AQUITAINE COMPANY
OF CANADA LTD.

Office of the Supervising Mining Recorder
DEC 29 1978
WHITEHORSE
Yukon Territory

AQUITAINE COMPANY OF CANADA LIMITED

I T S I J O I N T V E N T U R E

REPORT ON HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEYING ON THE ABBEY CLAIMS

MACMILLAN PASS AREA

YUKON TERRITORY

090409

RECEIVED
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WATSON LAKE, Y.T.
I.A. & N.D.

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INSPECTORS OFFICE
WHITEHORSE, Y.T.

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

$ 22 090410 Rpt Geol, Geoch Geoph

Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

for Commissioner of Yukon Territory

AQUITAINE COMPANY
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INTRODUCTION

During June of 1978 electromagnetic and magnetic surveying was carried out on the ABBEY claims. The purpose of the survey was to map the distribution of the Rabbit Kettle, Road River and Canol formations and to locate any conductors within the Road River series that might be related to lead zinc mineralization. We hoped to find lead zinc mineralization of the type found at the Anniv deposit which is located approximately 14 miles southeast of the ABBEY claims.

A test electromagnetic survey had been carried out on the Anniv deposit the previous year thus we had some information on what type of response to expect.

Some magnetic surveying was also carried out with the hope that it would aid in the identification of the various rock units.

PERSONNEL

Mike Philips	- Geologist	- Archer Cathro and Associates
Arien Gelding	- Draftsman	- Archer Cathro and Associates
2 helpers	-	Archer Cathro and Associates
G. Hendrickson	- Geophysicist	- Aquitaine Company of Canada Ltd.

INSTRUMENTS

The electromagnetic surveying was done with an Apex Parametries Maxmin II system.

The magnetic surveying was done with a Scintrex MP-2 magnetometer.

The specifications on these instruments can be found at the back of this report.

SURVEY PROCEDURE

The electromagnetic surveying was done in the horizontal coplanar loop mode. Survey stations were established at 25 metre horizontal intervals. Corrections for topography were realized by using a small portable inclinometer. The information necessary for keeping the coils coplanar was obtained from the topographic profile. The actual coil separation varied with the topography however the horizontal distance between the coils was always kept at 100 meters. Corrections for the coil separation variation with the slope were made to the inphase data. Data was recorded for two frequencies, 888 HZ and 222 HZ. The low frequencies were used to reduce the response of the conductive background.

The magnetic surveying was done with a station interval of 12.5 meters. The MP-2 total field proton magnetometer was used with the sensor on a staff approximately 3 meters above the ground. A base station was occupied periodically to ensure against errors due to diurnal drift of the earth's magnetic field.

Lines were chained using either baseline A or baseline D as the zero point therefore, the reader should refer to the plan map of the grid to see the correlation of lines.

DISCUSSION OF RESULTS

The interpreted depth and width of the conductive zone is shown in section form at the bottom of each of the accompanying profiles. These sections are at a scale of 1 cm represents 25 meters. The ~~conductivity~~ RESISTIVITY of these conductors appears to vary within the range of one to five ohmmeters which is what one expects of graphitic shales and/or lead zinc mineralization. Overburden thickness seems to average around 7 meters except on the north ends of lines 40 and 44 west where a thickening of the overburden is evident. From the geophysical data one cannot distinguish

DISCUSSION OF RESULTS (Cont'd)

between conductors within the Road River Shales and conductors within the Canol Shales; however, the Rabbit Kettle limestone can easily be picked out from the E.M. data. This dirty limestone unit is very resistive, (1000 ohmmeters). From the geologic history of the area we know the Canol shales overlie the Road River shales which in turn overlie the Rabbit Kettle formation. The conductors closest to the Rabbit Kettle formation should lie within the favourable Road River series. Geochemistry may point to the most significant conductors.

In the interpretation of the E.M. data there is some ambiguity as to the geometry of the conductors. In some cases the dipping dike model seems appropriate whereas in other cases the flat lying conductor model seems correct. A combination of the two models often produced the best fit. In any event the interpreted geometry of the conductors will serve only as a rough guide of what to expect in any future drill holes. The electromagnetic work done on the ANNIV deposit last year combined with the known geologic section of the ANNIV gives a good guide for the interpretation of the ABBEY data.

West of line 52W there is a marked flattening of the dip. The conductors closest to the Rabbit Kettle contact between lines 48 and 56W are the best conductors. The thickening of the main conductor at L. 54W would be a good place to test the Road River for mineralization.

The magnetic survey results do not aid much in the recognition of the various rock units. The Rabbit Kettle appears to be slightly more magnetic than the Shales. There is also an indication that a thin Shale zone, immediately above the Rabbit Kettle, is slightly more magnetic than the rest of the Shales. More magnetic surveying would be required to prove this possibility.

CONCLUSION

The ability of the E.M. survey to define the contact between the Road River and Rabbit Kettle formations plus the definition of conductive trends within the Road River series should allow us to concentrate further exploration work on the most likely spot for an accumulation of economic sulphides.

G. Hendrickson

GH/dj

G. Hendrickson

APEX MAXMIN II PORTABLE EM

- **Five frequencies: 222, 444, 888, 1777 and 3555 Hz.**
- **Maximum coupled (horizontal-loop) operation with reference cable.**
- **Minimum coupled operation with reference cable.**
- **Vertical-loop operation without reference cable.**
- **Coil separations: 25, 50, 100, 150, 200 and 250 m (with cable) or 100, 200, 300, 400, 600 and 800 ft.**
- **Reliable data from depths of up to 180m (600 ft).**
- **Built-in voice communication circuitry with cable.**
- **Tilt meters to control coil orientation.**

SPECIFICATIONS:

Frequencies: 222, 444, 888, 1777 and 3555 Hz.

Modes of Operation:
- MAX: Transmitter coil plane and receiver coil plane horizontal (Max-coupled; Horizontal-loop mode). Used with refer. cable.
- MIN: Transmitter coil plane horizontal and receiver coil plane vertical (Min-coupled mode). Used with reference cable.
- V.L.: Transmitter coil plane vertical and receiver coil plane horizontal (Vertical-loop mode). Used without reference cable, in parallel lines.

Coil Separations: 25, 50, 100, 150, 200 & 250 m (MMII) or 100, 200, 300, 400, 600 and 800 ft. (MMIIF). Coil separations in V.L. mode not restricted to fixed values.

Parameters Read:
- In-Phase and Quadrature components of the secondary field in MAX and MIN modes.
- Tilt-angle of the total field in V.L. mode.

Readouts:
- Automatic, direct readout on 90 mm (3.5") edgewise meters in MAX and MIN modes. No nulling or compensation necessary.
- Tilt angle and null in 90 mm edgewise meters in V.L. mode.

Scale Ranges:
- In-Phase: ±20%, ±100% by push-button switch.
- Quadrature: ±20%, ±100% by push-button switch.
- Tilt: ±75% slope.
- Null (V.L.): Sensitivity adjustable by separation switch.

Readability: In-Phase and Quadrature: 0.25 % to 0.5 % ; Tilt: 1 %.

Repeatability: ±0.25% to ±1% normally, depending on conditions, frequencies and coil separation used.

Transmitter Output:
- 222 Hz : 220 Atm^2
- 444 Hz : 200 Atm^2
- 888 Hz : 120 Atm^2
- 1777 Hz : 60 Atm^2
- 3555 Hz : 30 Atm^2

Receiver Batteries: 9V trans. radio type batteries (4). Life: approx. 35 hrs. continuous duty (alkaline, 0.5 Ah), less in cold weather.

Transmitter Batteries: 12V 6Ah Gel-type rechargeable battery. (Charger supplied).

Reference Cable: Light weight 2-conductor teflon cable for minimum friction. Unshielded. All reference cables optional at extra cost. Please specify.

Voice Link: Built-in intercom system for voice communication between receiver and transmitter operators in MAX and MIN modes, via reference cable.

Indicator Lights: Built-in signal and reference warning lights to indicate erroneous readings.

Temperature Range: -40°C to +60°C (-40°F to +140°F).

Receiver Weight: 6kg (13 lbs.)

Transmitter Weight: 13kg (29 lbs.)

Shipping Weight: Typically 60kg (135 lbs.), depending on quantities of reference cable and batteries included. Shipped in two field/shipping cases.

Specifications subject to change without notification

MP-2

Proton Precession Magnetometer

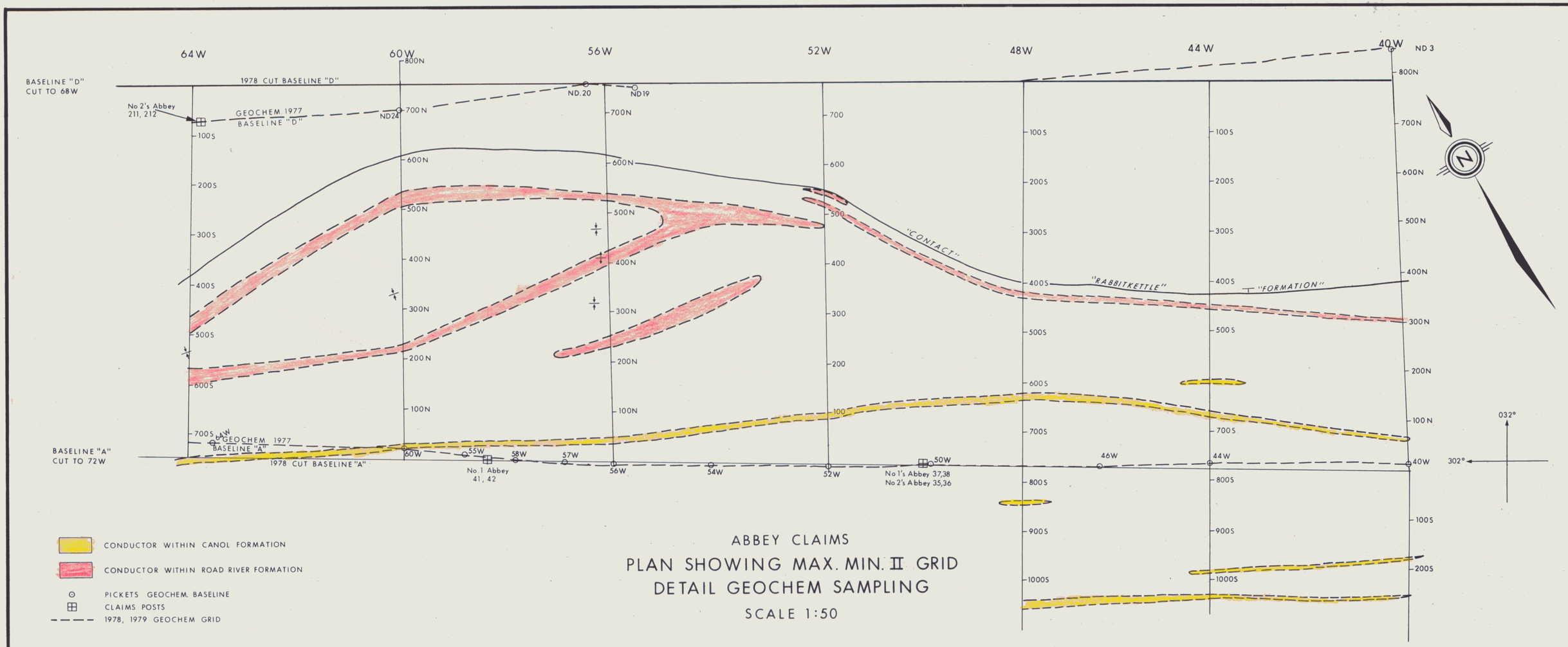
I. General Information

The MP-2 is a portable one gamma proton precession magnetometer suitable for field survey or base station use. The total intensity of the magnetic field is measured and displayed on a five digit light emitting diode (LED) readout within 3.7 seconds. As no leveling is required, a rapid survey is possible to a high accuracy anywhere on the earth. An optional low temperature kit converts the instrument easily for winter use. The sensor is either staff mounted, or carried in a backpack. Two separate attachment joints orient the sensor for either polar or equatorial use.

II. Specifications

The MP-2 has the following specifications:

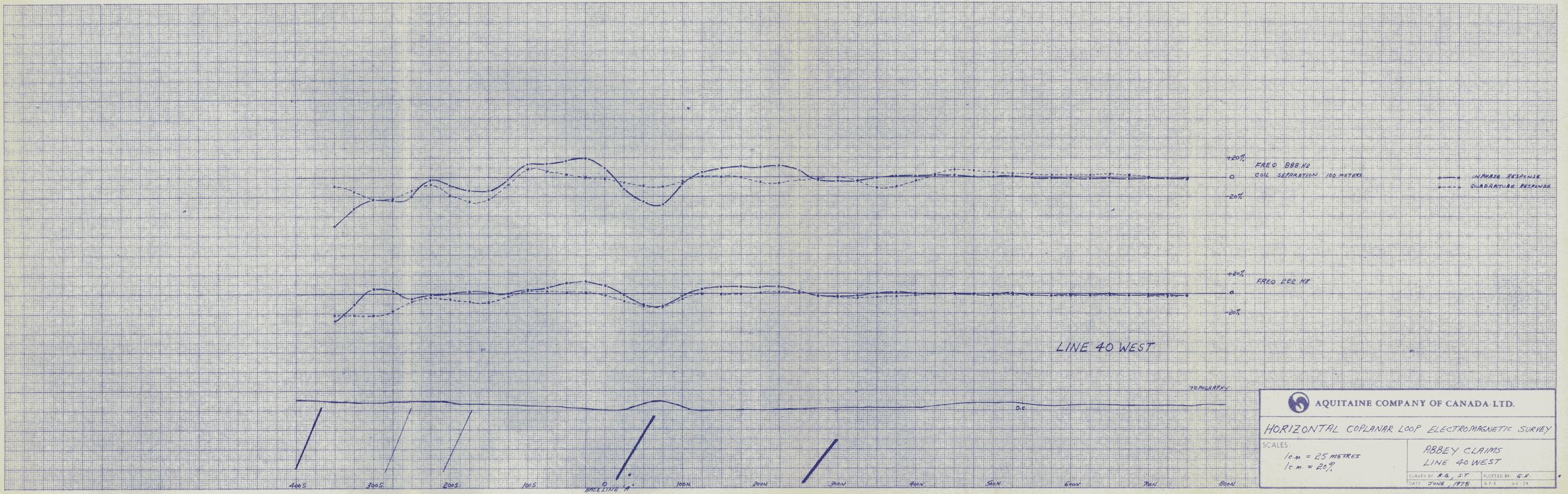
Resolution	1 Gamma
Total Field Accuracy	± 1 Gamma over full operating range.
Range	20,000 to 100,000 gammas in 25 overlapping steps.
Internal Measuring Programme	Single reading - 3.7 seconds. Recycling feature permits automatic repetitive readings at 3.7 seconds intervals.
External Trigger	External trigger input permits use of sampling intervals longer than 3.7 seconds.
Display	5 digit LED (Light Emitting Diode) readout displaying total magnetic field in gammas or normalized battery voltage.
Data Output	Multiplied precession frequency and gate time outputs for base station recording using interfacing optionally available from Scintrex.
Gradient Tolerance	Up to 5000 gammas/metre.
Power Source	8 alkaline "D" cells provide up to 25,000 readings at 25oC under reasonable signal/noise conditions (less at lower temperatures). Premium carbon-zinc cells provide about 40% of this number.
Sensor	Omnidirectional, shielded, noise-cancelling dual coil, optimized for high gradient tolerance.
Harness	Complete for operation with staff or back pack sensor.
Operating Temperature Range	-35°C to +60°C



ABBEY CLAIMS

PLAN SHOWING MAX. MIN. II GRID
DETAIL GEOCHEM SAMPLING

SCALE 1:50



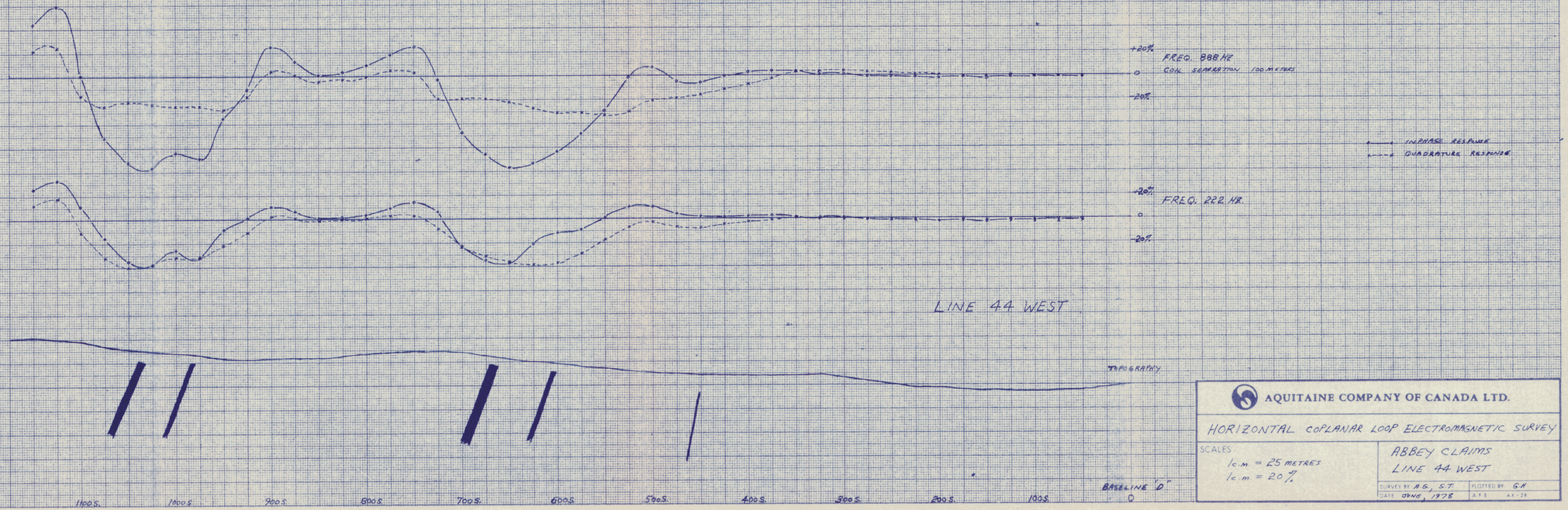
AQUITAINE COMPANY OF CANADA LTD.

HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEY

SCALES:
1 c.m. = 25 METRES
1 c.m. = 20%

ABBEY CLAIMS
LINE 40 WEST

SURVEY BY: R.G., S.T. | PLOTTED BY: G.H.
DATE: JUNE, 1978 | A.F.E. A.E.-28



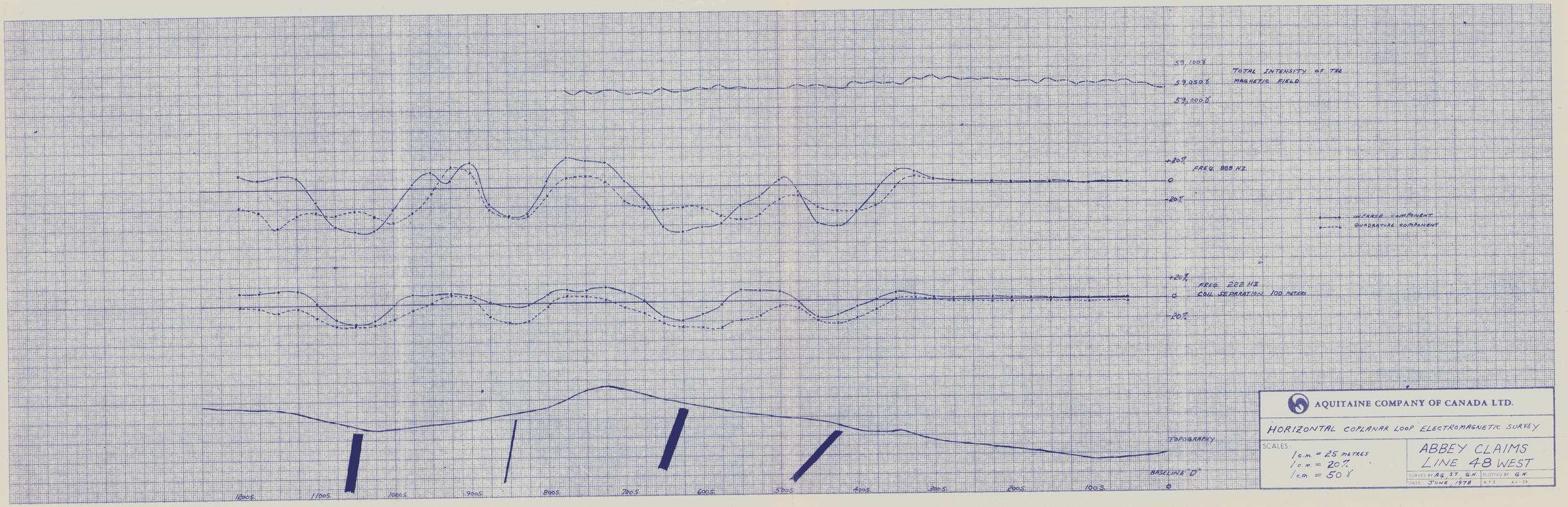
AQUITAINE COMPANY OF CANADA LTD.

HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEY

SCALES
1 c.m. = 25 METRES
1 c.m. = 20%

ABBEY CLAIMS
LINE 44 WEST

SURVEY BY A.G., S.T. | PLOTTED BY G.H.
DATE JUNE, 1978 | A.A.E. AX-28



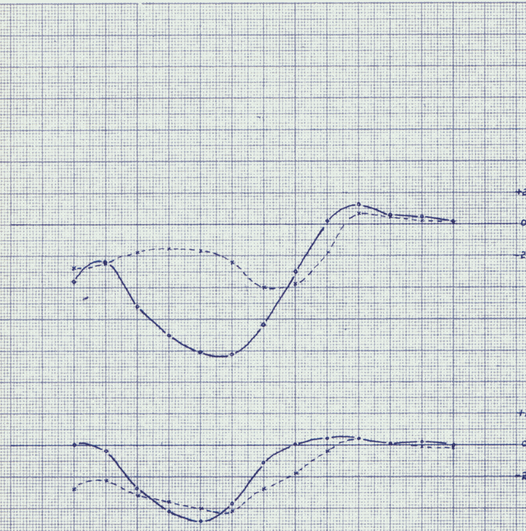
AQUITAINE COMPANY OF CANADA LTD.

HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEY

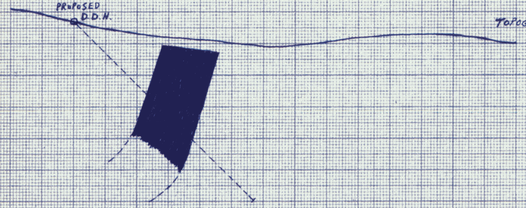
SCALES
1 c.m. = 25 METRES
1 c.m. = 20%
1 c.m. = 50 γ

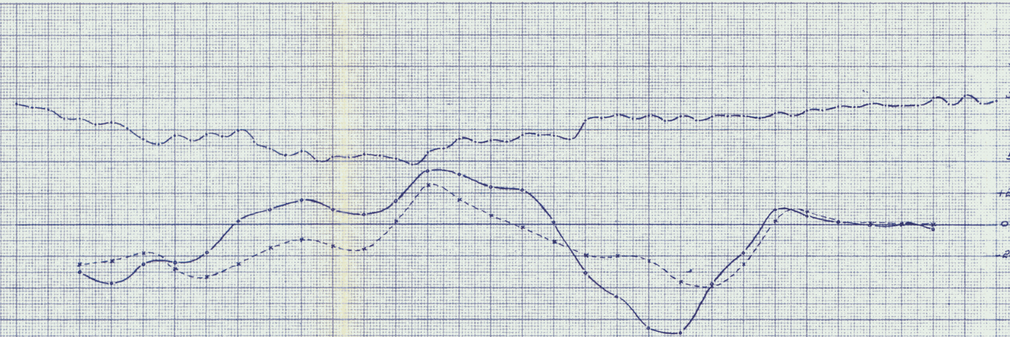
ABBEY CLAIMS
LINE 48 WEST

SURVEY BY AG, ST, GH. PLOTTED BY G.H.
DATE JUNE, 1978 A.T.E AX-28

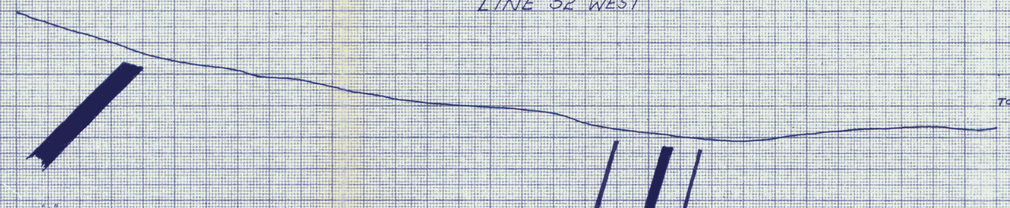


LINE 54 WEST





LINE 52 WEST



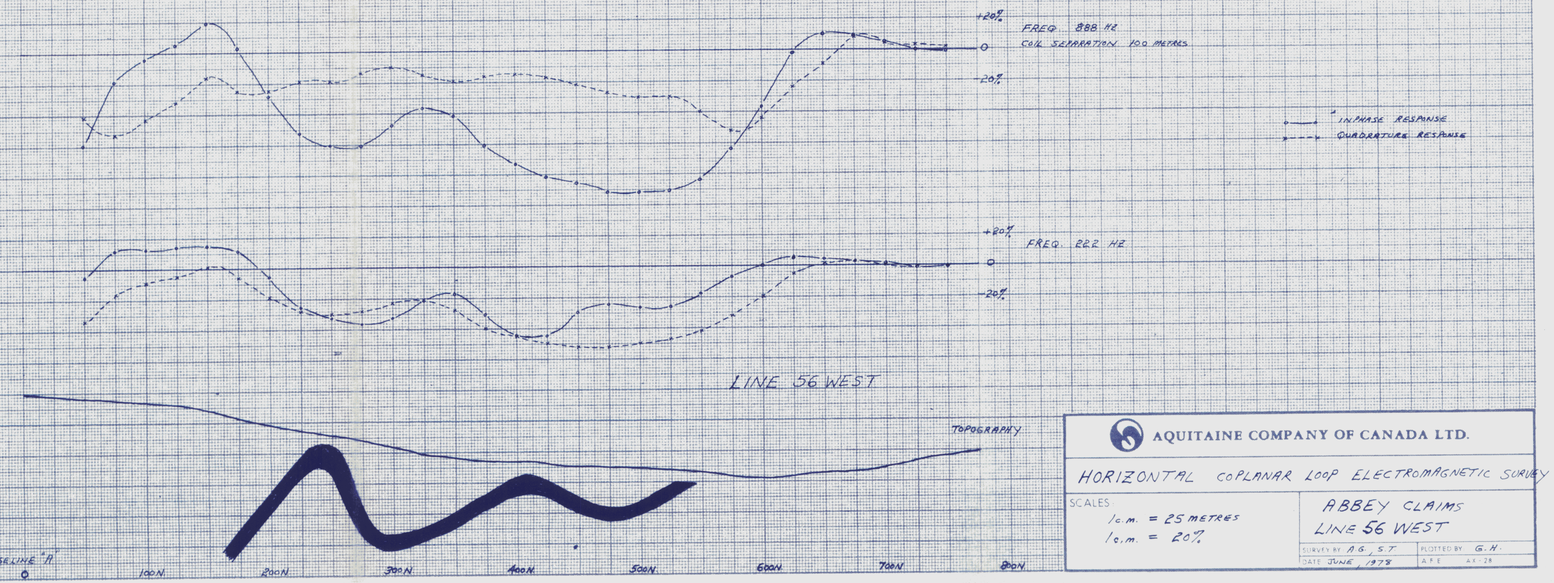
AQUITAINE COMPANY OF CANADA LTD.

HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEY

SCALES:
1 cm. = 25 metres
1 cm. = 20%

ABBEY CLAIMS
LINE 52 WEST
LINE 54 WEST

SURVEY BY: A.E., S.T. | PLOTTED BY: G.H.
DATE: JUNE, 1978 | A.F.E. AX-28



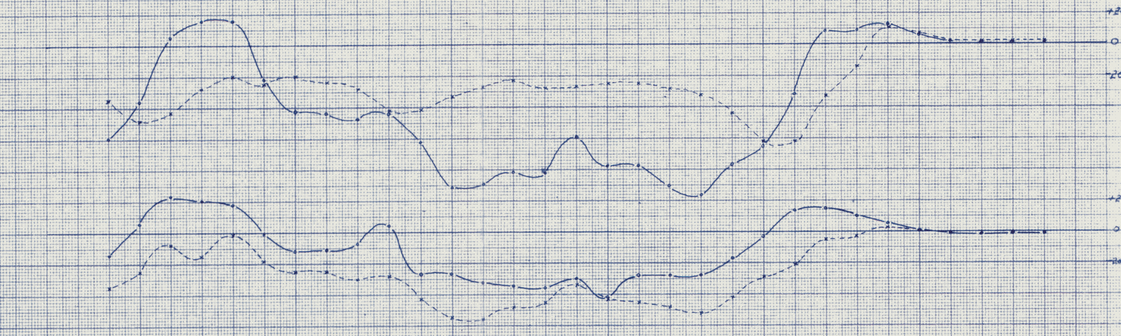
AQUITAINE COMPANY OF CANADA LTD.

HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEY

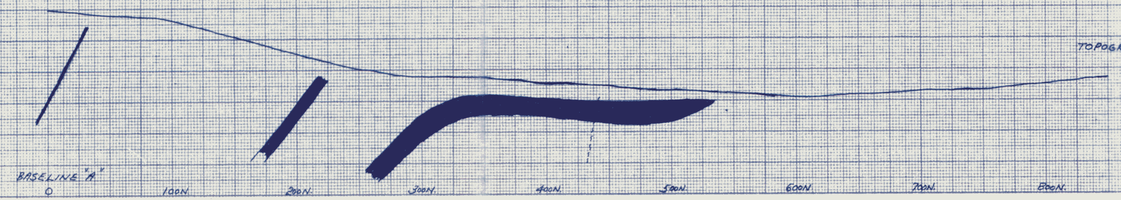
SCALES
1 c.m. = 25 METRES
1 c.m. = 20%

ABBEY CLAIMS
LINE 56 WEST

SURVEY BY A.G., S.T. | PLOTTED BY G.H.
DATE JUNE, 1978 | APE 44-28



LINE 60 WEST



AQUITAINE COMPANY OF CANADA LTD.

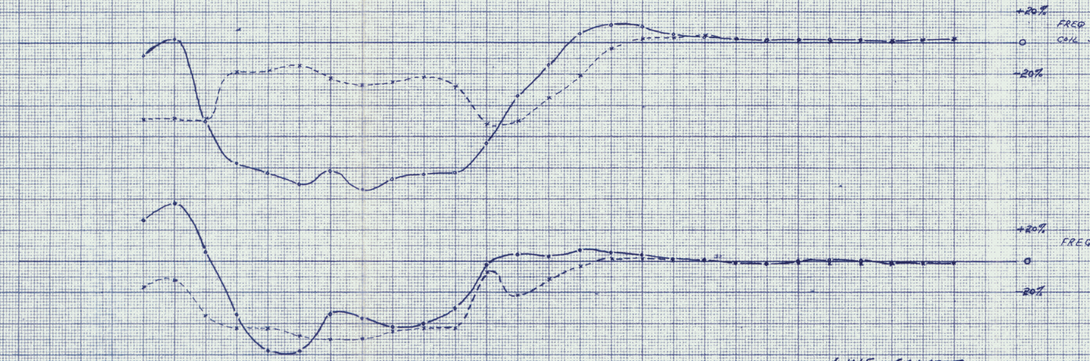
HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEY

SCALES
1 c.m. = 25 metres
1 c.m. = 20%

ABBEY CLAIMS
LINE 60 WEST

SURVEY BY A.G., S.T.
DATE JUNE, 1978

PLOTTED BY G.H.
A.P.E. AX-28



AQUITAINE COMPANY OF CANADA LTD.

HORIZONTAL COPLANAR LOOP ELECTROMAGNETIC SURVEY

SCALES:
1 c.m. = 25 metres
1 c.m. = 20%

ABBEY CLAIMS
LINE 64 WEST

SURVEY BY A.G., S.T. | PLOTTED BY G.H.
DATE JUNE, 1978 | A.F.E. AX-28