REPORT ON
GEOPHYSICAL SURVEYS

in CARNEGIE and CRAWFORD TOWNSHIPS, ONTARIO

for CHEVRON CANADA RESOURCES LIMITED

by

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EXPLORATION SERVICES INC

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Consulting Geophysicist

April 24, 1985

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		Line 3+00E	Scale 1:2 500
		Line 4+00E	Scale 1:2 500
		Line 5+00E	Scale 1:2 500
		Line 6+00E	Scale 1:2 500
		Line 7+00E	Scale 1:2 500
		Line 8+00E	Scale 1:2 500
		Line 9+00E	Scale 1:2 500
		Line 10+00E	Scale 1:2 500
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Crawford Township	Grid 19K	Line 0+00	Scale 1:2 500
		Line 1+00W	Scale 1:2 500
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		Line 8+00W	Scale 1:2 500
		Line 9+00W	Scale 1:2 500
		Line10+00W	Scale 1:2 500

REPORT ON GEOPHYSICAL SURVEYS

INTRODUCTION

During the month of March, 1985, three geophysical surveys were carried out on four grids in Carnegie and Crawford Townships near Timmins, Ontario, for Chevron Canada Resources Limited by Robert S Middleton Exploration Services Inc., Timmins, Ontario.

The work constituted a ground follow-up of an airborne electromagnetic survey and consisted of horizontal loop EM, magnetics and gravity.

LOCATION AND ACCESS

The four grids are each designated by a number as follows:

Grid 7, Carnegie Township, west of Hwy 655, with access from a secondary road.

Grid 19K, Crawford Township, west of Hwy 655, access from two secondary roads, one of which cuts through a corner of the grid.

Grids 33P and 34K, Crawford Township, immediately west of Hwy 655, with access from the highway.

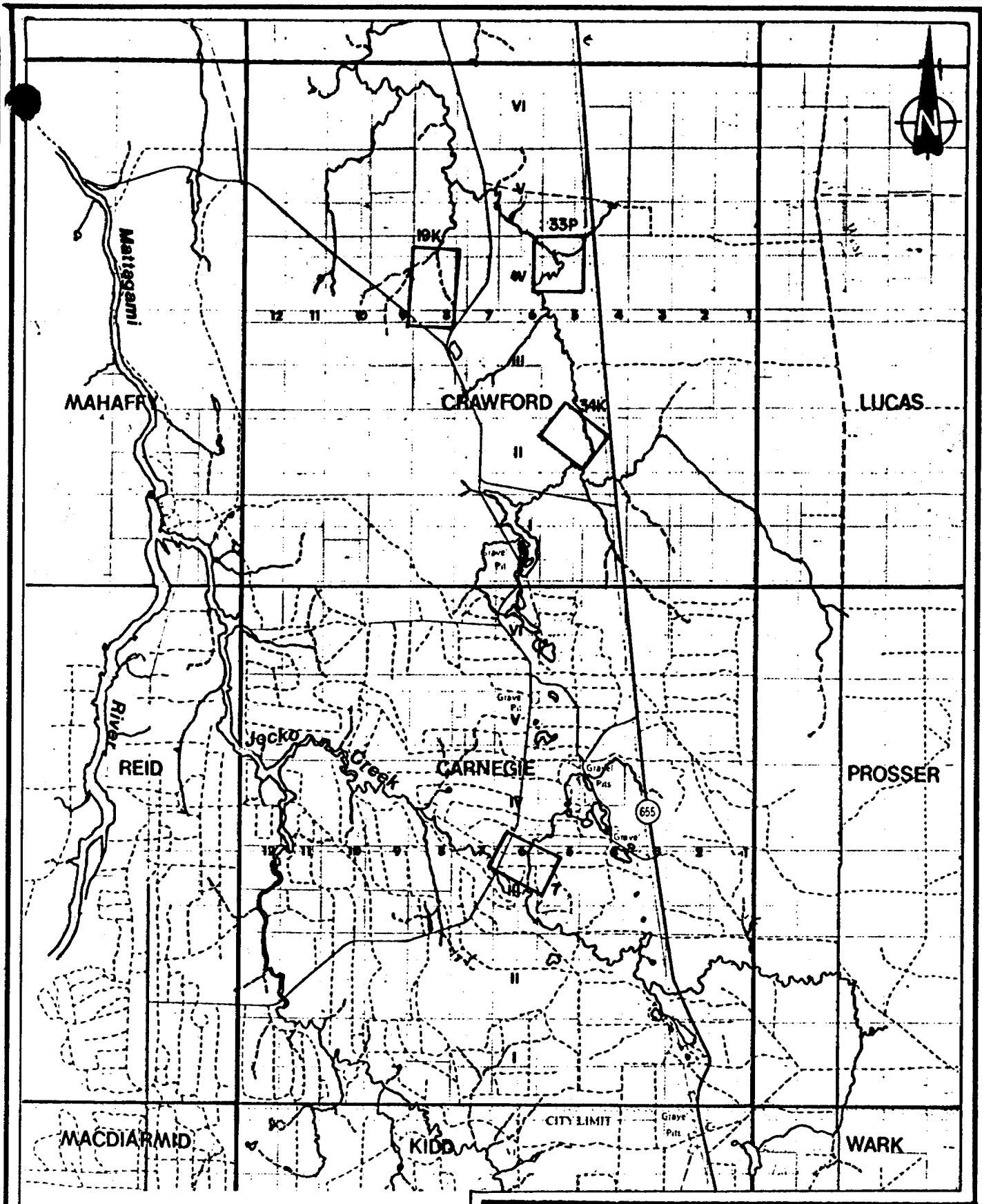
GEOPHYSICAL SURVEYS AND INSTRUMENTS

Grid 7: Total length of lines, including base and tie-lines is [redacted]. The grid was surveyed with horizontal loop EM using the MaxMin II+ EM system, the GEM Systems GSM-8 proton precession magnetometer, and three lines (2E, 6E, and 9E) were covered with gravimeter readings, using the LaCoste-Romberg gravimeter. The EM survey was conducted between March 9 and 15, the magnetics on March 13 and 14, 1985.

Grid 19K: This grid has a total of [redacted] of survey, base and tie-lines. The horizontal loop survey, with MaxMin II+, and the magnetometer survey with the GSM-8, covered the whole grid. A gravity survey with the LaCoste Romberg gravimeter covered two lines, 4W and 8W, entirely. The EM survey was done from March 1 to 3, and the magnetic survey March 10, 11, and 12, 1985.

Grid 33P: The next smallest grid with [redacted] of lines in total, including one base-line and one tie-line. A horizontal loop EM survey with the MaxMin II+ was donefrom March 4 to 14, and a magnetic survey with the Scintrex MP-2 proton magnetometer, on March 10 and 11, 1985. One line, 8W, was covered with the LaCoste-Romberg instrument to obtain gravity profile from the base-line to 9S.

Grid 34K: At [redacted] of total lines, this was the smallest grid surveyed for this report. The horizontal loop survey with the MaxMin II+ was completed on March 6-7, and the magnetic survey on March 12 and 13, 1985, with the Scintrex MP-2 proton magnetometer. One line, 8W, of gravimetric measurements was completed with the LaCoste Romberg instrument.



REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LTD.		
	Title LOCATION MAP		
			Fig. 1
	Date: Apr. 1985	Scale: 1:100 000	N.T.S.: 42A/NW
	Drawn: C.G.	Approved:	File: M-97

General: The horizontal loop EM surveys were all carried out with a mutual coilseparation of 200 m, and two frequencies, 444 Hz and 1777 Hz. The instrument was an Apex Parametrics MaxMin II+, serial number 1174.

All magnetic surveys were carried out to one gamma sensitivity, and corrected to one or more base-stations per grid. The base-stations are noted on the magnetic contourmaps.

The gravity surveys were carried out subsequent to the EM and magnetic surveys to further investigate the anomalies. The gravity work was done by a two-man team between March 22 and 30, 1985. In addition to the gravimetric readings the operators also obtained topographic elevations in order to correct the data and obtain Bouguer gravity values.

DATA PRESENTATION

The horizontal loop EM and magnetic data are presented as stacked profiles for each grid-line and frequency. The inphase and quadrature readings are shown together on each line. The conductor axes, and width, unless interpreted to be narrow, are also shown.

The magnetic surveys are also presented in the form of contourmaps with all the stations and values shown.

A compilation of MaxMin II+ anomalies at a scale of 1:20 000 also accompanies the report.

The gravity profiles are presented separately for each line, but together with the elevation profiles. All the gravity data are the corrected Bouguer values. The density used for the calculations is also shown. An interpreted regional gravity profile has also been drawn to facilitate viewing of the data. The horizontal scale of all profiles, and of the magnetic maps is 1:2500. The vertical scale of the profiles is 1cm=10% as shown on the plots of the horizontal loop EM, and 1cm=1 gravity unit (=0.1 mgal) for the gravity data.

In addition to the above data presentations there are seven data compilations which show all the data available for each line where gravity measurements were taken. The five profiles in each compilation consist of the horizontal loop EM inphase and quadrature profiles at 444 Hz, the Bouguer and regional gravity profiles, as well as the magnetic profile. These have been included to visualize the interpretation. The scales are as shown, with EM in %, gravity in gravity units, and the magnetics in 10 gamma values.

The interpretations are also presented in tabular form for each grid.

INTERPRETATION

The horizontal loop EM has been interpreted primarily from the 444 Hz data since the higher frequency profiles show considerable distortion, particularly in the quadrature data with large phase shifts. The interpretation is also affected to some degree by the necessity to find a true base level for each profile, because of the variation caused by the conductive overburden, which is not homogeneous. The effect increases with increasing frequency. The current gathering effects are seen throughout and tend to enhance the apparent conductivity thickness product of the conductors.

The interpreted conductivity products are based on data from: " Type curves for the interpretation of Slingram (horizontal loop) anomalies over tabular bodies" by M Ketola and M Puranen, Geological Survey of Finland Report of Investigations N:o 1, 1967, since they tend to de-emphasize the higher conductivities, yet agree well with curves published by D W Strangway, and others, in the lower conductivity range.

Grid 7.

A medium to good conductor runs across the entire grid. The horizontal loop survey indicates a near vertical thin conductor, but the profiles are distorted by a thick conductive overburden thus possibly masking a lesser dip. The conductor is flanking a magnetic high located immediately to the north. From the magnetic and gravity data the conductor appears to be of two parts, or bands, closely associated throughout, with the southerly one being slightly magnetic and of higher density as interpreted from the small gravity anomaly. Only on L9E, however, do the gravity, magnetic, and EM anomalies coincide, but even here two bands can be distinguished, though not in the EM. A south dipping conductor could possibly explain the appearance of banding. This conductor would merit further investigation since the possibility exists for the presence of sulphides. The gravity anomaly would appear to be too small for a massive sulpide body, however.

Two NNW trending faults have cut the conductor into three segments.

Grid 19K.

A total of five conductors can be traced on this grid. The two most southerly of these flank a magnetic high, which from the gravity survey appears to be due to a mafic dike or thin flow. The two northern most conductors, or conductive axes are possibly part of a very wide conductive feature. Even though the current gathering in the overburden has distorted some of the profile shapes, particularly in the quadrature response, the characteristics due to two discrete conductors are absent. The central conductor is caused by a "thick" sheet approximately 20 m thick, widening at its easterly end.

The conductors have been numbered from south to north to facilitate discussion and tabulation of results.

Conductor 1: On the south flank of a magnetic high, it appears on only three lines of the horizontal loop survey, before disappearing off the survey area. A depth estimate of 86 m was obtained on L9W. No magnetic or gravity response is discerned, although weak responses may have been overwhelmed by the stronger anomalies caused by the magnetic dike immediately to the north.

Conductor 2: Also on the flank of the magnetic high, but on the north side is a narrow conductor at a depth of 50 - 60 m with good conductivity-thickness product. A slight gravity high appears to be related to this conductor as well as a possible small magnetic anomaly on L4W. Some sulphides may be present in this conductor.

Conductor 3: This central conductor is interpreted as a thick sheet with a depth to its top ranging from 52 to 70 m. A magnetic high is associated with this conductor, but no gravity anomaly. The anomaly is interpreted to be due to graphitic schists with some magnetite or pyrrhotite.

Conductors 4 and 5: A wide conductive body thinning to the east, with conductor 4 forming the south edge from L10W to L5W. It cannot be distinguished as a discrete conductor further east. Conductor 5 may not be one continuous feature, but rather the most conductive part of the wide body. The interpretation of these conductors is restricted by the uncertain background level of the EM survey as well as the influence of the current gathering in the overburden. This effect is very much enhanced in the data with the frequency of 1777 Hz compared to 444 Hz.

Only 444Hz data has been used for the interpretation of the conductors. In areas of conductive overburden it is common that the background, or true zero level, will vary from line to line, and more so at the higher frequencies. On grid 19K a best estimate has been used for both the inphase and quadrature.

Grid 33P.

A weak thick conductor runs just north of a strong magnetic anomaly, and is flanked on its north side by a weaker magnetic high, which has a slight gravity anomaly high associated with it. The EM conductor has no magnetic or gravity expression, and is likely caused by graphitic sediments.

A poor conductor visible over 3 to 4 lines is present in the NW corner of this grid. The conductivity thickness products are estimated at 3 mhos or less. The conductor is correlated with a gravity low, and is most likely to be an overburden feature.

Grid 34K.

One conductor dominates this grid, and is situated south of an approximately 700 gamma magnetic high, which is not conductive, nor does it have an associated gravity anomaly. The conductor has a slight magnetic anomaly over part of its length and has an appearance of banding. A relative gravity low is interpreted over the conductor, which is interpreted to be due to graphitic sediments.

A short second conductor appears in the SE corner of the grid. The characteristics of this feature are those of an overburden step, deepening to the north.

SUMMARY AND CONCLUSIONS

Four grids in the Carnegie and Crawford Townships, near Timmins, Ontario, were explored with geophysical methods during the month of March, 1985. The horizontal loop EM, magnetic, and gravity measurements followed up on the ground an airborne electromagnetic survey. In all nine EM conductors were found during this work. An EM anomaly where the conductivity is due to sulphides often, though by no means always, is associated with a magnetic high, usually of small to moderate amplitude. This circumstance is also common with many graphitic conductors. A gravity survey can then be useful to screen the anomalies since sulphides should cause a small gravity high. Even though a deepening of the overburden over a sulphide conductor may cancel a gravity anomaly the method is still valid, but not infallible.

The results in these surveys indicate that two conductors, one on each of the grids 7 and 19K have a potential for some sulphide content, although a large massive sulphide body is unlikely.

April 24, 1985

Roger J Cavén, P Eng.
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REGISTERED PROFESSIONAL ENGINEER
Roger J. Cavén
PROVINCE OF ONTARIO

TABULATION OF CONDUCTOR PARAMETERS

GRID 7

Line/Loc	CTP mhos	Depth m	Width m	Magnetics	Gravity
0/2+16N	15.	46.	Thin	No	
1E/2+06N	17.	48.	"	"	
2E/2+51N	26.	36	"	"	Possible, S edge
3E/2+47N	17	34	"	"	
4E/2+57N	17	44	"	"	
5E/2+34N	21	52	"	"	
6E/2+00N	15	48	"	"	South edge
7E/1+62N	16	46	"	"	
8E/1+44N	14	56	"	"	
9E/1+66N	54	50	"	"	Small
10E/2+53N	30	48	"	"	
11E/2+75N	40	94.?	"	"	
12E/2+50N	11	72	"	"	

GRID 19K

Line/Loc	CTP mhos	Depth m	Width m	Magnetics	Gravity
Conductor 1:					
10W/5+75S	35	?	Thin	Flank	
9W/6+24S	28	86	"	"	
8W/7+08S	19	?	"	No	
Conductor 2:					
10W/2+77S	24	60	Thin	Flank	
9W/3+26S	57	60	"	"	
8W/3+74S	60	58	"	V small	Small
7W/4+20S	40	56	"	"	
6W/4+72S	46	57	"	"	
5W/5+20S	65	54	"	"	
4W/5+64S	110	50	"	"	Small
3W/6+24S	90	54	"	"	
2W/6+94S	?	?	"		
Conductor 3:					
10W/0+38S	27	57	24	Yes	
9W/0+54S	47	58	12	"	
8W/0+93S	40	56	14	"	No
7W/1+40S	44	52	18	"	
6W/1+75S	44	52	10	"	
5W/1+98S	46	58	14	"	
4W/2+43S	31	55	25	"	No
3W/2+62S	16	66	25	"	
2W/2+91S	14	66	20	"	
1W/3+17S	17	70	60	"	
0/3+50S	12	64	50	"	

GRID 19K cont'd

Conductors 4 &5:

Line	#4 Loc	CTP mhos	Depth m	#5 Loc	CTP mhos	Depth m	Width m	Mag	Grav
10W	3+45N	16	54	5+12N	70	42	190	Yes	
9W	3+38N	17	62	5+05N	53	40	185	"	
8W	3+30N	21	59	4+97N	57	36	185	"	Low
7W	3+34N	31	56	4+55N	44	40	150	"	
6W	3+40N	18	66	4+65N	50	54	130	"	
5W	3+60N	22	64	4+88N	46	52	140	"	
4W				4+40N	50	52	120	Banded	Low
3W				4+50N	41	48	110	Yes	
2W				4+90N	43	46	90	"	
1W				5+25N	60	58	120	?	
0				5+30N	37	50	120	?	

GRID 33P

Line/Loc	CTP mhos	Depth m	Width m	Magnetics	Gravity
9W/5+45S	18	20	25	No	
8W/5+32S	17	19	16	"	No
7W/5+25S	16	30	16	"	
6W/4+95S	18	22	14	"	
5W/4+80S	19	30	20	"	
4W/5+05S	21	22	25	"	

Weak conductor at 1777 Hz

9W/2+05S	2.5
8W/2+24S	3.
7W/2+50S	3.

GRID 34K

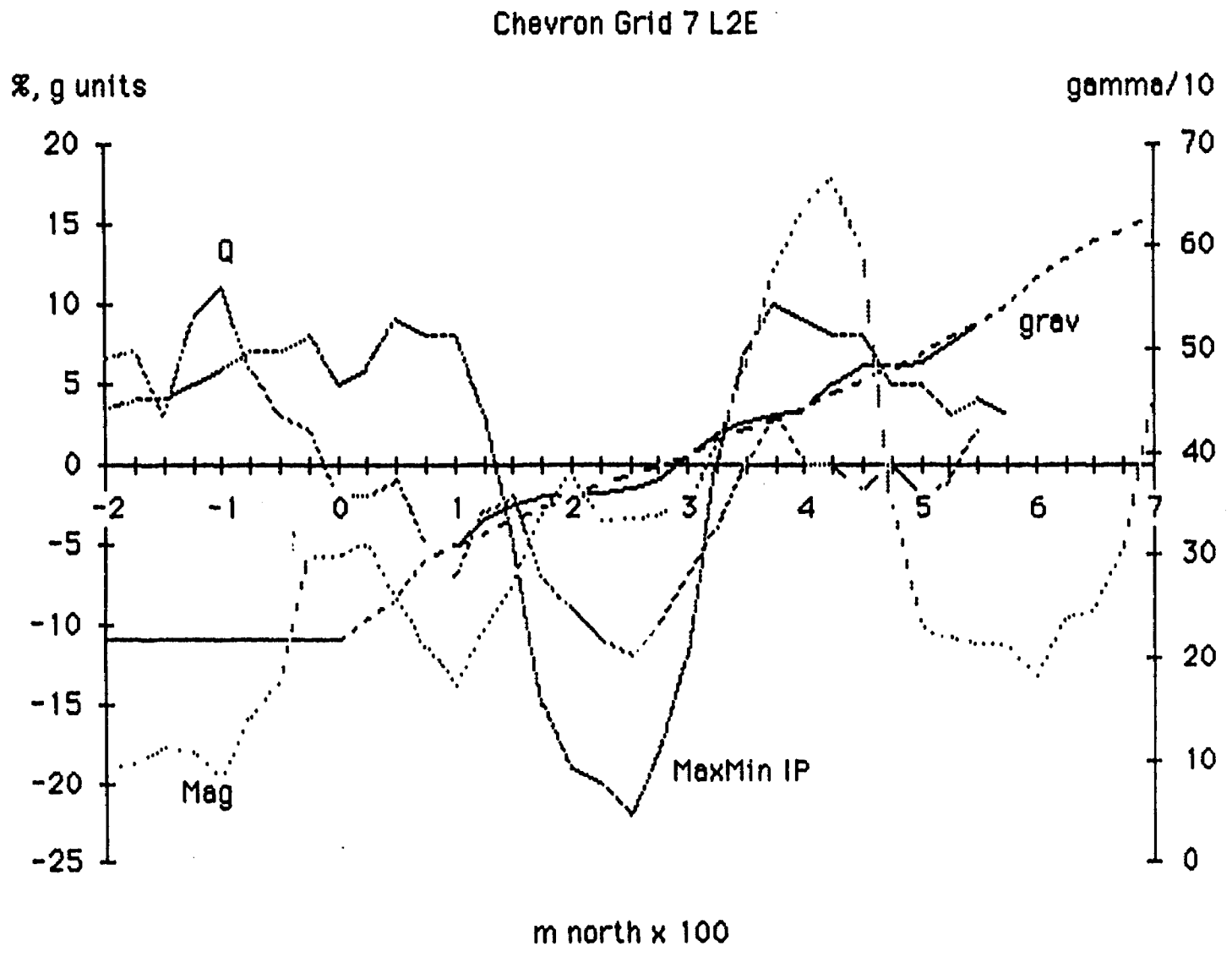
Line/Loc	CTP mhos	Depth m	Width m	Magnetics	Gravity
10W/4+15S	75	10	35	Low	
9W/4+07S	44	24	22	"	
8W/3+87S	51	38	25	"	Low
7W/3+40S	70	42	10	"	
6W/3+07S	100	50	10	Flank	
5W/2+66S	67	40	24	"	
4W/2+26S	34	52	4	"	
3W/1+30S	35	62	10	"	

At 1777Hz

10W/4+15S	58
9W/3+92S	22
8W/3+73S	20
7W/3+38S	20
6W/3+18S	20
5W/2+70S	10
4W/2+30S	10
3W/1+30S	1

Overburden Conductor:

5W/5+84S	6
4W/5+35S	9
3W/5+00S	9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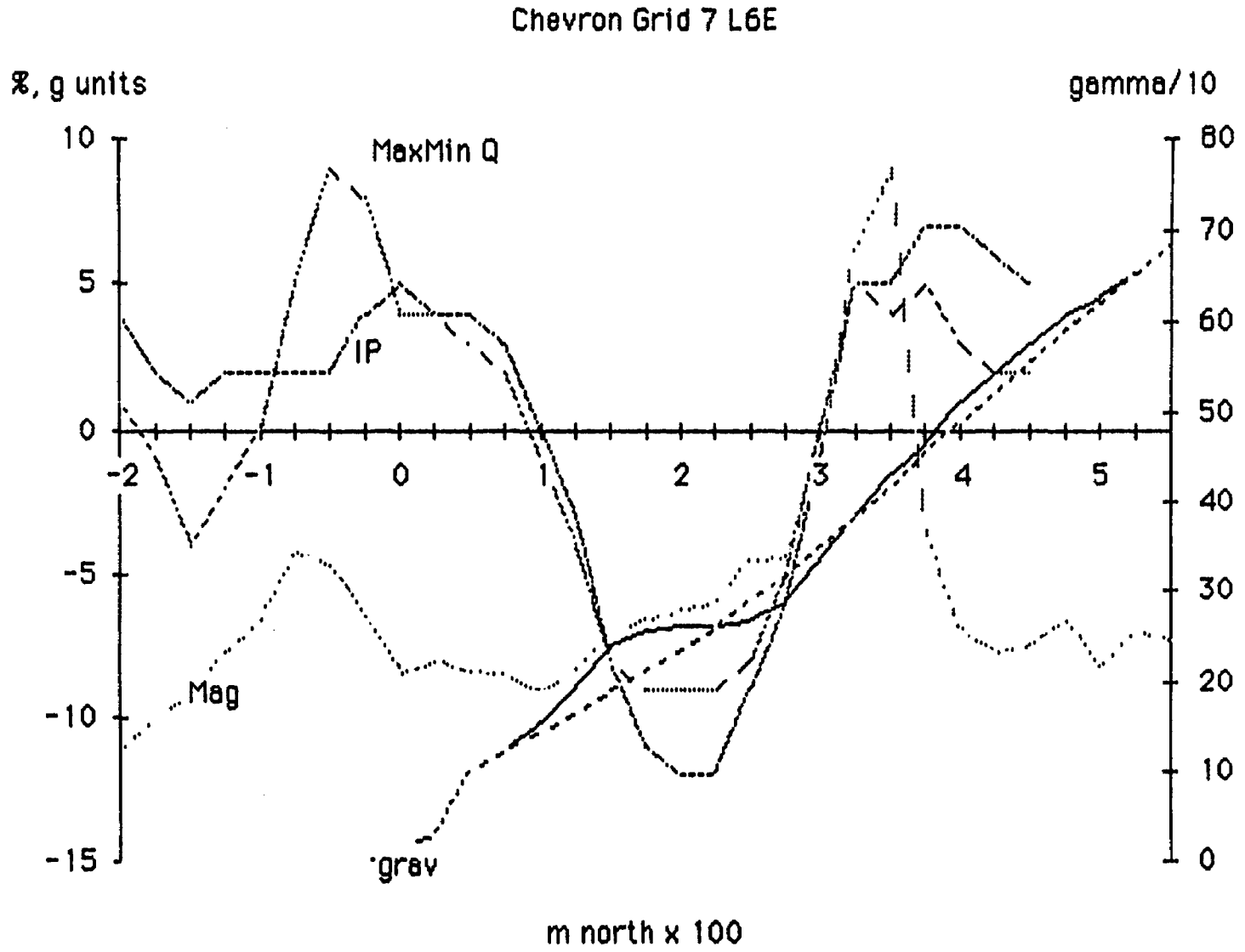
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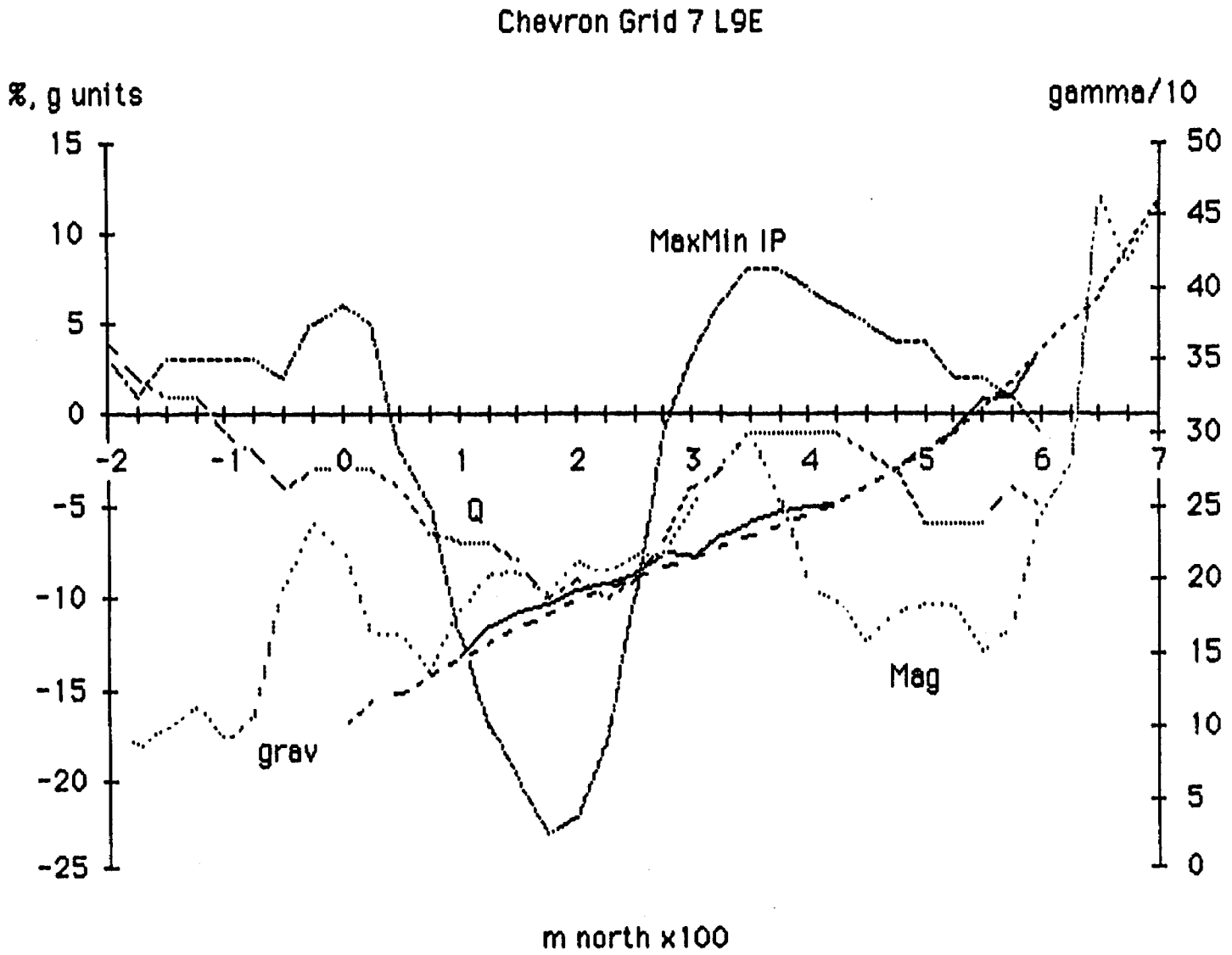
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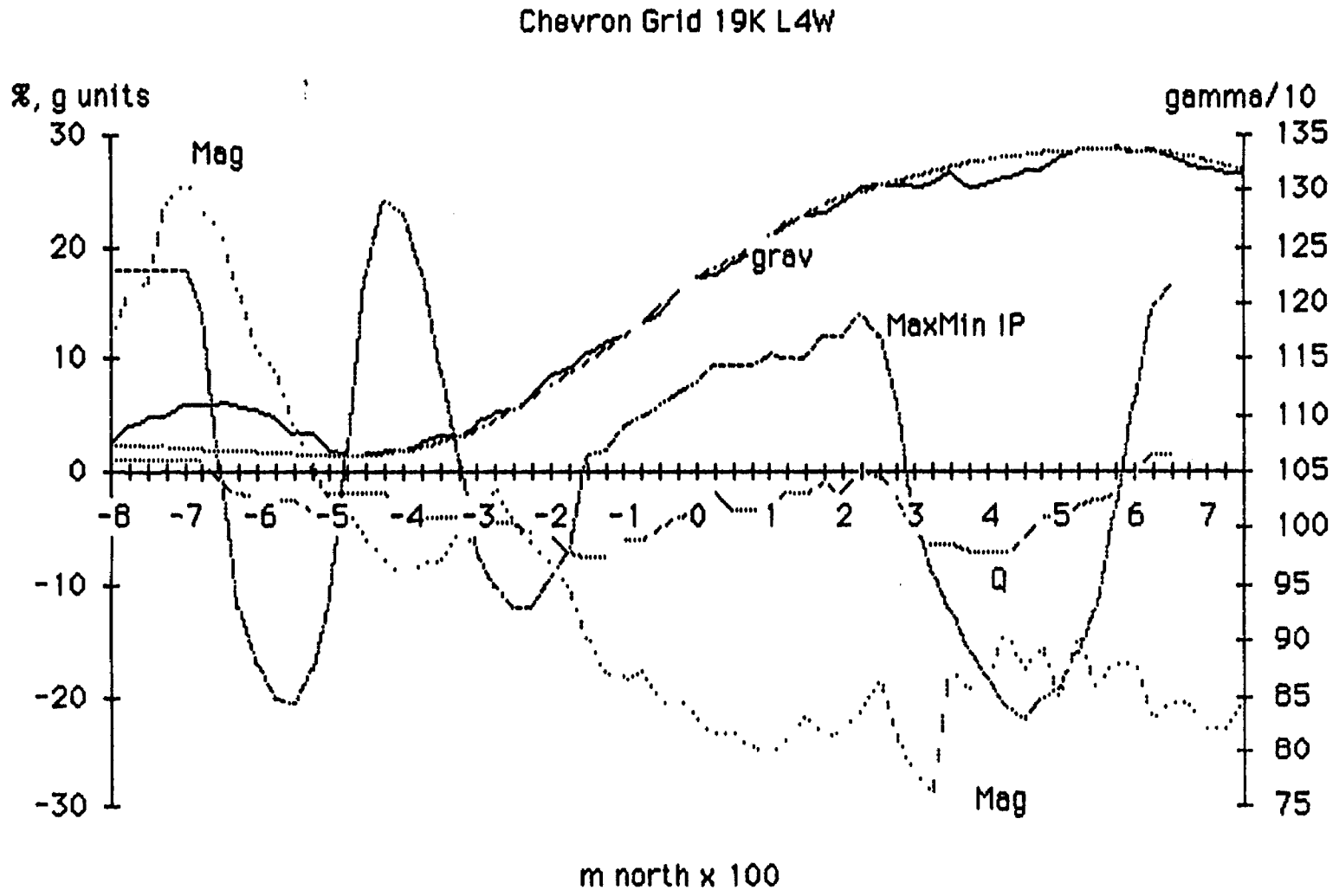
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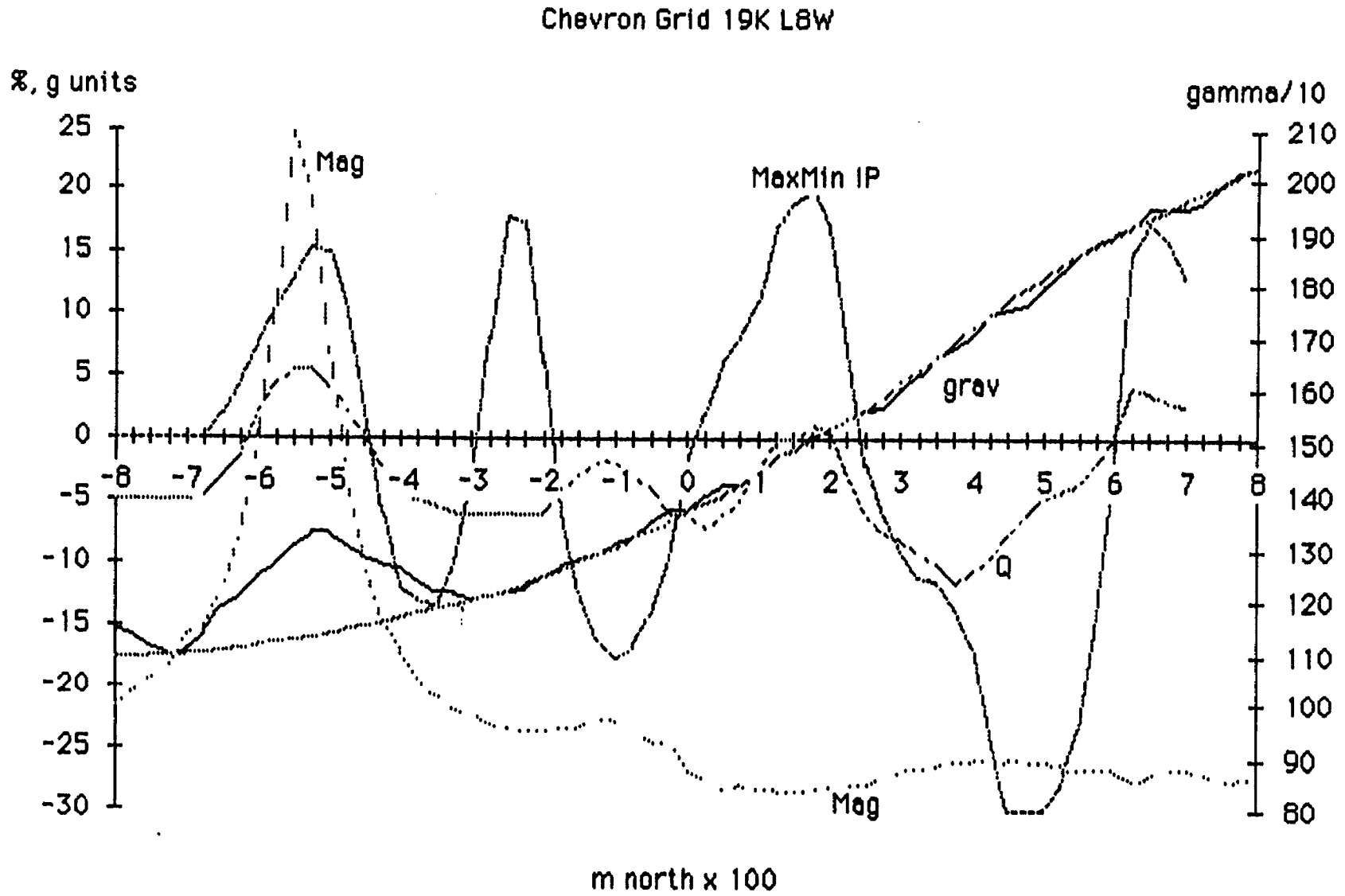
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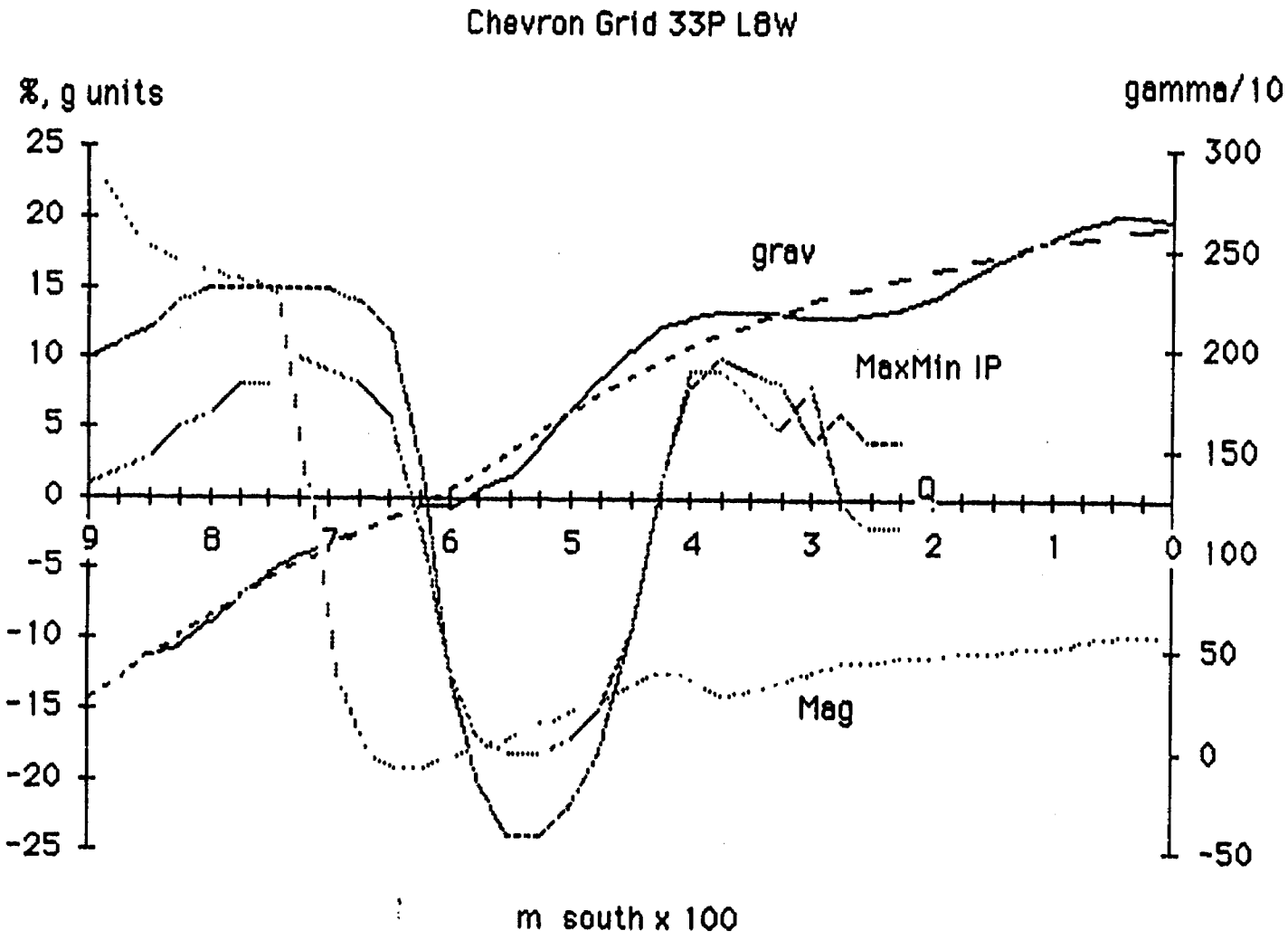
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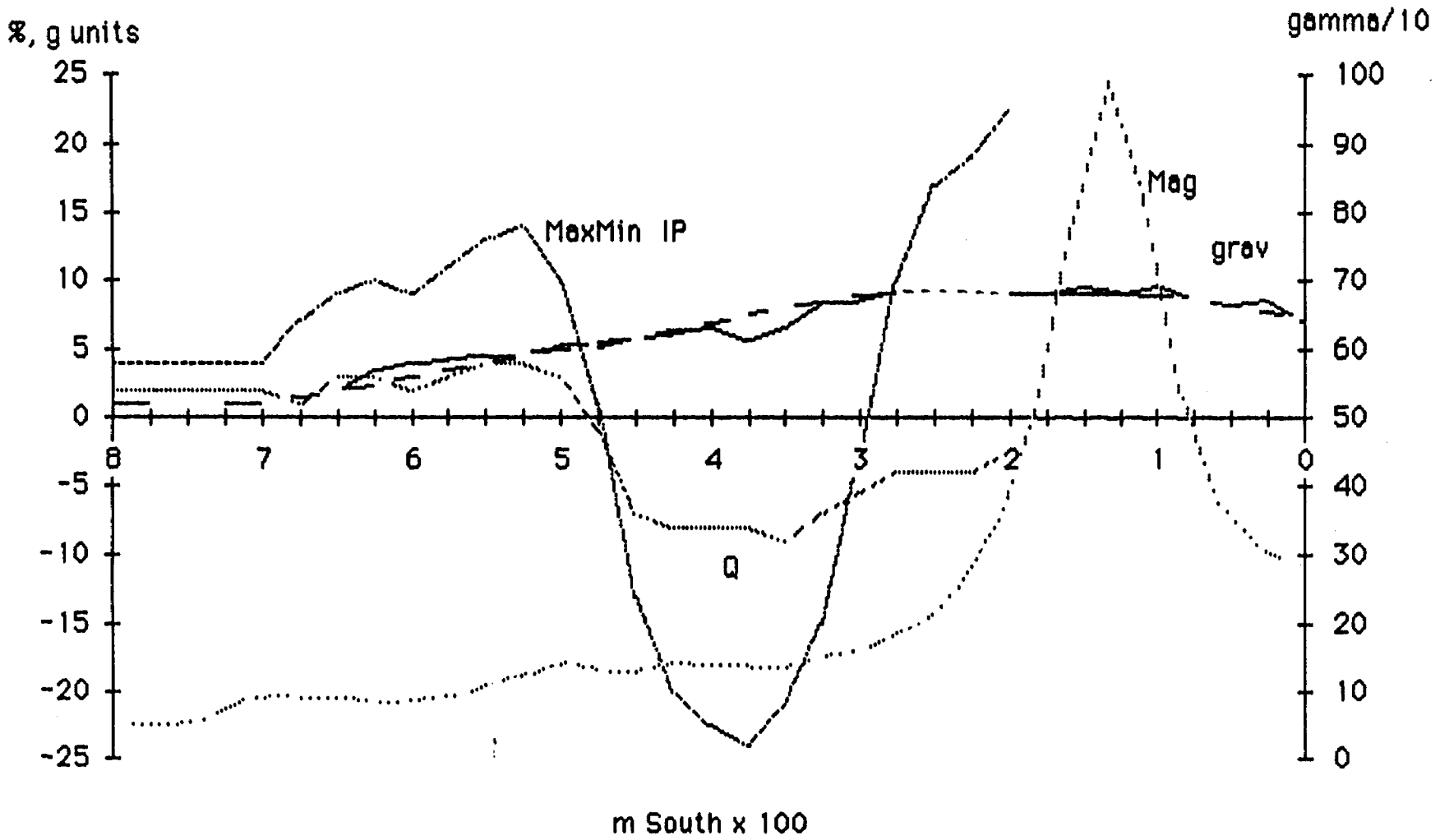
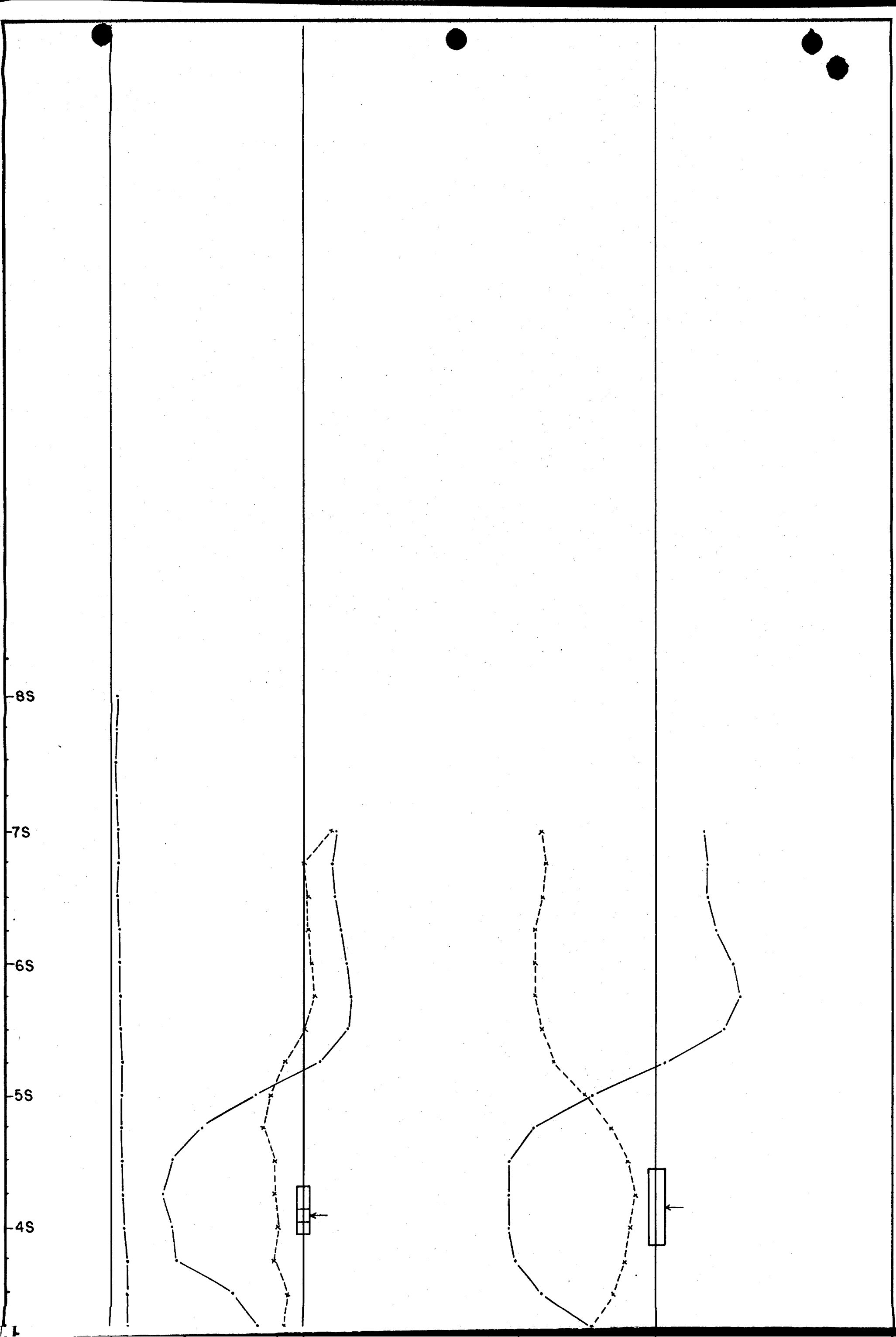
Chevron Grid 34K LBW

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Magnetic Profile

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-1S
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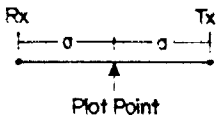
Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

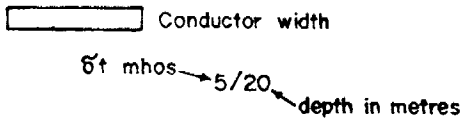
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL 0 / L 9W

Assigned Value : 59 290 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
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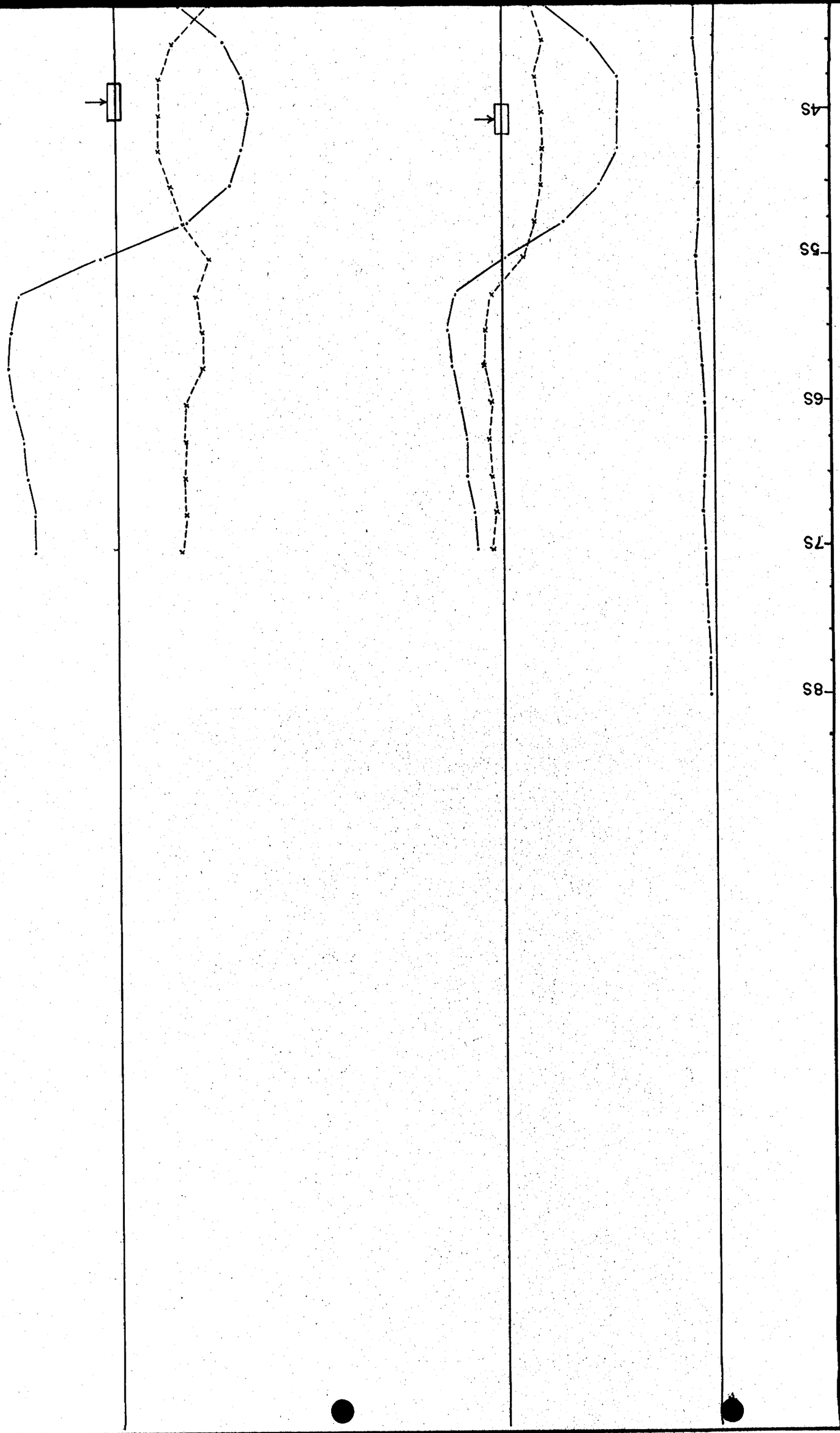
	Drawn:	Approved:	File: M-97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5S
6S
7S
8S

+60%
+50%
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+30%
+20%
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-60%

+40%
+30%
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0 444 Hz
−
-10%
-20%
-30%
-40%

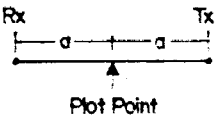
59 500γ
59 000γ
58 500γ

Magnetic Profile

3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component
out of phase component

444 Hz — in phase component
out of phase component

Operator : Mark Guindon

vertical scale 1cm = 10%

Conductor width

5t mhos → 5/20 ← depth in metres

Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

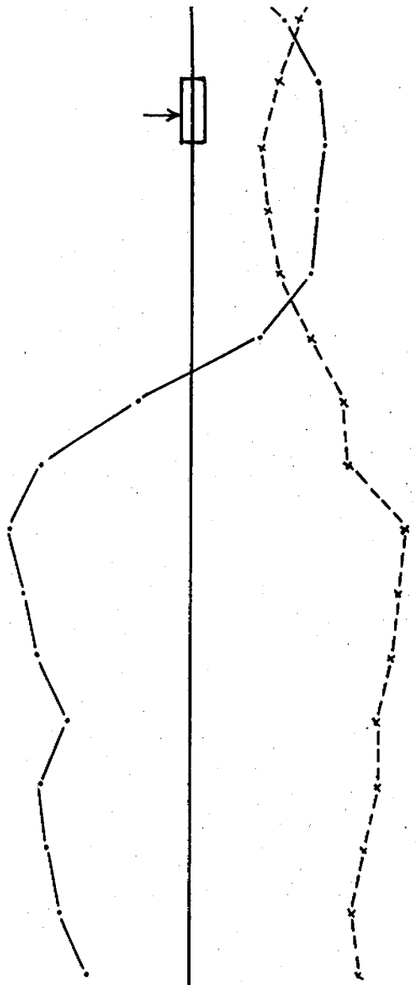
Base Station Location : BL 0/L9W

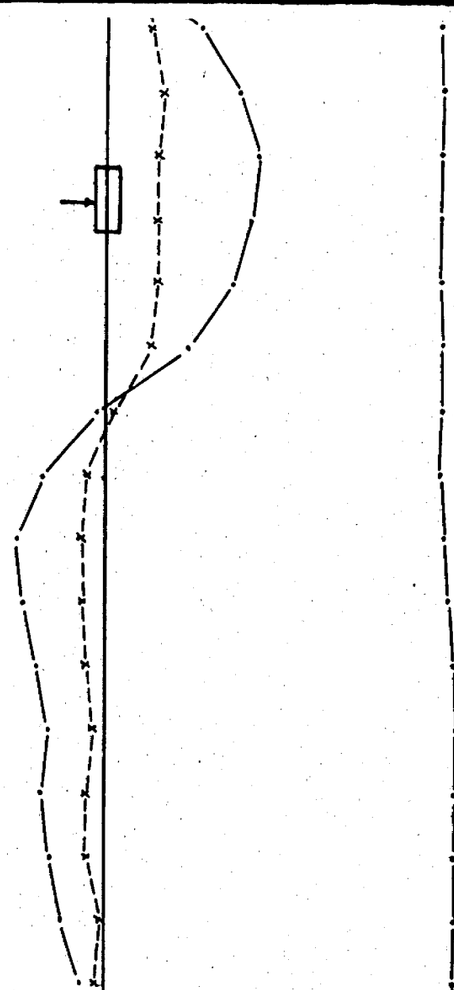
Assigned Value : 59 290 gammas (nT)

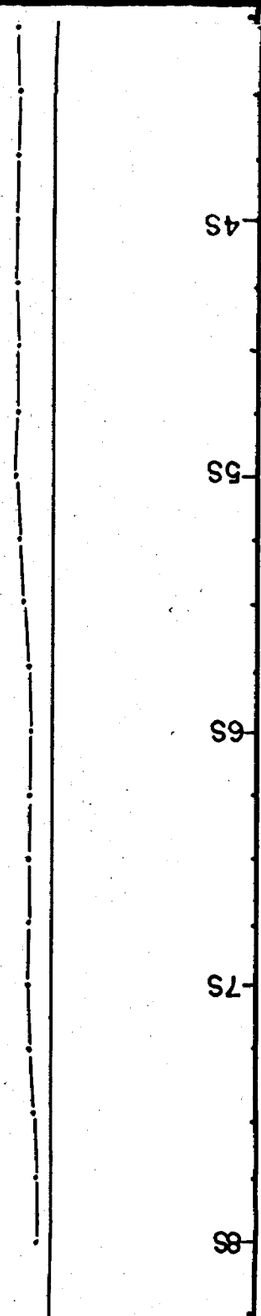
Plotted values are Total Field values in gammas (nT)

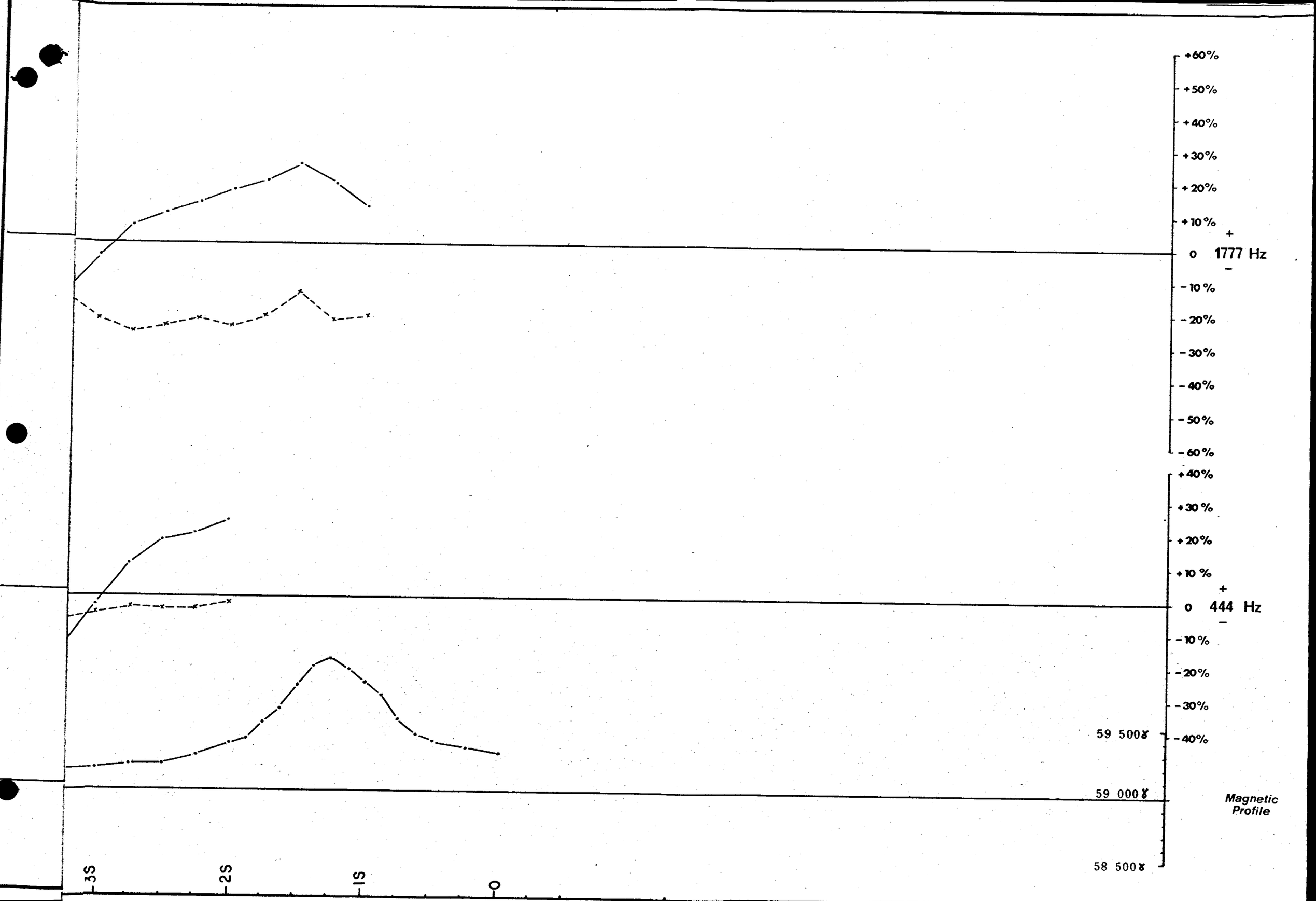
63,4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 34K Line 9+00W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97



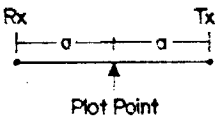



4S
5S
6S
7S
8S


+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
−10%
−20%
−30%
−40%
−50%
−60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
−10%
−20%
−30%
−40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

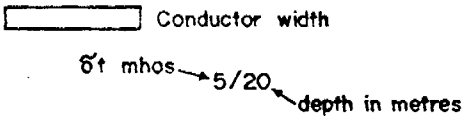
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·———·
out of phase component x— — —x

444 Hz — in phase component ·———·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL0 / L9W

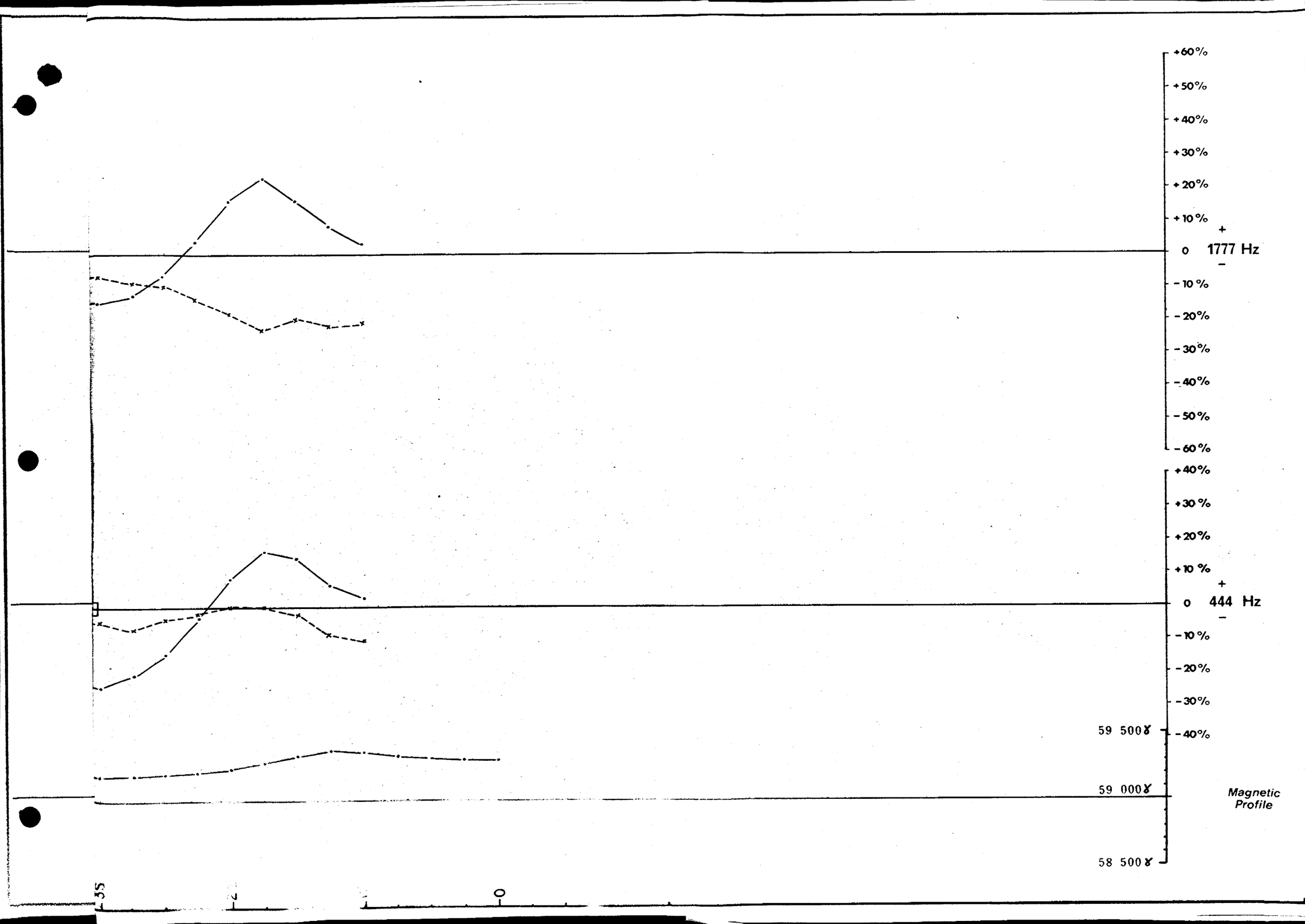
Assigned Value : 59 290 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

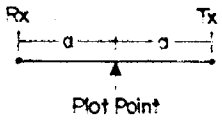
REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 34K Line 8+00W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97


8S
7S
6S
5S
4S


+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
35
2
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

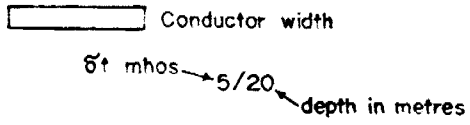
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

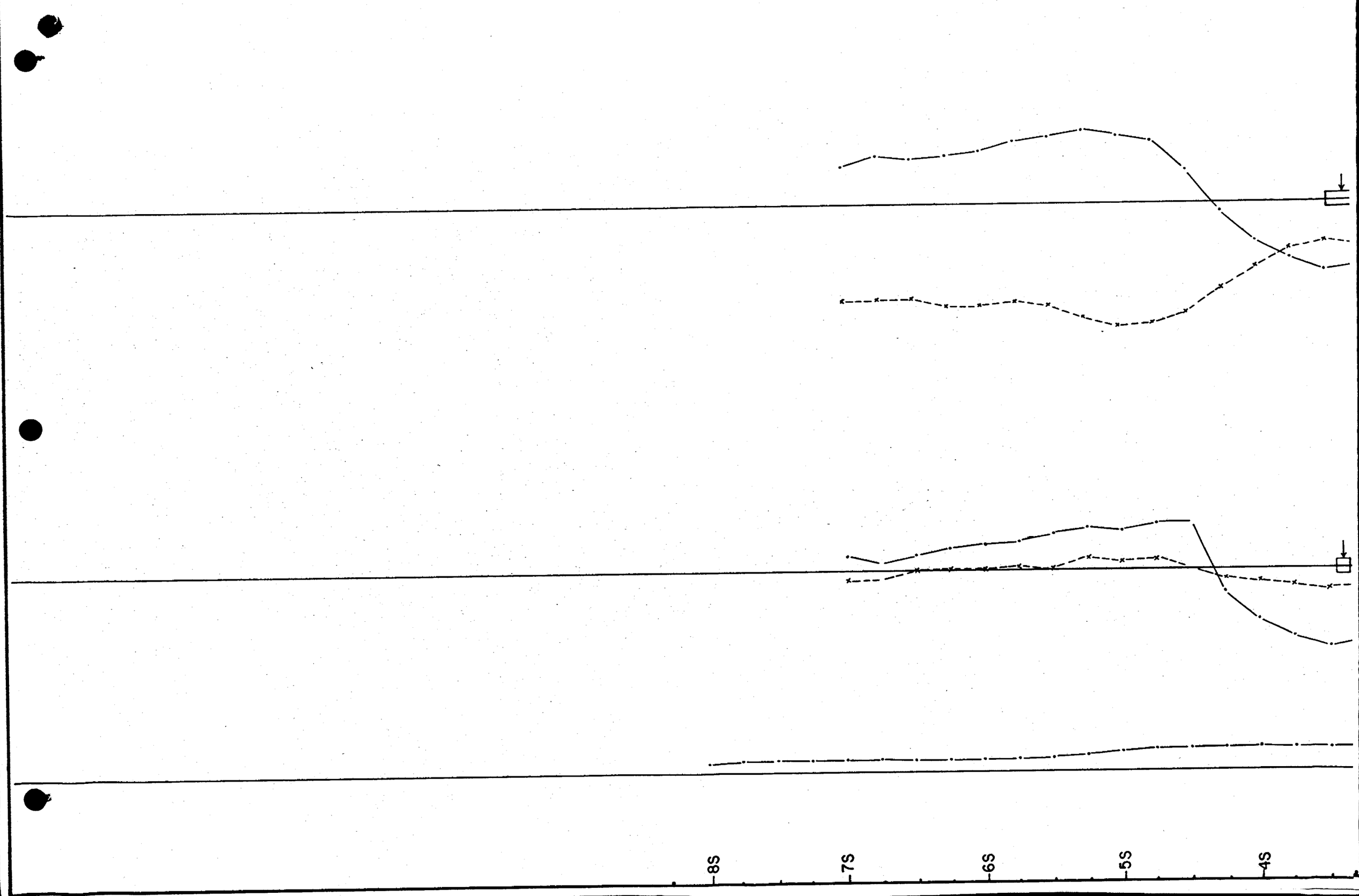
Base Station Location : BL 0 / L9W

Assigned Value : 59 290 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 34K Line 6+00W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97


8S
7S
6S
5S
4S

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
−10%
−20%
−30%
−40%
−50%
−60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
−10%
−20%
−30%
−40%

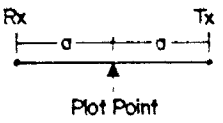
59 500γ
59 000γ
58 500γ

Magnetic Profile

3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

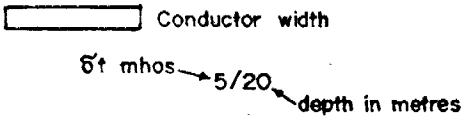
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·———·
out of phase component x— — —x

444 Hz — in phase component ·———·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL0/L9W

Assigned Value : 59 290 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 34K Line 7+00W		
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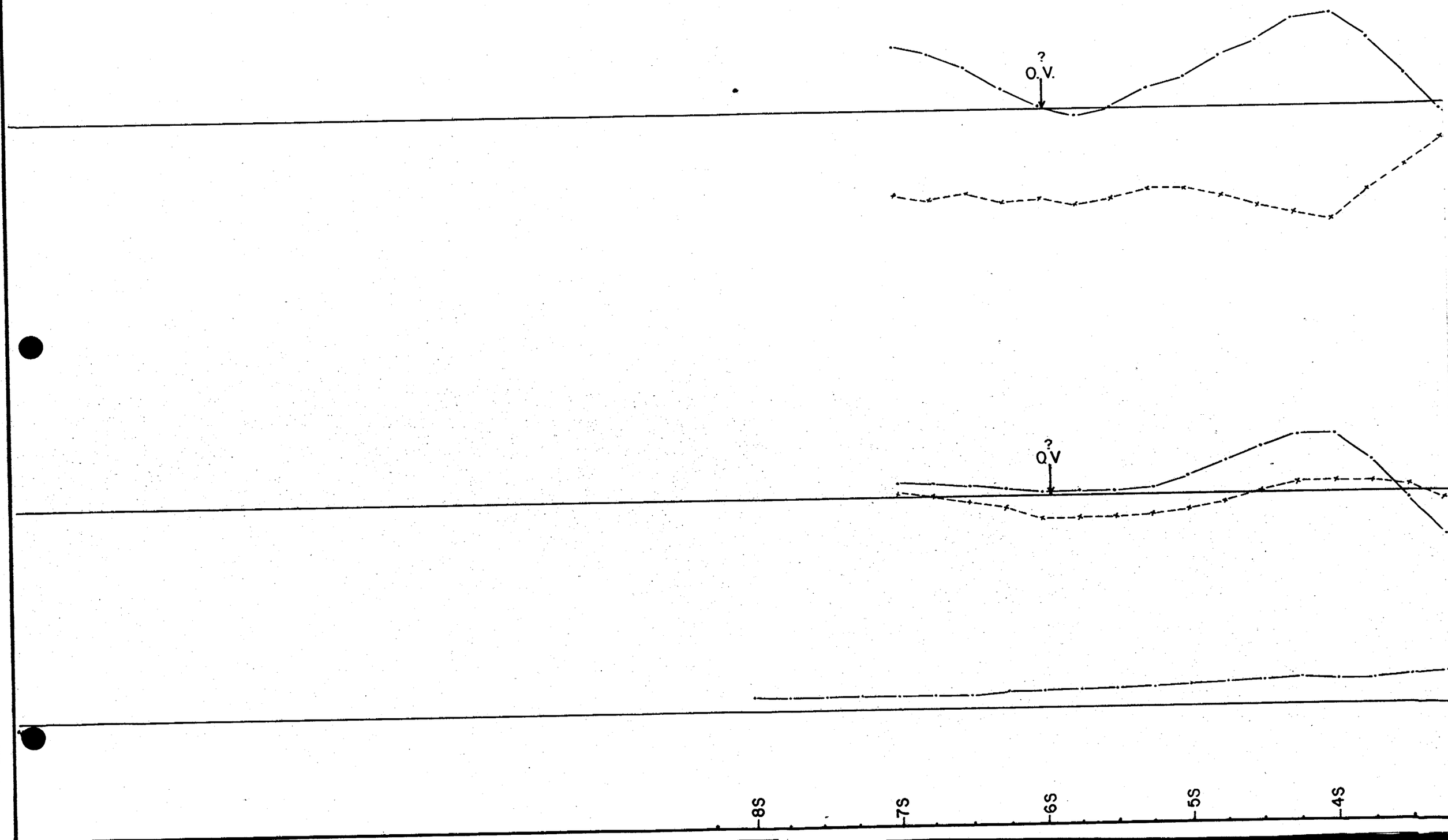
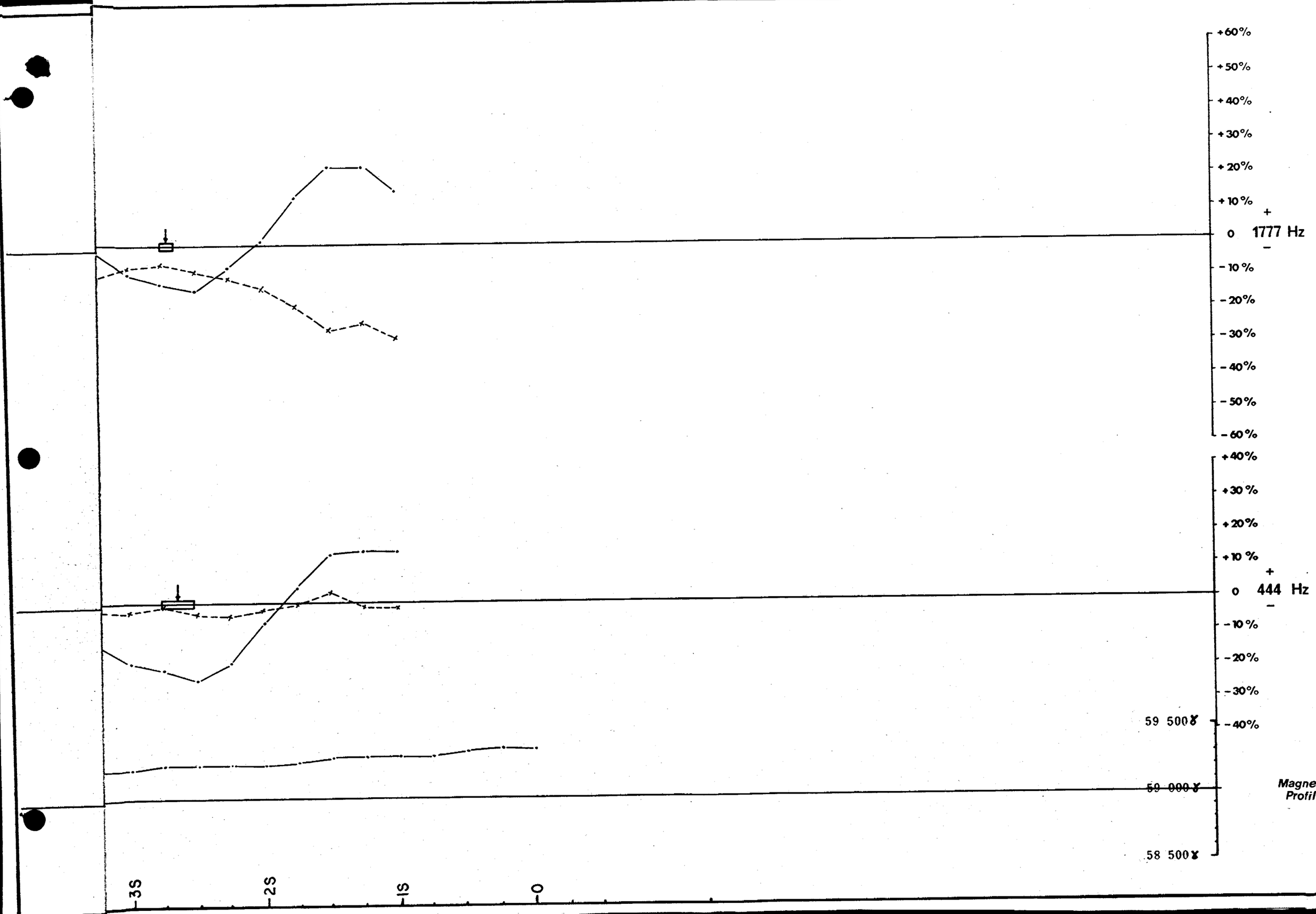
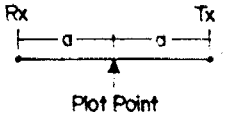

?
O.V.
?
O.V.
8S
7S
6S
5S
4S


+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

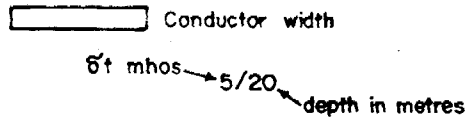
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

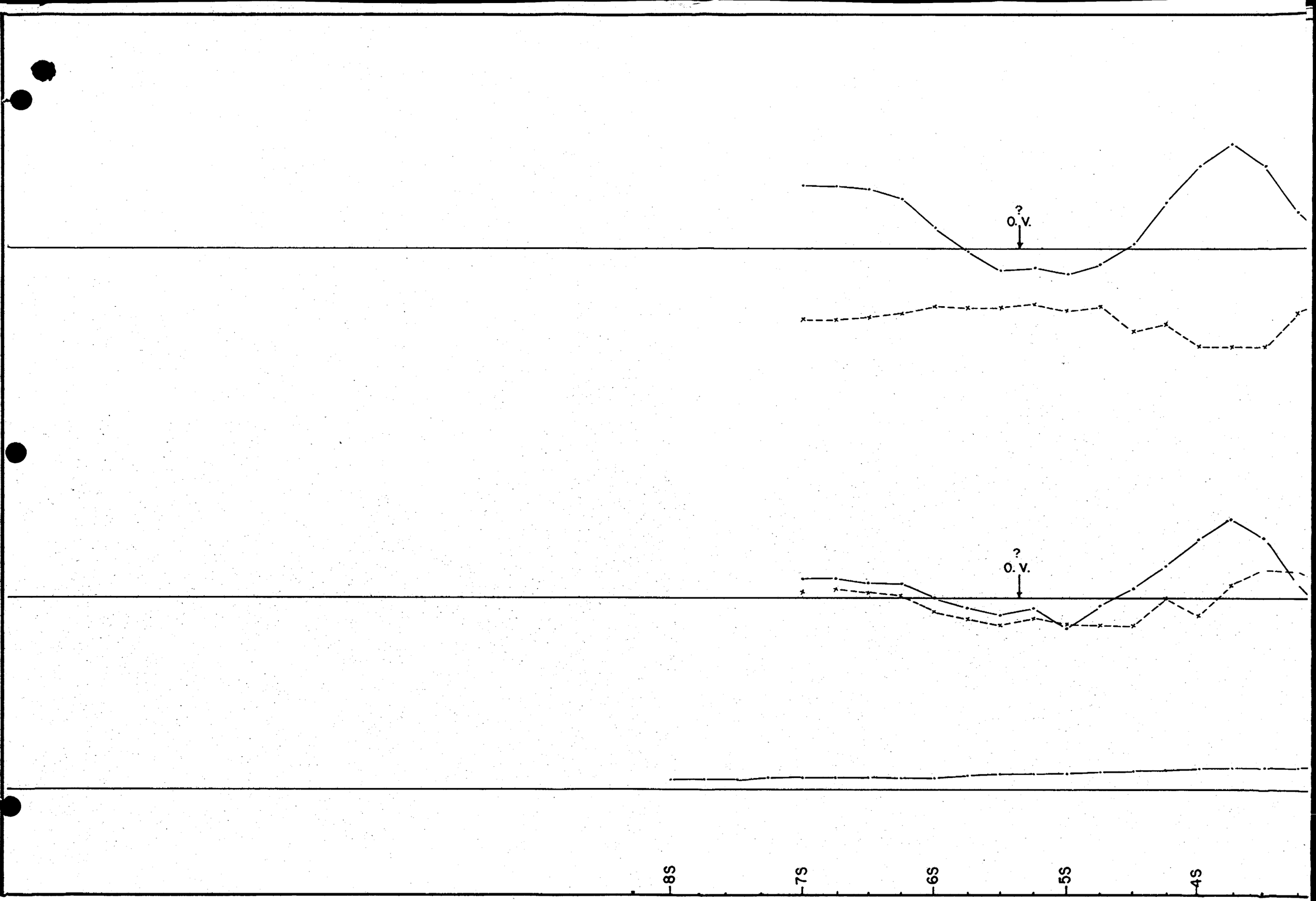
Base Station Location : BL 0 / L9W

Assigned Value : 59 290 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 34K Line 5400W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97


?
O. V.
?
O. V.
8S
7S
6S
5S
4S

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

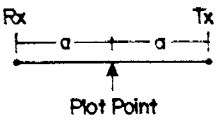
59 500γ
59 000γ
58 500γ

Magnetic Profile

3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

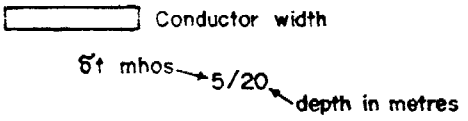
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·———·
out of phase component x— — —x

444 Hz — in phase component ·———·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

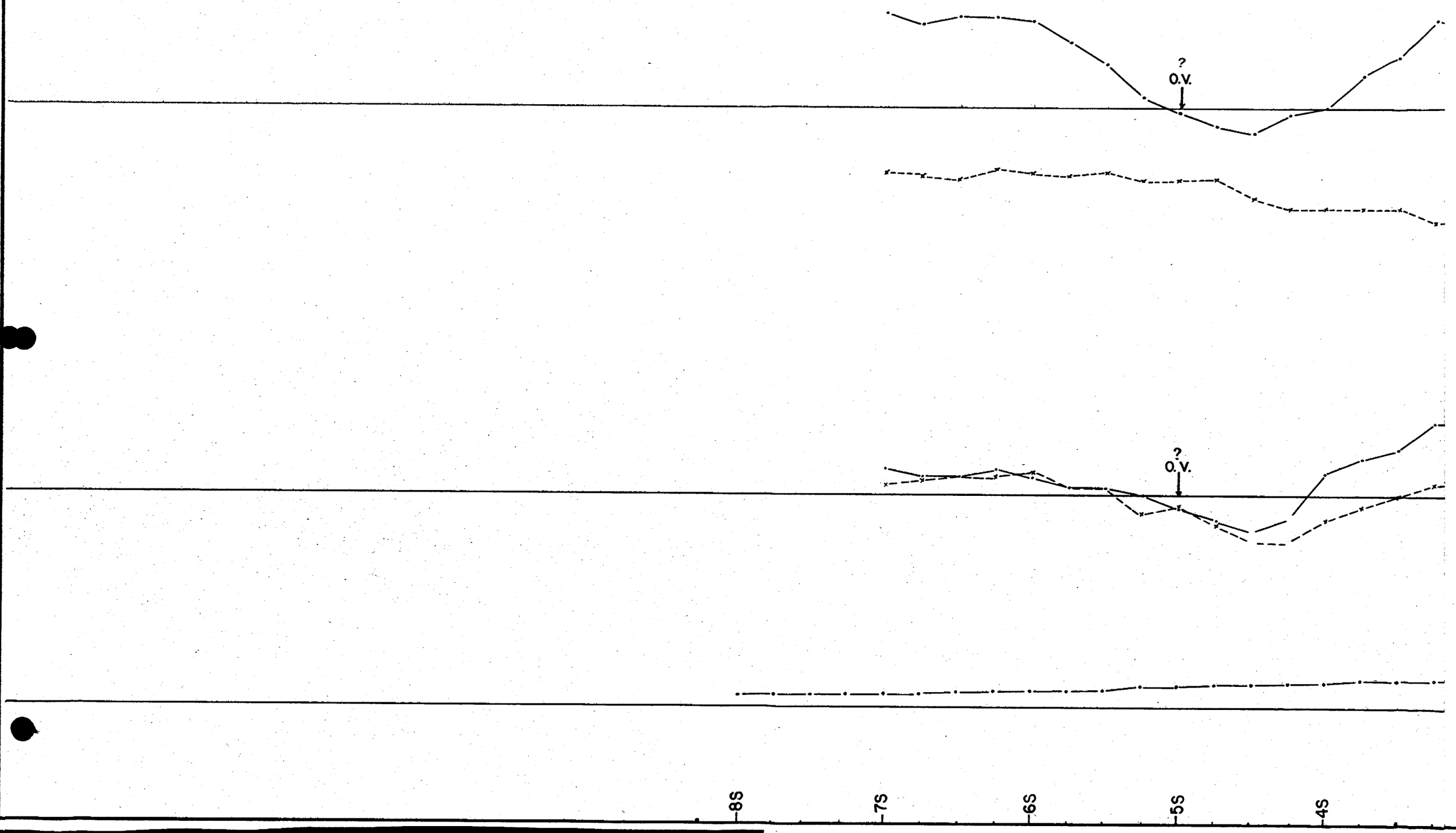
Base Station Location : BL 0/L9W

Assigned Value : 59 290 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 34K Line 4100W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97


?
O.V.
?
O.V.
8S
7S
6S
5S
4S

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

59 500γ

59 000γ

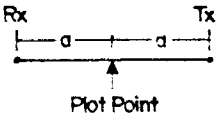
58 500γ

Magnetic Profile

3S 2S 1S 0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component
out of phase component

444 Hz — in phase component
out of phase component

Operator : Mark Guindon

vertical scale 1cm = 10%

Conductor width

5t mhos → 5/20 ← depth in metres

Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

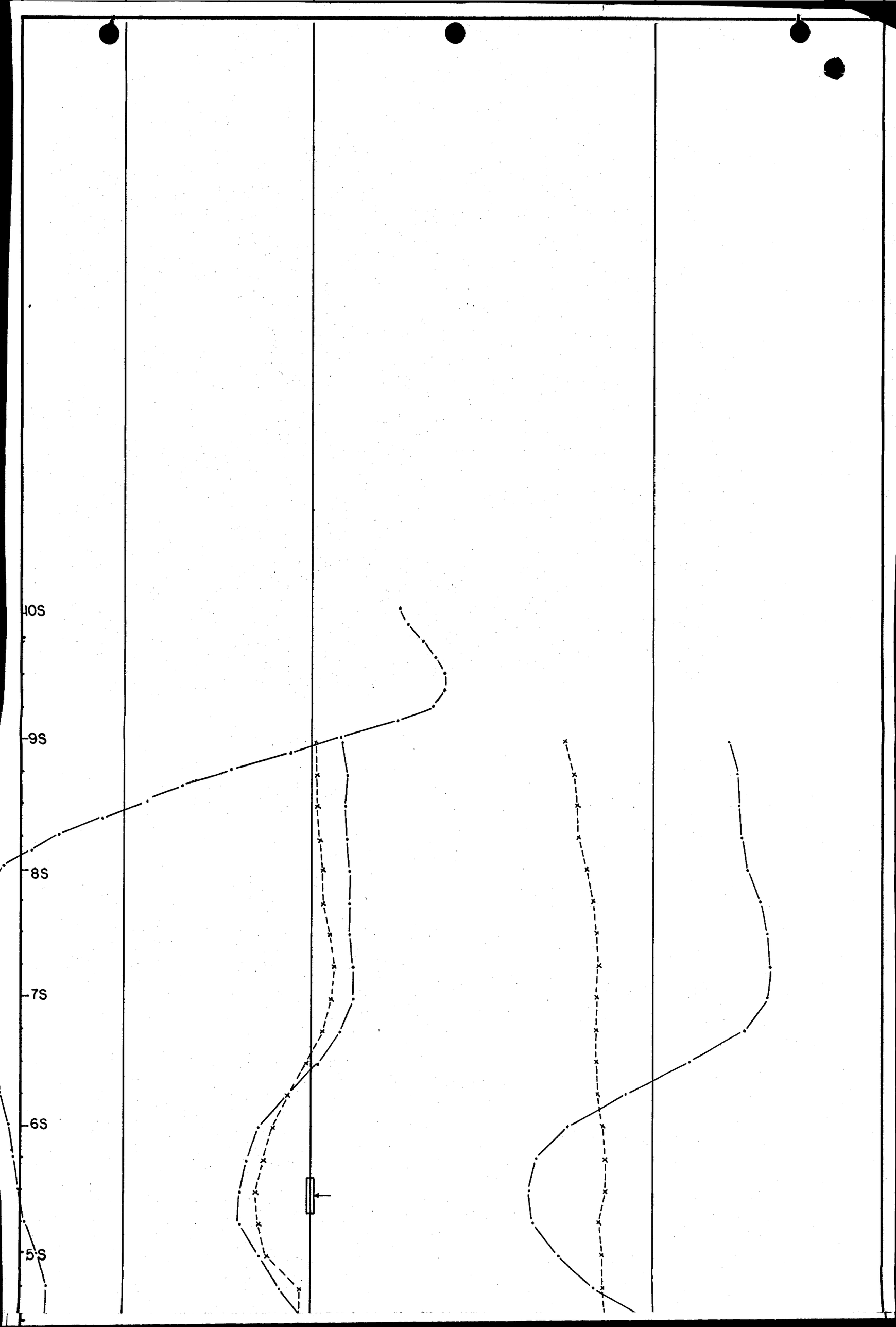
Base Station Location : BL 0/L 9W

Assigned Value : 59 290 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 34K Line 3+00W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97


40S
9S
8S
7S
6S
5S

O.V. Gully

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

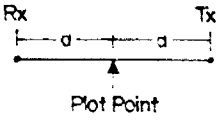
59 500γ
59 000γ
58 500γ

Magnetic Profile

4S 3S 2S 1S 0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

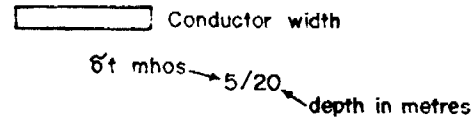
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·———·
out of phase component x— — —x

444 Hz — in phase component ·———·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL0/L8W

Assigned Value : 58 589 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 33P Line 9+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97

10S

9S

8S

7S

6S

5S

O.V. Gully

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

59 500γ

59 000γ

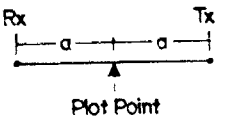
58 500γ

4S 3S 2S 1S 0

Magnetic Profile

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·———·
out of phase component x— — —x

444 Hz — in phase component ·———·
out of phase component x— — —x

Conductor width

Operator : Mark Guindon

δt mhos → 5/20 ← depth in metres

vertical scale 1cm = 10%

Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL0/L8W

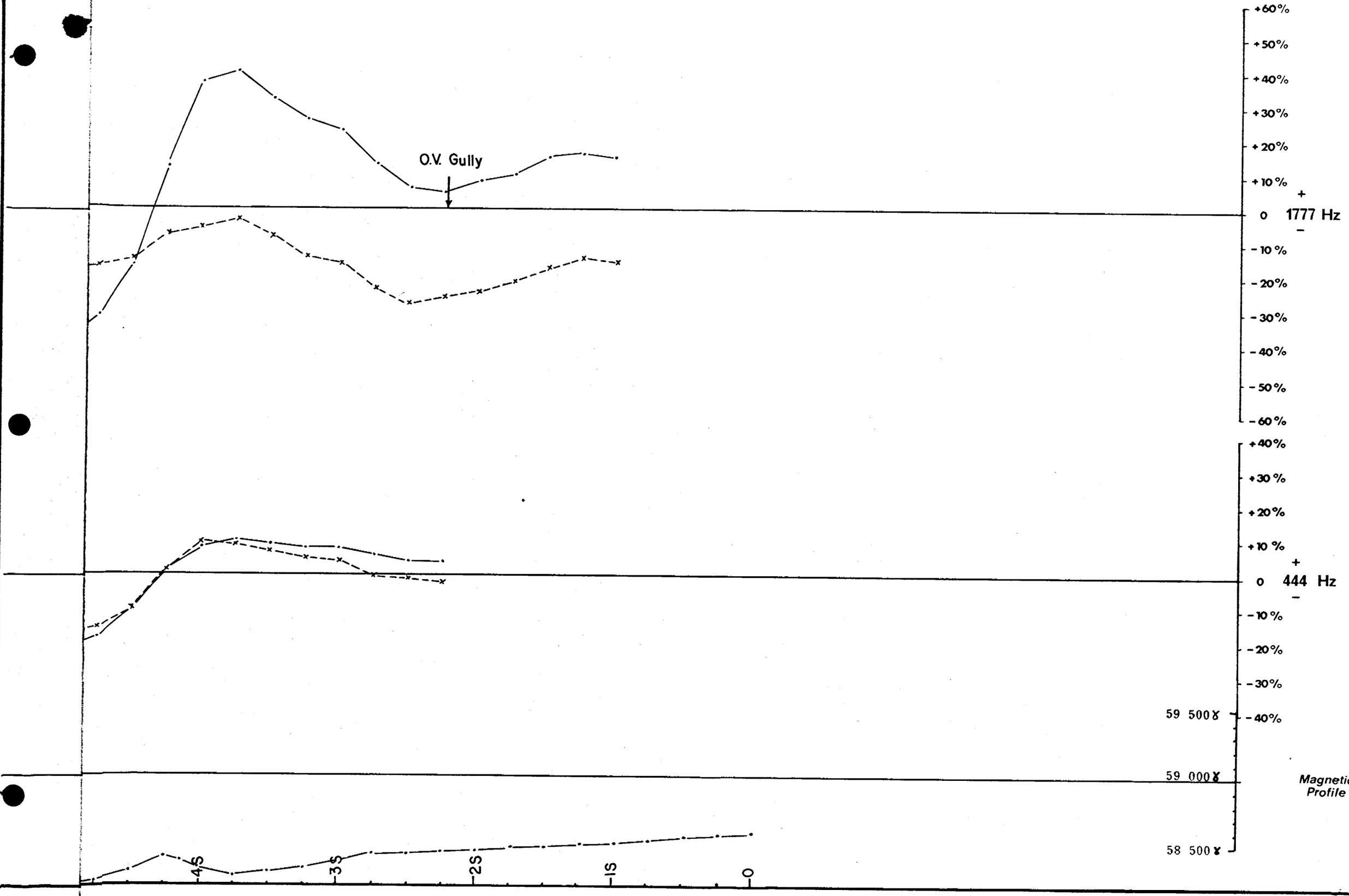
Assigned Value : 58 589 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

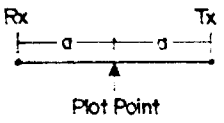
REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 33P Line 7+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97

65
60
55
50
45
40
35


O.V. Gully
+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
45
35
25
15
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

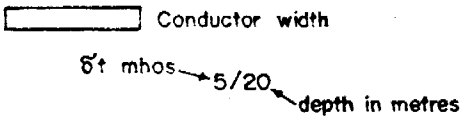
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·———·
out of phase component x— — —x

444 Hz — in phase component ·———·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

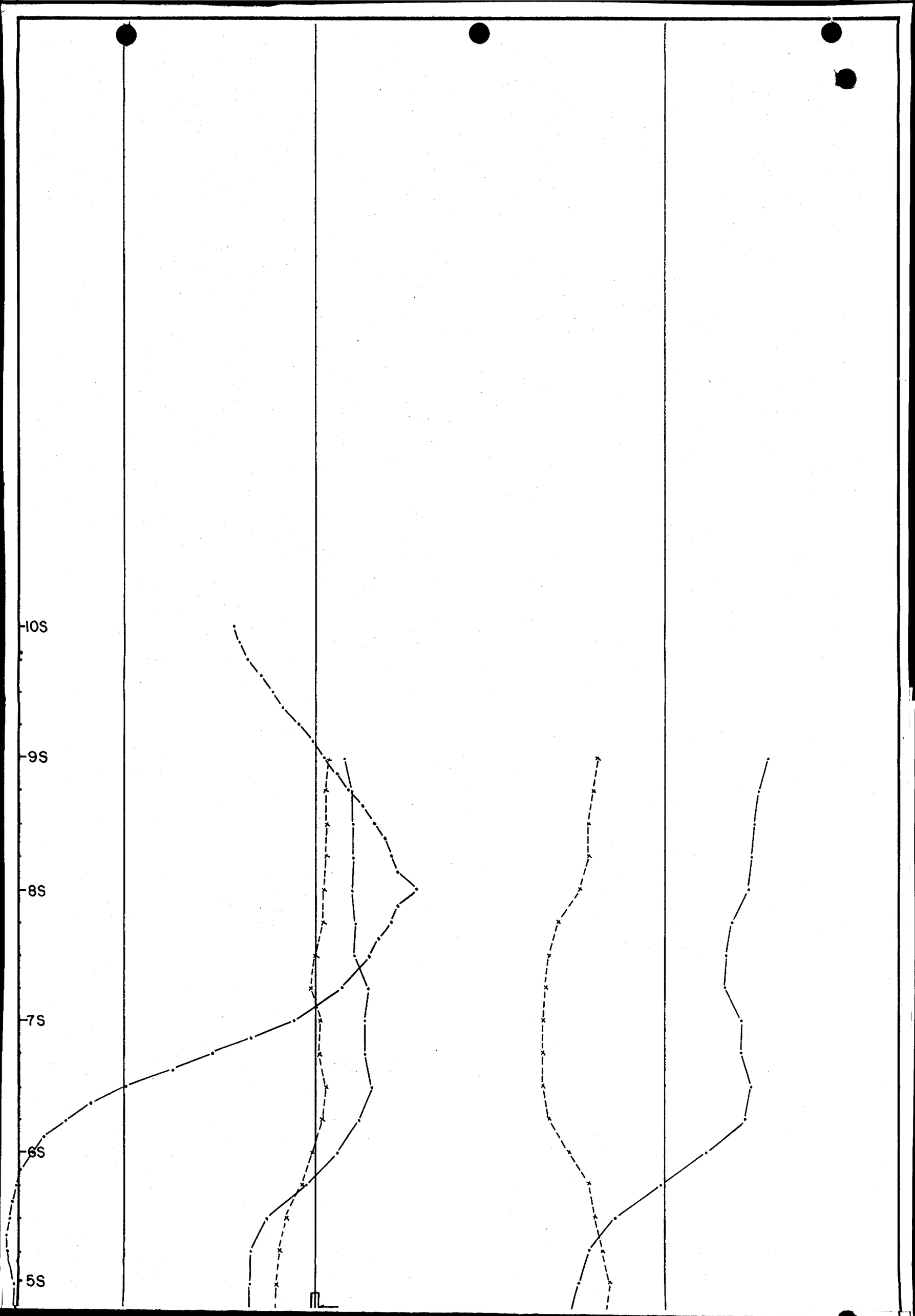
Base Station Location : BL0/L8W

Assigned Value : 58 589 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 33P Line 8+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97


10S
9S
8S
7S
6S
5S

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

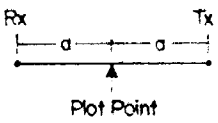
59 500γ
59 000γ
58 500γ

Magnetic Profile

4S
3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component; out of phase component

444 Hz — in phase component; out of phase component

Operator : Mark Guindon

vertical scale 1cm = 10%

Conductor width

Conductivity in mhos → 5/20 ← depth in metres

Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

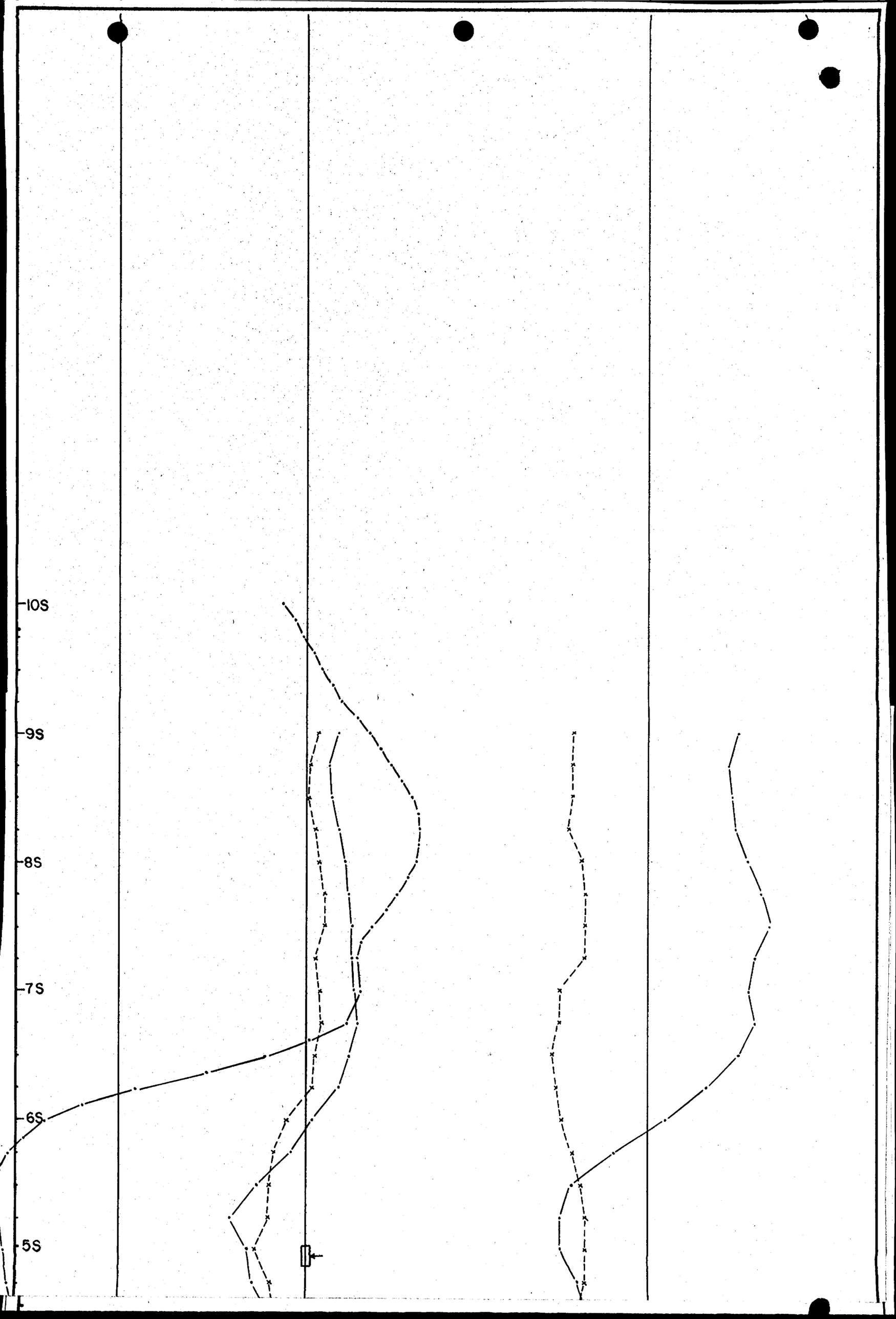
Base Station Location : BL0/L8W

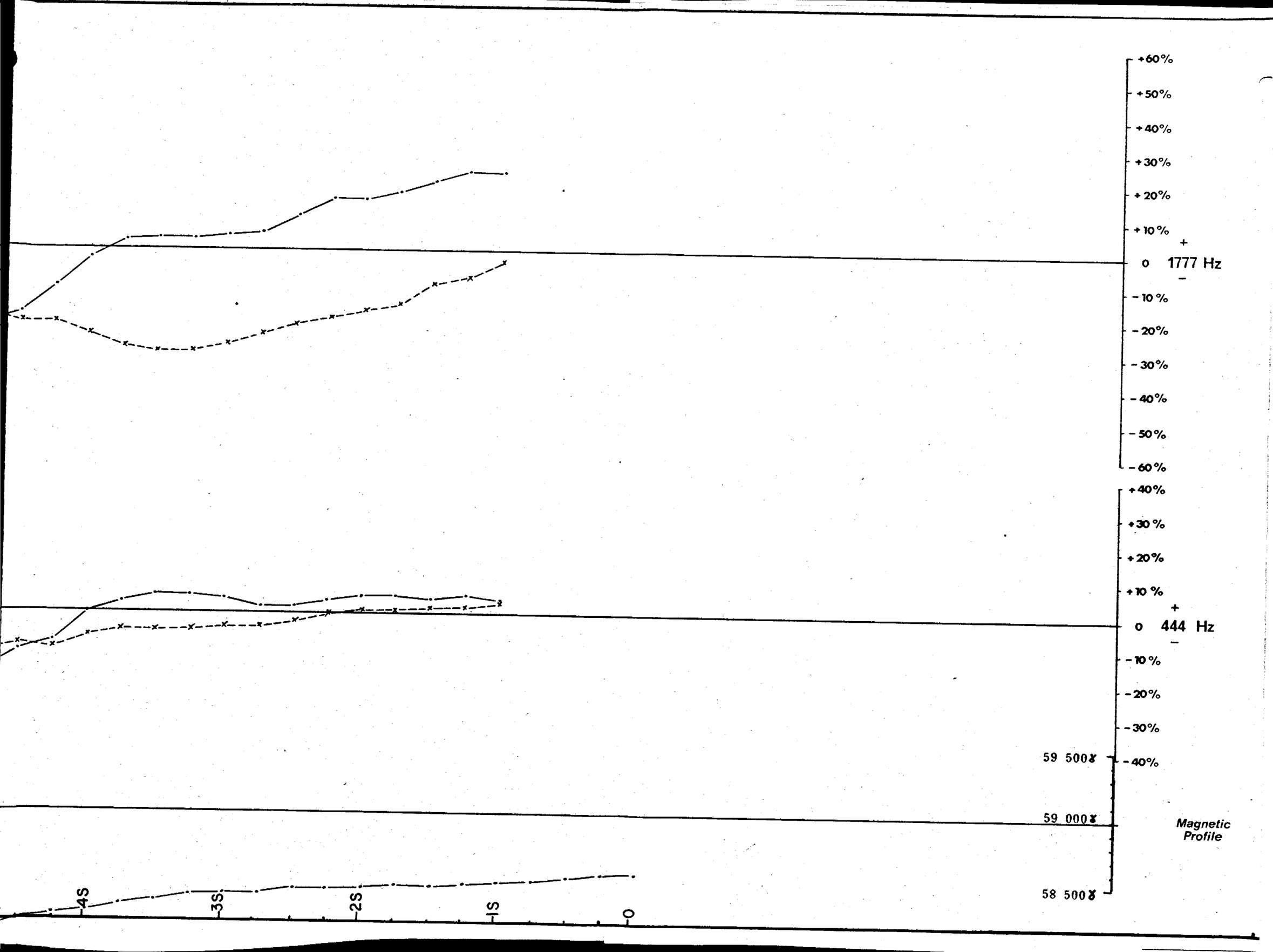
Assigned Value : 58 589 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

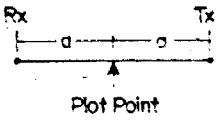
REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 33P Line 5+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97


10S
9S
8S
7S
6S
5S


+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
4S
3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

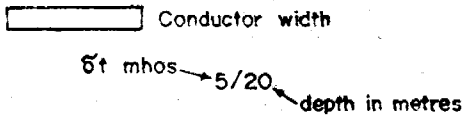
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL0/L8W

Assigned Value : 58 589 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 33P Line 6+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97

10S 9S 8S 7S 6S 5S

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

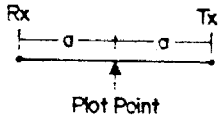
59 500γ
59 000γ
58 500γ

Magnetic Profile

4S
3S
2S
1S
0

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component .———.
out of phase component x— — —x

444 Hz — in phase component .———.
out of phase component x— — —x

Operator : Mark Guindon

Conductor width

5t mhos → 5/20 ← depth in metres

vertical scale 1cm = 10%

Magnetometer

Instrument : Scintrex MP-2
Proton Precession Magnetometer

Operator : Mark Guindon

vertical scale 1cm = 100 gammas (nT)

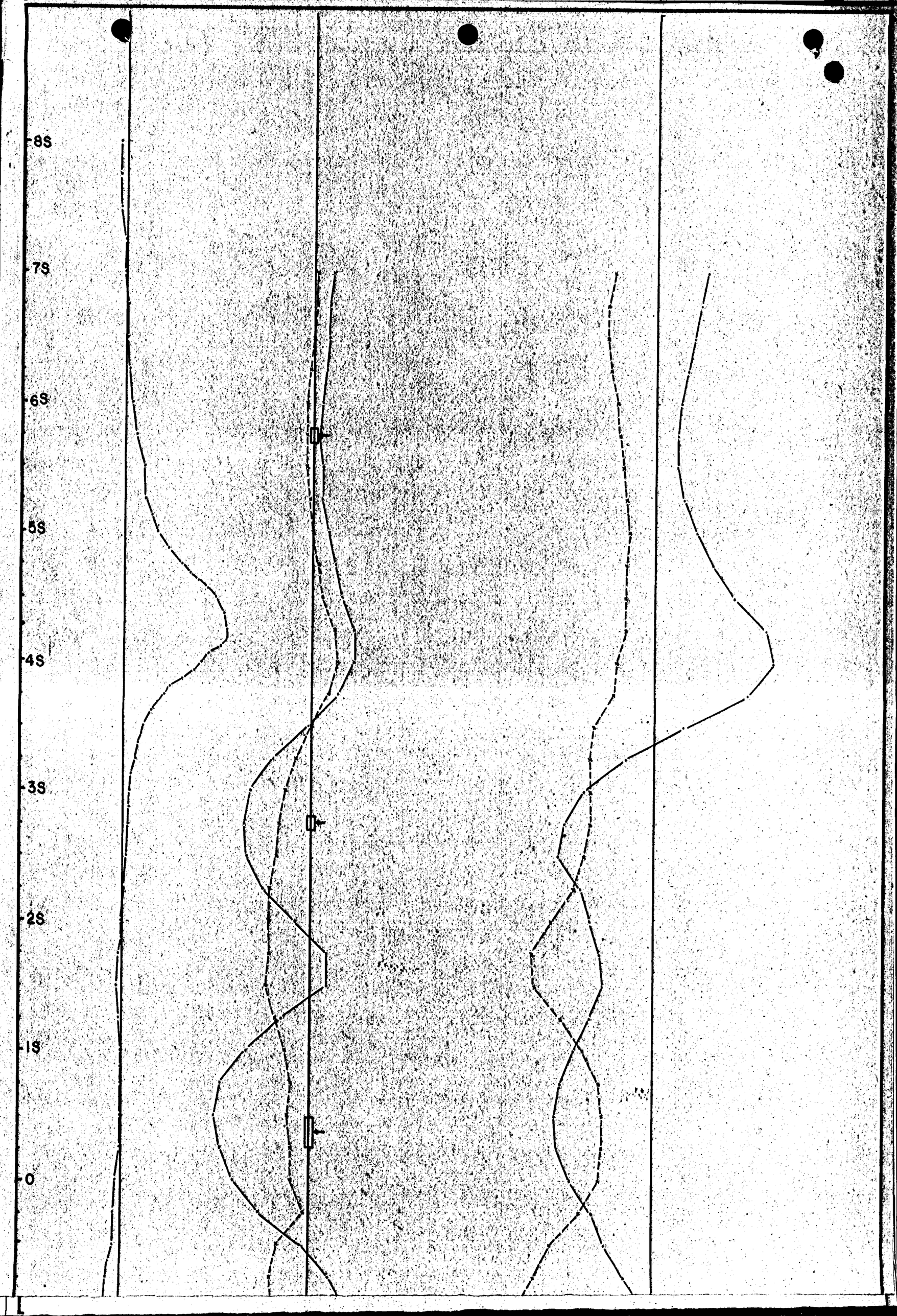
Base Station Location : BL0/L8W

Assigned Value : 58 589 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

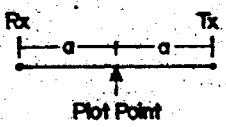
REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 33P Line 4100W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97


8S
7S
6S
5S
4S
3S
2S
1S
0

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
1N
2N
3N
4N
5N
6N
7N
8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component
out of phase component

444 Hz — in phase component
out of phase component

Operator : Mark Gaindon

vertical scale 1cm = 10%

Conductor width

5f mhos — 5/20 — depth in metres

Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

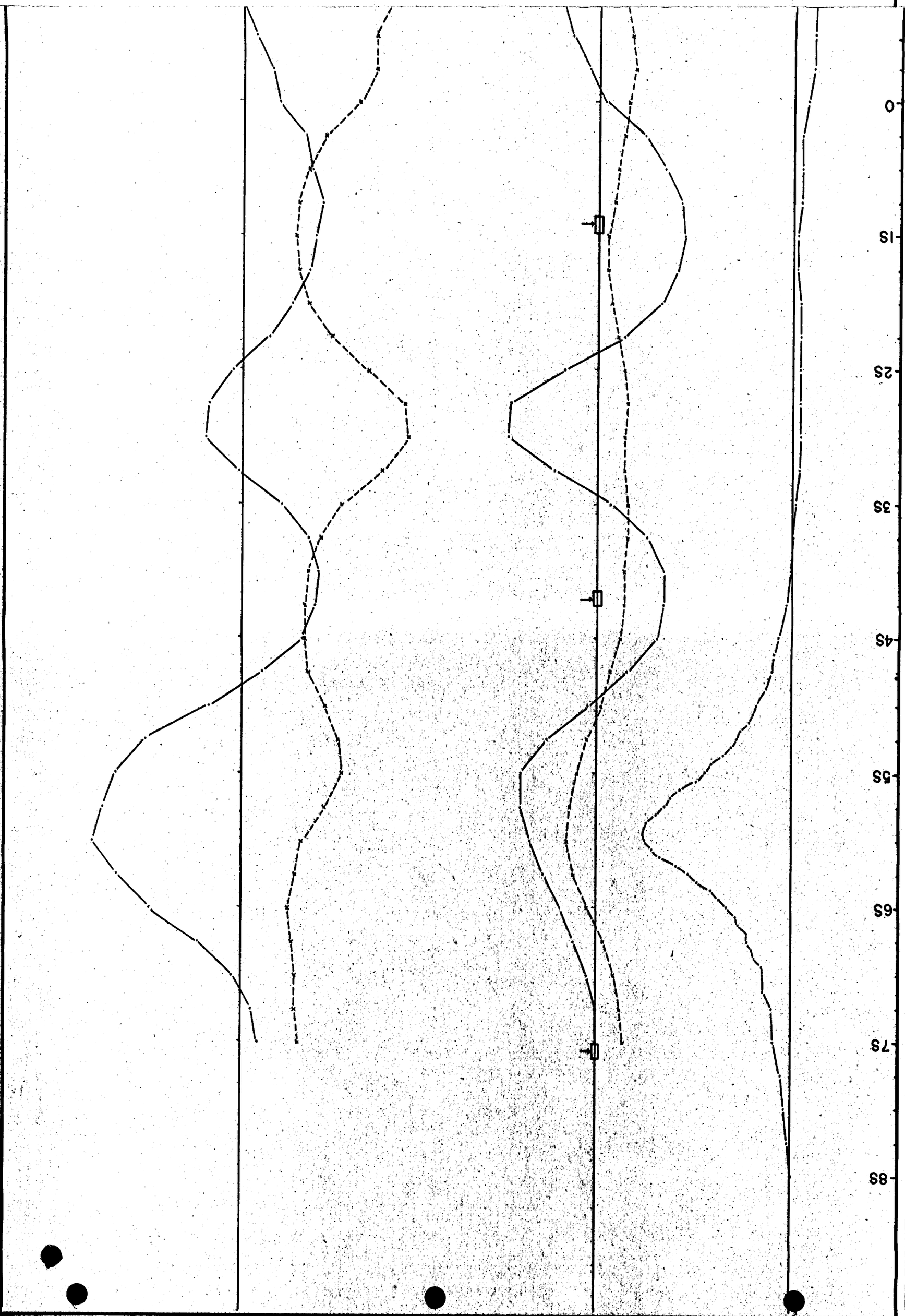
Base Station Location : BL0/L0

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63, 4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 10+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97


0
15
25
35
45
55
65
75
85

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

59 500γ

59 000γ

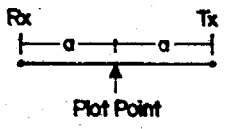
58 500γ

Magnetic Profile

1N 2N 3N 4N 5N 6N 7N 8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

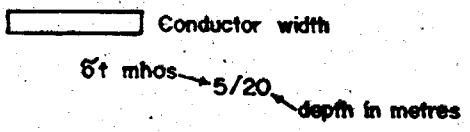
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BLO/LO

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 8400W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97

8S

7S

6S

5S

4S

3S

2S

1S

0

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

59 500 γ

59 000 γ

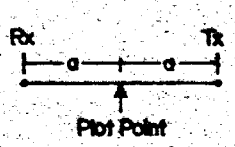
58 500 γ

Magnetic Profile

1N 2N 3N 4N 5N 6N 7N 8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz. in phase component ——————
out of phase component x— — —x

444 Hz in phase component ——————
out of phase component x— — —x

Operator : Mark Giindon

vertical scale 1cm = 10%

Conductor width

5t mhos → 5/20 ← depth in metres

Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BLO / LO

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63 4828

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 9400W		
	Date: MAR 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97

8S

7S

6S

5S

4S

3S

2S

1S

0

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

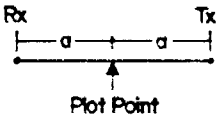
59 500γ
59 000γ
58 500γ

Magnetic Profile

1N 2N 3N 4N 5N 6N 7N 8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

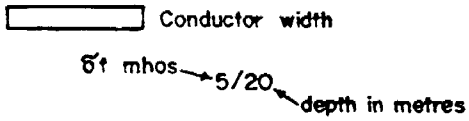
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL0/L0

Assigned Value : 58806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,423

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 6+00W		
	Date: MAR. 1985	Scale: 1·2500	N.T.S.:
	Drawn:	Approved:	File: M-97

8S 7S 6S 5S 4S 3S 2S 1S 0

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

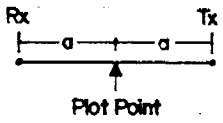
59 500γ
59 000γ
58 500γ

Magnetic Profile

1N 2N 3N 4N 5N 6N 7N 8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

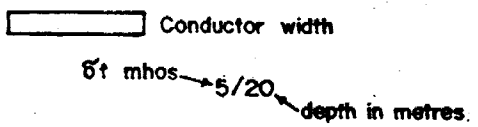
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

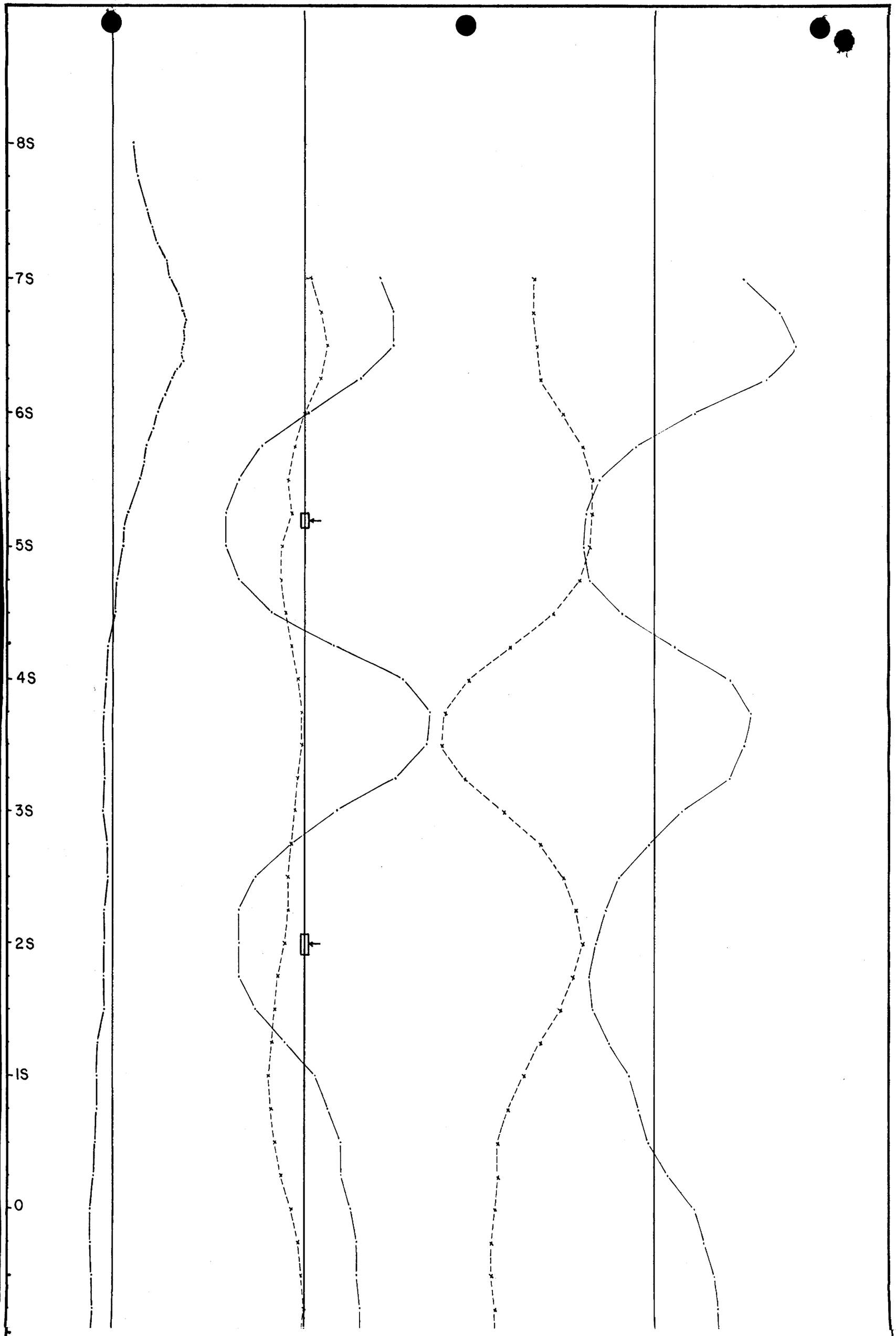
Base Station Location : BLO / LO

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 7+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97


8S
7S
6S
5S
4S
3S
2S
1S
0

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

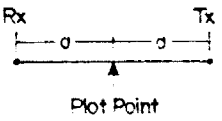
59 500γ
59 000γ
58 500γ

Magnetic Profile

1N 2N 3N 4N 5N 6N 7N 8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component
out of phase component

444 Hz — in phase component
out of phase component

Operator : Mark Guindon

vertical scale 1cm = 10%

Conductor width

δt mhos → 5/20 ← depth in metres

Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

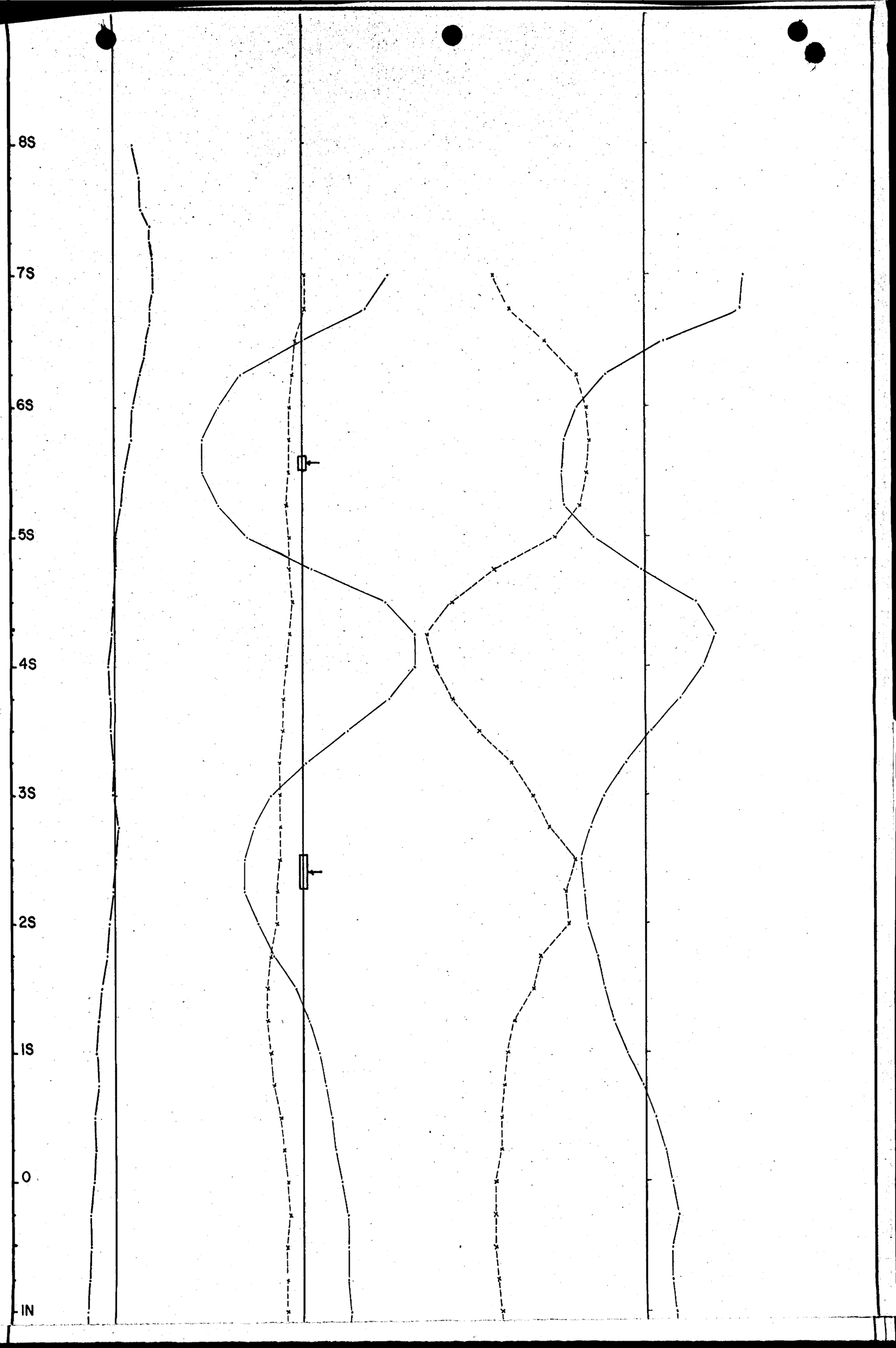
Base Station Location : BLO / LO

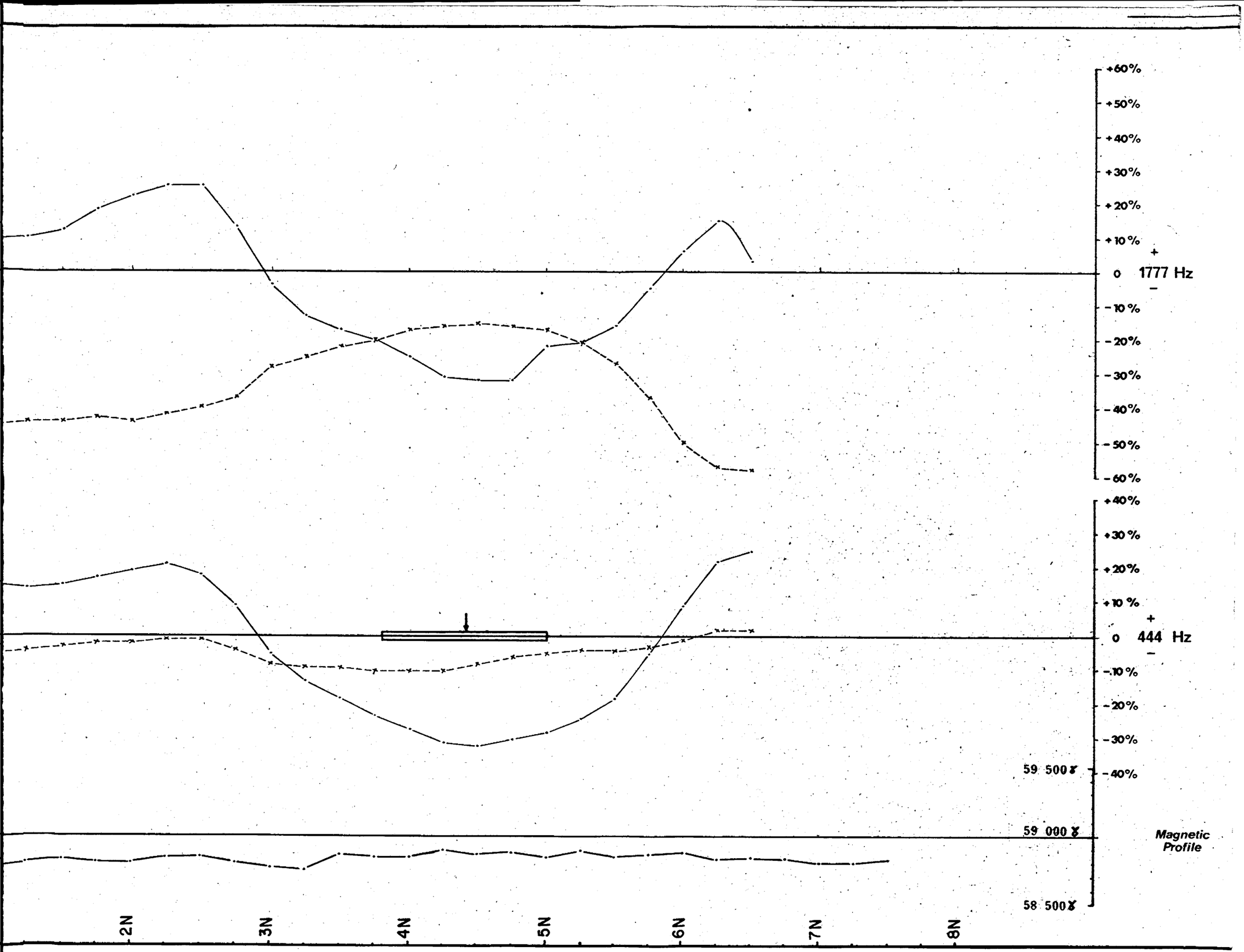
Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

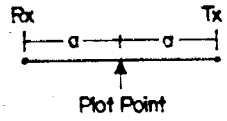
REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 5+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97


8S
7S
6S
5S
4S
3S
2S
1S
0
1N


+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
2N
3N
4N
5N
6N
7N
8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

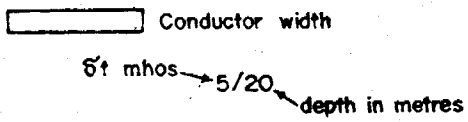
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·———·
out of phase component x— — —x

444 Hz — in phase component ·———·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : GSM - 8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

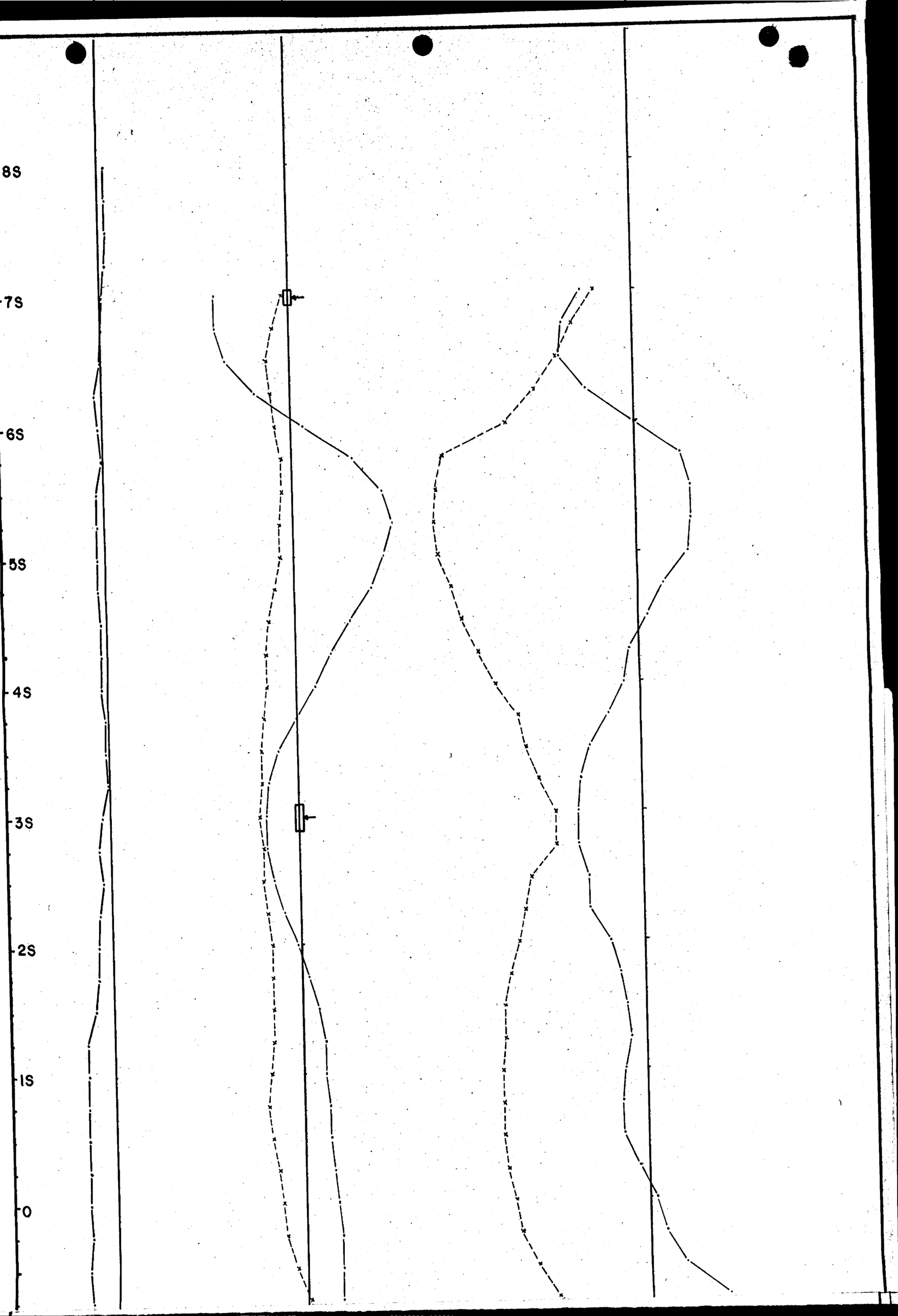
Base Station Location : BL0 / L0

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,4220

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 4+00W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M - 97


8S
7S
6S
5S
4S
3S
2S
1S
0

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz.
−
-10%
-20%
-30%
-40%

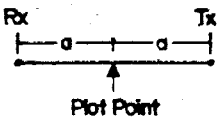
59 500γ
59 000γ
58 500γ

Magnetic Profile

1N 2N 3N 4N 5N 6N 7N 8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

Coil Separation : 200 m.

Frequency 1777 Hz — in phase component
out of phase component

444 Hz — in phase component
out of phase component

Operator : Mark Guindon

vertical scale 1cm = 10%

Conductor width

5t mhos — 5/20 — depth in metres

Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BLO / LO

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 2+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97

8S

7S

6S

5S

4S

3S

2S

1S

0

+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%

+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%

59 500γ

59 000γ

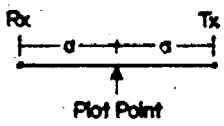
58 500γ

Magnetic Profile

1N 2N 3N 4N 5N 6N 7N 8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

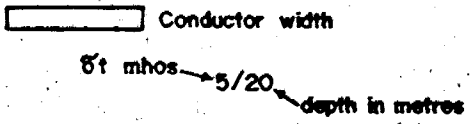
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

Base Station Location : BL0/L0

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63,48.20

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 3+00W		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-97

8S

7S

6S

5S

4S

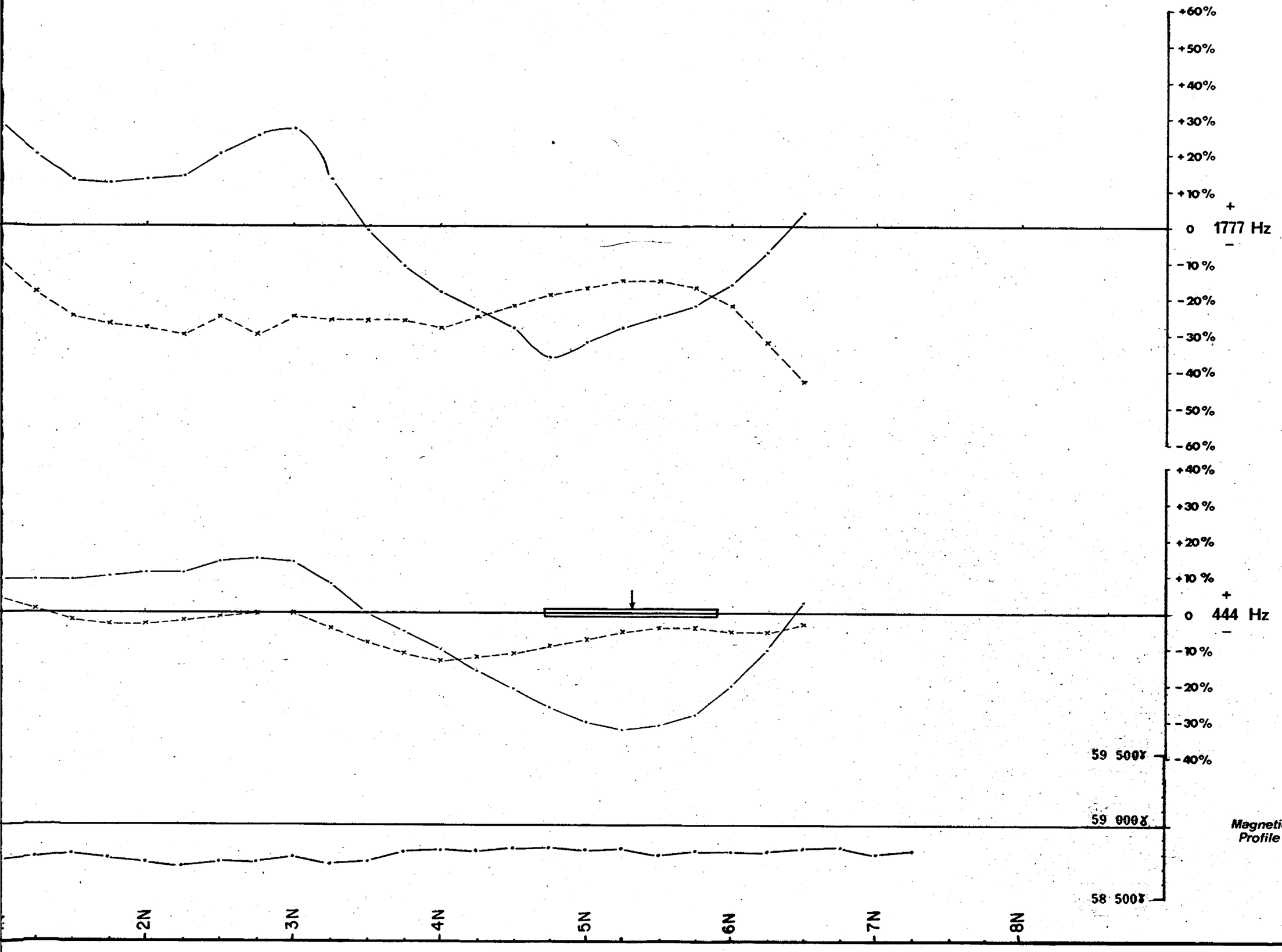
3S

2S

1S

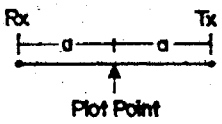
0

1N


+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
2N
3N
4N
5N
6N
7N
8N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

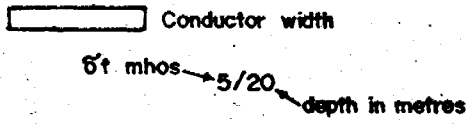
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

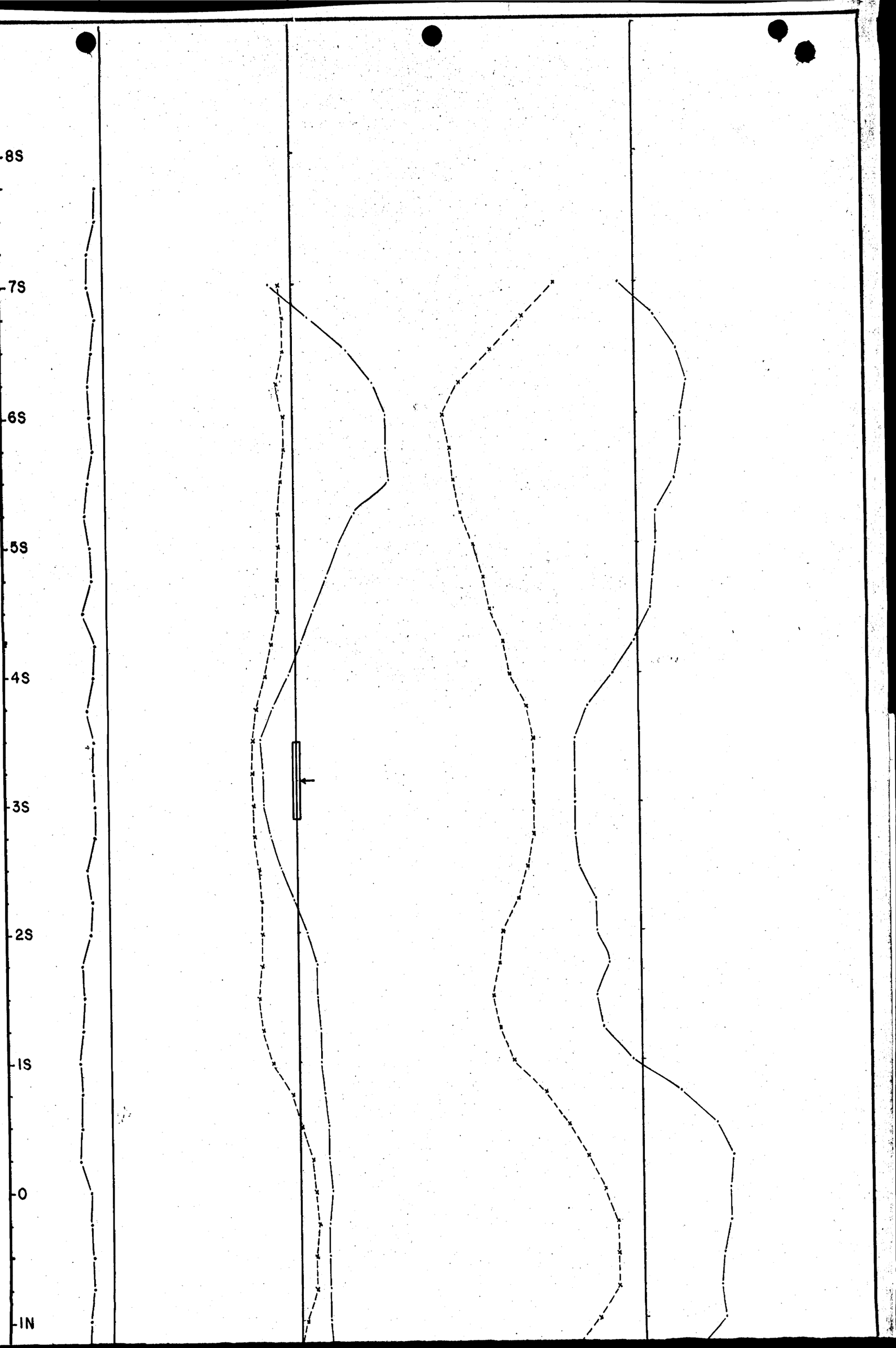
Base Station Location : BLO/LO

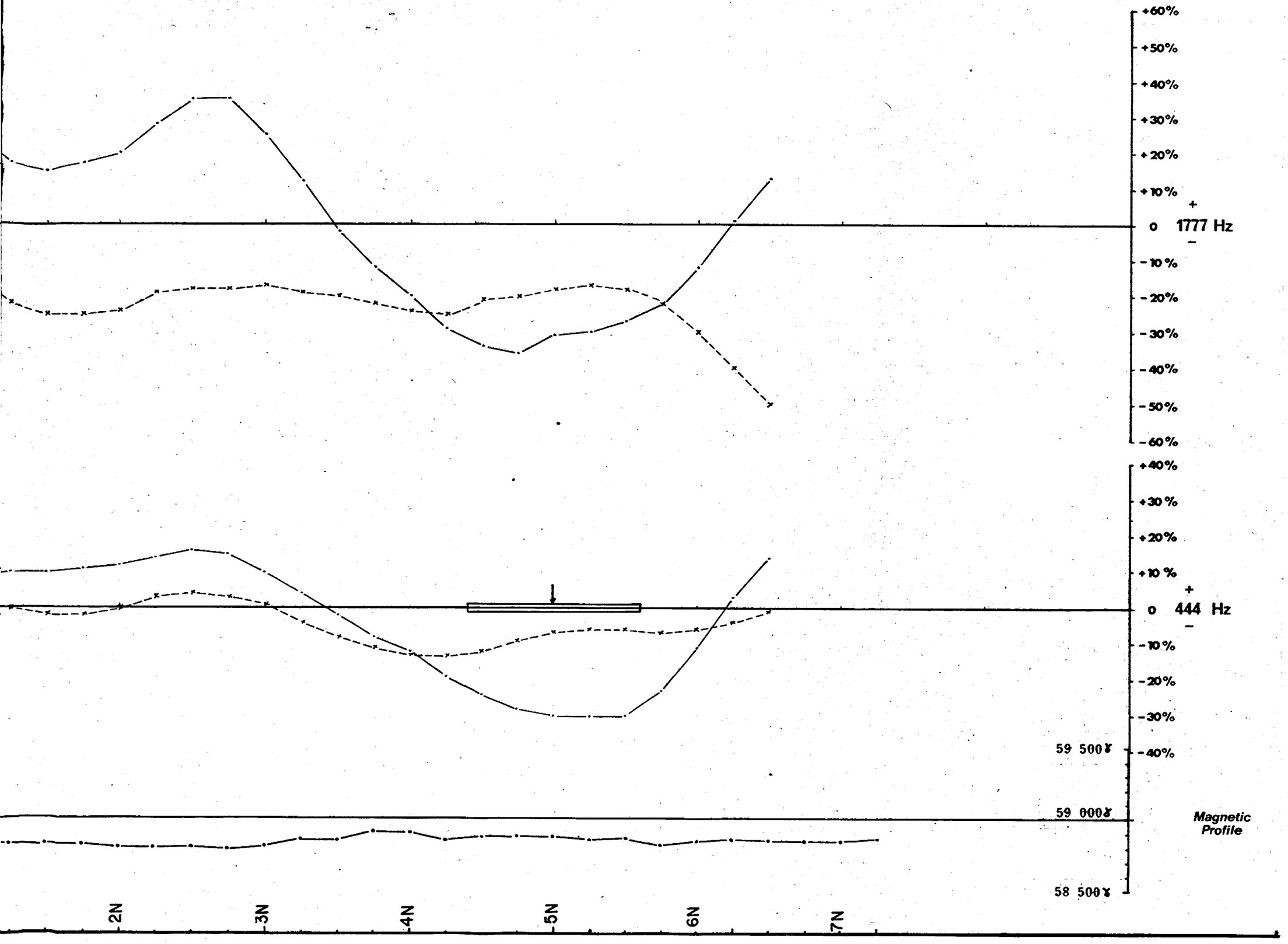
Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

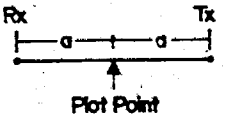
REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 01:00		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97


8S
7S
6S
5S
4S
3S
2S
1S
0
1N


+60%
+50%
+40%
+30%
+20%
+10%
+
0 1777 Hz
−
-10%
-20%
-30%
-40%
-50%
-60%
+40%
+30%
+20%
+10%
+
0 444 Hz
−
-10%
-20%
-30%
-40%
59 500γ
59 000γ
58 500γ
Magnetic Profile
2N
3N
4N
5N
6N
7N

Geophysical Profile

Horizontal Loop EM



Instrument : APEX MAX MIN II+

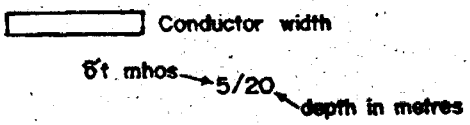
Coil Separation : 200 m.

Frequency 1777 Hz — in phase component ·————·
out of phase component x— — —x

444 Hz — in phase component ·————·
out of phase component x— — —x

Operator : Mark Guindon

vertical scale 1cm = 10%



Magnetometer

Instrument : GSM-8
Proton Precession Magnetometer

Operator : John Penttinen

vertical scale 1cm = 100 gammas (nT)

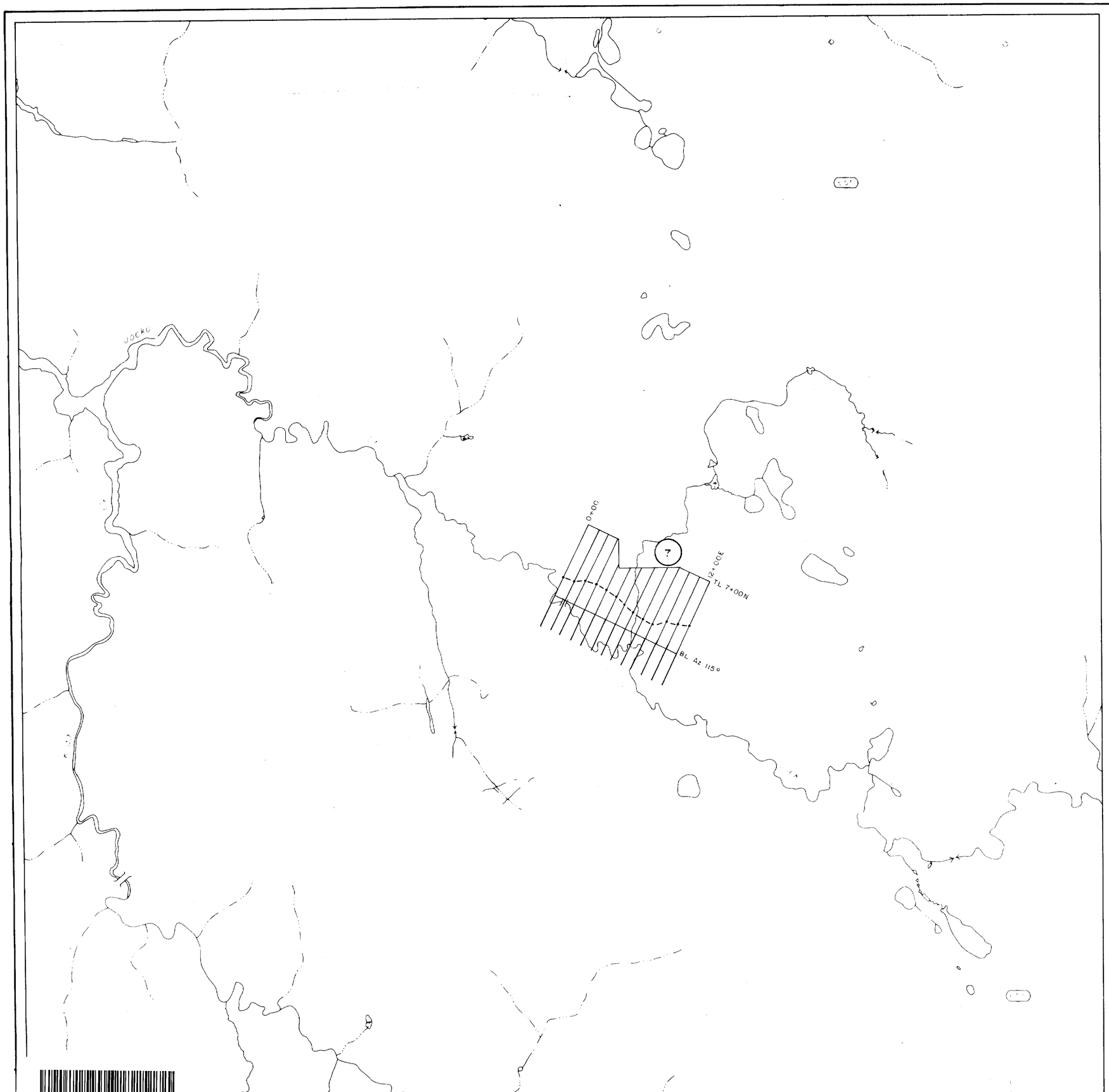
Base Station Location : BL0 / L0

Assigned Value : 58 806 gammas (nT)

Plotted values are Total Field values in gammas (nT)

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Township Grid 19K Line 1400W		
	Date: MAR. 1985	Scale: 1 2500	N.T.S.:
	Drawn:	Approved:	File: M-97



LEGEND

-•- Strong Conductor

---- Weak Conductor

ROBERT S. MIDDLETON EXPLORATION SERVICES INC.

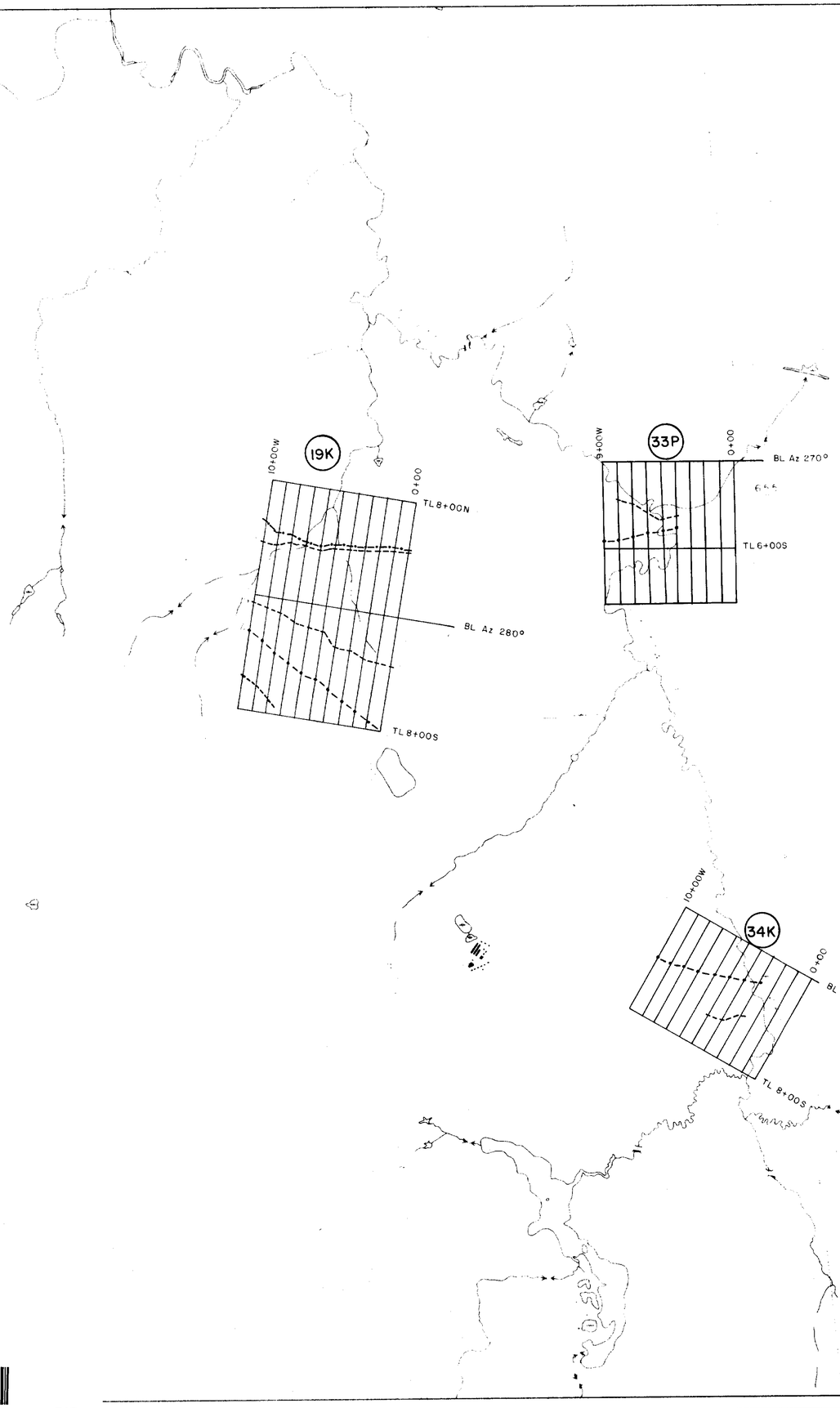
FOR: Chevron Canada Resources Limited
Minerals Staff

CARNEGIE TOWNSHIP
MAX MIN II+ ANOMALIES

63.4820

FIGURE No 2		PROJECT No	
DATE APRIL, 1985	REVISIONS		SCALE 1:20000
NTS No 42A			FILE No M-97
COMPILED BY			

42A14SW0039 63.4820 CRAWFORD



N

LEGEND

—•— Strong Conductor
---- Weak Conductor

ROBERT S. MIDDLETON EXPLORATION SERVICES INC.

FOR: Chevron Canada Resources Limited
Minerals Staff

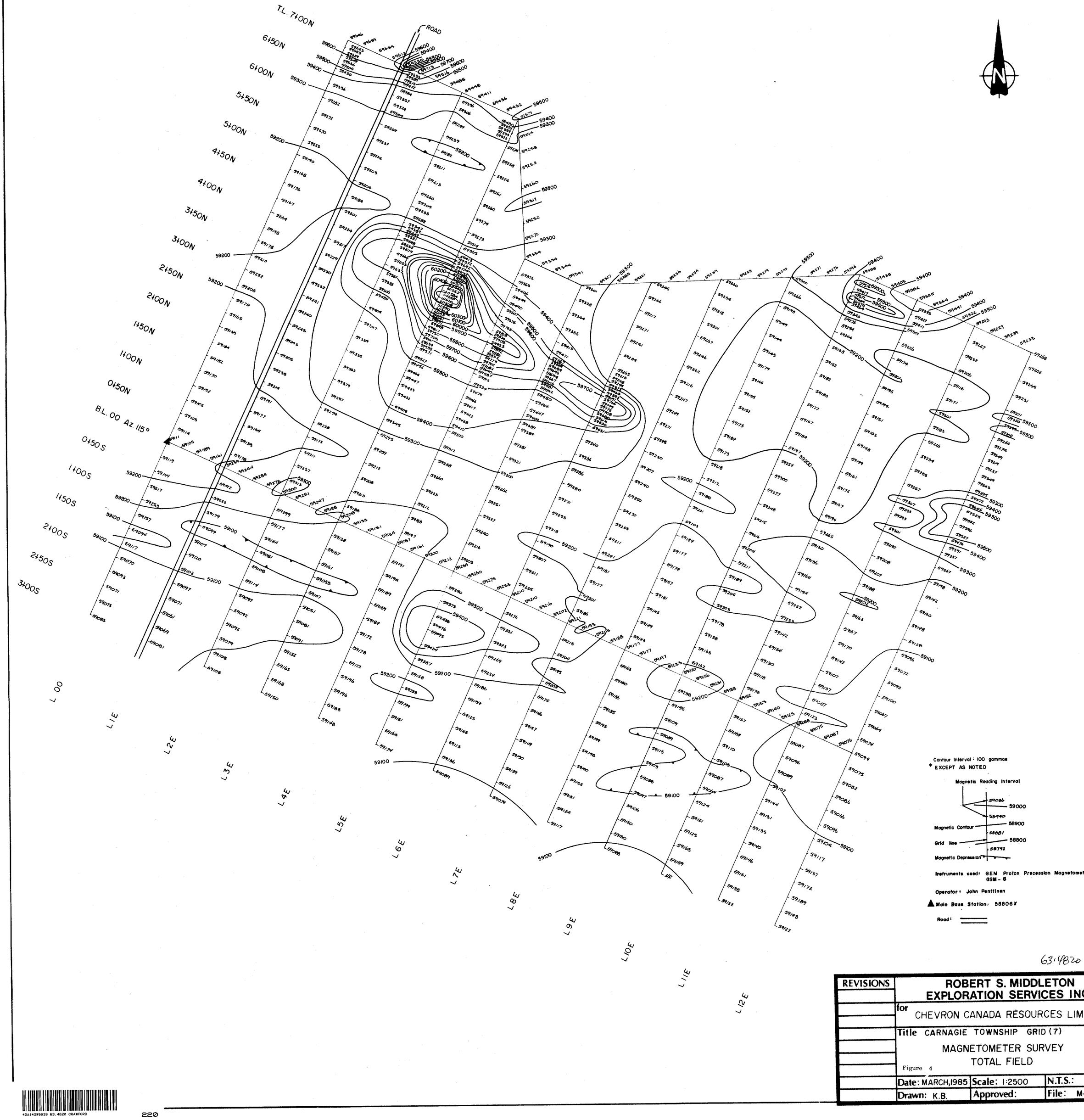
CRAWFORD TOWNSHIP

MAX MIN II⁺ ANOMALIES

63.4820

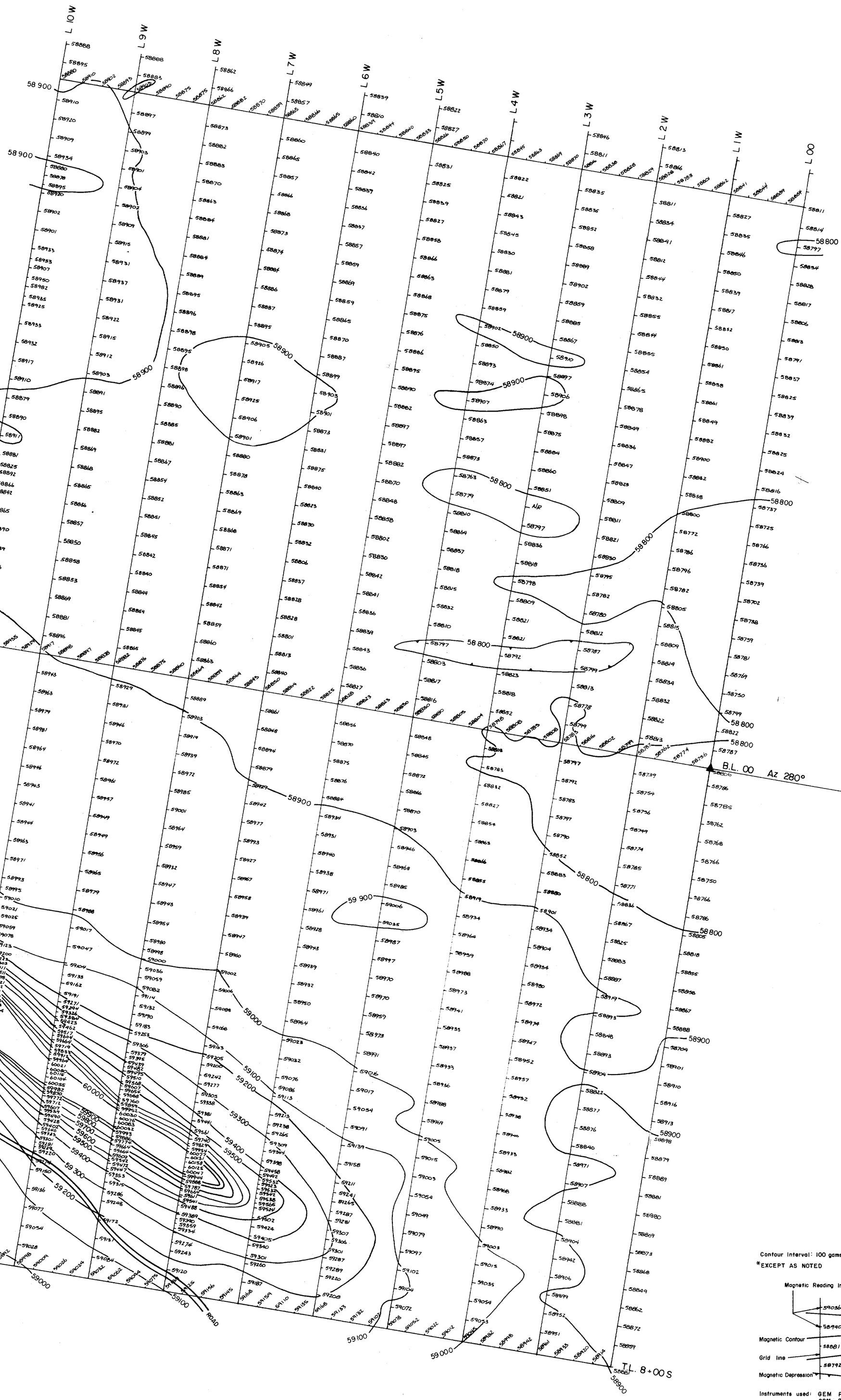
FIGURE No. 3		PROJECT No	
DATE APRIL 1985			SCALE 1:20,000
			FILE No M - 97

42A14SW0039 63.4820 CRAWFORD



63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title CARNAGIE TOWNSHIP GRID (7) MAGNETOMETER SURVEY TOTAL FIELD		
	Figure 4		
	Date: MARCH, 1985	Scale: 1:2500	N.T.S.:
	Drawn: K.B.	Approved:	File: M-97



Contour Interval: 100 gammas
*EXCEPT AS NOTED

Magnetic Reading Interval

Magnetic Contour

Grid line

Magnetic Depression

Instruments used: GEM Proton Precession Magnetometer
GSM-8

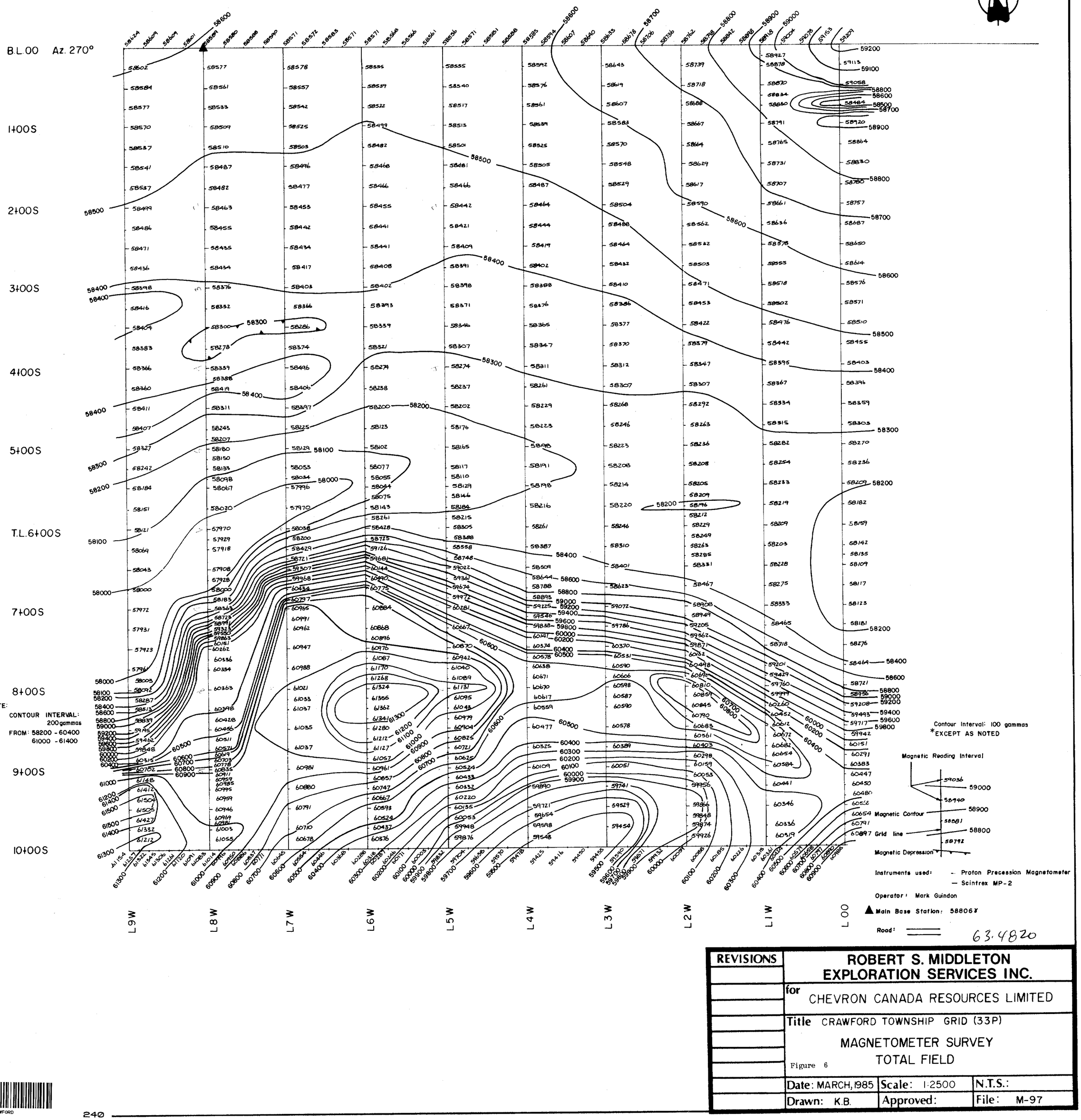
Operator: John Penttinen

▲ Main Base Station: 58806Y

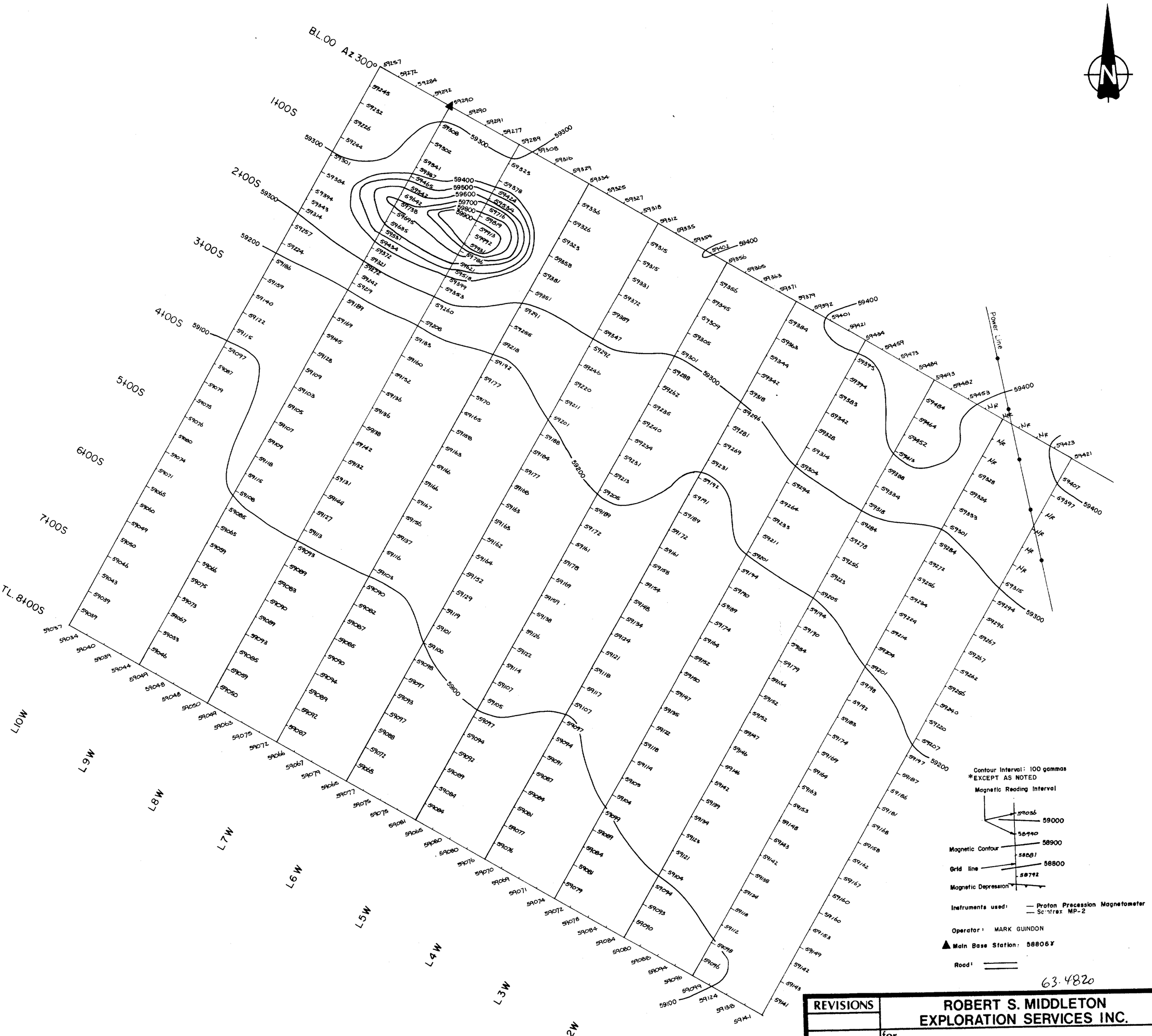
Road:

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title CRAWFORD TOWNSHIP GRID (19K) MAGNETOMETER SURVEY TOTAL FIELD Figure 5		
	Date: MAR. 1985	Scale: 1:2500	N.T.S.:
	Drawn: K.B.	Approved:	File: M-97

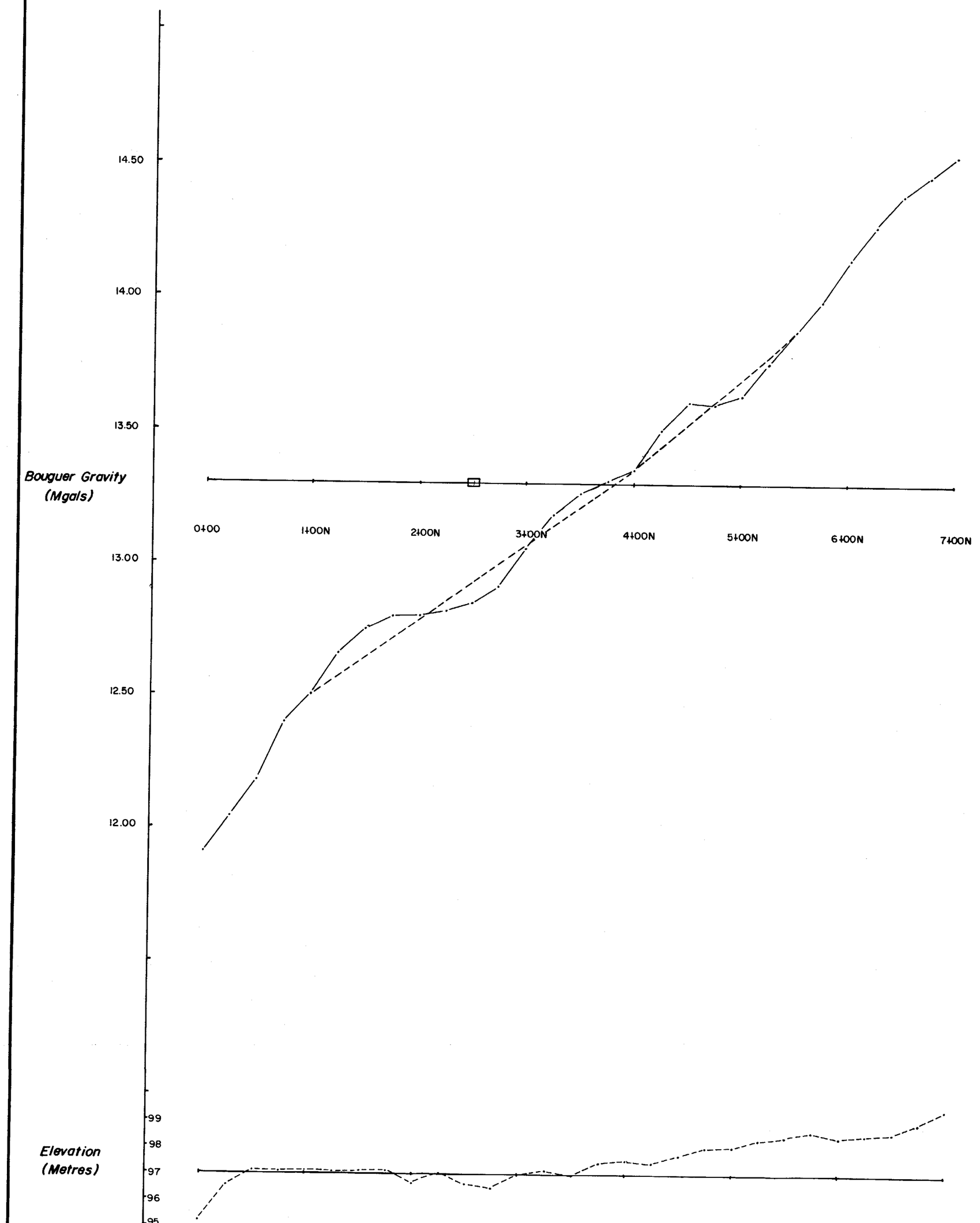


REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title CRAWFORD TOWNSHIP GRID (33P) MAGNETOMETER SURVEY TOTAL FIELD Figure 6		
	Date: MARCH, 1985	Scale: 1:2500	N.T.S.:
	Drawn: K.B.	Approved:	File: M-97



63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title CRAWFORD TOWNSHIP GRID (34K) MAGNETOMETER SURVEY TOTAL FIELD		
	Figure 7		
	Date: MARCH, 1985	Scale: 1:2500	N.T.S.:
	Drawn: K.B.	Approved:	File: M-97



Bouguer Gravity

Instrument: LACOSTE-ROMBERG

Operator: C.Hunter; D.Duba

Gravity Scale: 1 cm = 0.10 Mgals

Horizontal Scale: 1 cm = 25m

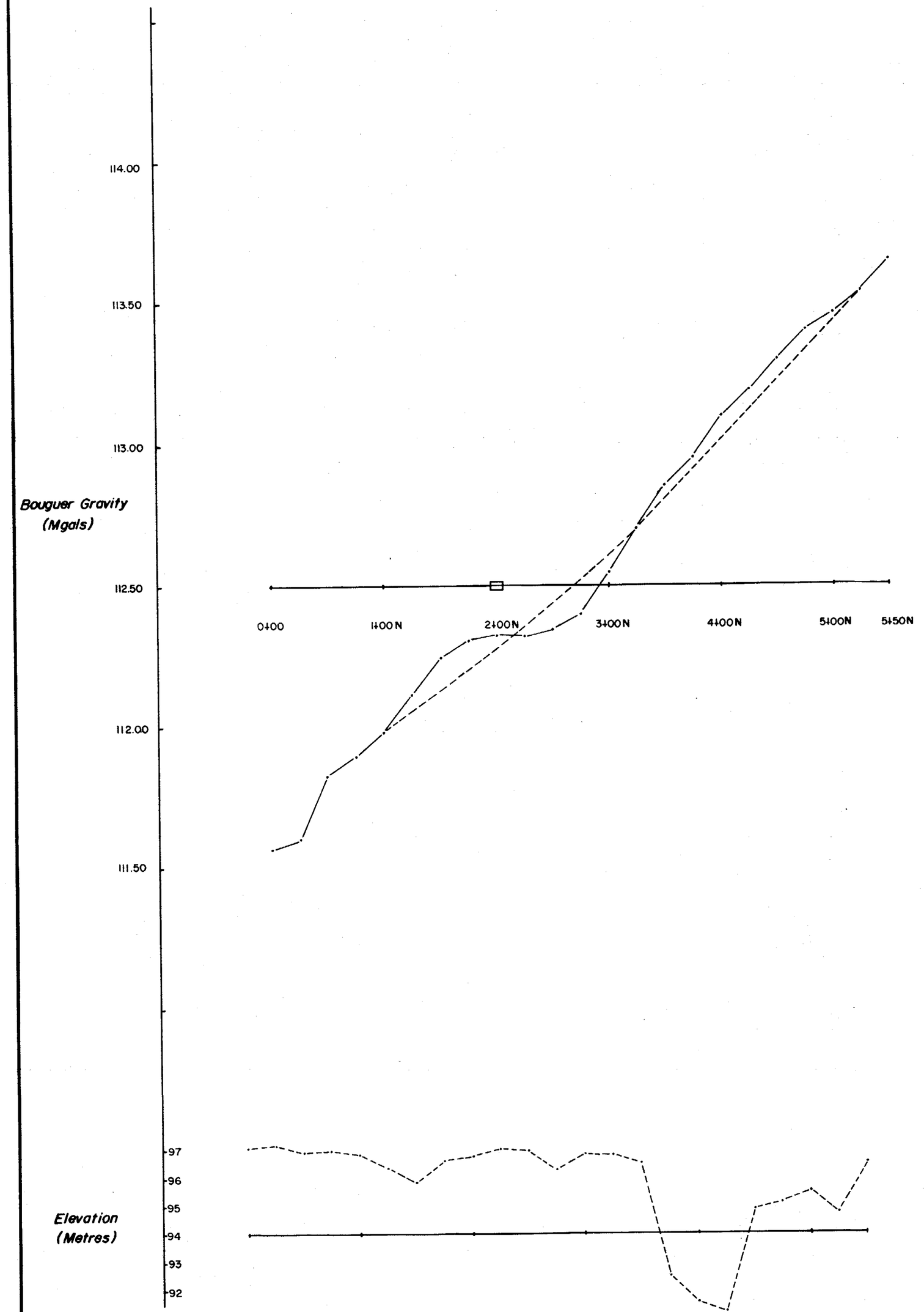
Density Plotted: $\rho = 2.67 g/cm^3$

Regional Profile – – –

EM Anomaly ⊏⊐

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Carnegie Twp. Grid 7 Line 2400E		
	Date: APRIL, 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-99



Bouguer Gravity

Instrument: LACOSTE- ROMBERG

Operator: C.Hunter ; D. Duba

Gravity Scale: 1 cm = 0.10 Mgals

Horizontal Scale: 1 cm = 25m

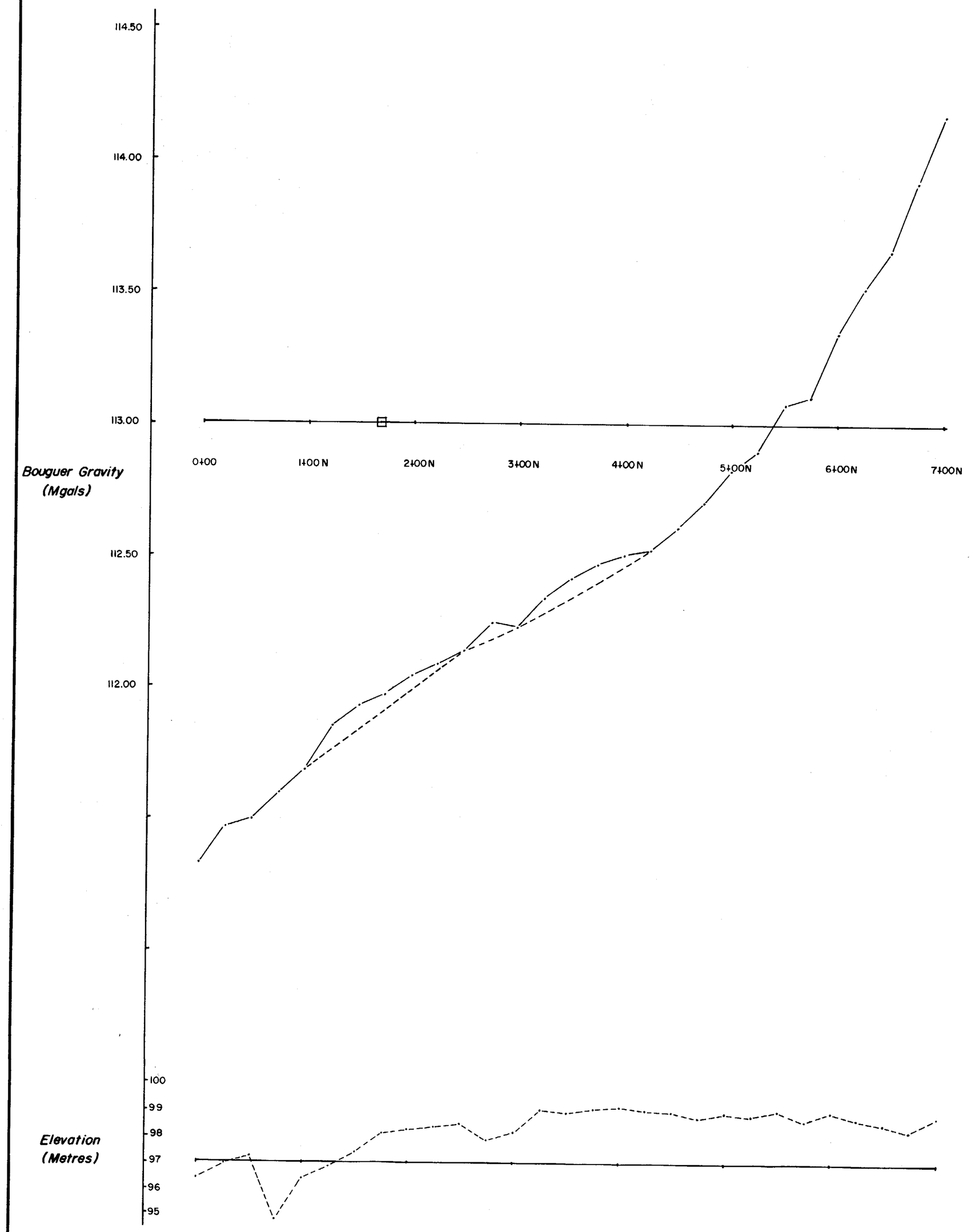
Density Plotted: $\rho = 2.67 g/cm^3$

Regional Profile ----

EM Anomaly ⊏⊐⊏

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Carnegie Twp. Grid 7 Line 6+00E		
	Date: APRIL, 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-99



Bouguer Gravity

Instrument: LACOSTE- ROMBERG

Operator: C. Hunter , D. Duba

Gravity Scale: 1 cm = 0.10 Mgals

Horizontal Scale: 1 cm = 25m

Density Plotted: $\rho = 2.67 g/cm^3$

Regional Profile - - -

EM Anomaly ⊏⊐⊏

63-4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Carnegie Twp. Grid 7 Line 9+00E		
	Date: APRIL, 1985	Scale: 1:2500	N.T.S.:
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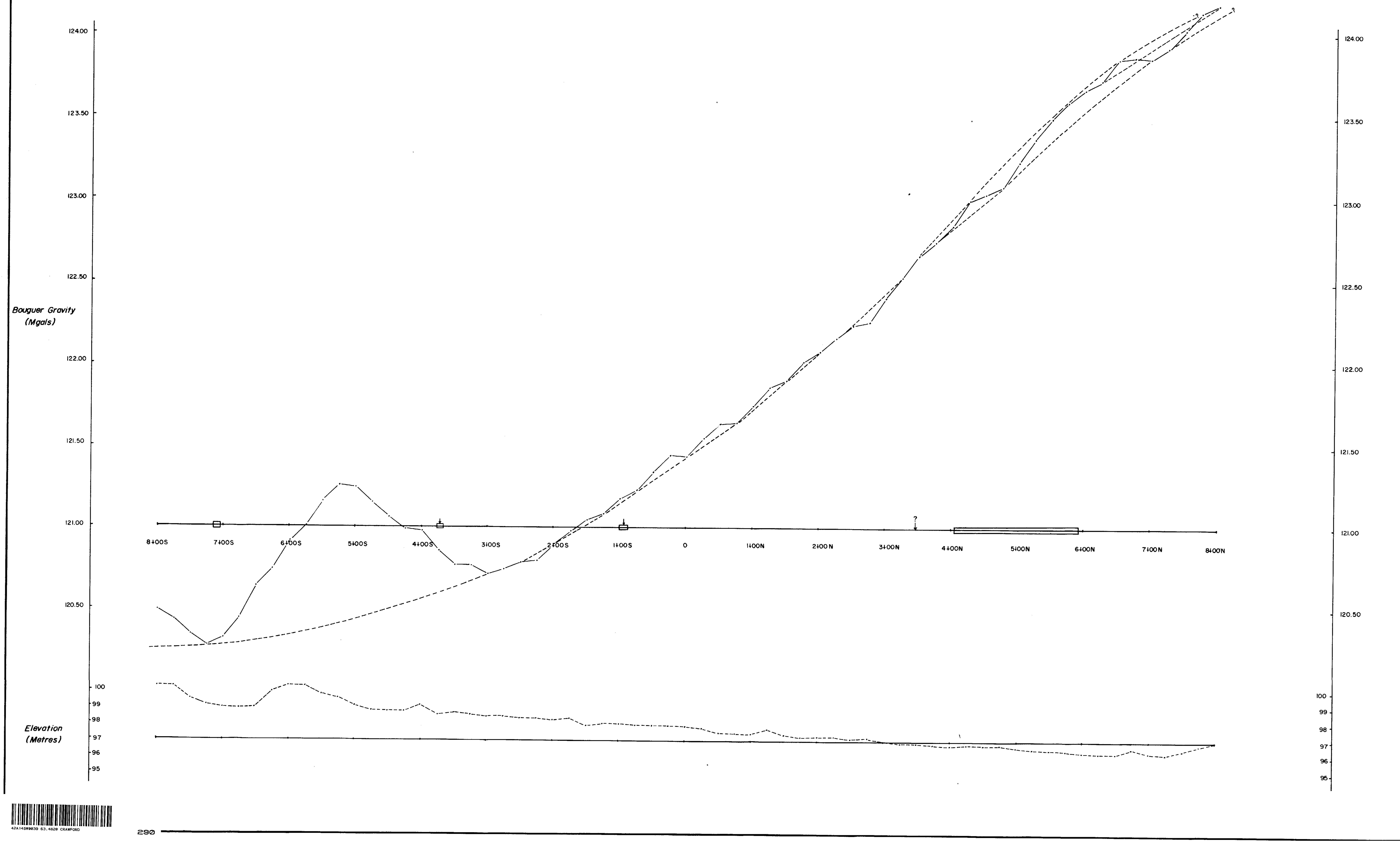


Bouguer Gravity

Instrument: LACOSTE-ROMBERG

Operator: C. Hunter; D. Duba

Gravity Scale: 1 cm = 0.10 Mgals

Horizontal Scale: 1 cm = 25m

Density Plotted: $\rho = 2.67 g/cm^3$

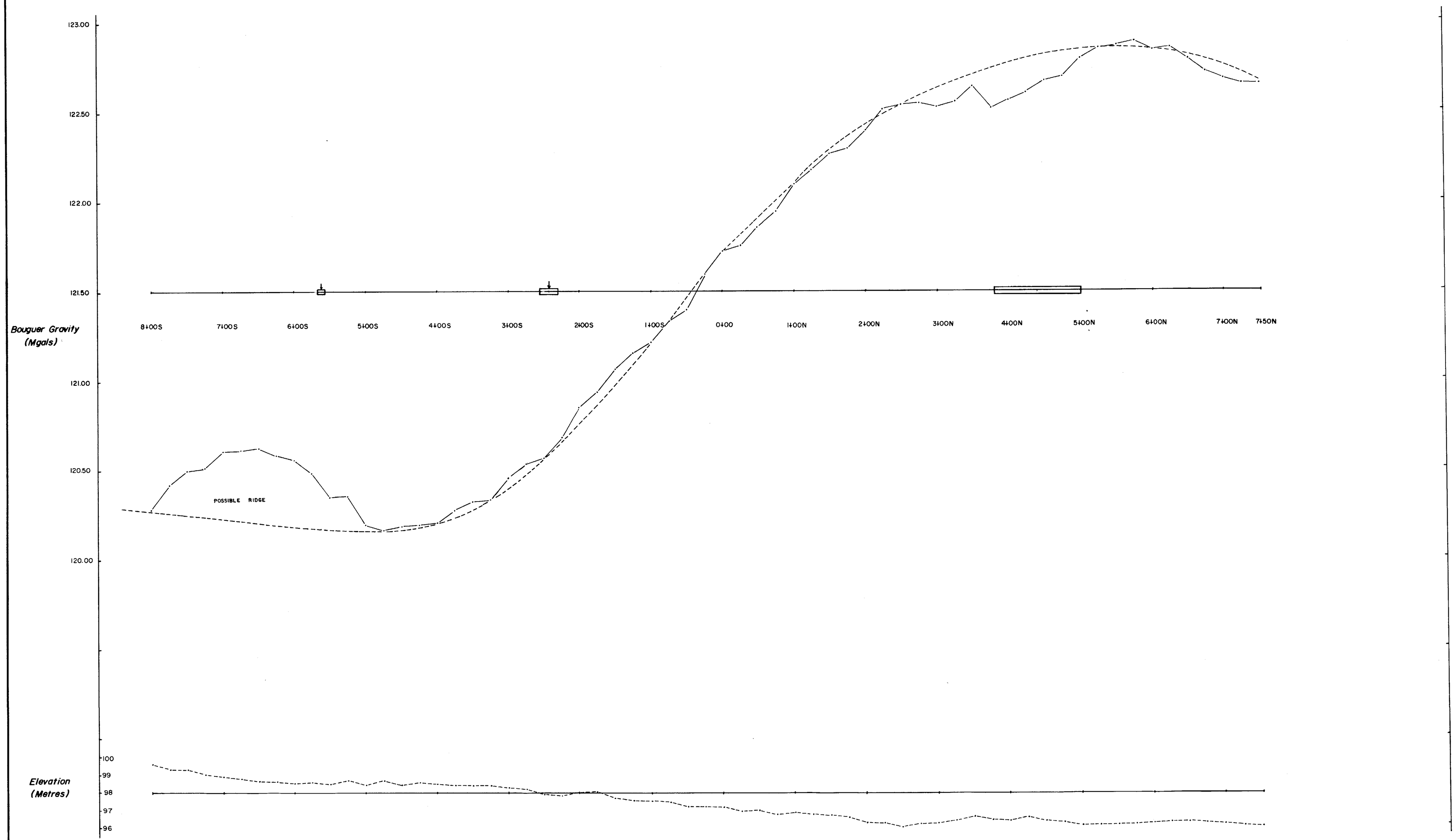
Regional Profile ----

EM Anomaly

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Twp. Grid 19 Line 8+00W		
	Date: APRIL, 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-99

42A14SW0039 63.4820 CRAWFORD



Bouguer Gravity

Instrument: LACOSTE-ROMBERG

Operator: C. Hunter ; D. Duba

Gravity Scale: 1 cm = 0.10 Mgals

Horizontal Scale: 1 cm = 25m

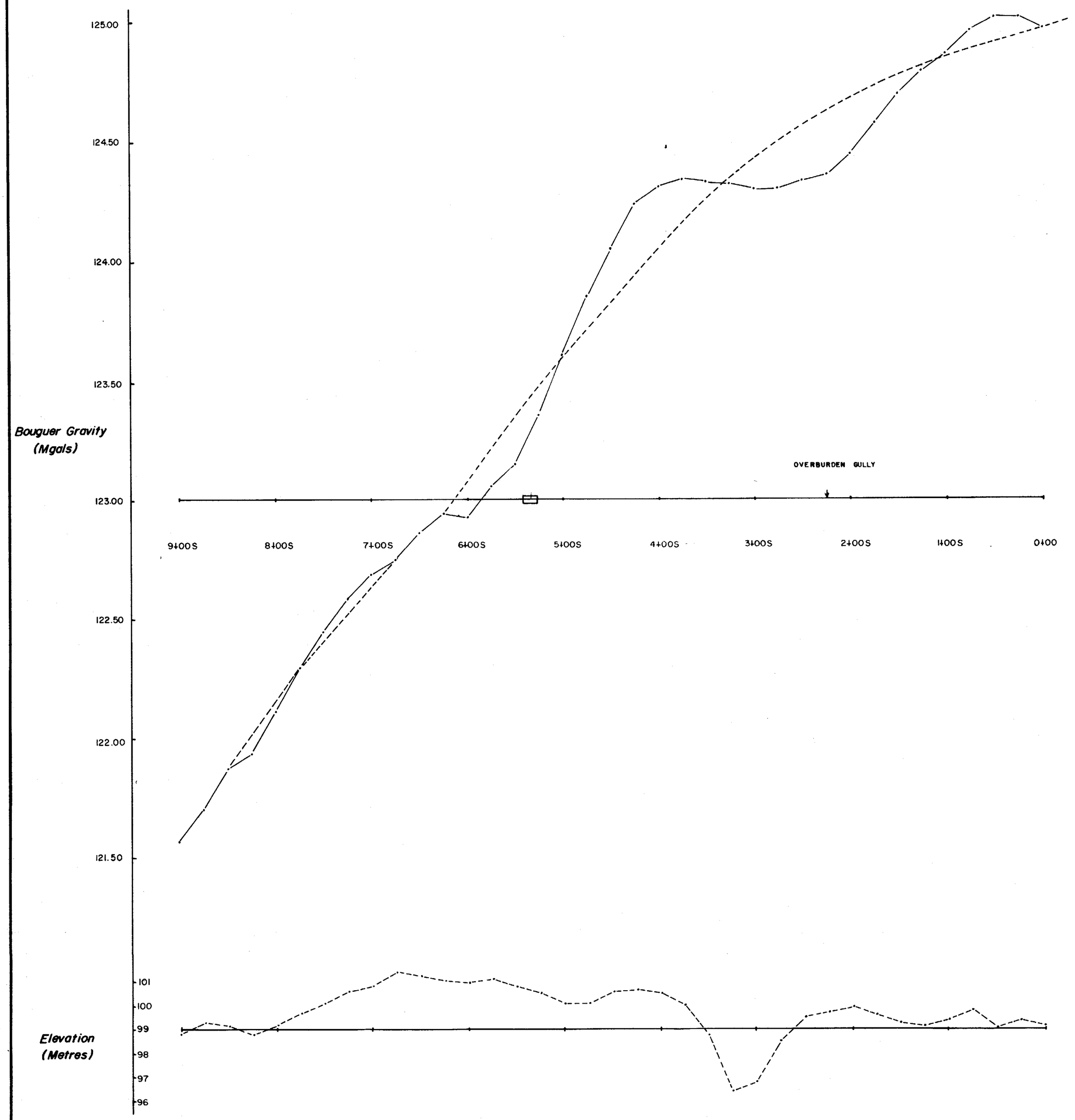
Density Plotted: $\rho = 2.67 g/cm^3$

Regional Profile -----

EM Anomaly ⊏⊐⊏

63-4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Twp. Grid 19 Line 4+00W		
	Date: APRIL, 1985	Scale: 1:2500	N.T.S.:
	Drawn:	Approved:	File: M-99



Bouguer Gravity

Instrument: LACOSTE- ROMBERG

Operator: C. Hunter; D. Duba

Gravity Scale: 1cm = 0.10 Mgals

Horizontal Scale: 1cm = 25m

Density Plotted: $\rho = 2.67 g/cm^3$

Regional Profile ---

EM Anomaly ⊏⊐⊏

63-4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Twp. Grid 33P Line 8+00W		
	Date: APRIL, 1985	Scale: 1:2500	N.T.S.:
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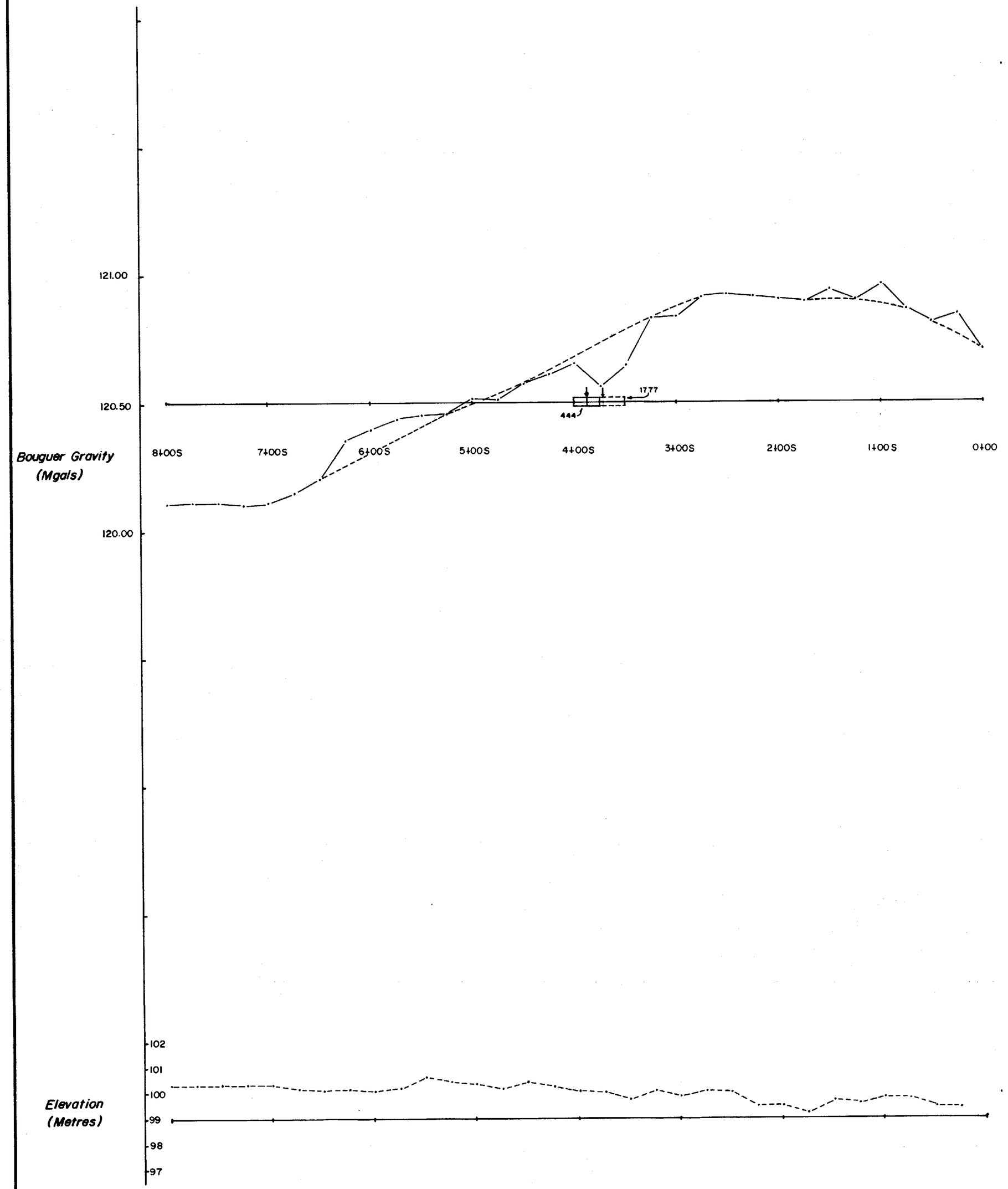

Bouguer Gravity

Instrument: LACOSTE- ROMBERG

Operator: C. Hunter; D. Duba

Gravity Scale: 1 cm = 0.10 Mgals

Horizontal Scale: 1 cm = 25m

Density Plotted: $\rho = 2.67 g/cm^3$

Regional Profile ---

EM Anomaly □□□

EM	GRAV	MAG
14.9	14.9	14.3
20.6	20.6	20.6
12.6	12.8	12.8
10.8	10.8	10.8
		59.1 EM

63.4820

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for CHEVRON CANADA RESOURCES LIMITED		
	Title Crawford Twp. Grid 34K Line 8+00W		
	Date: APRIL, 1985	Scale: 1:2500	N.T.S.:
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