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GEOPHYSICAL REPORT

ON A

MAXMIN II ELECTROMAGNETIC SURVEY

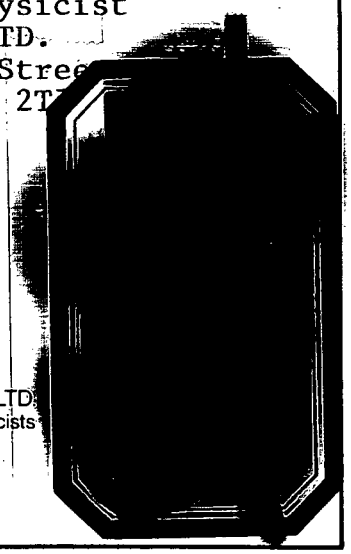
OVER THE

LADY CLAIM

QUILCHENA CREEK, ASPEN GROVE AREA

NICOLA M.D., B.C.

LADY CLAIM	: 13 km N75E of Aspen Grove and 28 km S55E of Merritt
	: 49° 120° NE
	: N.T.S. 92H/16W
WRITTEN FOR	: KASLE ENERGY CORPORATION 980-789 West Pender Street Vancouver, B.C. V6C 1H2
BY	: David G. Mark, Geophysicist GEOTRONICS SURVEYS LTD. 403-750 West Pender Stree Vancouver, B.C., V6C 2T
DATED	: May 5, 1981



GEOTRONICS

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

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SUMMARY

A MaxMin II survey was carried out over the LADY Claim during October and November, 1980. The purpose of the survey was to further detail anomalies found in a VLF-EM survey carried out earlier in 1980.

The Claim is located 13 km N75E of Aspen Grove in the Nicola Mining District, B.C. Access is by highway and secondary road out of Aspen Grove. The terrain is generally flat or rolling hills. Vegetation varies from light to moderately dense forest.

The property is underlain by felsic plutonic igneous rocks in the form of a batholith intrusion.

Numerous copper, silver and molybdenum showings are found in the Penask Batholith. The most significant one to date is the Brenda molybdenum mine in the southern part of the Penask Batholith. To the immediate west of the LADY Claim is a skarn deposit containing disseminated pyrite, minor chalcopyrite, magnetite, chalcocite and malachite.

The MaxMin survey was carried out with a two-man portable unit. Dip angle, depth to the top and thickness-conductivity factor of the conductor readings were taken. The analysis involved complex ratios and picking out the critical values of the resultant curves of the extreme high and low readings.

CONCLUSIONS

1. Mineralization in this area is mainly copper and molybdenum sulphides associated with shear zones.

2. The MaxMin EM survey reconfirmed the existence of VLF-EM zones A and C. Zone B could not be checked out. Both anomalies strike northerly, dip slightly to the west, have shallow depth and have fairly weak conductivity. The weak conductivity indicates geological structure as the probable causitive source.

3. Two additional possible anomalies were revealed for which no quantitative interpretation can be given.

4. It is reasonable to expect, because of the general geologic environment in this region, that these shear zones could contain some mineralization.

RECOMMENDATIONS

Zones A and C could be drilled, though further work should be done for better delineation. If drilled, the location of each collar should be about 50 m to the west of each conductor on line 400 N. The dip of the hole should be about -60° to the east. Intersection should be within 60 to 70 m.

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INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data, and the interpretation of a MaxMin Electromagnetic Survey carried out on the LADY Claim during October and November, 1980.

The survey was done under the supervision of the writer and under the field supervision of S. Seney with the aid of a helper. A total of 4.8 line km of MaxMin II Electromagnetic surveying were done at two different frequencies.

The primary purpose of the MaxMin II EM survey was to further detail anomalies from a VLF-EM survey carried out in the first part of 1980. A MaxMin II EM survey gives much more definitive drill targets than a VLF-EM survey does.

PROPERTY AND OWNERSHIP

The LADY Claim consists of one claim of 20 units as shown

on Figure 2 and as described below:

Claim Name	No. Units	Record No.	Tag No.	Expiry Date
LADY	20 (4 x 5)	827 (4)	21606	April 8, 1981

The property is owned by Kasle Energy Corporation of Vancouver, British Columbia.

LOCATION AND ACCESS

The center of the LADY Claim is found about 13 km N75E of Aspen Grove and about 28 km S55E of Merritt, B.C.

The geographical coordinates are 49° 59' N latitude, and 120° 28' W longitude.

Access to the property is quite good and can be gained by a passenger car providing the road is dry. One travels along Highway 5 for 30 km south of Merritt or 5 km south of Aspen Grove and then turns east on a well-used gravel road. The property is about 24 km from the Highway 5 turnoff along a series of gravel and dirt roads.

PHYSIOGRAPHY

The LADY Claim lies in the southern part of the physiographic division known as the Thompson Plateau which is part of the Interior Plateau System. The terrain is generally that of flat or rolling hills over most of the property. The general trend of the topography runs north-south. Elevations vary from 1,060 meters a.s.l. in the northwest corner to 1,280 meters a.s.l. in the southeast corner to give a relief of only 220 meters.

The main water source is southerly-flowing Quilchena Creek which borders the western boundary of the property.

Vegetation on the property varies from lightly dense to moderately dense forest. It consists of pine, fir and spruce.

HISTORY OF PREVIOUS WORK

Since Kastle Energy Corporation filed the claim, VLF-EM and magnetometer surveys as well as trenching have been carried out.

GEOLOGY

The property is located in the Penask Batholith which was formed in the Lower Jurassic or later. The rock types are mainly biotite and hornblende-rich granodiorite and quartz monzonite. A few km to the west if the Nicola suite of rock types; these being mainly grey to green, massive andesite (pyroxene-rich) of Triassic Age.

Numerous copper, silver and molybdenum showings are to be found in both the Nicola Group and the Penask Batholith. The most significant of these showings is the Brenda molybdenum mine, whose host rocks are granodiorites of the southern portion of the Penask Batholoth.

The following is a quote from D.W. Tully's, P.Eng. report for Kastle Energy Corporation, dated 29 April, 1980.

"The principal mineral showing in the area occurs immediately to the west of the LADY Claim on the SOL Claim (Figure 3). The host rock is a skarn composed of epidote, garnet and altered volcanics carrying disseminated pyrite, minor chalco-

pyrite, magnetite, chalcocite and malachite. According to reports, this zone is at least 20 feet in width and has been traced to a depth of 350 feet by drilling. The best copper intersection was reported to be 1.62% over a core length of 20 feet.

"Similar geology on the LADY Claim could give similar conditions for mineralization."

INSTRUMENTATON AND THEORY

A MaxMin II portable 2-man electromagnetometer, manufactured by Apex Parametrics Ltd. of Toronto, Ontario was used for this survey. This instrument is designed for measuring the electromagnetic field which results from a conductive body; that is a structure which conducts electricity better than barren rock-types do. This particular instrument has the advantage of flexibility over most other EM units in that it can operate with different modes, frequencies and distances between transmitter and receiver. Five frequencies can be used (222, 444, 888, 1777 and 3555 Hertz) and six different coil separations (25, 50, 100, 150, 200 and 250 meters).

In all electromagnetic prospecting, a transmitter produces an alternating magnetic field (called the primary field) by having a strong alternating current move through a coil of wire. This primary field travels through any medium and if a conductive mass such as a sulphide body is present the primary field induces a secondary alternating current in the conductor and this current in turn induces a secondary magnetic field. The receiver picks up the primary field and, if a conductor is present, the secondary field. The fields are expressed as a vector which has two components, the in-phase (or real) component and the out-of-phase (or

quadrature) component. The results are expressed as the percent deviation of each component from what the values would be if no secondary field (and therefore no conductor) was present. Since the fields loose strength proportionally with the distance they travel a distant conductor has less of an effect, than a close conductor. Also the lower frequency of the primary field, the further the field can travel, and so the greater the depth penetration. This unit can vary the strength of primary field and so use different coil separation between transmitter and receiver coils, change the frequency of the primary field for varying depth penetration, and use three different ways of orienting the coils to duplicate the survey in three styles so that more accuracy is possible in the interpretation of the data.

The use of the MaxMin electromagnetometer allows for better discrimination between low conductive structures such as clay beds and barren shear zones and more conductive bodies like massive sulphide mineralization. It also gives several different types of data over a given area so that statistical analysis can result in less error in the interpretation.

SURVEY PROCEDURE

The survey was carried out on two of the east-west survey lines over areas of anomalous VLF-EM response. The line separation was 200 m and readings were taken every 25 m, except in anomalous areas where they were reduced to 12.5 m. The coil separation used was 100 m and the frequency, 444 Hz and 1777 Hz.

COMPILATION OF DATA

The results were profiled with the 444 and 1777 Hz results

on Sheet 3. From these profiles, the anomalous sections were reprofiled for easy comparison with published type curves. The type curves are the results from laboratory situations using models.

After correction of conductive overburden the anomalous curve was analyzed to give the dip, depth to the top and the thickness - conductivity factor of the conductor. This analysis involces complex ratios and picking out the critical values of the resultant curves which are the extreme high and low readings.

DISCUSSION OF RESULTS

As mentioned previously, the purpose of the MaxMin EM survey was to check over the VLF-EM results. On the 2 lines surveyed, there were 3 VLF-EM anomalous zones labelled A, B and C. The MaxMin reconfirmed 2, A and C. However, B could not be cnecked because of the cliff and the bulky nature of the MaxMin equipment. In addition to zones A and C, there were 2 possible anomalous zones revealed, one to the west of A, and one to the east of C.

Zone A along with the parallel possible conductor strikes almost true north. Both can be seen on lines 200 N and 400 N giving it a minimum length of 200 meters with it being open on both ends. On line 400 N they are centered at 1100 W and 1350 W respectively. The anomalies are only seen on the out-of-phase curve indicating them to have low conductivity. For the zone A anomaly, the dip is slightly to the west at about 75^{o}. The much stronger response at the higher frequency indicates a shallow depth. Depth to the top should be about 25 m $\pm$ 5 m.

The curve of the posssible anomaly is not strong enough to interpret quantitatively.

The MaxMin results correlate directly with the VLF-EM results. The magnetic response is fairly flat.

Zone C strikes N80E, is found on both lines 200 N and 400 N, and has a minimum length of 200 m. It is open to the north and the south and is centered at 0+25 E on line 400 N. A parallel conductor, possibly part of the same zone, occurs on line 400 N centered at 225 E. It also has a fairly low conductivity and has a shallow depth to the top, say 15 m $\pm$ 5 m. The dip is difficult to determine because of the close parallel conductor but is appears to be slightly to the west.

The MaxMin results correlate with the VLF-EM results quite well as well as with a small magnetic low.

The possible conductor to the east occurs on both lines and is centered at about 675 E. Its minimum length is therefore 200 m. Its quantitative interpretation is limited as well because of its weak response. There is a moderate correlation with the VLF-EM response. The magnetic field is quite flat.

The cause of the large percentage of electromagnetic anomalies is one of a variety of geologic structures such as fault, shear and breccia zones. This is especially true with weak or medium conductors such as are found in this case. Because of this method's sensitivity to geological structures, the

possibility of associated mineralization should not be precluded.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark,
Geophysicist.

May 5, 1981

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GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at #403-750 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.

2. I have been practising my profession for the past 13 years and have been active in the mining industry for the past 15 years.

3. I am an active member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.

4. This report is compiled from data obtained from a MaxMin II Electromagnetic survey carried out under the supervision of myself during October and November, 1980.

5. I do not hold any interest in Kastle Energy Corporation, or the LADY Claim, nor do I expect to receive any interest as a result of writing this report.

David G. Mark,
Geophysicist

May 5, 1981

AFFIDAVIT OF EXPENSES

The MaxMin II EM survey was carried out on the LADY Claim, Quilchena Creek, Nicola M.D., B.C. to the value of the following:-

FIELD:

Geophysical Technician and helper 70 hours at $40/hour	$2,800.00
Vehicle rental, 9 days at $60/day	540.00
Room and board, 2 men at $40/day/man 9 days	720.00
MaxMin II EM instrument rental, 2 weeks at $350/week	700.00
	$4,860.00

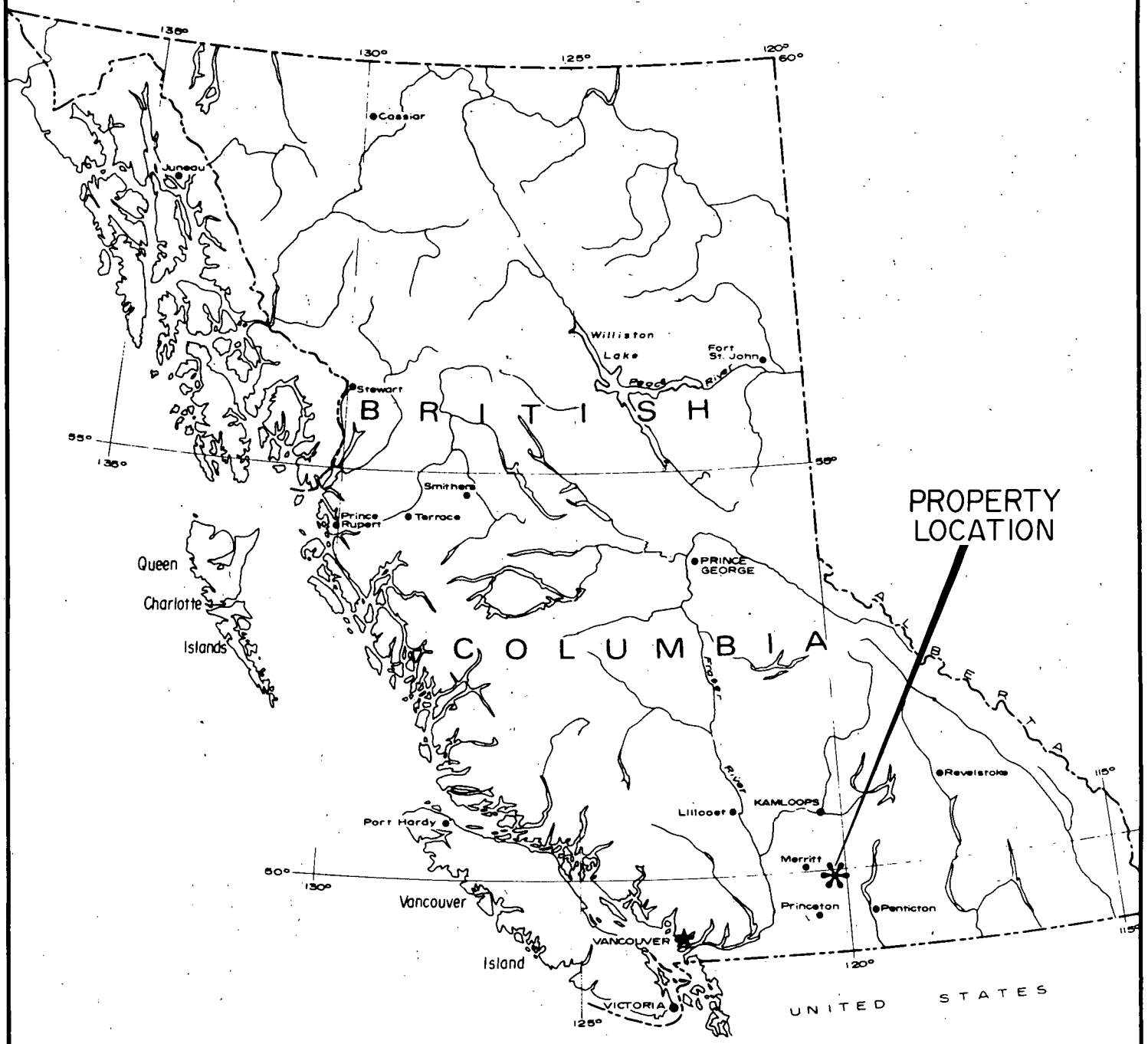
REPORT:

Geophysicist, 15 hours at $37.50/hour	$ 562.50
Geophysical Technician, 15 hours at $22.50/hour	337.50
Drafting and printing	450.00
Typing, photocopying and compilation	120.00
	$1,470.00

TOTAL	$6,330.00

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark,
Manager



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KASLE ENERGY CORPORATION

LADY CLAIM

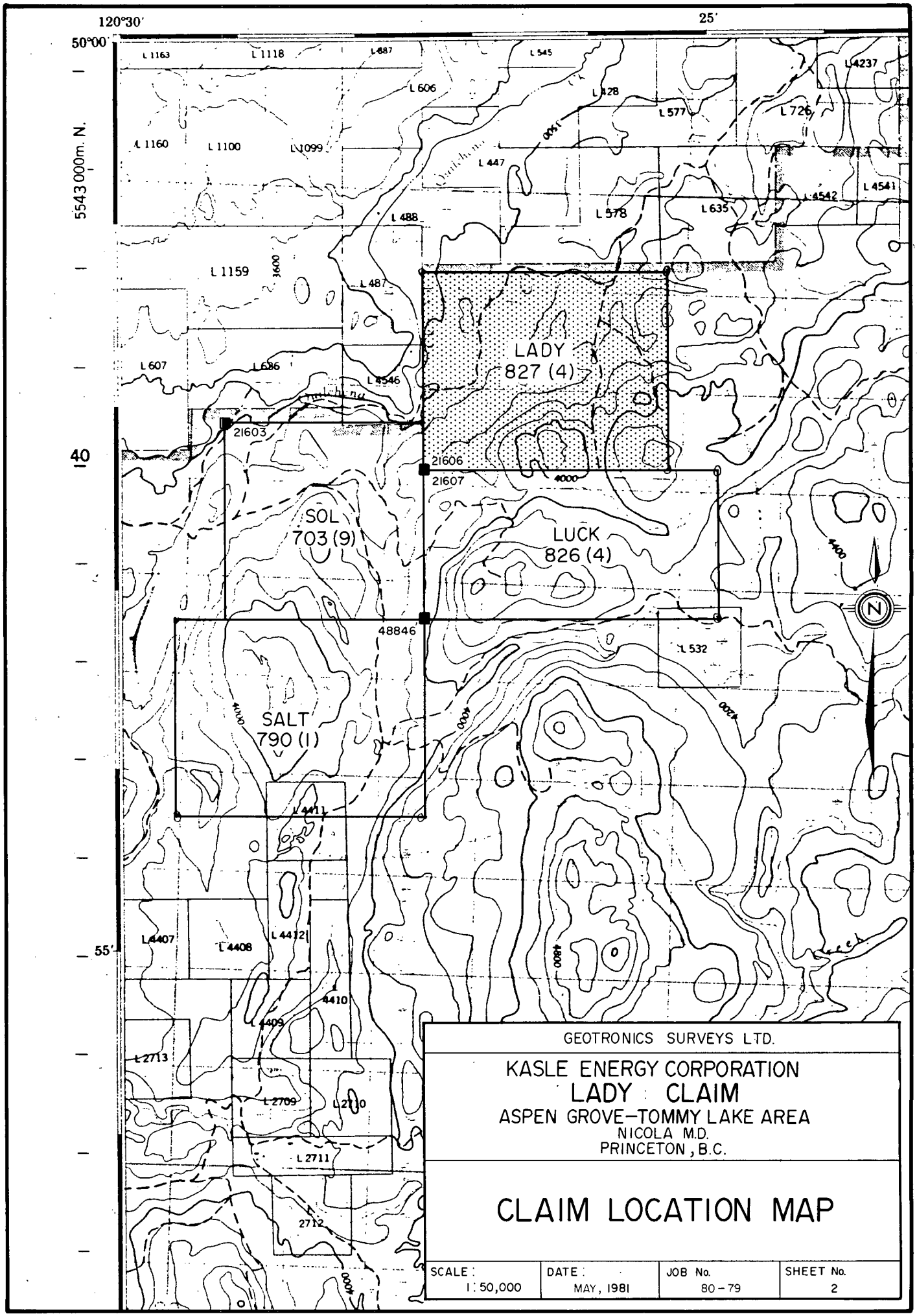
ASPEN GROVE–TOMMY LAKE AREA

NICOLA M.D.

PRINCETON, B.C.

LOCATION MAP

SCALE:	DATE:	JOB No.	SHEET No.
As shown	MAY, 1981	80-79	1



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KASLE ENERGY CORPORATION

LADY CLAIM

ASPEN GROVE–TOMMY LAKE AREA

NICOLA M.D.

PRINCETON, B.C.

CLAIM LOCATION MAP

SCALE:	DATE:	JOB No.	SHEET No.
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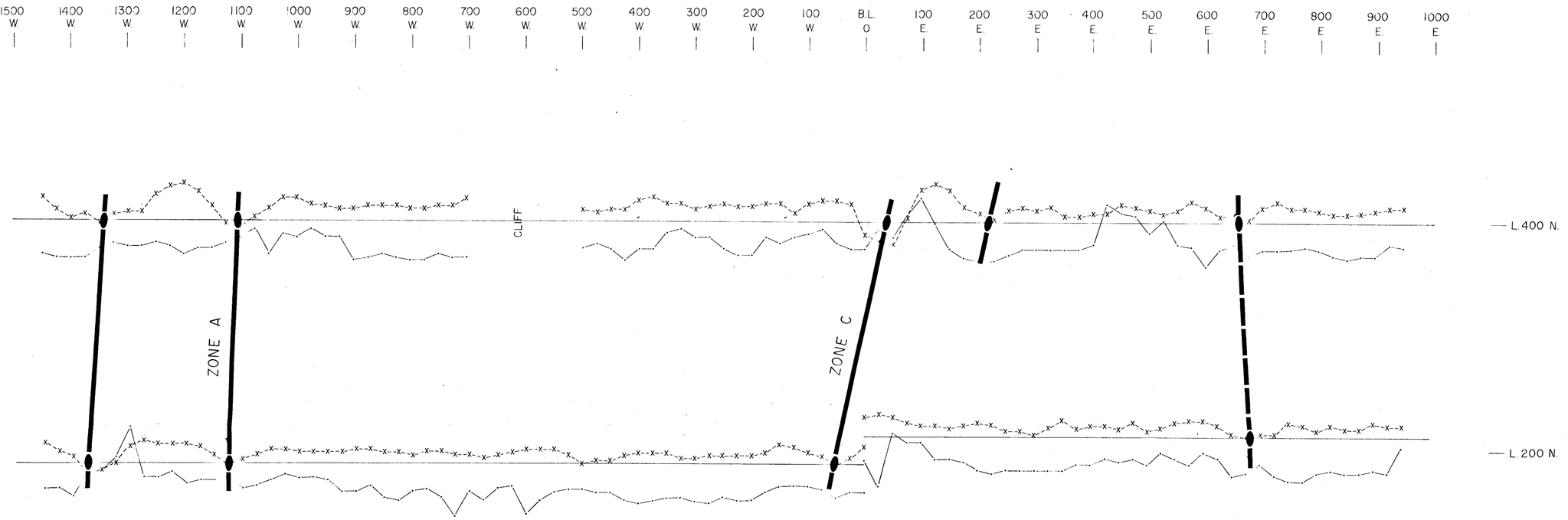

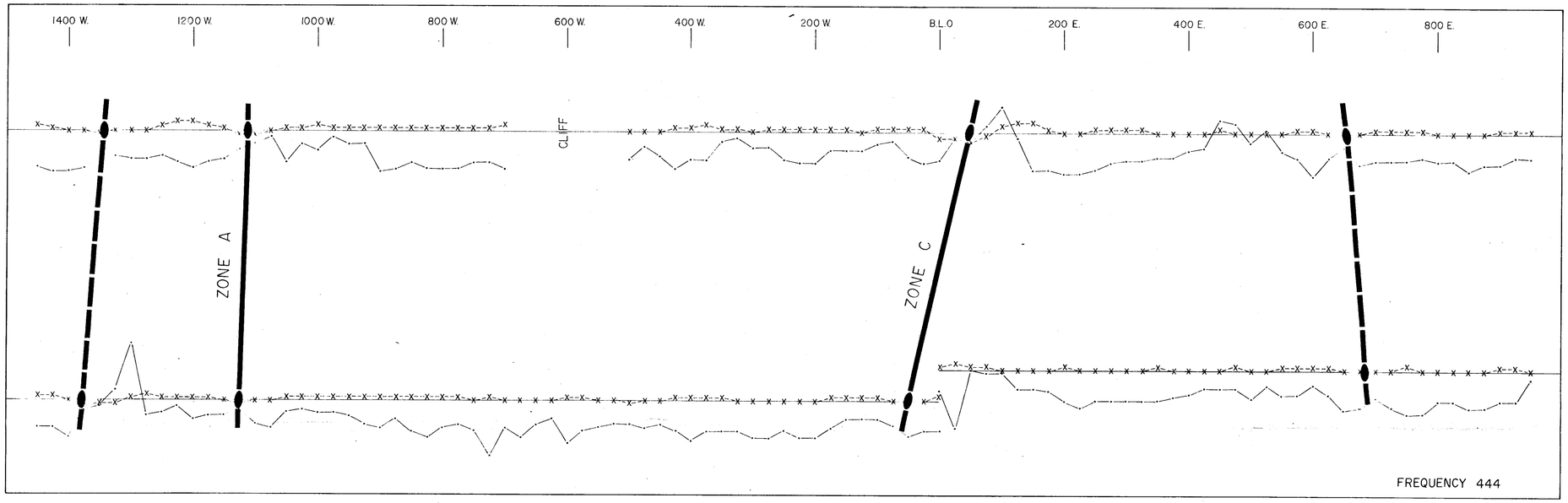

LEGEND

+10%
+5%
0 — PERCENT DEVIATION FROM NORMAL FIELD
-5%
-10%

•—•—•—• IN-PHASE RESPONSE

x—x—x—x OUT-OF-PHASE RESPONSE

INSTRUMENTATION: APEX MAX-MIN II E.M.

FREQUENCY: 1777 HERTZ

DEFINITE CONDUCTOR

POSSIBLE CONDUCTOR

COIL SPACING 100m.

To accompany geophysical report by David G. Mark, geophysicist, dated April, '81

GEOTRONICS SURVEYS LTD.

KASLE ENERGY CORPORATION

LADY CLAIM

ASPEN GROVE - TOMMY LAKE AREA
NICOLA, M.D.
PRINCETON, B.C.

MAX. MIN. II ELECTROMAGNETIC SURVEY PROFILES

DRAWN BY	JOB No.	DATE	SCALE	SHEET No.
J.C. / J.W.	80 - 79	MAY, 1981	1:5000	3