the humus horizon is quite thick, up to two feet, with no distinctly developed "B" horizon. Samples in this area were taken below the humus, probably mostly in the "C" zone.

Copper background is about 25 ppm and does not appear to vary greatly over the entire group. All analysis are shown on the accompanying map (in pocket). Four anomalous areas are present:

Anomaly "A" consists of two parallel zones, each about 1000' by 7000' and 1000' to 1500' apart. Nearest outcrops about one mile west and two miles east suggest that the anomalous zones are within granodiorite or syenite, just downslope from the Miocene volcanic cap. The area is near the ice divide and ice movement is indicated to be about N 65°W (GSC Map 1253, Glacial Map of Canada), parallel to the anomalies, which may therefore be trains from a source to the southeast.

Anomaly "B" is rather patchy, with highs to a maximum of 300 ppm. Medium grained syenite outcrops immediately northeast, granodiorite east and probable Miocene volcanicssouth of the anomaly.

Anomaly "C" consists of several small highs within hornblende granodiorite, associated with northwesterly lineamnents and weak to moderate EM conductors. Traces of chalcopyrite were found in outcrop around them, but the abundance of outcrop precludes significent mineralization.

Anomaly "D" is a small high within an overburden covered area with outcrops of granodiorite about 1000' to the southwest. It is bounded by weak northwesterly VLF-EM conductors.

Zinc background is about 60 ppm, ranging to 150 ppm. No anomalous zones are present. Molybdenum background is 1 ppm, ranging to 3 ppm, with no anomalous analysis. Molybdenum and zinc were not plotted.

ELECTROMAGNETIC SURVEY

Readings were taken at 100' intervals along both east-west and north-south lines using a Ronka EM-16 unit. Primary source was NPG, Jim Creek, Washington, for the east-west lines and NAA, Cutler, Maine, for the north-south lines. The fields of these stations are roughly east-west and north-south respectively in this area. In-phase readings in per cent were reduced to contourable data using the method devised by Fraser, (Fraser, D.C., Geophysics, Vol. 34, pp. 1958-1967, 1969), and are shown plotted on the accompanying map (in pocket).

Readings below 20 can be considered geological and topographic "noise". Numerous weak to moderate northwesterly trending conductors are present in the southwest part of the group, paralleling a granodiorite - syenite contact. They appear to terminate at the probable boundary of the Miocene volcanic cap. Soil anomaly "D" is bounded by weak northwesterly conductors which may indicate its strike. Several moderate conductors in the north part of the group are of uncertain strike and origin.

MAGNETIC SURVEY

Readings were taken along both north-south and east-west lines at 100' intervals using a Sharpe MF-1 fluxgate magnetometer, a vertical component instrument. The instrument was arbitrarily set to 500 gammas at 32N on line 126E and a secondary base established at 36N on line 182E. Sub - bases were established progressively north and south respectively from these points. East-west traverses were looped and corrected for diurnal variation; north-south traverses were similarly corrected to east-west line intersections. Results are shown plotted on the accompanying map (in pocket) contoured at 1000 gamma intervals.

The magnetics proved of little value in delineating the Miocene boundary, showing a distinct northwesterly grain not greatly interrupted by projected volcanic areas. A strong linear feature marked by sharp lows and 3000 - 6000 gamma highs strikes northwesterly across the group. The symmetry suggests a steeply dipping structure, probably a dike. It correlates with similar VLF trends and remarkably well with the "A" soil anomaly. The highs in the northeast area correlate with outcrops of syenite.

CONCLUSIONS AND RECOMMENDATIONS

The "A", "B" and "D" soil anomalies are of sufficient size and intensity to have been derived from significent copper mineralization. They should be tested by brief IP surveys and if sulphide concentrations are indicated, by test drill holes

N.B. Vollo, P.Eng.
Nov. 13th, 1973

AFFIDAVIT ON EXPENDITURES

Personnel

N.B. Vollo, P.Eng.	- Supervision, interpretation and report, 9 days @ $90	$ 900.00
L. Loranger	- Chaining & Geochem. fieldwork, Feb. 12th - Aug. 23rd, 66 days @ $50	3300.00
M. Fennell	- Geophysical survey fieldwork, Feb. 12th - Oct. 24th, 84 days @ $42.50	3570.00
	Draughting- 20 " " "	850.00
D. Cavanaugh	- Chaining, fieldwork, Feb. 12th - March 31st 31 days @ $45	1395.00
D. White	- Chaining, fieldwork July 4th - Aug. 23rd 39 days @ $30	1170.00
A. Berke	- Geochemical survey, fieldwork, Sept. 17th - Oct. 18th 9 days @ $35	315.00
H. Hamilton	- Geophys. ass't, fieldwork, Oct. 21st - 24th, 4 days @ $40	160.00
		$ 11660.00
Geochemical analysis, 2437 samples @ $2.10		5117.70
Accomodation, groc., meals		1716.46
Equipment, repairs, supplies		1355.22
Transportation - Trucks, 9847 miles @ 12¢		1181.00
Snowmobiles, 48 days @ $20		960.00
Total		$ 21990.38

I, Nels B. Vollo, of the City of Kamloops, in the Province of British Columbia, make the above declaration, concientiously believing it to be true and knowing it is of the same force and effect as if made under oath and by virtue of the Canada Evidence Act.

Declared before me, at the City of Kamloops, in the Province of British Columbia this 16th day of May, 1973, A.D.

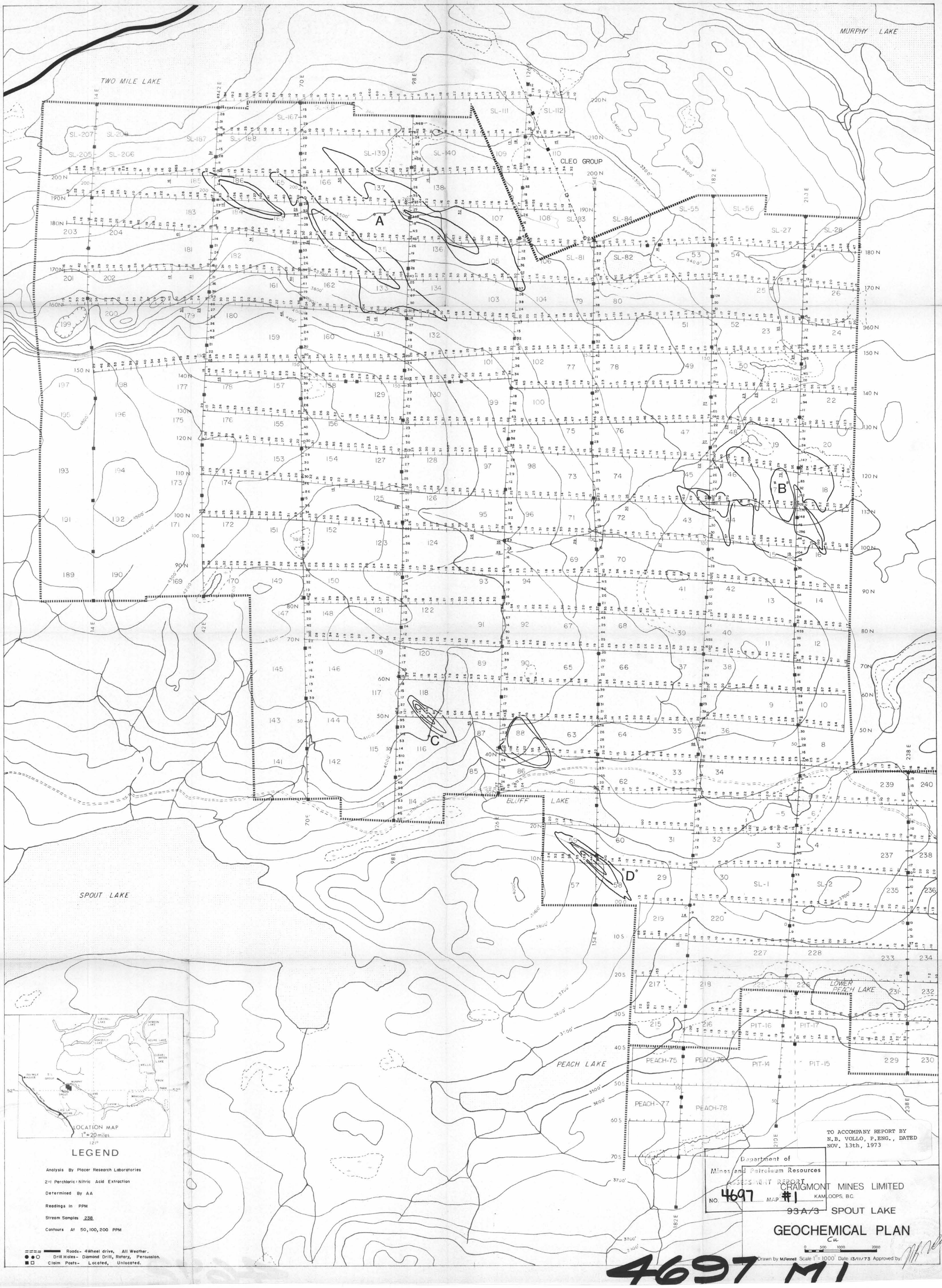
A commissioner for taking affidavits for British Columbia

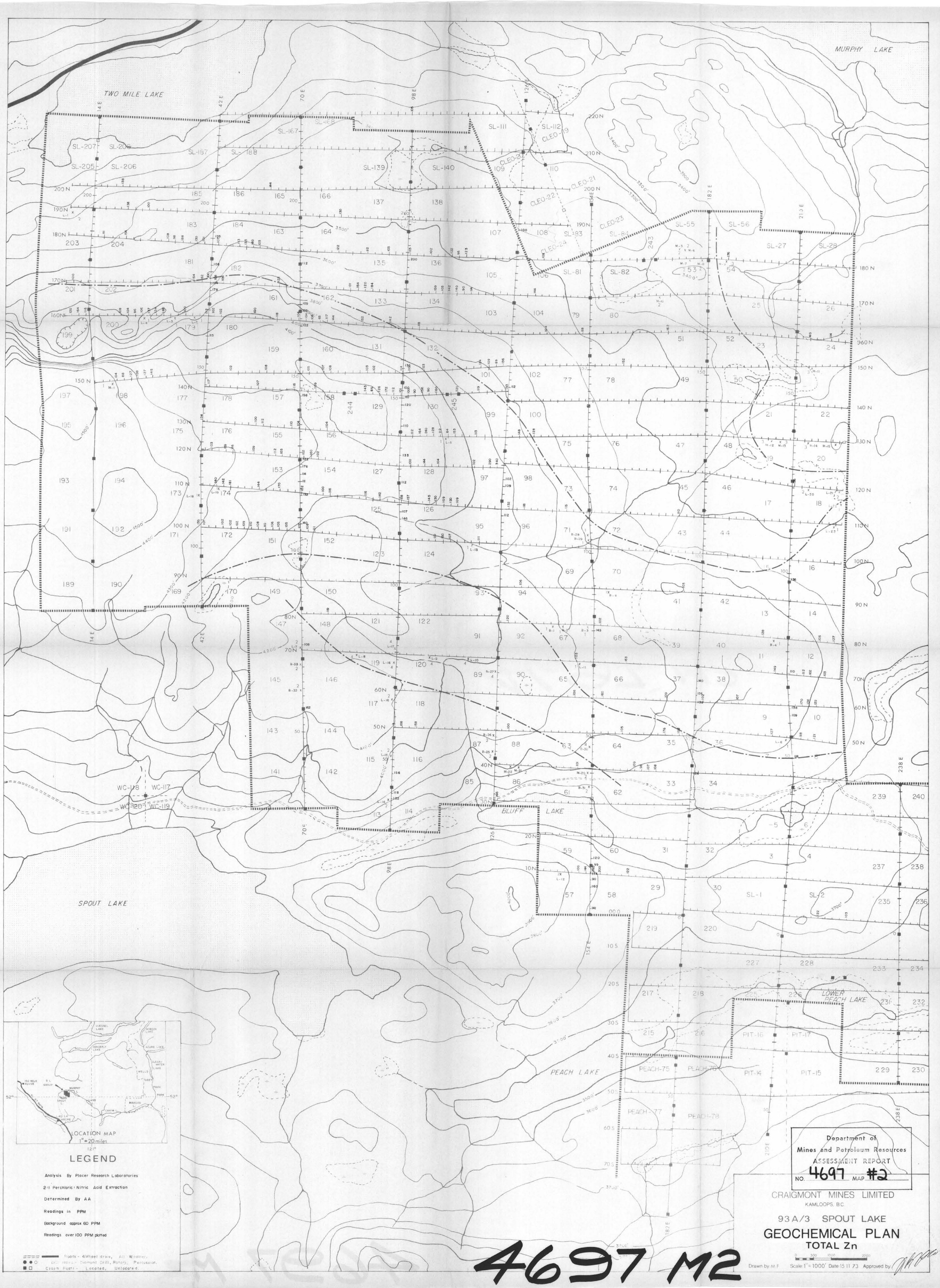
QUALIFICATIONS OF OPERATORS

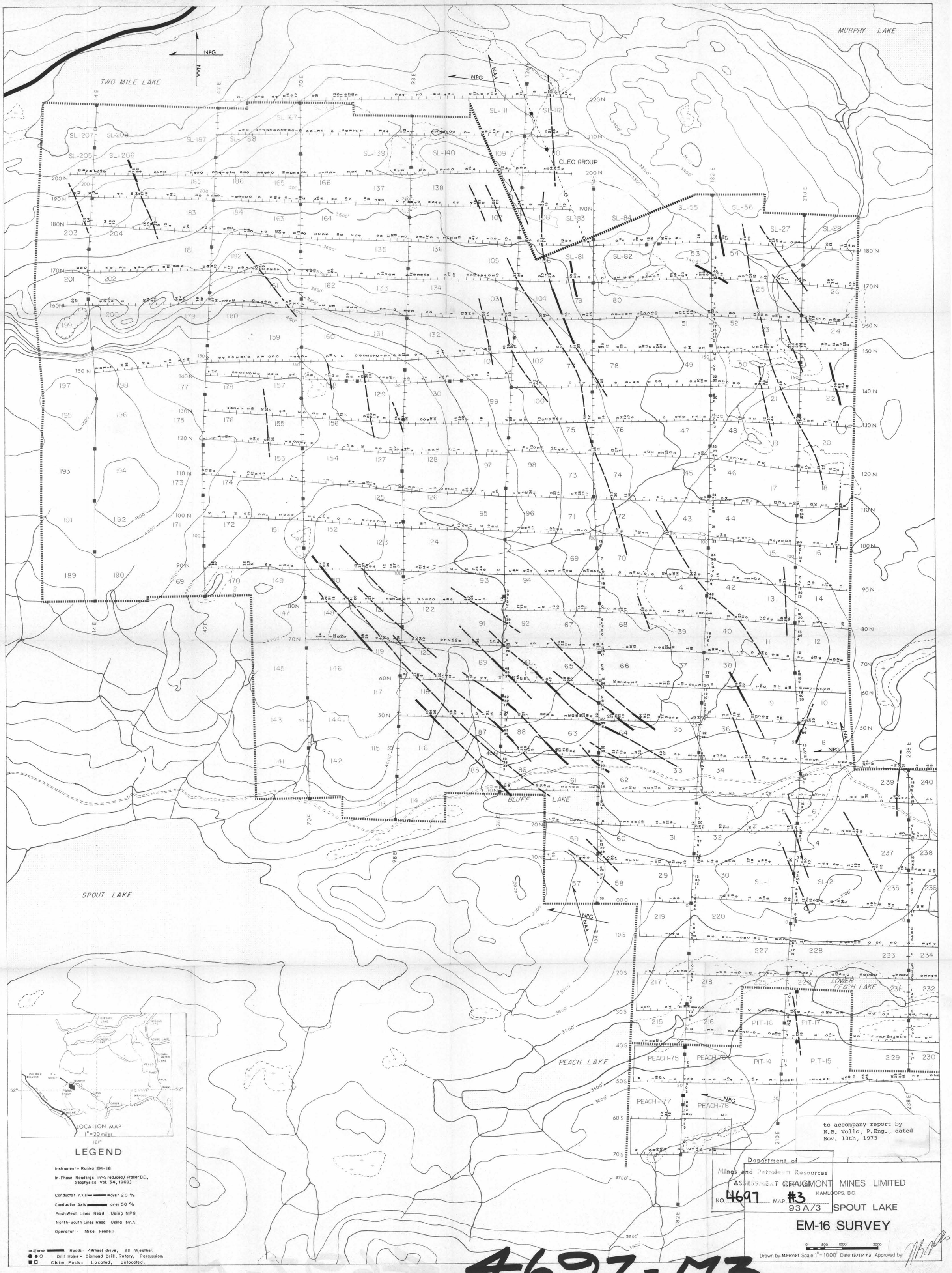
MICHAEL FENNELL is 24 years of age and completed Grade XI at Barriere, B.C. He was employed from 1969 to 1972 by Royal Canadian Ventures Ltd., Kamloops, as a field man and geophysical operator. He has been employed by Craigmont Mines Limited for two years in a similar capacity. He has been carefully instructed in the operation of the Ronka EM-16 unit and the Sharpe MF-1 magnetometer by the undersigned, who knows his work to be carefully and reliably done.

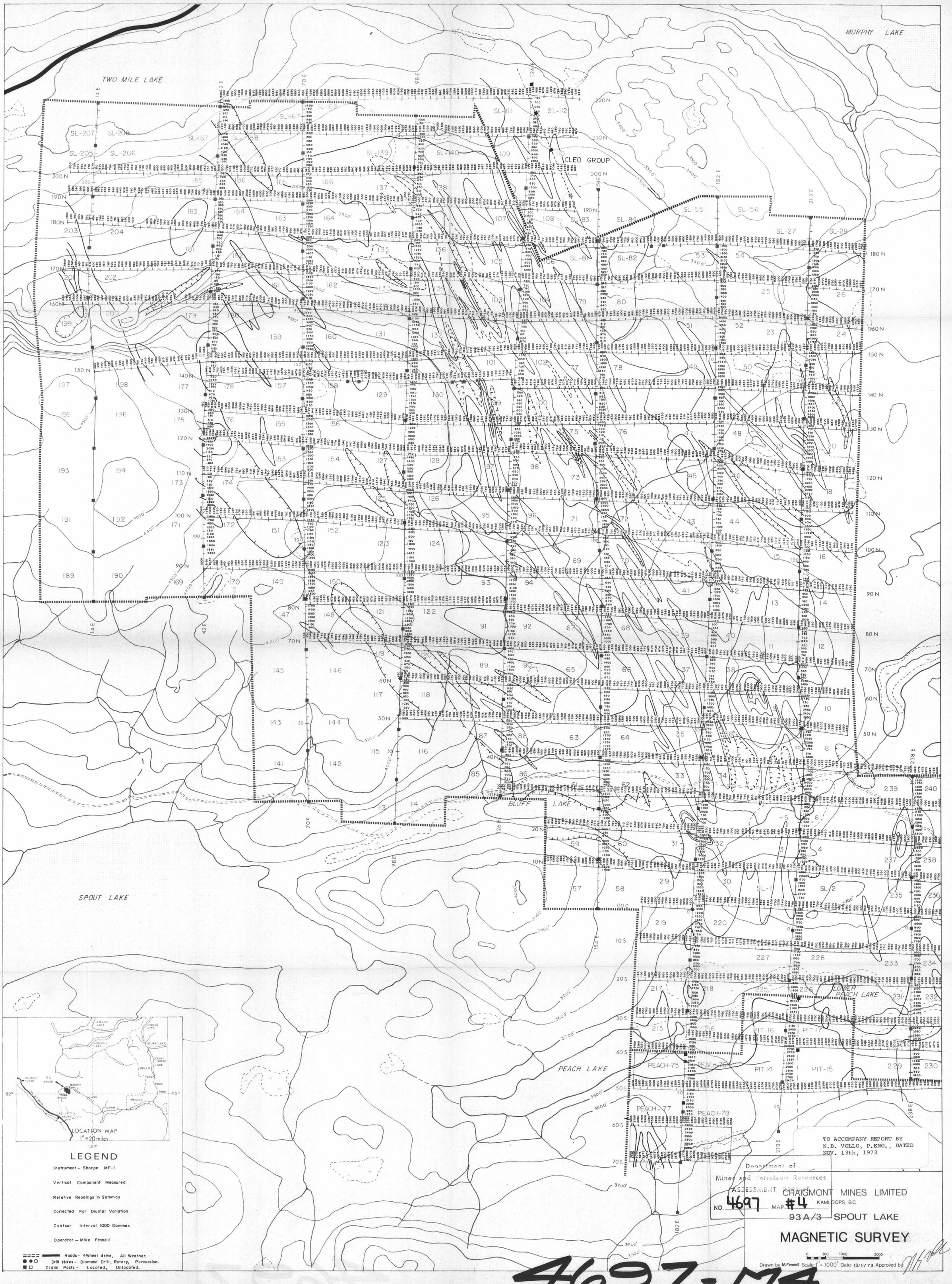
LEO LORANGER is 44 years of age and completed Grade IX at Englehart, Ontario. He was employed as a geophysical operator from 1961 to 1966 by the Noranda Exploration Company, Matagami, Que.; from 1966 to 1967 by Scurry Rainbow Oils Ltd., Calagary, Alta.; by Royal Canadian Ventures Ltd., Kamloops, B.C., from 1968 to 1972. He has been employed for two years by Craigmont Mines Limited as a field man. He has been carefully instructed in soil sampling by the undersigned, who knows his work to be carefully and reliably done.

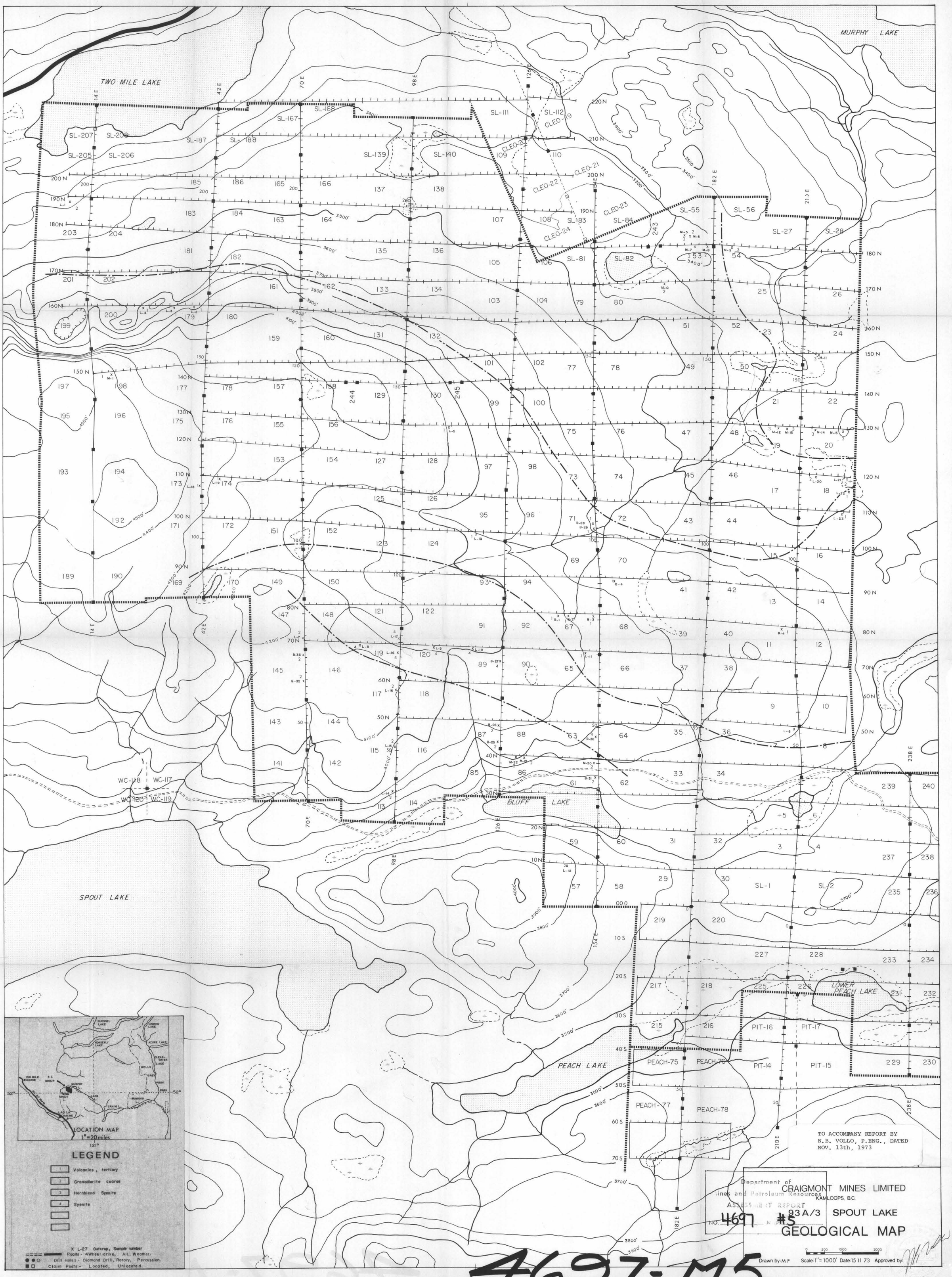
N.B. Vollo, P.Eng.
Nov. 13th, 1973


MURPHY LAKE
TWO MILE LAKE
CLEO GROUP
SPOUT LAKE
BLUFF LAKE
LOWER PEACH LAKE
PEACH LAKE
"A"
"B"
"C"
"D"
LOCATION MAP
1" = 20 miles
LEGEND
Analysis By Placer Research Laboratories
2:1 Perchloric : Nitric Acid Extraction
Determined By AA
Readings In PPM
Stream Samples 238
Contours At 50, 100, 200 PPM
Roads- 4Wheel drive, All Weather.
Drill Holes- Diamond Drill, Rotary, Percussion.
Claim Posts- Located, Unlocated.
TO ACCOMPANY REPORT BY
N.B. VOLLO, P.ENG., DATED
NOV. 13th, 1973
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4697 MAP #1
CRAIGMONT MINES LIMITED
KAMLOOPS, B.C.
93A/3 SPOUT LAKE
GEOCHEMICAL PLAN
Cu
Drawn by M.Fennell Scale 1" = 1000' Date 13/11/73 Approved by
4697 M1


TWO MILE LAKE
MURPHY LAKE
BLUFF LAKE
SPOUT LAKE
LOWER PEACH LAKE
PEACH LAKE
LOCATION MAP
1" = 20 miles
LEGEND
Analysis By Placer Research Laboratories
2:1 Perchloric: Nitric Acid Extraction
Determined By AA
Readings in PPM
Background approx 60 PPM
Readings over 100 PPM plotted
Roads - 4Wheel drive, All Weather.
Drill Holes - Diamond Drill, Rotary, Percussion.
Claim Posts - Located, Unlocated.
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4697 MAP #2
CRAIGMONT MINES LIMITED
KAMLOOPS, B.C.
93 A/3 SPOUT LAKE
GEOCHEMICAL PLAN
TOTAL Zn
Drawn by: M.F. Scale: 1" = 1000' Date: 15 11 73 Approved by:
4697 M2


MURPHY LAKE
TWO MILE LAKE
CLEO GROUP
BLUFF LAKE
SPOUT LAKE
PEACH LAKE
LOWER PEACH LAKE
NPG
NAA
LOCATION MAP
1" = 20 miles
LEGEND
Instrument - Ronka EM-16
In-Phase Readings in % reduced, (Fraser D.C., Geophysics Vol. 34, 1969.)
Conductor Axis over 20 %
Conductor Axis over 50 %
East-West Lines Read Using NPG
North-South Lines Read Using NAA
Operator - Mike Fennell
Roads - 4Wheel drive, All Weather.
Drill Holes - Diamond Drill, Rotary, Percussion.
Claim Posts - Located, Unlocated.
to accompany report by N.B. Vollo, P.Eng., dated Nov. 13th, 1973
Department of Mines and Petroleum Resources
ASSESSMENT REPORT NO. 4697 MAP #3
CRAIGMONT MINES LIMITED
KAMLOOPS, B.C.
93A/3
SPOUT LAKE
EM-16 SURVEY
Drawn by: M.Fennell Scale: 1" = 1000' Date: 13/11/73 Approved by:
4697-M3


MURPHY LAKE
TWO MILE LAKE
CLEO GROUP
BLUFF LAKE
SPOUT LAKE
PEACH LAKE
LOWER PEACH LAKE
LOCATION MAP
1" = 20 miles
LEGEND
Instrument – Sharpe MF-I
Vertical Component Measured
Relative Readings In Gammas
Corrected For Diurnal Variation
Contour Interval 1000 Gammas
Operator – Mike Fennell
Roads - 4Wheel drive, All Weather.
Drill Holes - Diamond Drill, Rotary, Percussion.
Claim Posts - Located, Unlocated.
TO ACCOMPANY REPORT BY
N.B. VOLLO, P.ENG., DATED
NOV. 13th, 1973
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4697 MAP #4
CRAIGMONT MINES LIMITED
KAMLOOPS, B.C.
93A/3 SPOUT LAKE
MAGNETIC SURVEY
Drawn by: M.Fennell Scale: 1" = 1000' Date: 13/11/73 Approved by:
4697-M4


MURPHY LAKE
TWO MILE LAKE
SPOUT LAKE
BLUFF LAKE
PEACH LAKE
LOWER PEACH LAKE
LOCATION MAP
1" = 20 miles
LEGEND
1 Volcanics, tertiary
2 Granodiorite coarse
3 Hornblend Syenite
4 Syenite
X L-27 Outcrop, Sample number
Roads - 4Wheel drive, All Weather.
Drill Holes - Diamond Drill, Rotary, Percussion.
Claim Posts - Located, Unlocated.
TO ACCOMPANY REPORT BY
N.B. VOLLO, P.ENG., DATED
NOV. 13th, 1973
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4697 #5
CRAIGMONT MINES LIMITED
KAMLOOPS, B.C.
93 A/3 SPOUT LAKE
GEOLOGICAL MAP
Drawn by: M F
Scale: 1" = 1000'
Date: 15 11 73
Approved by:
4697-M5