

87-574 - 16240
8/88

GROUND GEOPHYSICAL SURVEYS

on the

JULIA 5 and 6 MINERAL CLAIMS

- Birch Creek

Atlin Mining District

Atlin, B.C.

Lat: 59° 48' N 39' 24"
Long: 133° 30' W 28' 48"

NTS: 104-N-11W

Owned by ↓ *operator:* Surprise Lake Exploration Limited Partnership
DAVID G. S. PURVIS

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,240

Scott Geophysics Ltd.
J.M. Thornton

July, 1987

FILMED

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APPENDICES

Appendix A Data Listings (Magnetometer, VLF and Fraser filter)

LIST OF ILLUSTRATIONS

Claim Map showing Grid Location

LIST OF MAPS

(map pocket)

Magnetometer Data

SCALE

| | |
|---------------------------|--------|
| Contour Map (Total field) | 1:5000 |
| Magnetometer Data Posting | 1:5000 |
| Stacked Profiles | 1:5000 |

VLF-EM Data

| | |
|-------------------------------------|--------|
| Stacked Profiles (IP. & Quad.) | 1:5000 |
| Contour Map of "Fraser Filter" Data | 1:5000 |
| "Fraser Filter" Data Posting | 1:5000 |

Summary

On behalf of Surprise Lake Exploration Syndicate, Scott Geophysics Ltd. personnel performed ground magnetometer and VLF surveys on 7.0 km of line on part of the Julia 5 and 6 Claims to investigate the anomalous conditions detected in the DIGHEM airborne survey carried out over the area on behalf of the owner in 1984.

Strong magnetic response typical of near surface unaltered ultramafic or volcanic rocks were observed.

Several discontinuous VLF structures were noted, with some evidence of cross-cutting structures inferred.

Introduction

In late June, 1987, Scott Geophysics Ltd. performed total field ground magnetometer and VLF-EM surveys on 7.0 km of line on behalf of the Surprise Lake Exploration Limited Partnership. Data was gathered at 20 meter intervals on well cut and marked lines 100 meters apart.

The purpose of the ground work was to investigate the anomalous conditions observed in the DIGHEM airborne survey flown in 1984.

Approximately 7.8 km of linecutting was performed by J.W.R. Smith of Atlin, B.C.

Location and Access

The Julia claims are located approximately 20 km from Atlin in the Birch Creek drainage. A good 2 wheel drive road provides access to the survey area right at the north-east end of the Birch Creek road.

Claim Status

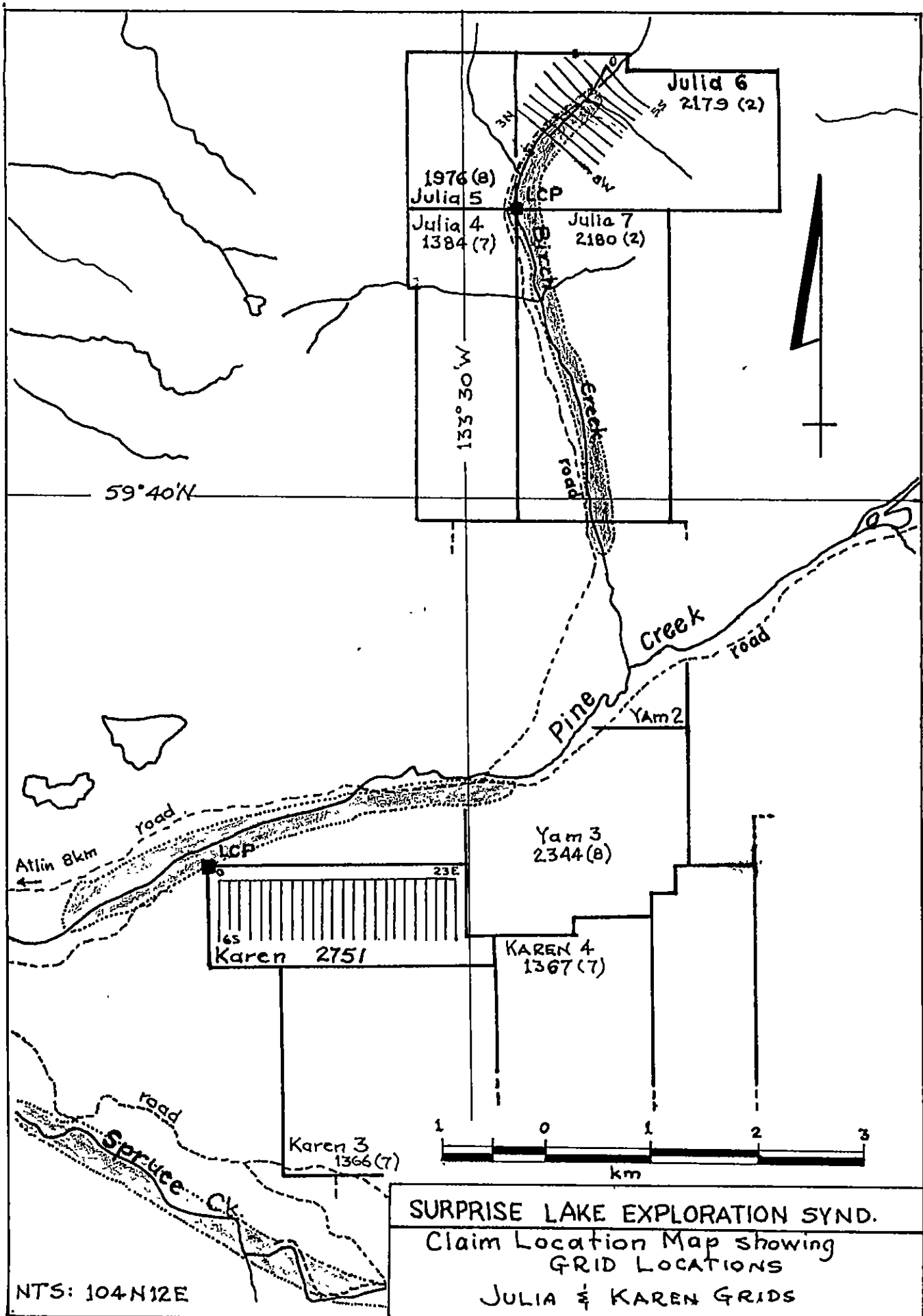
The surveys were performed on the following mineral claims:

| <u>NAME</u> | <u>UNITS</u> | <u>ANNIV. DATE</u> | <u>RECORD NO.</u> |
|-------------|--------------|--------------------|-------------------|
| Julia 5 | 6 | Aug 2, 1988 | 1976 |
| Julia 6 | 15 | Feb 8, 1989 | 2179 |

Geophysical Surveys 7.0 km

Prior to the geophysical work, 7.8 km of line was cut and flagged at 20 meter intervals during early June, 1987. This work was contracted to Rick Smith of Atlin, B.C.

The baseline extends from the intersection of the north boundary of the Julia 6 claim line with Birch Creek at a 230 degree azimuth along Birch Creek for 800 meters. Nine perpendicular cross-lines at



100 meter intervals were established. The lines extend 500 meters south-east and 300 meters north-west of the baseline. Lines 0, 1+00W and 2+00W stop at the north property boundary. An identification post for Julia 6 (3N,1E) is located approximately 70 meters due west of the north end of line 1+00N.

Ground magnetometer and VLF-EM data were gathered along the cross lines for a total of 7.0 km. Readings were taken at 20 meter intervals, facing grid west to minimize orientation errors. Field magnetometer data was later corrected for drift using the data from a recording base station magnetometer.

The transmitting station at Lualualei, Hawaii (Az 215 degrees) provided the energizing signal for the VLF survey. This station was particularly well suited to the grid and the strike of the airborne conductors.

Equipment Used

The magnetometer survey used an IGS system manufactured by Scintrex. (Serial number 8412233) Data is stored internally with time, by line and station. A base station magnetometer (Scintrex MP-3), sampling at a 6 second interval, was used to monitor the diurnal variation. At the start of a survey day, the clocks within the two instruments were synchronized. At the end of a survey day, diurnal drift was removed by plugging the field and base units together. Internal software in the computer-based instruments performed the corrections to the field data to an accuracy of 0.1 nT.

VLF data was gathered by a VLF board in the IGS system. Once the magnetometer data has been stored, the instrument switches to VLF mode. It can be programmed to gather data for up to 3 stations. Programmed for 1 station, Hawaii (23.4 kHz), it gathered In Phase, Quadrature and Horizontal Field Strength, storing the data internally by line and station.

Data was transferred from the IGS to a Toshiba 1100+ portable computer for editing and later processing. Field plots of mag and VLF were made on selected lines to monitor data quality.

Survey Results

Field plotting was performed on a dot matrix printer. Final data presentation was done with the use of software proprietary to Scott Geophysics on a Houston Instruments DMP-42 plotter.

Magnetometer data was plotted as stacked profiles and as a contour map at a scale of 1:5000. The field data was also posted at the same scale.

VLF data was plotted as stacked profiles of In-phase and Quadrature at a scale of 1:5000.

The In-phase data was also subjected to the "Fraser filter"

technique in order to remove topographic response and to make the data more easily understood. During the filtering process, the data was re-sampled to a 15 meter interval using a spline technique to determine the data values between survey stations as needed. Filtering was performed in accordance with the method put forth by D.C. Fraser (1969, Contouring of VLF-EM Data, Geophysics v.34 pp 958-967). Filtered results were plotted as stacked profiles and as a contour map at a scale of 1:5000.

Appendix A contains a complete data listing.

Discussion of Results

MAGNETOMETER SURVEY

The magnetometer profile data displays the choppy nature of the magnetics. This response is typical of volcanics. Data from line 8+00W suggests the presence of a thin horizontal andesite or basalt sheet which has been eroded away in the vicinity of the creek.

Generally, north of the creek the rocks appear to be more magnetic but also more homogenous.

A marked difference in the magnetic signature on the south ends of Lines 0 and 1+00E indicates a fundamental rock type change. Rocks east of line 1+00E are probably of sedimentary origin.

Overburden is relatively thin, less than 10 meters. Most of the magnetic features are undersampled.

VLF SURVEY

Anomalies long and strong enough to be detectable from the air were noted at the south ends of Lines 2+00W to 4+00W, and also the north ends of Lines 3+00W and 4+00W. Topographic response has elevated the data to the south and depressed the data to the north of the creek. A weak to moderate anomaly is noted just south of the baseline trending from line 0 to line 6+00W. VLF response suggests that the small creek between lines 2+00W and 3+00W is the locus of a fault. The anomalies are most probably due to graphite smears in the meta-sedimentary sequence. They are most certainly the same as those mapped in the airborne survey.

Conclusions and Recommendations

The VLF survey established the presence of anomalies strong enough to account for the airborne conductors. Graphitic conductors are suspected as the source in each case.

Magnetometer data is not detailed enough for definitive analysis. Overall response is strong, suggestive of quite highly magnetized rocks, which include basalts, volcanics and the ultramafics typical in the Atlin Camp.

Survey response led to extending the survey several stations on many of the lines beyond the prepared grid. In order to more fully understand the significance of the observed anomalies, the grid should be extended, particularly to the south and west. Data gathered at 10 meters along lines at 50 meter intervals would provide the detail required to adequately assess the complex structure of the survey area.

J. M. Thornton

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Itemized Cost Statement

LINECUTTING \$ 2962.96

"Establishing Grid; linecutting, flagging and marking together with all associated rentals, supplies, wages and equipment"

GEOPHYSICAL SURVEYS 6.96 km @ \$ 120.00 \$ 835.20

 Data Reduction and Plotting 208.80
 Materials 7.01

GEOPHYSICAL REPORT

 1.5 days @ \$ 300.00 / day 450.00

 Materials; duplicating/binding (est) 40.00

Total: \$ 4503.97

J. M. Thornton

Statement of Qualifications

I, Jeremy M. Thornton, of 3393 Fairmont Road, North Vancouver, B.C. do certify that:

- 1) I have worked as a geophysical technician for the past twenty years.
- 2) I have been engaged in mineral exploration since graduation from the British Columbia Institute of Technology in 1967.
- 3) I personally carried out the work presented in this report for Scott Geophysics Ltd.
- 4) I have no direct or indirect interest in the property represented in this report, nor do I expect to receive such.

J. M. Thornton
J. M. Thornton

July 30, 1987
Date

MAGNETOMETER DATA

Total Field (Proton precession)
Equipment: Scintrex MP-4 (IGS)

Note: 57000 nT has been subtracted
from all readings

Julia Grid - Lines: 0 to 8+00W

June, 1987

| X(East) | Y(North) | Tot F. | X(East) | Y(North) | Tot F. | X(East) | Y(North) | Tot F. |
|---------|----------|--------|---------|----------|---------|---------|----------|--------|
| -800.0 | -500.0 | 8501.7 | -700.0 | 180.0 | 8866.5 | -500.0 | -20.0 | 7992.5 |
| -800.0 | -480.0 | 7708.6 | -700.0 | 200.0 | 9102.3 | -500.0 | 0.0 | 8515.0 |
| -800.0 | -460.0 | 8281.9 | -700.0 | 220.0 | 8822.1 | -500.0 | 20.0 | 7702.6 |
| -800.0 | -440.0 | 8404.9 | -700.0 | 240.0 | 9618.4 | -500.0 | 40.0 | 6489.1 |
| -800.0 | -420.0 | 8199.4 | -700.0 | 260.0 | 9124.1 | -500.0 | 60.0 | 6679.9 |
| -800.0 | -400.0 | 8488.6 | -700.0 | 280.0 | 9404.3 | -500.0 | 80.0 | 7070.8 |
| -800.0 | -380.0 | 8507.7 | -700.0 | 300.0 | 9989.0 | -500.0 | 100.0 | 7825.9 |
| -800.0 | -360.0 | 8768.1 | -700.0 | 320.0 | 10028.2 | -500.0 | 120.0 | 8305.3 |
| -800.0 | -340.0 | 9025.5 | -700.0 | 340.0 | 10048.1 | -500.0 | 140.0 | 7341.0 |
| -800.0 | -320.0 | 9120.5 | -700.0 | 360.0 | 9847.5 | -500.0 | 160.0 | 8183.3 |
| -800.0 | -300.0 | 9165.4 | -700.0 | 380.0 | 8910.1 | -500.0 | 180.0 | 8603.1 |
| -800.0 | -280.0 | 9175.6 | -600.0 | -500.0 | 7990.3 | -500.0 | 200.0 | 9003.0 |
| -800.0 | -260.0 | 9254.8 | -600.0 | -480.0 | 8377.5 | -500.0 | 220.0 | 8769.4 |
| -800.0 | -240.0 | 8945.8 | -600.0 | -460.0 | 8216.5 | -500.0 | 240.0 | 8878.3 |
| -800.0 | -220.0 | 8711.4 | -600.0 | -440.0 | 7878.9 | -500.0 | 260.0 | 8624.6 |
| -800.0 | -200.0 | 8596.8 | -600.0 | -420.0 | 7943.9 | -500.0 | 280.0 | 8389.3 |
| -800.0 | -180.0 | 8451.2 | -600.0 | -400.0 | 8272.9 | -500.0 | 300.0 | 8960.6 |
| -800.0 | -160.0 | 8230.2 | -600.0 | -380.0 | 8090.2 | -400.0 | -560.0 | 7704.5 |
| -800.0 | -140.0 | 8175.0 | -600.0 | -360.0 | 7876.3 | -400.0 | -540.0 | 8075.5 |
| -800.0 | -120.0 | 8095.0 | -600.0 | -340.0 | 8333.0 | -400.0 | -520.0 | 7810.4 |
| -800.0 | -100.0 | 8107.7 | -600.0 | -320.0 | 8459.7 | -400.0 | -500.0 | 7520.0 |
| -800.0 | -80.0 | 8426.6 | -600.0 | -300.0 | 8285.7 | -400.0 | -480.0 | 7760.9 |
| -800.0 | -60.0 | 8840.8 | -600.0 | -280.0 | 9016.4 | -400.0 | -460.0 | 7940.8 |
| -800.0 | -40.0 | 9152.4 | -600.0 | -260.0 | 8375.2 | -400.0 | -440.0 | 8546.4 |
| -800.0 | -20.0 | 8506.5 | -600.0 | -240.0 | 8581.1 | -400.0 | -420.0 | 8877.8 |
| -800.0 | 0.0 | 7678.7 | -600.0 | -220.0 | 8430.8 | -400.0 | -400.0 | 8096.9 |
| -800.0 | 20.0 | 8007.3 | -600.0 | -200.0 | 8260.9 | -400.0 | -380.0 | 8286.8 |
| -800.0 | 40.0 | 7427.8 | -600.0 | -180.0 | 9254.8 | -400.0 | -360.0 | 8631.0 |
| -800.0 | 60.0 | 8526.7 | -600.0 | -160.0 | 9562.1 | -400.0 | -340.0 | 8491.7 |
| -800.0 | 80.0 | 9694.7 | -600.0 | -140.0 | 8271.0 | -400.0 | -320.0 | 8498.3 |
| -800.0 | 100.0 | 9346.7 | -600.0 | -120.0 | 8086.2 | -400.0 | -300.0 | 8244.3 |
| -800.0 | 120.0 | 8771.0 | -600.0 | -100.0 | 8482.2 | -400.0 | -280.0 | 8337.2 |
| -800.0 | 140.0 | 8958.0 | -600.0 | -80.0 | 8560.2 | -400.0 | -260.0 | 8603.1 |
| -800.0 | 160.0 | 9247.0 | -600.0 | -60.0 | 8448.0 | -400.0 | -240.0 | 8757.6 |
| -800.0 | 180.0 | 9355.4 | -600.0 | -40.0 | 7686.1 | -400.0 | -220.0 | 8505.6 |
| -800.0 | 200.0 | 8899.5 | -600.0 | -20.0 | 7074.9 | -400.0 | -200.0 | 8300.5 |
| -800.0 | 220.0 | 9464.4 | -600.0 | 0.0 | 6353.2 | -400.0 | -180.0 | 8327.6 |
| -800.0 | 240.0 | 9405.2 | -600.0 | 20.0 | 6557.9 | -400.0 | -160.0 | 8296.9 |
| -800.0 | 260.0 | 9431.3 | -600.0 | 40.0 | 7234.3 | -400.0 | -140.0 | 7972.3 |
| -800.0 | 280.0 | 9249.6 | -600.0 | 60.0 | 7539.7 | -400.0 | -120.0 | 7815.3 |
| -800.0 | 300.0 | 9259.0 | -600.0 | 80.0 | 7791.3 | -400.0 | -100.0 | 7828.5 |
| -800.0 | 320.0 | 9778.9 | -600.0 | 100.0 | 8100.5 | -400.0 | -80.0 | 7799.7 |
| -700.0 | -500.0 | 7963.6 | -600.0 | 120.0 | 8160.8 | -400.0 | -60.0 | 7600.9 |
| -700.0 | -480.0 | 8267.5 | -600.0 | 140.0 | 8015.5 | -400.0 | -40.0 | 7503.7 |
| -700.0 | -460.0 | 8748.7 | -600.0 | 160.0 | 8005.4 | -400.0 | -20.0 | 7697.8 |
| -700.0 | -440.0 | 8166.4 | -600.0 | 180.0 | 8324.0 | -400.0 | 0.0 | 8573.4 |
| -700.0 | -420.0 | 8511.3 | -600.0 | 200.0 | 8559.2 | -400.0 | 20.0 | 8207.5 |
| -700.0 | -400.0 | 8746.5 | -600.0 | 220.0 | 8920.0 | -400.0 | 40.0 | 8401.0 |
| -700.0 | -380.0 | 8762.5 | -600.0 | 240.0 | 9173.6 | -400.0 | 60.0 | 8095.8 |
| -700.0 | -360.0 | 8807.9 | -600.0 | 260.0 | 8962.3 | -400.0 | 80.0 | 7724.0 |
| -700.0 | -340.0 | 8416.0 | -600.0 | 280.0 | 8750.1 | -400.0 | 100.0 | 7174.0 |
| -700.0 | -320.0 | 8990.3 | -600.0 | 300.0 | 8799.9 | -400.0 | 120.0 | 7606.2 |
| -700.0 | -300.0 | 9491.6 | -500.0 | -500.0 | 7348.9 | -400.0 | 140.0 | 7903.0 |
| -700.0 | -280.0 | 8685.8 | -500.0 | -480.0 | 7717.1 | -400.0 | 160.0 | 8031.0 |
| -700.0 | -260.0 | 7682.4 | -500.0 | -460.0 | 7837.0 | -400.0 | 180.0 | 8683.7 |
| -700.0 | -240.0 | 8763.8 | -500.0 | -440.0 | 7756.2 | -400.0 | 200.0 | 8779.4 |
| -700.0 | -220.0 | 8928.6 | -500.0 | -420.0 | 7854.8 | -400.0 | 220.0 | 8755.2 |
| -700.0 | -200.0 | 8987.4 | -500.0 | -400.0 | 8121.5 | -400.0 | 240.0 | 9032.5 |
| -700.0 | -180.0 | 9507.4 | -500.0 | -380.0 | 8167.6 | -400.0 | 260.0 | 8266.1 |
| -700.0 | -160.0 | 9165.9 | -500.0 | -360.0 | 8238.6 | -400.0 | 280.0 | 8775.1 |
| -700.0 | -140.0 | 8281.1 | -500.0 | -340.0 | 8220.9 | -400.0 | 300.0 | 9148.5 |
| -700.0 | -120.0 | 7893.7 | -500.0 | -320.0 | 8499.7 | -300.0 | -540.0 | 7487.5 |
| -700.0 | -100.0 | 7752.6 | -500.0 | -300.0 | 8407.9 | -300.0 | -520.0 | 7431.7 |
| -700.0 | -80.0 | 7418.5 | -500.0 | -280.0 | 8172.1 | -300.0 | -500.0 | 7429.9 |
| -700.0 | -60.0 | 7246.9 | -500.0 | -260.0 | 7925.2 | -300.0 | -480.0 | 7613.6 |
| -700.0 | -40.0 | 7259.6 | -500.0 | -240.0 | 7814.9 | -300.0 | -460.0 | 7735.9 |
| -700.0 | -20.0 | 6785.4 | -500.0 | -220.0 | 7996.2 | -300.0 | -440.0 | 8176.3 |
| -700.0 | 0.0 | 7236.0 | -500.0 | -200.0 | 7762.0 | -300.0 | -420.0 | 7984.3 |
| -700.0 | 20.0 | 7288.9 | -500.0 | -180.0 | 7810.4 | -300.0 | -400.0 | 7929.6 |
| -700.0 | 40.0 | 7291.3 | -500.0 | -160.0 | 7660.6 | -300.0 | -380.0 | 7988.2 |
| -700.0 | 60.0 | 7422.6 | -500.0 | -140.0 | 7797.0 | -300.0 | -360.0 | 7888.9 |
| -700.0 | 80.0 | 7436.0 | -500.0 | -120.0 | 7481.2 | -300.0 | -340.0 | 8066.0 |
| -700.0 | 100.0 | 7744.7 | -500.0 | -100.0 | 7718.9 | -300.0 | -320.0 | 8172.9 |
| -700.0 | 120.0 | 8416.9 | -500.0 | -80.0 | 8492.5 | -300.0 | -300.0 | 9024.6 |
| -700.0 | 140.0 | 8597.6 | -500.0 | -60.0 | 8670.1 | -300.0 | -280.0 | 9424.9 |
| -700.0 | 160.0 | 8909.5 | -500.0 | -40.0 | 8235.4 | -300.0 | -260.0 | 8727.6 |

| X(East) | Y(North) | Tot F. | X(East) | Y(North) | Tot F. | X(East) | Y(North) | Tot F. |
|---------|----------|--------|---------|----------|--------|---------|----------|--------|
| -300.0 | -240.0 | 9017.2 | -200.0 | -220.0 | 8183.5 | -100.0 | -100.0 | 7357.6 |
| -300.0 | -220.0 | 8946.0 | -200.0 | -200.0 | 8376.1 | -100.0 | -80.0 | 7471.3 |
| -300.0 | -200.0 | 8937.5 | -200.0 | -180.0 | 8469.4 | -100.0 | -60.0 | 8186.5 |
| -300.0 | -180.0 | 9258.7 | -200.0 | -160.0 | 8306.3 | -100.0 | -40.0 | 8115.8 |
| -300.0 | -160.0 | 9285.2 | -200.0 | -140.0 | 8326.8 | -100.0 | -20.0 | 7579.0 |
| -300.0 | -140.0 | 8385.8 | -200.0 | -120.0 | 7669.1 | -100.0 | 0.0 | 7345.2 |
| -300.0 | -120.0 | 8443.0 | -200.0 | -100.0 | 9089.3 | -100.0 | 20.0 | 8152.3 |
| -300.0 | -100.0 | 8407.2 | -200.0 | -80.0 | 8408.9 | -100.0 | 40.0 | 8643.9 |
| -300.0 | -80.0 | 8188.0 | -200.0 | -60.0 | 7858.8 | -100.0 | 60.0 | 7793.9 |
| -300.0 | -60.0 | 8096.8 | -200.0 | -40.0 | 8368.7 | -100.0 | 80.0 | 7384.5 |
| -300.0 | -40.0 | 7798.6 | -200.0 | -20.0 | 8020.8 | -100.0 | 100.0 | 8645.8 |
| -300.0 | -20.0 | 7533.8 | -200.0 | 0.0 | 7419.6 | -100.0 | 120.0 | 9578.4 |
| -300.0 | 0.0 | 7516.2 | -200.0 | 20.0 | 7308.5 | -100.0 | 140.0 | 9408.2 |
| -300.0 | 20.0 | 7472.7 | -200.0 | 40.0 | 7036.4 | -100.0 | 160.0 | 8958.6 |
| -300.0 | 40.0 | 7185.2 | -200.0 | 60.0 | 7407.9 | 0.0 | -540.0 | 7480.6 |
| -300.0 | 60.0 | 7347.1 | -200.0 | 80.0 | 7136.5 | 0.0 | -520.0 | 7467.8 |
| -300.0 | 80.0 | 8223.0 | -200.0 | 100.0 | 8303.8 | 0.0 | -500.0 | 7472.7 |
| -300.0 | 100.0 | 8525.6 | -200.0 | 120.0 | 8224.9 | 0.0 | -480.0 | 7505.2 |
| -300.0 | 120.0 | 9620.9 | -200.0 | 140.0 | 9151.8 | 0.0 | -460.0 | 7473.6 |
| -300.0 | 140.0 | 8472.2 | -200.0 | 160.0 | 9462.8 | 0.0 | -440.0 | 7434.6 |
| -300.0 | 160.0 | 8169.6 | -200.0 | 180.0 | 8813.6 | 0.0 | -420.0 | 7382.5 |
| -300.0 | 180.0 | 8468.4 | -200.0 | 200.0 | 7982.7 | 0.0 | -400.0 | 7320.6 |
| -300.0 | 200.0 | 9137.3 | -200.0 | 220.0 | 7649.9 | 0.0 | -380.0 | 7322.9 |
| -300.0 | 220.0 | 9522.0 | -100.0 | -500.0 | 7381.6 | 0.0 | -360.0 | 7339.4 |
| -300.0 | 240.0 | 8293.6 | -100.0 | -480.0 | 7364.5 | 0.0 | -340.0 | 7318.5 |
| -300.0 | 260.0 | 9427.9 | -100.0 | -460.0 | 7344.6 | 0.0 | -320.0 | 7336.0 |
| -300.0 | 280.0 | 8881.8 | -100.0 | -440.0 | 7345.4 | 0.0 | -300.0 | 7213.6 |
| -300.0 | 300.0 | 8843.7 | -100.0 | -420.0 | 7306.8 | 0.0 | -280.0 | 7180.1 |
| -200.0 | -520.0 | 7229.3 | -100.0 | -400.0 | 7220.3 | 0.0 | -260.0 | 7208.2 |
| -200.0 | -500.0 | 7249.9 | -100.0 | -380.0 | 7212.2 | 0.0 | -240.0 | 7110.5 |
| -200.0 | -480.0 | 7236.2 | -100.0 | -360.0 | 7057.7 | 0.0 | -220.0 | 7030.6 |
| -200.0 | -460.0 | 7261.0 | -100.0 | -340.0 | 7071.7 | 0.0 | -200.0 | 6947.3 |
| -200.0 | -440.0 | 7500.9 | -100.0 | -320.0 | 7098.7 | 0.0 | -180.0 | 7316.6 |
| -200.0 | -420.0 | 7843.2 | -100.0 | -300.0 | 6908.6 | 0.0 | -160.0 | 7276.1 |
| -200.0 | -400.0 | 8785.7 | -100.0 | -280.0 | 7139.3 | 0.0 | -140.0 | 7471.6 |
| -200.0 | -380.0 | 8140.7 | -100.0 | -260.0 | 7850.8 | 0.0 | -120.0 | 7202.9 |
| -200.0 | -360.0 | 8713.6 | -100.0 | -240.0 | 8194.9 | 0.0 | -100.0 | 7534.0 |
| -200.0 | -340.0 | 7931.3 | -100.0 | -220.0 | 7620.8 | 0.0 | -80.0 | 8113.3 |
| -200.0 | -320.0 | 7709.3 | -100.0 | -200.0 | 7355.8 | 0.0 | -60.0 | 8734.6 |
| -200.0 | -300.0 | 7549.7 | -100.0 | -180.0 | 9235.3 | 0.0 | -40.0 | 7575.5 |
| -200.0 | -280.0 | 7423.9 | -100.0 | -160.0 | 8863.3 | 0.0 | -20.0 | 6886.3 |
| -200.0 | -260.0 | 7317.8 | -100.0 | -140.0 | 7884.6 | 0.0 | 0.0 | 6728.6 |
| -200.0 | -240.0 | 7592.8 | -100.0 | -120.0 | 8300.1 | | | |

VLF-EM DATA

In Phase, Quadrature

Station: NPM (Lualualei, Hawaii) 23.4 kHz

Equipment: Scintrex VLF-4 (IGS)

Julia Grid - Lines: 0 to 8+00W

June, 1987

| X(East) | Y(North) | In | Ph | Quad | X(East) | Y(North) | In | Ph | Quad | X(East) | Y(North) | In | Ph | Quad |
|---------|----------|-----|----|------|---------|----------|-----|----|------|---------|----------|-----|----|------|
| -800.0 | -500.0 | 10 | | 3 | -700.0 | 180.0 | -18 | | -9 | -500.0 | -20.0 | 20 | | 12 |
| -800.0 | -480.0 | 8 | | 1 | -700.0 | 200.0 | -17 | | -7 | -500.0 | 0.0 | 21 | | 11 |
| -800.0 | -460.0 | 5 | | 1 | -700.0 | 220.0 | -15 | | -4 | -500.0 | 20.0 | 1 | | 3 |
| -800.0 | -440.0 | 4 | | 2 | -700.0 | 240.0 | -18 | | -5 | -500.0 | 40.0 | 5 | | 5 |
| -800.0 | -420.0 | 4 | | 2 | -700.0 | 260.0 | -19 | | -5 | -500.0 | 60.0 | -4 | | -2 |
| -800.0 | -400.0 | 5 | | 3 | -700.0 | 280.0 | -21 | | -7 | -500.0 | 80.0 | -11 | | -8 |
| -800.0 | -380.0 | 8 | | 4 | -700.0 | 300.0 | -15 | | -3 | -500.0 | 100.0 | -14 | | -8 |
| -800.0 | -360.0 | 9 | | 6 | -700.0 | 320.0 | -11 | | -1 | -500.0 | 120.0 | -18 | | -10 |
| -800.0 | -340.0 | 11 | | 6 | -700.0 | 340.0 | -9 | | 0 | -500.0 | 140.0 | -19 | | -11 |
| -800.0 | -320.0 | 11 | | 7 | -700.0 | 360.0 | -7 | | 0 | -500.0 | 160.0 | -16 | | -10 |
| -800.0 | -300.0 | 15 | | 7 | -700.0 | 380.0 | -5 | | 2 | -500.0 | 180.0 | -15 | | -9 |
| -800.0 | -280.0 | 15 | | 6 | -600.0 | -500.0 | 15 | | 1 | -500.0 | 200.0 | -14 | | -6 |
| -800.0 | -260.0 | 18 | | 8 | -600.0 | -480.0 | 15 | | 2 | -500.0 | 220.0 | -15 | | -6 |
| -800.0 | -240.0 | 20 | | 8 | -600.0 | -460.0 | 17 | | 1 | -500.0 | 240.0 | -16 | | -4 |
| -800.0 | -220.0 | 21 | | 9 | -600.0 | -440.0 | 13 | | 0 | -500.0 | 260.0 | -15 | | -4 |
| -800.0 | -200.0 | 24 | | 8 | -600.0 | -420.0 | 16 | | 2 | -500.0 | 280.0 | -16 | | -4 |
| -800.0 | -180.0 | 27 | | 8 | -600.0 | -400.0 | 18 | | 3 | -500.0 | 300.0 | -12 | | -3 |
| -800.0 | -160.0 | 28 | | 6 | -600.0 | -380.0 | 16 | | 2 | -400.0 | -560.0 | 5 | | 7 |
| -800.0 | -140.0 | 30 | | 5 | -600.0 | -360.0 | 16 | | 1 | -400.0 | -540.0 | 4 | | 6 |
| -800.0 | -120.0 | 29 | | 2 | -600.0 | -340.0 | 15 | | 2 | -400.0 | -520.0 | 11 | | 5 |
| -800.0 | -100.0 | 34 | | 0 | -600.0 | -320.0 | 9 | | 1 | -400.0 | -500.0 | 18 | | 6 |
| -800.0 | -80.0 | 38 | | 1 | -600.0 | -300.0 | 13 | | 2 | -400.0 | -480.0 | 25 | | 6 |
| -800.0 | -60.0 | 41 | | 2 | -600.0 | -280.0 | 12 | | 4 | -400.0 | -460.0 | 26 | | 4 |
| -800.0 | -40.0 | 46 | | 11 | -600.0 | -260.0 | 12 | | 3 | -400.0 | -440.0 | 26 | | 3 |
| -800.0 | -20.0 | 35 | | 14 | -600.0 | -240.0 | 17 | | 4 | -400.0 | -420.0 | 22 | | 2 |
| -800.0 | 0.0 | 18 | | 2 | -600.0 | -220.0 | 16 | | 5 | -400.0 | -400.0 | 19 | | 1 |
| -800.0 | 20.0 | 5 | | -4 | -600.0 | -200.0 | 24 | | 4 | -400.0 | -380.0 | 16 | | -1 |
| -800.0 | 40.0 | 0 | | -10 | -600.0 | -180.0 | 24 | | 5 | -400.0 | -360.0 | 14 | | -2 |
| -800.0 | 60.0 | -1 | | -12 | -600.0 | -160.0 | 23 | | 4 | -400.0 | -340.0 | 11 | | -3 |
| -800.0 | 80.0 | -8 | | -13 | -600.0 | -140.0 | 21 | | 6 | -400.0 | -320.0 | 15 | | 0 |
| -800.0 | 100.0 | -12 | | -13 | -600.0 | -120.0 | 19 | | 6 | -400.0 | -300.0 | 22 | | 1 |
| -800.0 | 120.0 | -12 | | -10 | -600.0 | -100.0 | 19 | | 6 | -400.0 | -280.0 | 28 | | 3 |
| -800.0 | 140.0 | -14 | | -8 | -600.0 | -80.0 | 20 | | 8 | -400.0 | -260.0 | 32 | | 3 |
| -800.0 | 160.0 | -12 | | -7 | -600.0 | -60.0 | 17 | | 8 | -400.0 | -240.0 | 27 | | 4 |
| -800.0 | 180.0 | -18 | | -7 | -600.0 | -40.0 | 15 | | 9 | -400.0 | -220.0 | 18 | | 1 |
| -800.0 | 200.0 | -15 | | -6 | -600.0 | -20.0 | 17 | | 11 | -400.0 | -200.0 | 10 | | 0 |
| -800.0 | 220.0 | -18 | | -8 | -600.0 | 0.0 | 12 | | 7 | -400.0 | -180.0 | 7 | | 0 |
| -800.0 | 240.0 | -18 | | -8 | -600.0 | 20.0 | 14 | | 7 | -400.0 | -160.0 | 6 | | 0 |
| -800.0 | 260.0 | -20 | | -8 | -600.0 | 40.0 | 1 | | 1 | -400.0 | -140.0 | 12 | | 4 |
| -800.0 | 280.0 | -16 | | -5 | -600.0 | 60.0 | -9 | | -8 | -400.0 | -120.0 | 14 | | 6 |
| -800.0 | 300.0 | -14 | | -4 | -600.0 | 80.0 | -11 | | -8 | -400.0 | -100.0 | 14 | | 6 |
| -800.0 | 320.0 | -7 | | 0 | -600.0 | 100.0 | -17 | | -10 | -400.0 | -80.0 | 14 | | 7 |
| -700.0 | -500.0 | 11 | | 2 | -600.0 | 120.0 | -20 | | -13 | -400.0 | -60.0 | 14 | | 6 |
| -700.0 | -480.0 | 18 | | 3 | -600.0 | 140.0 | -23 | | -13 | -400.0 | -40.0 | 18 | | 6 |
| -700.0 | -460.0 | 18 | | 2 | -600.0 | 160.0 | -17 | | -10 | -400.0 | -20.0 | 22 | | 8 |
| -700.0 | -440.0 | 15 | | 2 | -600.0 | 180.0 | -16 | | -7 | -400.0 | 0.0 | 27 | | 11 |
| -700.0 | -420.0 | 13 | | 2 | -600.0 | 200.0 | -16 | | -7 | -400.0 | 20.0 | 14 | | 7 |
| -700.0 | -400.0 | 10 | | 2 | -600.0 | 220.0 | -15 | | -7 | -400.0 | 40.0 | 1 | | 2 |
| -700.0 | -380.0 | 12 | | 3 | -600.0 | 240.0 | -15 | | -5 | -400.0 | 60.0 | -9 | | -2 |
| -700.0 | -360.0 | 13 | | 4 | -600.0 | 260.0 | -12 | | -3 | -400.0 | 80.0 | -14 | | -7 |
| -700.0 | -340.0 | 10 | | 4 | -600.0 | 280.0 | -12 | | -3 | -400.0 | 100.0 | -14 | | -9 |
| -700.0 | -320.0 | 15 | | 4 | -600.0 | 300.0 | -10 | | 0 | -400.0 | 120.0 | -21 | | -11 |
| -700.0 | -300.0 | 14 | | 5 | -500.0 | -500.0 | 23 | | 3 | -400.0 | 140.0 | -19 | | -9 |
| -700.0 | -280.0 | 16 | | 5 | -500.0 | -480.0 | 27 | | 4 | -400.0 | 160.0 | -26 | | -13 |
| -700.0 | -260.0 | 18 | | 5 | -500.0 | -460.0 | 29 | | 3 | -400.0 | 180.0 | -21 | | -9 |
| -700.0 | -240.0 | 21 | | 6 | -500.0 | -440.0 | 24 | | 2 | -400.0 | 200.0 | -13 | | -2 |
| -700.0 | -220.0 | 22 | | 7 | -500.0 | -420.0 | 21 | | 0 | -400.0 | 220.0 | -6 | | 1 |
| -700.0 | -200.0 | 22 | | 7 | -500.0 | -400.0 | 20 | | 1 | -400.0 | 240.0 | -8 | | 0 |
| -700.0 | -180.0 | 20 | | 6 | -500.0 | -380.0 | 19 | | 0 | -400.0 | 260.0 | -7 | | 0 |
| -700.0 | -160.0 | 17 | | 6 | -500.0 | -360.0 | 13 | | 0 | -400.0 | 280.0 | -9 | | 1 |
| -700.0 | -140.0 | 17 | | 6 | -500.0 | -340.0 | 10 | | 0 | -400.0 | 300.0 | -13 | | 2 |
| -700.0 | -120.0 | 19 | | 5 | -500.0 | -320.0 | 10 | | 0 | -300.0 | -540.0 | -1 | | 11 |
| -700.0 | -100.0 | 20 | | 5 | -500.0 | -300.0 | 14 | | 2 | -300.0 | -520.0 | 4 | | 11 |
| -700.0 | -80.0 | 26 | | 6 | -500.0 | -280.0 | 14 | | 2 | -300.0 | -500.0 | 10 | | 11 |
| -700.0 | -60.0 | 27 | | 6 | -500.0 | -260.0 | 19 | | 3 | -300.0 | -480.0 | 16 | | 10 |
| -700.0 | -40.0 | 30 | | 8 | -500.0 | -240.0 | 21 | | 4 | -300.0 | -460.0 | 19 | | 9 |
| -700.0 | -20.0 | 28 | | 11 | -500.0 | -220.0 | 24 | | 4 | -300.0 | -440.0 | 18 | | 6 |
| -700.0 | 0.0 | 21 | | 9 | -500.0 | -200.0 | 29 | | 6 | -300.0 | -420.0 | 18 | | 3 |
| -700.0 | 20.0 | 8 | | 2 | -500.0 | -180.0 | 24 | | 5 | -300.0 | -400.0 | 20 | | 3 |
| -700.0 | 40.0 | -2 | | -2 | -500.0 | -160.0 | 25 | | 5 | -300.0 | -380.0 | 19 | | 1 |
| -700.0 | 60.0 | -8 | | -5 | -500.0 | -140.0 | 24 | | 5 | -300.0 | -360.0 | 21 | | 0 |
| -700.0 | 80.0 | -13 | | -8 | -500.0 | -120.0 | 27 | | 7 | -300.0 | -340.0 | 27 | | 1 |
| -700.0 | 100.0 | -16 | | -11 | -500.0 | -100.0 | 25 | | 8 | -300.0 | -320.0 | 30 | | 2 |
| -700.0 | 120.0 | -24 | | -14 | -500.0 | -80.0 | 25 | | 8 | -300.0 | -300.0 | 34 | | 3 |
| -700.0 | 140.0 | -22 | | -13 | -500.0 | -60.0 | 18 | | 7 | -300.0 | -280.0 | 27 | | 3 |
| -700.0 | 160.0 | -21 | | -11 | -500.0 | -40.0 | 17 | | 9 | -300.0 | -260.0 | 26 | | 3 |

| Y(East) | Y(North) | In | Ph | Quad | X(East) | Y(North) | In | Ph | Quad | X(East) | Y(North) | In | Ph | Quad |
|---------|----------|-----|----|------|---------|----------|-----|----|------|---------|----------|-----|----|------|
| -300.0 | -240.0 | 23 | | 1 | -200.0 | -220.0 | 22 | | 3 | -100.0 | -100.0 | 14 | | 7 |
| -300.0 | -220.0 | 20 | | 3 | -200.0 | -200.0 | 20 | | 2 | -100.0 | -80.0 | 23 | | 8 |
| -300.0 | -200.0 | 21 | | 2 | -200.0 | -180.0 | 17 | | 2 | -100.0 | -60.0 | 27 | | 11 |
| -300.0 | -180.0 | 14 | | 1 | -200.0 | -160.0 | 17 | | 3 | -100.0 | -40.0 | 24 | | 9 |
| -300.0 | -160.0 | 6 | | 0 | -200.0 | -140.0 | 16 | | 3 | -100.0 | -20.0 | 15 | | 3 |
| -300.0 | -140.0 | 6 | | 1 | -200.0 | -120.0 | 18 | | 3 | -100.0 | 0.0 | 12 | | 1 |
| -300.0 | -120.0 | 9 | | 2 | -200.0 | -100.0 | 16 | | 4 | -100.0 | 20.0 | 7 | | 0 |
| -300.0 | -100.0 | 8 | | 3 | -200.0 | -80.0 | 11 | | 2 | -100.0 | 40.0 | -4 | | -6 |
| -300.0 | -80.0 | 9 | | 4 | -200.0 | -60.0 | 16 | | 3 | -100.0 | 60.0 | -4 | | -4 |
| -300.0 | -60.0 | 13 | | 5 | -200.0 | -40.0 | 12 | | 4 | -100.0 | 80.0 | -2 | | -3 |
| -300.0 | -40.0 | 17 | | 7 | -200.0 | -20.0 | 10 | | 4 | -100.0 | 100.0 | -4 | | -5 |
| -300.0 | -20.0 | 25 | | 9 | -200.0 | 0.0 | 8 | | 3 | -100.0 | 120.0 | -11 | | -5 |
| -300.0 | 0.0 | 17 | | 8 | -200.0 | 20.0 | 12 | | 5 | -100.0 | 140.0 | -7 | | -1 |
| -300.0 | 20.0 | 13 | | 6 | -200.0 | 40.0 | 5 | | 2 | -100.0 | 160.0 | -8 | | -2 |
| -300.0 | 40.0 | 7 | | 2 | -200.0 | 60.0 | 0 | | -2 | 0.0 | -540.0 | 19 | | 6 |
| -300.0 | 60.0 | -1 | | -4 | -200.0 | 80.0 | -5 | | -2 | 0.0 | -520.0 | 19 | | 3 |
| -300.0 | 80.0 | -6 | | -6 | -200.0 | 100.0 | -8 | | -5 | 0.0 | -500.0 | 15 | | 3 |
| -300.0 | 100.0 | -10 | | -6 | -200.0 | 120.0 | -9 | | -3 | 0.0 | -480.0 | 20 | | 6 |
| -300.0 | 120.0 | -19 | | -11 | -200.0 | 140.0 | -17 | | -7 | 0.0 | -460.0 | 27 | | 8 |
| -300.0 | 140.0 | -24 | | -10 | -200.0 | 160.0 | -21 | | -8 | 0.0 | -440.0 | 26 | | 5 |
| -300.0 | 160.0 | -27 | | -11 | -200.0 | 180.0 | -27 | | -8 | 0.0 | -420.0 | 24 | | 4 |
| -300.0 | 180.0 | -22 | | -8 | -200.0 | 200.0 | -17 | | -2 | 0.0 | -400.0 | 21 | | 3 |
| -300.0 | 200.0 | -15 | | -1 | -200.0 | 220.0 | -17 | | 0 | 0.0 | -380.0 | 18 | | 2 |
| -300.0 | 220.0 | -10 | | 0 | -100.0 | -500.0 | 10 | | 4 | 0.0 | -360.0 | 16 | | 0 |
| -300.0 | 240.0 | -2 | | 6 | -100.0 | -480.0 | 14 | | 6 | 0.0 | -340.0 | 15 | | 2 |
| -300.0 | 260.0 | -7 | | 5 | -100.0 | -460.0 | 20 | | 7 | 0.0 | -320.0 | 15 | | 3 |
| -300.0 | 280.0 | -10 | | 2 | -100.0 | -440.0 | 18 | | 7 | 0.0 | -300.0 | 10 | | 3 |
| -300.0 | 300.0 | -11 | | 3 | -100.0 | -420.0 | 17 | | 3 | 0.0 | -280.0 | 6 | | 2 |
| -200.0 | -520.0 | -8 | | 14 | -100.0 | -400.0 | 16 | | 2 | 0.0 | -260.0 | 4 | | 2 |
| -200.0 | -500.0 | -10 | | 13 | -100.0 | -380.0 | 16 | | 3 | 0.0 | -240.0 | 1 | | 3 |
| -200.0 | -480.0 | -7 | | 13 | -100.0 | -360.0 | 14 | | 3 | 0.0 | -220.0 | -10 | | -1 |
| -200.0 | -460.0 | -3 | | 12 | -100.0 | -340.0 | 5 | | -1 | 0.0 | -200.0 | -5 | | 4 |
| -200.0 | -440.0 | 5 | | 11 | -100.0 | -320.0 | 9 | | 2 | 0.0 | -180.0 | 1 | | 6 |
| -200.0 | -420.0 | 16 | | 12 | -100.0 | -300.0 | 5 | | 0 | 0.0 | -160.0 | 13 | | 13 |
| -200.0 | -400.0 | 20 | | 9 | -100.0 | -280.0 | 8 | | 2 | 0.0 | -140.0 | 13 | | 14 |
| -200.0 | -380.0 | 21 | | 8 | -100.0 | -260.0 | 11 | | 5 | 0.0 | -120.0 | 11 | | 13 |
| -200.0 | -360.0 | 17 | | 6 | -100.0 | -240.0 | 16 | | 7 | 0.0 | -100.0 | 16 | | 14 |
| -200.0 | -340.0 | 15 | | 3 | -100.0 | -220.0 | 15 | | 7 | 0.0 | -80.0 | 13 | | 13 |
| -200.0 | -320.0 | 16 | | 2 | -100.0 | -200.0 | 15 | | 7 | 0.0 | -60.0 | 9 | | 11 |
| -200.0 | -300.0 | 18 | | 2 | -100.0 | -180.0 | 19 | | 7 | 0.0 | -40.0 | 8 | | 9 |
| -200.0 | -280.0 | 18 | | 1 | -100.0 | -160.0 | 19 | | 8 | 0.0 | -20.0 | 10 | | 9 |
| -200.0 | -260.0 | 20 | | 1 | -100.0 | -140.0 | 11 | | 7 | 0.0 | 0.0 | 15 | | 8 |
| -200.0 | -240.0 | 23 | | 3 | -100.0 | -120.0 | 14 | | 8 | | | | | |

VLF-EM DATA

"Fraser Filter" of In-Phase Response

(15 Meter re-sampling of in-phase data provides
the data-base for the filtering operation)

Station: NPM (Lualualei, Hawaii) 23.4 kHz

Julia Grid - Lines: 0 to 8+00W

June, 1987

X(East) Y(North) Fraser

-800.0 -477.5 -8
-800.0 -462.5 -7
-800.0 -447.5 -3
-800.0 -432.5 0
-800.0 -417.5 2
-800.0 -402.5 6
-800.0 -387.5 7
-800.0 -372.5 5
-800.0 -357.5 4
-800.0 -342.5 3
-800.0 -327.5 4
-800.0 -312.5 7
-800.0 -297.5 5
-800.0 -282.5 4
-800.0 -267.5 7
-800.0 -252.5 7
-800.0 -237.5 4
-800.0 -222.5 5
-800.0 -207.5 9
-800.0 -192.5 8
-800.0 -177.5 6
-800.0 -162.5 5
-800.0 -147.5 3
-800.0 -132.5 1
-800.0 -117.5 7
-800.0 -102.5 13
-800.0 -87.5 12
-800.0 -72.5 11
-800.0 -57.5 11
-800.0 -42.5 -4
-800.0 -27.5 -32
-800.0 -12.5 -47
-800.0 2.5 -44
-800.0 17.5 -30
-800.0 32.5 -14
-800.0 47.5 -7
-800.0 62.5 -13
-800.0 77.5 -17
-800.0 92.5 -10
-800.0 107.5 -4
-800.0 122.5 -3
-800.0 137.5 0
-800.0 152.5 -2
-800.0 167.5 -8
-800.0 182.5 -3
-800.0 197.5 1
-800.0 212.5 -4
-800.0 227.5 -4
-800.0 242.5 -3
-800.0 257.5 2
-800.0 272.5 8
-800.0 287.5 10
-700.0 -477.5 8
-700.0 -462.5 -3
-700.0 -447.5 -7
-700.0 -432.5 -7
-700.0 -417.5 -7
-700.0 -402.5 -3
-700.0 -387.5 4
-700.0 -372.5 2
-700.0 -357.5 -4
-700.0 -342.5 2
-700.0 -327.5 8
-700.0 -312.5 3
-700.0 -297.5 2
-700.0 -282.5 6
-700.0 -267.5 7
-700.0 -252.5 8
-700.0 -237.5 5
-700.0 -222.5 2
-700.0 -207.5 -1
-700.0 -192.5 -5
-700.0 -177.5 -8
-700.0 -162.5 -5
-700.0 -147.5 1
-700.0 -132.5 4

X(East) Y(North) Fraser

-700.0 -117.5 5
-700.0 -102.5 10
-700.0 -87.5 12
-700.0 -72.5 8
-700.0 -57.5 6
-700.0 -42.5 3
-700.0 -27.5 -7
-700.0 -12.5 -20
-700.0 2.5 -32
-700.0 17.5 -35
-700.0 32.5 -28
-700.0 47.5 -20
-700.0 62.5 -16
-700.0 77.5 -12
-700.0 92.5 -14
-700.0 107.5 -17
-700.0 122.5 -7
-700.0 137.5 4
-700.0 152.5 6
-700.0 167.5 6
-700.0 182.5 6
-700.0 197.5 5
-700.0 212.5 2
-700.0 227.5 -4
-700.0 242.5 -6
-700.0 257.5 -5
-700.0 272.5 0
-700.0 287.5 11
-700.0 302.5 15
-700.0 317.5 10
-700.0 332.5 6
-700.0 347.5 6
-600.0 -477.5 3
-600.0 -462.5 -2
-600.0 -447.5 -5
-600.0 -432.5 3
-600.0 -417.5 7
-600.0 -402.5 1
-600.0 -387.5 -3
-600.0 -372.5 -2
-600.0 -357.5 -2
-600.0 -342.5 -10
-600.0 -327.5 -9
-600.0 -312.5 3
-600.0 -297.5 4
-600.0 -282.5 -2
-600.0 -267.5 4
-600.0 -252.5 9
-600.0 -237.5 5
-600.0 -222.5 9
-600.0 -207.5 15
-600.0 -192.5 6
-600.0 -177.5 -2
-600.0 -162.5 -4
-600.0 -147.5 -6
-600.0 -132.5 -6
-600.0 -117.5 -2
-600.0 -102.5 1
-600.0 -87.5 0
-600.0 -72.5 -6
-600.0 -57.5 -7
-600.0 -42.5 -1
-600.0 -27.5 -1
-600.0 -12.5 -6
-600.0 2.5 -4
-600.0 17.5 -13
-600.0 32.5 -32
-600.0 47.5 -31
-600.0 62.5 -16
-600.0 77.5 -12
-600.0 92.5 -14
-600.0 107.5 -12
-600.0 122.5 -8
-600.0 137.5 2
-600.0 152.5 11
-600.0 167.5 7

X(East) Y(North) Fraser

-600.0 182.5 1
-600.0 197.5 1
-600.0 212.5 2
-600.0 227.5 2
-600.0 242.5 5
-600.0 257.5 5
-600.0 272.5 3
-500.0 -477.5 8
-500.0 -462.5 -3
-500.0 -447.5 -11
-500.0 -432.5 -10
-500.0 -417.5 -5
-500.0 -402.5 -3
-500.0 -387.5 -7
-500.0 -372.5 -13
-500.0 -357.5 -13
-500.0 -342.5 -6
-500.0 -327.5 3
-500.0 -312.5 8
-500.0 -297.5 6
-500.0 -282.5 7
-500.0 -267.5 11
-500.0 -252.5 9
-500.0 -237.5 8
-500.0 -222.5 12
-500.0 -207.5 7
-500.0 -192.5 -5
-500.0 -177.5 -5
-500.0 -162.5 0
-500.0 -147.5 2
-500.0 -132.5 4
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-500.0 17.5 -28
-500.0 32.5 -7
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-500.0 62.5 -24
-500.0 77.5 -16
-500.0 92.5 -11
-500.0 107.5 -10
-500.0 122.5 -6
-500.0 137.5 2
-500.0 152.5 6
-500.0 167.5 5
-500.0 182.5 3
-500.0 197.5 1
-500.0 212.5 -3
-500.0 227.5 -2
-500.0 242.5 0
-500.0 257.5 0
-500.0 272.5 1
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-400.0 -507.5 22
-400.0 -492.5 19
-400.0 -477.5 10
-400.0 -462.5 2
-400.0 -447.5 -3
-400.0 -432.5 -9
-400.0 -417.5 -11
-400.0 -402.5 -9
-400.0 -387.5 -8
-400.0 -372.5 -7
-400.0 -357.5 -7
-400.0 -342.5 0
-400.0 -327.5 12
-400.0 -312.5 19
-400.0 -297.5 19
-400.0 -282.5 16

X(East) Y(North) Fraser

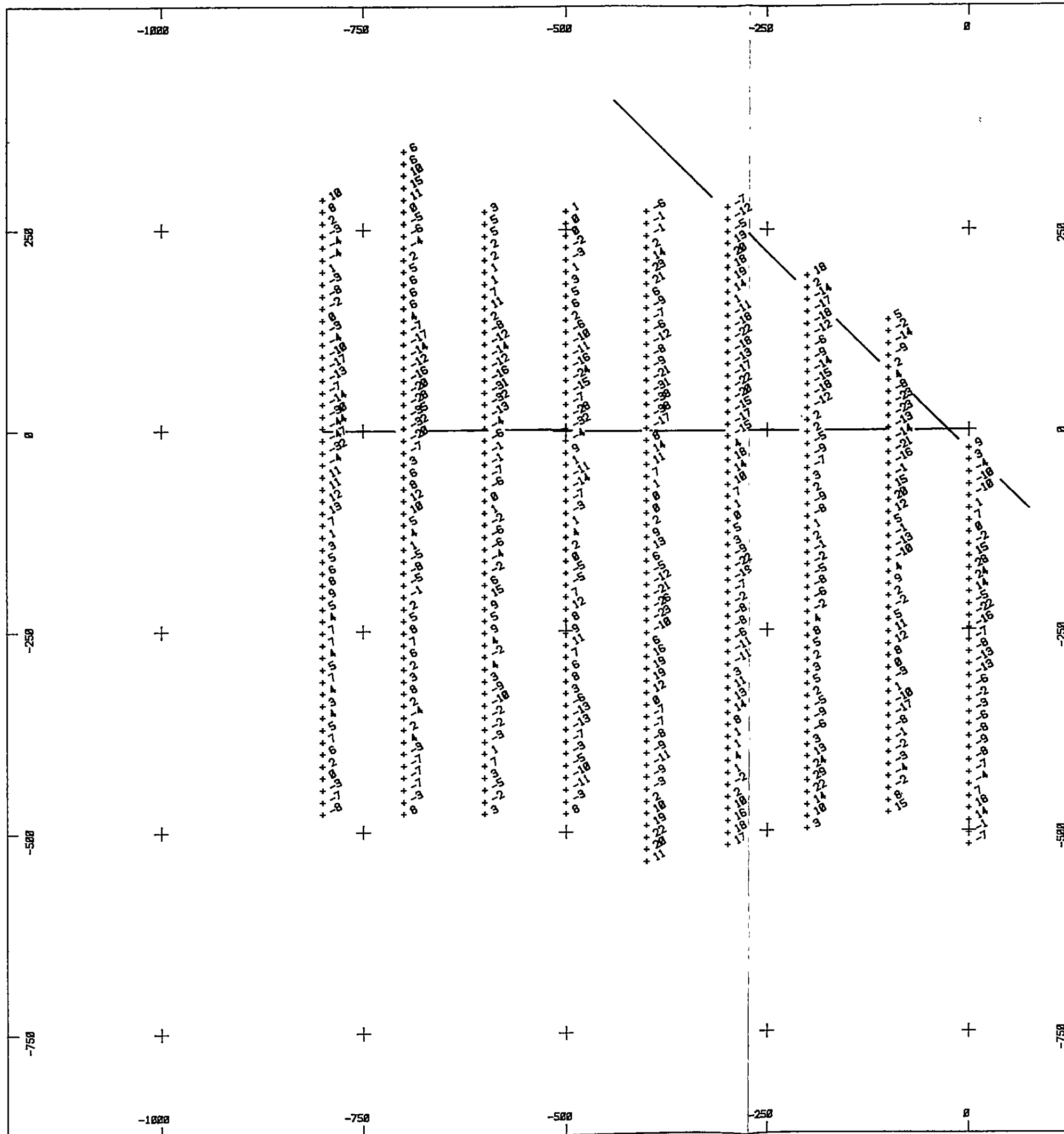
X(East) Y(North) Fraser

X(East) Y(North) Fraser

-400.0 -267.5 6
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-400.0 -162.5 6
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-400.0 -117.5 2
-400.0 -102.5 0
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-400.0 -12.5 8
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-400.0 17.5 -38
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-400.0 107.5 -12
-400.0 122.5 -6
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-400.0 182.5 21
-400.0 197.5 23
-400.0 212.5 14
-400.0 227.5 2
-400.0 242.5 -1
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-400.0 272.5 -6
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-300.0 157.5 1
-300.0 172.5 14
-300.0 187.5 19
-300.0 202.5 18
-300.0 217.5 20
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-300.0 247.5 -5
-300.0 262.5 -12
-300.0 277.5 -7
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-200.0 -452.5 22
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-200.0 -242.5 4
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-200.0 -137.5 2
-200.0 -122.5 1
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-200.0 147.5 -17
-200.0 162.5 -14
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-200.0 192.5 18
-100.0 -477.5 15
-100.0 -462.5 8
-100.0 -447.5 -2
-100.0 -432.5 -4
-100.0 -417.5 -3
-100.0 -402.5 -2

-100.0 -387.5 -1
-100.0 -372.5 -8
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-100.0 -342.5 -10
-100.0 -327.5 1
-100.0 -312.5 -3
-100.0 -297.5 0
-100.0 -282.5 8
-100.0 -267.5 12
-100.0 -252.5 11
-100.0 -237.5 5
-100.0 -222.5 -2
-100.0 -207.5 2
-100.0 -192.5 9
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-100.0 -162.5 -10
-100.0 -147.5 -13
-100.0 -132.5 -1
-100.0 -117.5 5
-100.0 -102.5 12
-100.0 -87.5 20
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-100.0 -12.5 -14
-100.0 2.5 -13
-100.0 17.5 -23
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0.0 -517.5 -7
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0.0 -472.5 18
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0.0 -112.5 7
0.0 -97.5 1
0.0 -82.5 -10
0.0 -67.5 -10
0.0 -52.5 -4
0.0 -37.5 3
0.0 -22.5 9



LEGEND:

Equipment: IGS (SciIntrex VLF-4)

Note: In Phase data re-sampled
at a 15 meter Interval

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,240
METERS



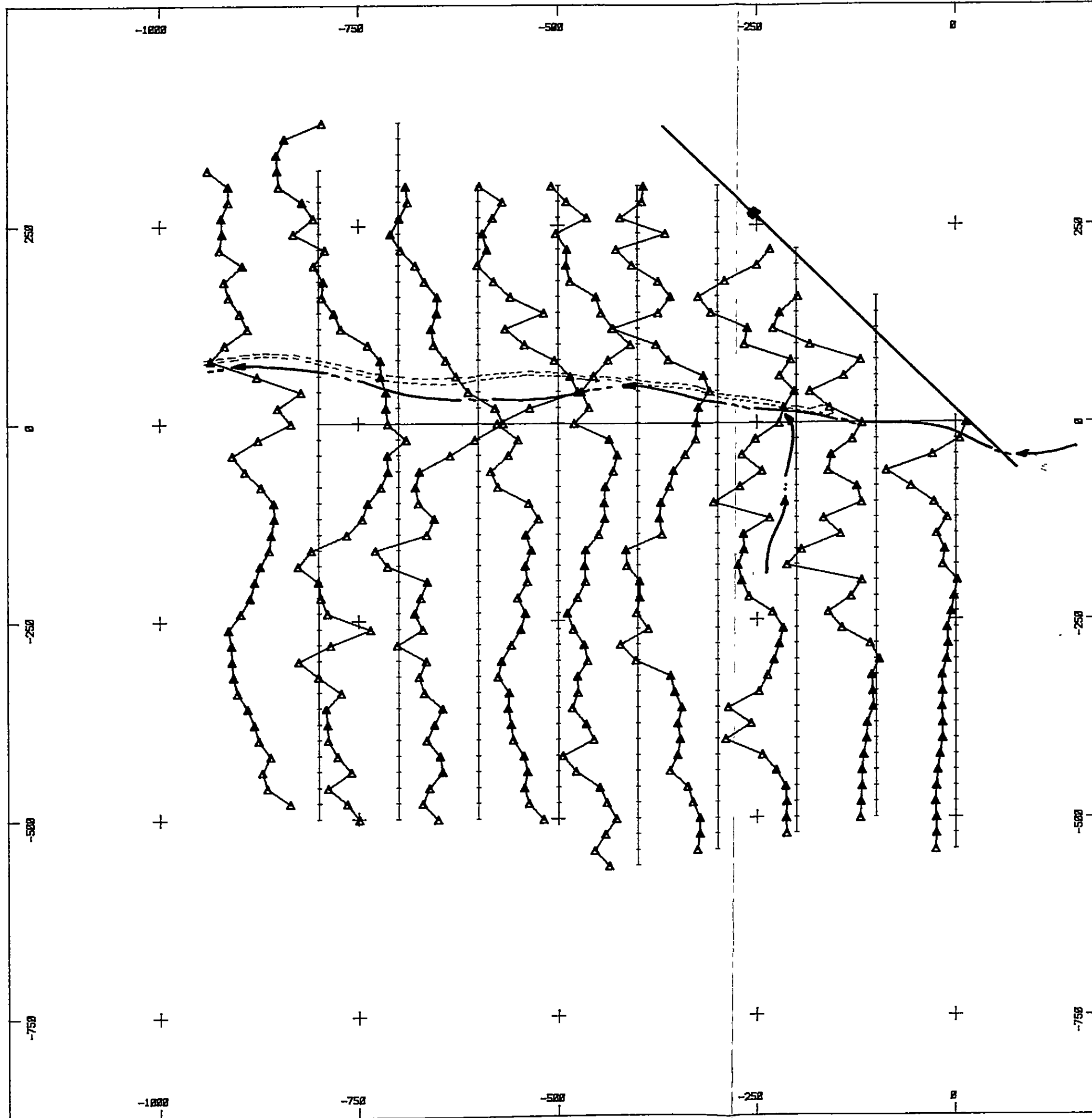
SURPRISE LAKE EXPL. SYNDICATE

Atlin B.C.
Julia Grid 1:5000

VLF-EM Survey
Fraser Filter Data

DRAWN BY: Jmt DATE: July 1987

SCOTT GEOPHYSICS LTD.



LEGEND:

Profile Scale: 1 cm = 1000 nT
 Base level: 57000 nT

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

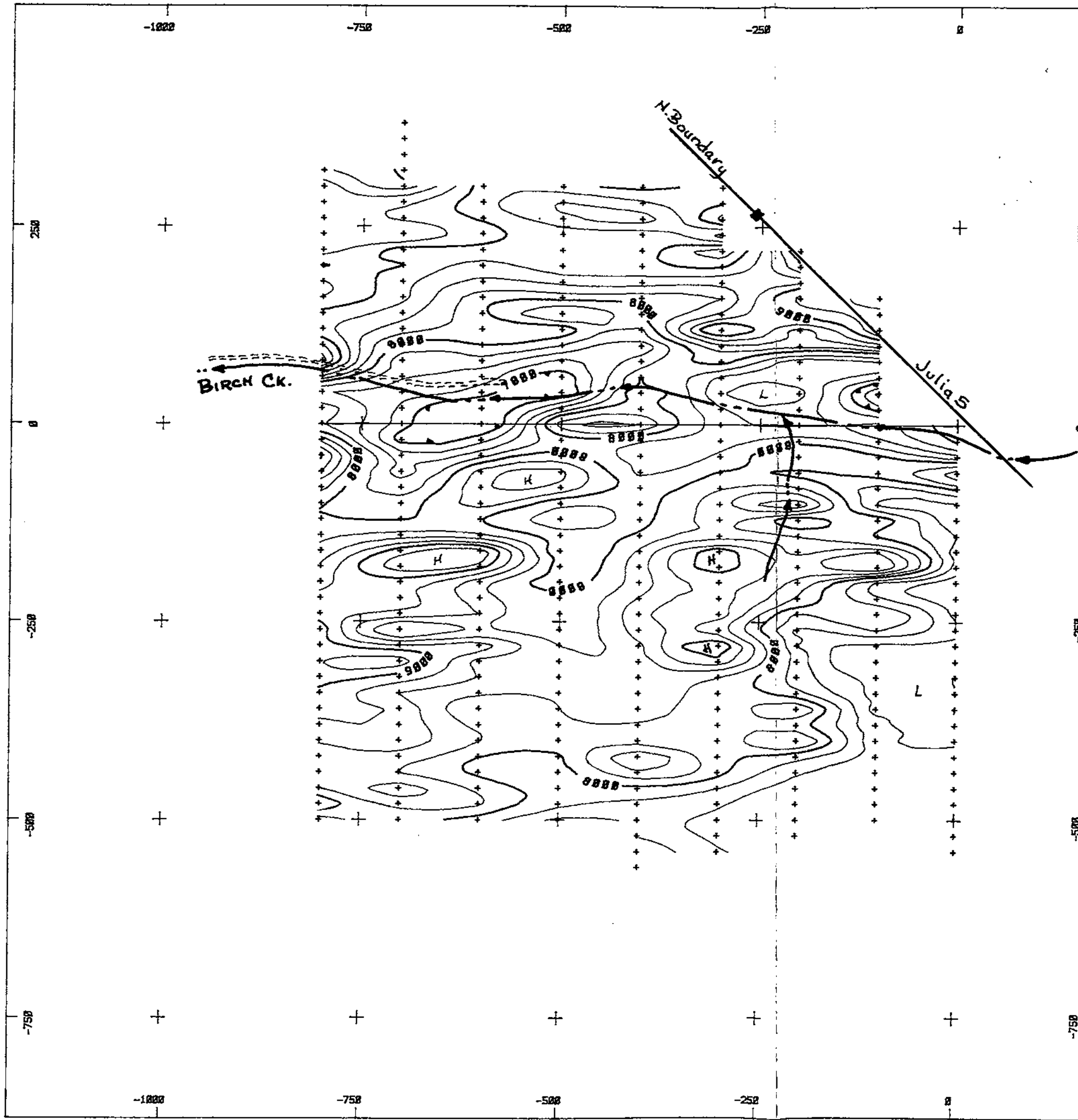
16,240

SURPRISE LAKE EXPL. SYNDICATE

Atlin B.C.
 Julia Grid 1:5000
 Ground Magnetometer Profiles

DRAWN BY: Jwt DATE: July 1987

SCOTT GEOPHYSICS LTD.



LEGEND:

- 50000 nT removed from all data
- Equipment: IGS (Scintrex MP-4)
- Contour Interval 250 nT

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,240

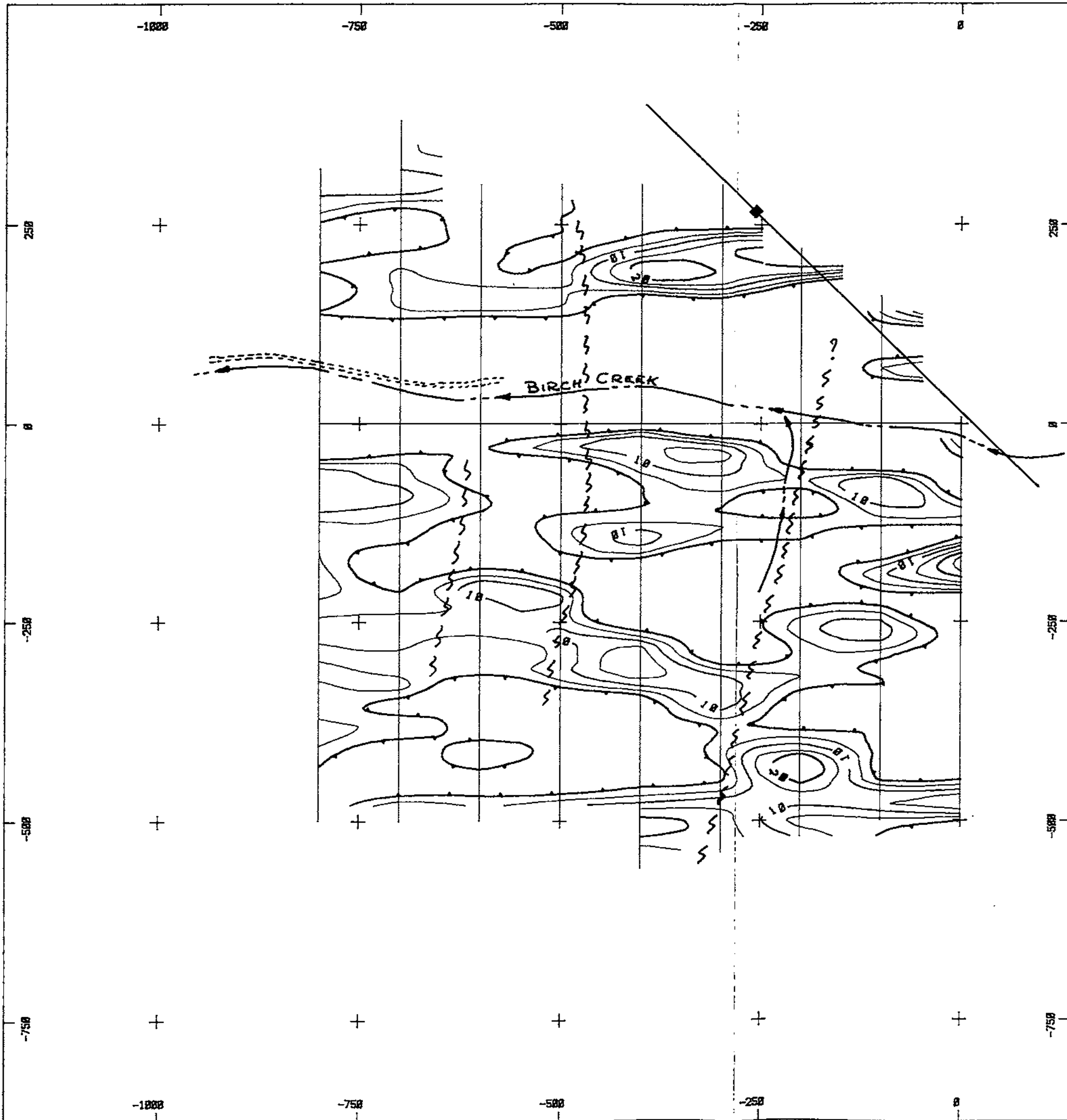
SURPRISE LAKE EXPL. SYNDICATE

Atlin B.C.
Julia Grid 1:5000

Ground Magnetometer Survey
Total Field Contour Plan

DRAWN BY: jmt DATE: July 1987

SCOTT GEOPHYSICS LTD.



LEGEND:

Contours: 0, 5, 10, 15, 20, 25, 30

Equipment: IGS (SciIntrex VLF-4)

Note: In Phase data re-sampled
at a 15 meter interval

~ Faults inferred from VLF

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,240

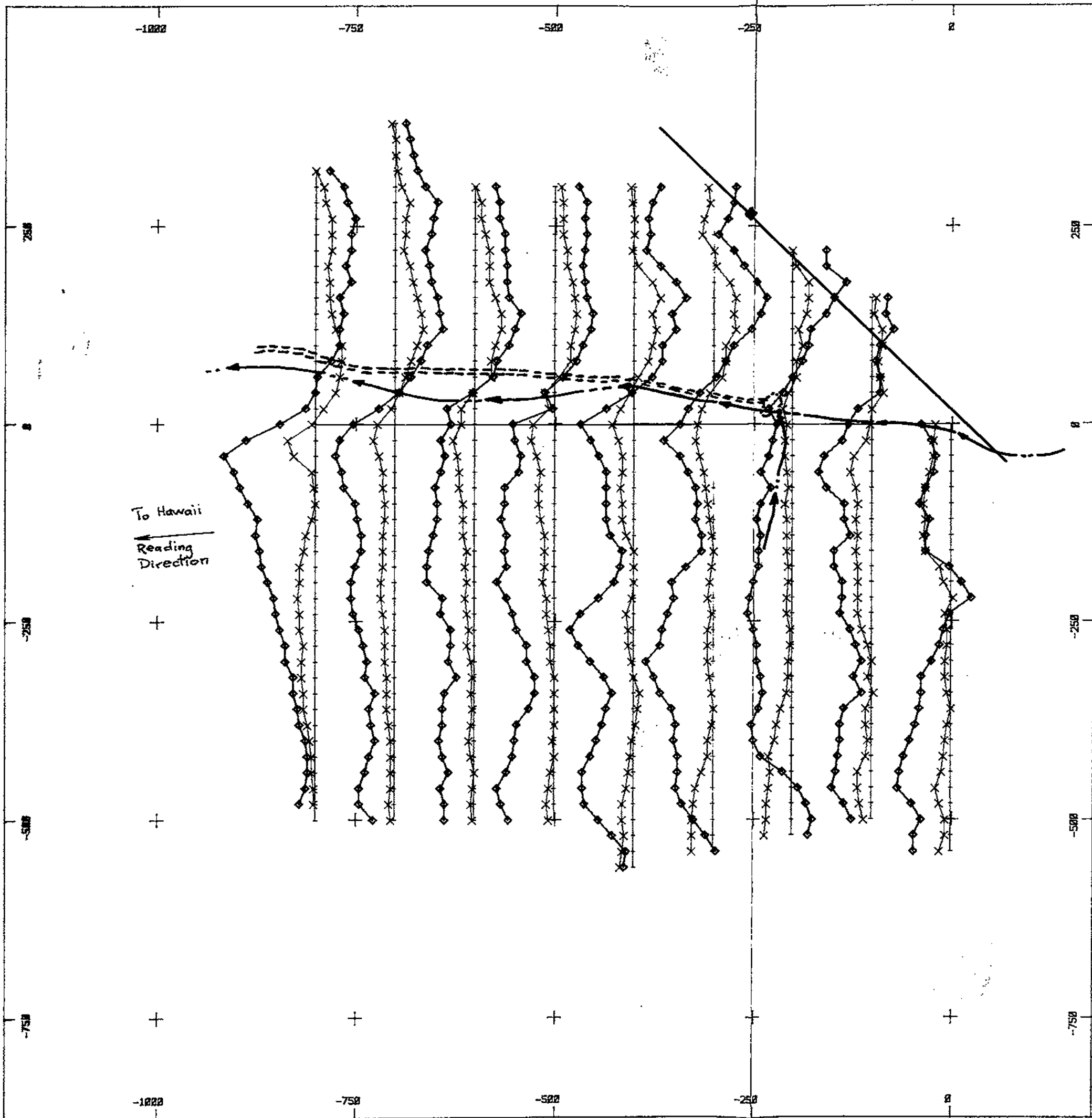
SURPRISE LAKE EXPL. SYNDICATE

Atlin B.C.
Julia Grid 1:5000

VLF-EM Survey
Fraser Filter Contour Plan

DRAWN BY: Jat DATE: July 1987

SCOTT GEOPHYSICS LTD.



LEGEND:

- Station NPM (Lualaba), Hawaii - 23.4 kHz
- ◊ In Phase - 20% / cm
- × Quadrature - 20% / cm
- Zero Z on line
- Positive values to west
- Anomaly locn: point of maximum slope with positive values to the north

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

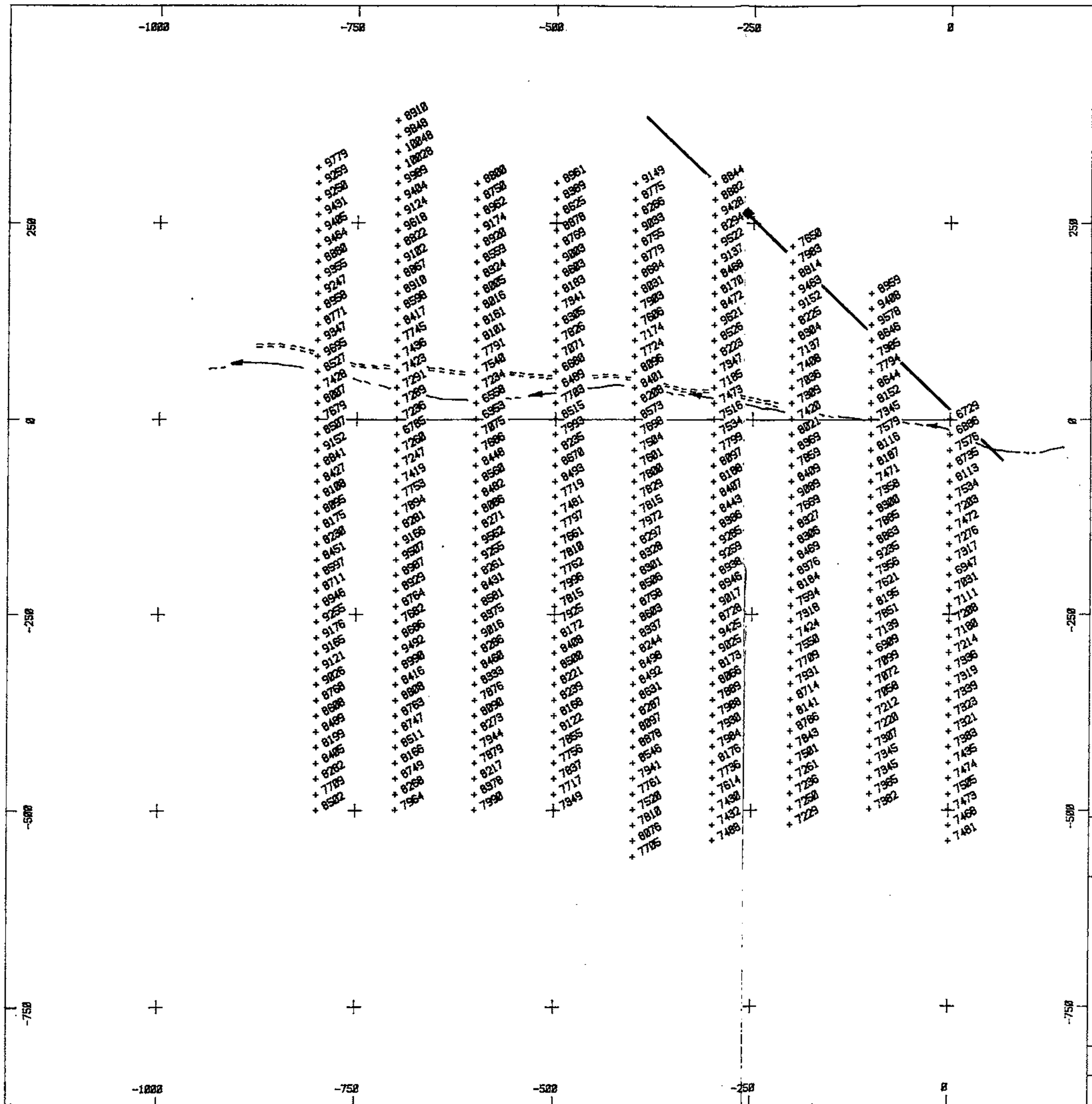
16,240

SURPRISE LAKE EXPL. SYNDICATE

Atlin B.C.
Julia Grid 1:5000
VLF-EM Survey

| | |
|---------------|-----------------|
| DRAWN BY: Jmt | DATE: July 1987 |
|---------------|-----------------|

SCOTT GEOPHYSICS LTD.



LEGEND:

5000 nT removed from all data
 Equipment: IGS (Scintrex MP-4)

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

16,240

SURPRISE LAKE EXPL. SYNDICATE

Atlin B.C.

Julia Grid 1:5000

Ground Magnetometer Survey

Total Field Data

DRAWN BY: *jat* DATE: July 1987

SCOTT GEOPHYSICS LTD.