Geophysical Survey Report

covering

3D Borehole Pulse EM Surveys

over the

Shakespeare Property

for

URSA Major Minerals Incorporated.

during

November, 2003

2.30863

by

CRONE GEOPHYSICS & EXPLORATION LTD.

Survey Area:	**Shakespeare Project, Sudbury ,Ontario**
Survey Type:	**3D Borehole Pulse EM Survey**
Holes Surveyed:	**U3-13, U3-20, U3-21, U3-24, U3-27, U3-31, U3-33, U3-37, U3-39, U3-44, U3-46**
Survey Operator:	**Wayne Pearson**
Survey Period:	**Nov. 5- 15 2003**
Report By:	**Kevin Ralph**
Report Date:	**November, 2003**
Submitted To:	**URSA Major Minerals Inc.**

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1 INTRODUCTION

Crone Geophysics and Exploration Ltd. was contracted by URSA Major Minerals Incorporated to conduct a Three Dimensional Pulse Time Domain Electromagnetic (PEM) Borehole survey on its Shakespeare Project, near Sudbury Ontario. The survey was conducted over the interval of November 5- 15, 2003 during which time eleven holes were surveyed. This report outlines the geophysical work performed on this property and presents an interpretation of the results. The appendices to this report contain plan and section maps of all holes, the PEM profiles, the linear profile plots, the step response profiles, and the Crone Instrument Specifications

2 PROPERTY LOCATION AND ACCESS

The Shakespeare Project is located approximately 20 km west of the Sudbury Basin in Ontario. Access to the Project area is by vehicle to the shore of Agnew Lake and by boat from there or via snowmobile across the ice during the winter season.

3 PERSONNEL

The following personnel were involved in the collection of the data and production of this report:

Survey Operator: Wayne Pearson
Data Interpretation: Kevin Ralph

4 SURVEY METHOD & EQUIPMENT

Crone Pulse EM is a time domain electromagnetic method in which a precise pulse of current with a controlled linear shut off is transmitted through a large loop of wire on the ground and the rate of decay of the induced secondary field is measured across a series of time windows during the off-time. The electro-magnetic field (EMF) created by the shutting-off of the current induces eddy currents in nearby conductive material thus setting-up a secondary magnetic field. When the primary field is terminated, this magnetic field will decay with time. The amplitude of the secondary field and the decay rate are dependent on the quality and size of the conductor.

The equipment used on this project was a Crone Pulse EM Borehole and Surface system. This includes a 2.4kW transmitter with a 120V voltage regulator powered by an 4.5 hp motor generator. The Crone Digital Receiver was used to collect the field data. The synchronization between the Transmitter and the Receiver was maintained by crystal clock synchronization for surface work and direct cable sync for borehole work.

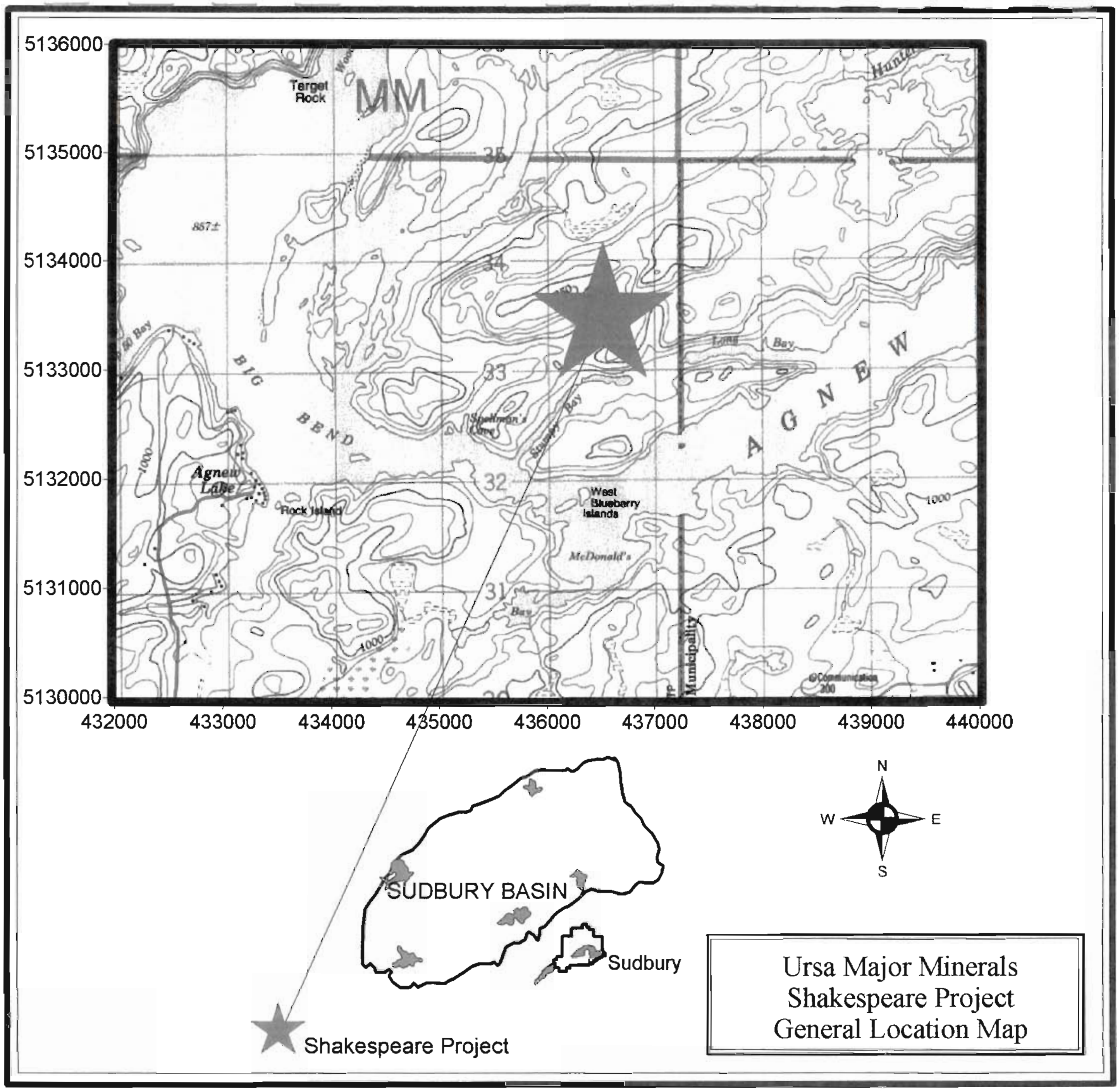


Figure A: General Location Map

On this project, a 3D Borehole Pulse EM survey was conducted in which an axial component (Z) probe and a cross component (XY) probe was used to measure the three components of the induced secondary field. The first pass with the 'Z' probe detects any in-hole or off-hole anomalies and gives information on size, conductivity, and distances to the edge of conductors. The second pass with the 'XY' probe measures two orthogonal components of the EM field in a plane oriented at right angles to the borehole. Therefore these results give directional information to the center of the conductive body.

The rotation of the XY probe was corrected through the use of an orientation tool, so that positive X points in the direction of the hole azimuth and positive Y is horizontal and points to the left of an observer looking down the hole.

In addition to measuring the standard Primary Pulse channel on the ramp and the 20 or 24 off-time channels, the Step Response was also calculated. Step Response requires accurate geometrical control in which the loop position and the hole geometry are accurately determined. Ideally loop geometry is supplied as GPS coordinates while hole geometry is given as Gyroscopic readings. GPS data was collected by the Crone crew utilizing a GPS unit with sub-meter accuracy while the hole deviation data was supplied by the client. Geometric errors are evident in the many of the Step Response profiles and these appear to be due to inaccuracies in the hole geometry.

The calculated Step Response values were binned into an S1 channel (from 0.5T to T), an S2 channel (from 0.25T to 0.5T), an S3 channel (from 0.125T to 0.25T) and an S4 channel (from 0.0625T to 0.125T, where T is the time base). The S1 channel is normalized to the theoretical primary field, while S2, S3 and S4 are normalized to S1.

The following table shows the various time gates, in ms, that constitute the channel configurations set up in the Crone PEM Receiver used in the surveys.

Table 1: Channel Configuration, 20 Channels- 16.66msec Time Base

Channel	Start	Finish	Channel	Start	Finish
PP	-1.982e-04	-9.900e-05	1	4.950e-05	6.299e-05
2	6.299e-05	8.550e-05	3	8.550e-05	1.125e-04
4	1.125e-04	1.531e-04	5	1.531e-04	2.027e-04
6	2.027e-04	2.700e-04	7	2.700e-04	3.600e-04
8	3.600e-04	4.815e-04	9	4.815e-04	6.389e-04
10	6.389e-04	8.505e-04	11	8.505e-04	1.129e-03
12	1.129e-03	1.498e-03	13	1.498e-03	1.993e-03
14	1.993e-03	2.646e-03	15	2.646e-03	3.514e-03
16	3.514e-03	4.666e-03	17	4.666e-03	6.192e-03
18	6.192e-03	8.221e-03	19	8.221e-03	1.091e-02
20	1.091-02	1.440e-02			

Table II: Channel Configuration, 24 Channels- 50 msec Time Base

Channel	Start	Finish	Channel	Start	Finish
PP	-1.982e-04	-9.900e-05	1	4.950e-05	6.299e-05
2	6.299e-05	8.550e-05	3	8.550e-05	1.125e-04
4	1.125e-04	1.531e-04	5	1.531e-04	2.027e-04
6	2.027e-04	2.700e-04	7	2.700e-04	3.600e-04
8	3.600e-04	4.815e-04	9	4.815e-04	6.389e-04
10	6.389e-04	8.505e-04	11	8.505e-04	1.129e-03
12	1.129e-03	1.498e-03	13	1.498e-03	1.993e-03
14	1.993e-03	2.646e-03	15	2.646e-03	3.514e-03
16	3.514e-03	4.666e-03	17	4.666e-03	6.192e-03
18	6.192e-03	8.221e-03	19	8.221e-03	1.091e-02
20	1.091-02	1.440e-02	21	1.440e-02	1.770e-02
22	1.770e-02	2.770e-02	23	2.770e-02	3.770e-02
24	3.770e-02	4.770e-02			

5 SURVEY PARAMETERS

Table III: Borehole Survey Coverage

Hole	Tx loop	Collar Location	Dip	Azimuth	Length Read (meters)	Component
U3-13	1	436501 E - 5133469 N	75	152	20 - 280	X ,Y, Z
U3-20	1a	436355 E – 5133364 N	60	154	20 - 210	X ,Y, Z
U3-21	1	436406 E – 5133398 N	65	148	20 – 205	X ,Y, Z
U3-24	1	436456 E – 5133426 N	72	140	20 – 260	X ,Y, Z
U3-27	1	436567 E – 5133482 N	80	158	20 - 320	X ,Y, Z
U3-31	1	436633 E – 5133601 N	60	148	20 – 260	X ,Y, Z
U3-33	1	436721 E - 5133665 N	64	147	20 - 315	X, Y, Z
U3-37	2	435966 E - 5133136 N	70	152	10 – 130	X, Y, Z
U3-39	2	436072 E - 5133189 N	74	144	10 - 240	X, Y, Z
U3-44	2	435819 E – 5133024 N	85	165	10 – 210	X, Y, Z
U3-46	3	436168 E - 5133265 N	65	148	10 – 180	X, Y, Z

Table IV: Borehole Loop Coverage

Loop	Size	Location	Ramp Time	Current	Time Base
1	~400m x ~600m	436169 E – 5133560 N 436340 E – 5133271 N 436850 E – 5133627 N 436589 E – 5133831 N	1.5 msec	15 amps	50 msec
1a	~400m x ~600m	436169 E – 5133560 N 436340 E – 5133271 N 436850 E – 5133627 N 436589 E – 5133831 N	1.5 msec	15 amps	16.66 msec
2	~ 430m x ~ 400m	435654 E - 5133390 N 435959 E - 5132926 N 436594 E - 5133319 N 436091 E - 5133798 N	1.5 msec	16 amps	50 msec
3	~670m x 400 m	435628 E - 5133330 N 435904 E - 5132907 N 436665 E - 5133385 N 436344 E - 5133853 N	1.5 msec	16 amps	50 msec

6 PRODUCTION SUMMARY

Table V: Production Summary

November 5th, 2003	Traveled to Agnew Lake Area and started to carry borehole gear into the survey area.
November 6th, 2003	Finished bringing gear into the site, laid loop 1 and surveyed XYZ on hole U3-20 and Z component on U3-21.
November 7th, 2003	Surveyed XY on U3-21 and XYZ on U3-13 and U3-24.
November 8th, 2003	Surveyed XYZ on U3-27 and U3-31.
November 9th, 2003	Surveyed XYZ on U3-33 and moved gear to hole U3-37.
November 10th, 2003	Finished moving gear to U3-37 and laid loop #2.
November 11th, 2003	Surveyed XYZ on hole U3-37.
November 12th, 2003	Surveyed XYZ on hole U3-44.
November 13th, 2003	Weather day.
November 14th , 2003	Surveyed XYZ on hole U3-46.
November 15th, 2003	Surveyed XYZ on hole U3-39.

7 INTERPRETATION SUMMARY

Eleven holes were surveyed from three separate transmit loops and in the following discussion of the data the holes have been grouped together on a loop by loop basis, starting with the results of the Loop 1 (loop 1a) survey.

Hole U3-20 was the first hole surveyed and a 16.66msec time base (15Hz base frequency) was utilized resulting in 20 channels of off-time data. The remaining holes were surveyed with a 50msec or (5 Hz base frequency) and this results in 24 channels of off-time data.

U3-13

Near a hole depth of ~175 m a strong in-hole response is evident in this hole. The early time XY response directional vector points above and grid west of the hole, but of much more significance is the late time response, which points towards the conductive center of the body. The late time XY response indicates the conductive center of this body is located grid east of and below the hole.

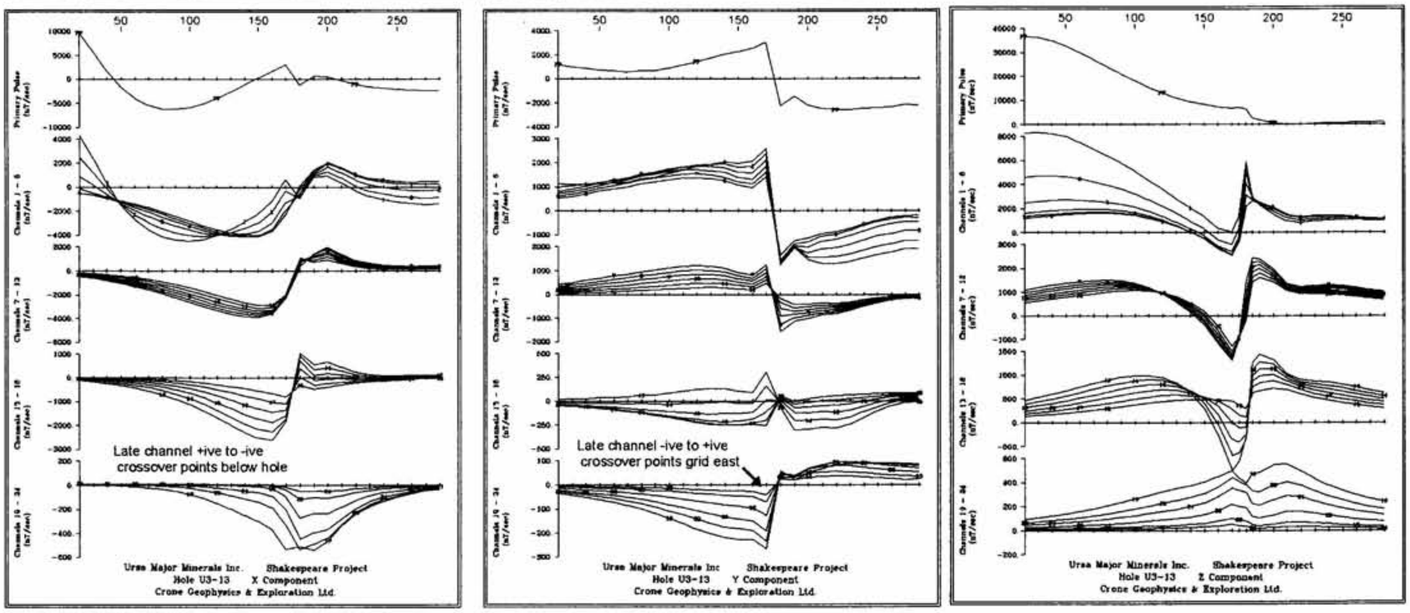


Figure 4: Linear Profile Plots of Hole U3-13

Summary of Holes U3-20, U3-21, U3-24 and U3-13

Up to this point in this discussion only the off-time data has been highlighted, and in particular the late off-time data has been used to provide directions to the strongest part of the conductor. Now, I would like to introduce the concept of the Step Response. Very briefly, the Step Response is equivalent to measuring the magnetic field from eddy currents created by a step in the primary magnetic field and is most useful in detecting highly conductive bodies whose eddy currents decay at an extremely slow rate. In this respect then the step response is critical in pinpointing the highest conductance zones which tend to be the highest priority targets in Cu-Ni exploration, and in particular it is the Last Step Channel (S1) which is analyzed for interpreting purposes.

In hole U3-20 and U3-21 there are no appreciable late step response anomalies. In holes U3-24 there is a minor S1 anomaly while in hole U3-13, a clear S1 anomaly on the order of 10% -15 % is now evident (see figure 5). This observation is important here, because what this suggests is that there is an increase in the conductivity of the mineralized zone towards the East, the conductor intersected in hole U3-13 exhibits the highest conductivity of the 4 holes discussed so far.

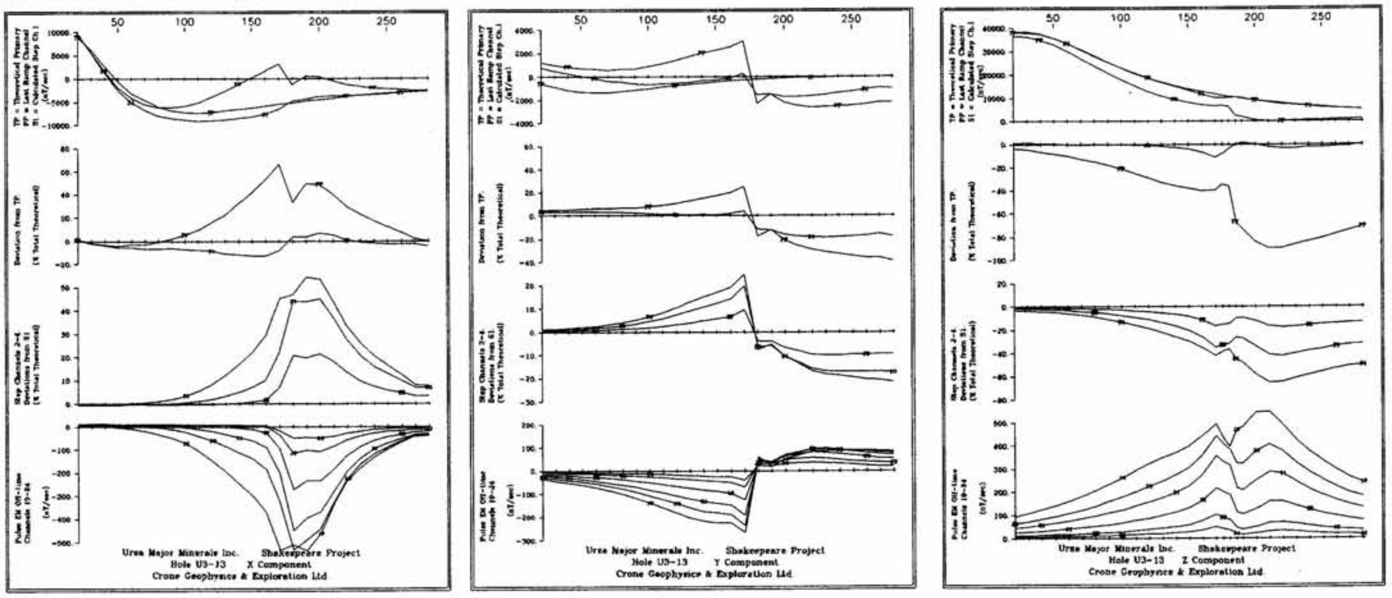


Figure 5: Hole U3-13 Step Response Profiles

All four holes discussed above exhibit strong anomalous response and these responses are interpreted as being due to one large mineralized zone which I will refer to as Conductor 1. An approximate location of this conductor is show in figure 6 along with the dimensions and conductance of the modeled body. Figures 7-10 show the modeling results of these four holes with channels 19 and 20 displayed for hole U3-20 and channels 23-24 displayed for the other holes. Much better fits are obtainable if each hole was modeled on an individual basis, but a reasonable fit to all 4 holes has been obtained with a one plate model, with variations from the modeled results easily explainable by geometric and conductivity variations of the mineralized zone. All holes indicate a below the hole or down-dip direction indicating excellent potential in this direction to increase the extent of the mineralized zone. Another important point to note, and this cannot be depicted in the modeling with a one plate model, but there is an increase in the conductivity of the mineralized zone towards the East, and the significance of this observation should be analyzed closely by the Project geologist.

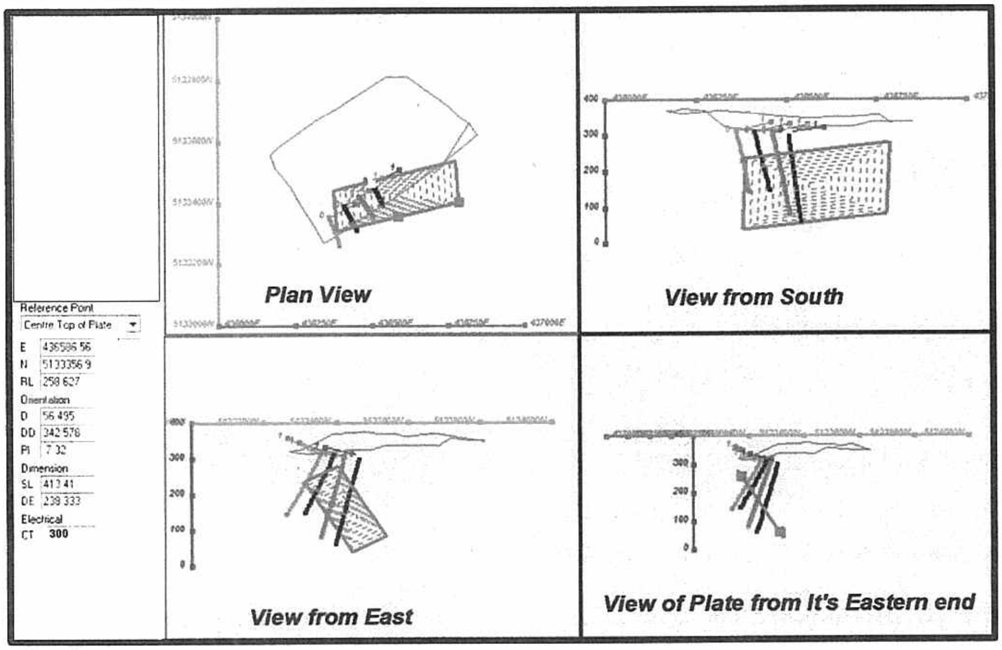


Figure 6: Location of Modeled Conductor #1

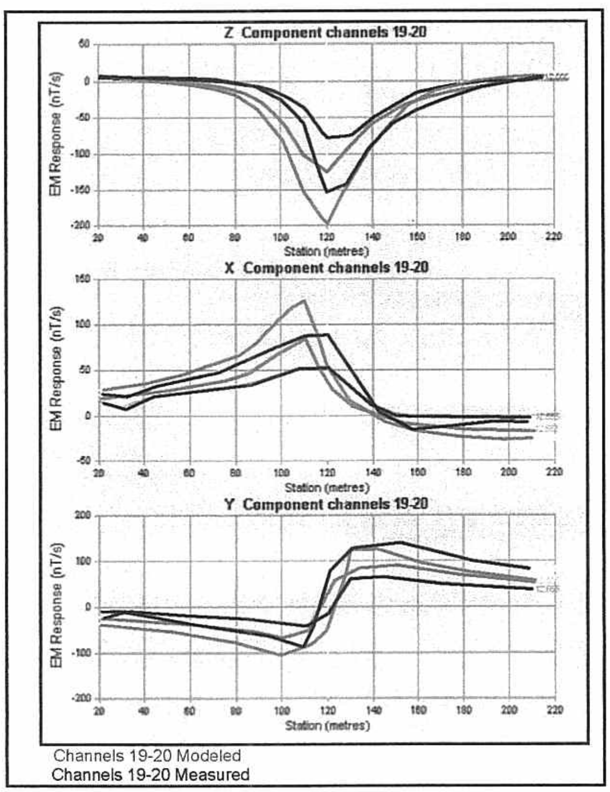


Figure 7: Numerical Modeling Results - Hole U3-20

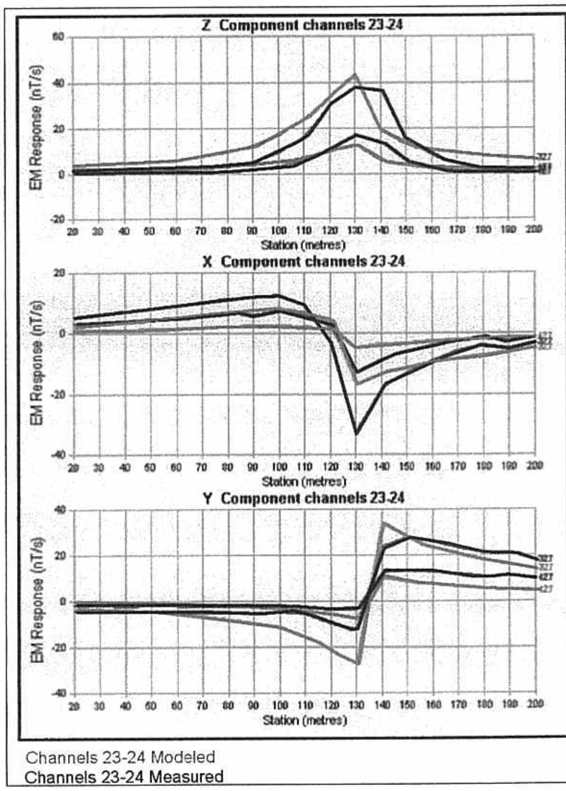


Figure 8: Numerical Modeling Results - Hole U3-21

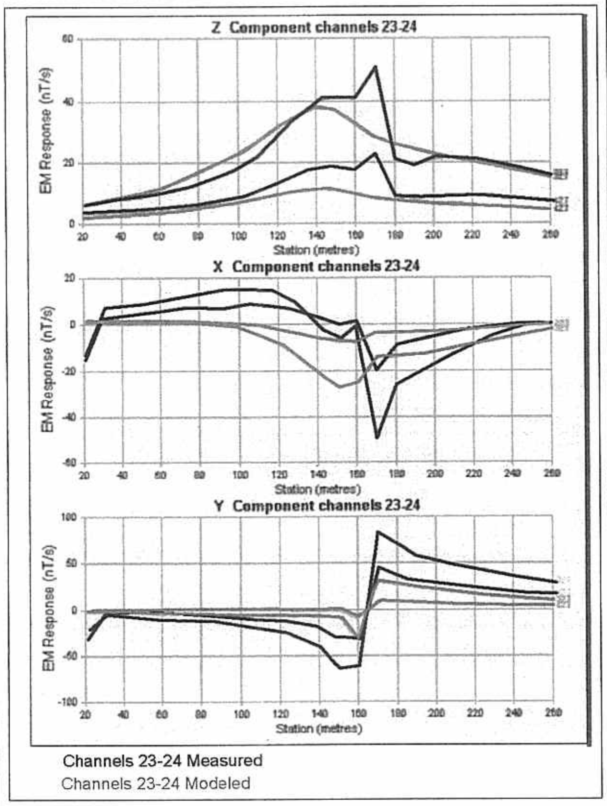


Figure 9: Numerical Modeling Results Hole U3-24

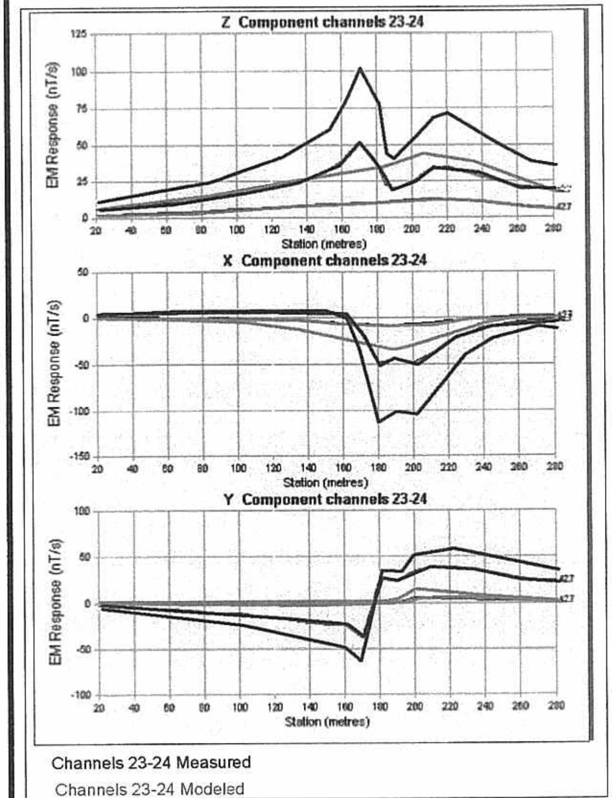


Figure 10: Numerical Modeling Results Hole U3-13

Hole U3-27

- 150-155m – A strong in-hole response is evident at this depth in the hole. The late time XY response and the corresponding late time Step Response indicates that the conductive center of this body lies mostly East of the hole.

- Near a hole depth of ~190m another strong in-hole response is evident in the first 21 channels of off-time data. In later times, i.e. channels 22-24 an off-hole pattern develops and this is also evident in the late Step Response (S1) data as a very clear off-hole source. A rough estimate puts the edge of this high conductance source within 30-40 m of the hole.

The implications of the late time Step Anomaly are that this off-hole source represents a much higher conductivity source than that which was intersected in the hole and as such would rate as a very high priority target. The XY response (both step and late off-time) indicates that this conductor is located below the hole and centered grid east. This response is interpreted as being due to Conductor 2.

Holes U3-20, U3-21, U3-24, U3-13

Hole U3-20

- Near a hole depth of ~120m a strong spiky positive response is evident in the axial component data in the first 9 channels, a response indicating a conductor has been intersected in the hole at/near this depth. Much more interesting though is that in the later times (channels), a very strong off-hole pattern emerges as the eddy current pattern now flows away from the hole to the stronger part of the conductor. The observed response here is a typical ***edge response pattern***, indicating the hole has intersected the conductor near an edge. In the cross-components, the observed response is a strong late-time positive to negative cross-over in the X component which corresponds with a very strong late-time negative to positive cross-over in the Y component. This combined response pattern indicates the center of this conductor is located below and to the left of (i..e grid east of) the hole.

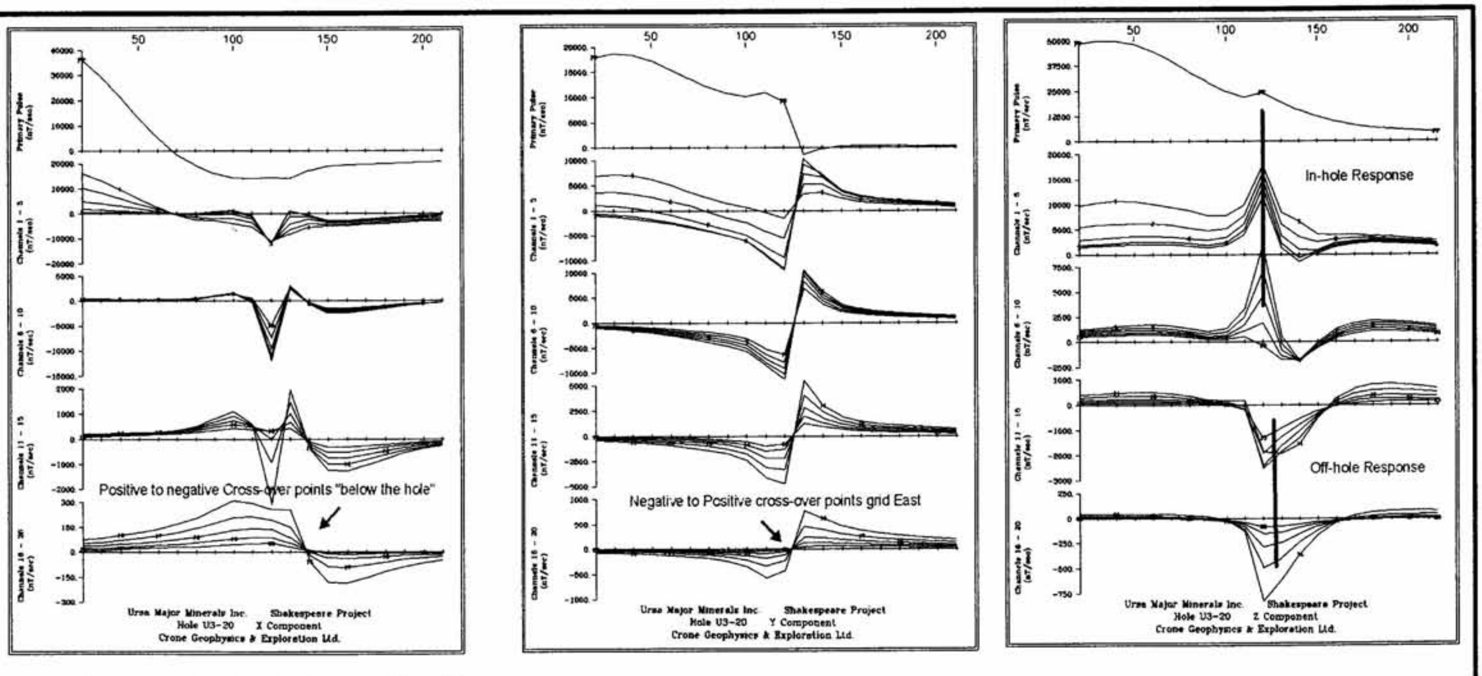


Figure 1: Linear Profile Plots of Hole U3-20

Hole U3-21

- The dominant response evident in this hole is a strong 24 channel in-hole anomaly evident at a hole depth of ~ 130m indicating the hole has intersected well inside a very good conductor at/near this depth. The XY response is complex at this point in the hole. In the X component a strong negative (-ive) to positive (+ive) inflection is evident in the early channels which points above the hole. It is the late time responses though which we are most interested for typical Ni-Cu targets, and the late channel X component response is a strong positive to negative cross-over which points below the hole. In the Y component, the late time response is a negative to positive cross-over, which points to the left of, or grid east of, the hole. The combined response pattern therefore indicates the center of this conductor is located below and grid east of this hole.

Several early time responses are evident at hole depths of 150m and 160m in the axial component data and these may be related to minor in-hole mineralization at / near these depths in the hole.

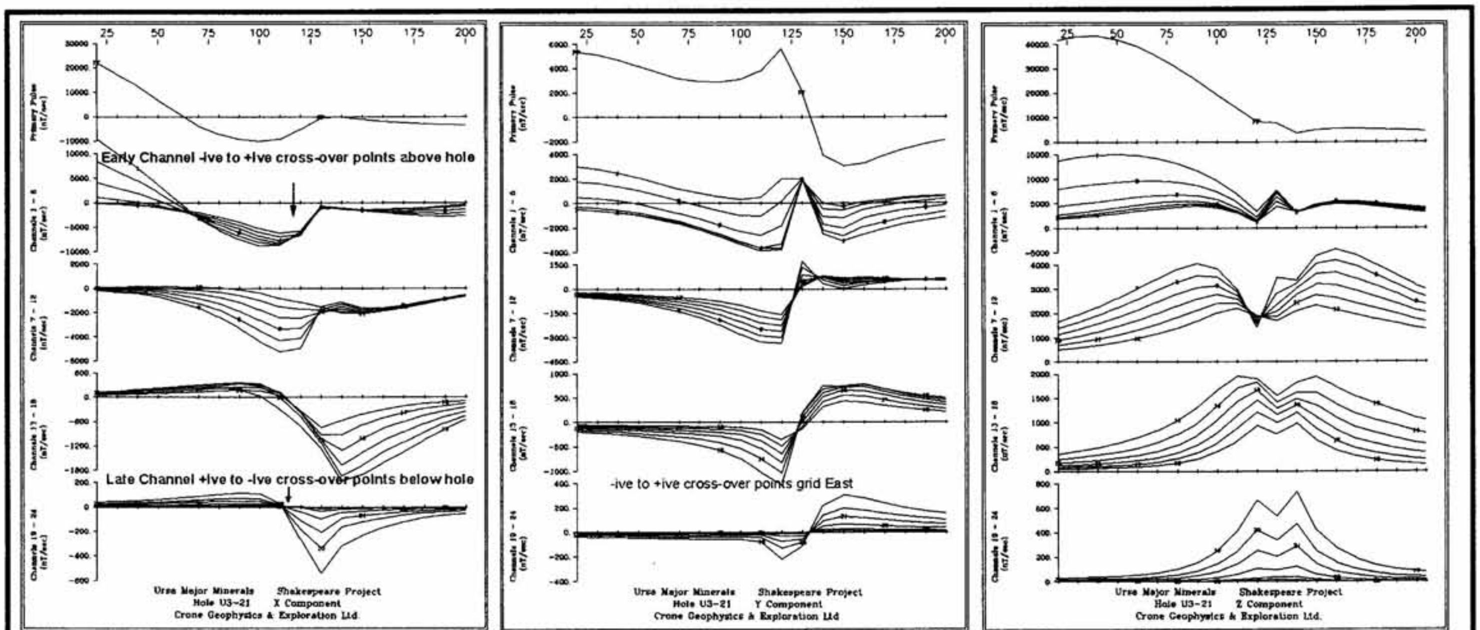


Figure 2: Linear Profile Plots of Hole U3-21

Hole U3-24

A strong in-hole response pattern (24 channel) is evident in this hole near a hole depth of 160m indicating the hole has intersected well inside a strong conductor at / near this hole depth. The XY response here is complex. The early to mid channels (up to channel 15 -16) show a very strong negative to positive cross-over in the X component corresponding with a positive to negative Y component early channel cross-over. This directional vector is pointing ***above*** and ***grid west*** of the hole. However, in the later channels the Y component response is a very strong negative to positive cross-over while the X component response is a positive to negative cross-over. This late time response indicates the conductive center of the body is located ***grid east*** of the hole, and the conductor continues ***below*** the hole for a considerable distance as well.

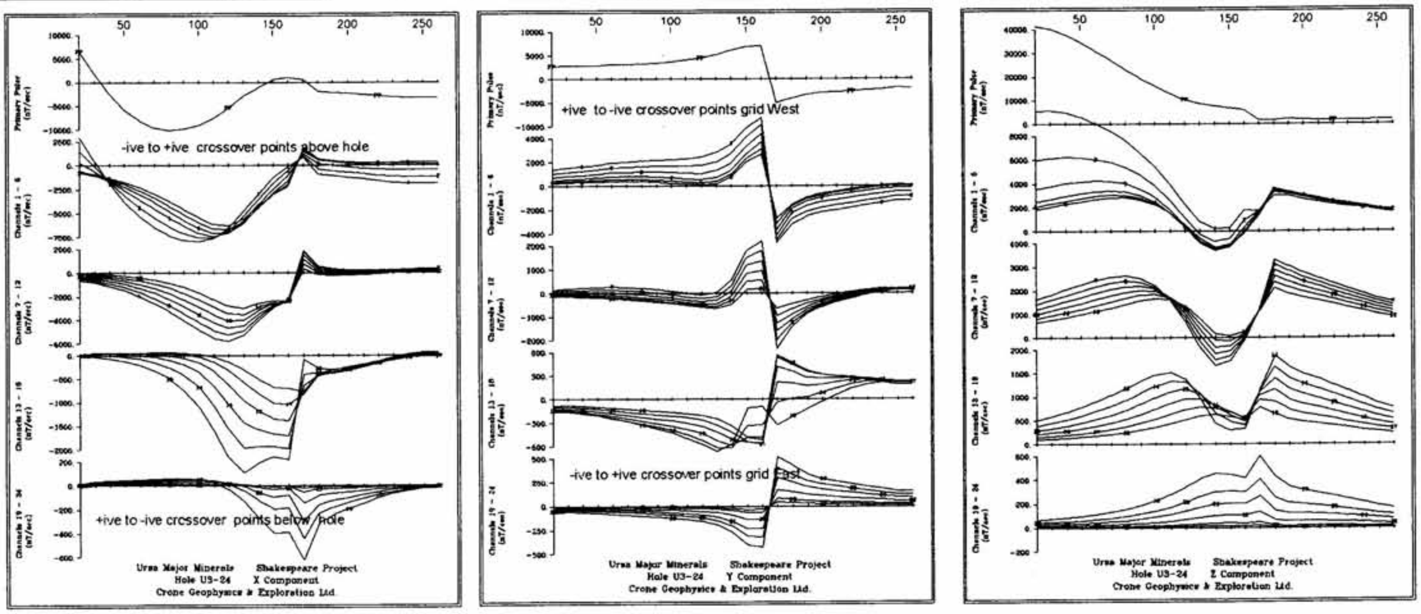


Figure 3: Linear Profile Plots of Hole U3-24

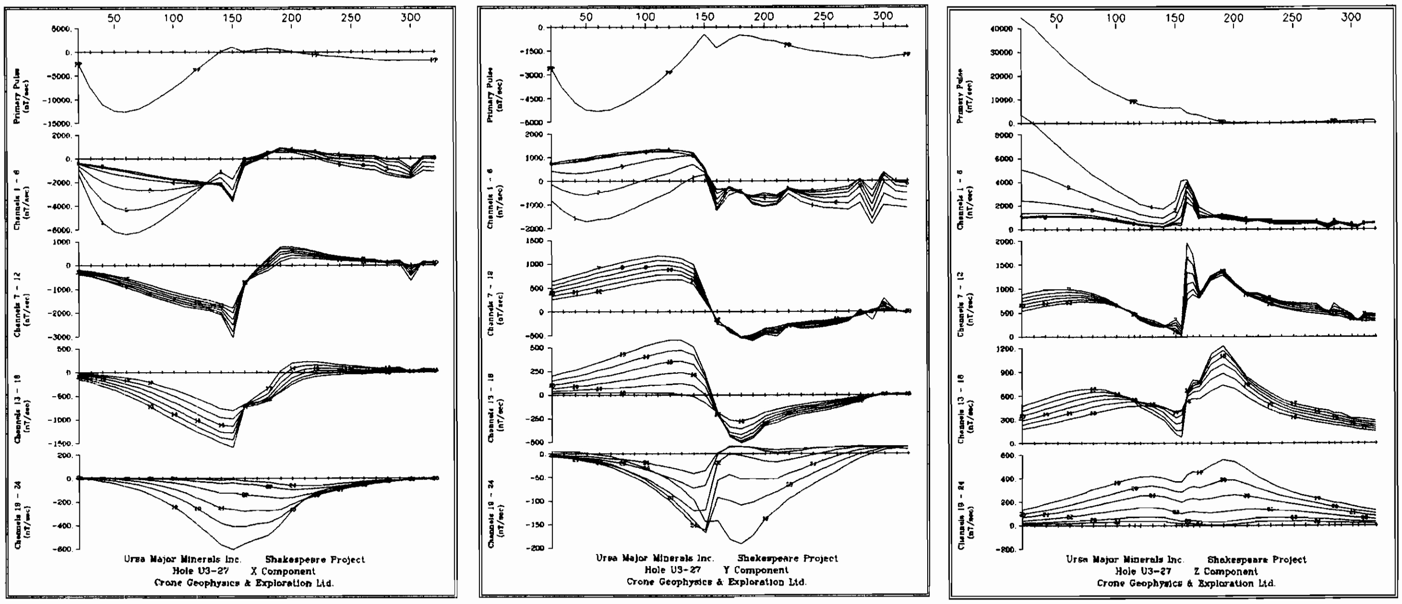


Figure 11: Linear Profile Plots - Hole U3-27

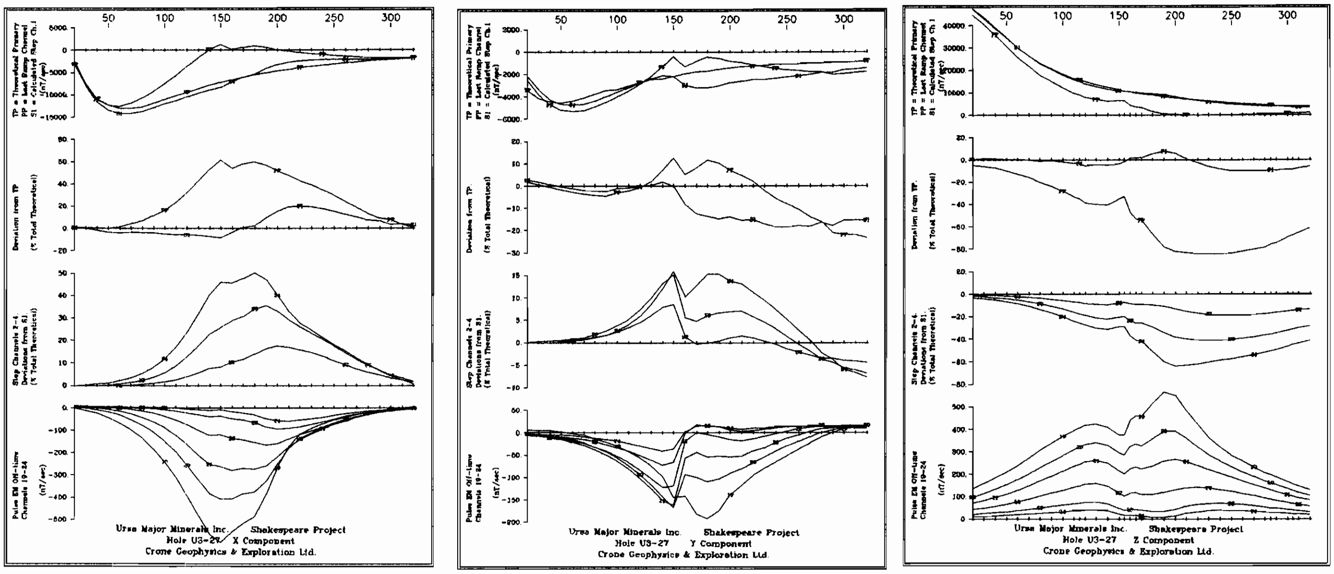


Figure 12: Step Response Profile Plots -Hole U3-27

Hole U3-31

The dominant response in this hole is a very strong in-hole anomaly evident in both the late off-time and the late Step channels near a hole depth of ~200m. The S1 response here is on the order of 60 % (i.e. in the axial component), indicating this is the highest conductance source intersected in the holes discussed in the report. The XY response indicates the center of this conductor is located below the hole and centered in a grid west direction.

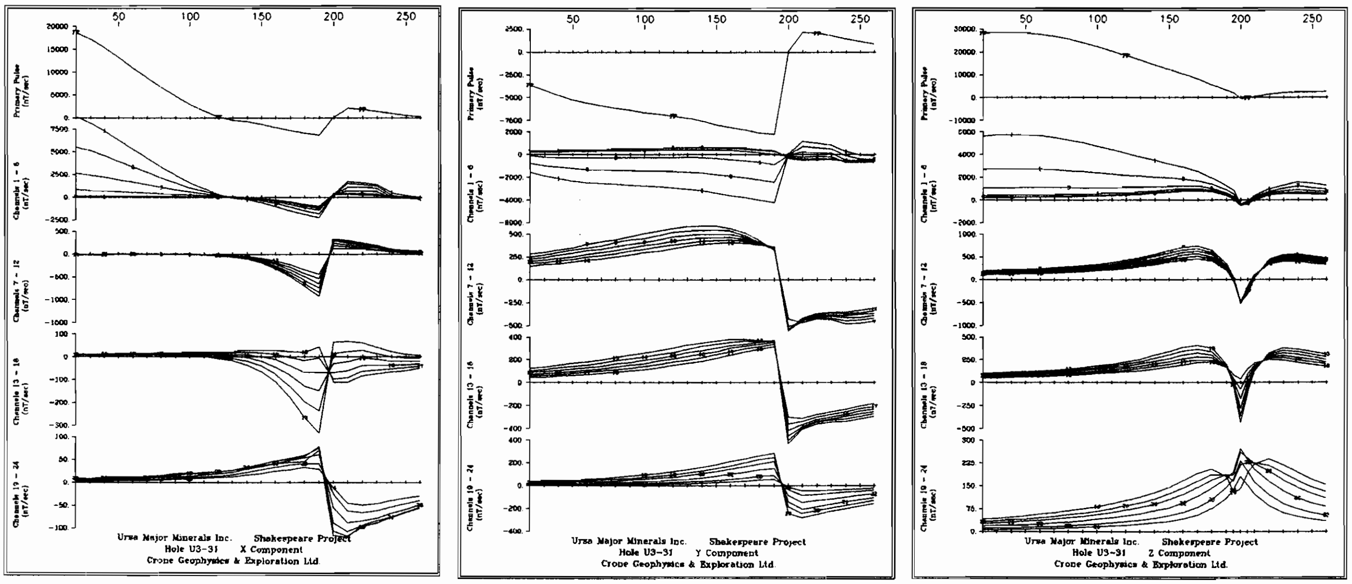


Figure 13 : Linear Profile Plots of Hole U3-31

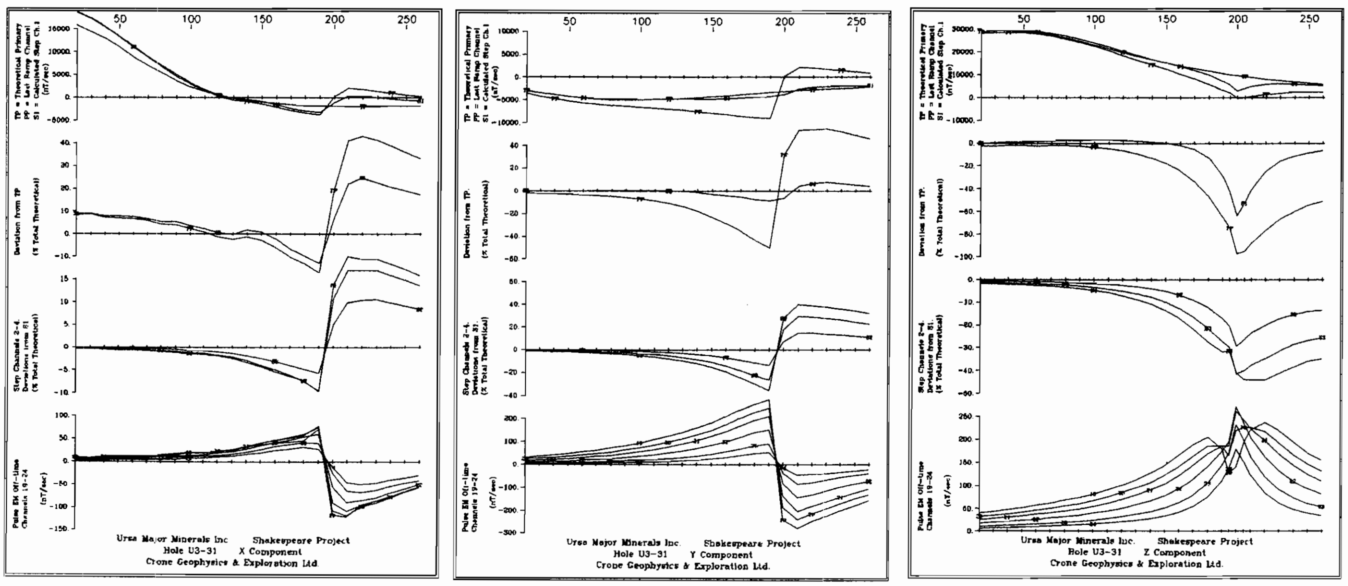


Figure 14: Step Response Profiles - Hole U3-31

Hole U3-33

A 7 channel in-hole response is evident at a hole depth of ~230m but much more interesting is a very strong off-hole anomaly evident in both the late off-time and late step response here as well. A rough distance calculation provides an estimate of ~25m-30m to this higher conductance source. The implications of this response pattern are that this off-hole source is much more highly conductive than that intersected in the hole. The XY data indicates the nearest edge of this conductor is located below and grid west of the hole.

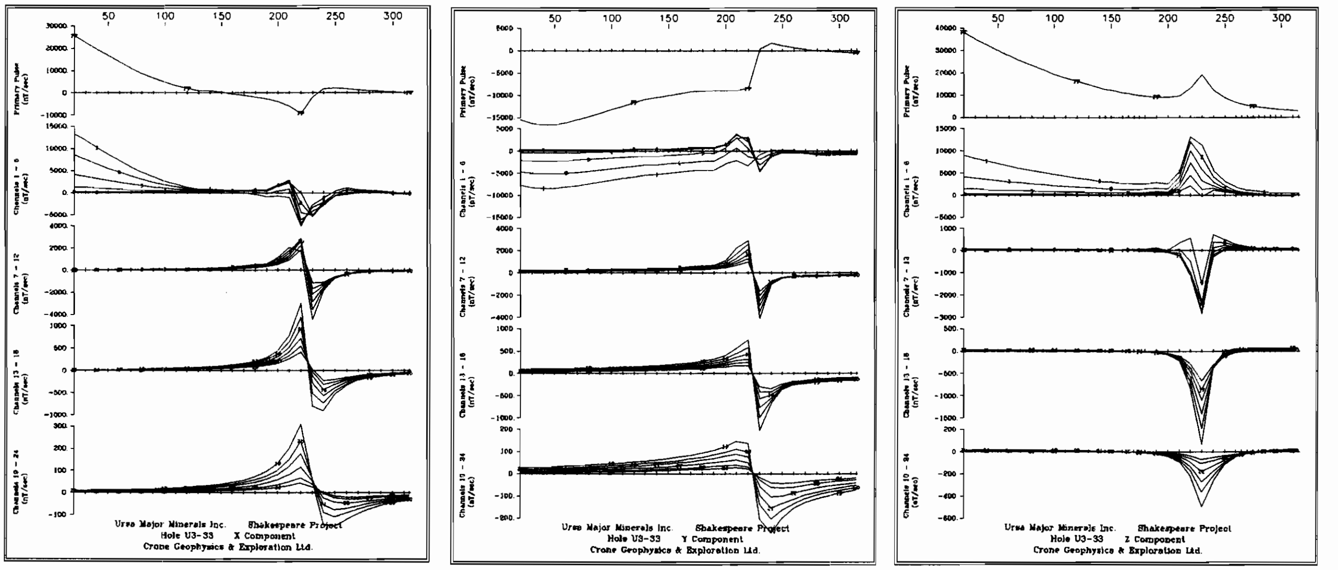


Figure 15 : Linear Profile Plots of Hole U3-33

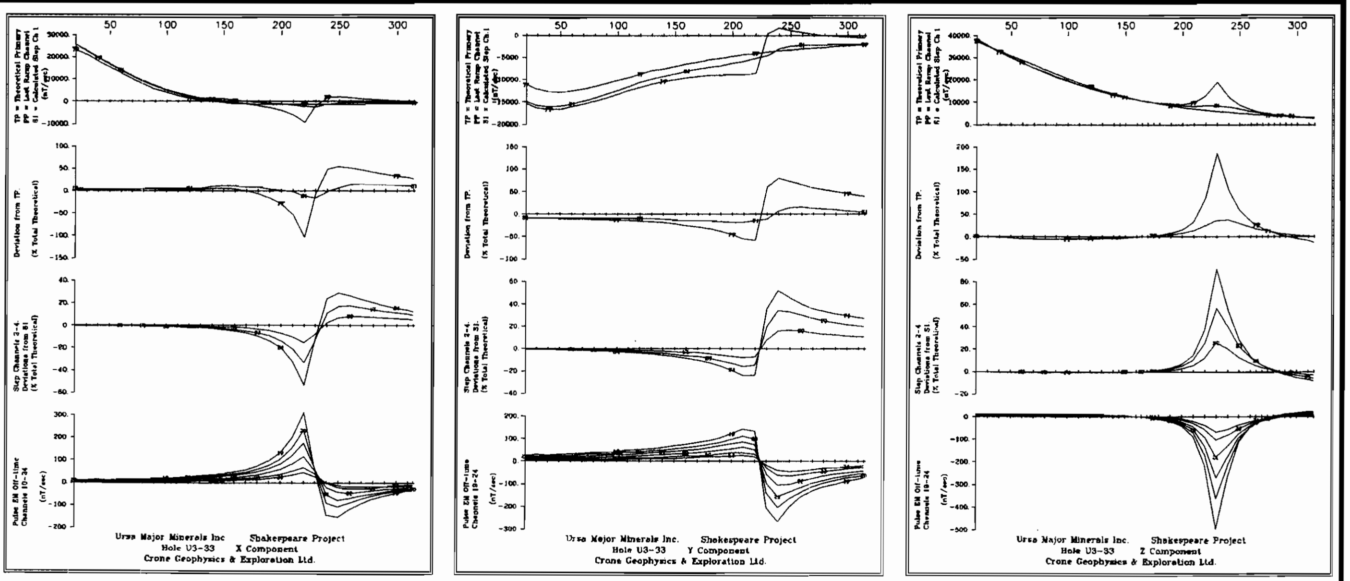


Figure 16 : Step Profile Plots of Hole U3-33

Summary of holes U3-27, U3-31 and U3-33

The anomalous responses summarized in the above 3 holes are interpreted as being due to the same source and have been identified here as Conductor 2. In order for all 3 holes to be responding to the same conductor the conductor must be plunging towards the NE at an angle between 30-40 degrees. Figure 17 depicts the position of the modeled conductor. Of particular interest are the size and conductance values, and note here that the modeled conductance value is significantly higher than for Conductor 1. A conductance on the order of 1300 S was utilized for Conductor 2 (as compared to a value on the order of 300 S for Conductor 1).

Figures 18-22 display the modeling results of these 3 holes. In each figure a reasonable to very good fit has been obtained for both the late off time and late step channels.

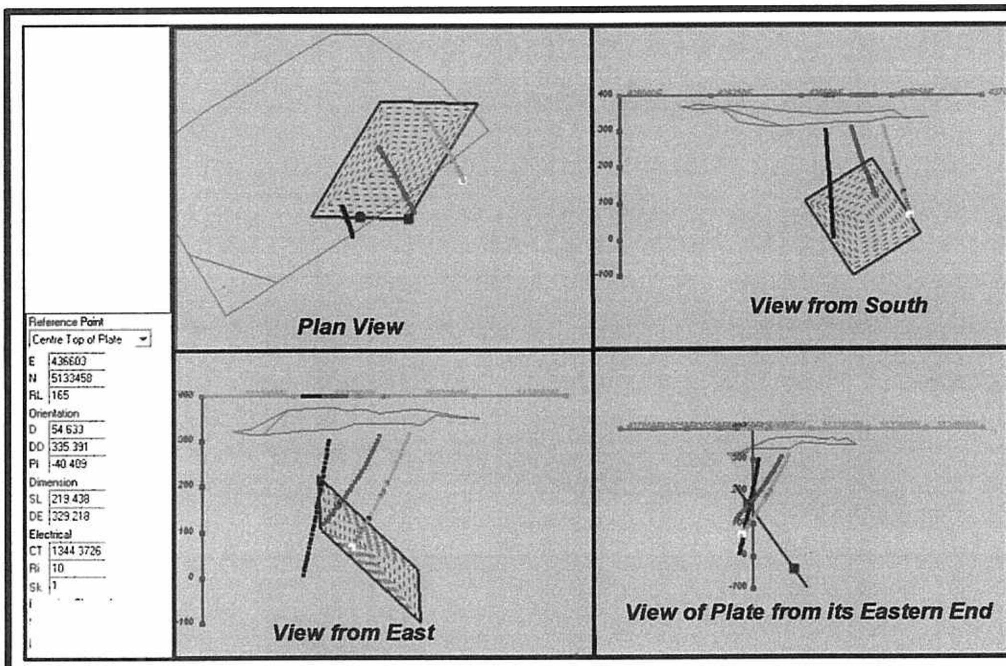


Figure 17: Location of Modeled Conductor #2

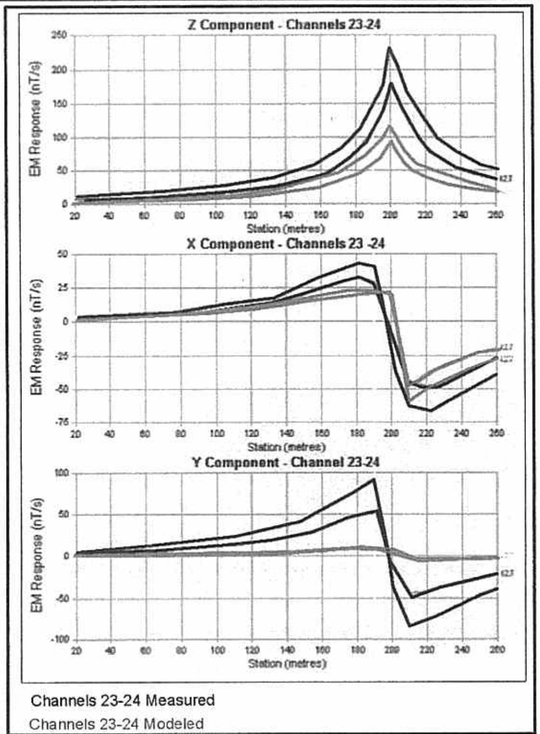


Figure 18: Numerical Modeling Results Hole U3-31

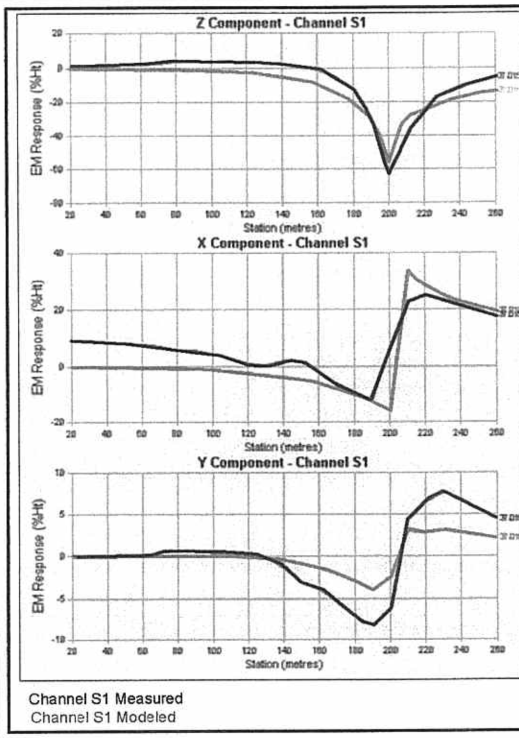


Figure 19: Numerical Modeling Results Hole U3-31

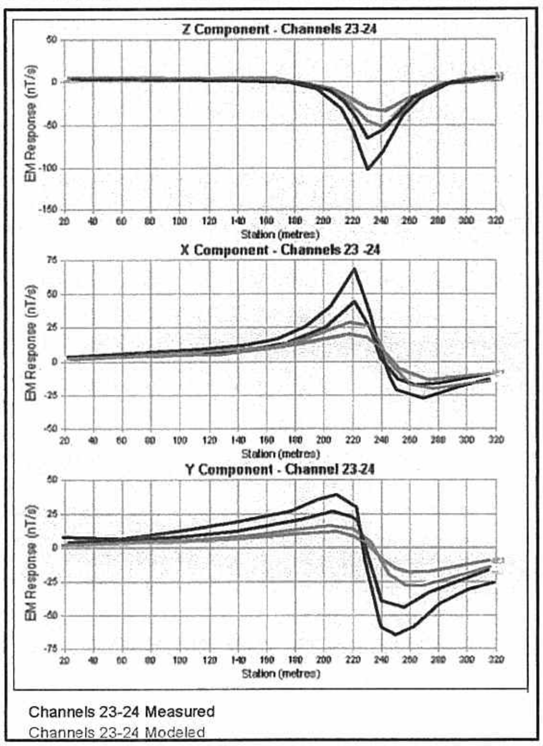


Figure 20 : Numerical Modeling - Off time Hole U3-33

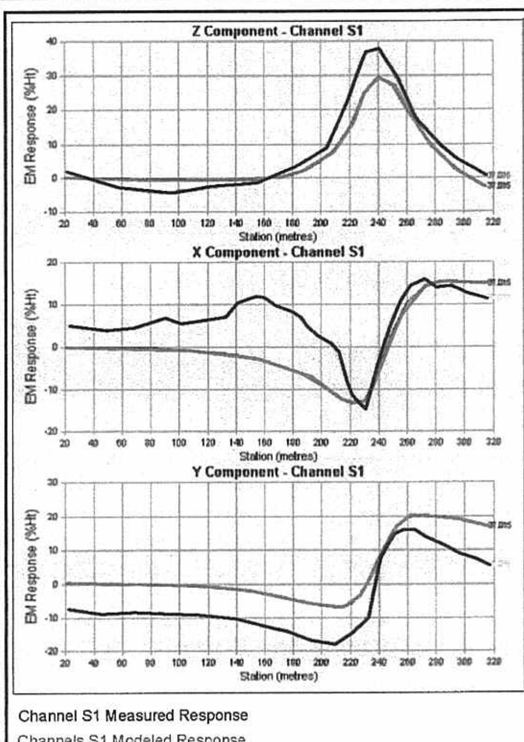
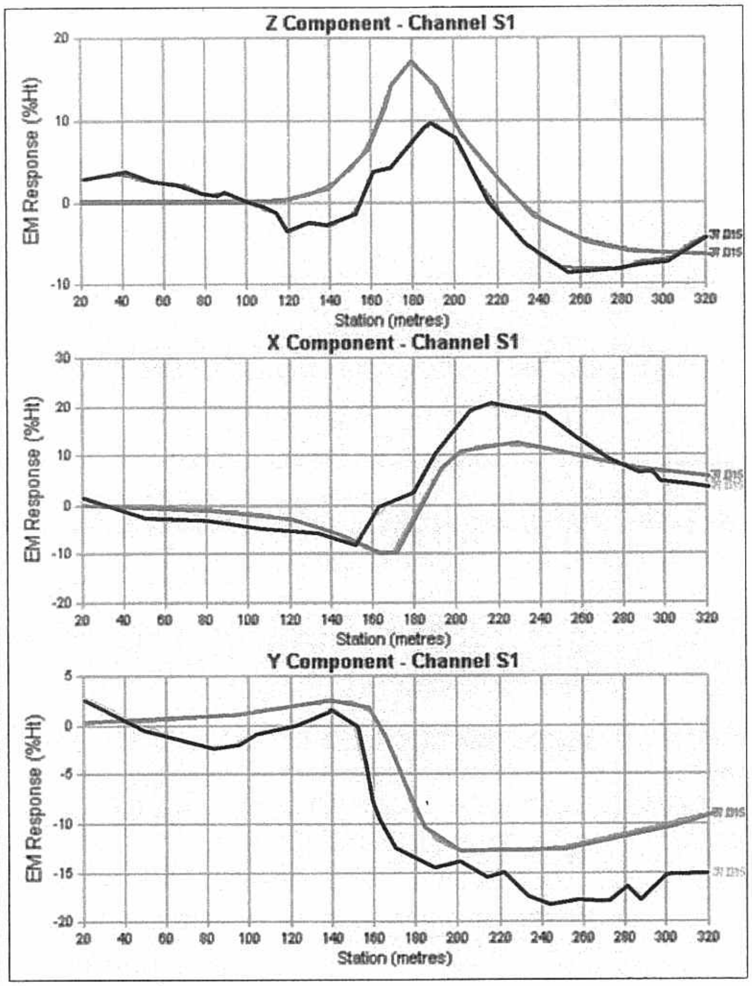


Figure 21: Numerical Modeling - Step Resonse Hole U3-33



Channel S1 Measured
Channel S1 Modeled

Figure 22: Numerical Modeling - Step Response Hole U3-27

Hole 33 in particular is worthy of further discussion. The directional vector is quite clear for this hole indicating the ***nearest edge*** is located below and grid west of the hole. However, this does not necessarily limit the size of or the depth extent of this source as the conductor could extend grid east of hole U3-33 for a considerable distance and still give the same or very similar response.

Hole U3-46

In the Axial (Z) component response a strong 18 channel off-hole response is evident at a hole depth of ~ 130m. This response is due to a good conductor with its nearest edge likely lying within 10-15m of the hole at this point. The XY response indicates this conductor is located left of or grid East of the hole and centered below the hole. The response is due to a good conductor but the short wavelength response suggests the sources likely has limited dimensions.

A more interesting response is evident at a hole depth of ~160m and is evident in the axial component response as a long wavelength 21 channel off-hole anomaly. A rough distance estimate puts the near edge of this conductor on the order of 50m away from the hole. The XY response indicates this conductor is located grid East of the hole. This conductor is labeled as conductor #3 and this appears as a very interesting target if it has not yet been tested by drilling.

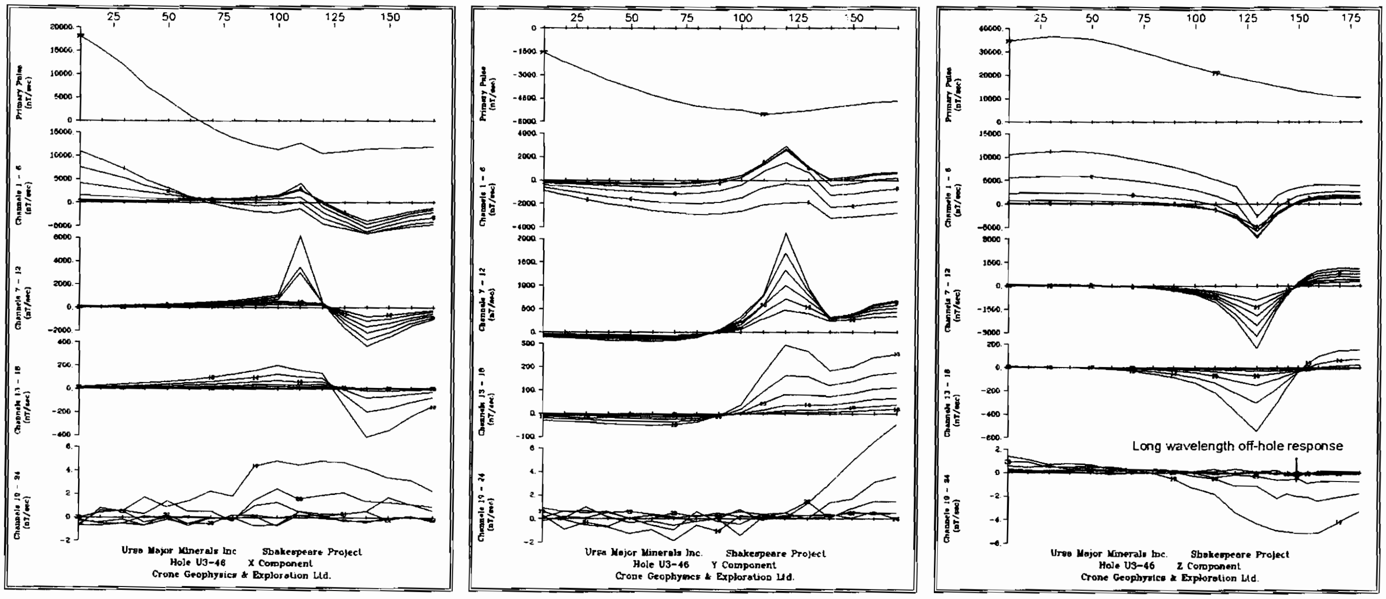


Figure 23: Linear Profile Plots - Hole U3-46

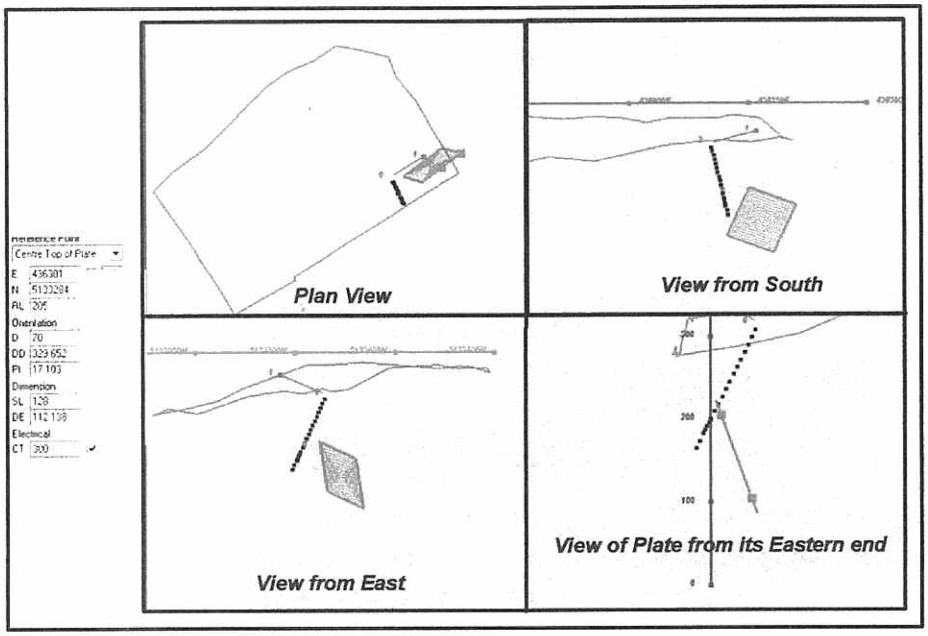


Figure 24 : Location of Modeled Conductor - #3 - Hole U3-46

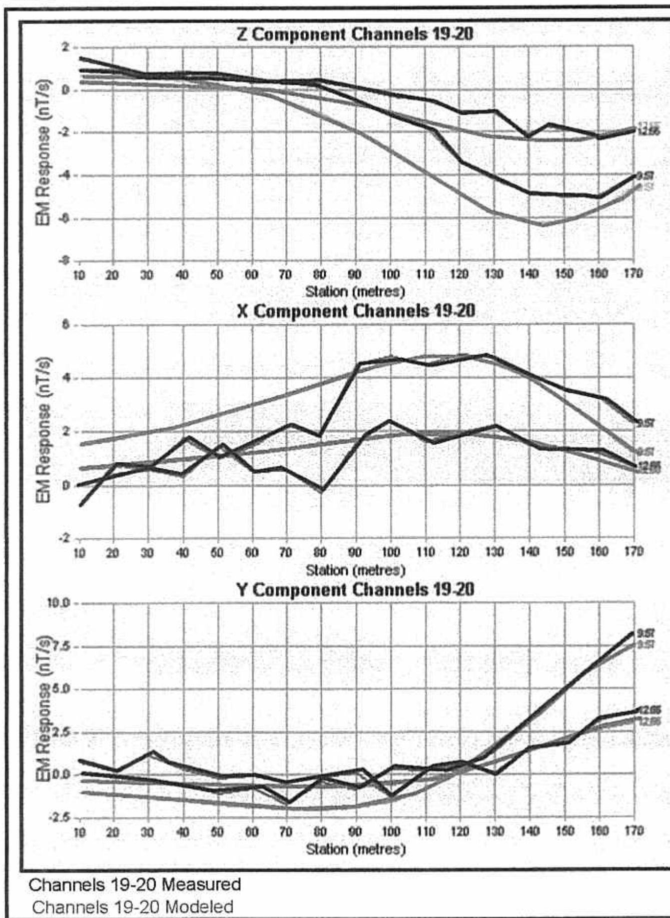


Figure 25 : Modeling Results - Hole U3-46

Holes U3-37, U3-39, U3-44

Hole U3-39

A spiky in-hole response is evident at a hole depth of ~130m indicating the hole has intersected a relatively small conductor at this depth. The XY response indicates this small conductor is centered below and grid East of the hole.

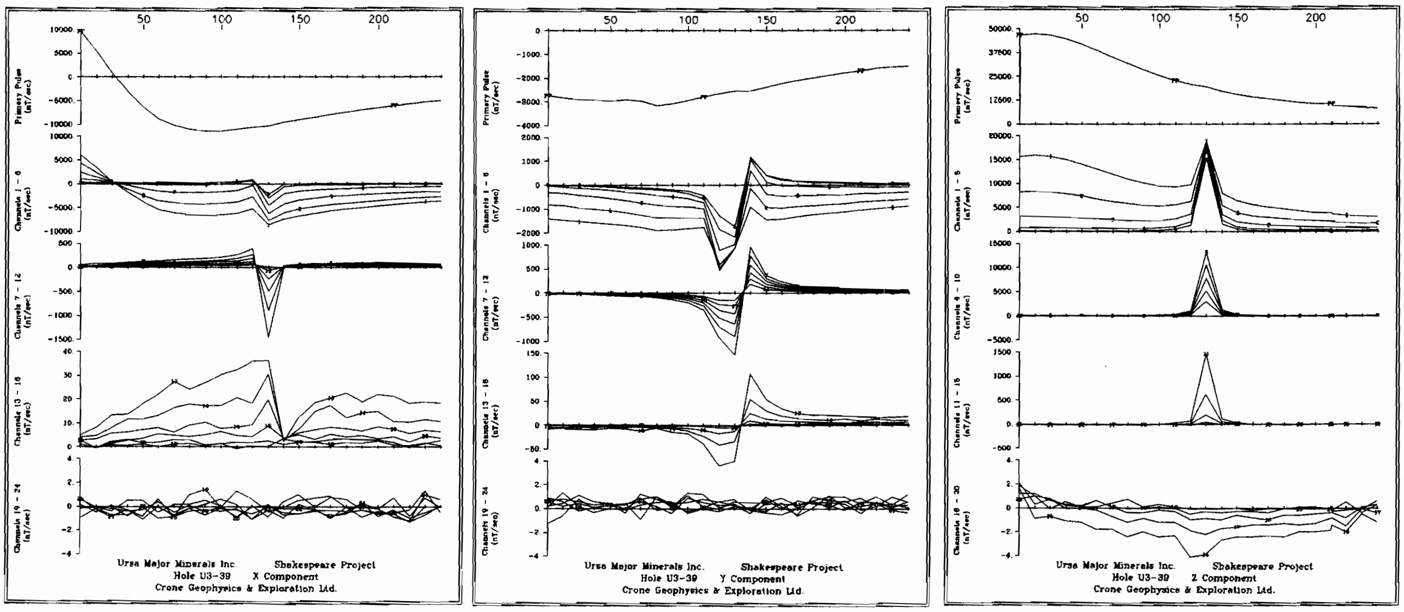


Figure 26: Linear Profile Plots - Hole U3-39

Hole U3-37

A 10 channel off-hole anomaly is evident at a hole depth of ~70 m with the XY response indicating this conductor is located above and grid East of the hole. The short wavelength and early time response indicates the source is relatively small and is only moderatively conductive.

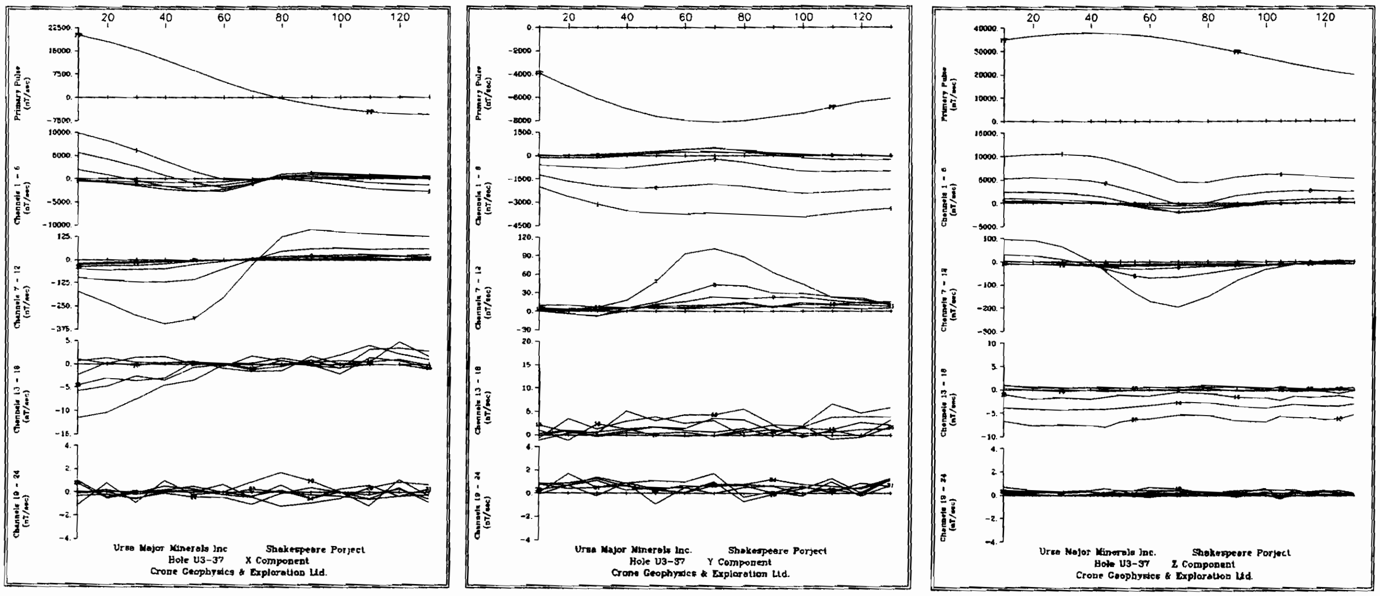


Figure 27: Linear Profile Plots - Hole U3-37

Hole U3-44

A short wavelength anomalous response is evident near a hole depth of ~80m. This response is due to a very small conductor which is located above and centered grid east of the hole. Given the short wavelength response this would not rank as a high priority target.

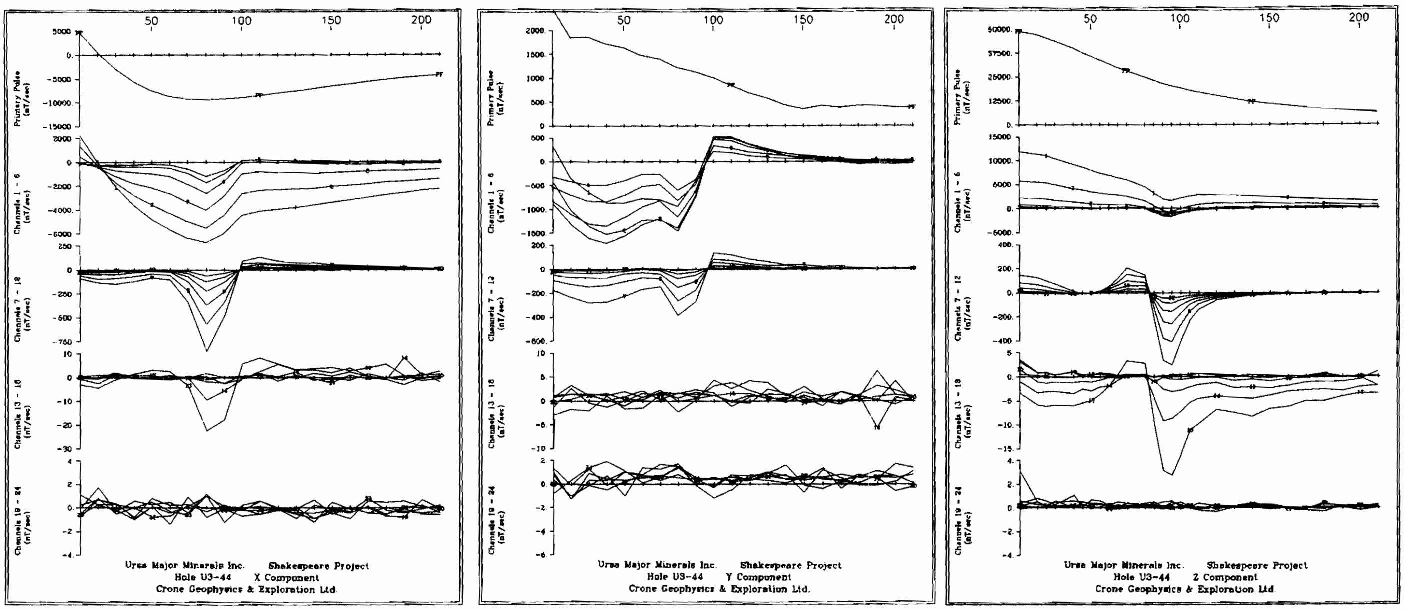


Figure 28 : Linear Profile Plots - Hole U3-44

Summary of Holes U3-37, U3-39, U3-44

The anomalous responses described in these three holes are all attributed to relatively small sources and these would not normally be considered as high priority targets. A much more interesting response is actually seen in all three holes in the axial component response in particular. The response I'm referring to is a long wavelength negative anomalous response evident in the Z component profiles of all three holes. This response is due to a large off-hole source, but because the source appears to be so distant it is extremely difficult to determine a direction to this source. A thorough review of any previous surface Time Domain surveys may help pinpoint the location of this source or further surveys of any boreholes in the immediate area may assist in providing more information.

Conclusion:

Three main conductors have been identified from the survey of the eleven holes discussed in this report. Conductor # 2 appears as the most interesting follow-up target mainly because of the apparent high conductance of this source. Only one hole discussed in this report, hole U3-31 intersected this body and this would rank as the highest priority follow-up target. If the numerical modeling results fit the geological model (i.e. with respect to the plunge direction) this conductor also has the potential to extend in a NE direction (grid East) for a considerable distance as well.

Conductor #1 has been intersected in numerous holes but it too still appears as a viable follow-up target to determine the down-dip extent of this body.

Conductor #3 is evident only from the survey of U3-46, and if this conductor has never been drill, it too appears as an attractive target.

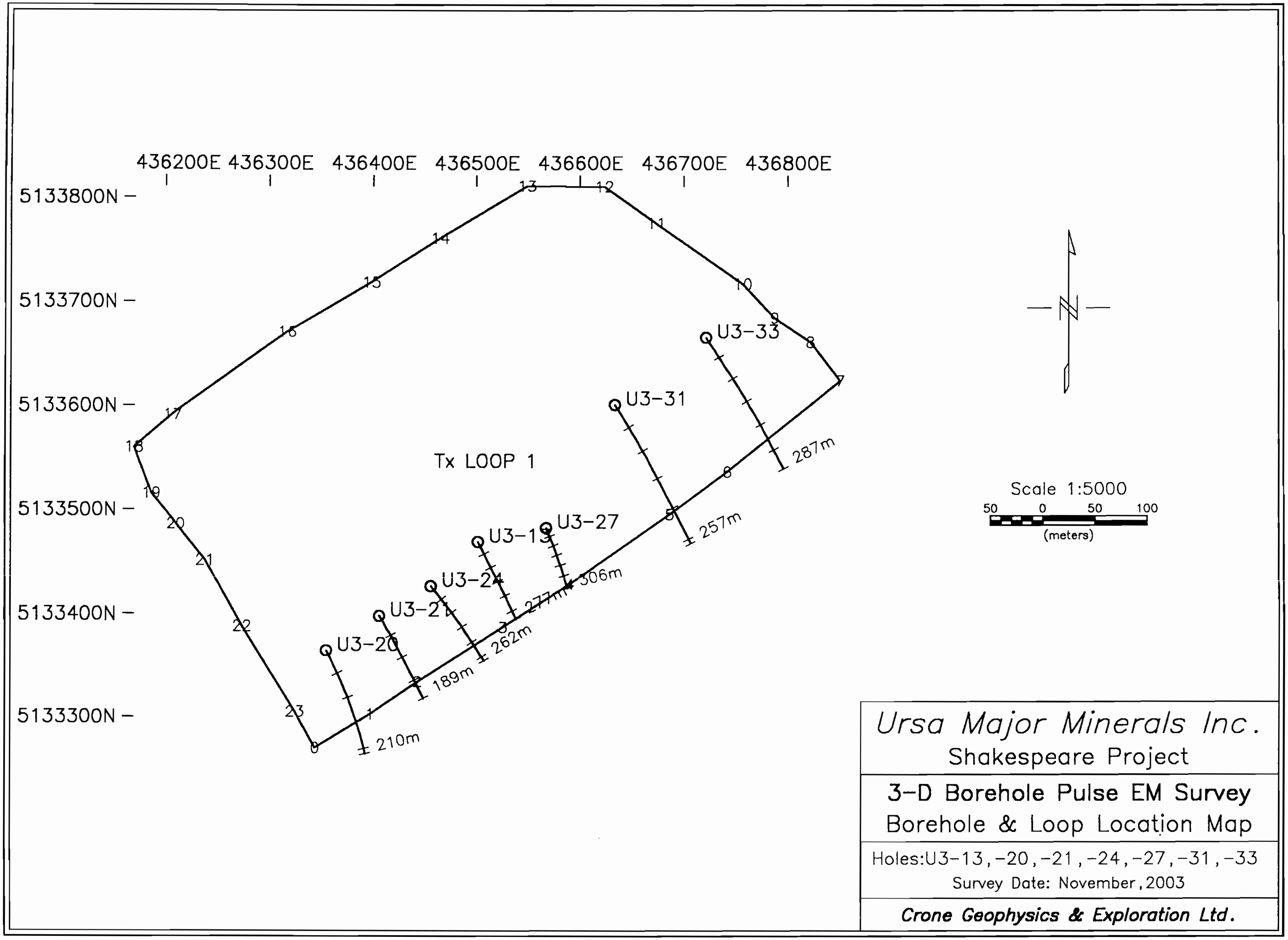
In holes U3-37, -39, and -44 a long wavelength anomalous background is evident, particularly in the axial component response. This response is poorly understood but what it does indicate is the presence of a large conductor within the vicinity of these holes. A thorough review of any previously collected surface TDEM data is strongly recommended to better understand the response evident in these holes, and further surface or borehole surveys may be warranted to further define this anomalous source.

Regards,

Kevin Ralph
Senior Geophysicist
Crone Geophysics & Exploration Ltd.

APPENDIX I

PLAN AND SECTION MAPS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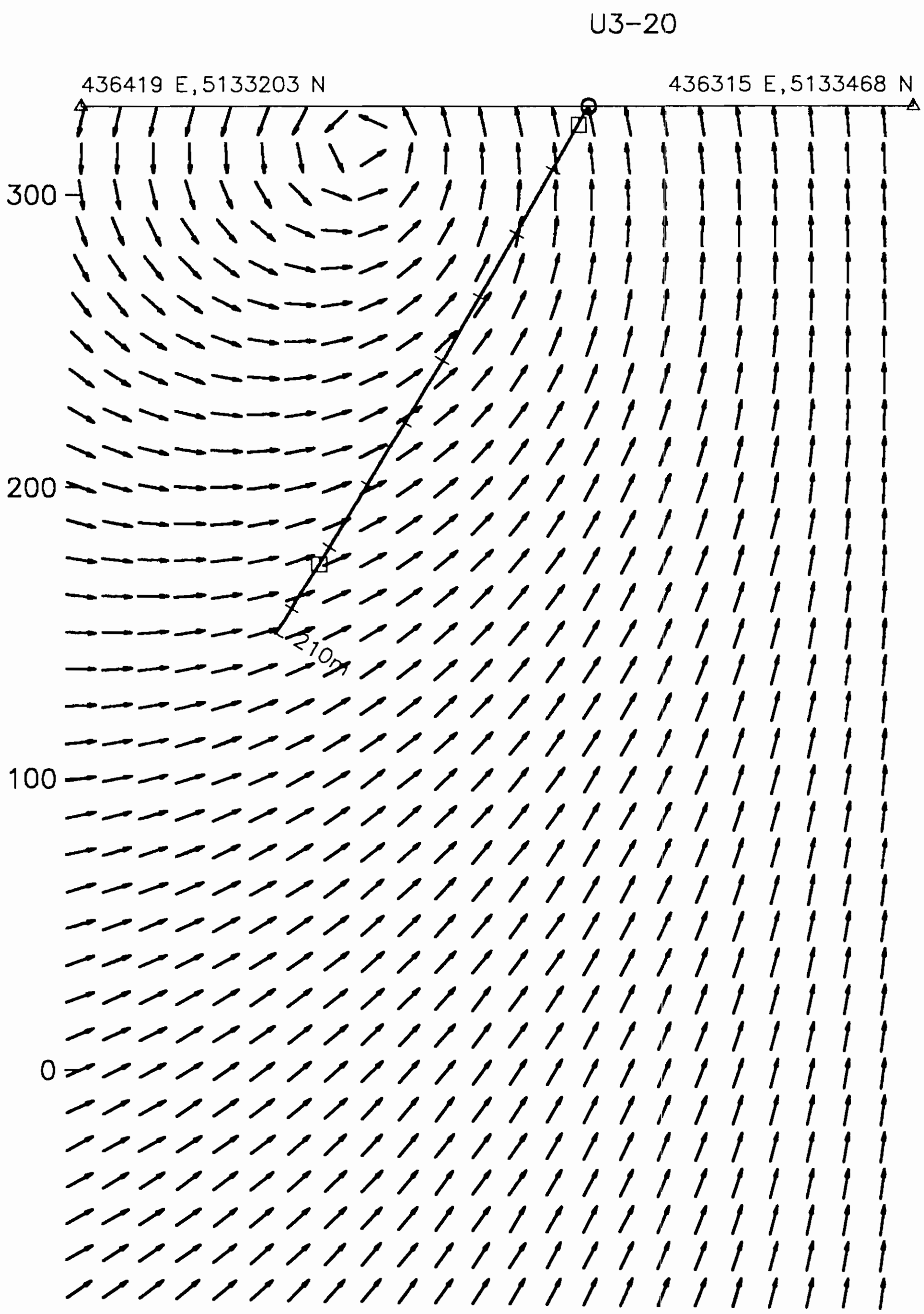
436300E
436400E
436500E
436600E
436700E
436800E
5133800N
5133700N
5133600N
5133500N
5133400N
5133300N
Tx LOOP 1
U3-13
U3-20
U3-21
U3-24
U3-27
U3-31
U3-33
210m
189m
262m
277m
306m
257m
287m
Scale 1:5000
50 0 50 100
(meters)
Ursa Major Minerals Inc.
Shakespeare Project
3-D Borehole Pulse EM Survey
Borehole & Loop Location Map
Holes:U3-13,-20,-21,-24,-27,-31,-33
Survey Date: November,2003
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.

Shakespeare Project

3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-20

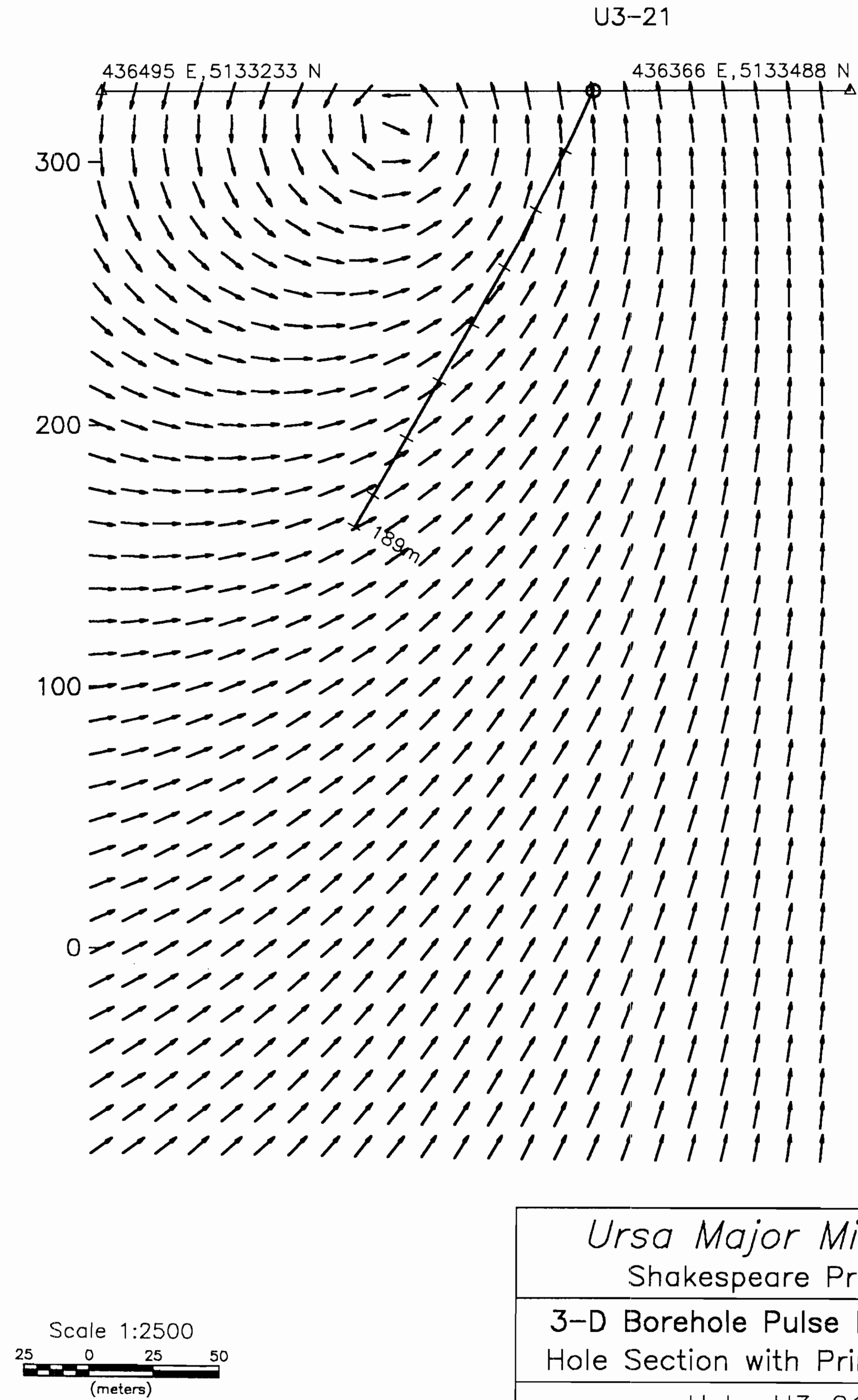
Survey Date: Nov 6, 2003

Crone Geophysics & Exploration Ltd.

Scale 1:2500

25 0 25 50

(meters)



Ursa Major Minerals

Shakespeare Project

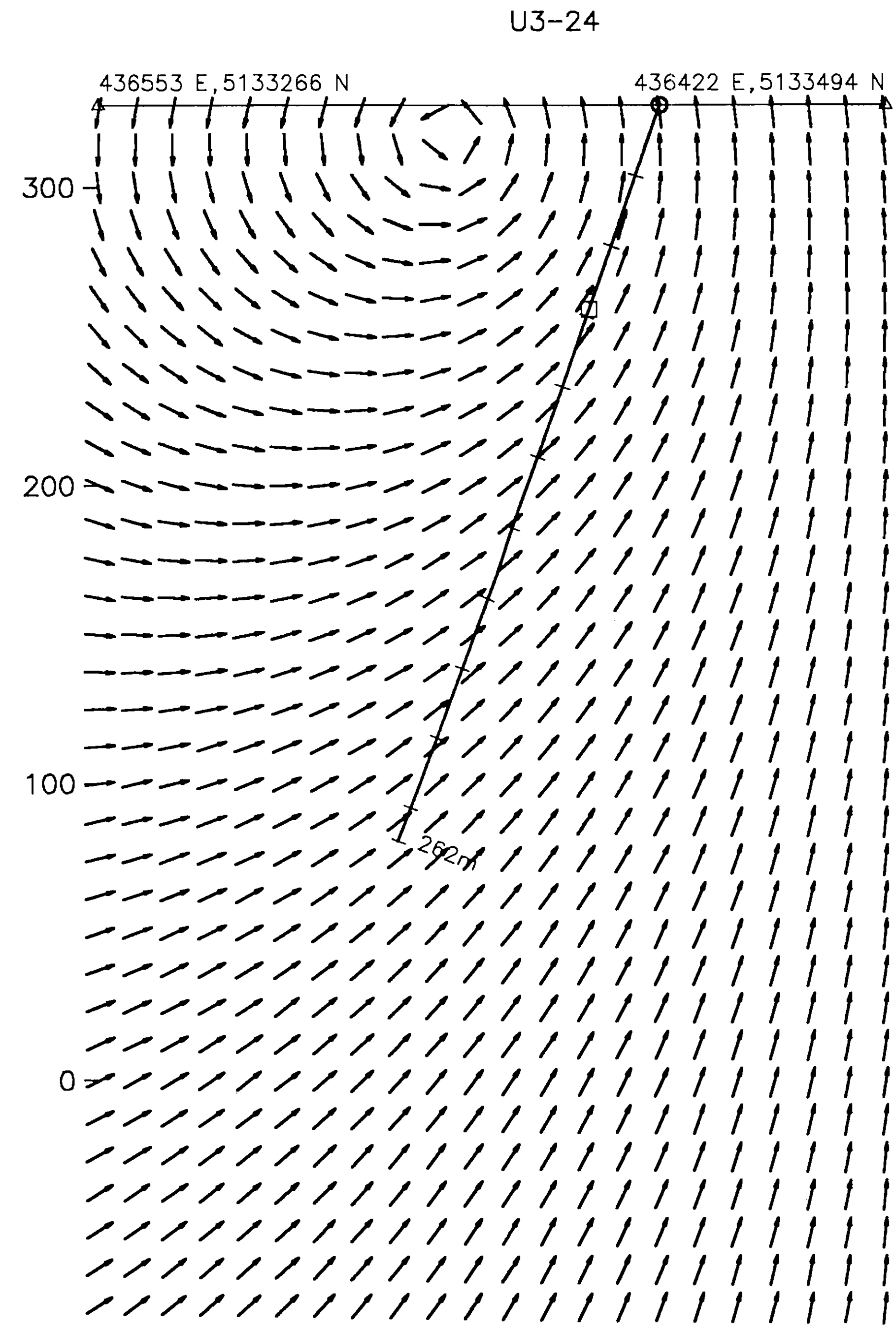
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-21

Survey Date: Nov 7, 2003

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals

Shakespeare Project

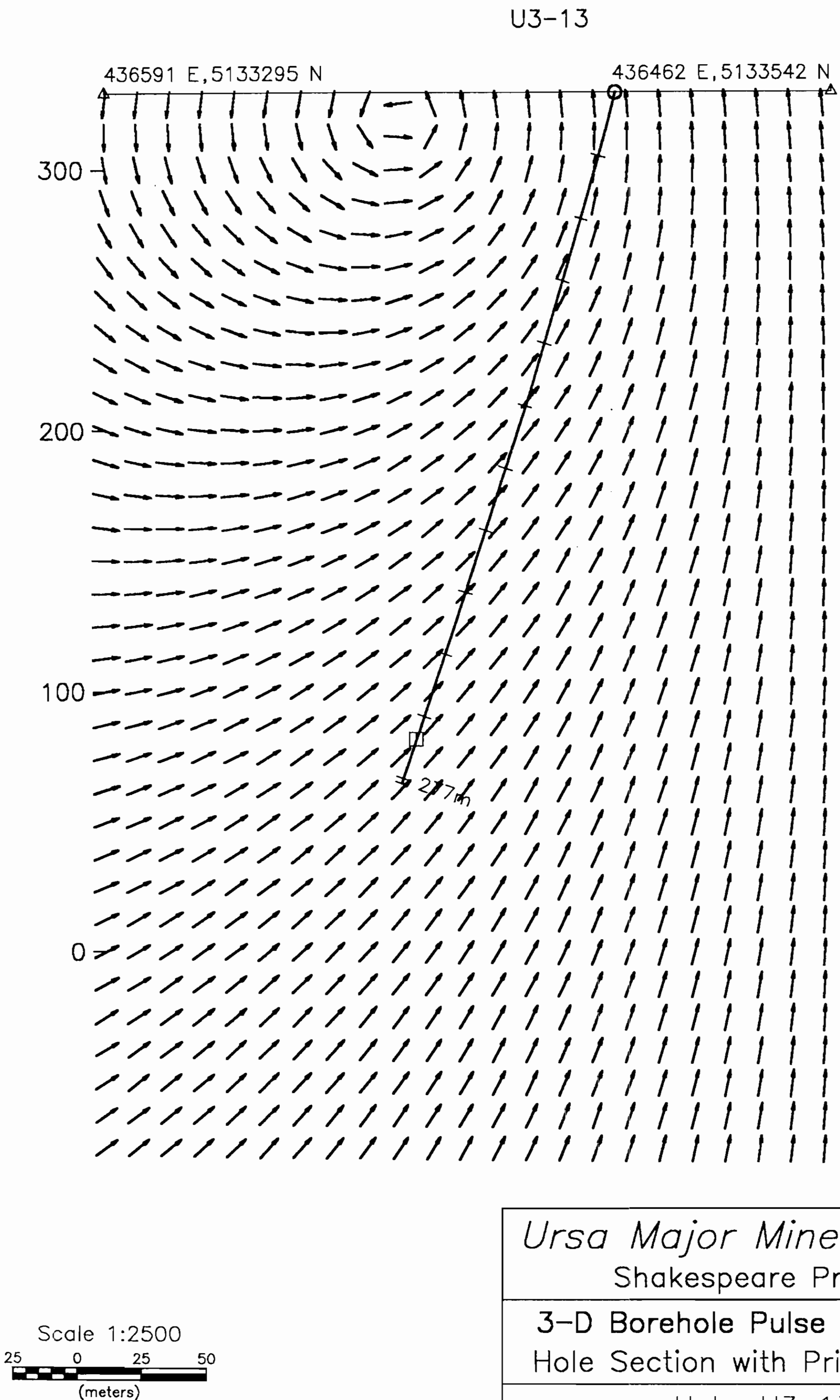
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-24

Survey Date: Nov 7, 2003

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.

Shakespeare Project

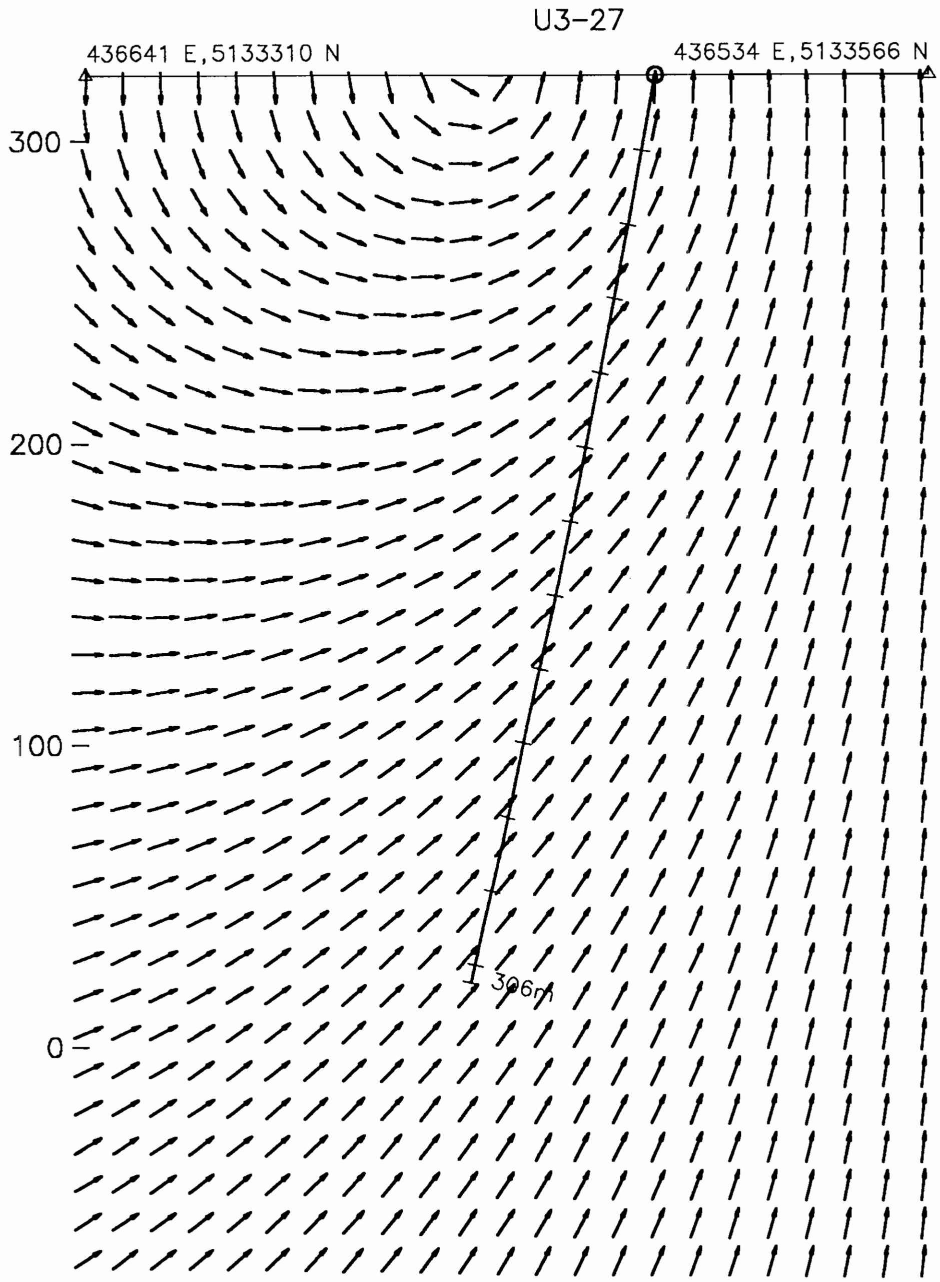
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-13

Survey Date: Nov 7, 2003

Crone Geophysics & Exploration Ltd.



Scale 1:2500

25 0 25 50

(meters)

Ursa Major Minerals Inc.

Shakespeare Project

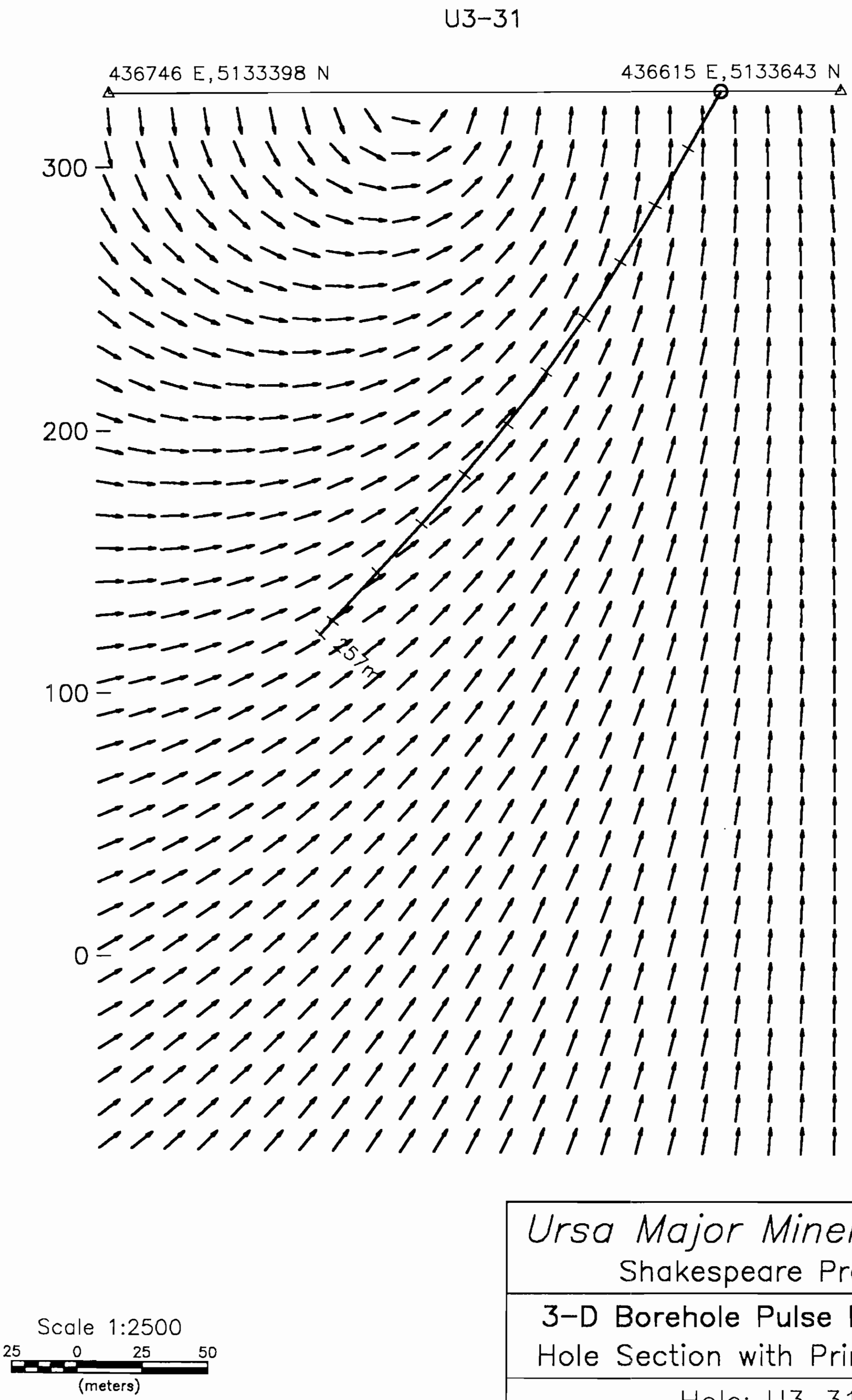
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-27

Survey Date: Nov 8, 2003

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.

Shakespeare Project

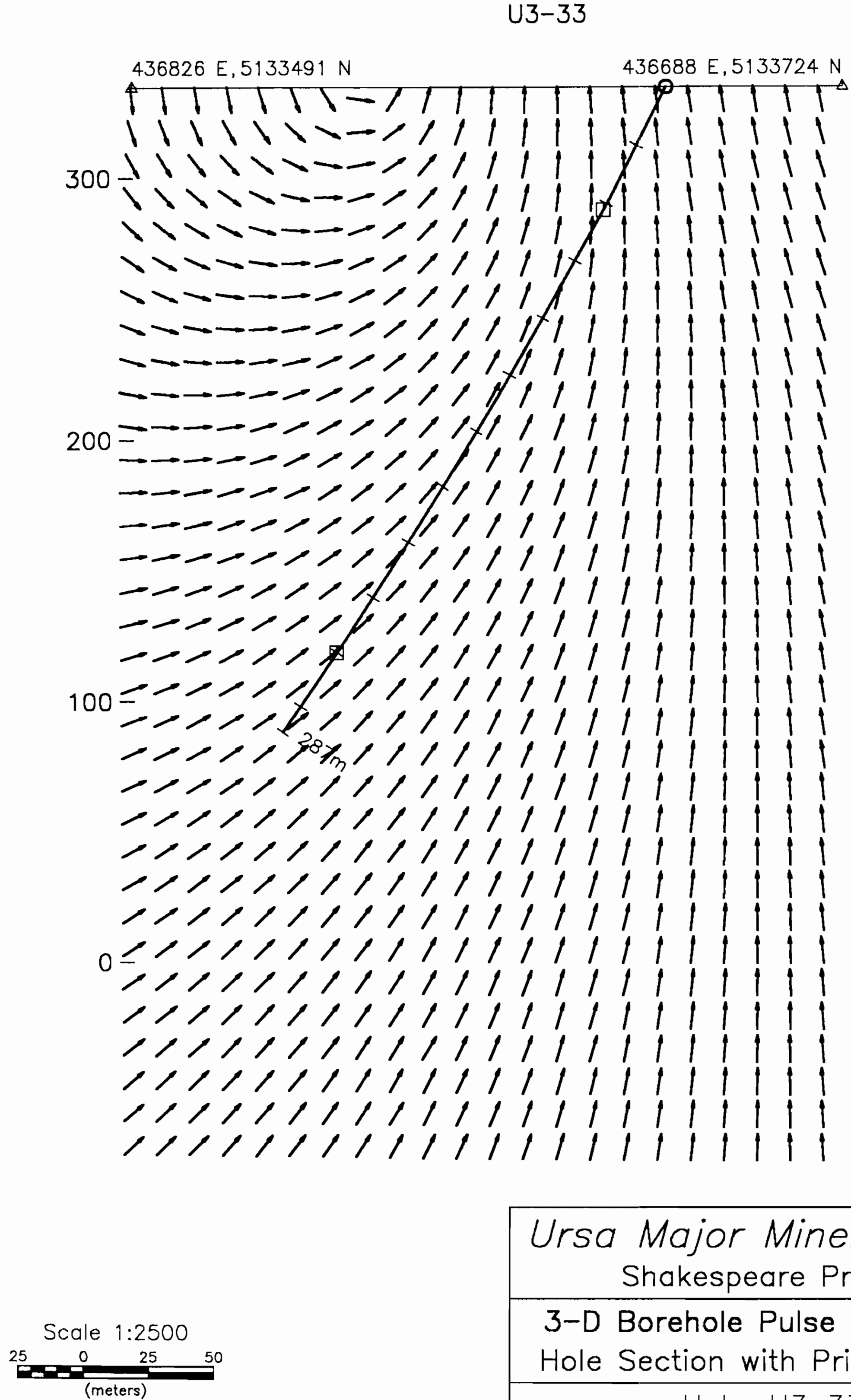
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-31

Survey Date: Nov 8, 2003

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.

Shakespeare Project

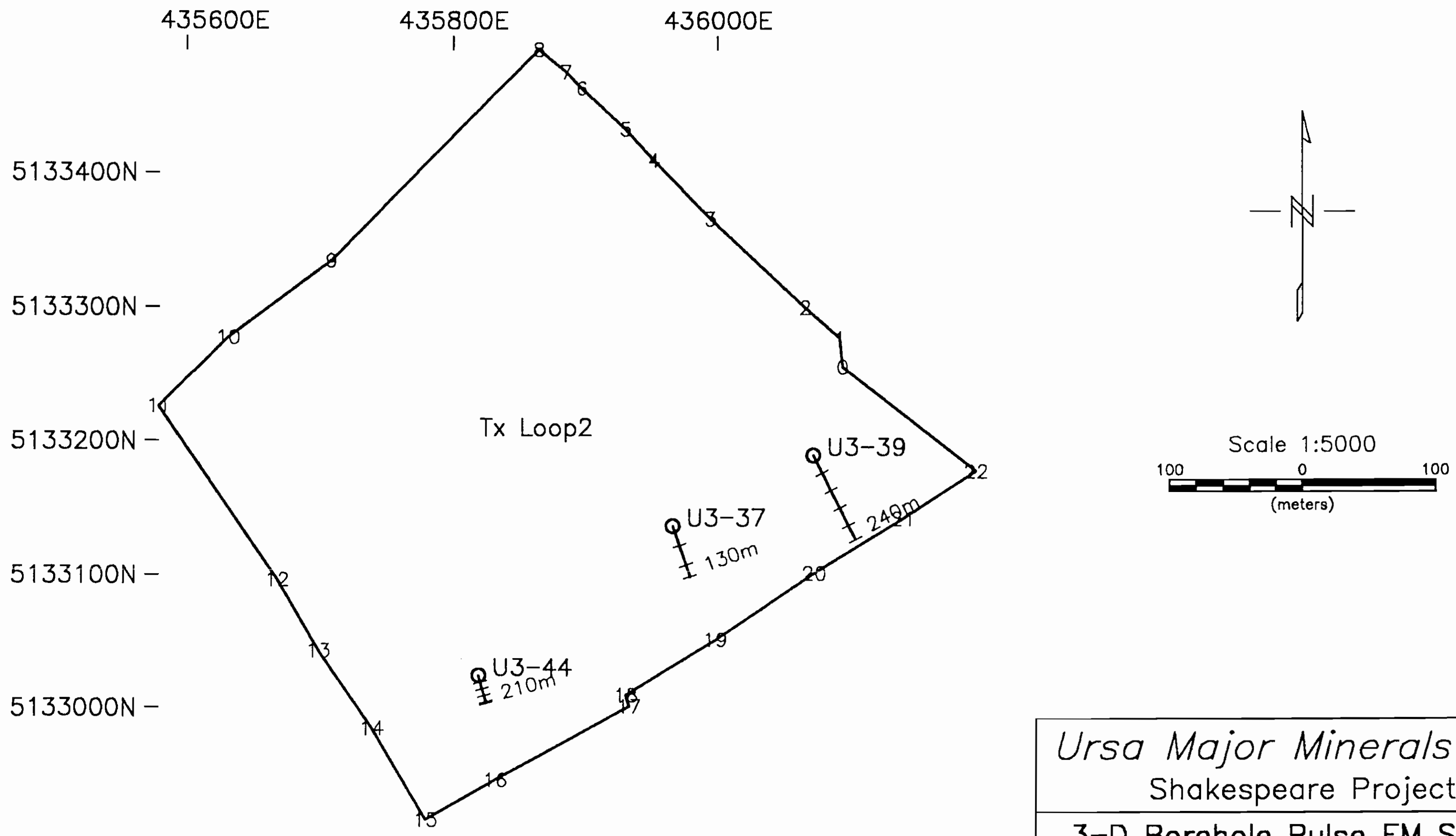
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-33

Survey Date: Nov 9, 2003

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.

Shakespeare Project

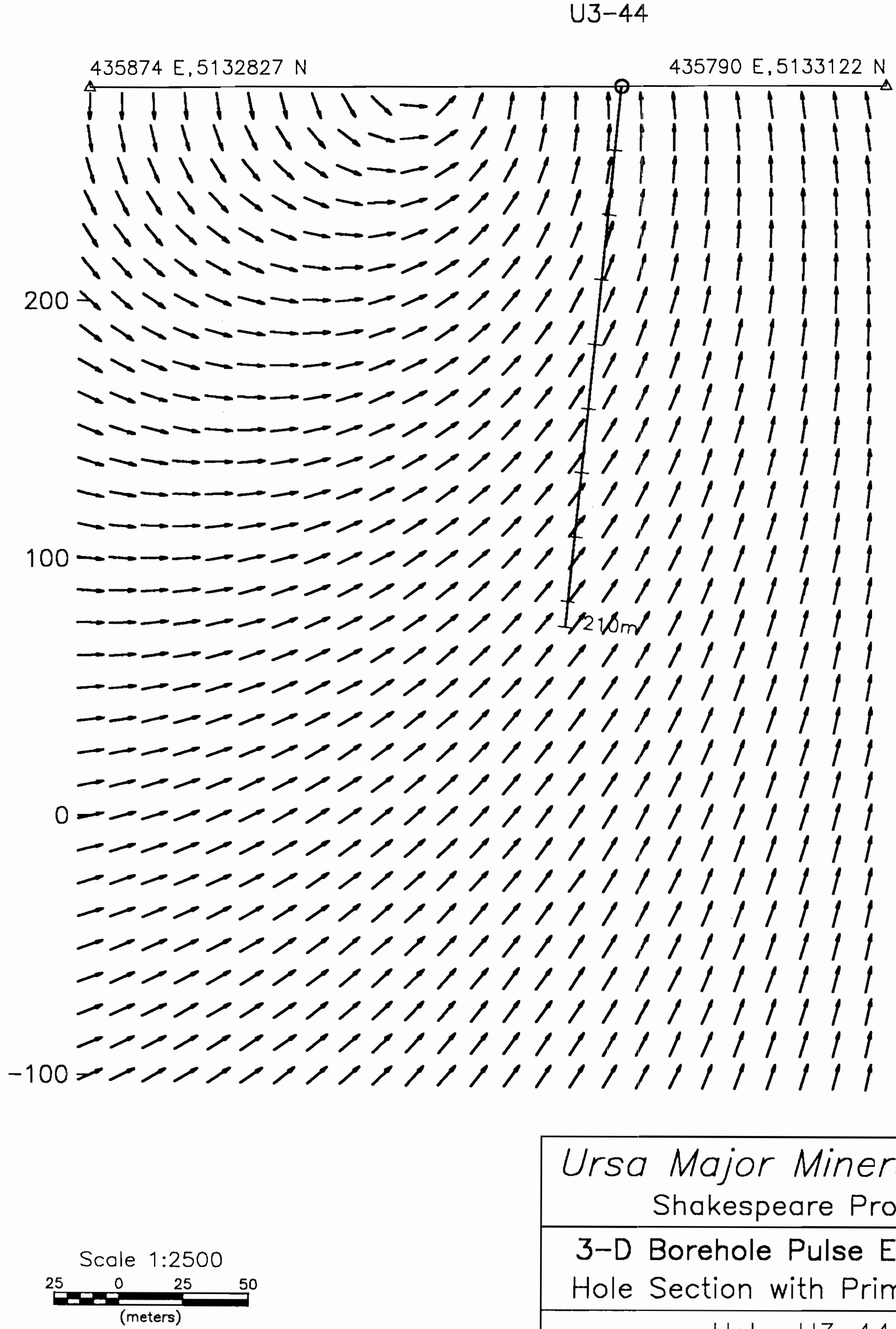
3-D Borehole Pulse EM Survey

Borehole & Loop Location Map

Holes:U3-37, -39, -44

Survey Date: November, 2003

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.

Shakespeare Project

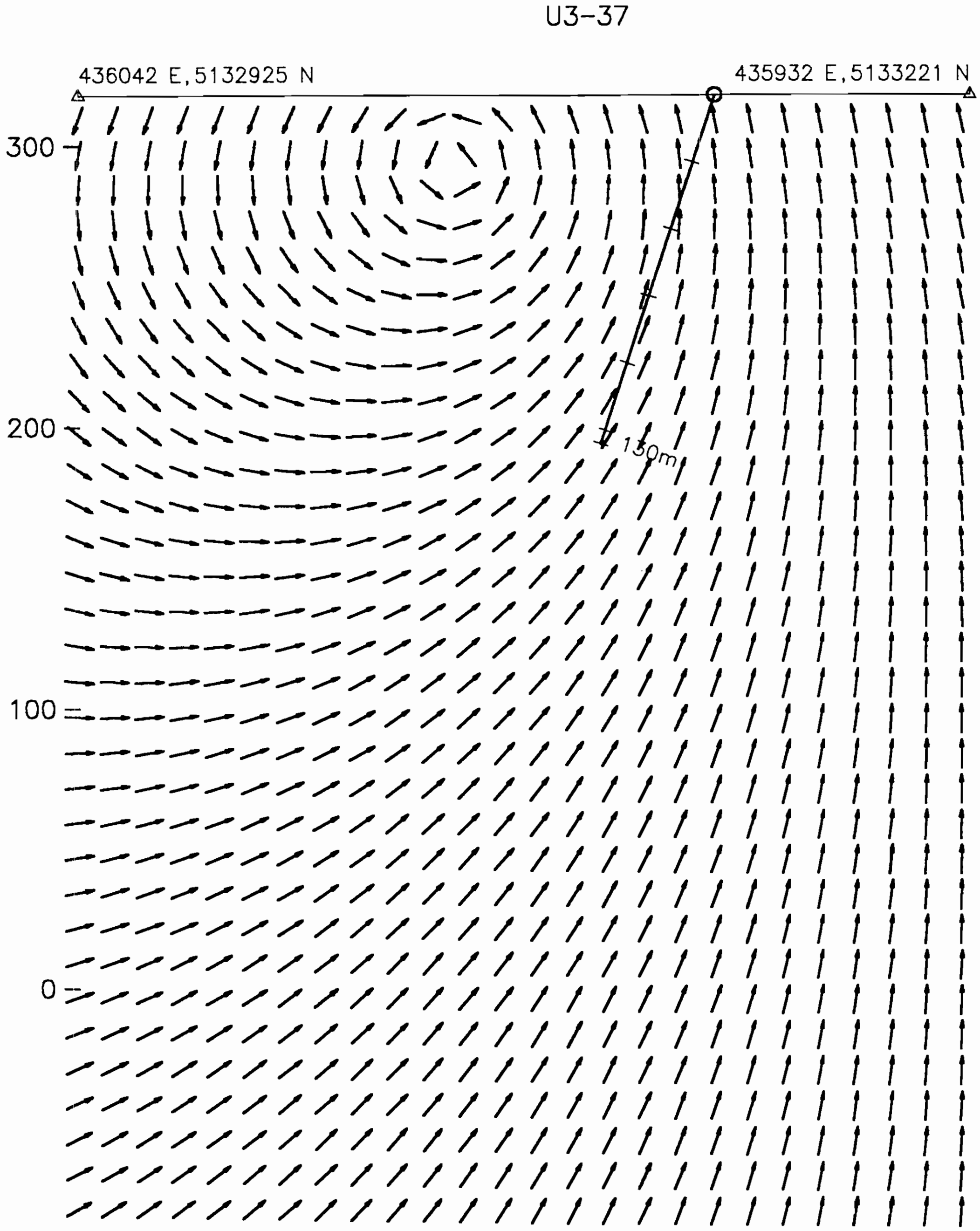
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-44

Survey Date: Nov 12, 2003

Crone Geophysics & Exploration Ltd.



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(meters)

Ursa Major Minerals Inc.

Shakespeare Project

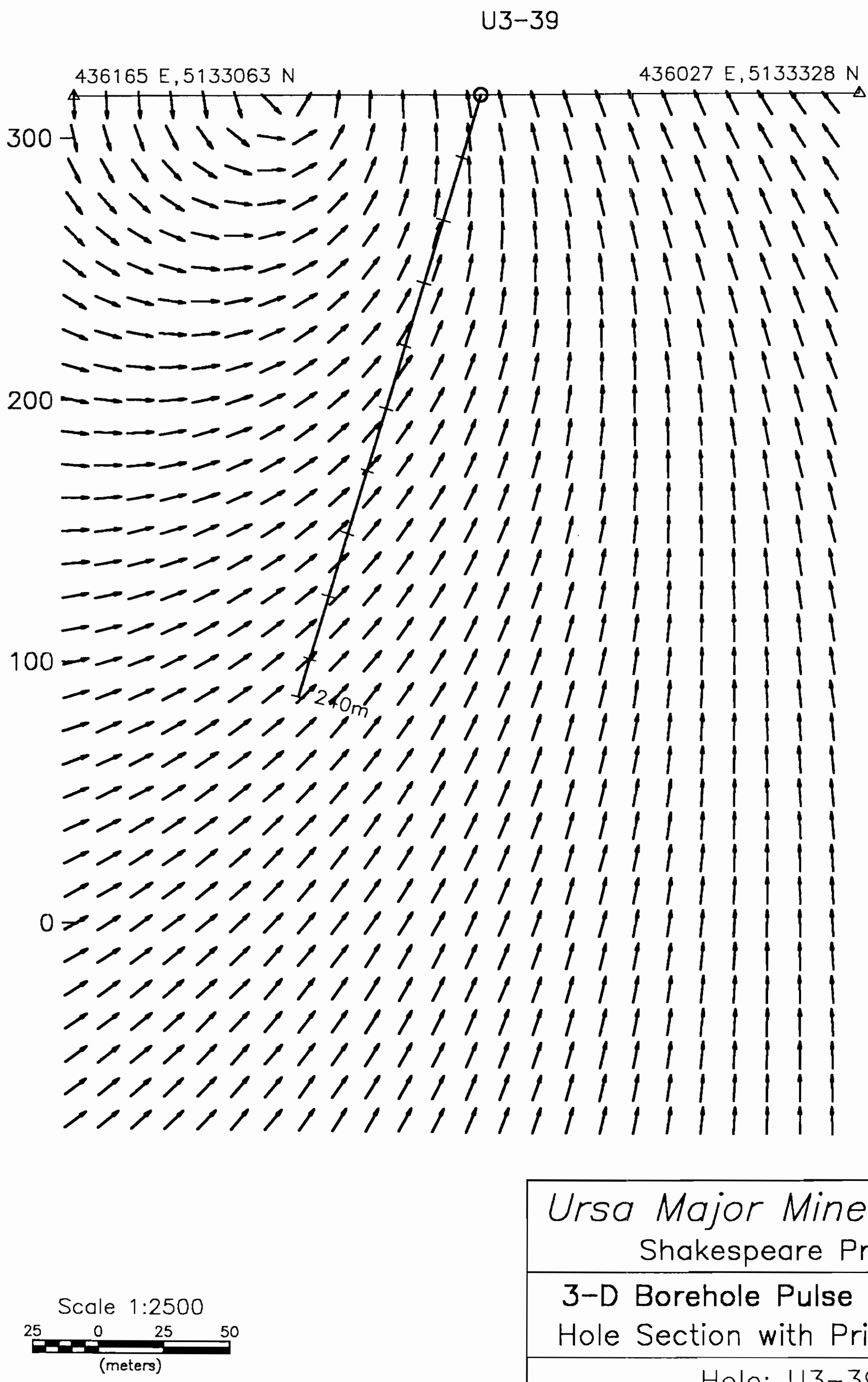
3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: U3-37

Survey Date: Nov 11, 2003

Crone Geophysics & Exploration Ltd.

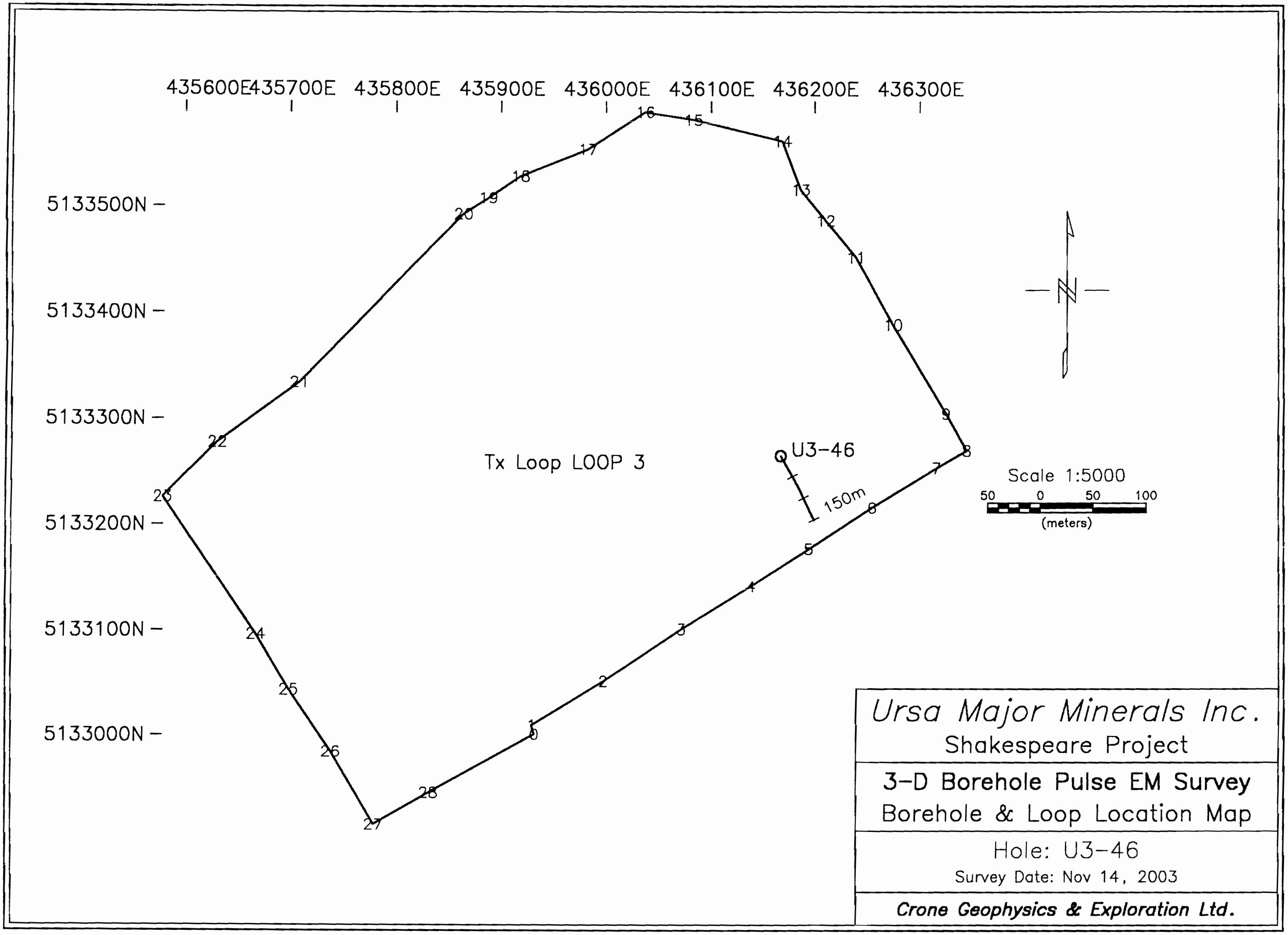


Ursa Major Minerals Inc.
Shakespeare Project

3-D Borehole Pulse EM Survey
Hole Section with Primary Field

Hole: U3-39
Survey Date: November 15, 2003

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.

Shakespeare Project

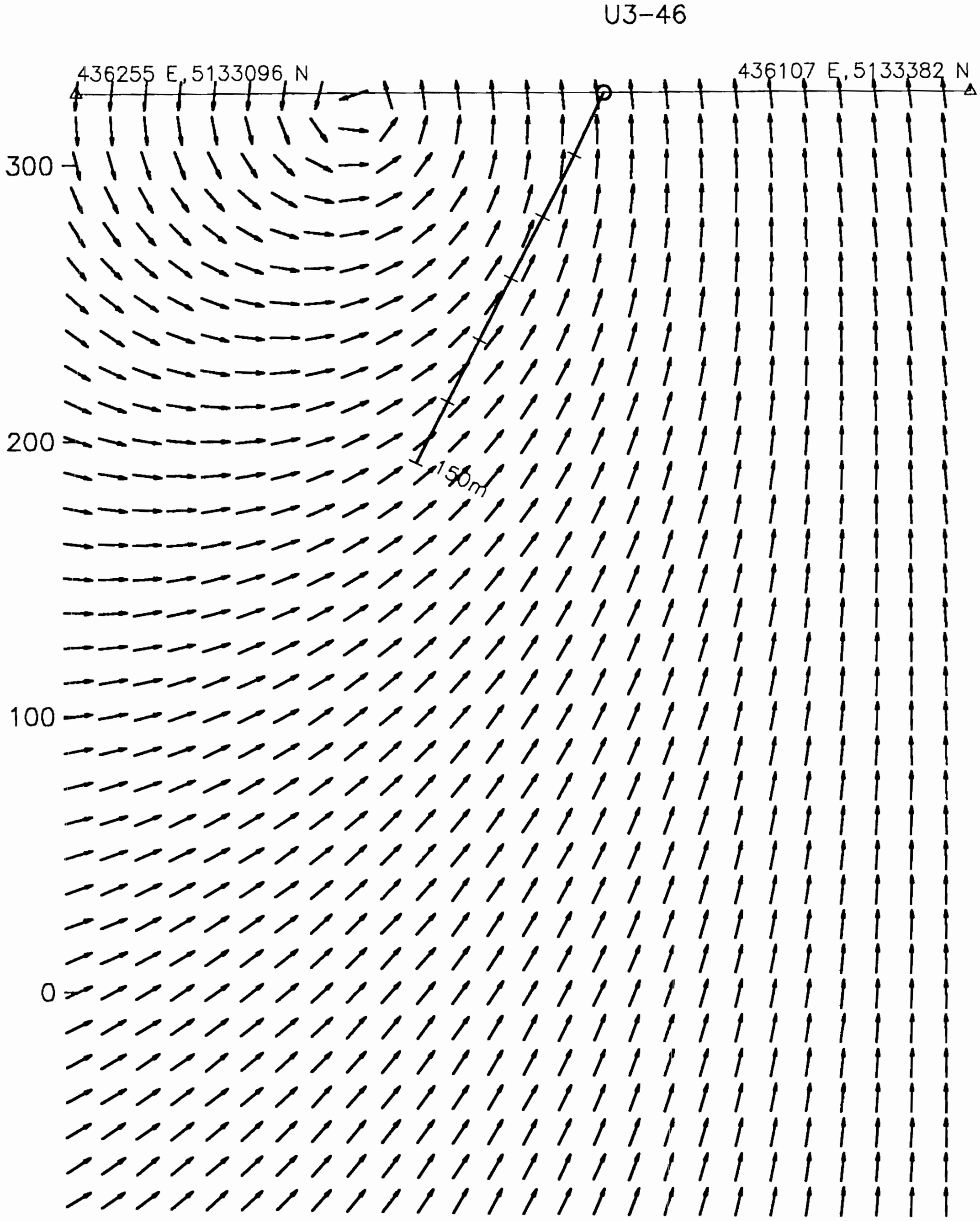
3-D Borehole Pulse EM Survey

Borehole & Loop Location Map

Hole: U3-46

Survey Date: Nov 14, 2003

Crone Geophysics & Exploration Ltd.



Scale 1:2500

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(meters)

Ursa Major Minerals Inc.

Shakespeare Project

3-D Borehole Pulse EM Survey

Hole Section with Primary Field

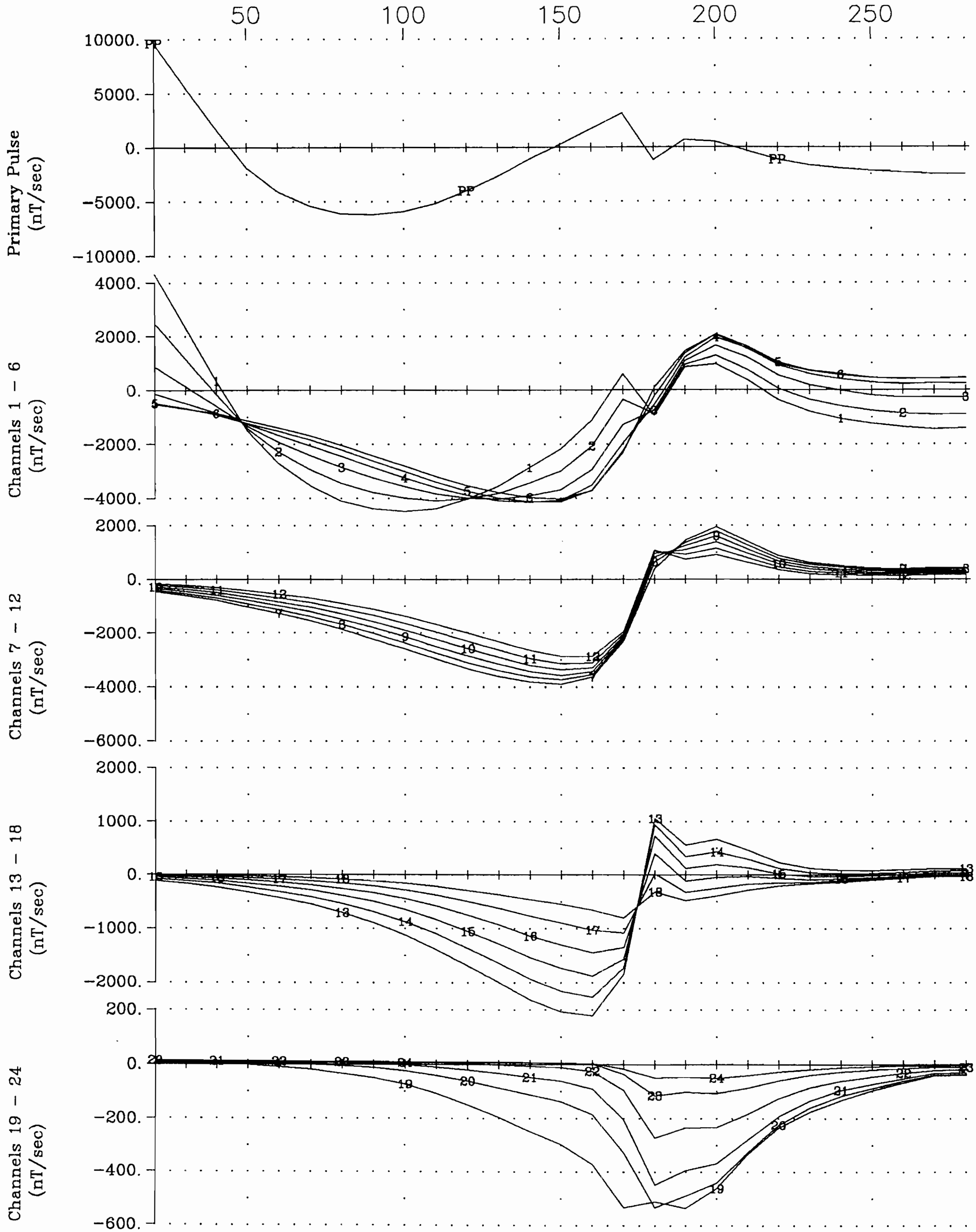
Hole: U3-46

Survey Date: Nov 14, 2003

Crone Geophysics & Exploration Ltd.

APPENDIX II

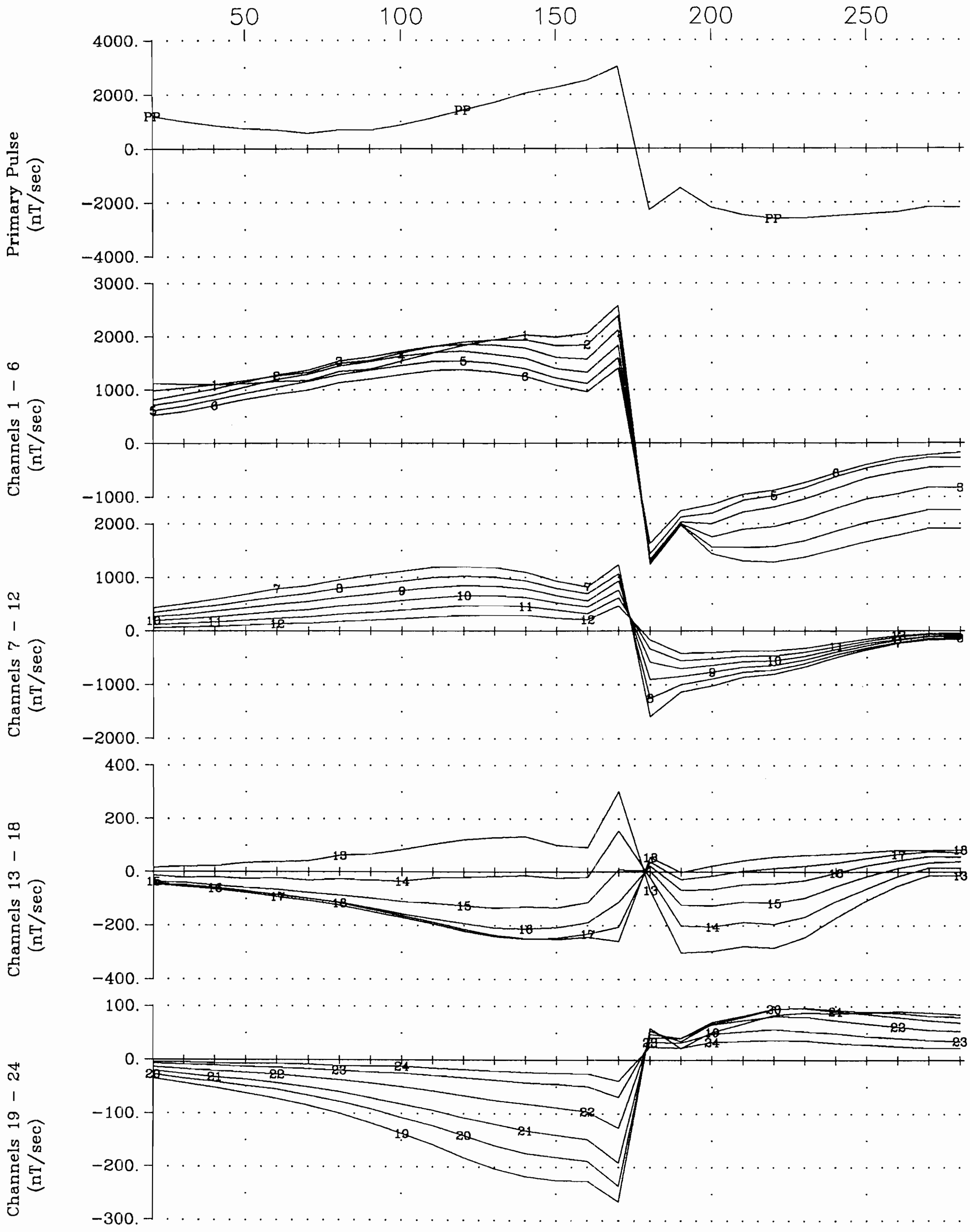
LINEAR (5-AXIS) PULSE EM DATA PROFILES



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-13 X Component

Crone Geophysics & Exploration Ltd.



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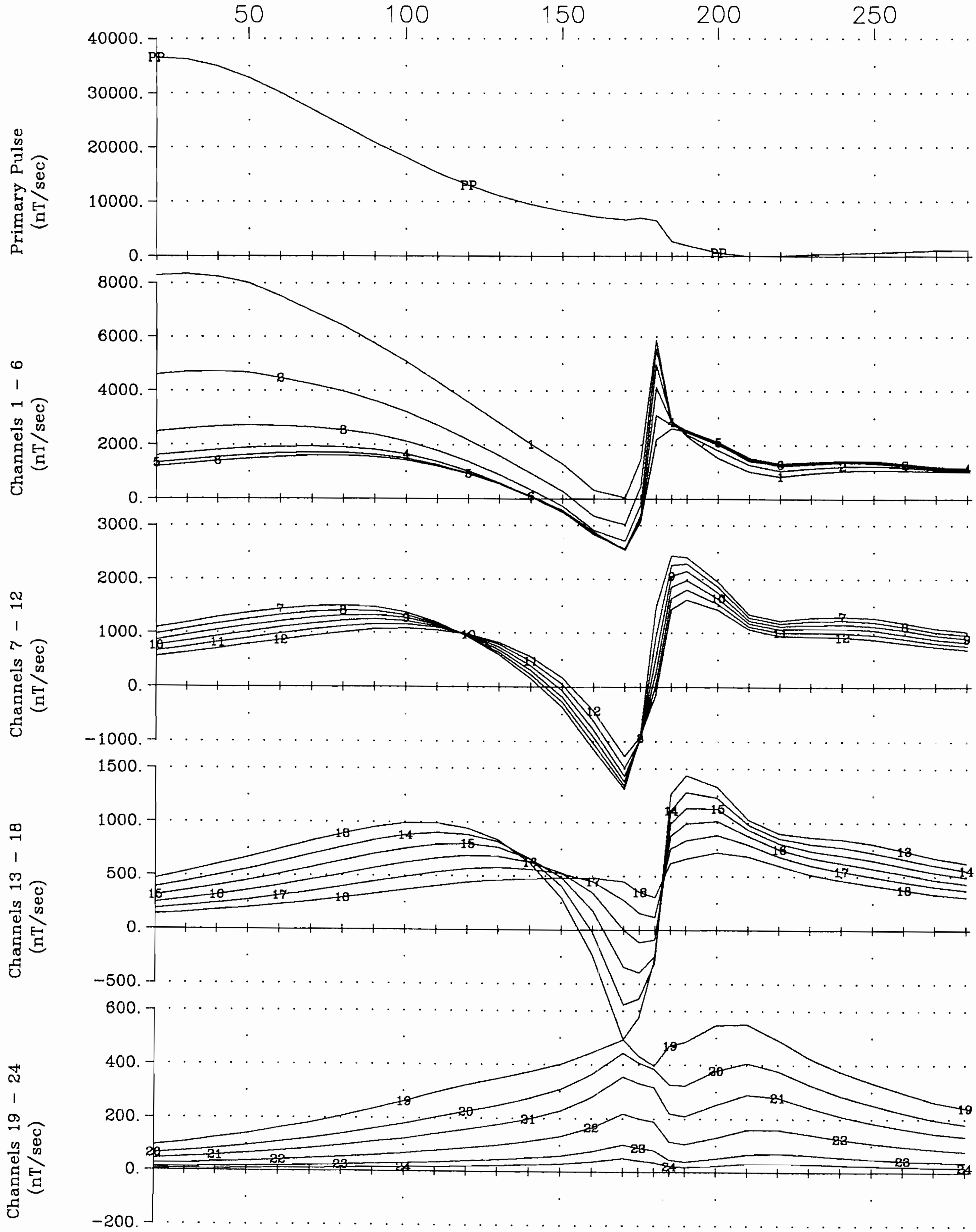
Hole U3-13 Y Component
Crone Geophysics & Exploration Ltd.



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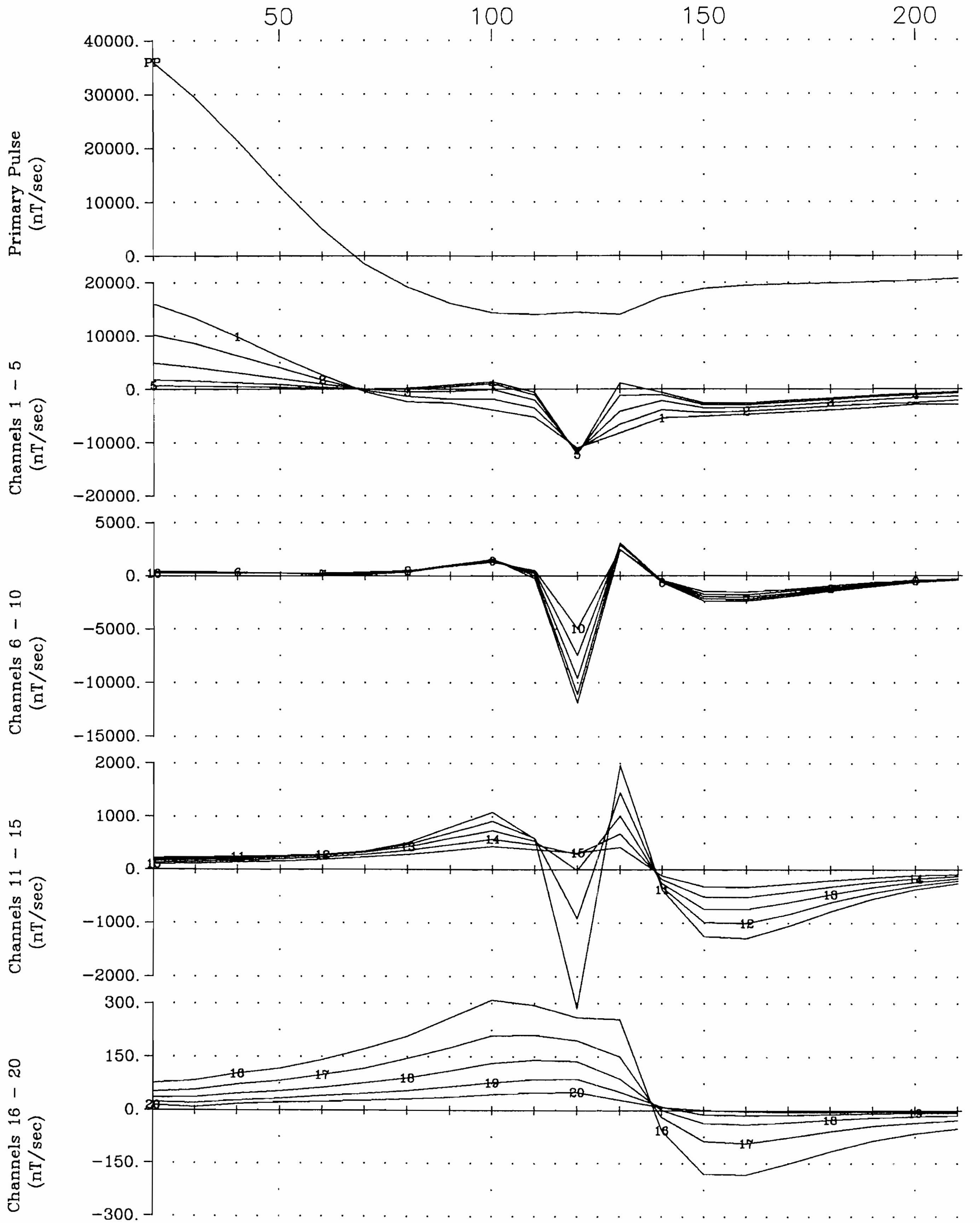
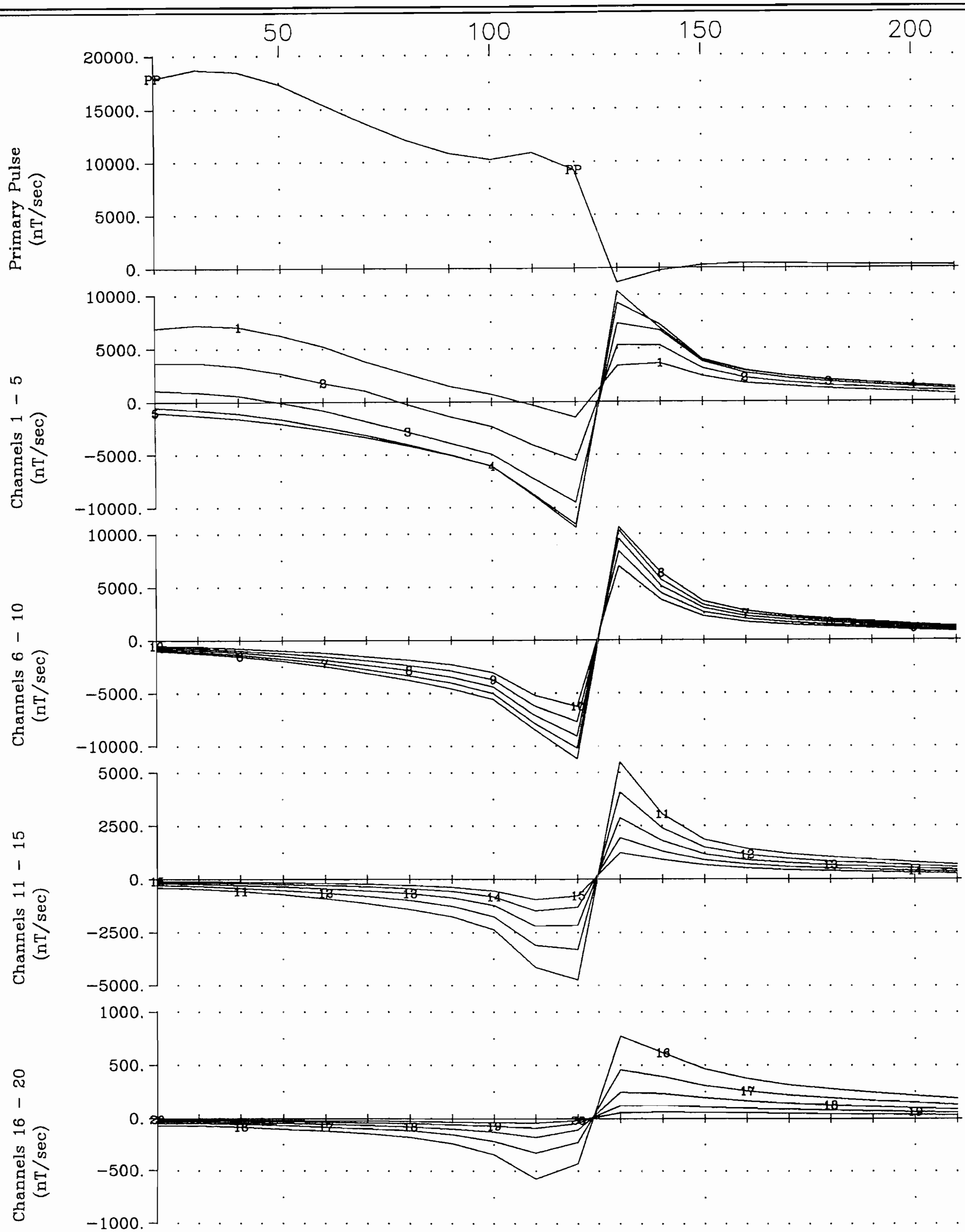
Hole U3-13 Z Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-20 X Component

Crone Geophysics & Exploration Ltd.



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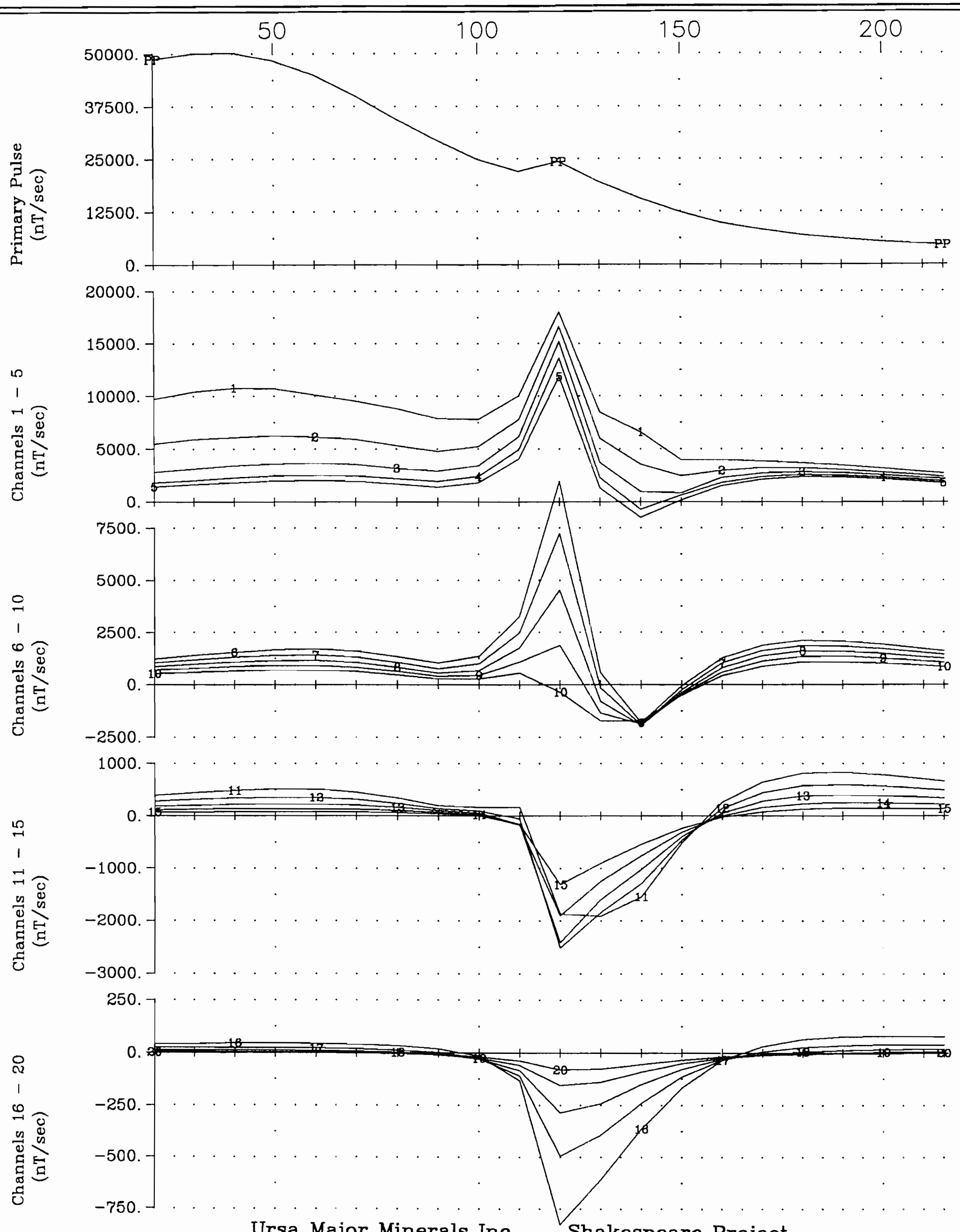
Hole U3-20 Y Component

Crone Geophysics & Exploration Ltd.



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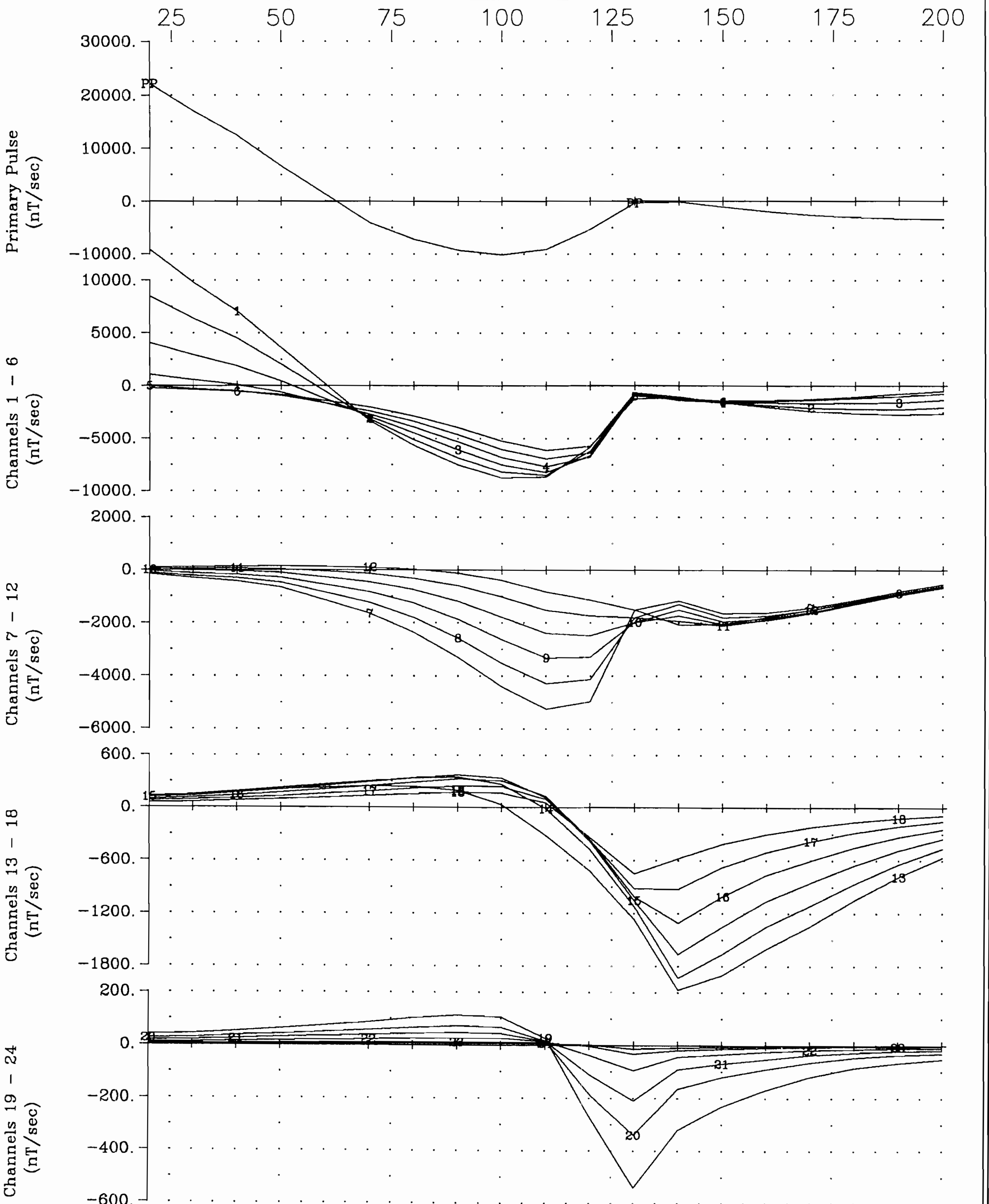
Hole U3-20 Z Component

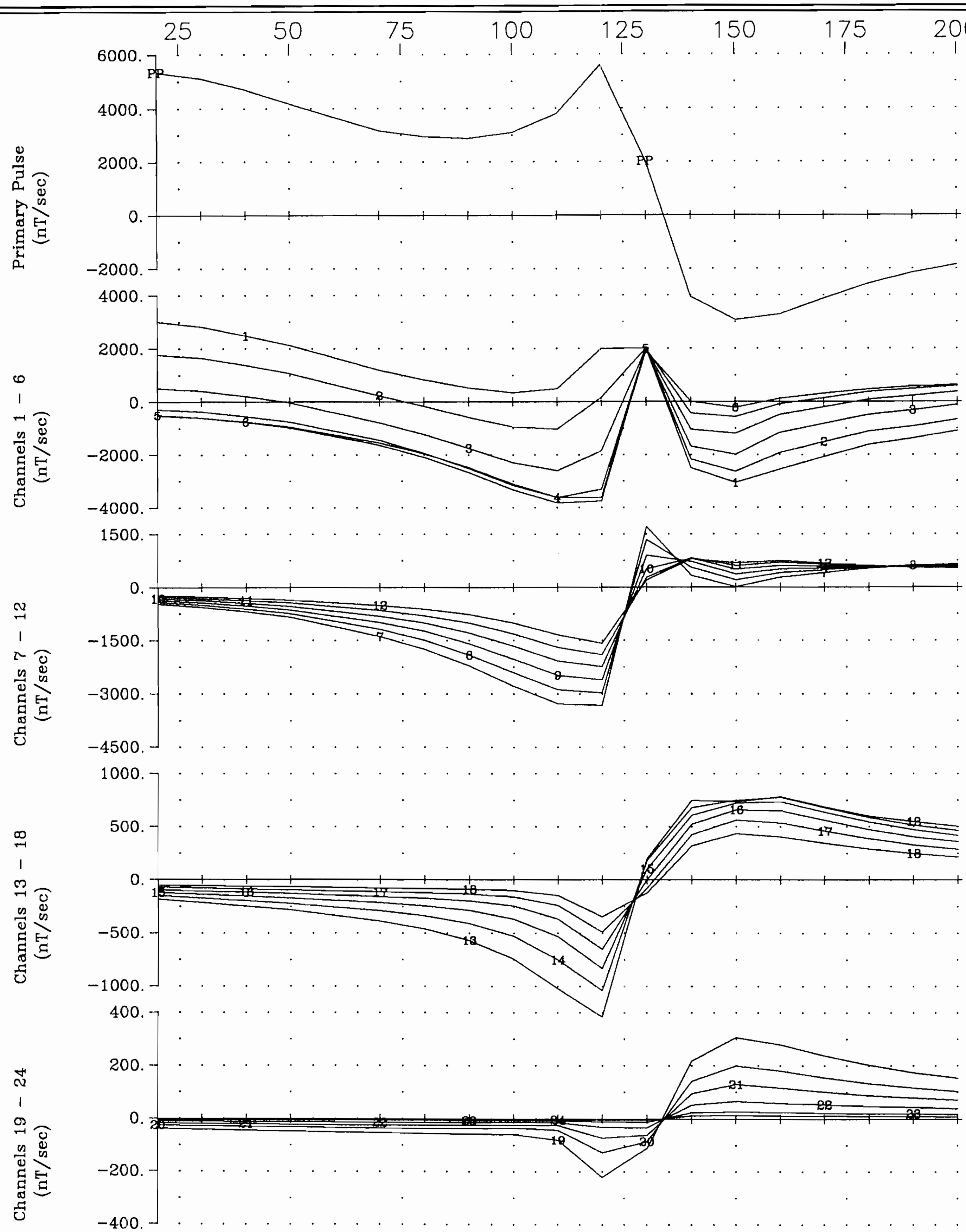
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Shakespeare Project

Hole U3-21 X Component

Crone Geophysics & Exploration Ltd.



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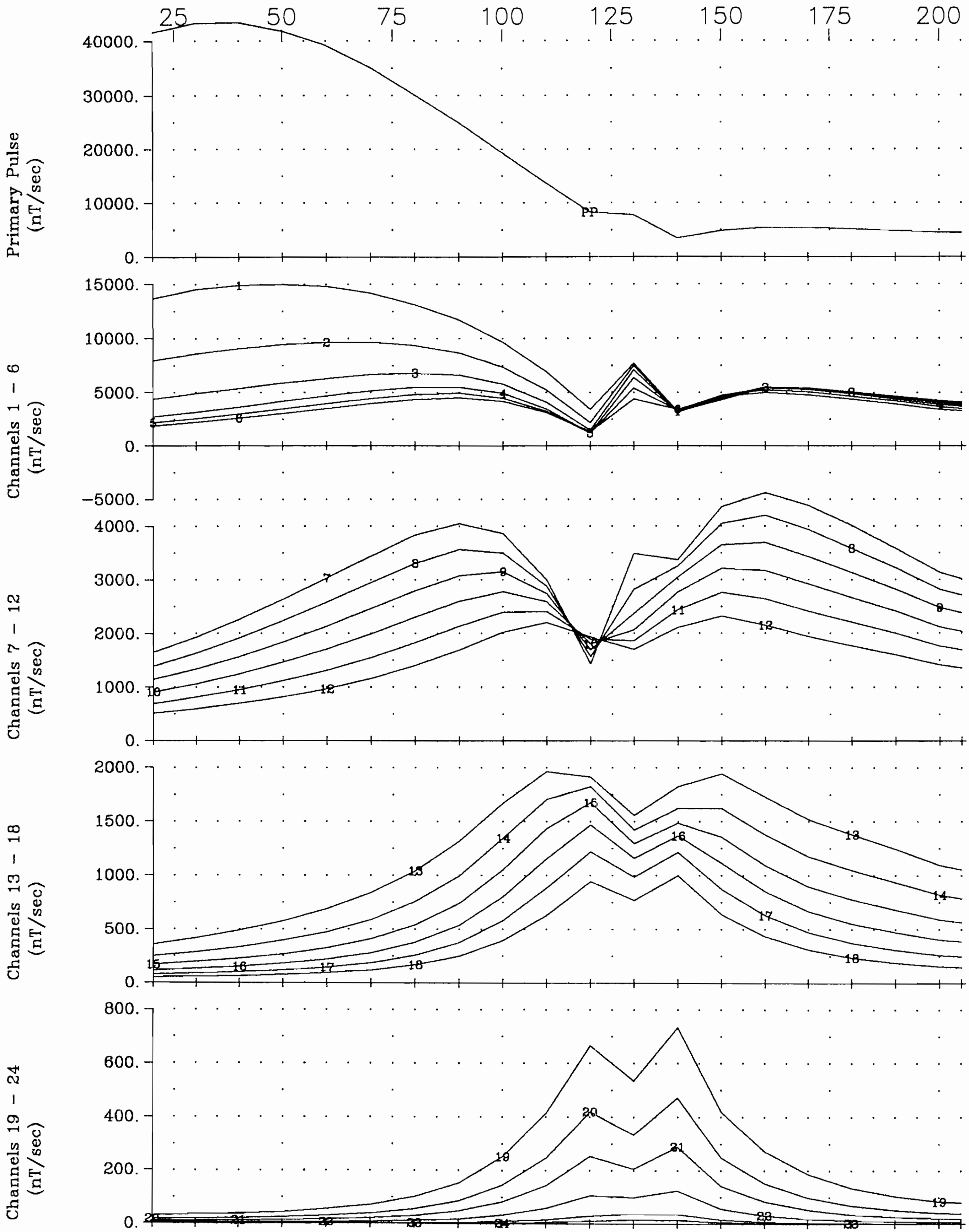

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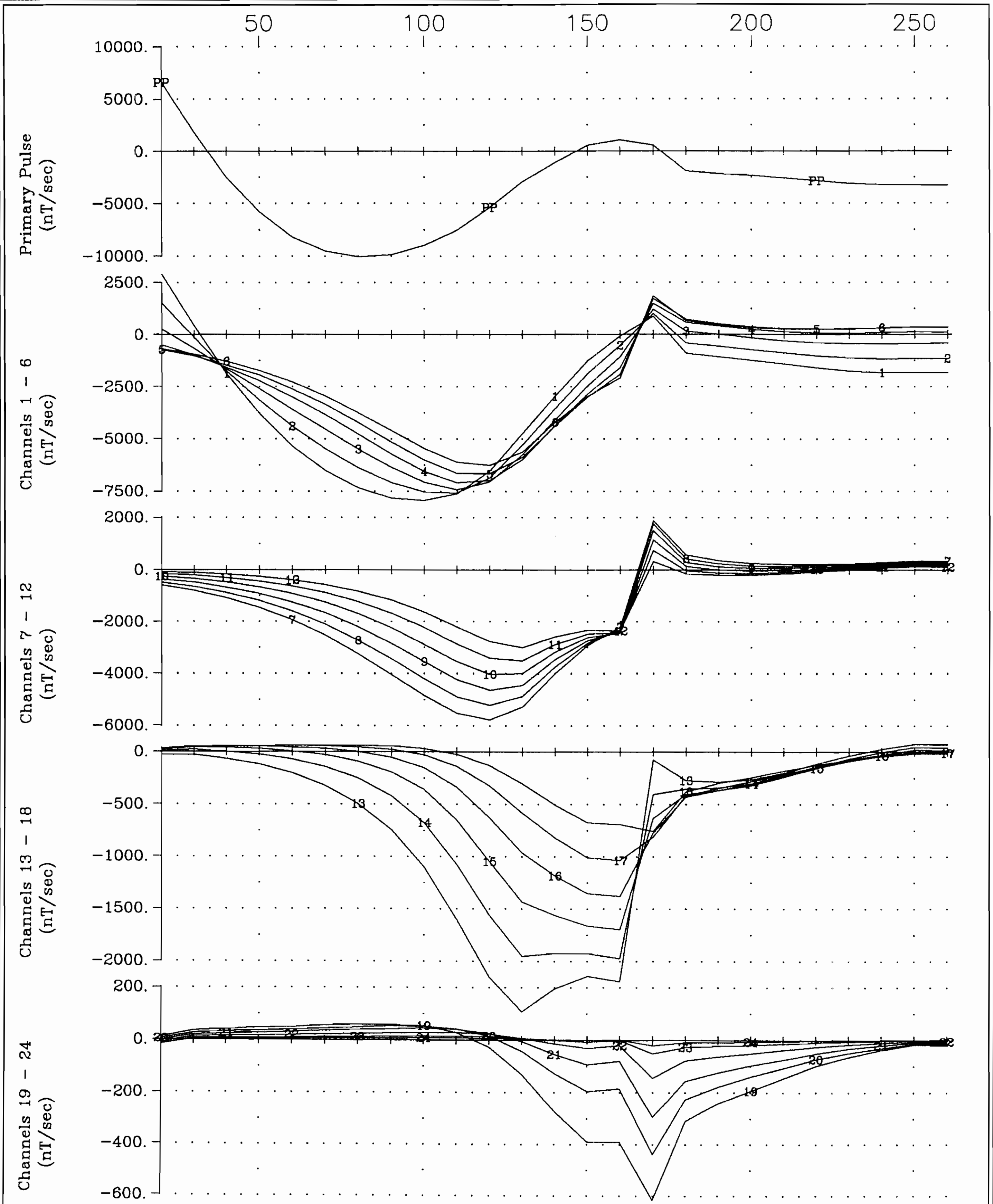
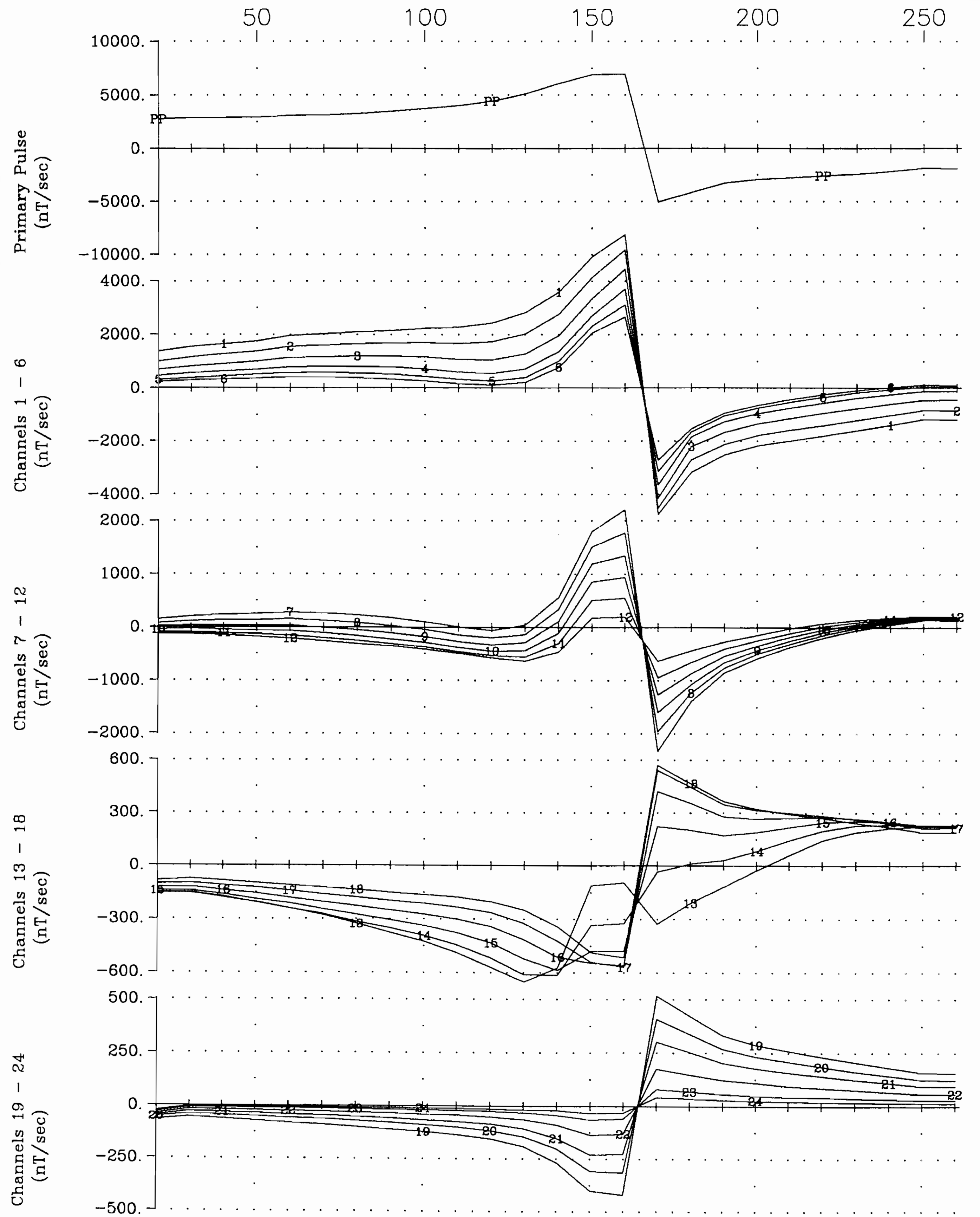


Ursa Major Minerals Shakespeare Project
Hole U3-24 X Component
Crone Geophysics & Exploration Ltd.



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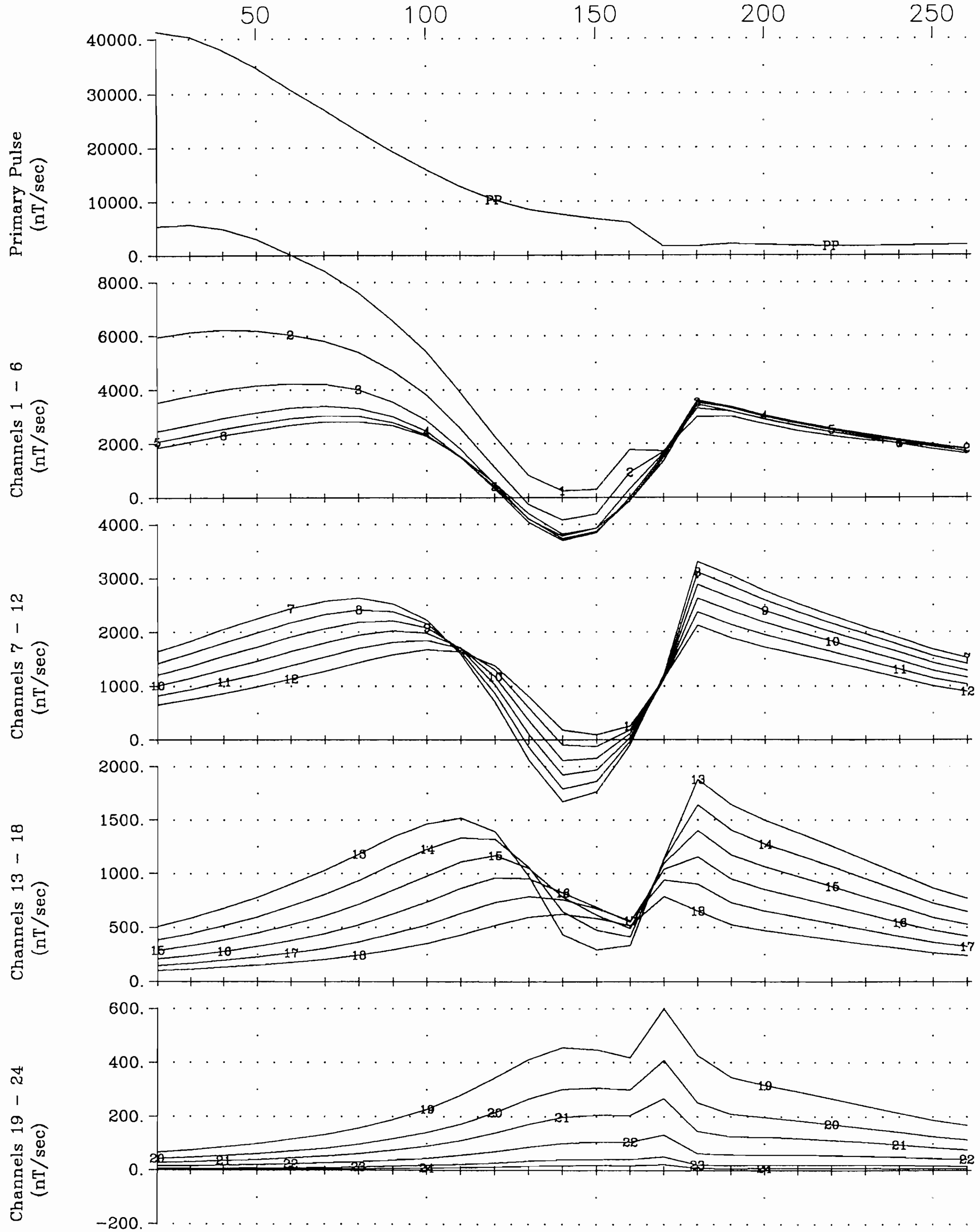

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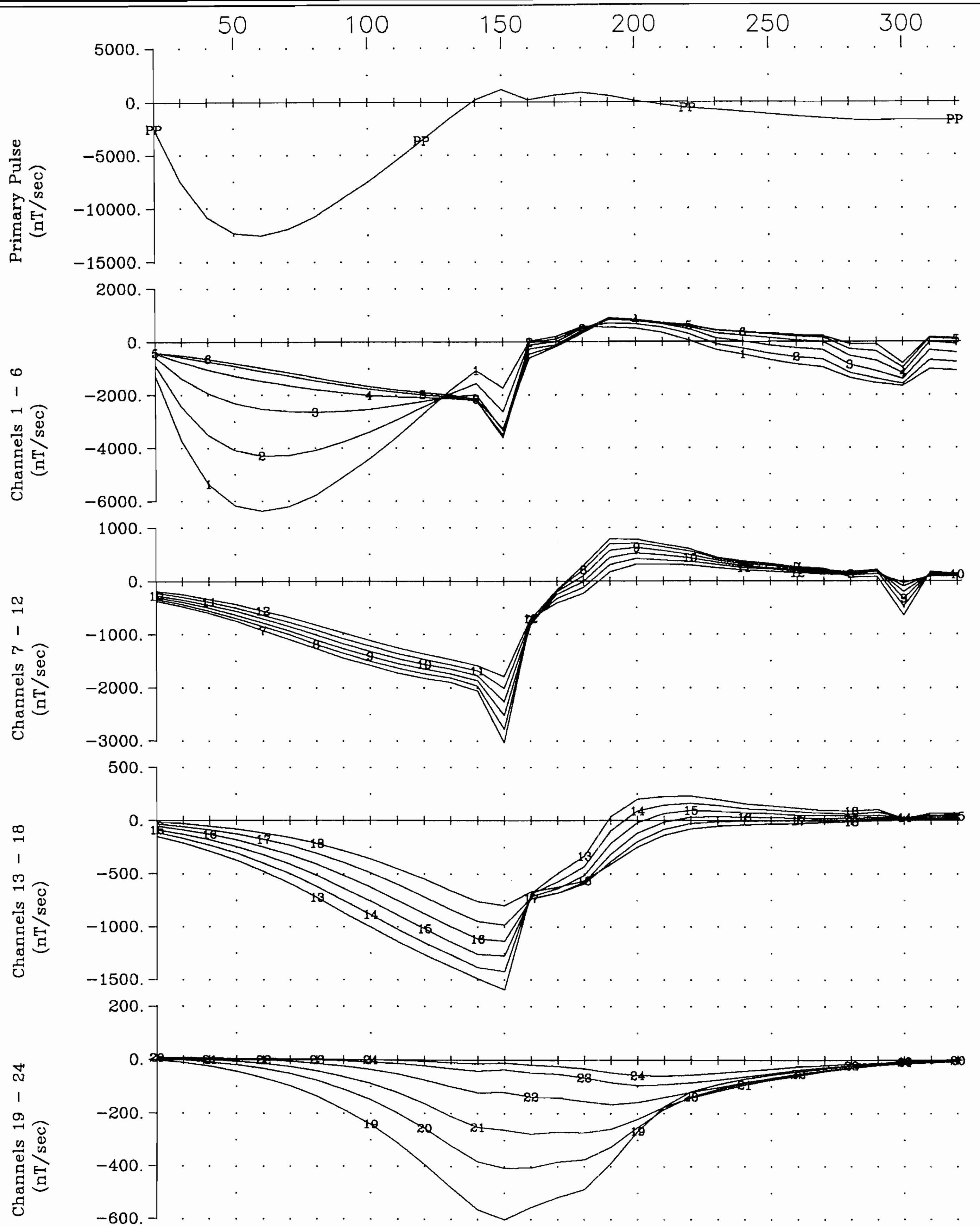

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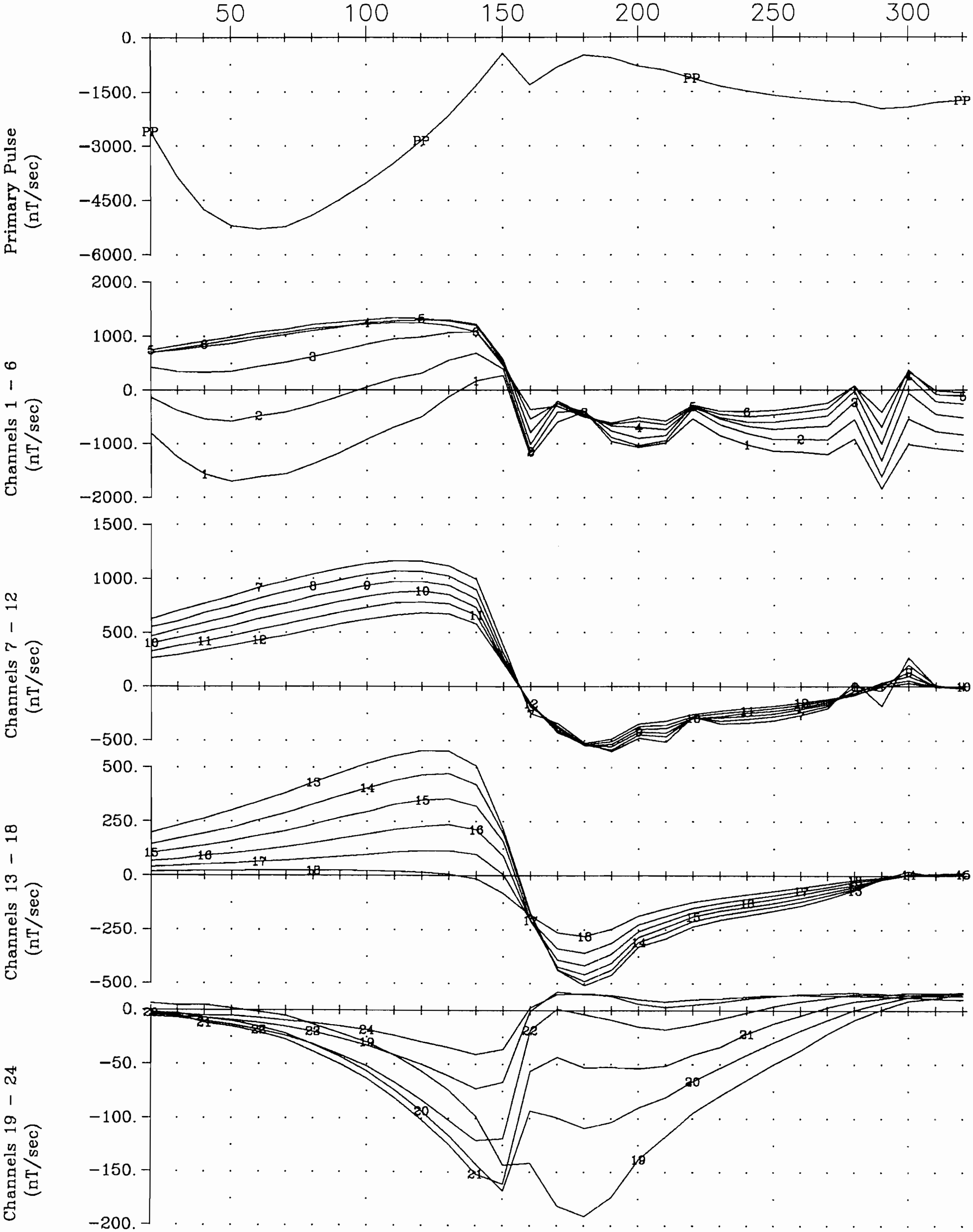
Crone Geophysics & Exploration Ltd.



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Hole U3-27 Y Component
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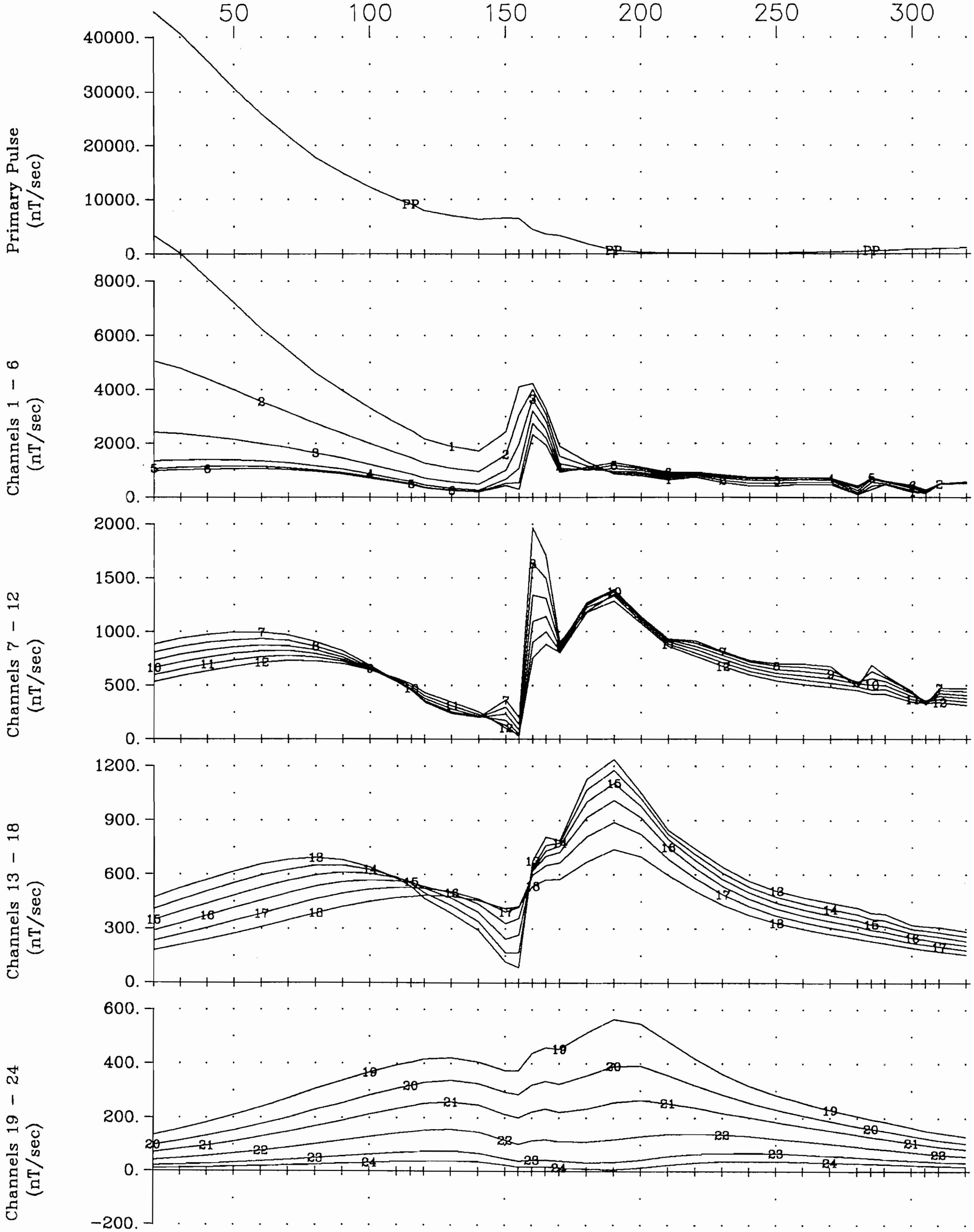
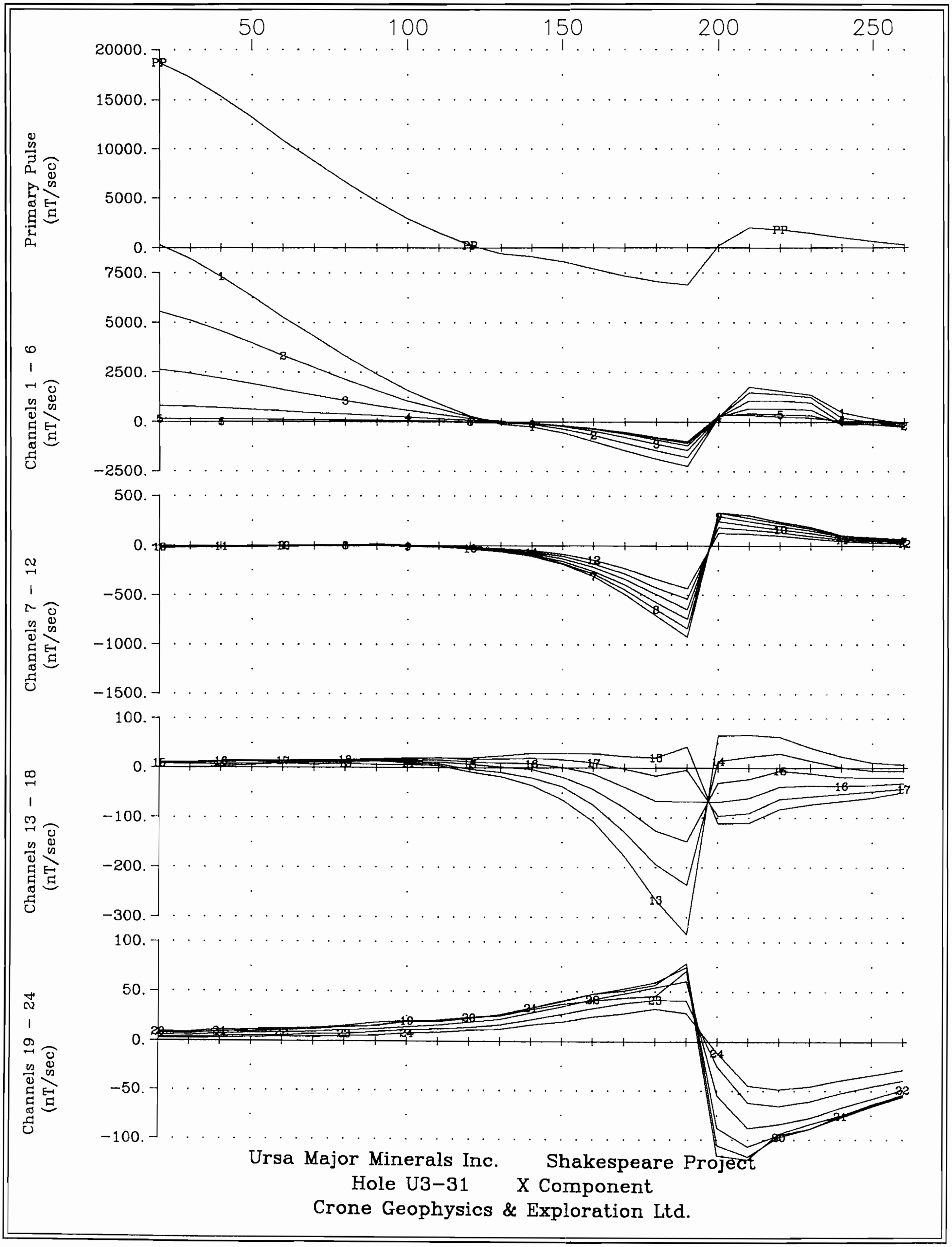
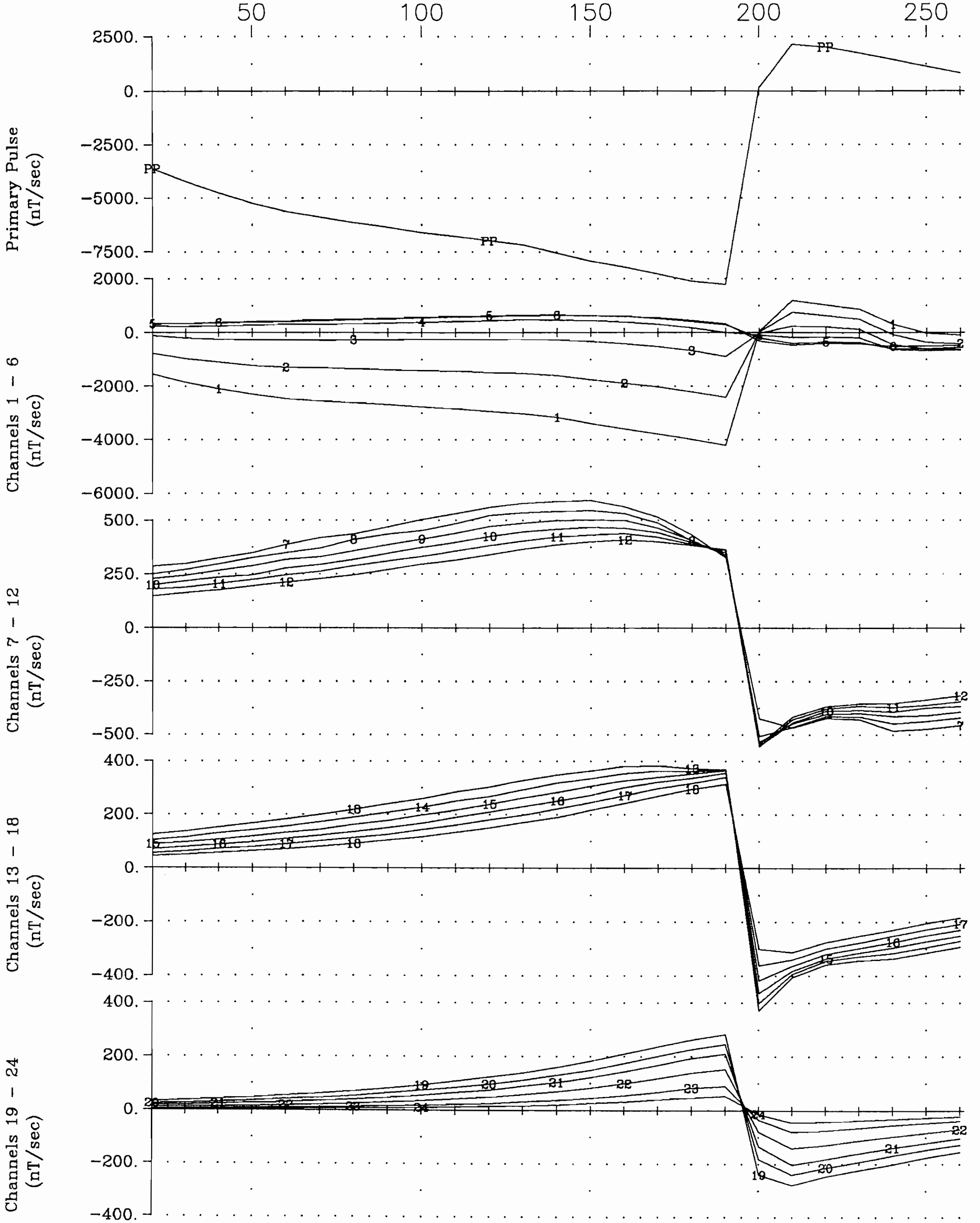


Ursa Major Minerals Inc. Shakespeare Project

Hole U3-27 Z Component

Crone Geophysics & Exploration Ltd.

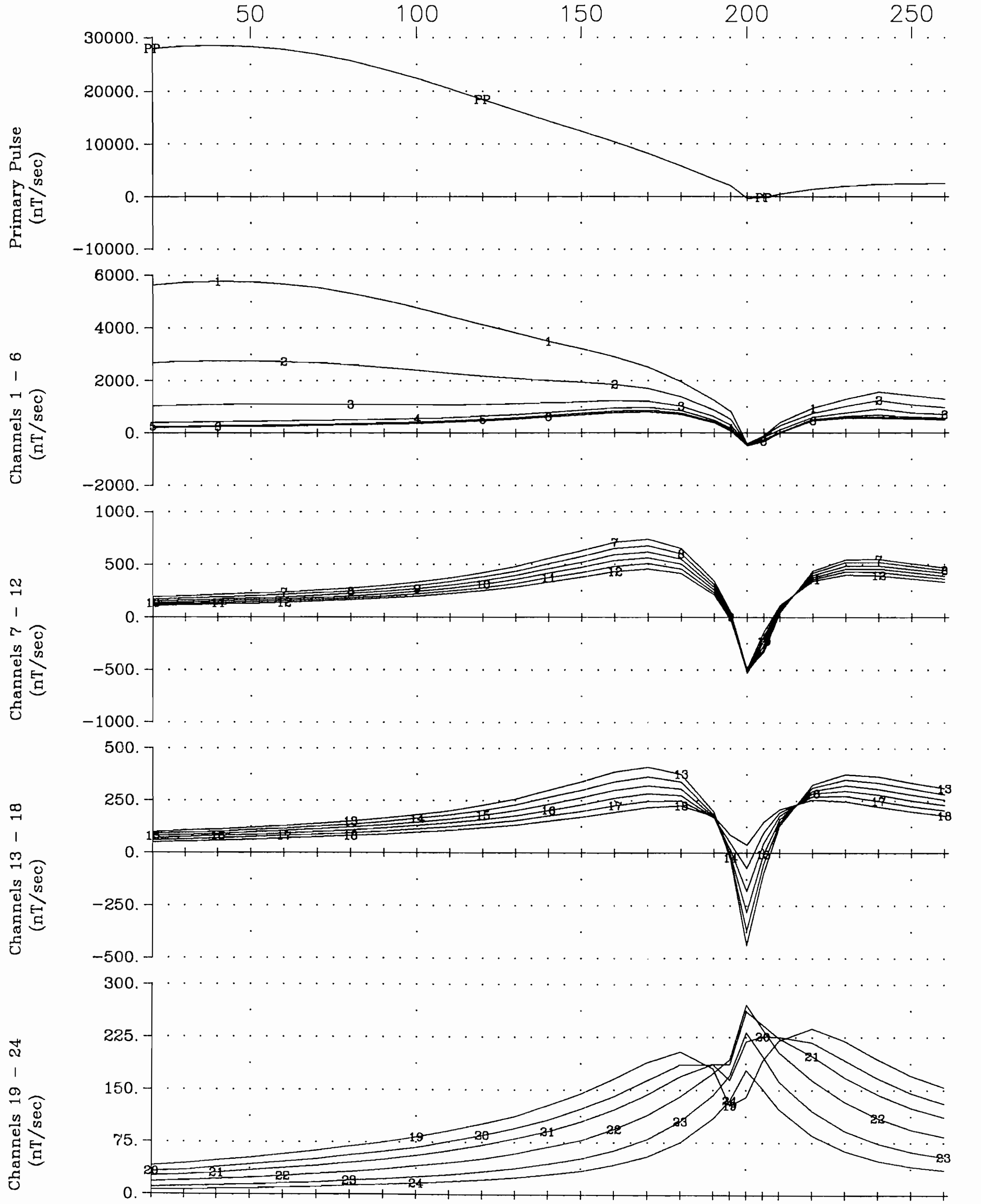

Primary Pulse (nT/sec)
Channels 1 - 6 (nT/sec)
Channels 7 - 12 (nT/sec)
Channels 13 - 18 (nT/sec)
Channels 19 - 24 (nT/sec)
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-31 X Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-31 Y Component

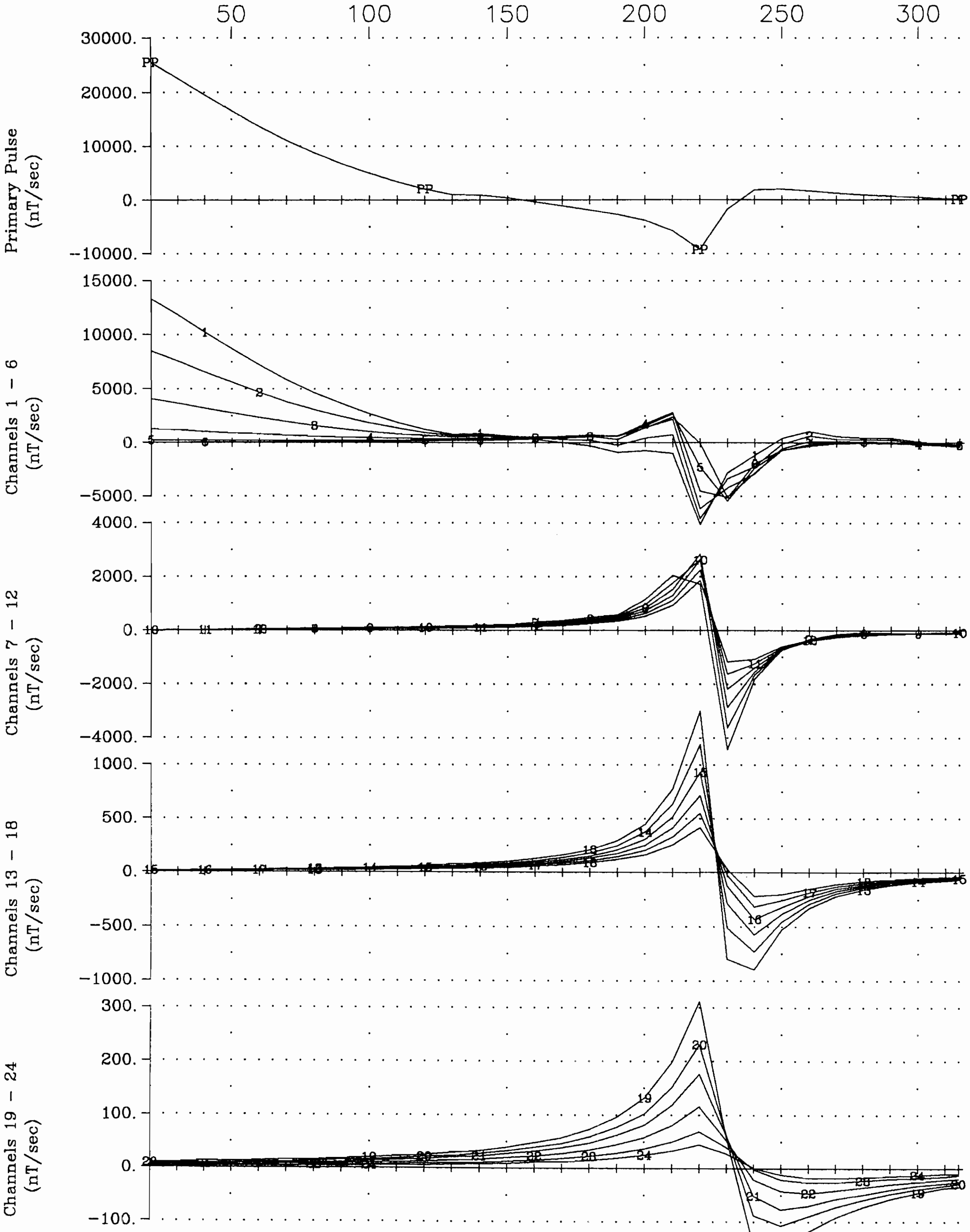
Crone Geophysics & Exploration Ltd.



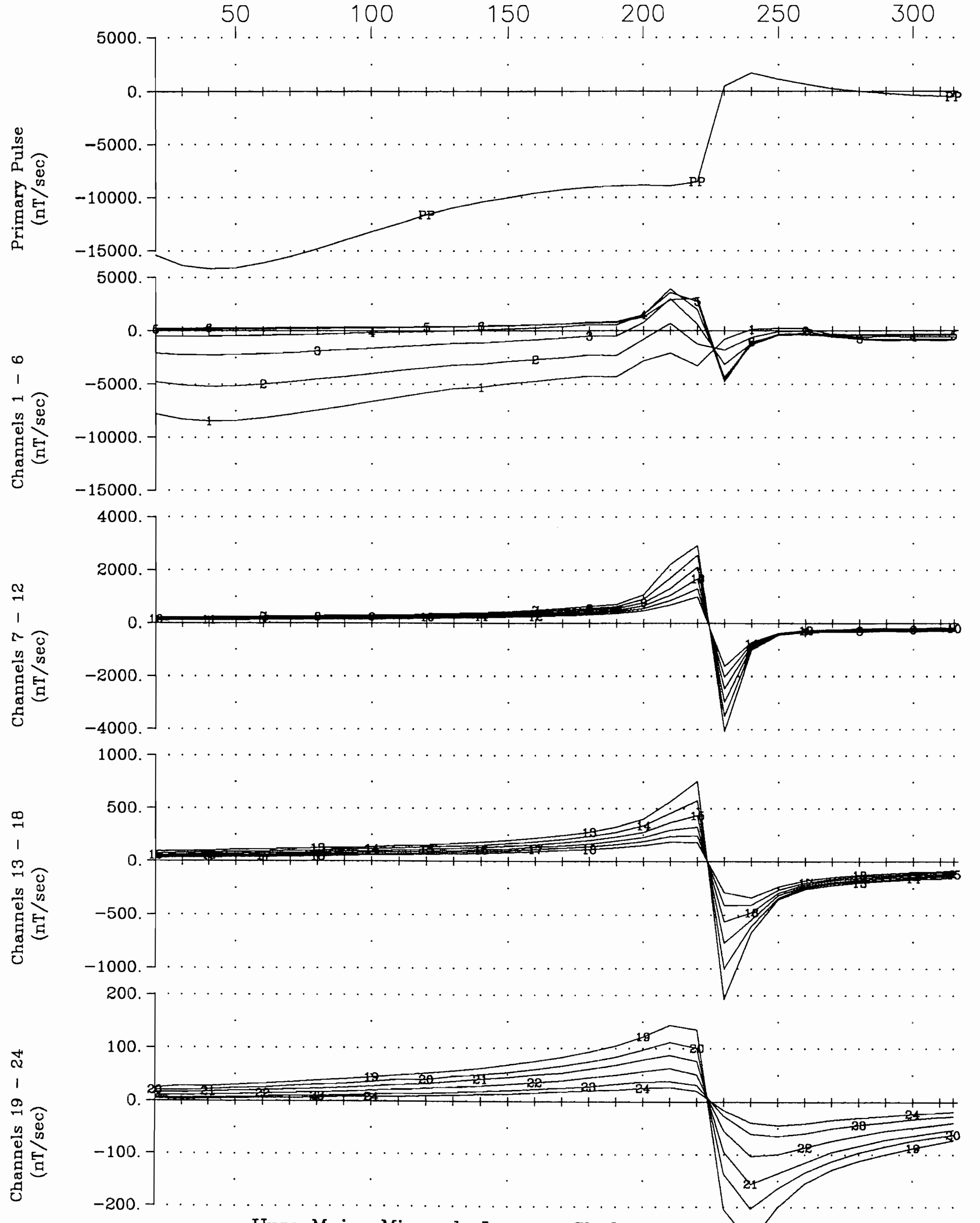
Ursa Major Minerals Inc. Shakespeare Project

Hole U3-31 Z Component

Crone Geophysics & Exploration Ltd.



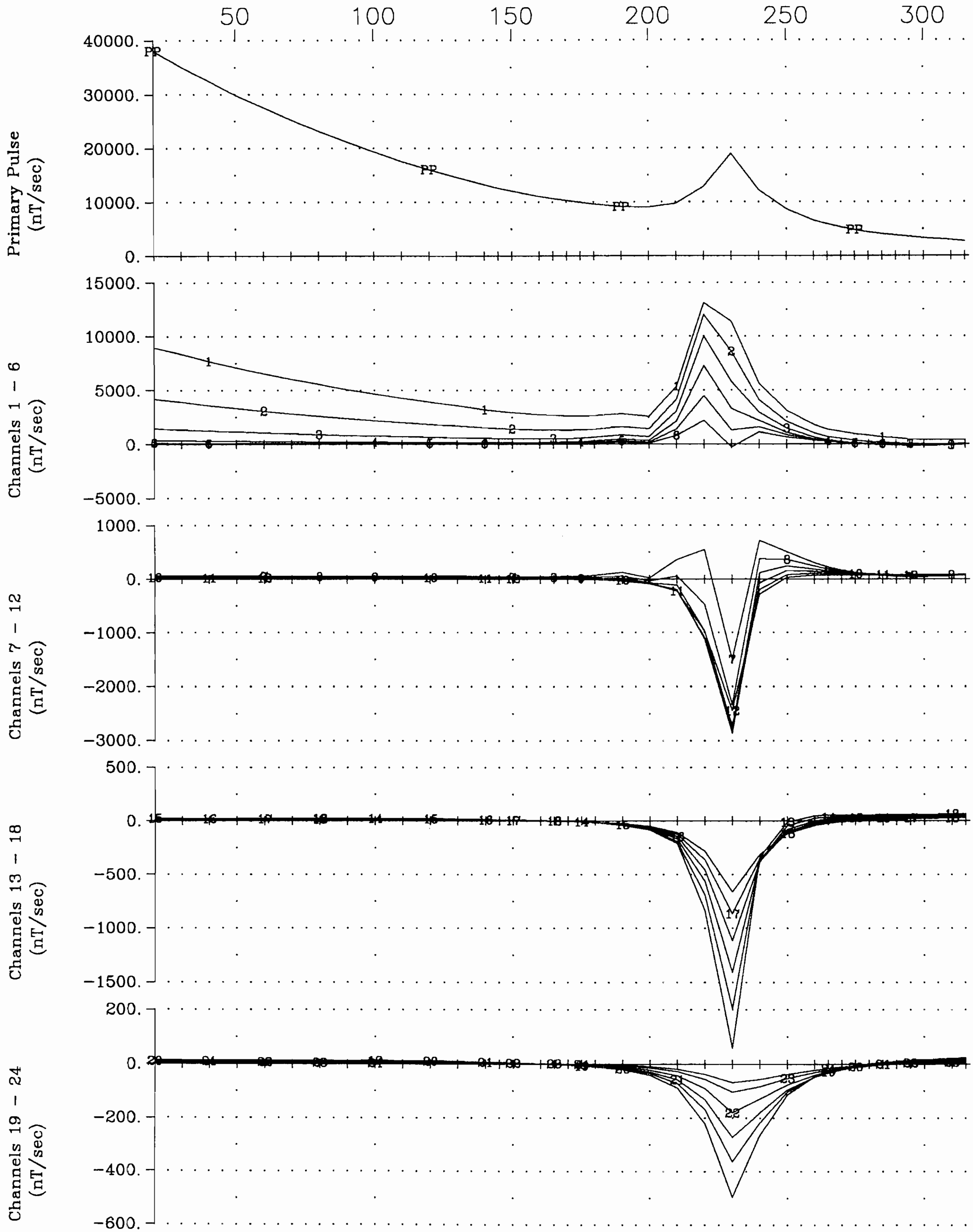
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-33 X Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-33 Y Component

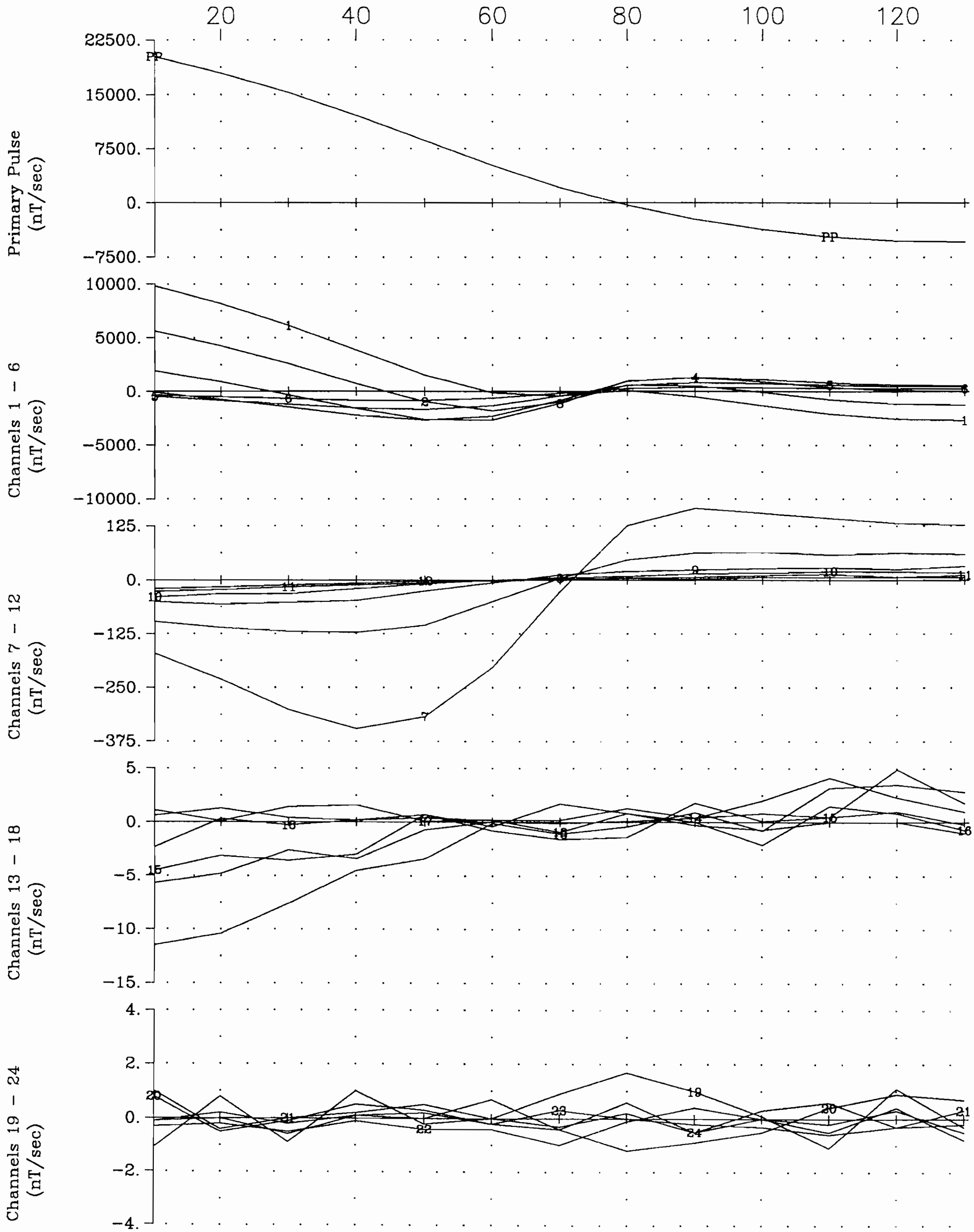
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-33 Z Component

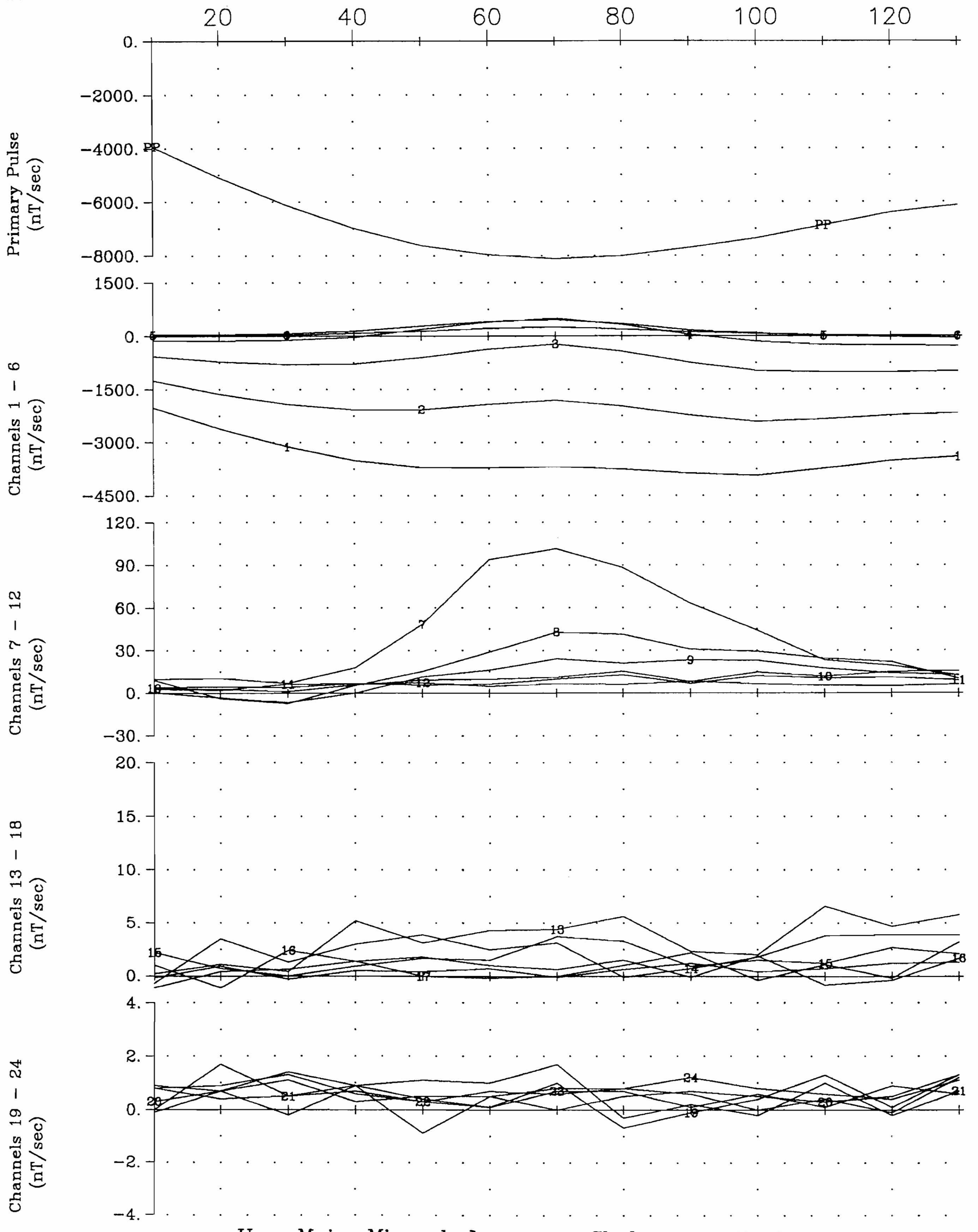
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-37 X Component

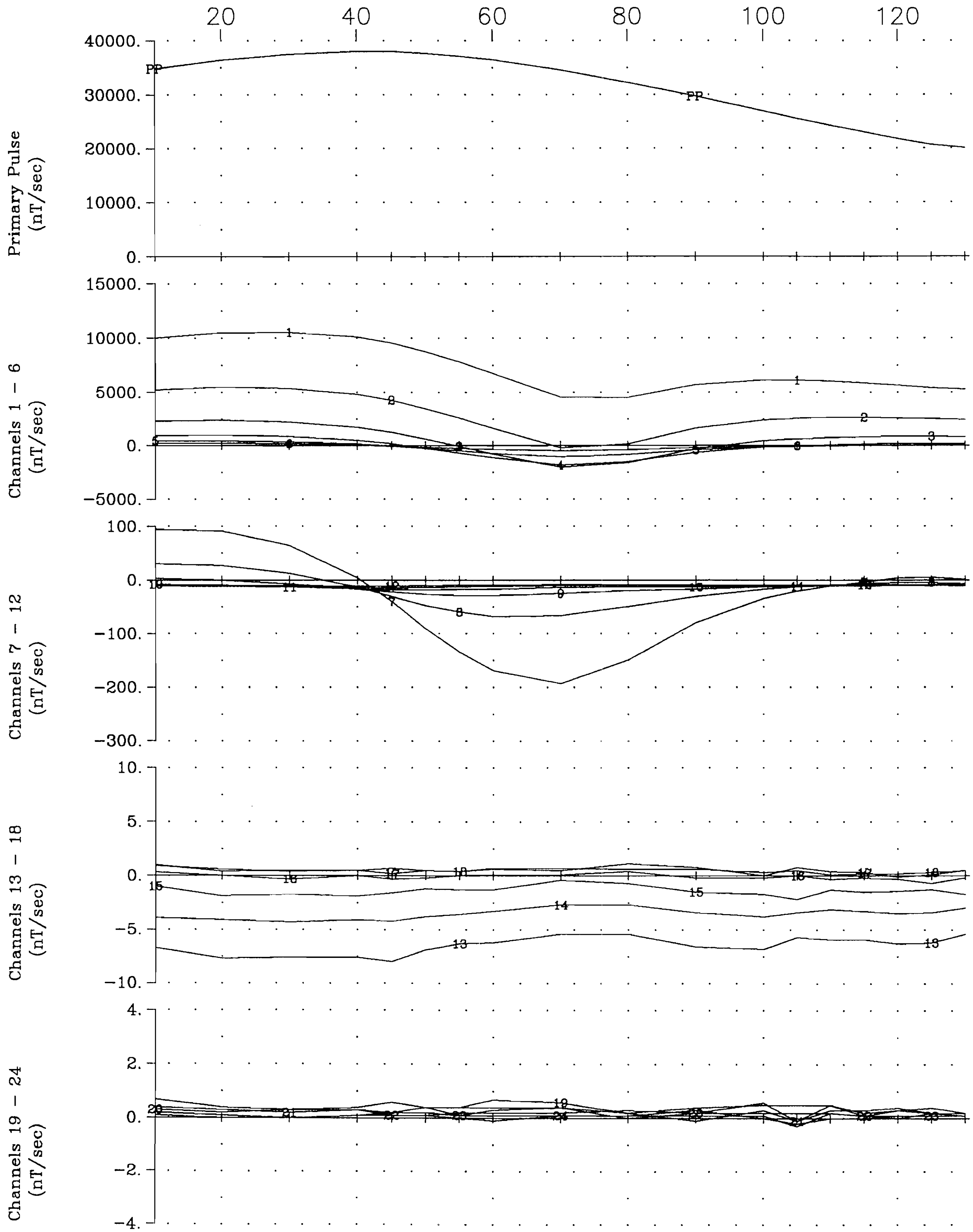
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.   Shakespeare Project

Hole U3-37   Y Component

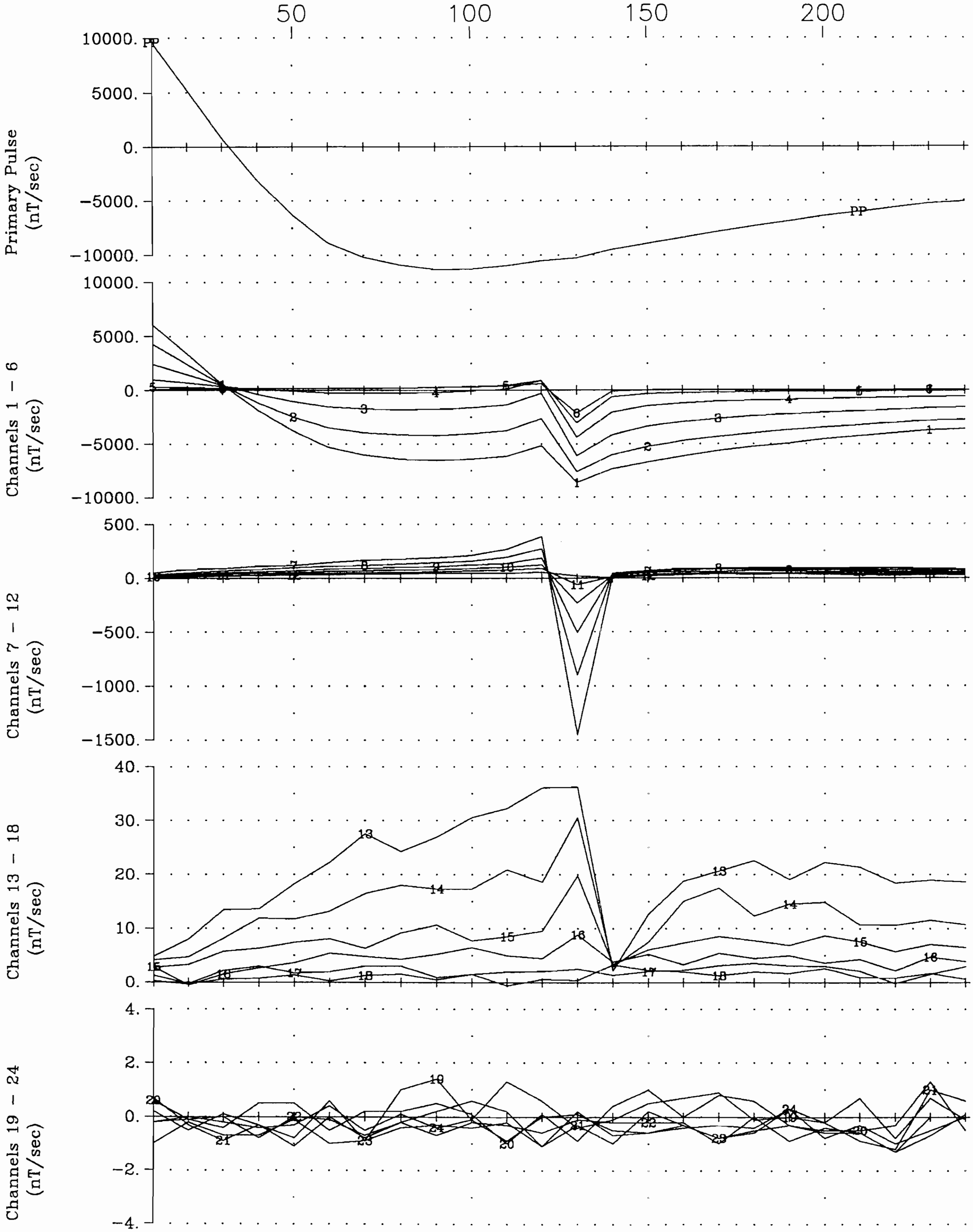
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-37 Z Component

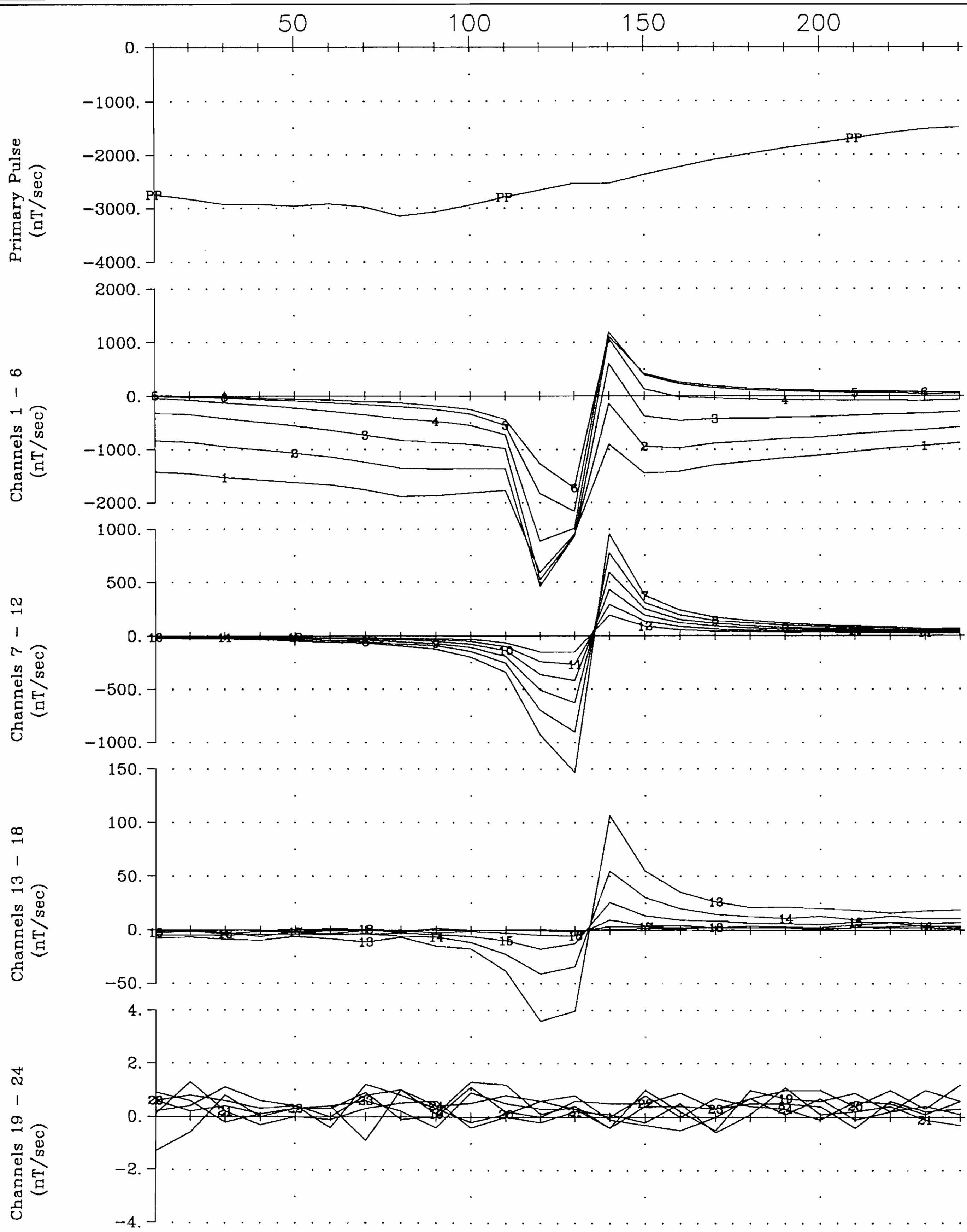
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-39 X Component

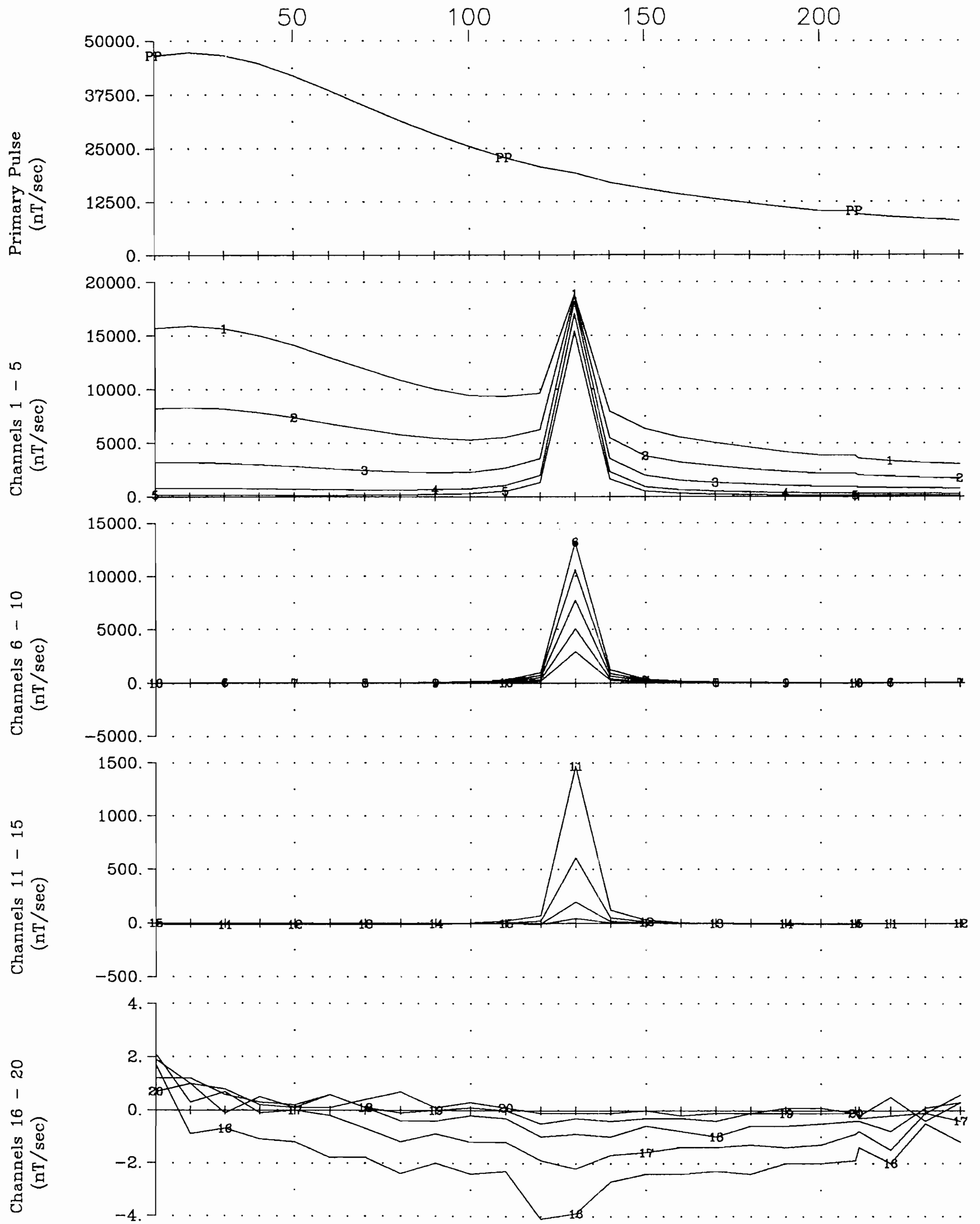
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-39 Y Component

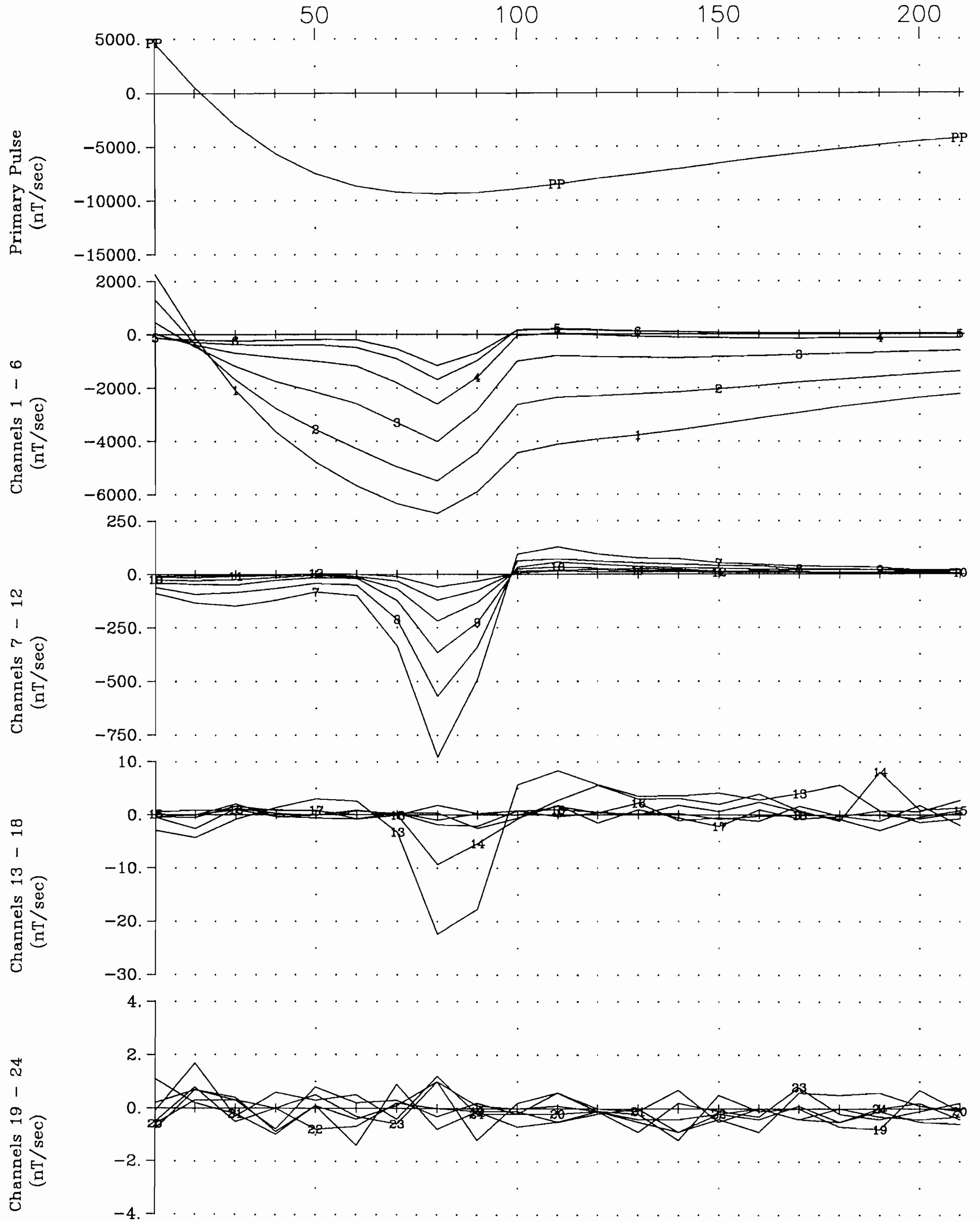
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-39 Z Component

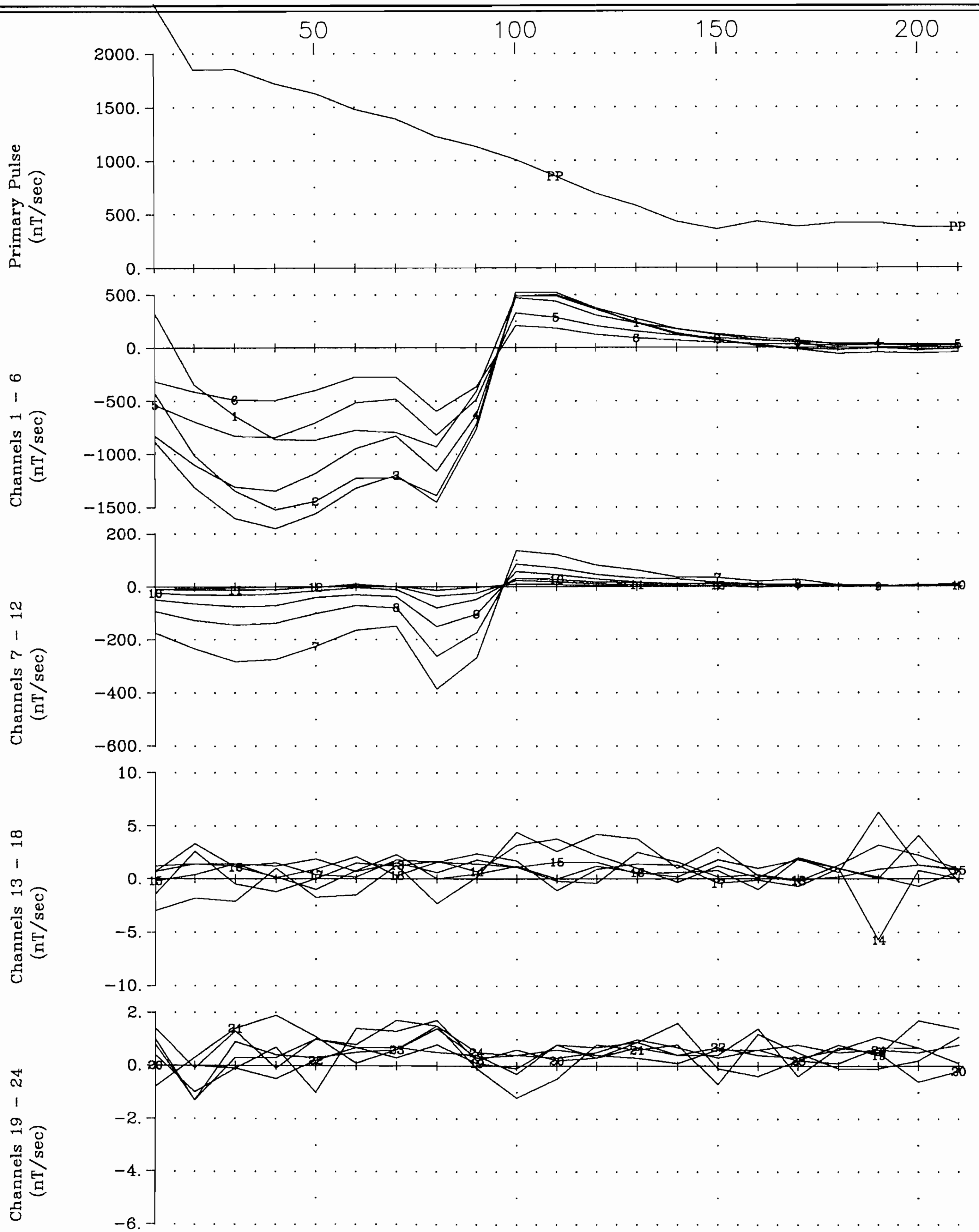
Crone Geophysics & Exploration Ltd.



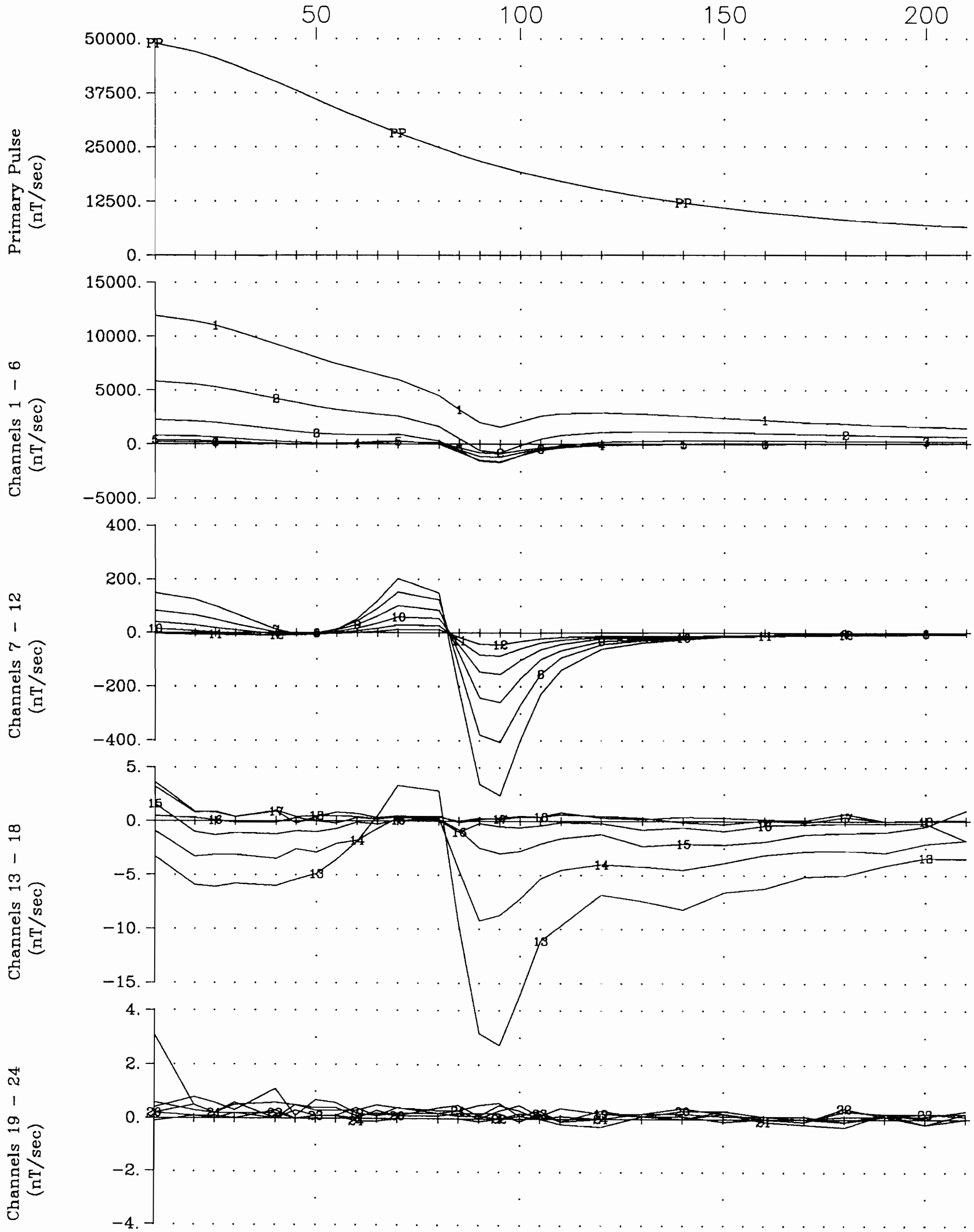
Ursa Major Minerals Inc. Shakespeare Project

Hole U3-44 X Component

Crone Geophysics & Exploration Ltd.



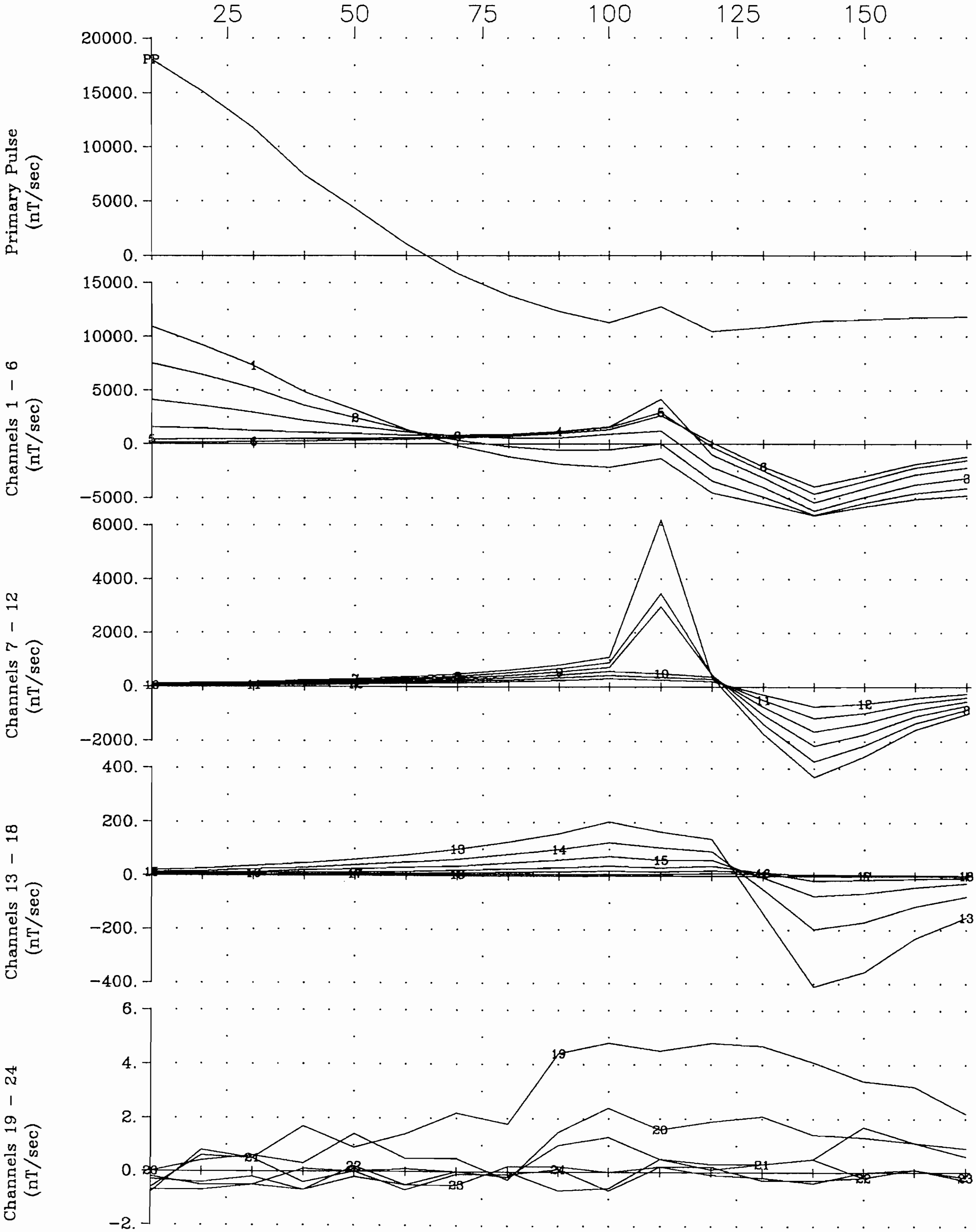
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-44 Y Component
Crone Geophysics & Exploration Ltd.



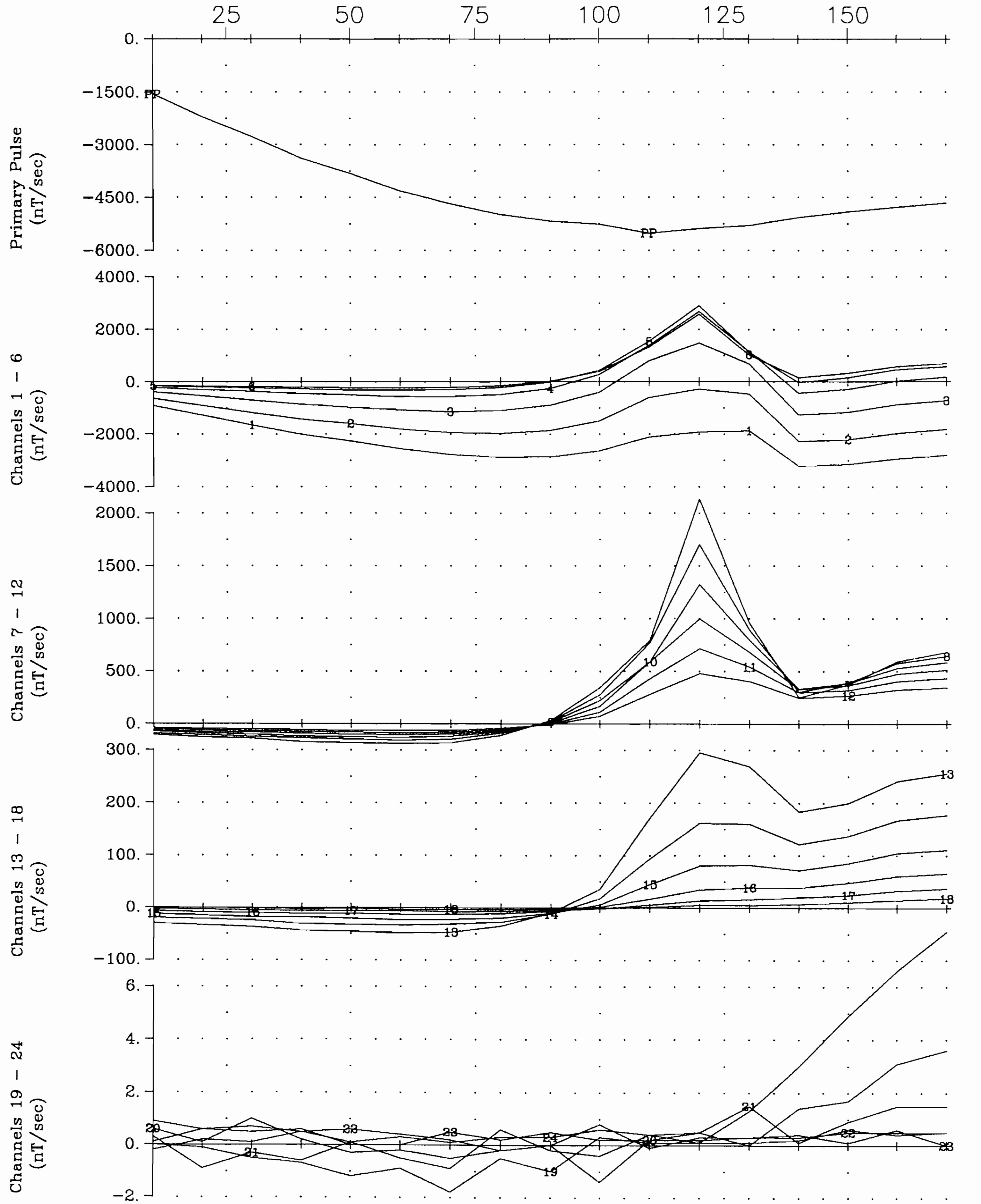
Ursa Major Minerals Inc. Shakespeare Project

Hole U3-44 Z Component

Crone Geophysics & Exploration Ltd.



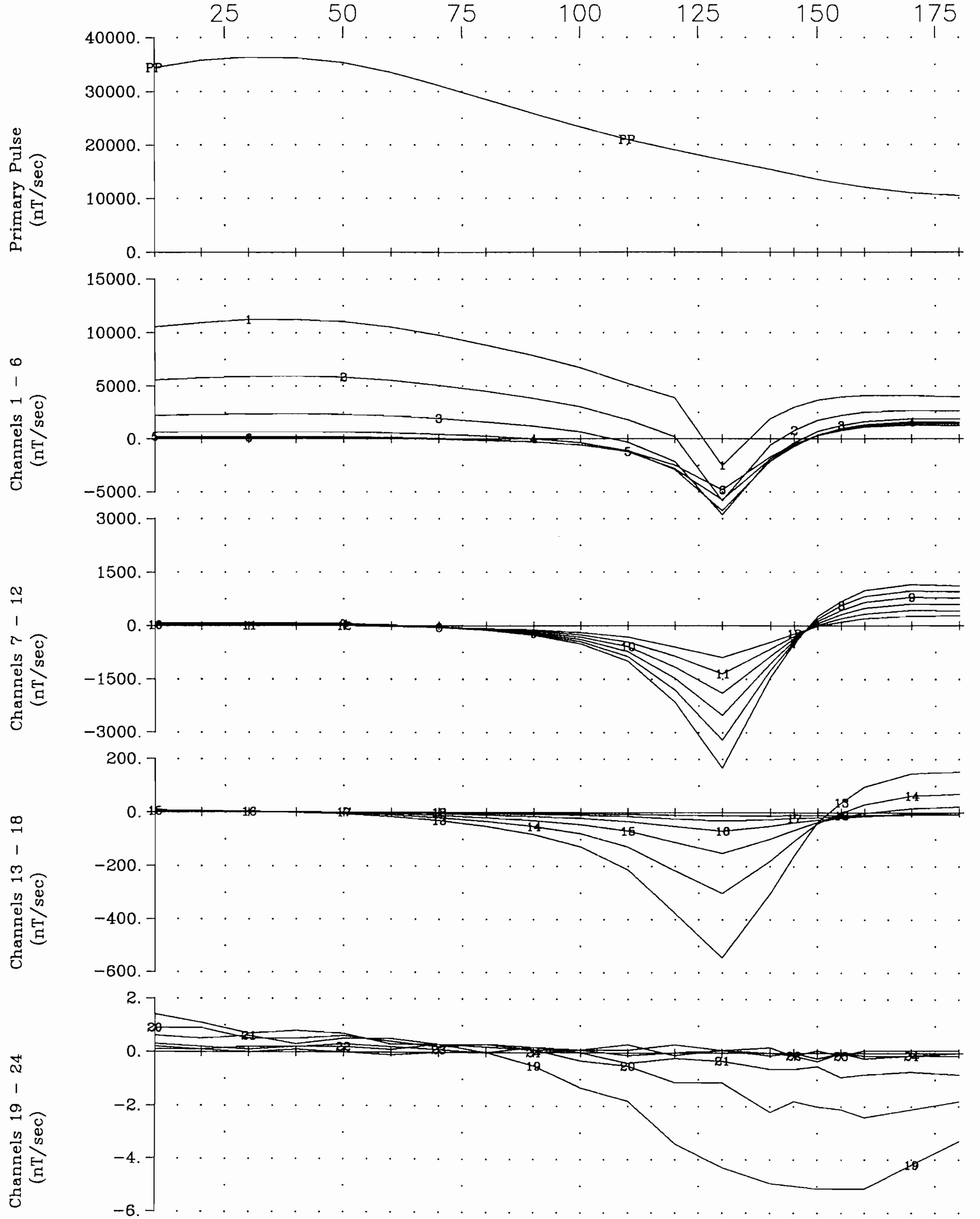
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-46 X Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-46 Y Component

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-46 Z Component

Crone Geophysics & Exploration Ltd.

APPENDIX III

PULSE EM DATA PROFILES (LIN-LOG SCALE)

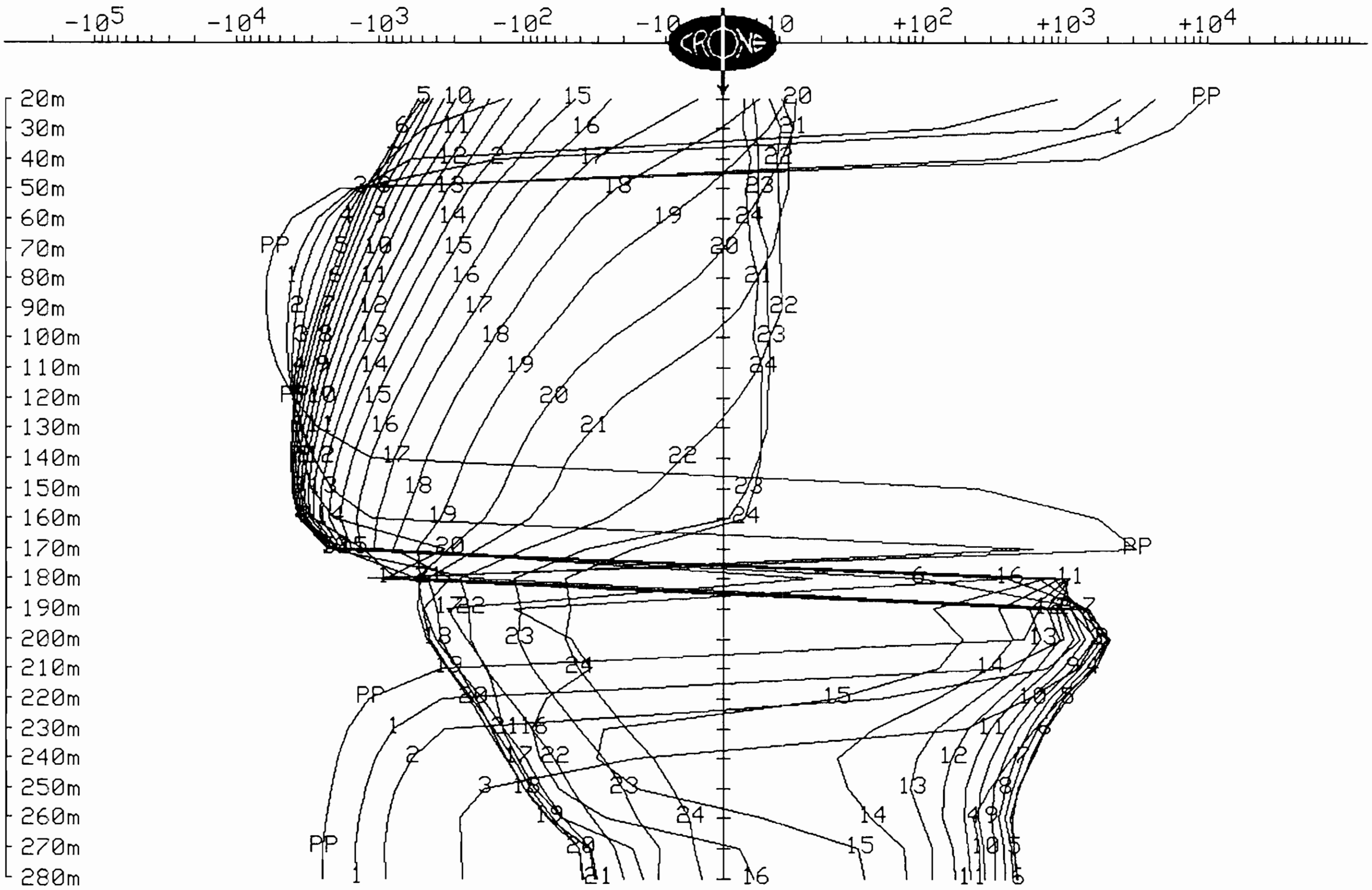
s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-13**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP 1**
Date	: Nov 7, 2003	File name	: 13XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP

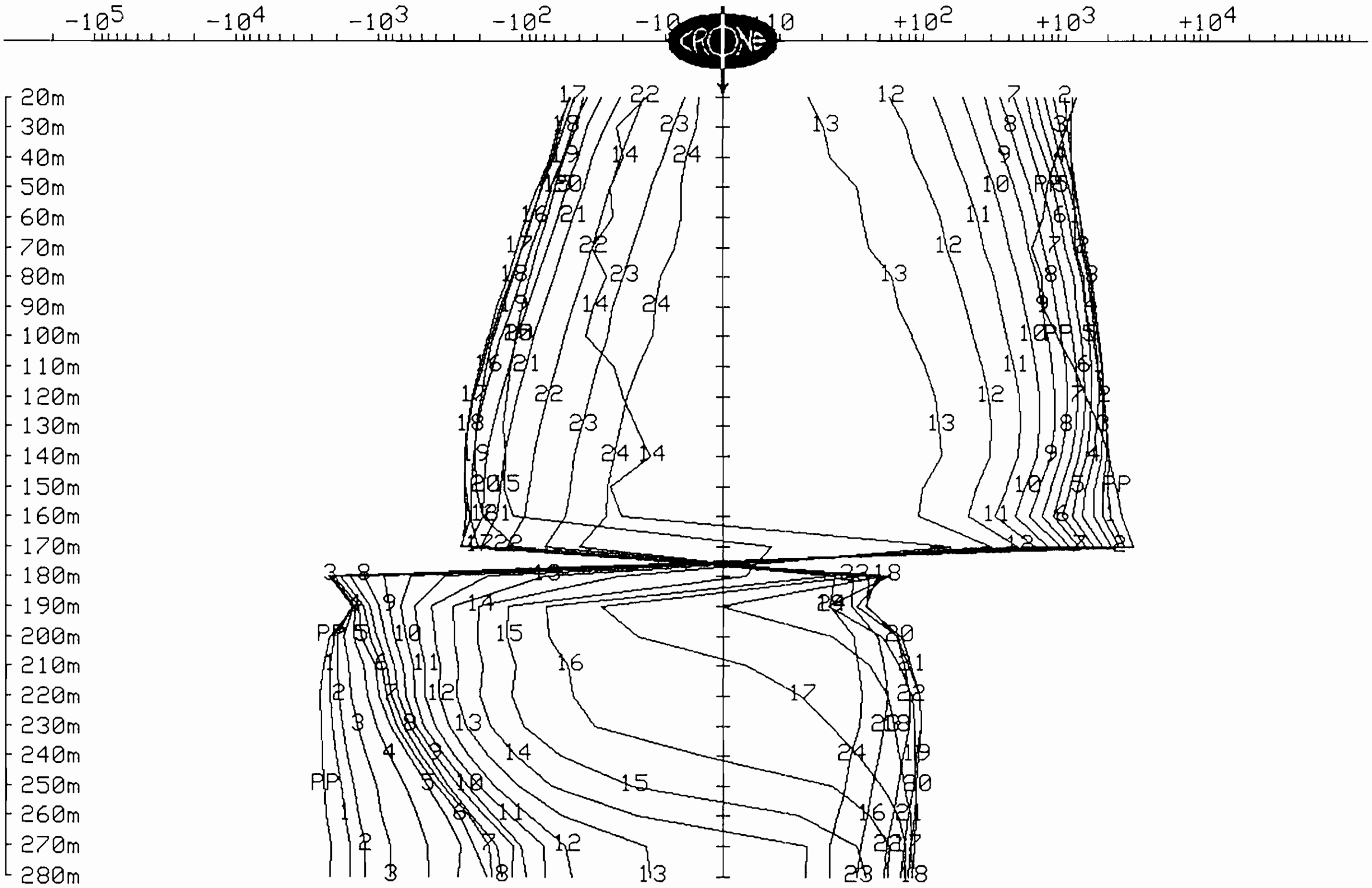
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-13
Grid	: Shakespeare Project	Tx Loop	: LOOP 1
Date	: Nov 7, 2003	File name	: 13XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

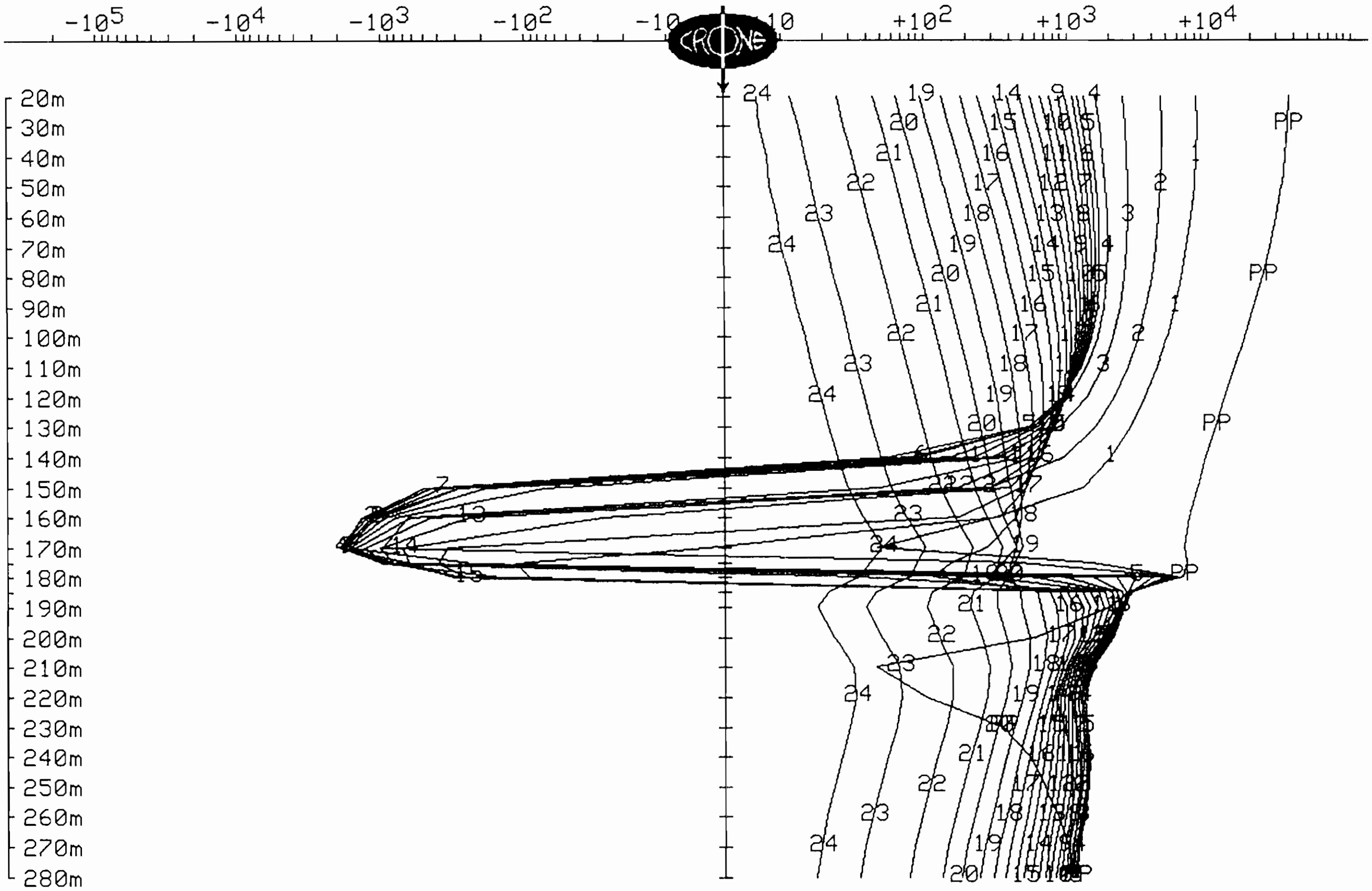


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-13**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP 1**
Date	: Nov 7, 2003	File name	: 13ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP

Scale: 1:2500

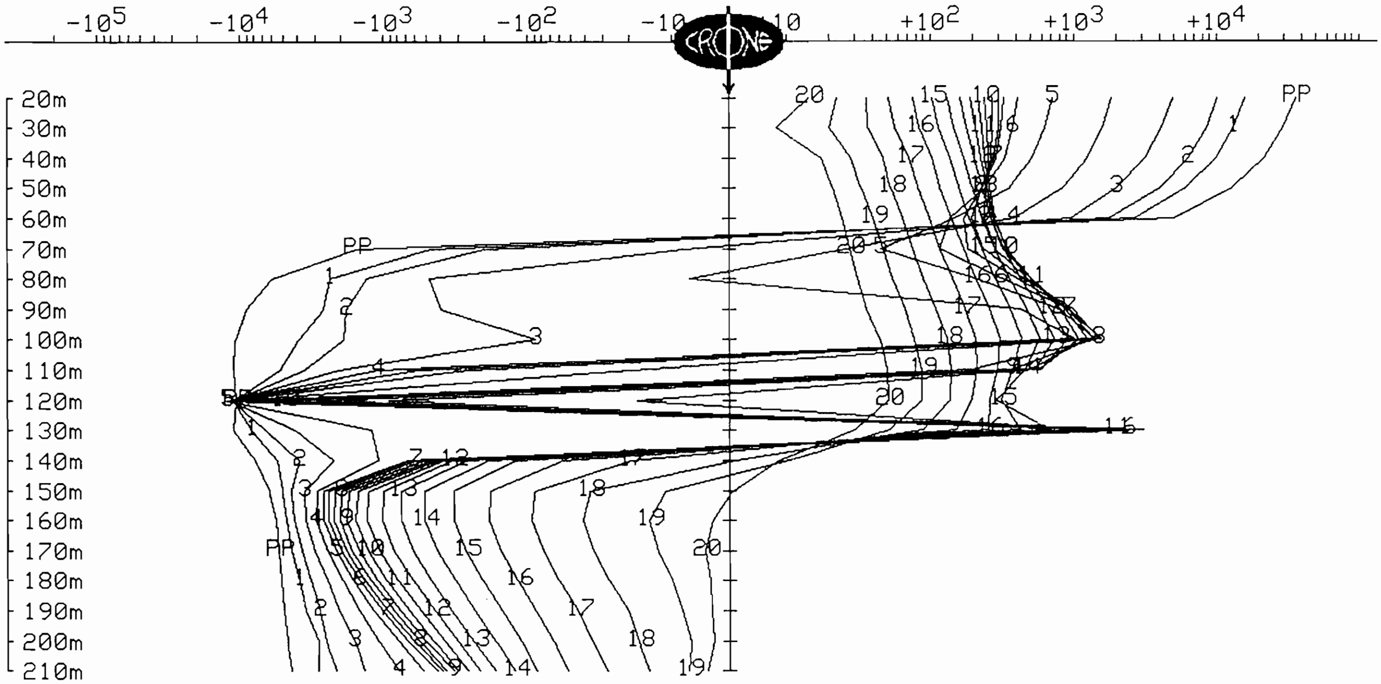


s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-20
Grid	: Shakespeare Project	Tx Loop	: Loop 1
Date	: Nov 6, 2003	File name	: 20XYT.PEM

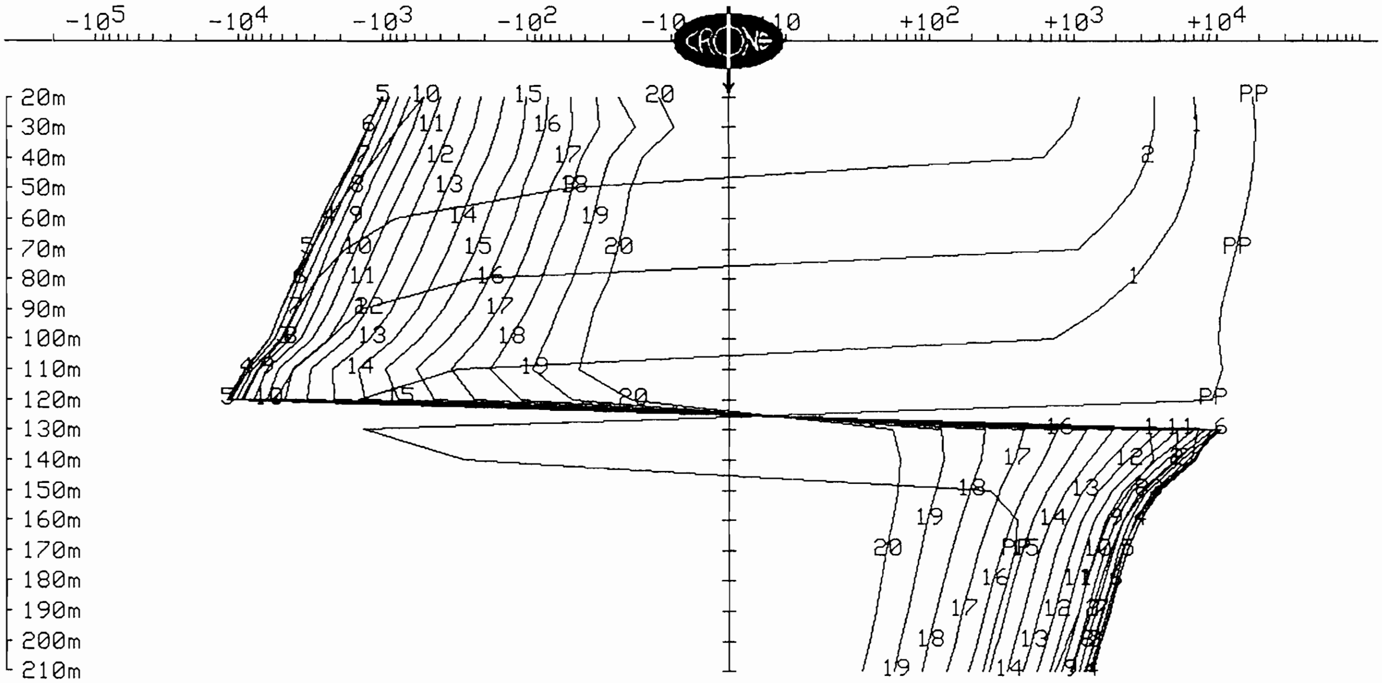
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-20**
Grid	: **Shakespeare Project**	Tx Loop	: **Loop 1**
Date	: Nov 6, 2003	File name	: 20XYT.PEM

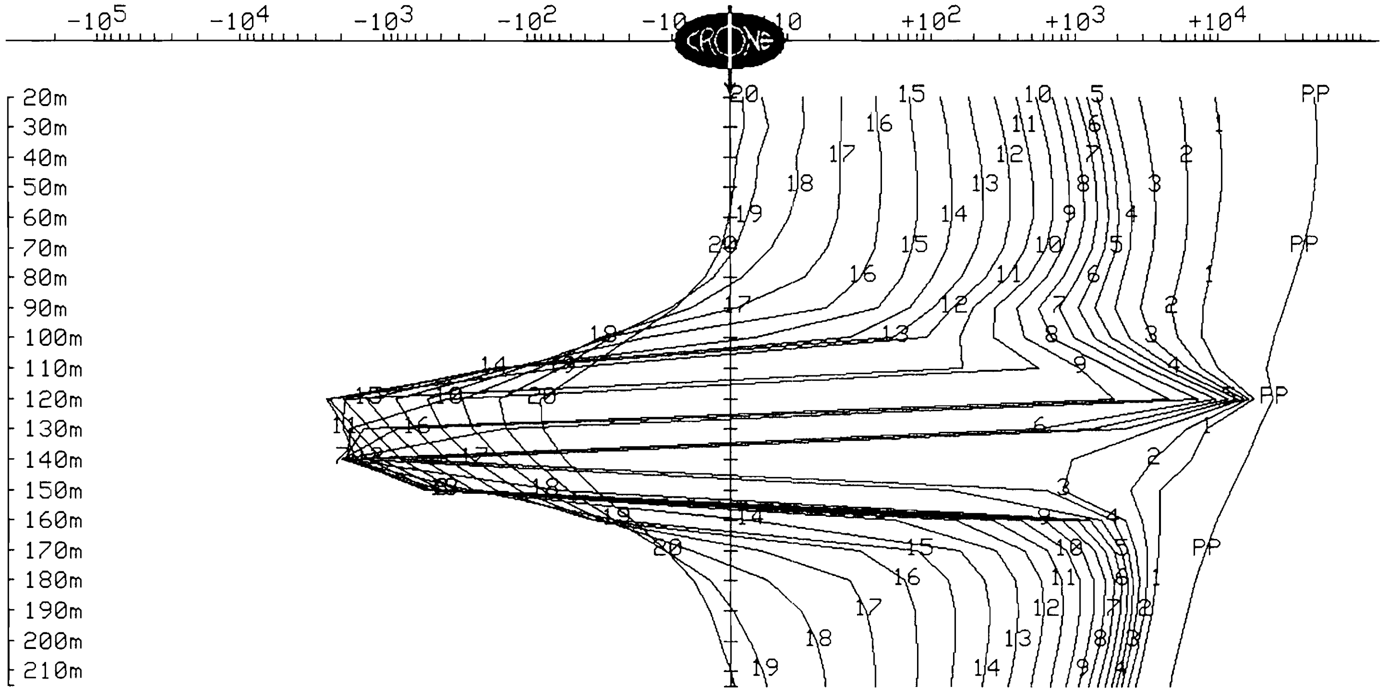
Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-20
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 6, 2003	File name	: 20ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

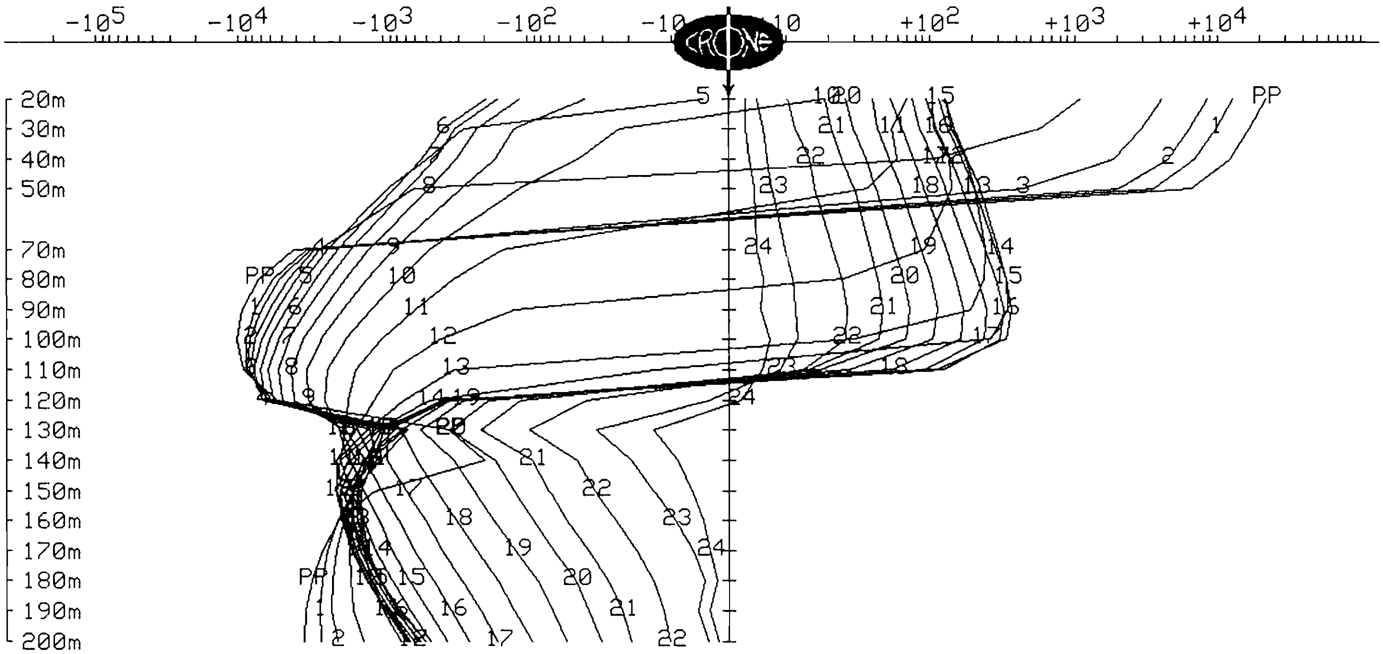


s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals**	Hole	: **U3-21**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP1**
Date	: Nov 7, 2003	File name	: 21XYT.PEM

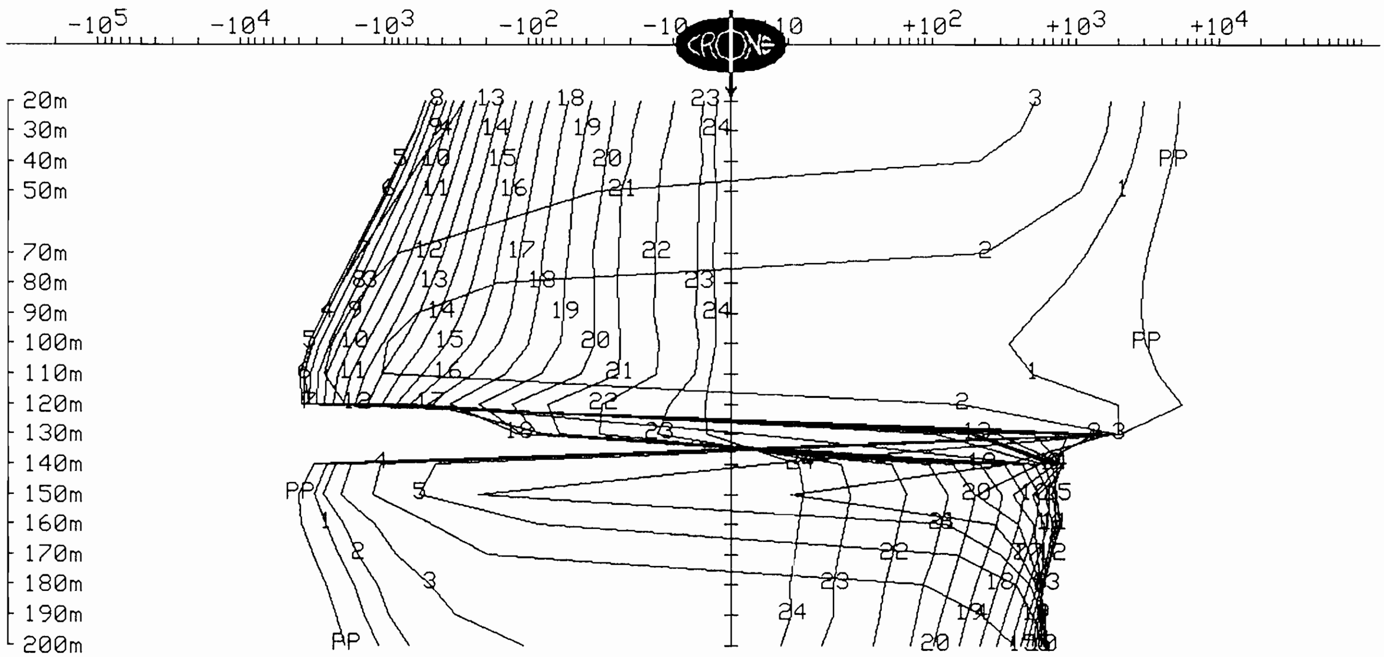
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals**	Hole	: **U3-21**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP1**
Date	: Nov 7, 2003	File name	: 21XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

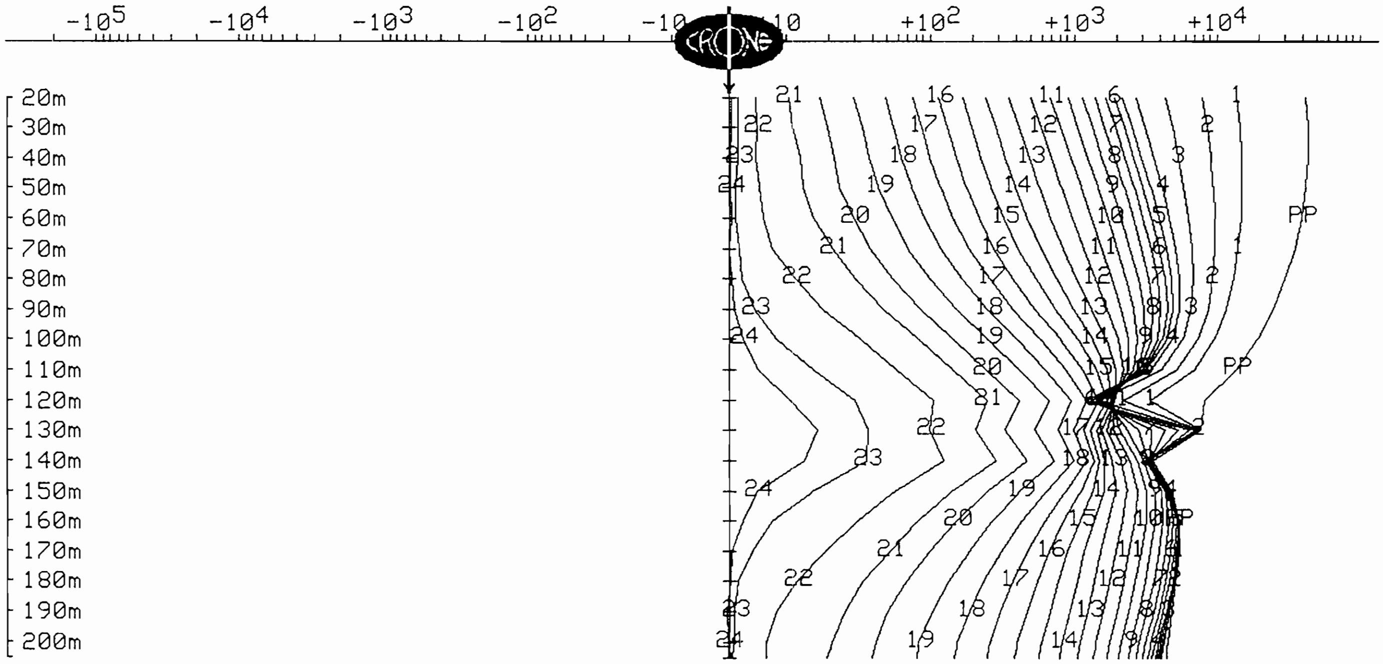


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals**	Hole	: **U3-21**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP1**
Date	: Nov 7, 2003	File name	: 21ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP

Scale: 1:2500



s10H

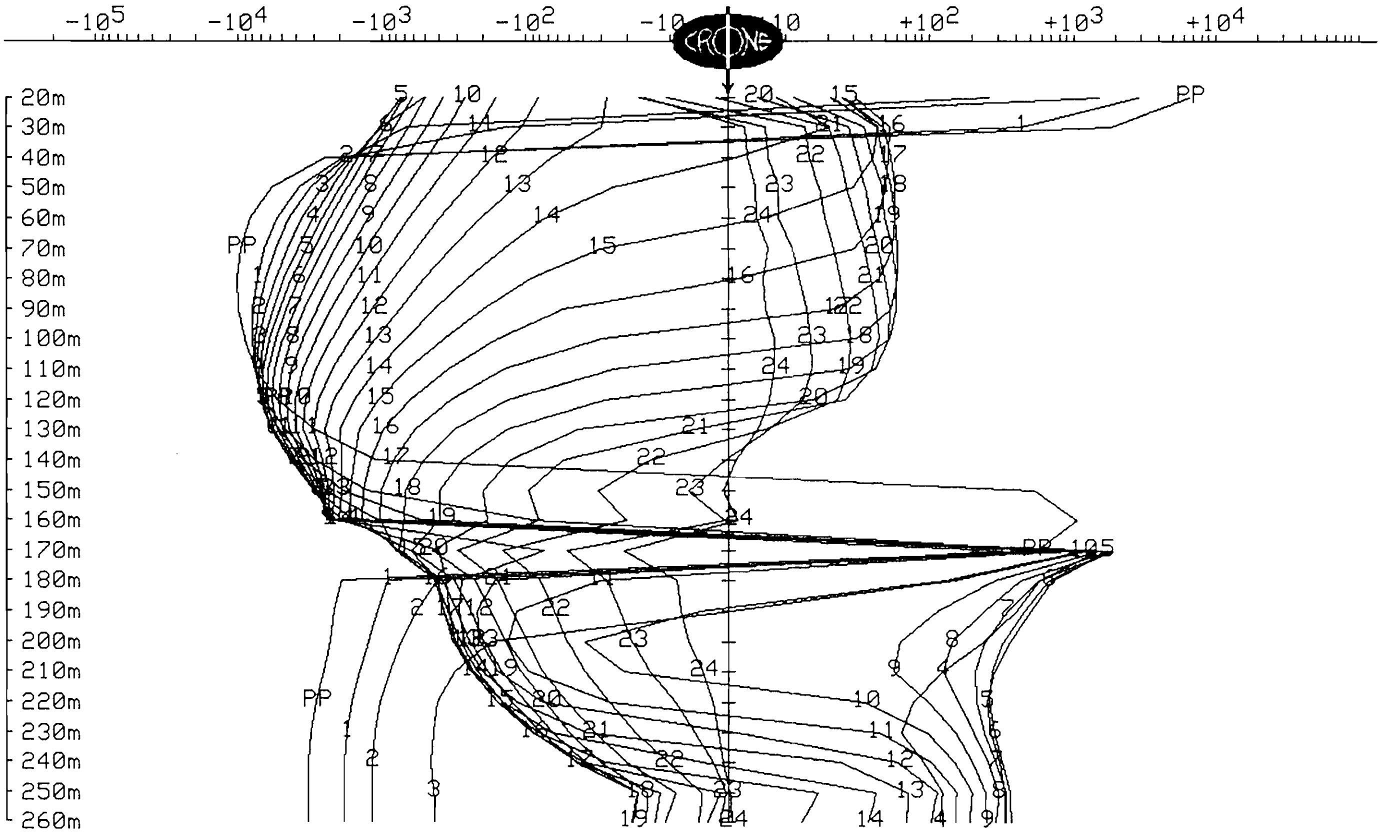
CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : **Ursa Major Minerals**
Grid : **Shakespeare Project**
Date : Nov 7, 2003

Hole : **U3-24**
Tx Loop : **LOOP1**
File name : 24XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP

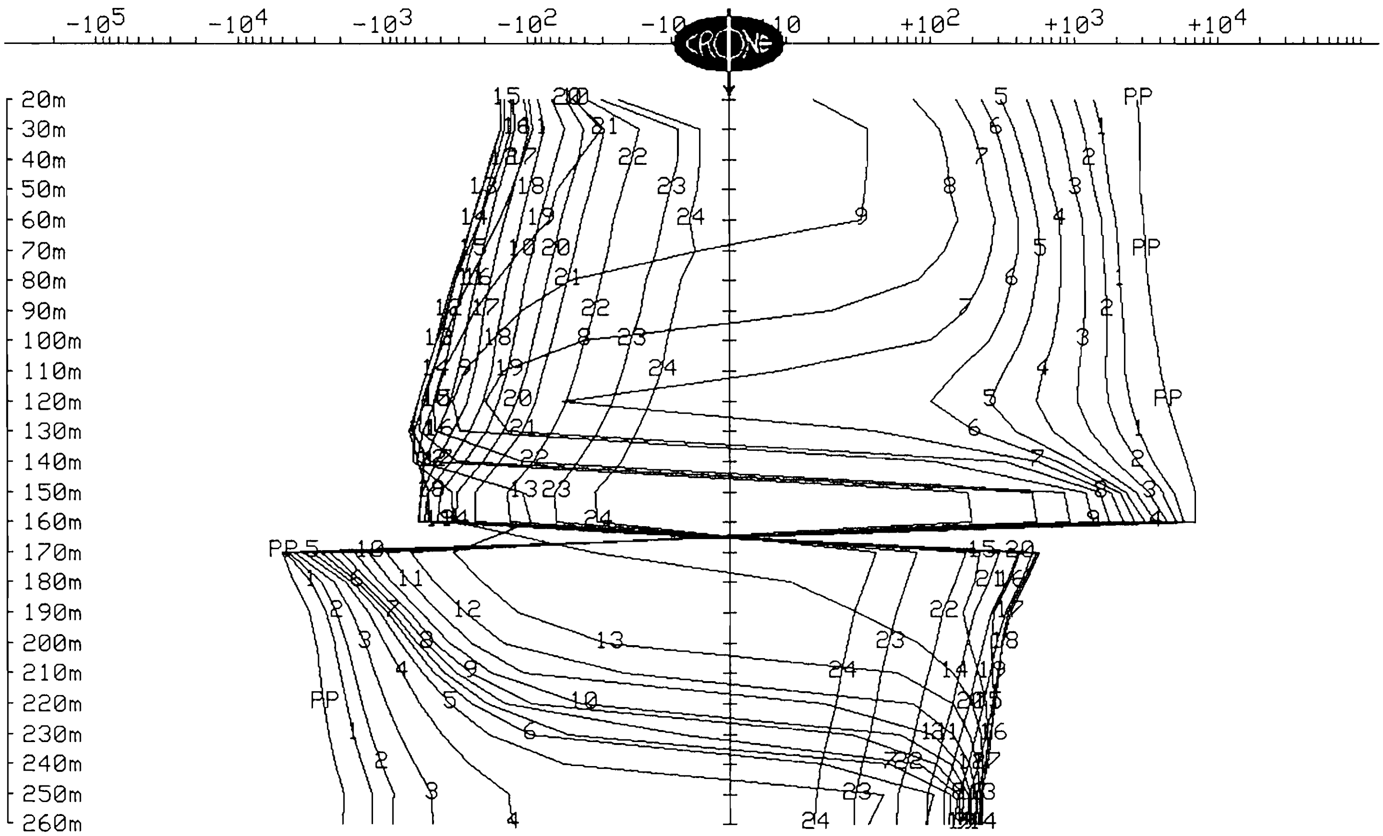
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals	Hole	: U3-24
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 7, 2003	File name	: 24XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

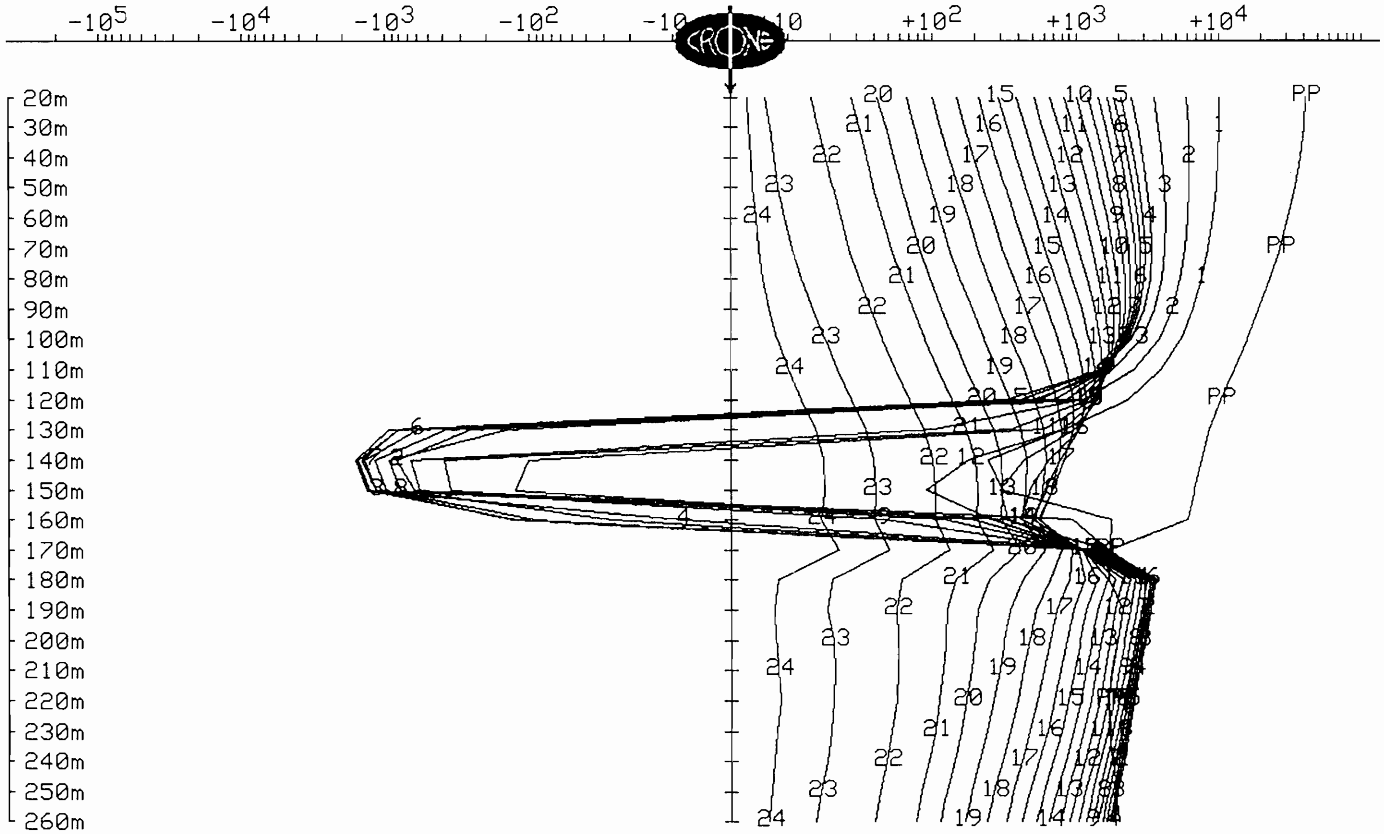


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals	Hole	: U3-24
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 7, 2003	File name	: 24ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP

Scale: 1:2500



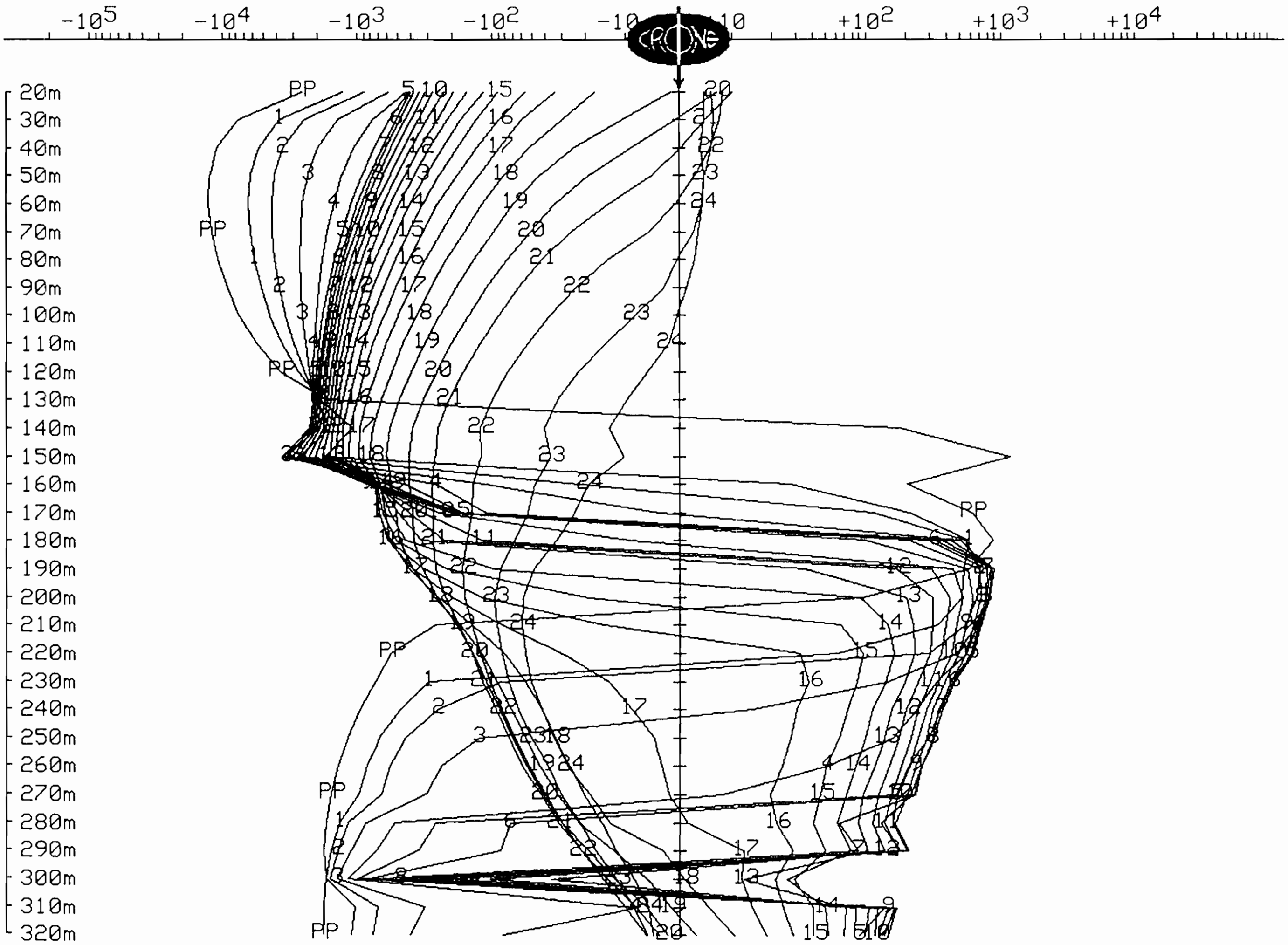
s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-27**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP1**
Date	: Nov 8, 2003	File name	: 27XYT.PEM

Data Scaled by Factor of 0.93
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP

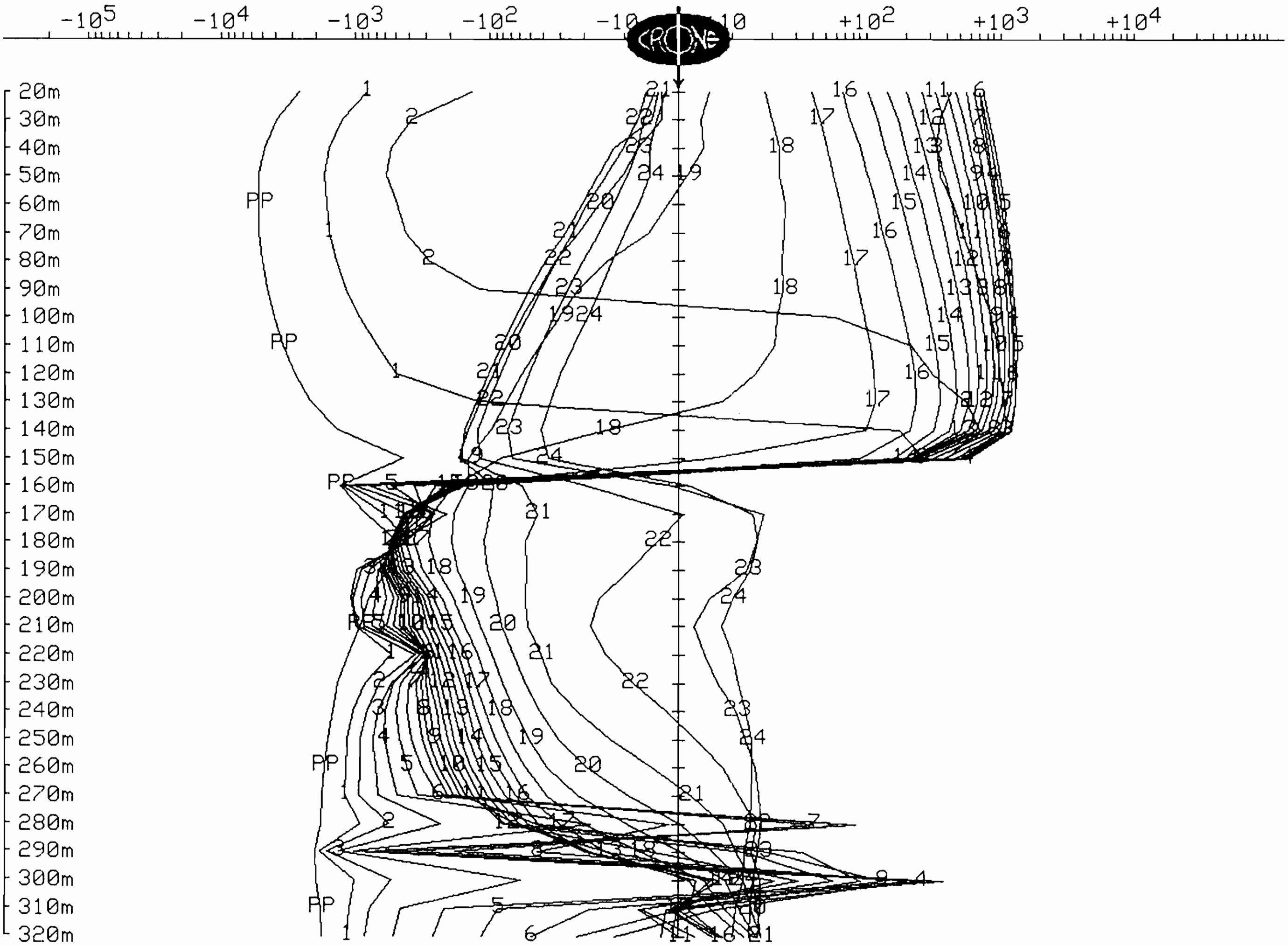
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-27
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 8, 2003	File name	: 27XYT.PEM

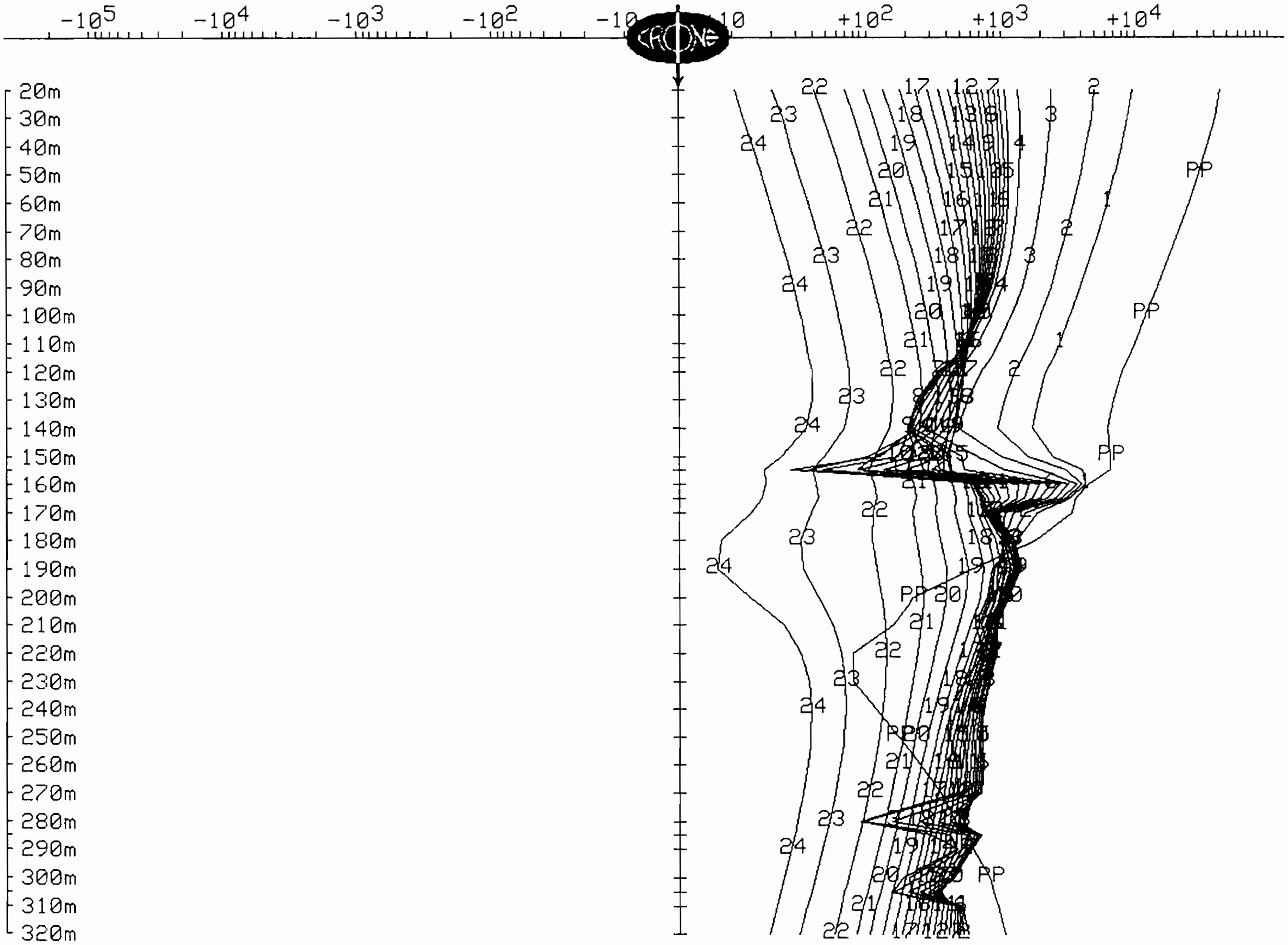
Data Scaled by Factor of 0.93
Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-27
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 8, 2003	File name	: 27ZAV.PEM

Data Scaled by Factor of 0.81
Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

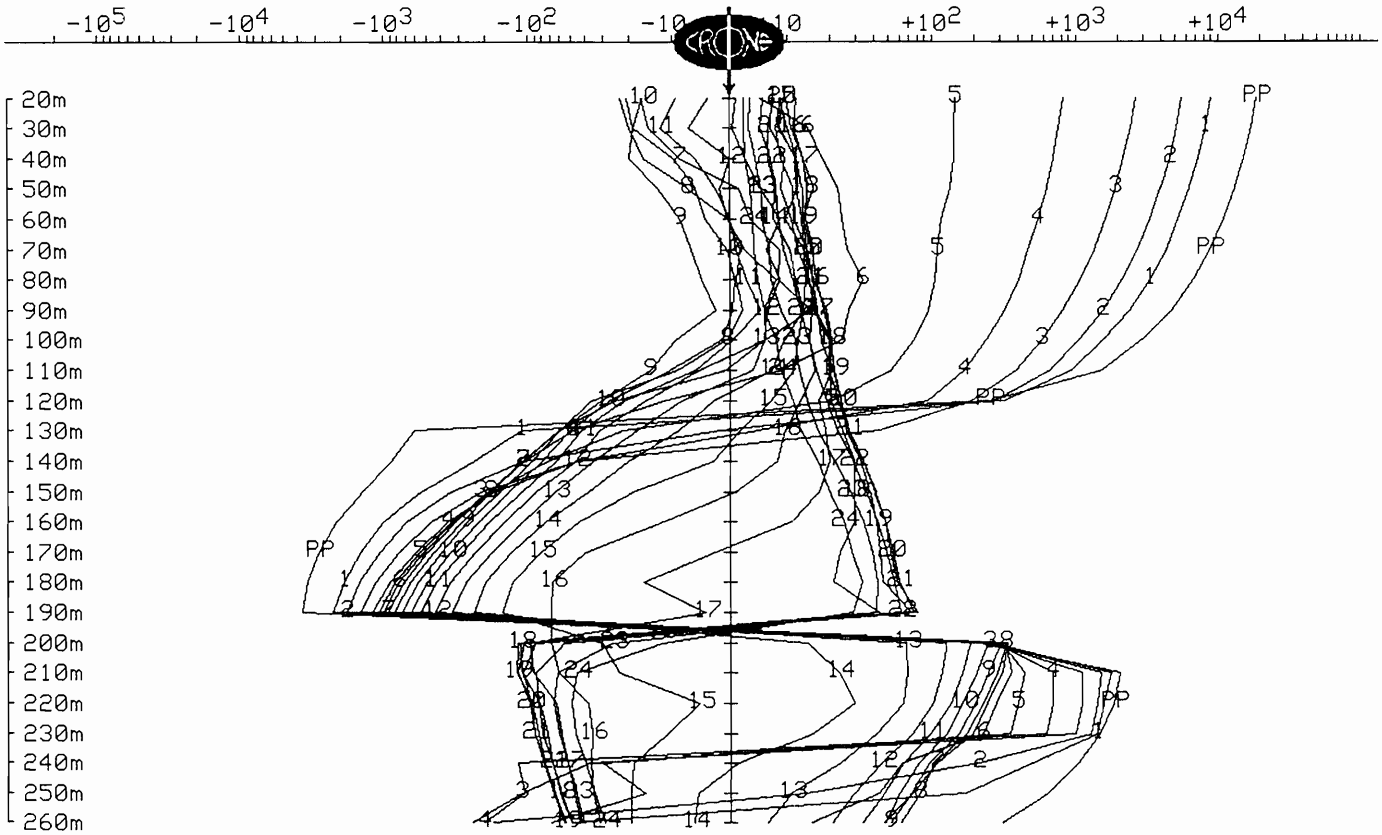


s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-31
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 8, 2003	File name	: 31XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

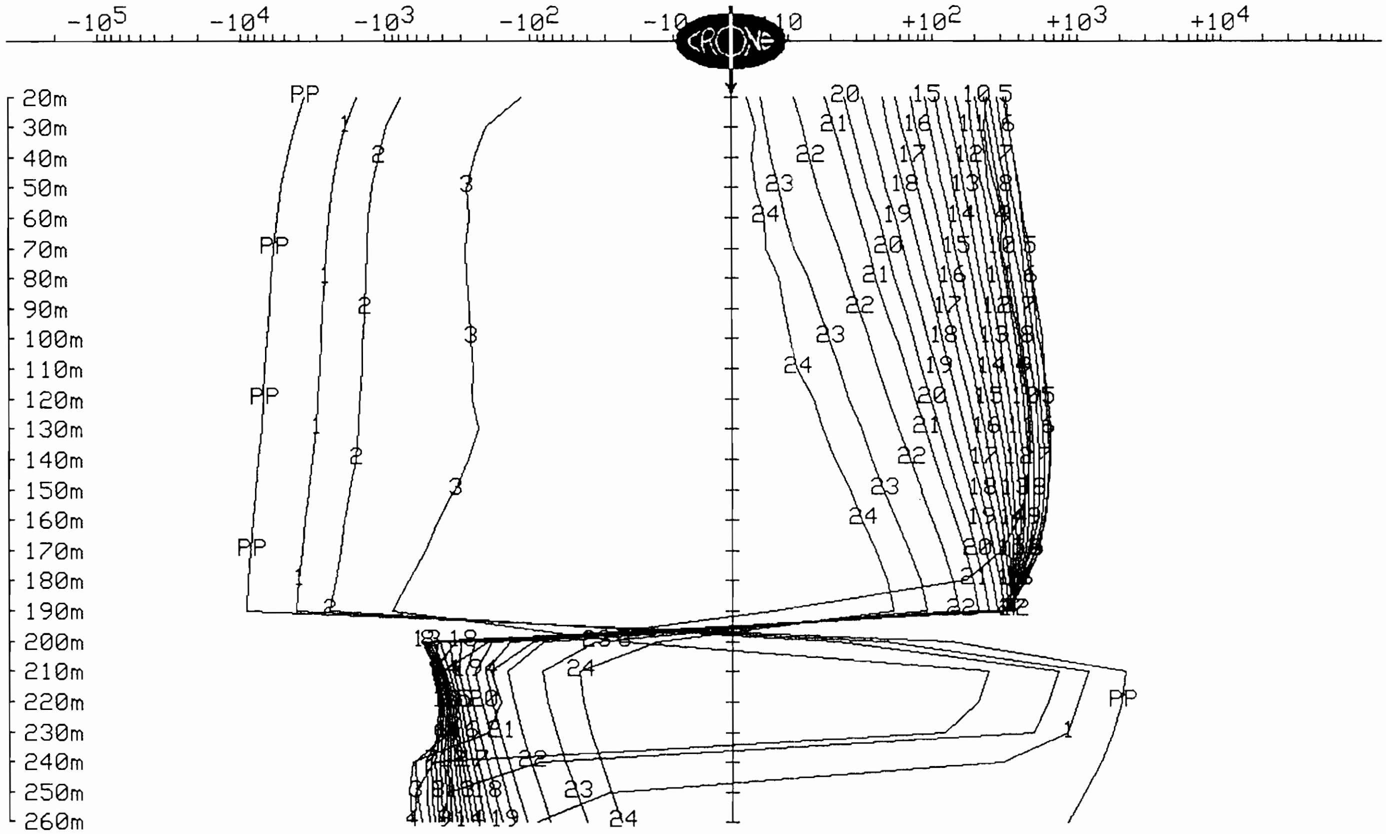


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Ursa Major Minerals Inc.
Grid : Shakespeare Project
Date : Nov 8, 2003

Hole : U3-31
Tx Loop : LOOP1
File name : 31XYT.PEM

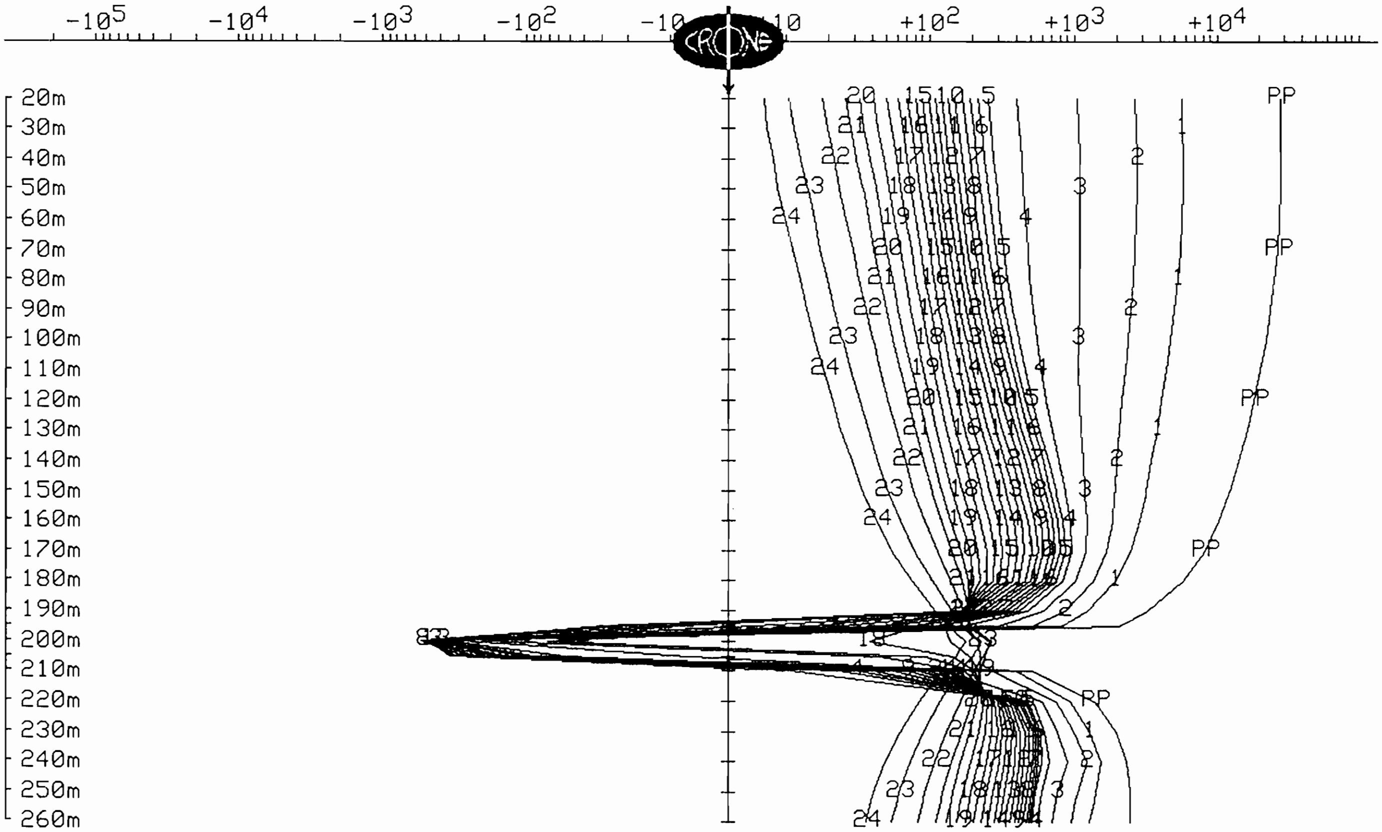
Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-31
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 8, 2003	File name	: 31ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

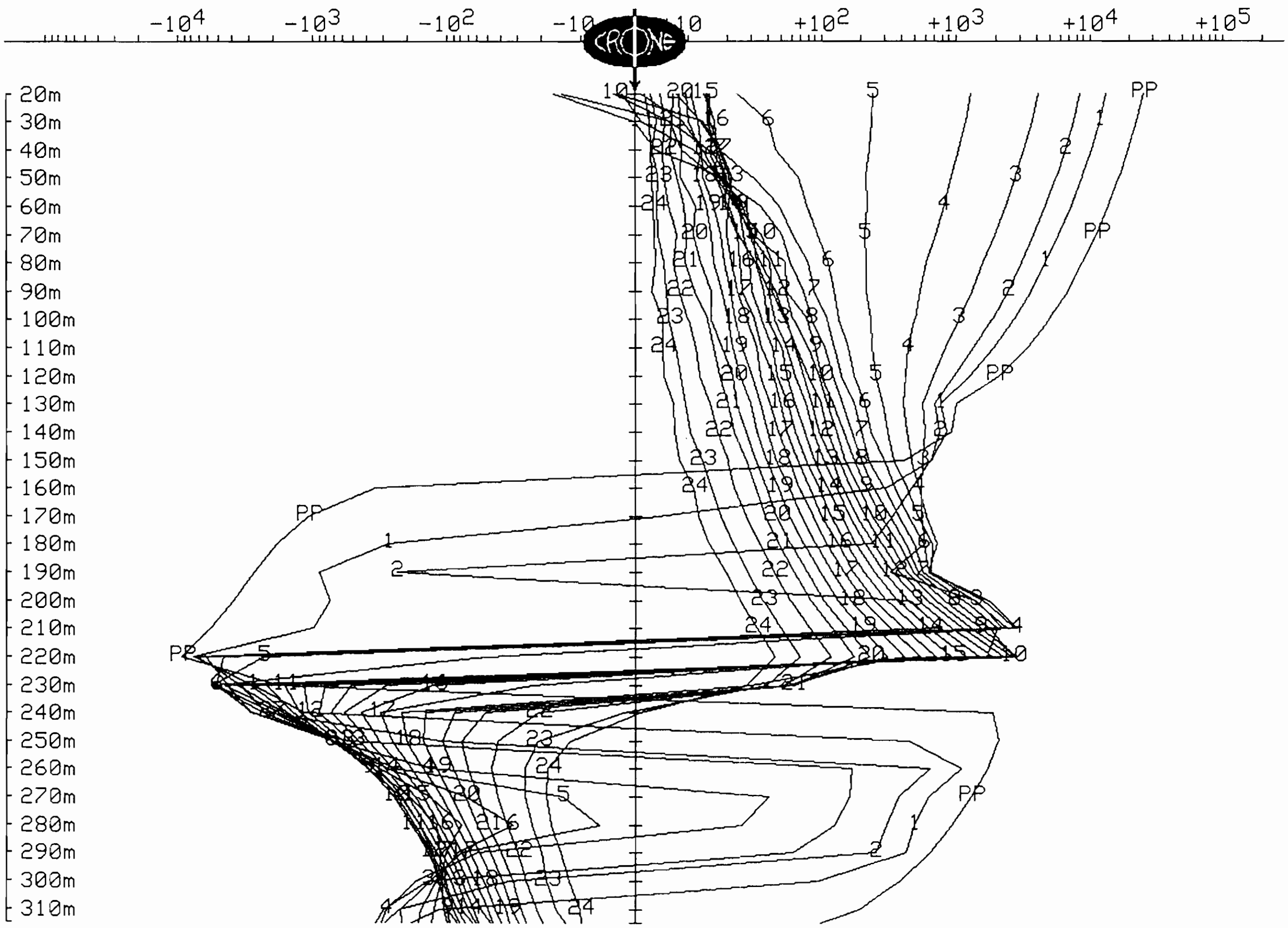


s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-33
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 9, 2003	File name	: 33XYT.PEM

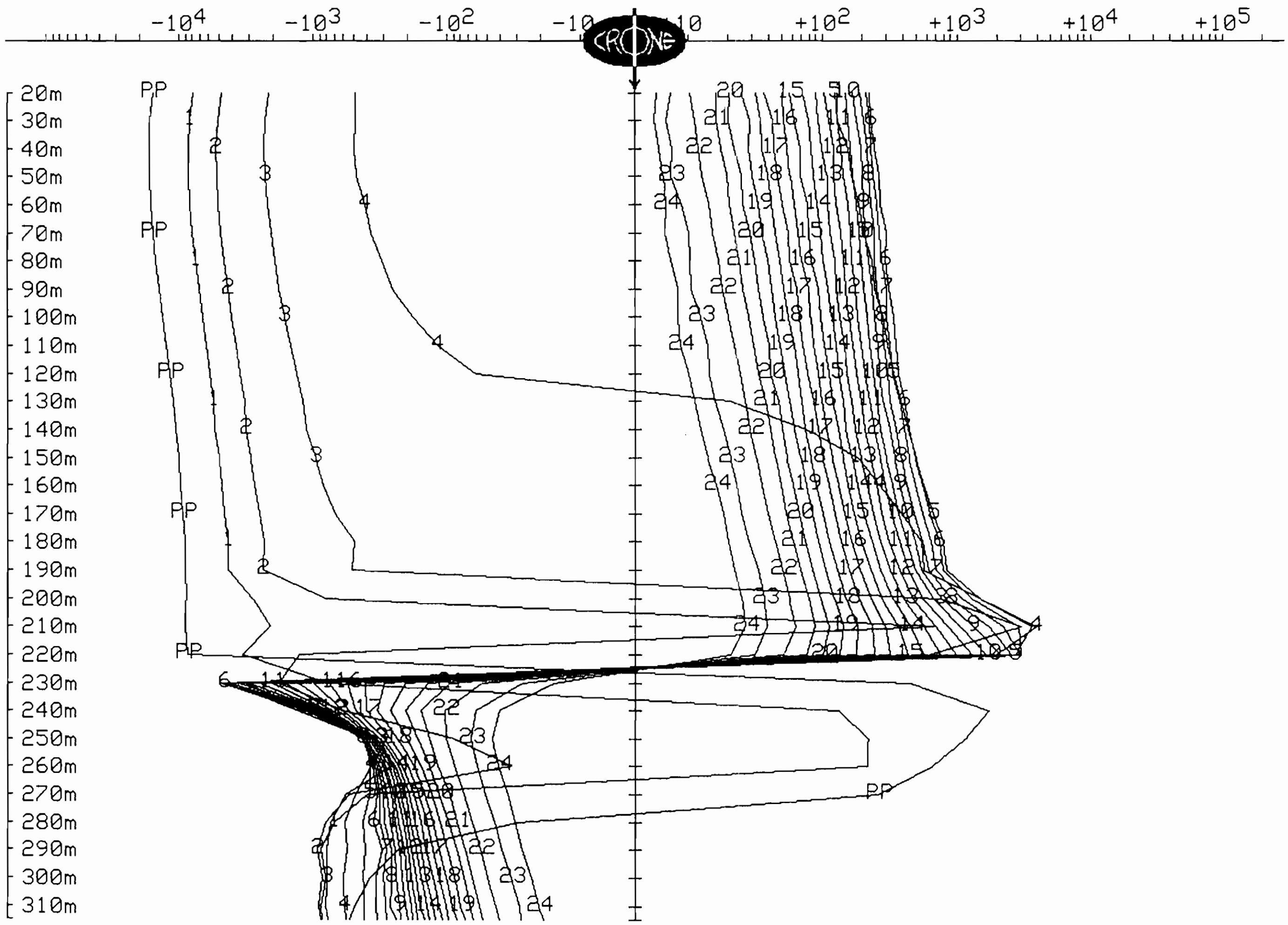
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-33
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 9, 2003	File name	: 33XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

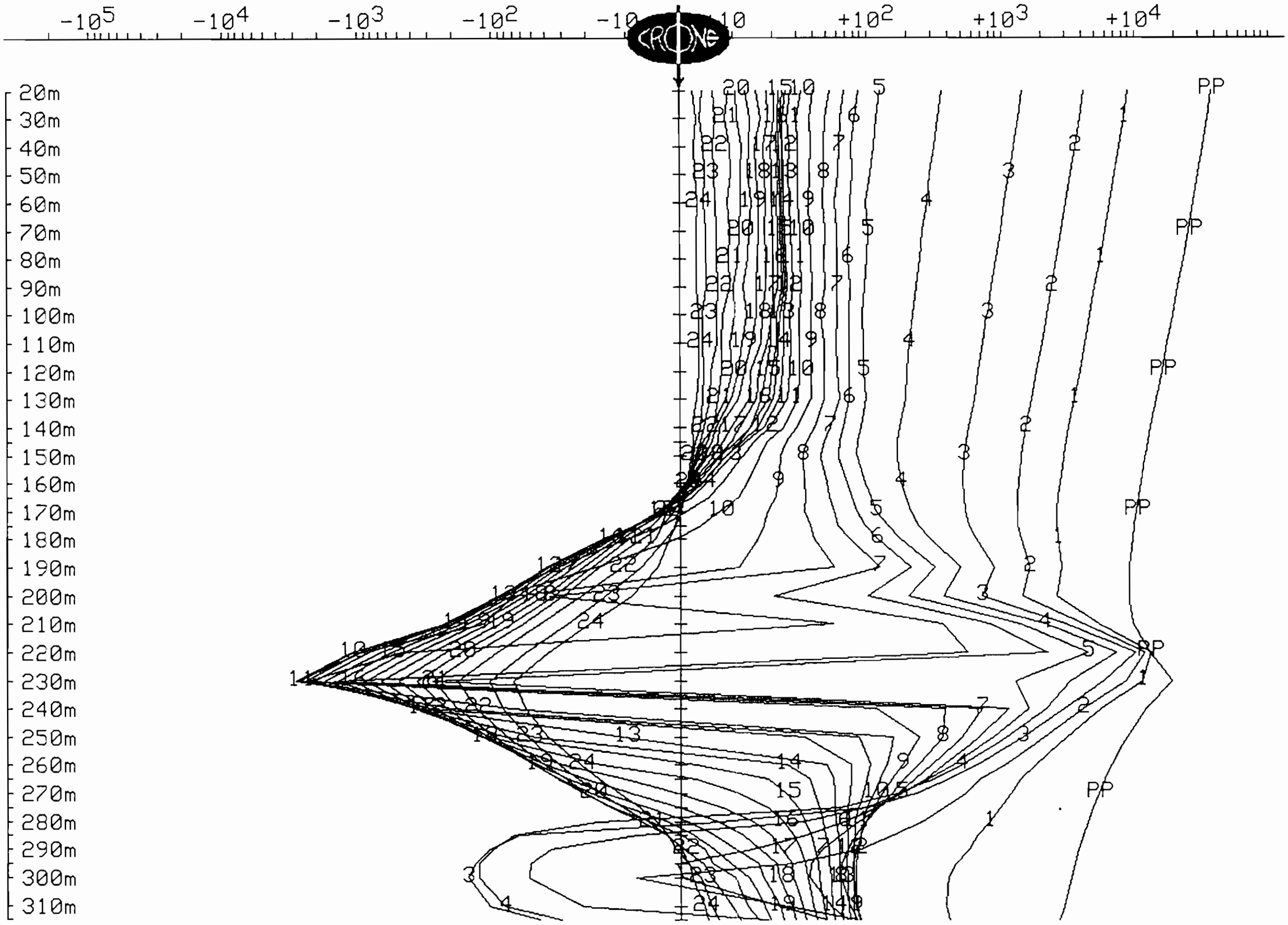


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-33
Grid	: Shakespeare Project	Tx Loop	: LOOP1
Date	: Nov 9, 2003	File name	: 33ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP

Scale: 1:2500

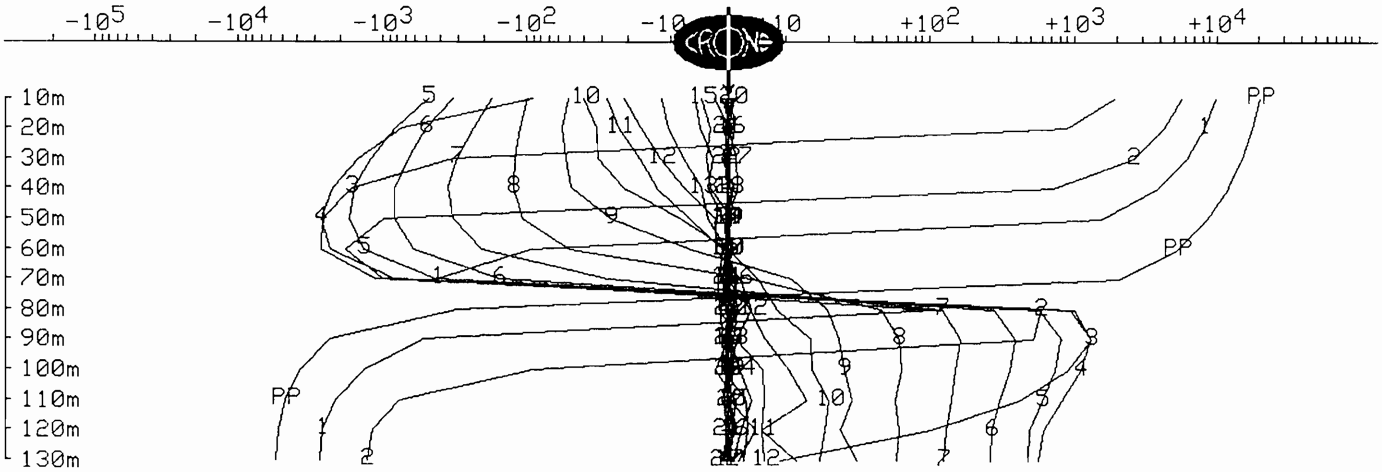


s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-37
Grid	: Shakespeare Project	Tx Loop	: Loop2
Date	: Nov 11, 2003	File name	: 37XYT.PEM

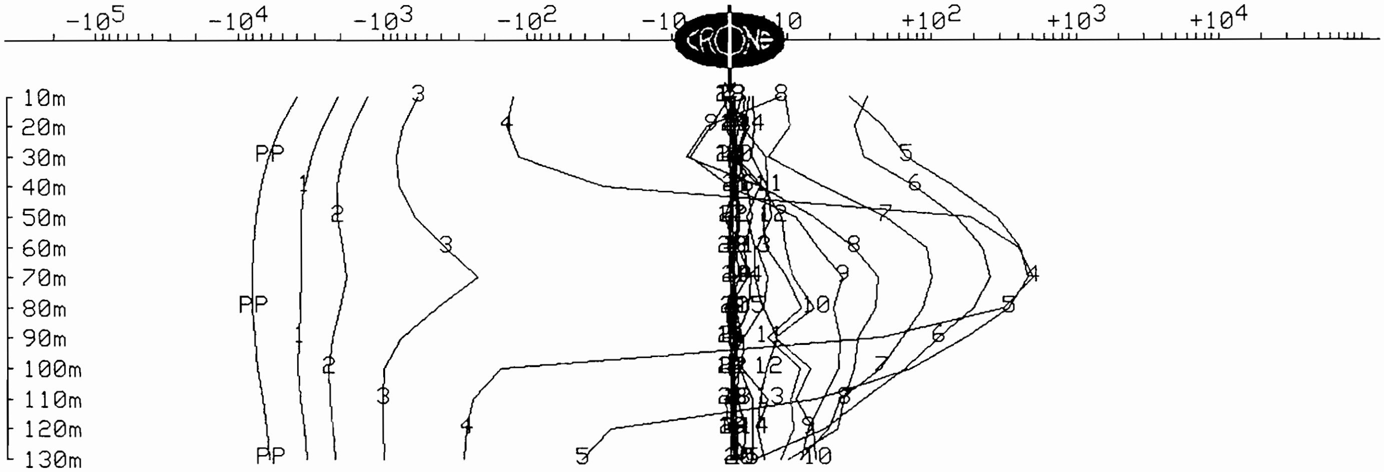
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: U3-37
Grid	: **Shakespeare Project**	Tx Loop	: **Loop2**
Date	: Nov 11, 2003	File name	: 37XYT.PEM

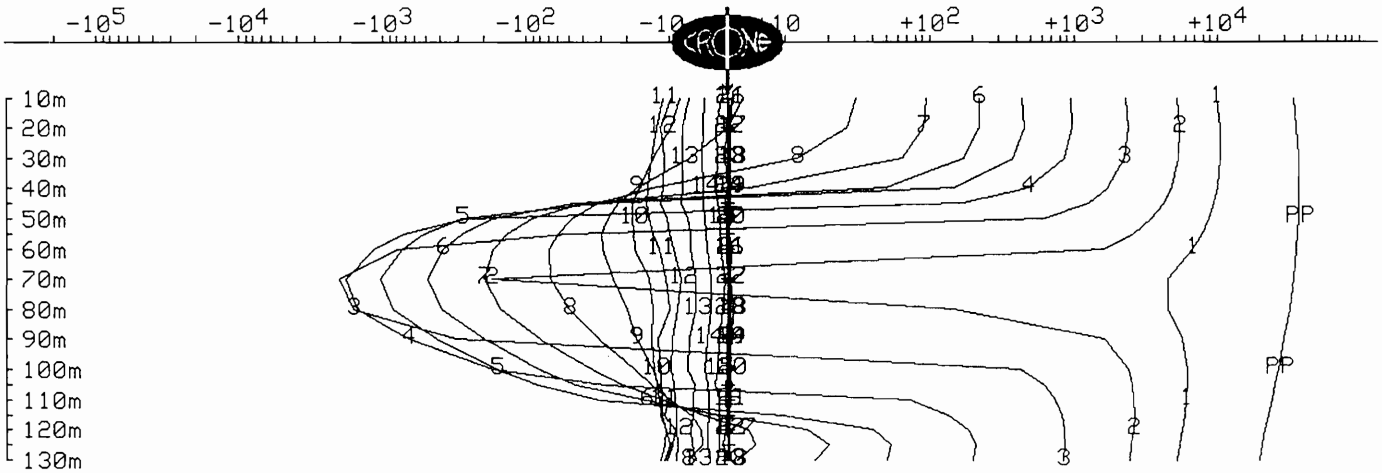
Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-37**
Grid	: **Shakespeare Project**	Tx Loop	: **Loop2**
Date	: Nov 11, 2003	File name	: 37ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

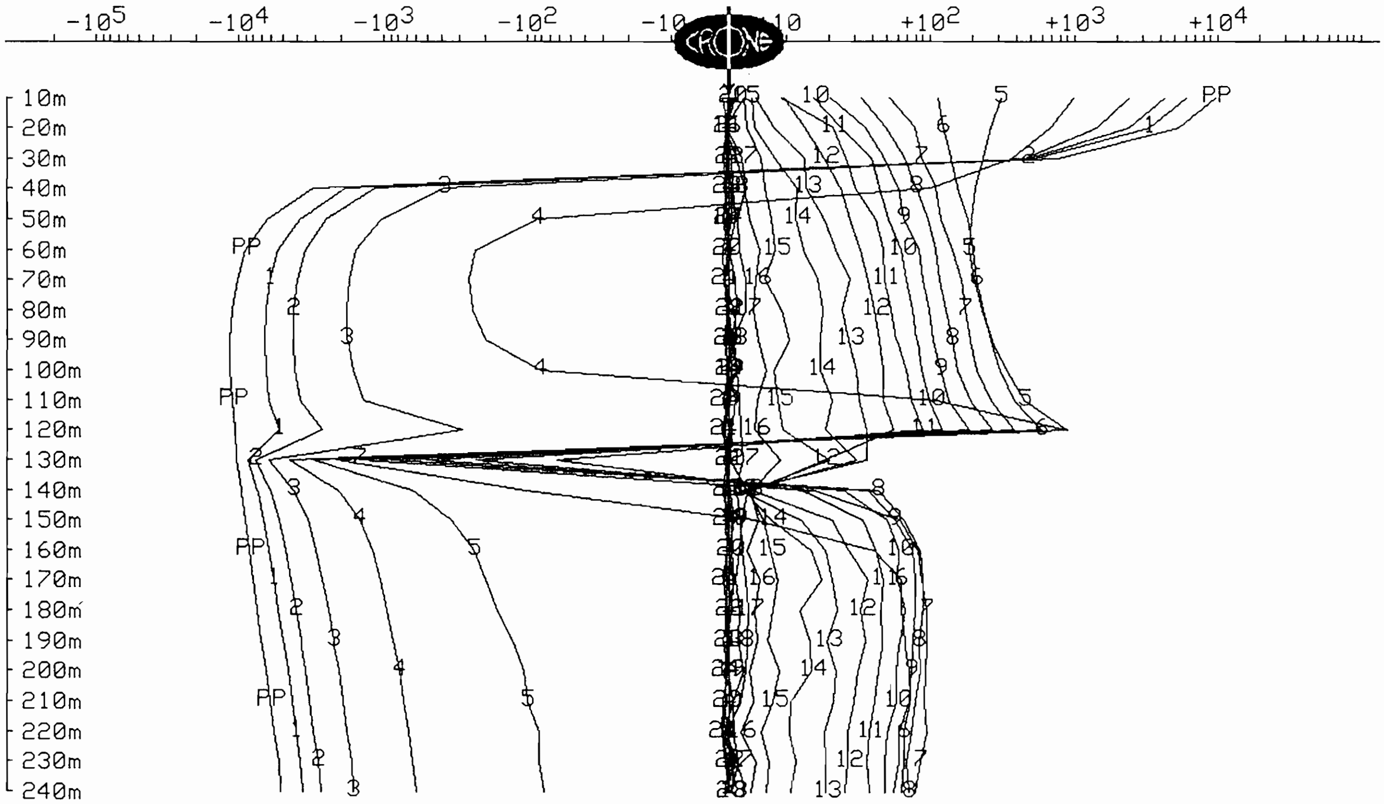


s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-39
Grid	: Shakespeare Porject	Tx Loop	: Loop 2
Date	: November 15, 2003	File name	: 39XYT.PEM

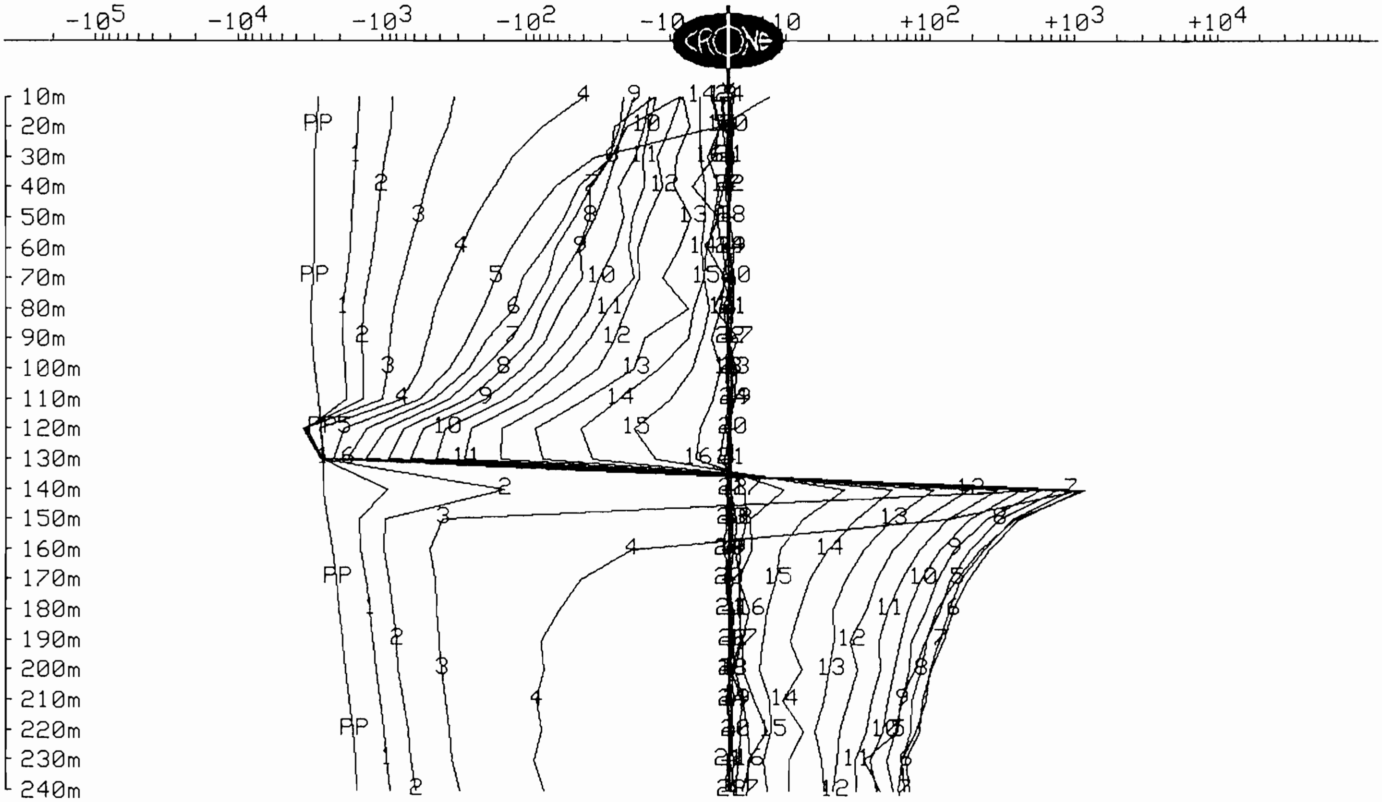
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-39**
Grid	: **Shakespeare Porject**	Tx Loop	: **Loop 2**
Date	: November 15, 2003	File name	: 39XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

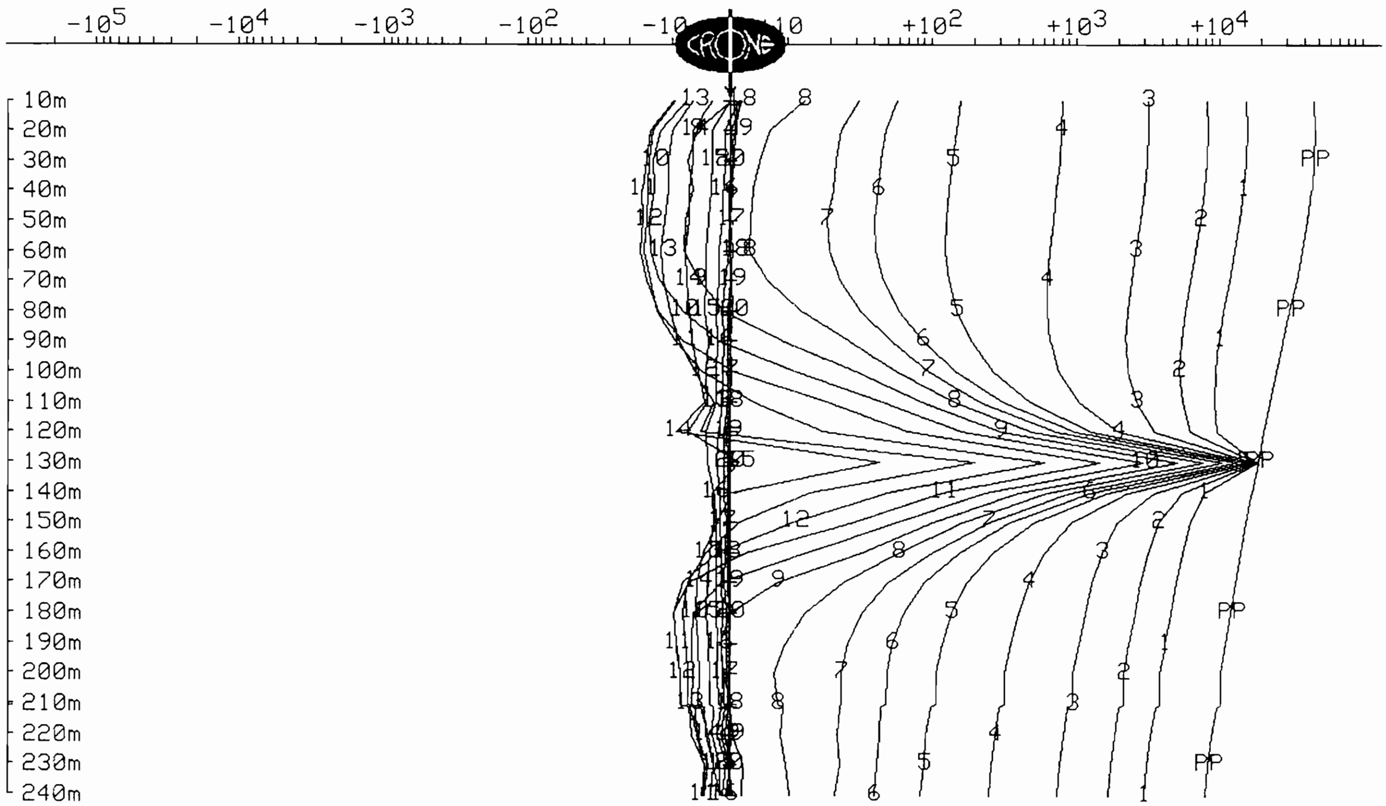


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-39
Grid	: Shakespeare Porject	Tx Loop	: Loop 2
Date	: November 15, 2003	File name	: 39ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 20 channels and PP

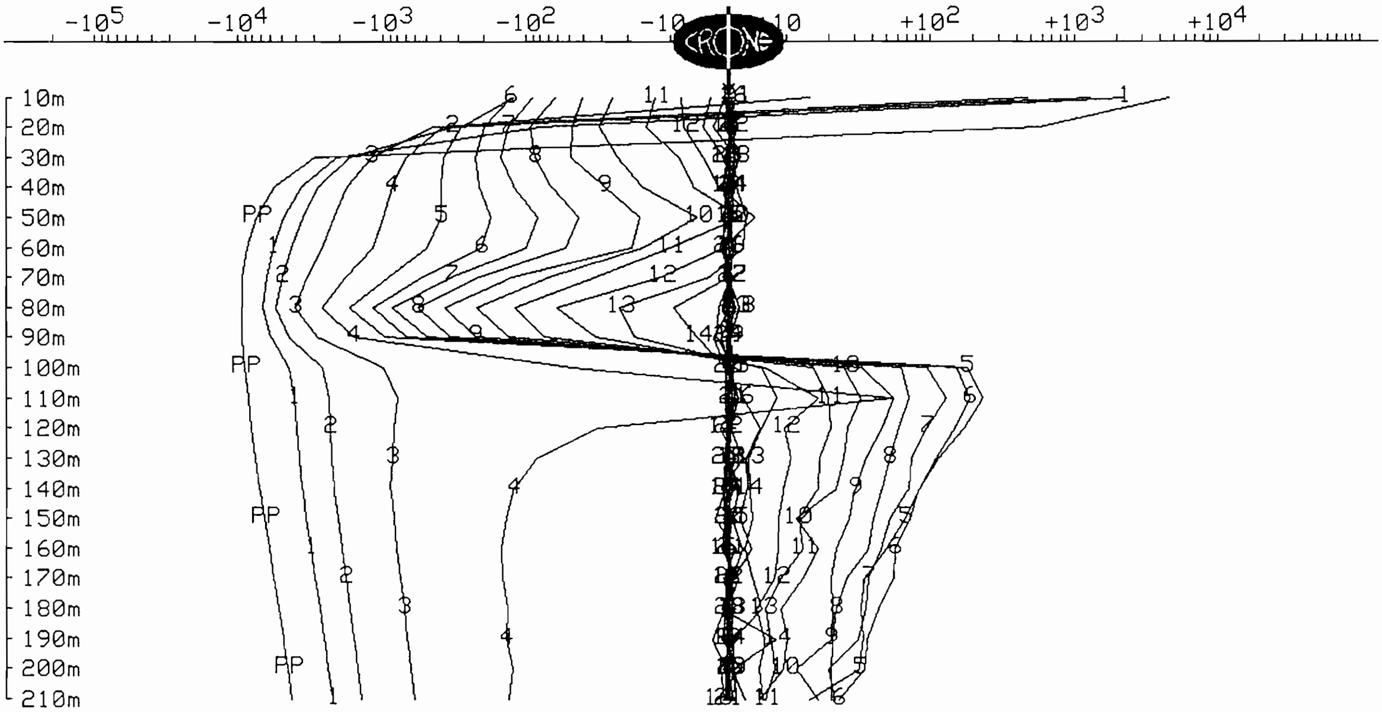
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-44**
Grid	: **Shakespeare Project**	Tx Loop	: **Loop 2**
Date	: Nov 12, 2003	File name	: 44XYT.PEM

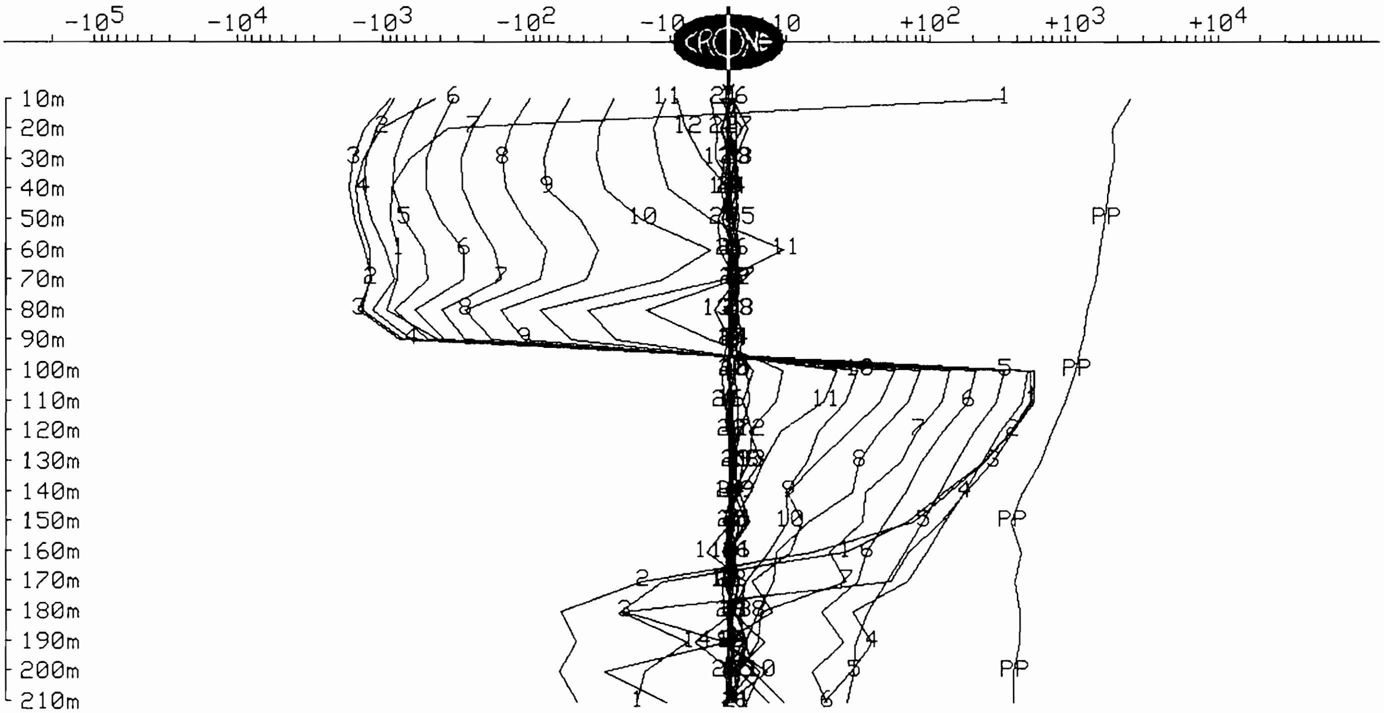
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-44**
Grid	: **Shakespeare Project**	Tx Loop	: **Loop 2**
Date	: Nov 12, 2003	File name	: 44XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

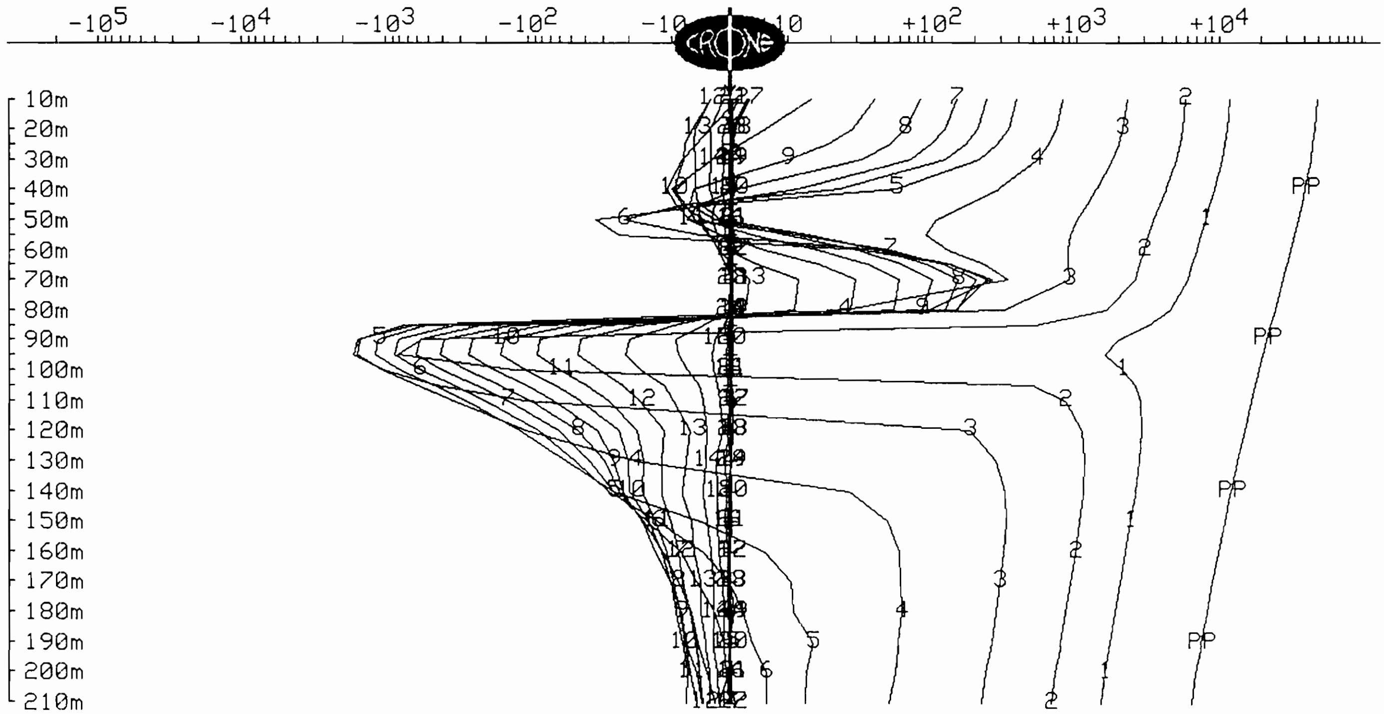


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-44**
Grid	: **Shakespeare Project**	Tx Loop	: **Loop 2**
Date	: Nov 12, 2003	File name	: 44ZAV.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP

Scale: 1:2500

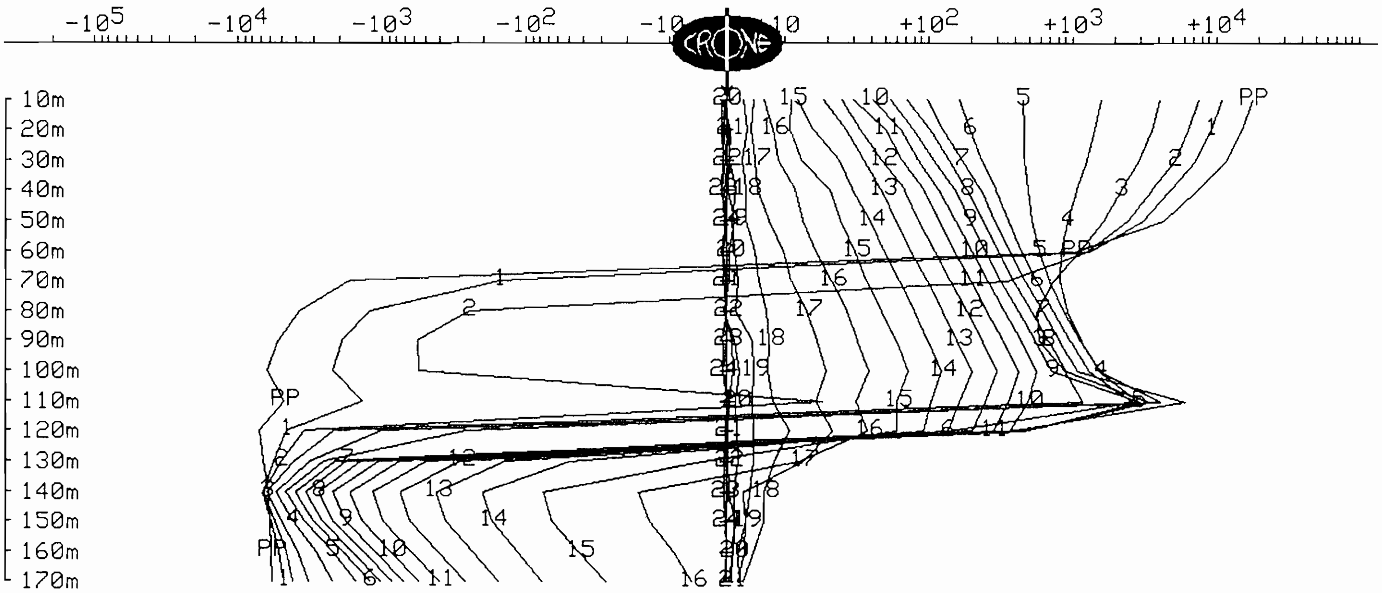


s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: Ursa Major Minerals Inc.	Hole	: U3-46
Grid	: Shakespeare Project	Tx Loop	: LOOP 3
Date	: Nov 14, 2003	File name	: 46XYT.PEM

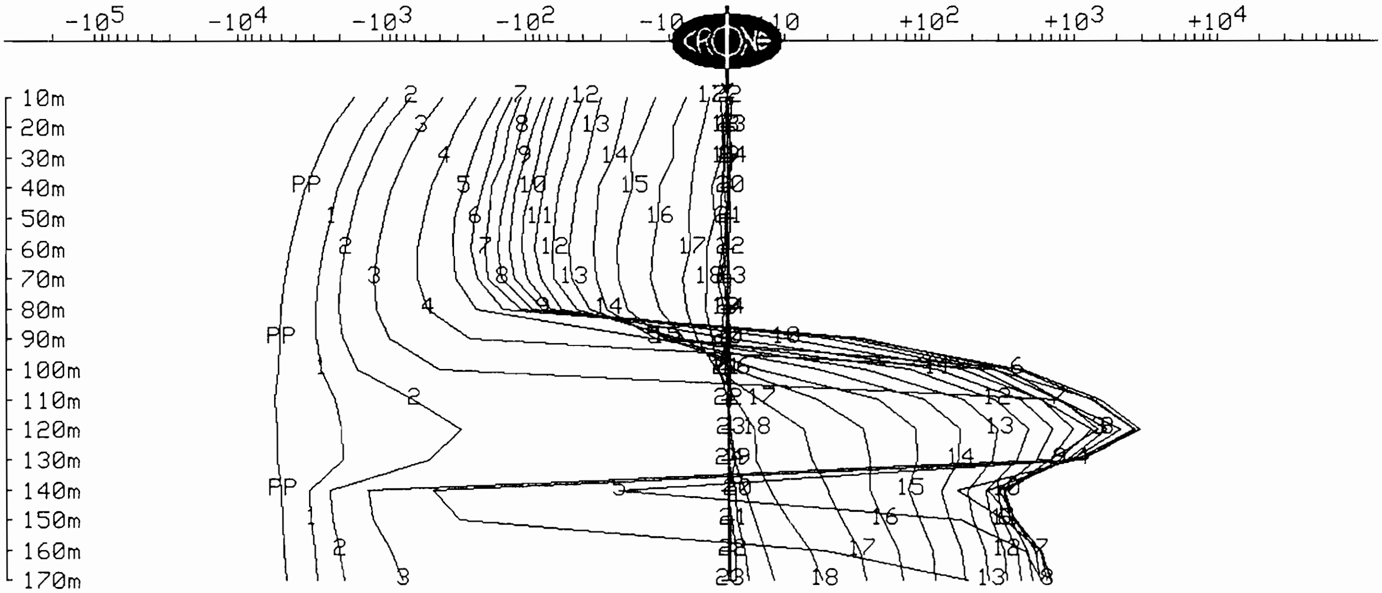
Data Corrected for Probe Rotation using Orientation Tool #27
X COMPONENT dBx/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-46**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP 3**
Date	: Nov 14, 2003	File name	: 46XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #27
Y COMPONENT dBy/dt nanoTesla/sec - 24 of 24 channels and PP
Scale: 1:2500

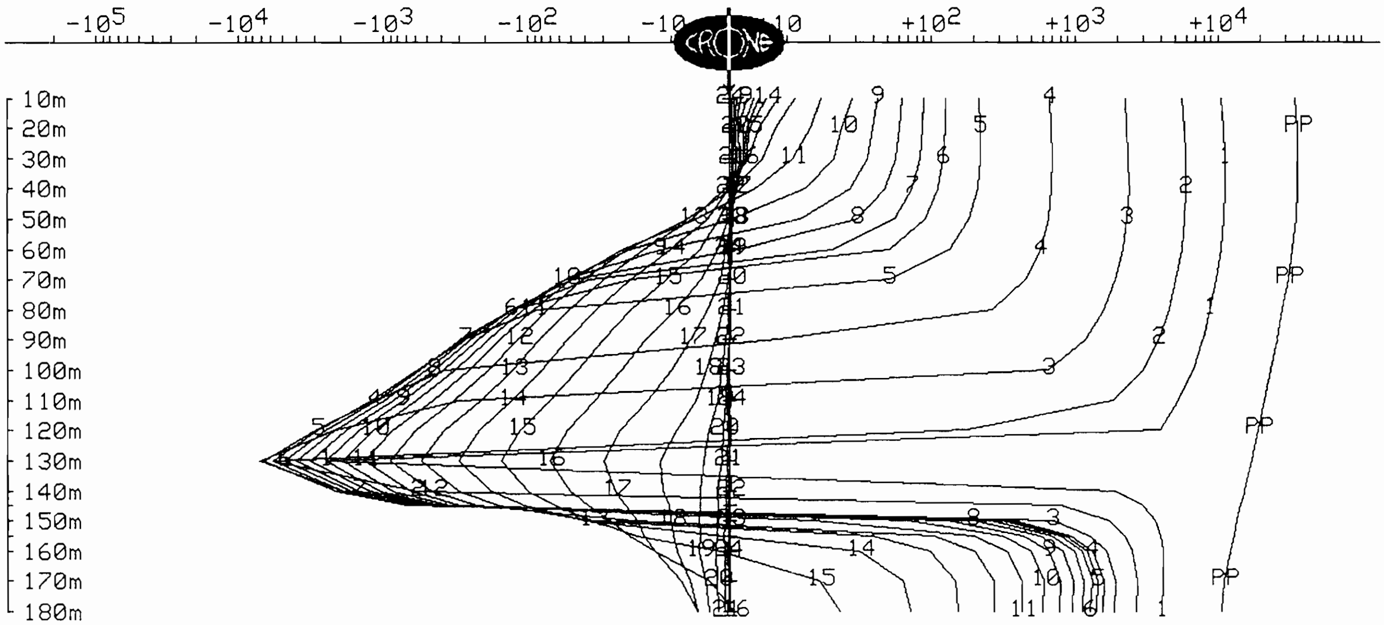


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client	: **Ursa Major Minerals Inc.**	Hole	: **U3-46**
Grid	: **Shakespeare Project**	Tx Loop	: **LOOP 3**
Date	: Nov 14, 2003	File name	: 46ZAV.PEM

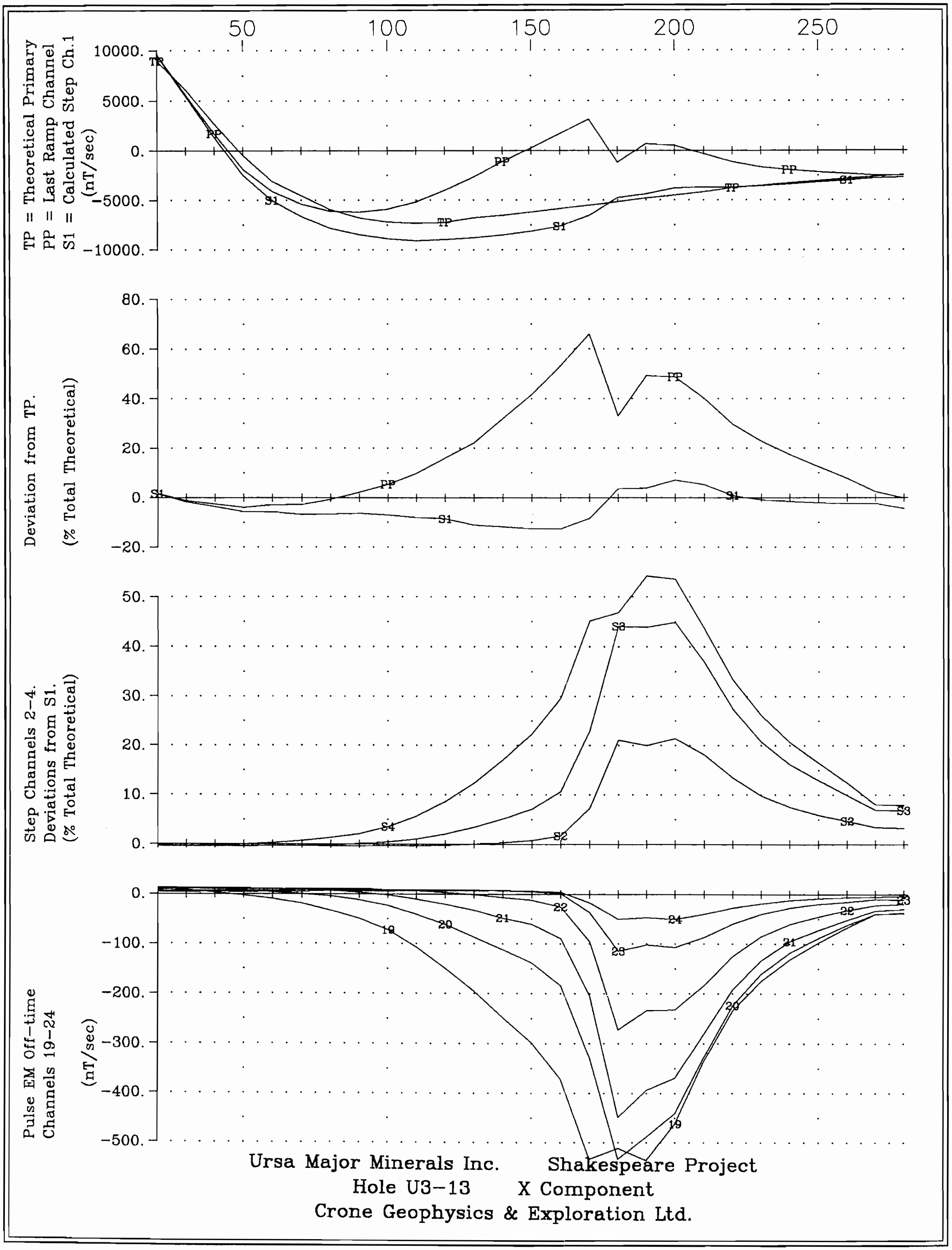
Z COMPONENT dBz/dt nanoTesla/sec - 24 of 24 channels and PP

Scale: 1:2500



APPENDIX IV

STEP RESPONSE DATA PROFILES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PP = Last Ramp Channel
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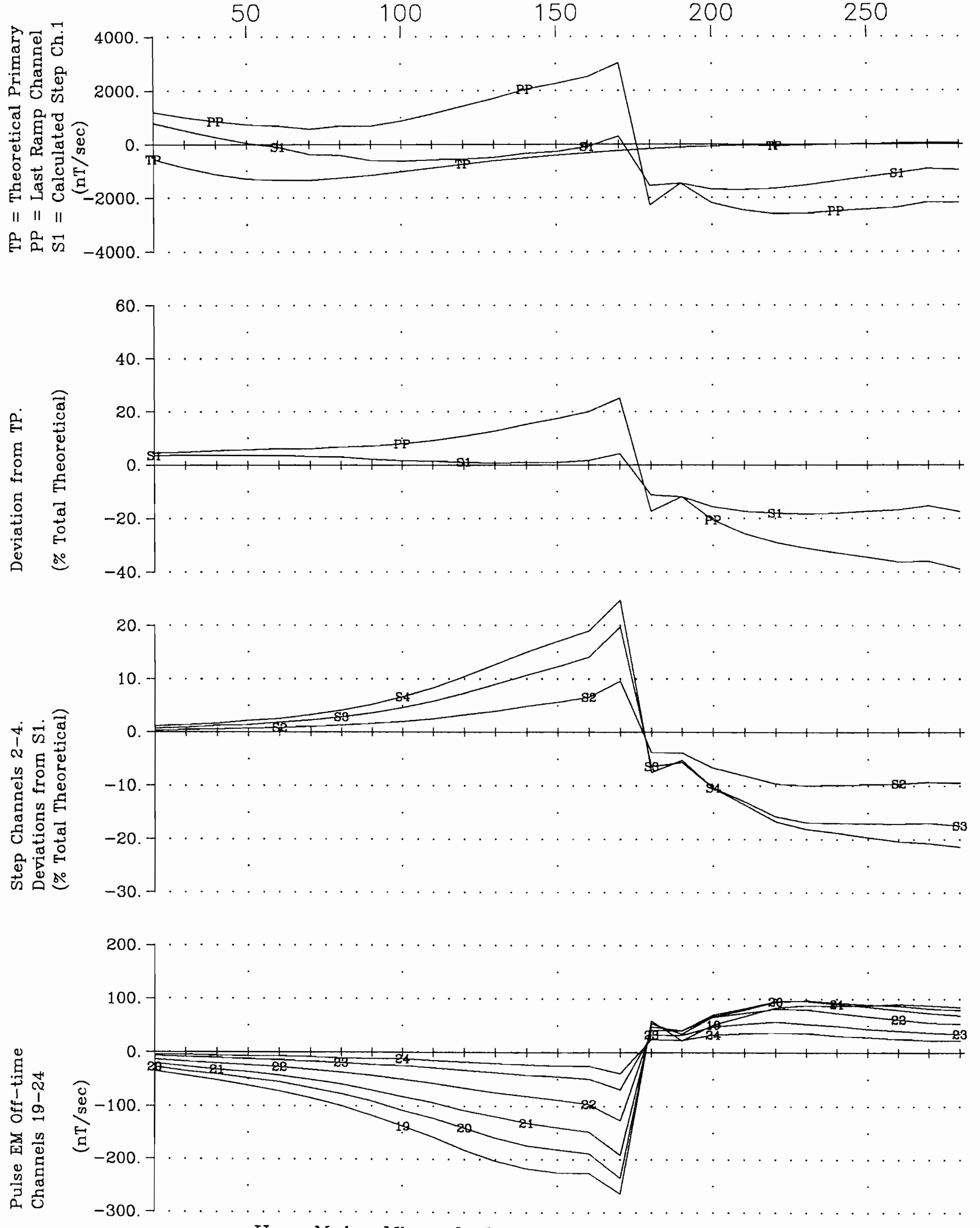
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 19-24
(nT/sec)
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-13 X Component
Crone Geophysics & Exploration Ltd.



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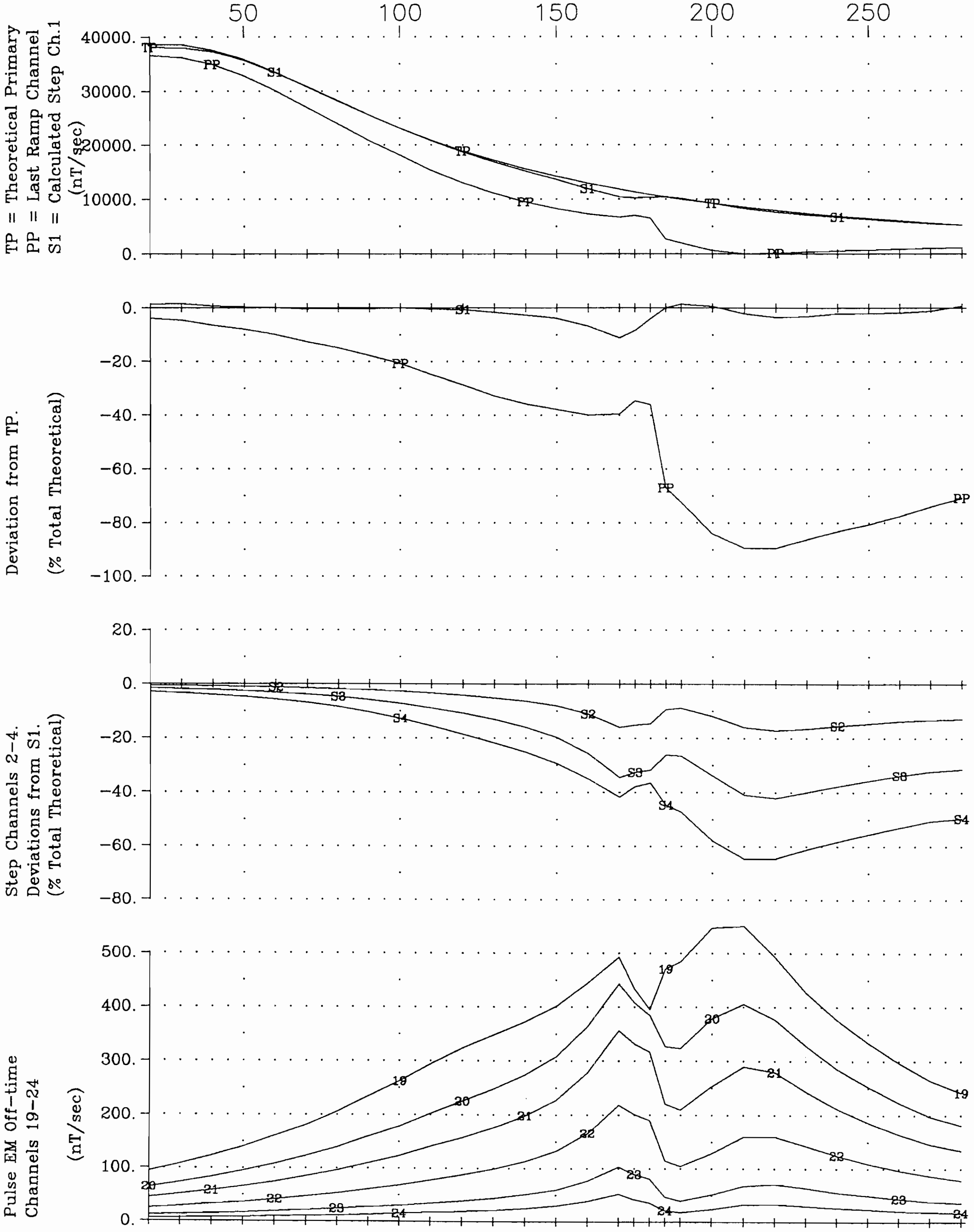
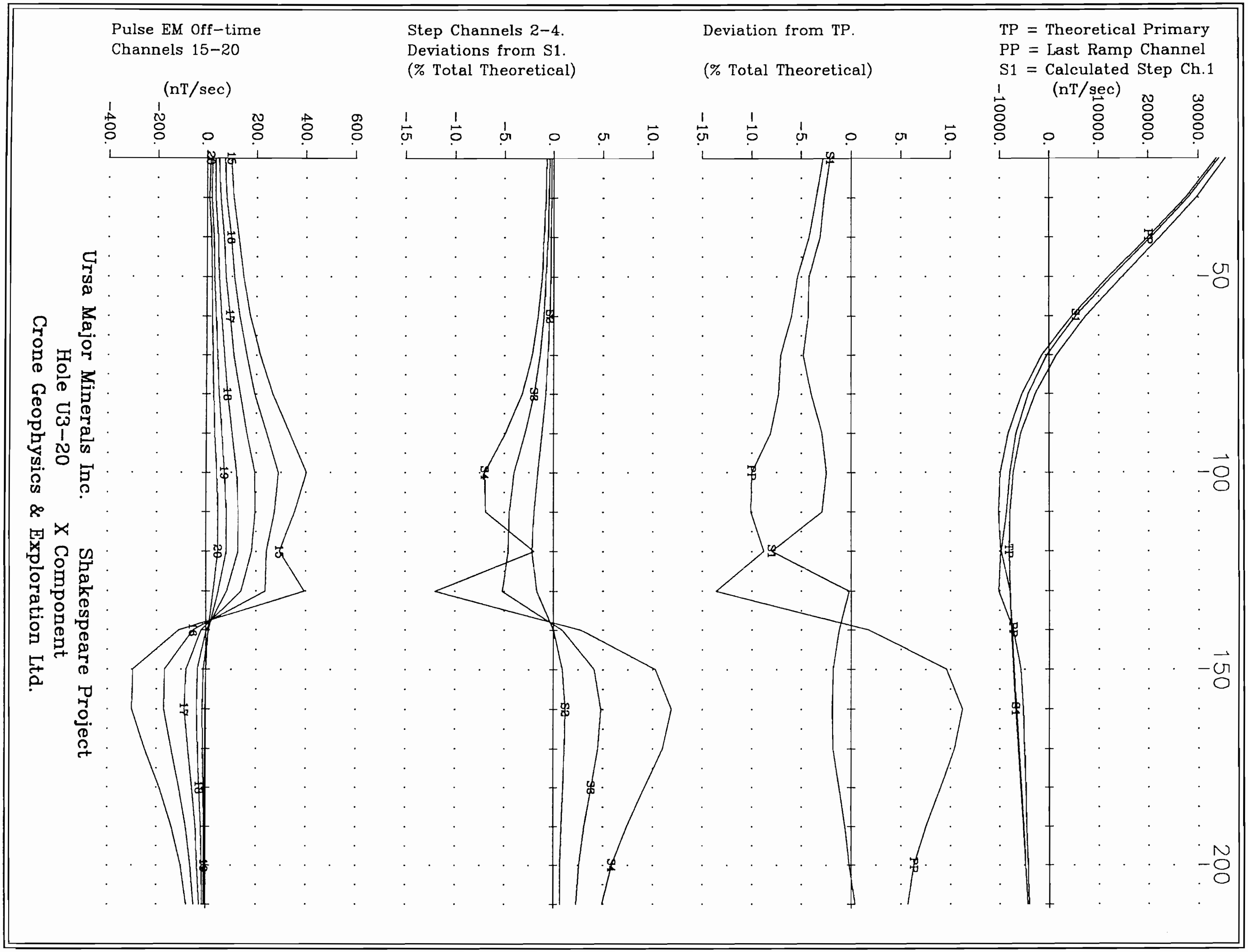


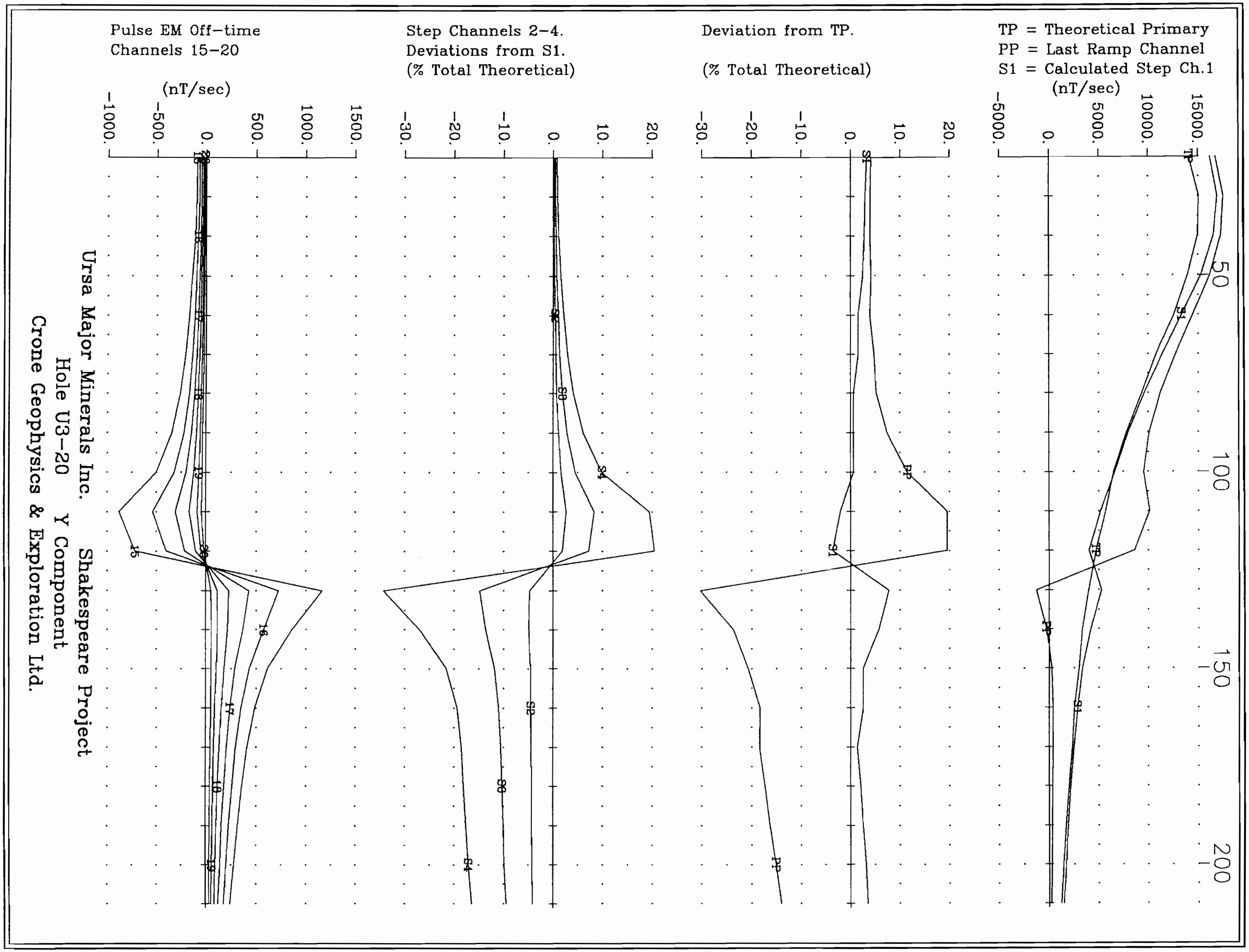
Ursa Major Minerals Inc. Shakespeare Project

Hole U3-13 Z Component

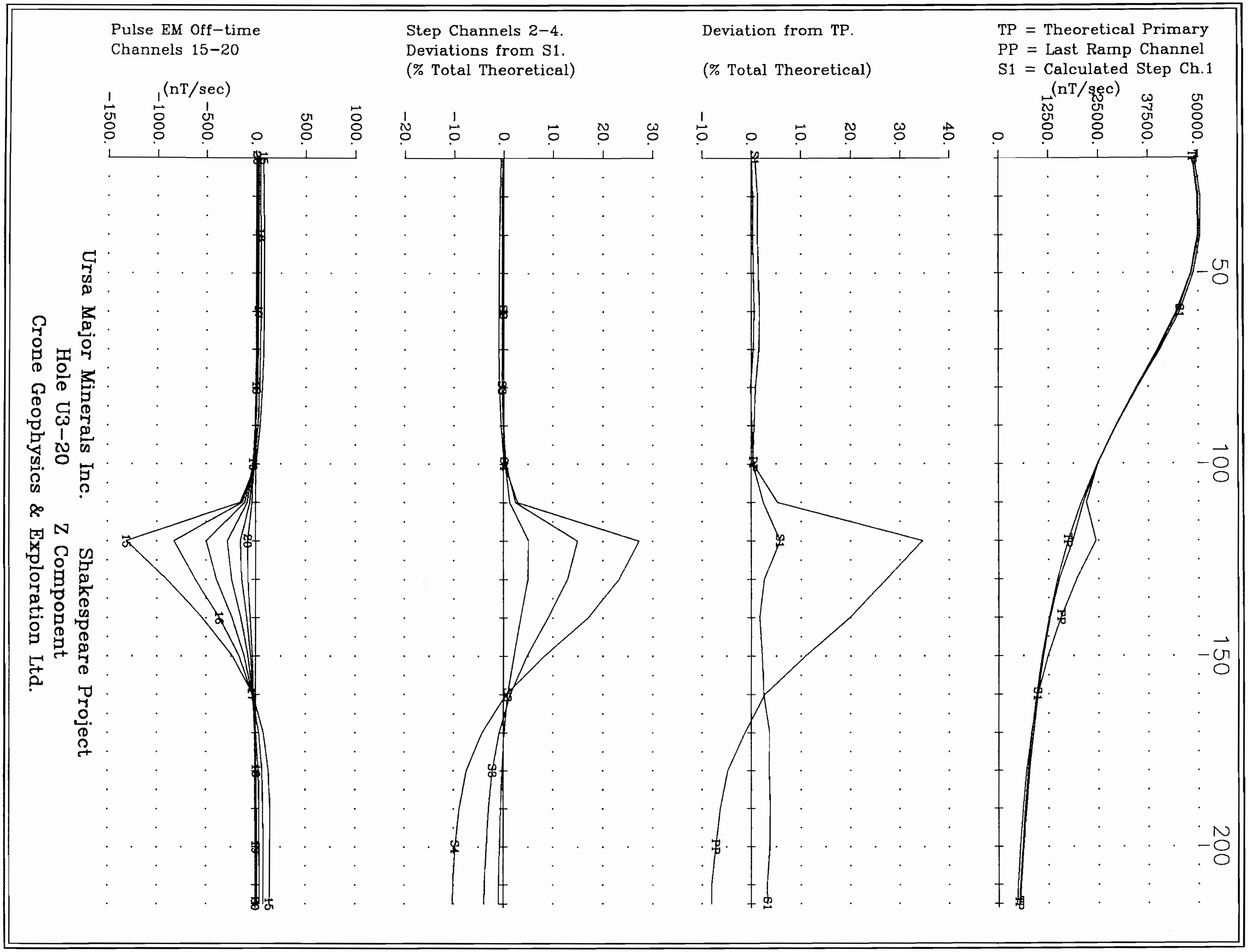
Crone Geophysics & Exploration Ltd.



TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 15-20
(nT/sec)
50
100
150
200
Ursa Major Minerals Inc.
Shakespeare Project
Hole U3-20
X Component
Crone Geophysics & Exploration Ltd.



TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 15-20
(nT/sec)
50
100
150
200
Ursa Major Minerals Inc.
Shakespeare Project
Hole U3-20
Y Component
Crone Geophysics & Exploration Ltd.



TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
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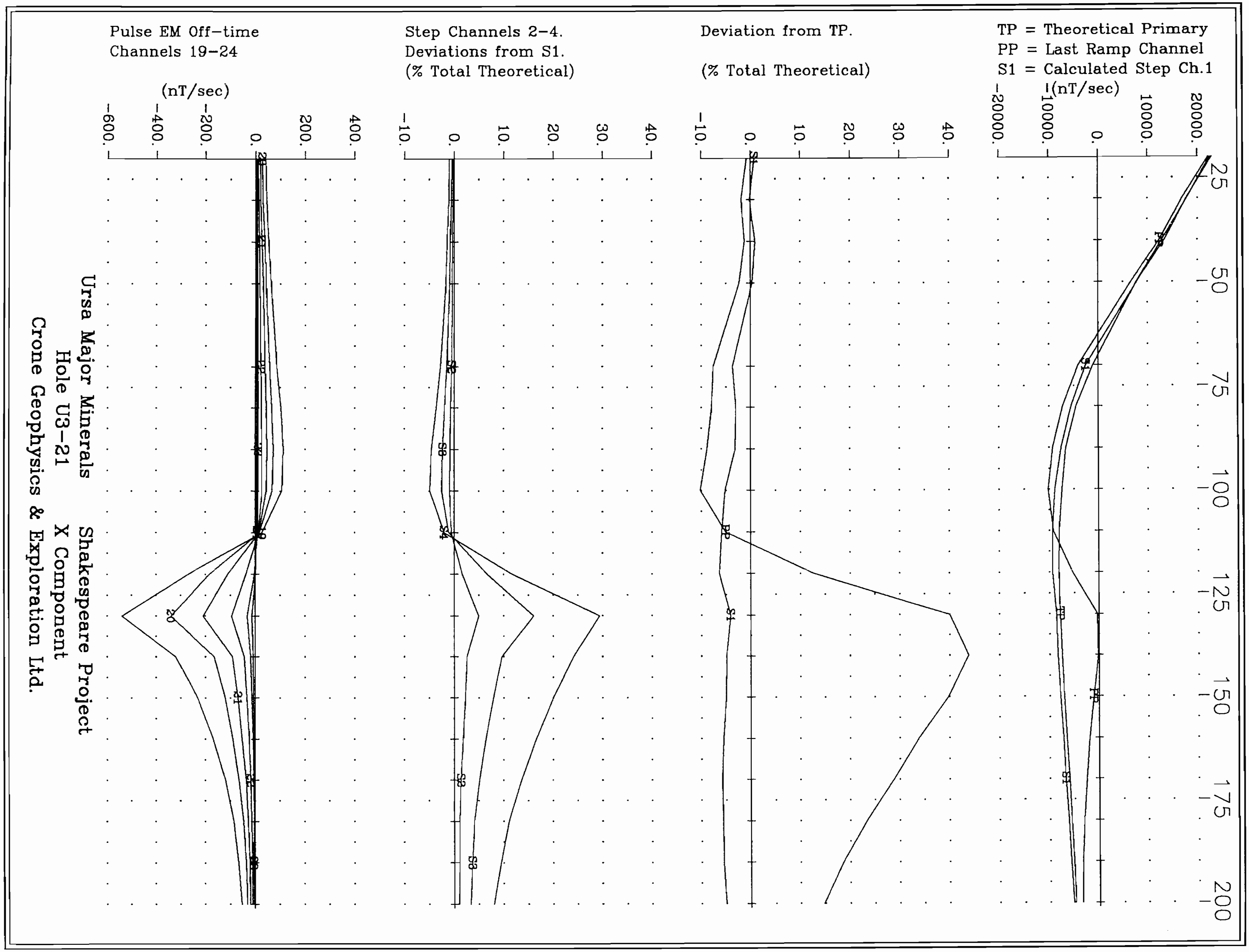
Deviation from TP.
(% Total Theoretical)
Step Channels 2–4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off–time
Channels 15–20
(nT/sec)
50
100
150
200
Ursa Major Minerals Inc.
Hole U3–20
Crone Geophysics & Exploration Ltd.
Shakespeare Project
Z Component



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PP = Last Ramp Channel
S1 = Calculated Step Ch.1
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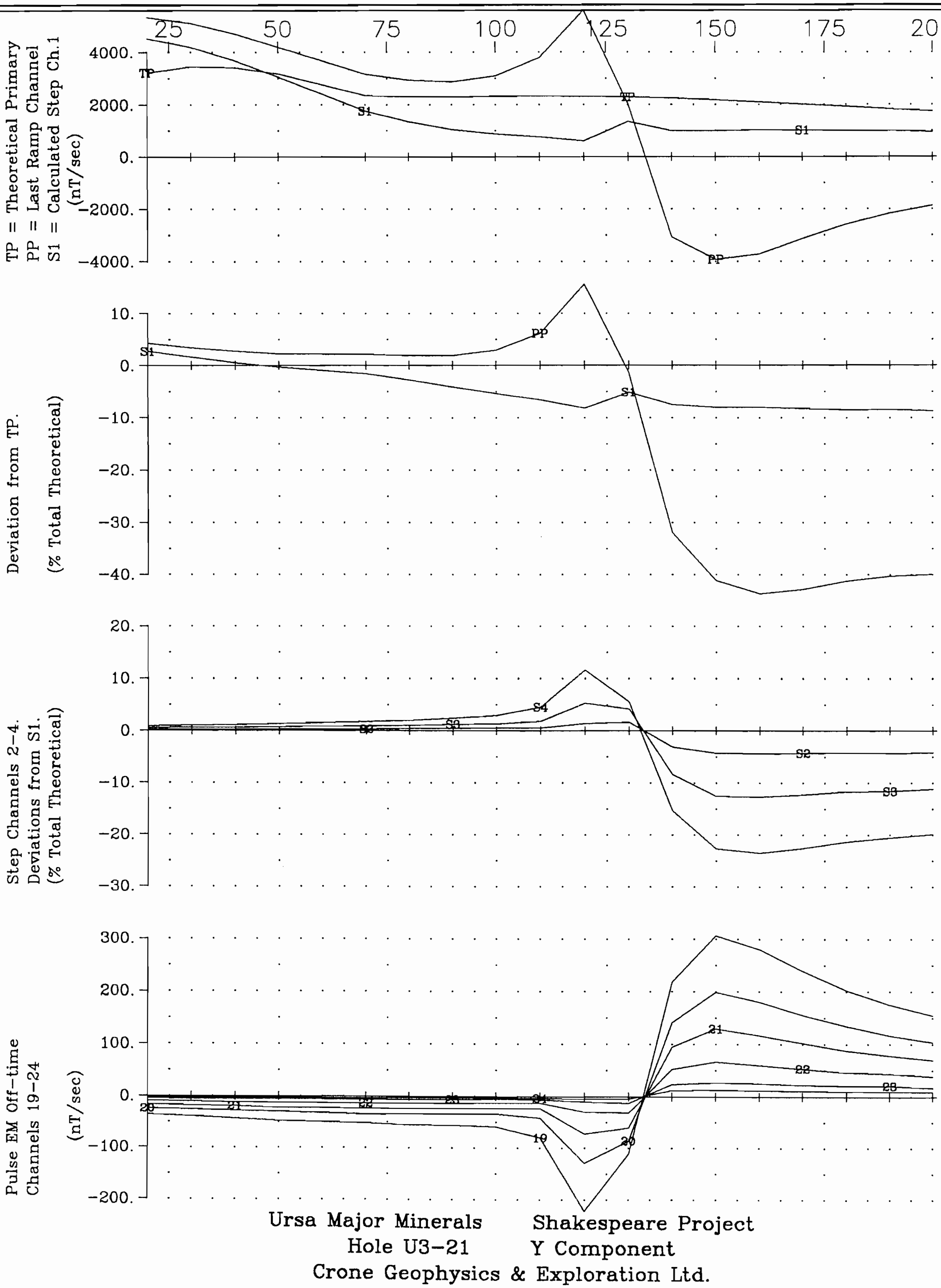
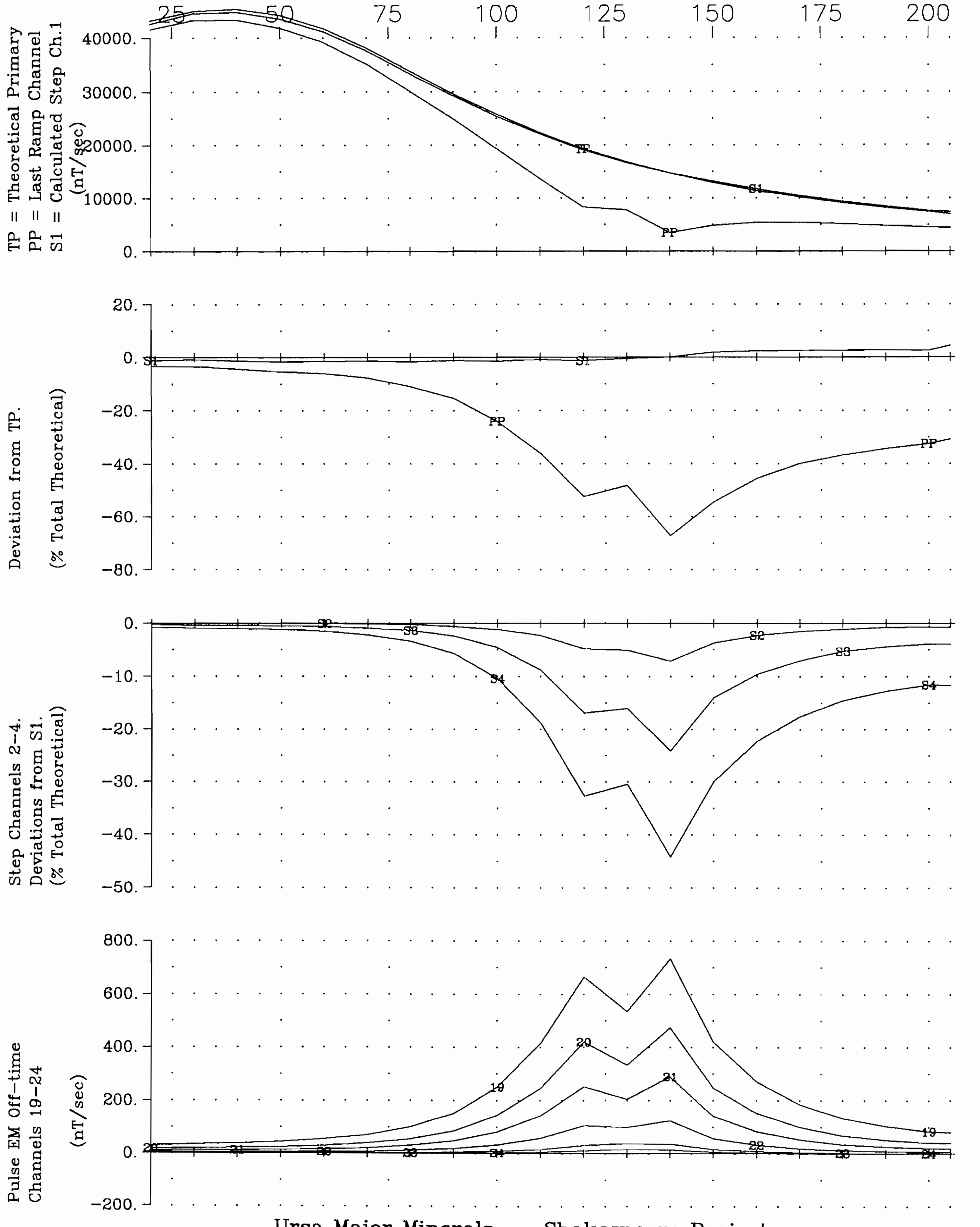
Deviation from TP.
(% Total Theoretical)
Step Channels 2–4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off–time
Channels 19–24
(nT/sec)
25
50
75
100
125
150
175
200
Ursa Major Minerals
Hole U3-21
Crone Geophysics & Exploration Ltd.
Shakespeare Project
X Component



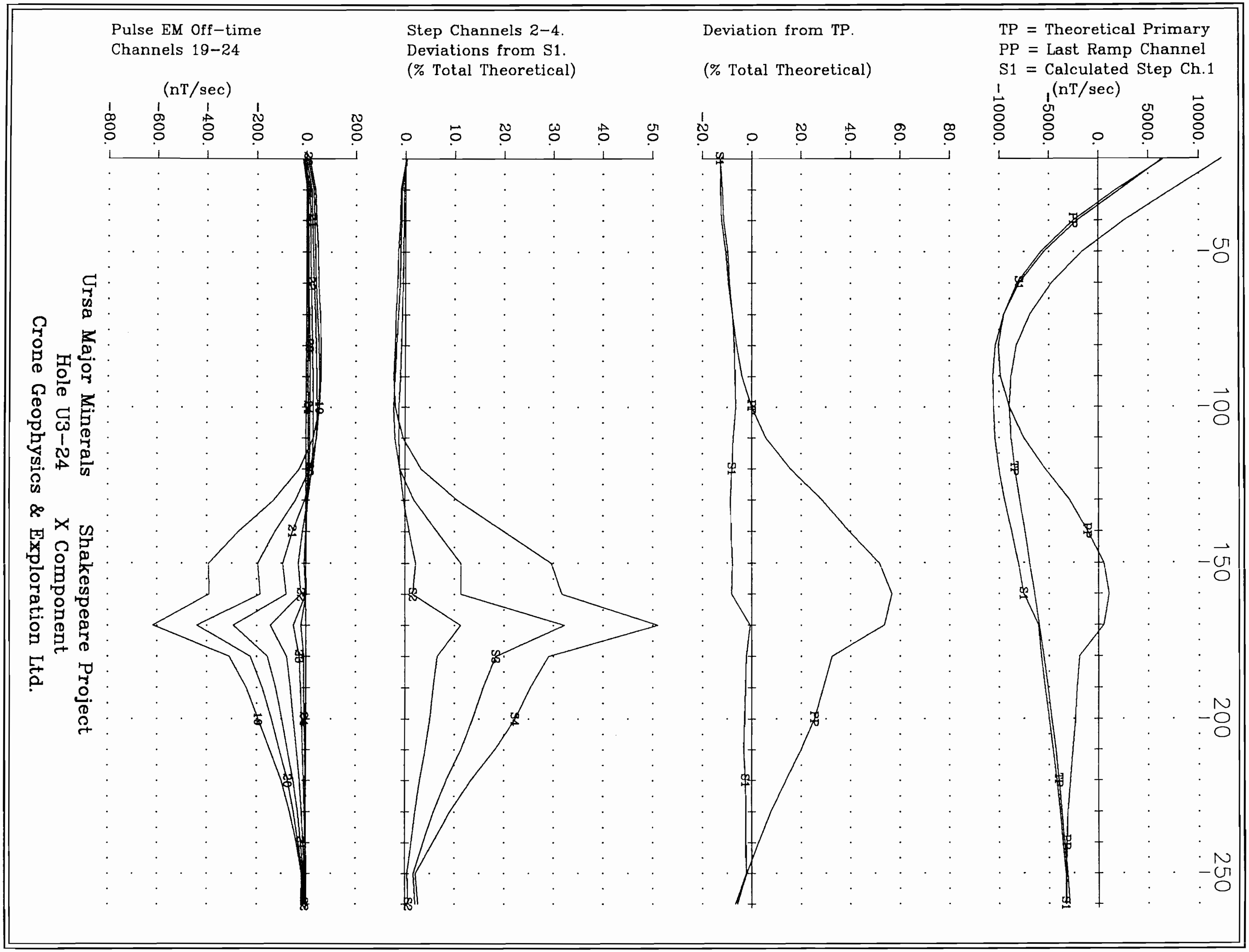
Ursa Major Minerals — Shakespeare Project

Hole U3-21 — Y Component

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Shakespeare Project
Hole U3-21 Z Component
Crone Geophysics & Exploration Ltd.



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PP = Last Ramp Channel
S1 = Calculated Step Ch.1
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Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
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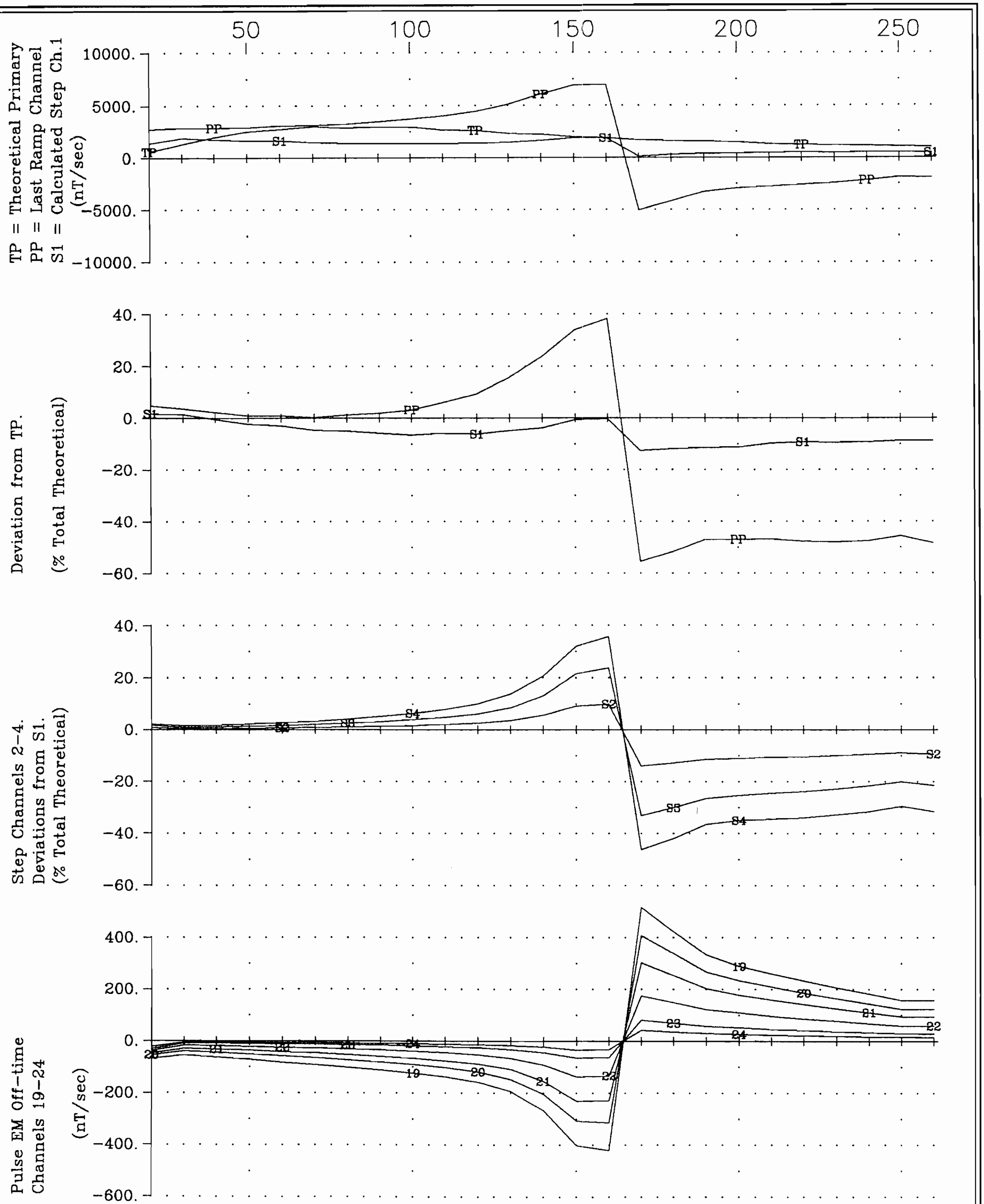
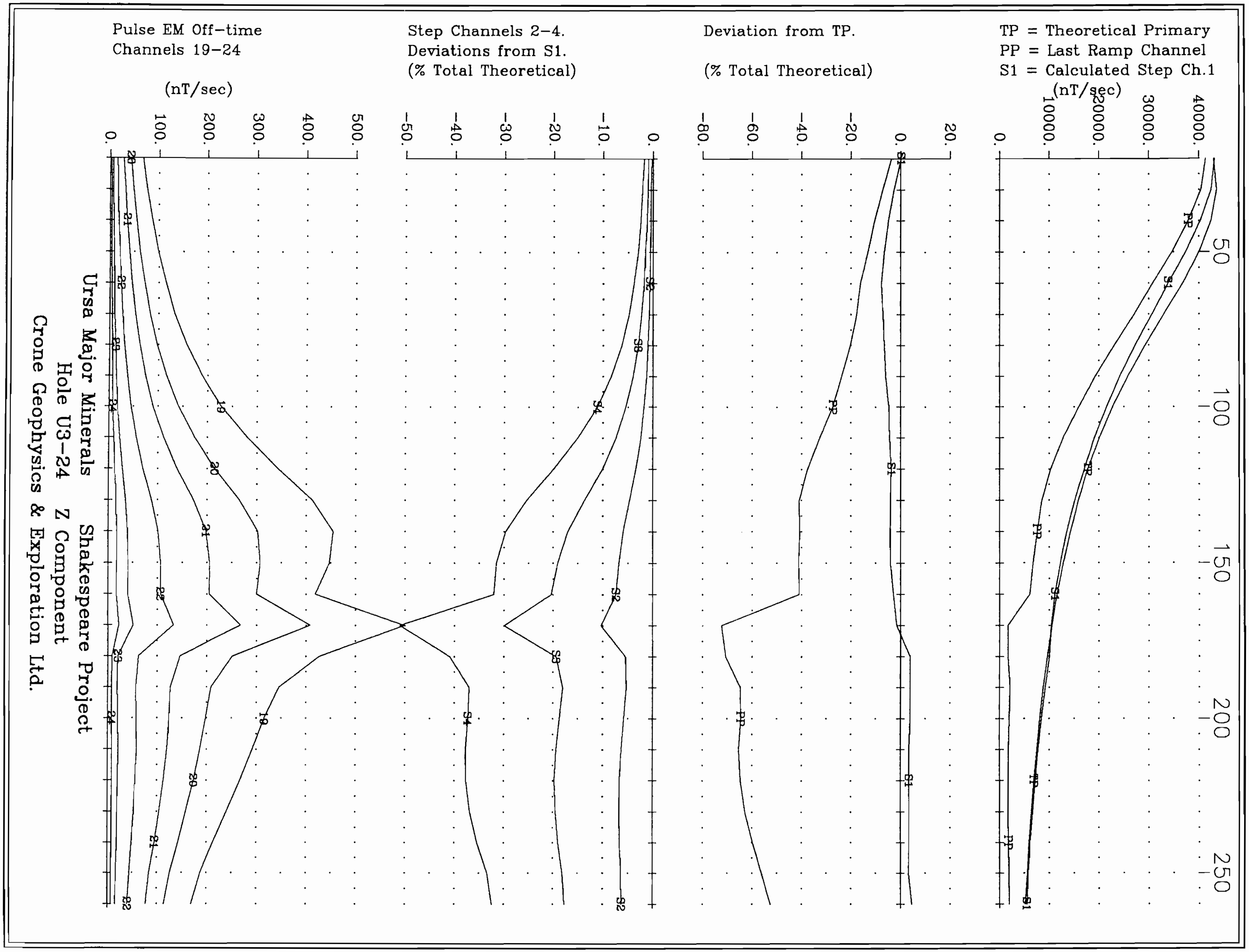
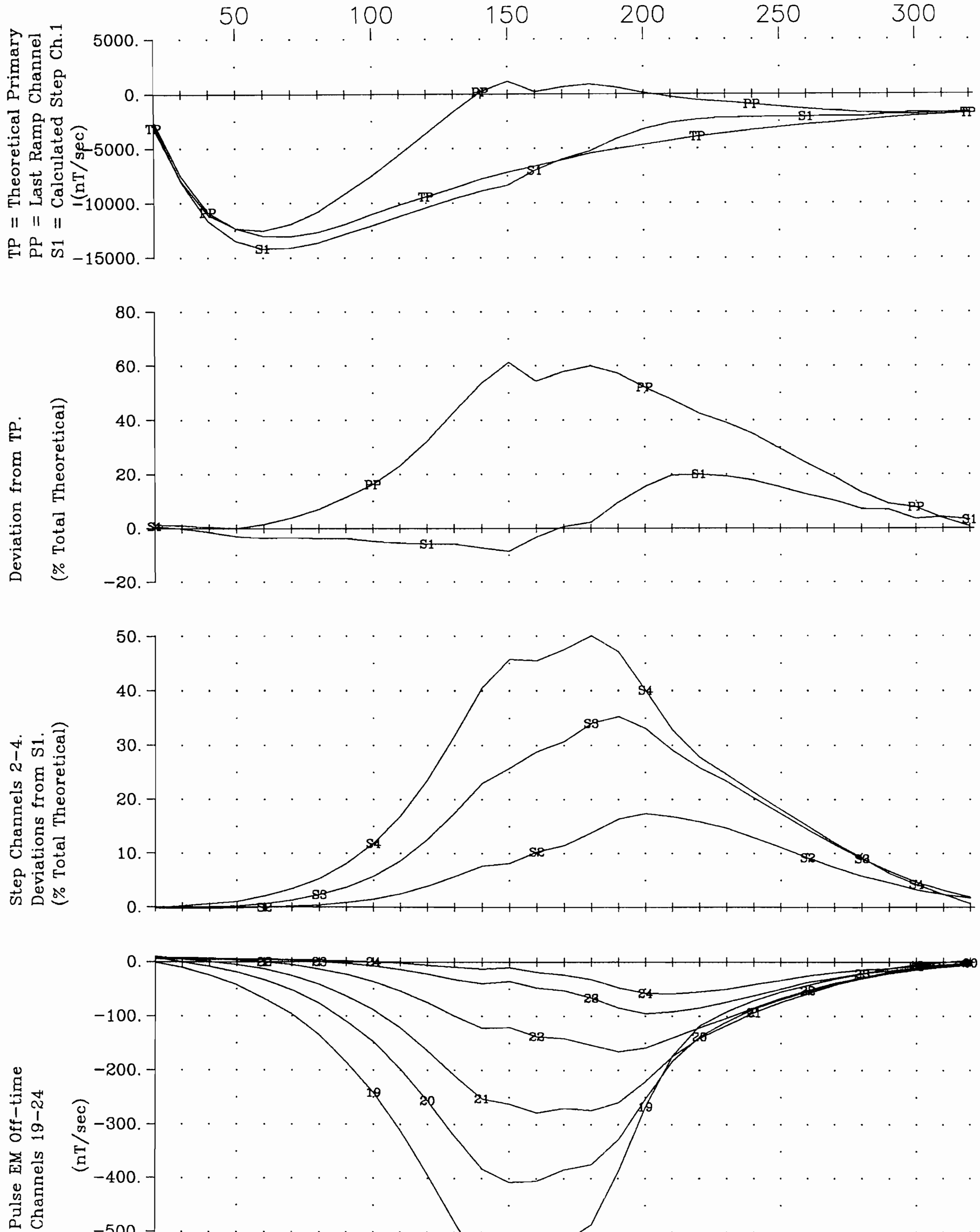
Channels 19-24
(nT/sec)
Ursa Major Minerals Shakespeare Project
Hole U3-24 X Component
Crone Geophysics & Exploration Ltd.

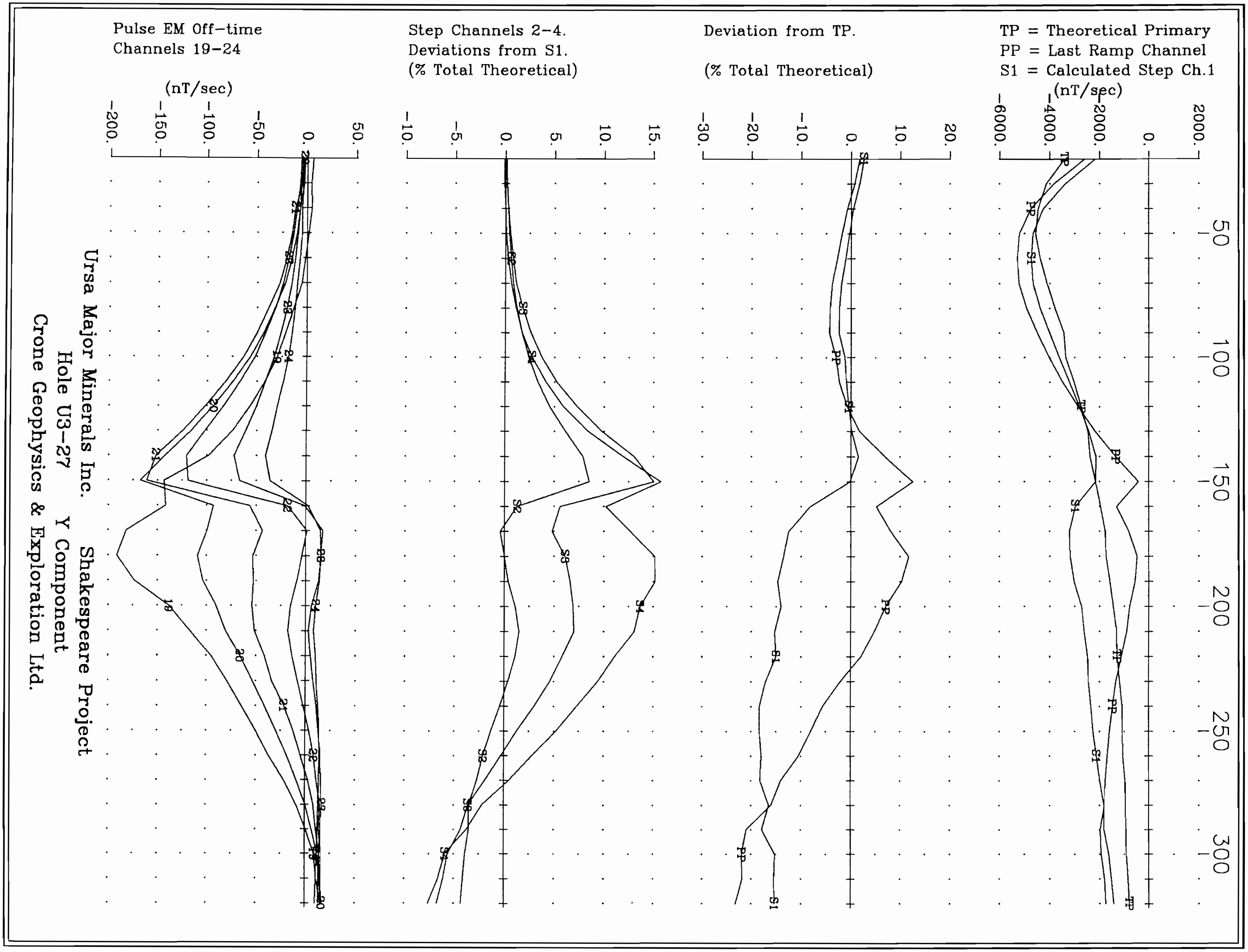


Ursa Major Minerals Shakespeare Project
Hole U3-24 Y Component
Crone Geophysics & Exploration Ltd.


Pulse EM Off-time
Channels 19-24
(nT/sec)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Deviation from TP.
(% Total Theoretical)
TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Ursa Major Minerals
Shakespeare Project
Hole U3-24
Z Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project
Hole U3-27 X Component
Crone Geophysics & Exploration Ltd.


TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
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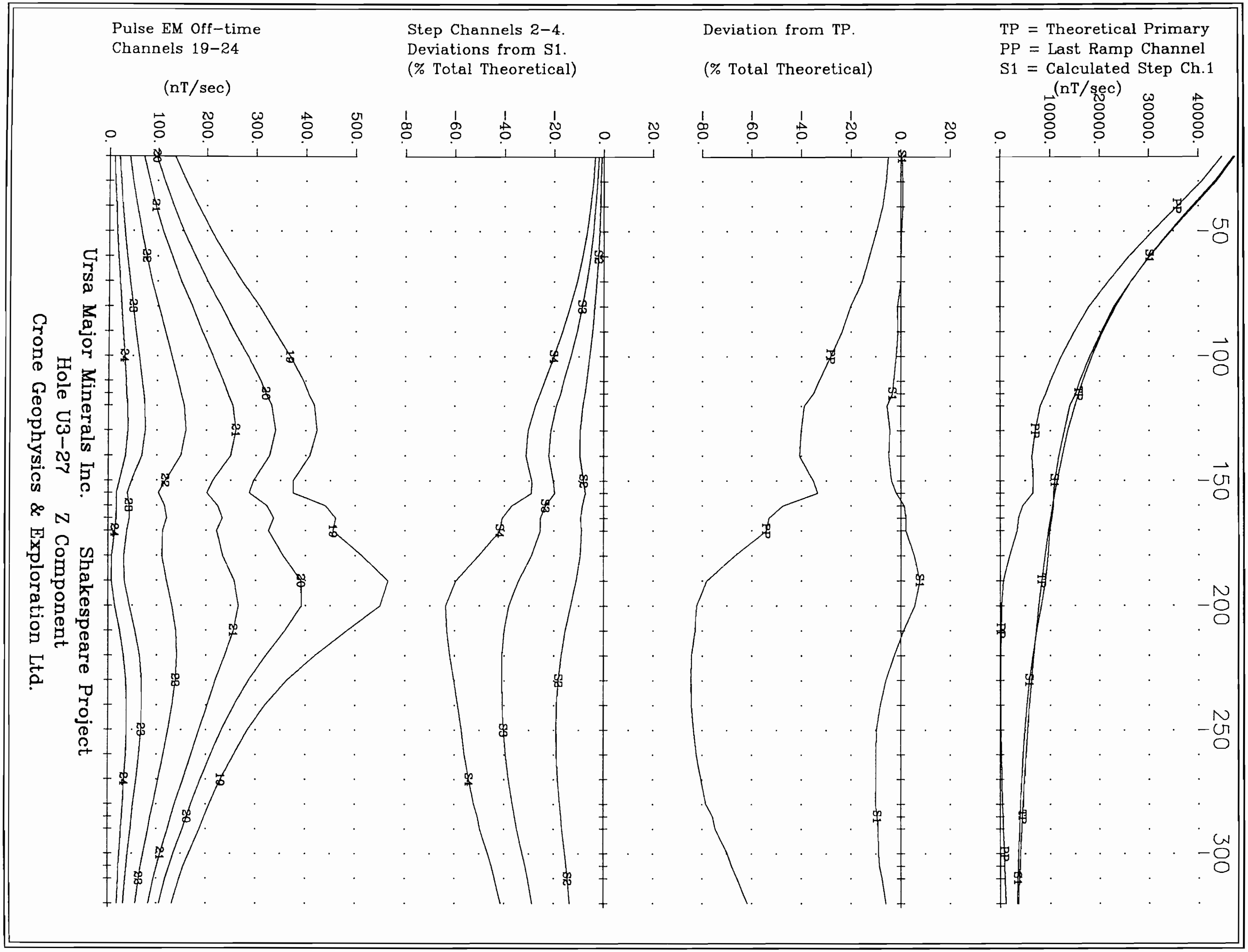
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 19-24
(nT/sec)
Ursa Major Minerals Inc.
Shakespeare Project
Hole U3-27
Y Component
Crone Geophysics & Exploration Ltd.



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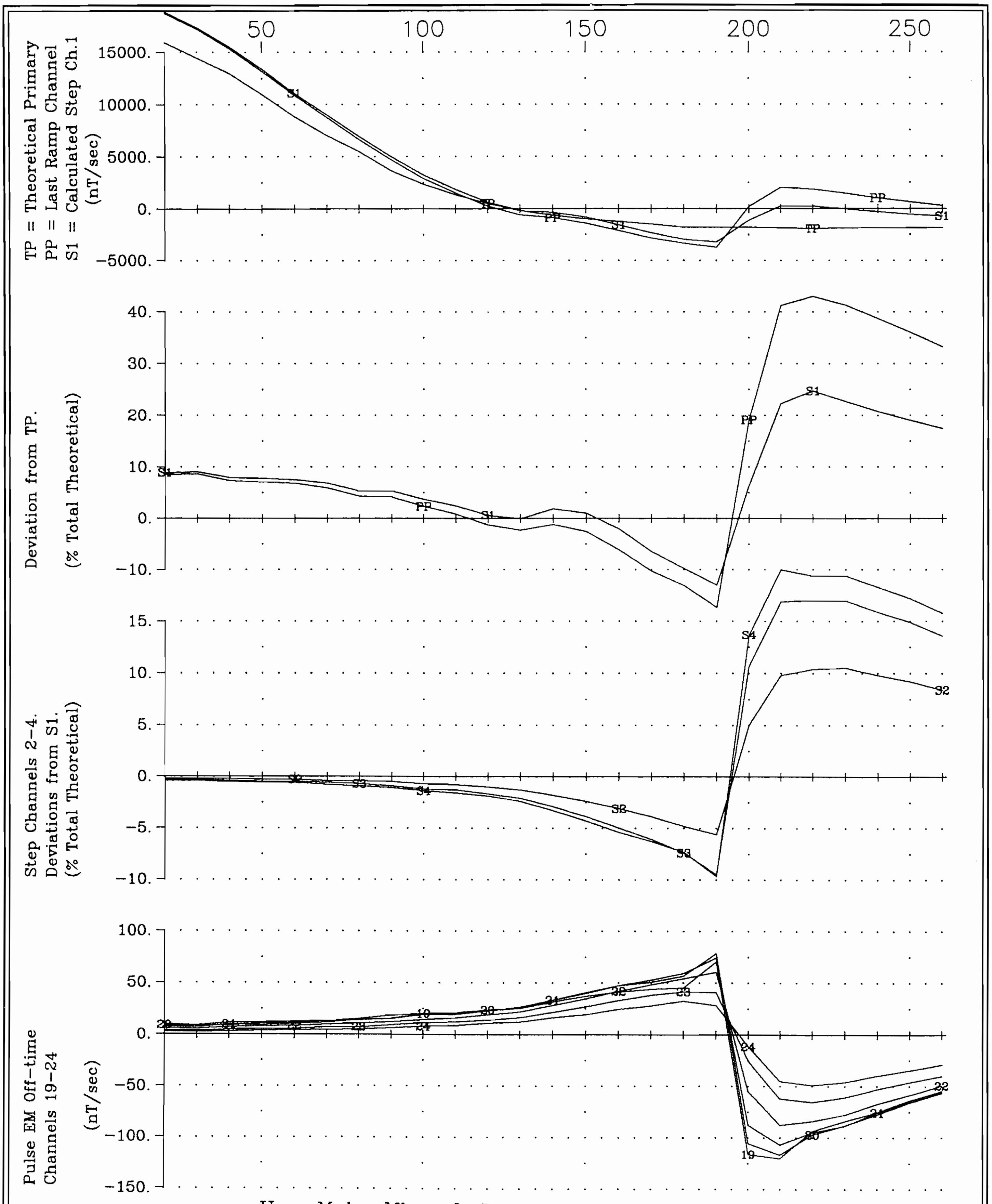
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 19-24
(nT/sec)
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-27 Z Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project
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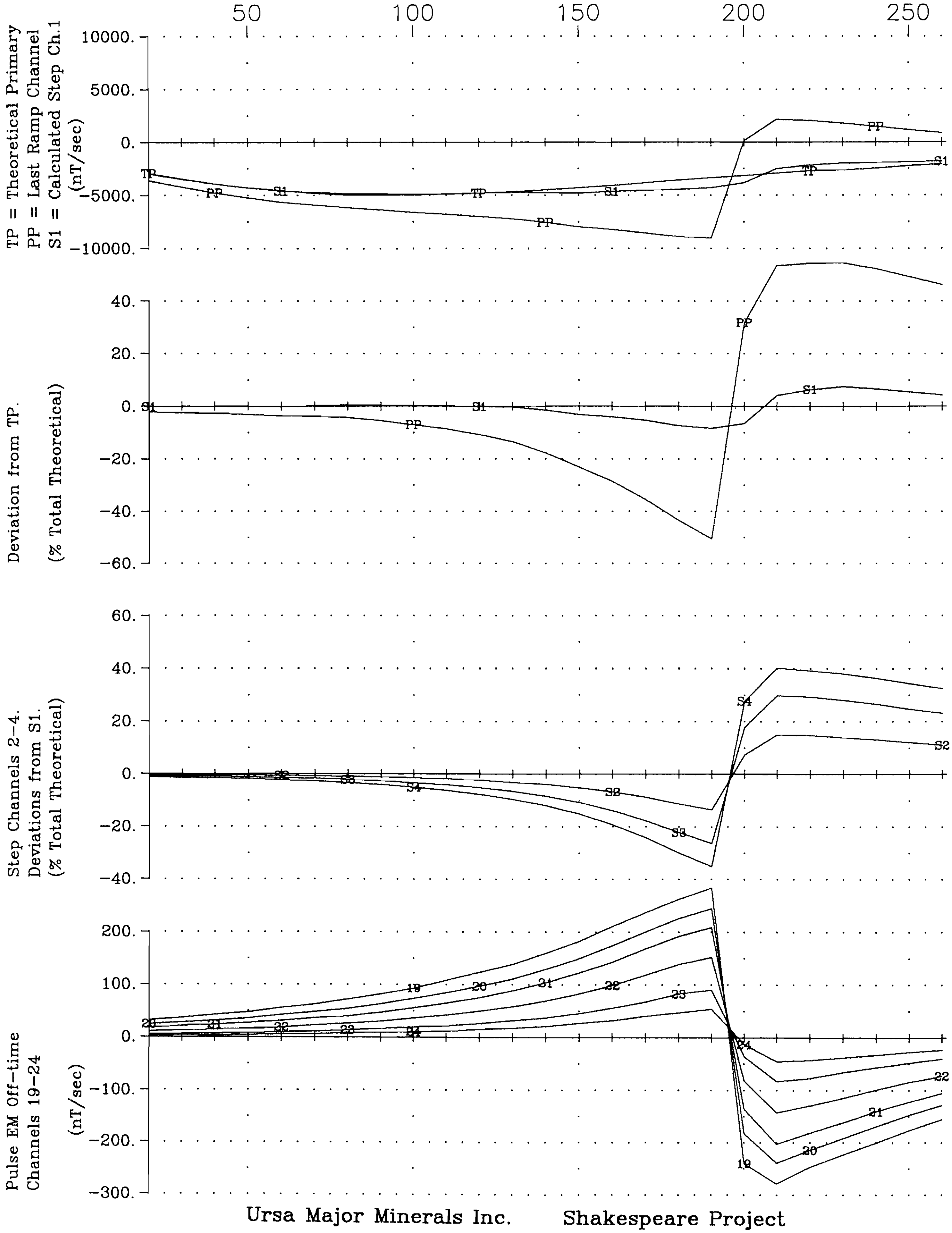
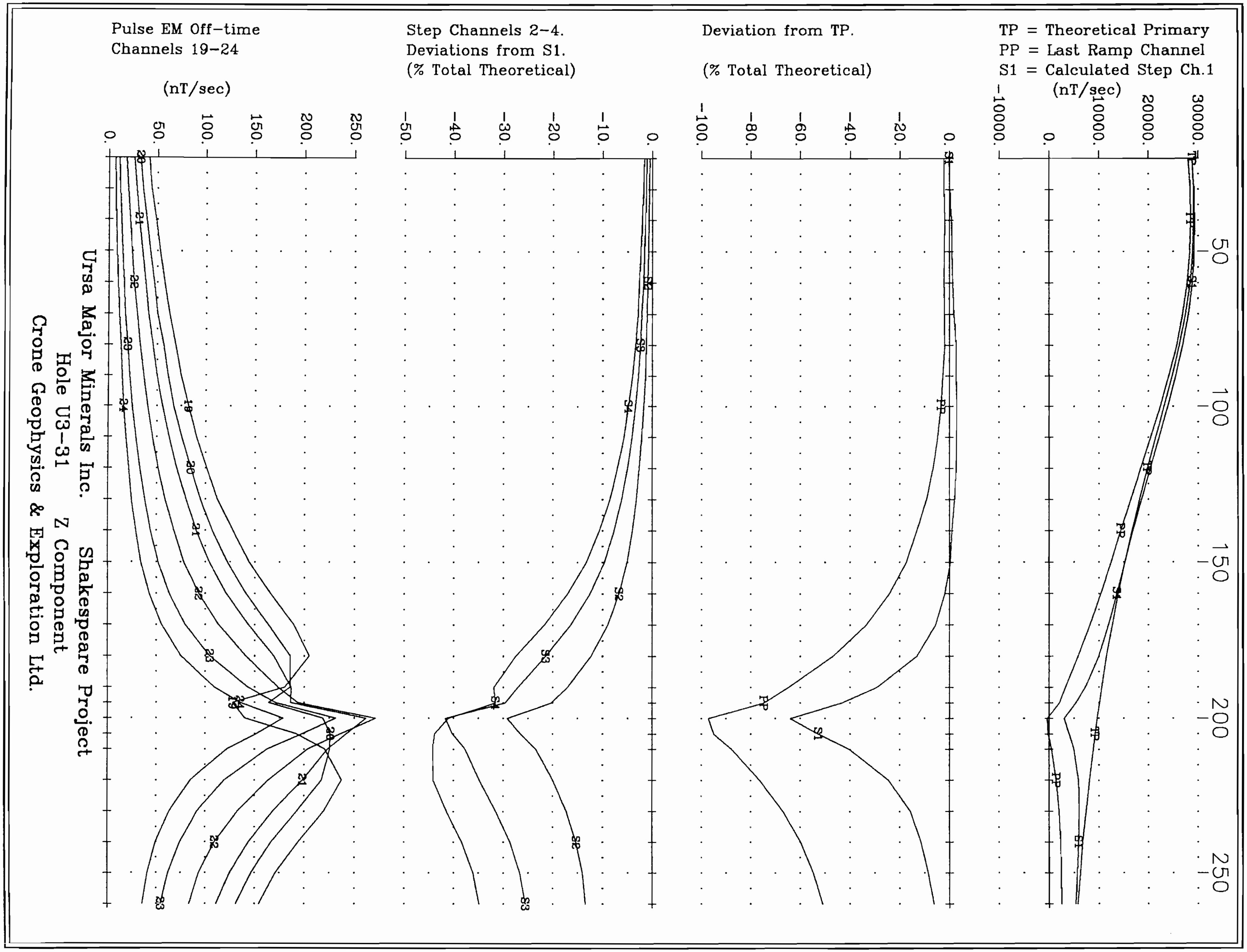
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc.   Shakespeare Project

Hole U3-31   Y Component

Crone Geophysics & Exploration Ltd.


TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
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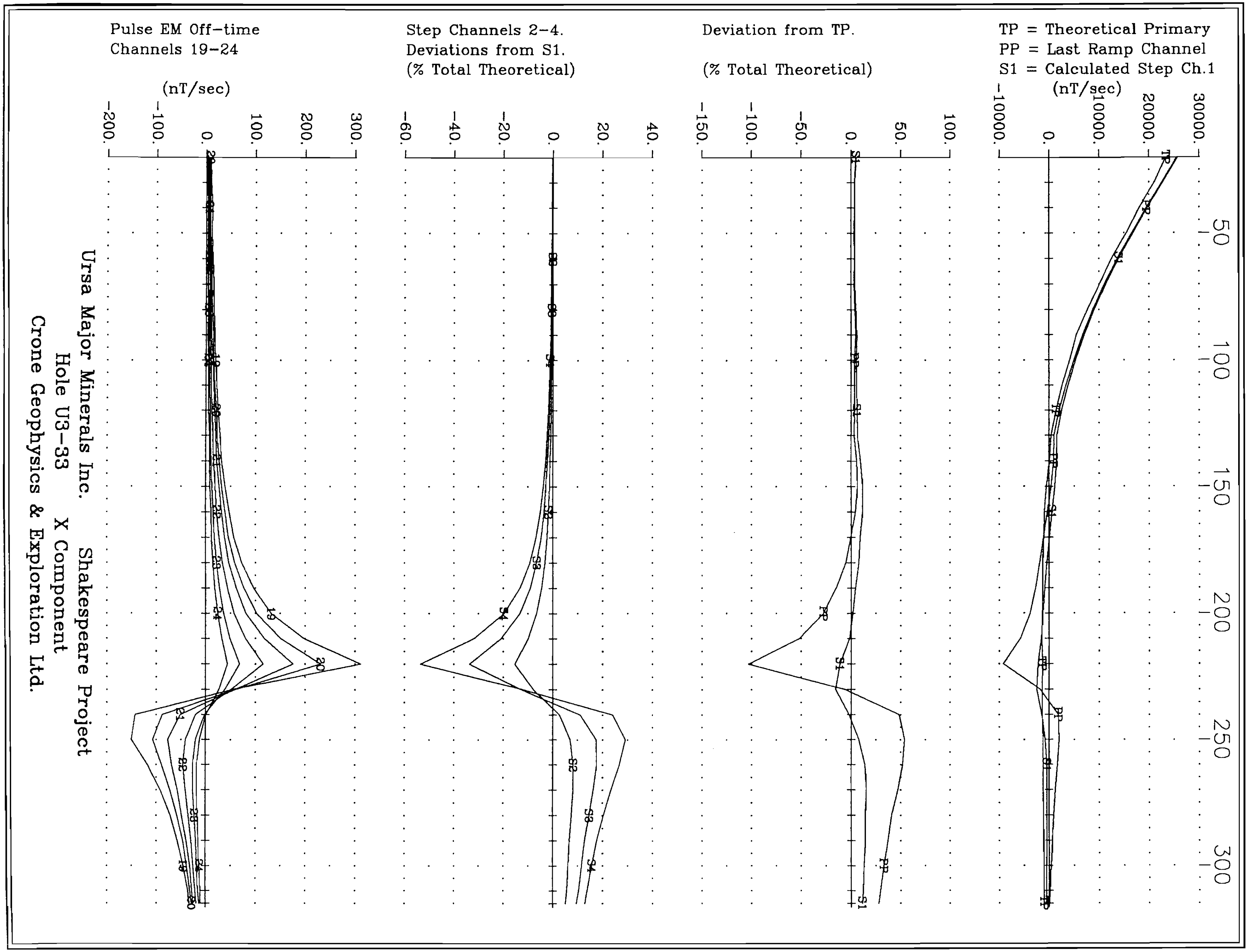
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 19-24
(nT/sec)
Ursa Major Minerals Inc.
Shakespeare Project
Hole U3-31
Z Component
Crone Geophysics & Exploration Ltd.



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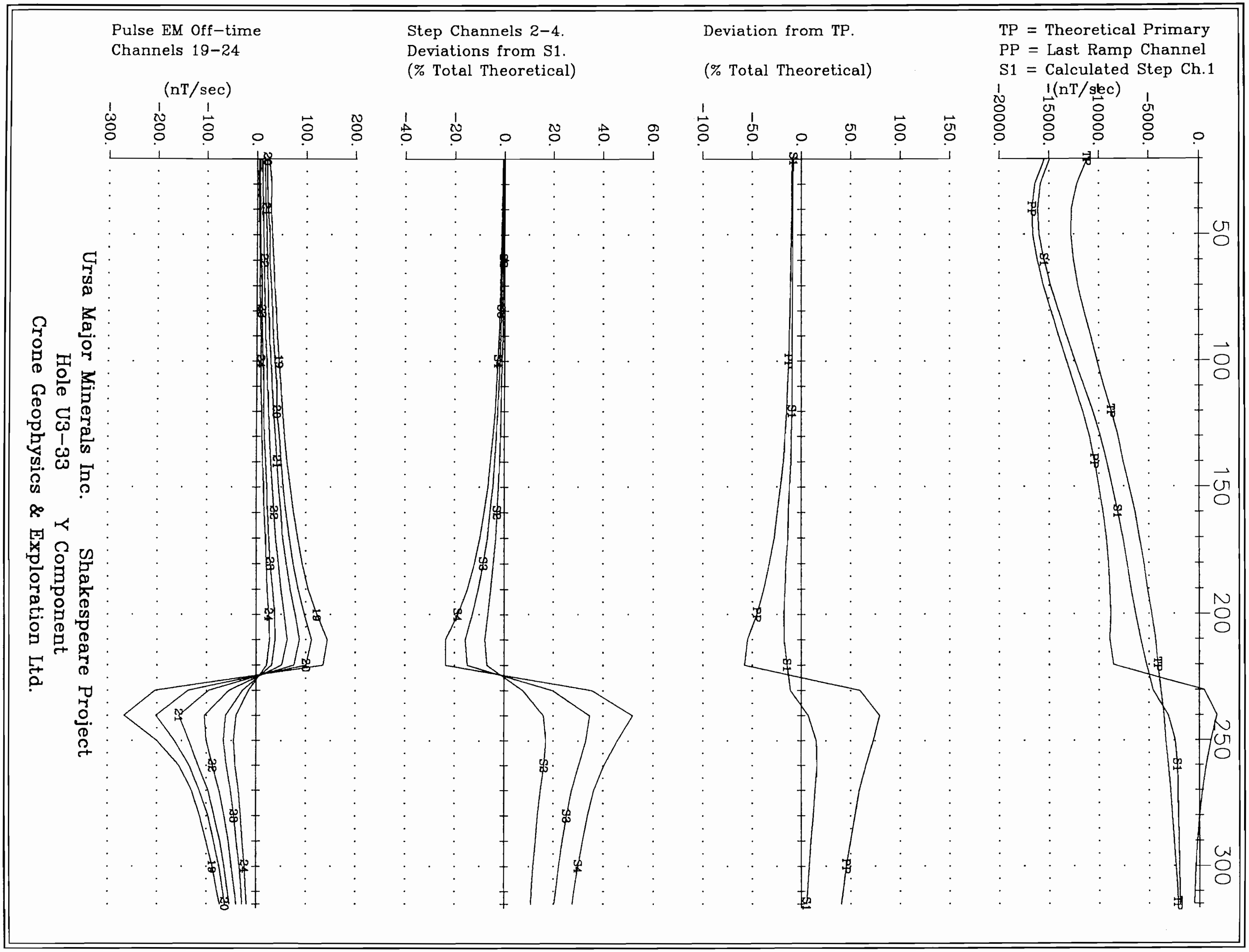
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Deviation from TP.
(% Total Theoretical)
Step Channels 2–4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off–time
Channels 19–24
(nT/sec)
Ursa Major Minerals Inc. Shakespeare Project
Hole U3–33 X Component
Crone Geophysics & Exploration Ltd.



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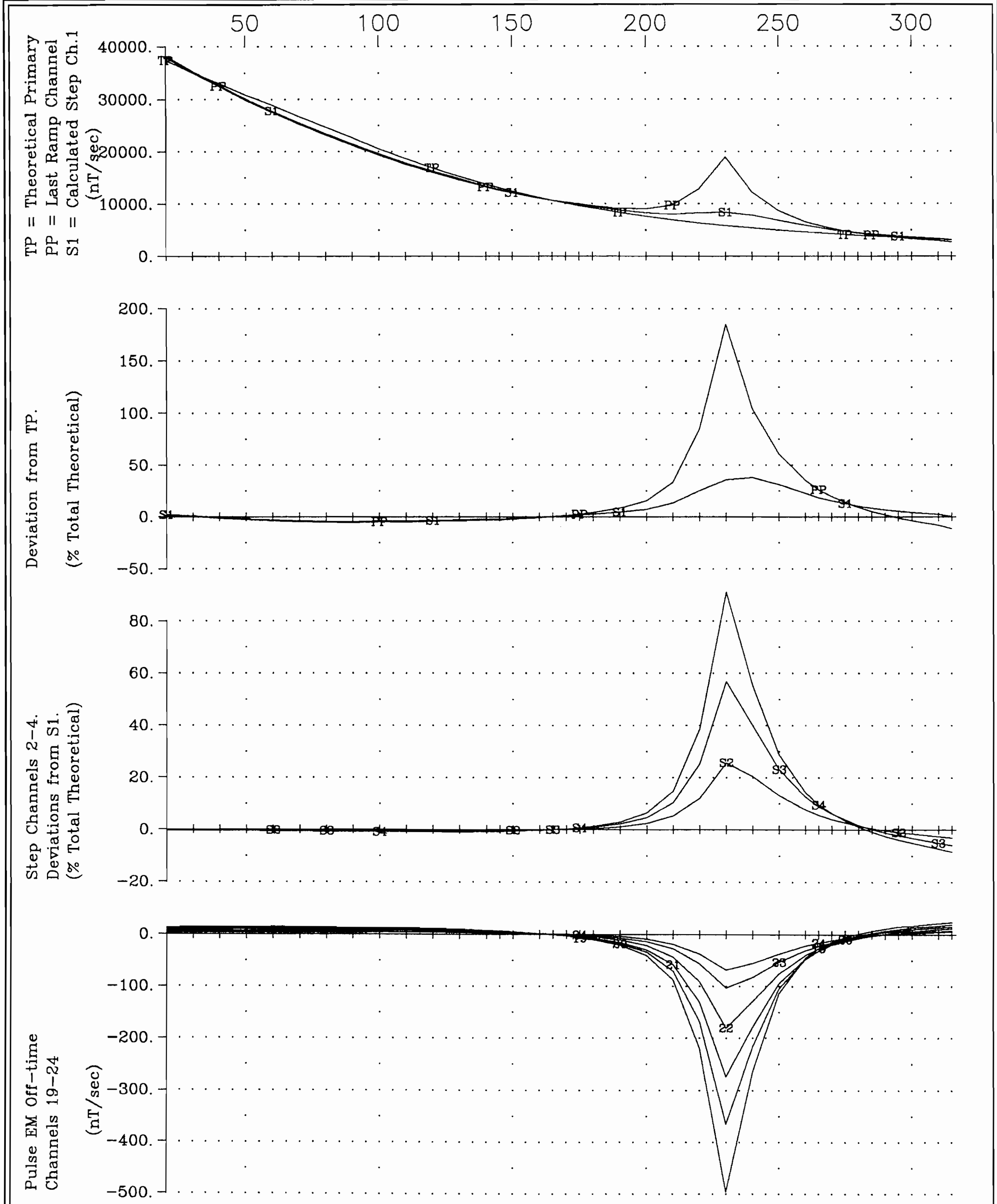
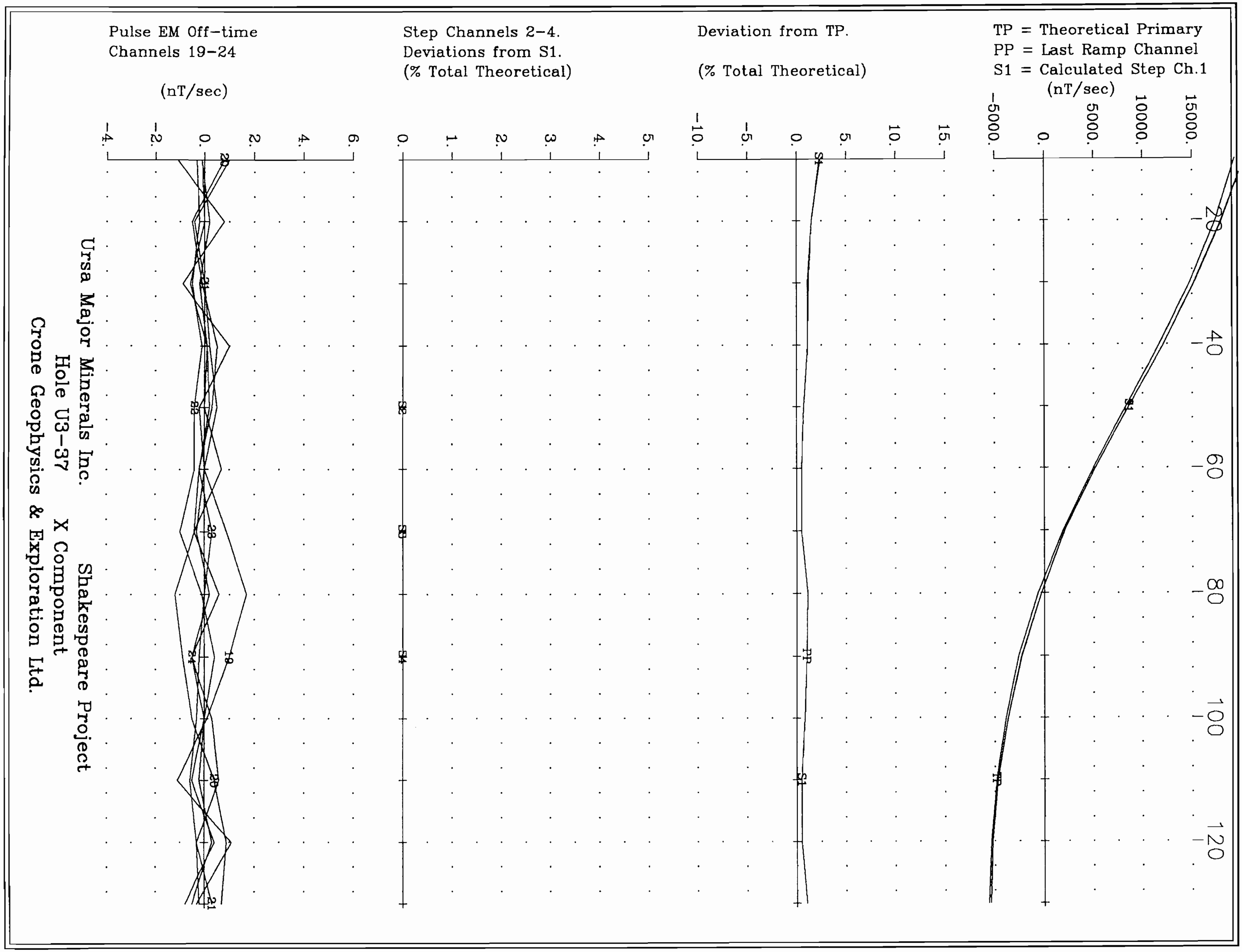
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 19-24
(nT/sec)
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-33 Y Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project
Hole U3-33 Z Component
Crone Geophysics & Exploration Ltd.



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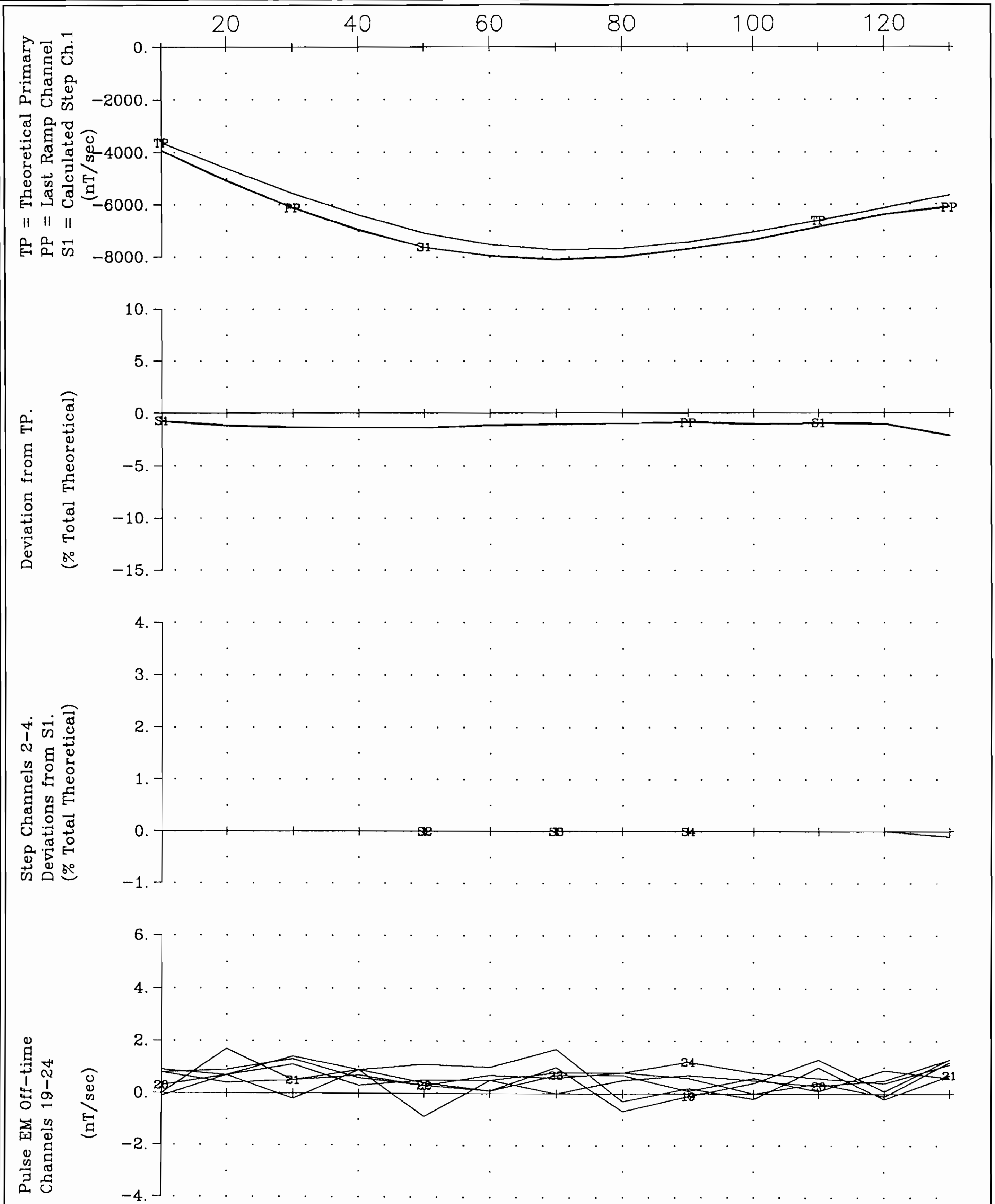
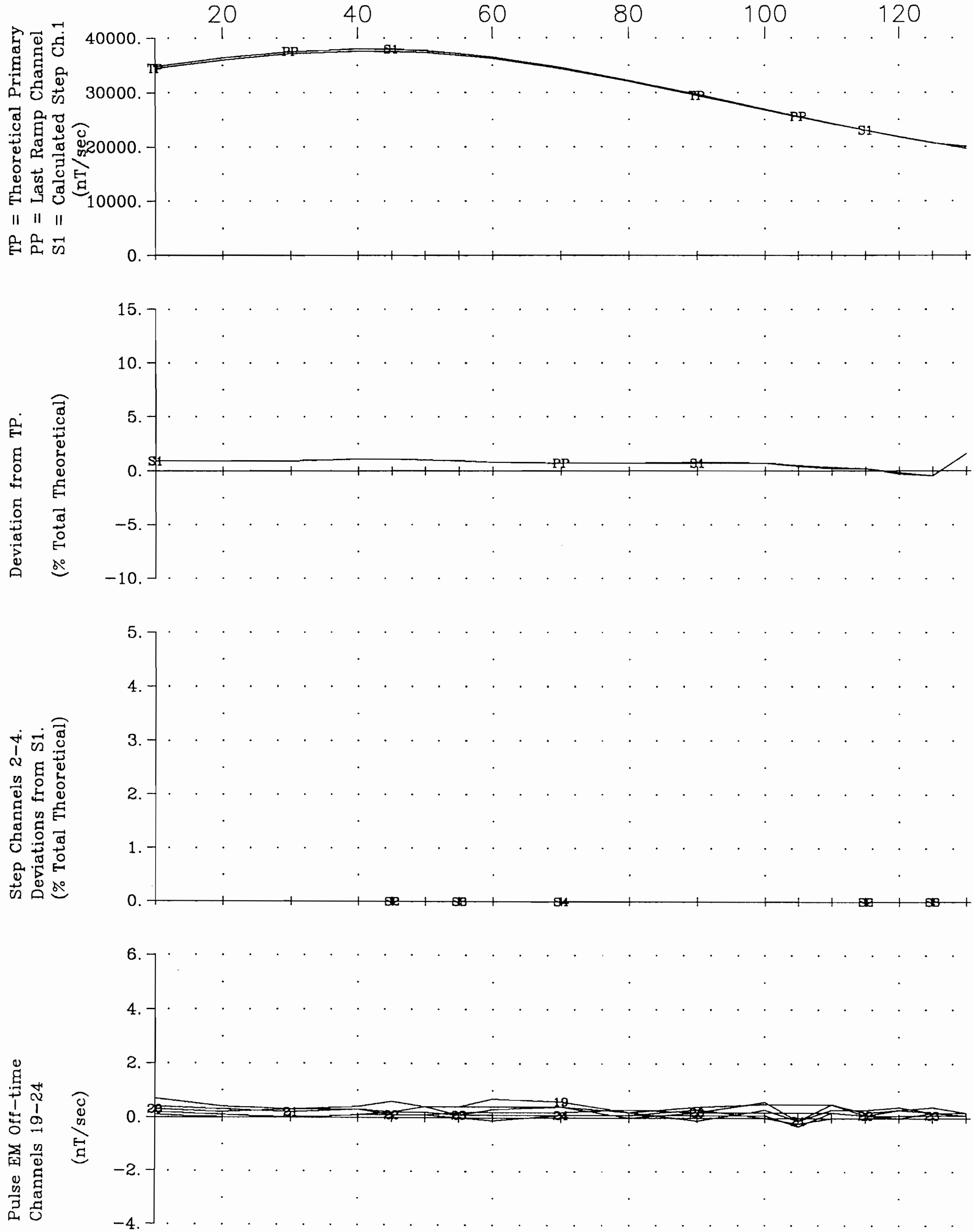
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
-5000.
0.
5000.
10000.
15000.
Deviation from TP.
(% Total Theoretical)
-10.
-5.
0.
5.
10.
15.
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
0.
1.
2.
3.
4.
5.
Pulse EM Off-time
Channels 19-24
(nT/sec)
-4.
-2.
0.
2.
4.
6.
20
40
60
80
100
120
Ursa Major Minerals Inc.
Shakespeare Project
Hole U3-37
X Component
Crone Geophysics & Exploration Ltd.



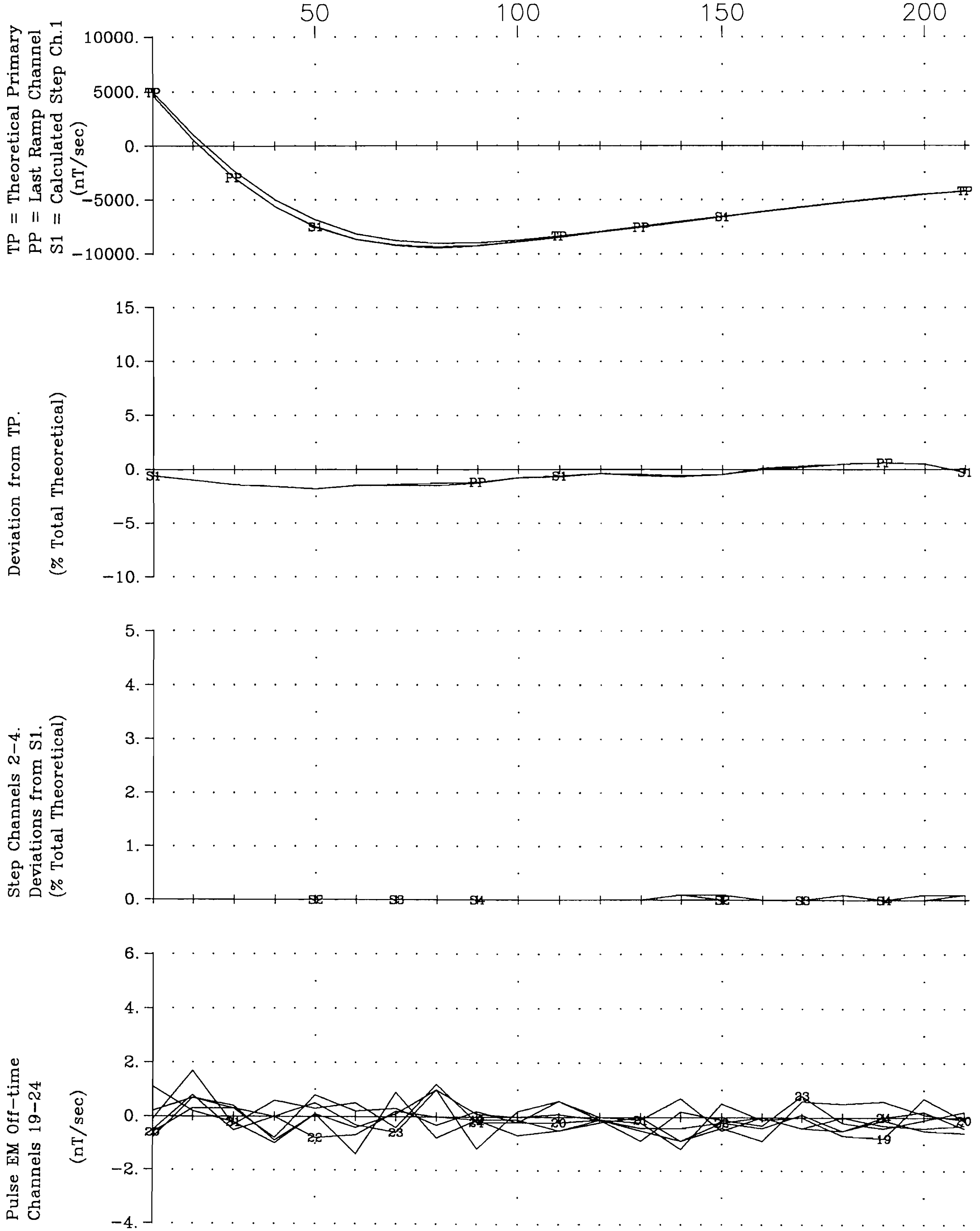
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-37 Y Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project

Hole U3-37 Z Component

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project
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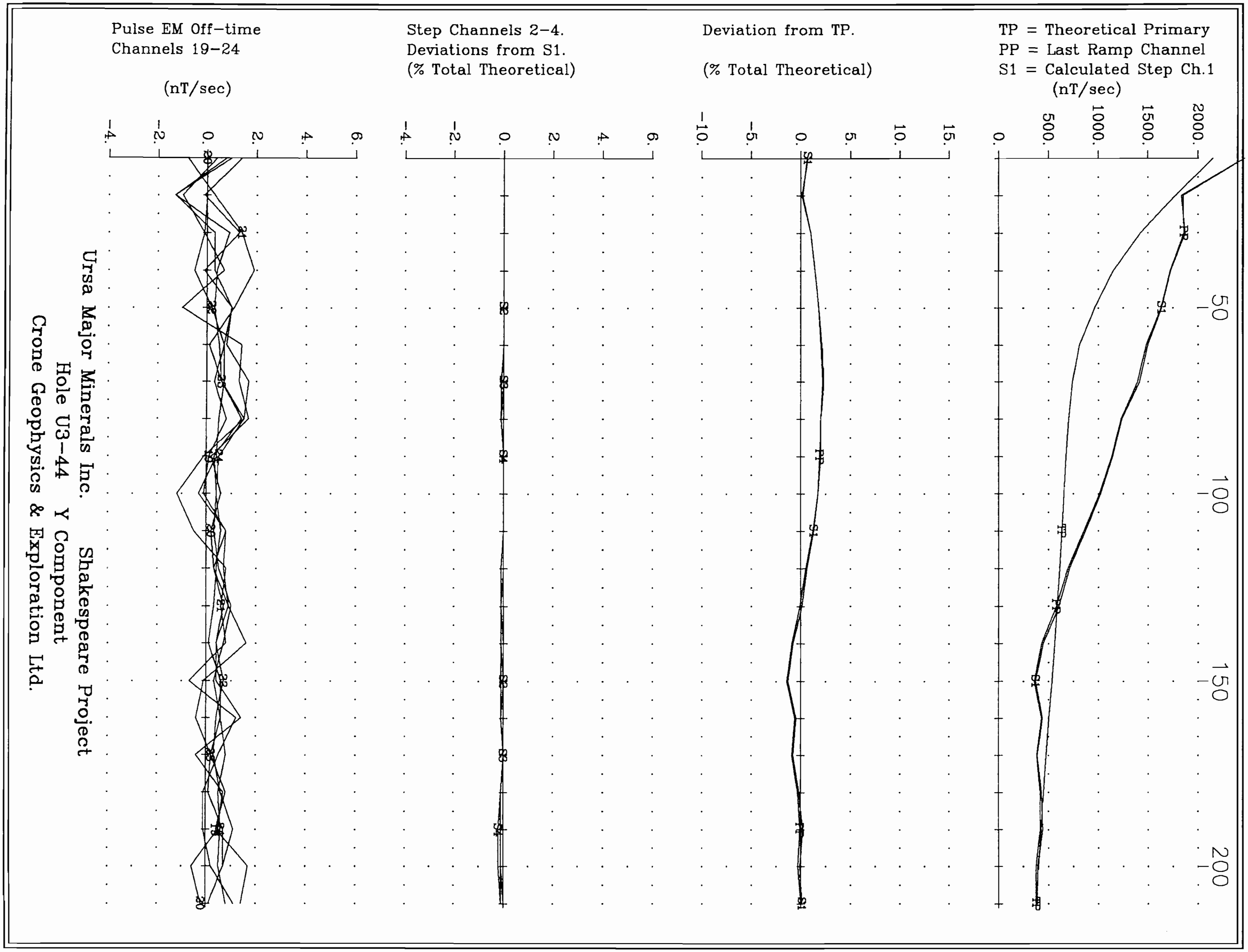
Crone Geophysics & Exploration Ltd.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PP = Last Ramp Channel
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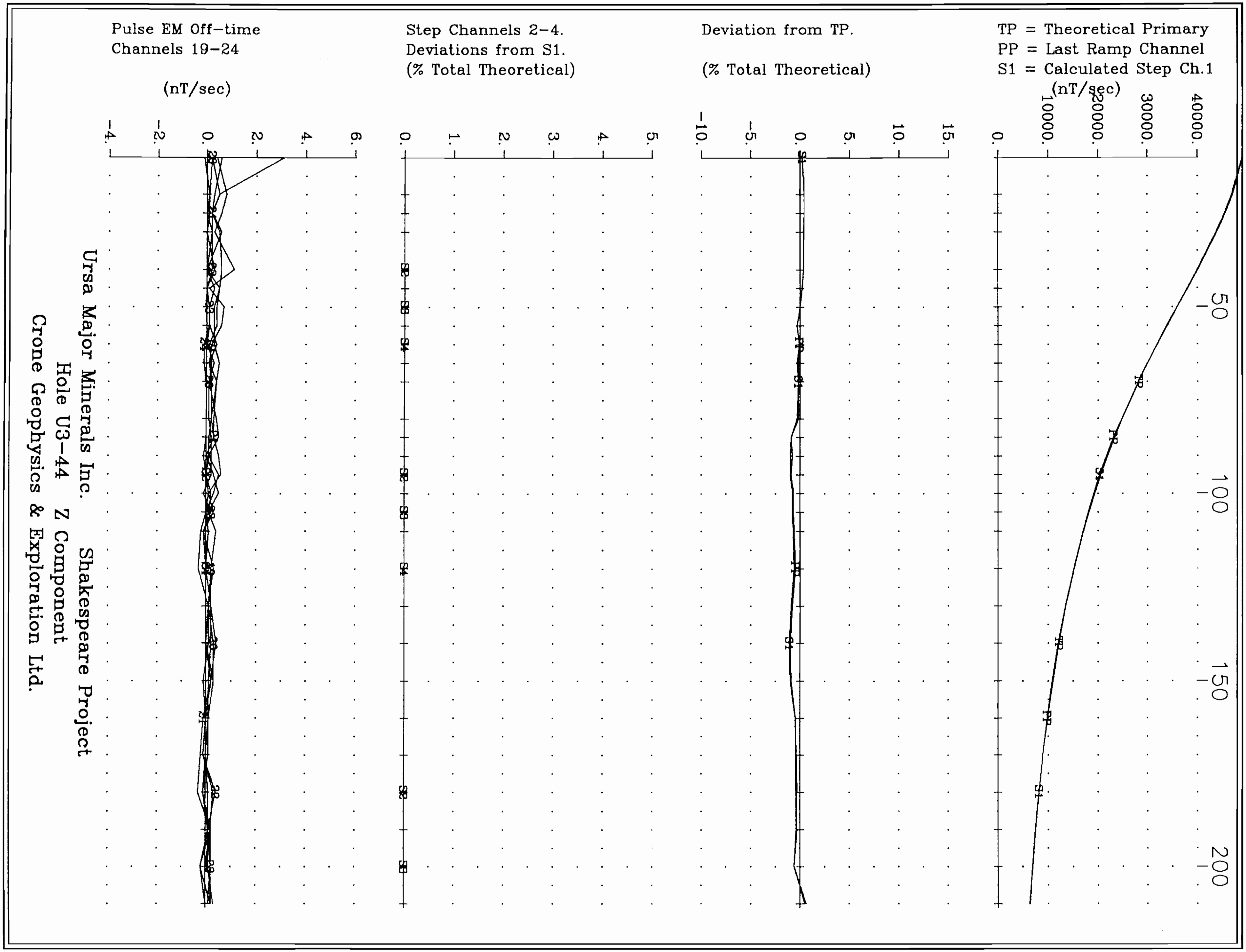
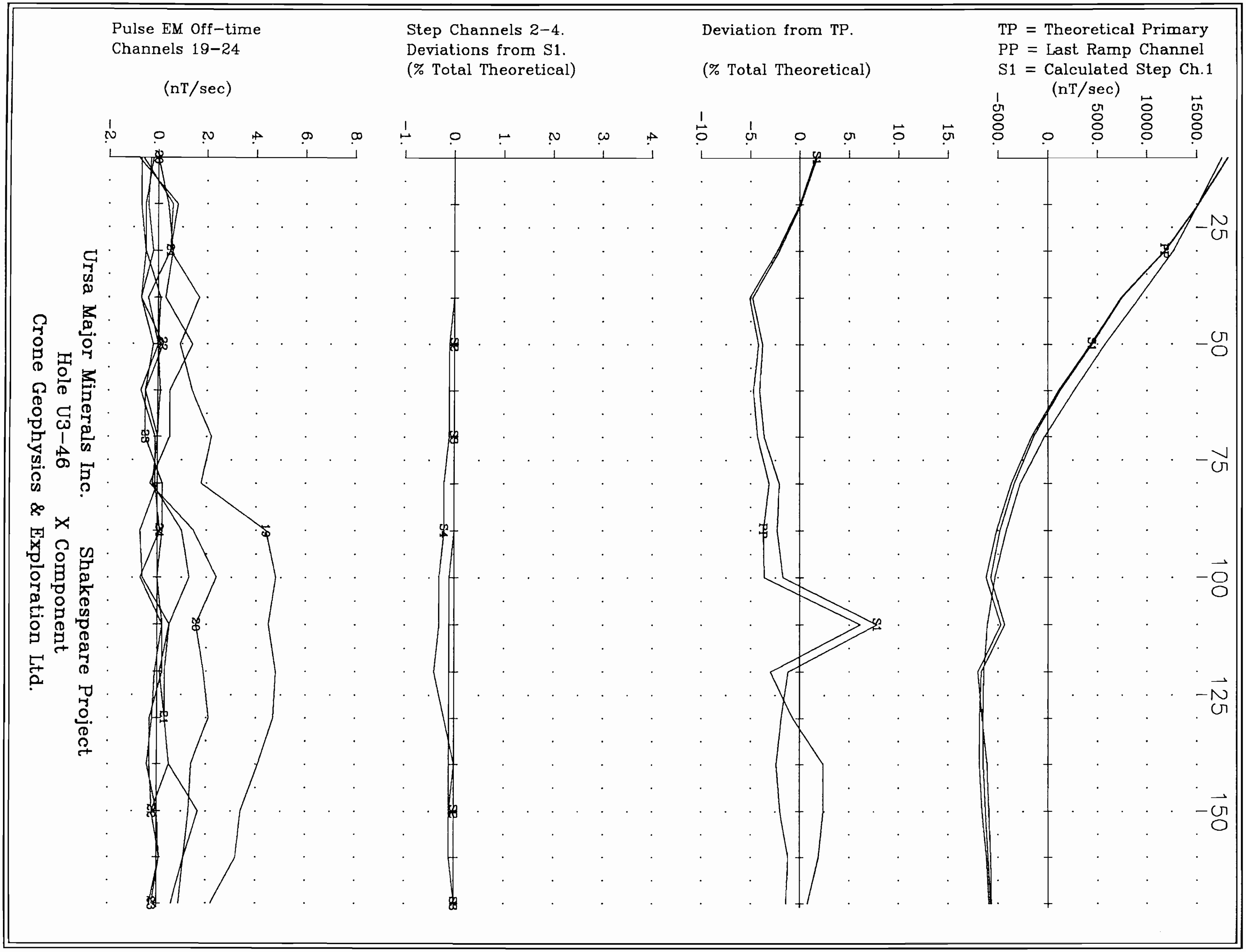
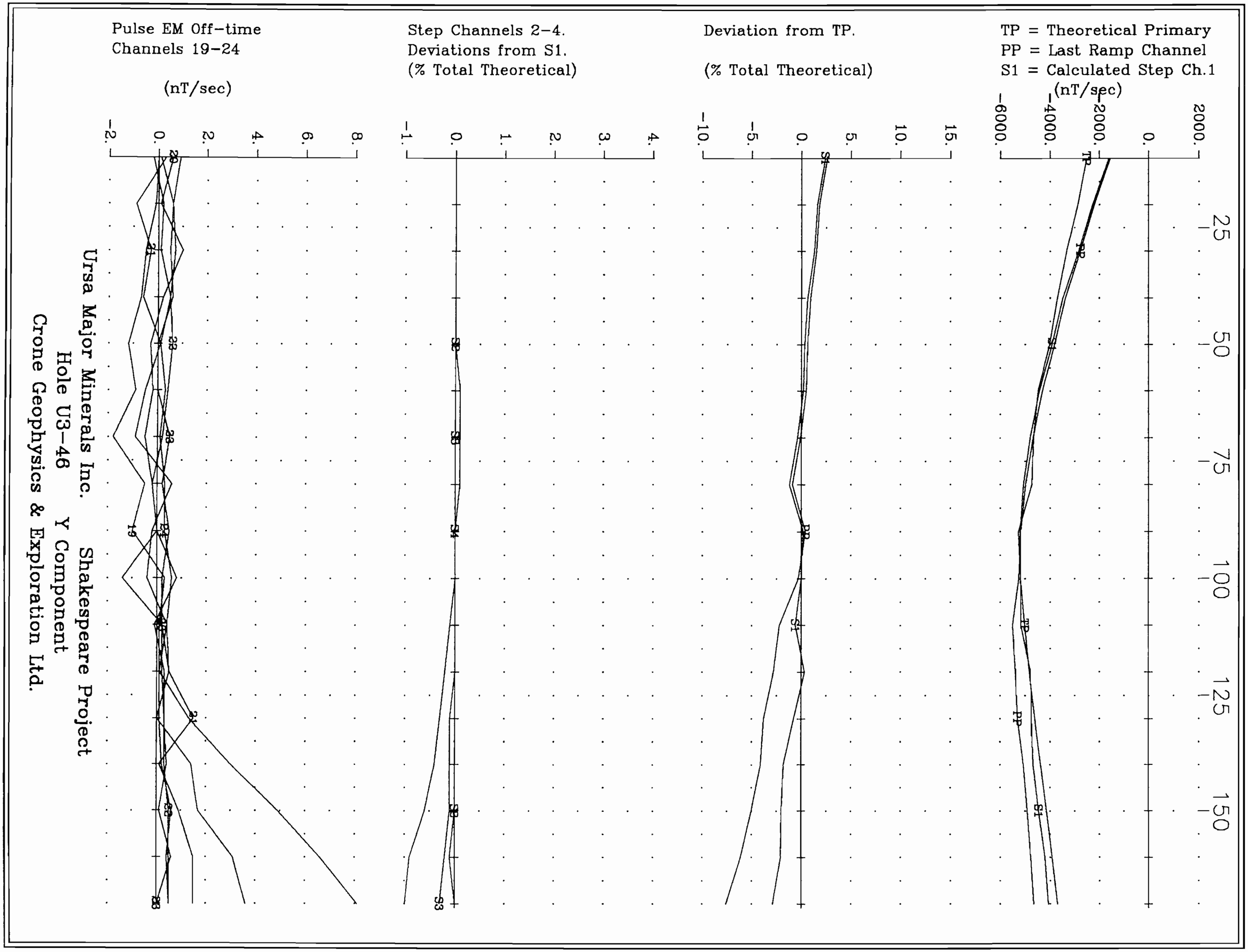
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 19-24
(nT/sec)
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-44 Y Component
Crone Geophysics & Exploration Ltd.
50
100
150
200



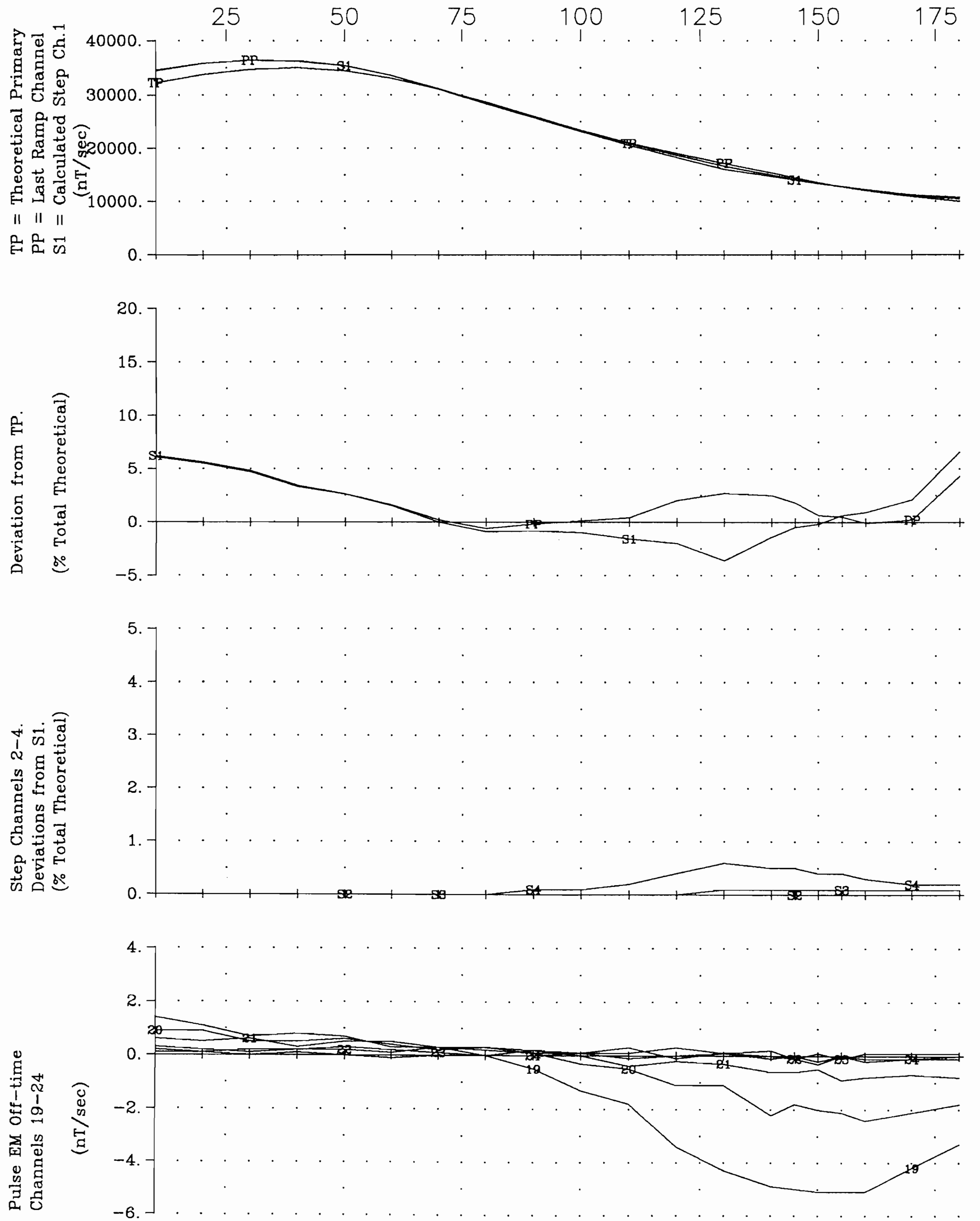
Pulse EM Off–time
Channels 19–24
(nT/sec)
Step Channels 2–4.
Deviations from S1.
(% Total Theoretical)
Deviation from TP.
(% Total Theoretical)
TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
0.
10000.
20000.
30000.
40000.
-10.
-5.
0.
5.
10.
15.
0.
1.
2.
3.
4.
5.
-4.
-2.
0.
2.
4.
6.
50
100
150
200
Ursa Major Minerals Inc. Shakespeare Project
Hole U3-44 Z Component
Crone Geophysics & Exploration Ltd.



Pulse EM Off-time
Channels 19-24
(nT/sec)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Deviation from TP.
(% Total Theoretical)
TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Ursa Major Minerals Inc.
Shakespeare Project
Hole U3-46
X Component
Crone Geophysics & Exploration Ltd.



Pulse EM Off-time
Channels 19-24
(nT/sec)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Deviation from TP.
(% Total Theoretical)
TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
2000.
0.
-2000.
-4000.
-6000.
15.
10.
5.
0.
-5.
-10.
4.
3.
2.
1.
0.
-1.
8.
6.
4.
2.
0.
-2.
25
50
75
100
125
150
TP
PP
S1
S3
S4
19
21
24
Ursa Major Minerals Inc.
Shakespeare Project
Hole U3-46
Y Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Inc. Shakespeare Project
Hole U3-46 Z Component
Crone Geophysics & Exploration Ltd.

APPENDIX V

CRONE INSTRUMENT SPECIFICATIONS

CRONE PULSE EM SYSTEM

SYSTEM DESCRIPTION

The Crone Pulse EM system is a time domain electromagnetic method (TDEM) that utilizes an alternating pulsed primary current with a controlled shut-off and measures the rate of decay of the induced secondary field across a series of time windows during the off-time. The system uses a transmit loop of any size or shape. A portable power source feeds a transmitter which provides a precise current waveform through the loop. The receiver apparatus is moved along surface lines or down boreholes.

The transmitter cycle consists of slowly increasing the current over a few milliseconds, a constant current, abrupt linear termination of the current, and finally zero current for a selected length of time in milliseconds. The EMF created by the shutting-off of the current induces eddy currents in nearby conductive material thus setting-up a secondary magnetic field. When the primary field is terminated, this magnetic field will decay with time. The amplitude of the secondary field and the decay rate are dependent on the quality and size of the conductor. The receiver, which is synchronized to the off-time of the transmitter, measures this transient magnetic field where it cuts the surface coil or borehole probe. These readings are across fixed time windows or "channels".

SYSTEM TERMINOLOGY

Ramp Time

"Ramp time" refers to the controlled shut-off of the transmitter current. Three ramp times are selectable by the operator; 0.5ms, 1.0ms, and 1.5ms. By controlling the shut-off rather than having it depend on the loop size and current ensures that the same waveform is maintained for different loops so data can be properly compared.

The 1.5ms ramp is the normally used setting for good conductors. It keeps the early channel responses on scale and decreases the chance of overload. The faster ramp times of 1.0ms and 0.5ms will enhance the early time responses. This can be useful for weak conductors when data from the higher end of the frequency spectrum is desired.

Time Base

Time base is the length of time the transmitter current is off (it includes the ramp time). This also equals the on time of the current. Eight time bases are selectable by the operator. They include the original time bases used in the analog system as well as time bases to eliminate the effects of powerline interference. The eight time bases are as follows: compatible to analog Rx: 10.89ms, 21.79ms; 60hz powerline noise reduction: 8.33ms, 16.66ms, & 33.33ms; 50hz powerline noise reduction: 10.00ms, 20.00ms, & 40.00ms

Since readings are taken during the off cycles, the time base will have an effect on the receiver channels. Normally, a standard time base is selected for the type of system and survey being used, but this can be changed to suit a particular situation. A longer time base is preferred for conductors of greater time constants, and in surveys such as resistive soundings where more channels are desired.

Zero Time Set

The term "zero time set" or "ZTS" refers to the starting point for the receiver channel measurements. It is manually set on the receiver by the operator thus allowing adjustments for the ramp times and fine tuning for any fluctuations in the transmitter signal.

Receiver Channels

The rate of decay of the secondary field is measured across fixed time windows which occupy most of the off-time of the transmitter. These time windows are referred to as "channels". These channels are numbered in sequence with "1" being the earliest. The analog and datalogger receivers measured eight fixed channels. The digital receiver, being under software control, offers more flexibility in the channel positioning, channel width, and number of channels.

PP Channel

The PEM system monitors the primary field by taking a measurement during the current ramp and storing this information in a "PP channel". This means that data can be presented in either normalized or unnormalized formats, and additional information is available during interpretation. The PP channel data can provide useful diagnostic information and helps avoid critical errors in field polarity.

Synchronization

Since the PEM system measures the secondary field in the absence of the primary field, the receiver must be in "sync" with the transmitter to read during the off-time. There are three synchronization methods available: cable connection, radio telemetry, and crystal clock. This flexibility enhances the operational capabilities of the system.

SURVEY METHODS

The wide frequency spectrum of data produced by a Pulse EM survey can be used to provide structural geological information as well as the direct detection of conductive or conductive associated ore deposits. The various types of survey methods, from surface and borehole, have greatly improved the chances of success in deep exploration programs. There are eight basic profiling methods as well as a resistivity sounding mode.

Moving Coil

A small, multi-turn transmitter loop (13.7m diameter) is moved for each reading while the receiver remains a fixed distance away. This method is ideal for quick reconnaissance in areas of high background conductivity.

Moving Loop

Same as Moving Coil method, but with a larger transmit loop (100 to 300 meters square). This method provides deeper penetration in areas of high background conductivity, and works best for near-vertical conductors. This method can be used in conjunction with the Moving In-loop survey for increased sensitivity to horizontal conductors.

Moving In-Loop

A transmit loop of size 100 to 300 meters square is moved for each reading while the receiver remains at the center of the loop. This method provides deep penetration in areas of very high background conductivity, and works best for near-horizontal conductors. It can be used in conjunction with the Moving Loop survey.

Large In-Loop

A very large, stationary transmit loop (800m square or more) is used, and survey lines are run inside the loop. This mode provides very deep penetration (700m or more) and couples best with shallow dip conductors (<45 deg.) under the loop.

Deepem

A large, stationary transmit loop is used, and survey lines are run outside the loop. This mode provides very deep penetration, and couples best with steeply dipping conductors (>45 deg.) outside the loop.

Borehole (Z Component only)

Isolated Borehole: A drill hole is surveyed by lowering a probe down a hole and surveying it with a number of transmit loops laid out on surface. The data from multiple loops gives directional information on the conductors.

Multiple Boreholes: One large transmit loop is used to survey a number of closely spaced holes. The change in anomaly from hole to hole provides directional information.

These methods have detected conductors to depths of 2500m from surface and up to 200m from the hole.

3-D Borehole

Drill holes are surveyed with both the Z and the XY borehole probes. The X and Y components provide accurate direction information using just one transmit loop.

Since the probe rotates as it moves down the hole a correction is required for the X-Y data. This is accomplished in one of two ways. The standard approach is to use the measurement of the primary field from the "PP" channel, apply a "cleaning" algorithm to remove most of the secondary field contamination, and compare this to theoretical values. The amount of probe rotation is then calculated, and the correction can be made. The second method involves the use of an optional orientation device for the X-Y probe which is produced in co-operation with IFG Corp. This attachment uses dipmeters to calculate the probe rotation.

Underground Borehole

Underground drill holes can be surveyed in any of the above mentioned borehole methods with one or more transmit loops on the surface. Near-horizontal holes can be surveyed using a push-rod system.

Resistivity Soundings

By reading a large number of channels in the centre of a transmit loop it is possible to perform a decay curve analysis giving a best-fit layer earth model using programs such as ARRTI or TEMIX.

EQUIPMENT

Transmit Loops

The PEM system can operate with practically any size of transmit loop, from a multi-turn circular loop 13.7m in diameter, to a 1 or 2 turn loop of any shape up to 1 or 2 kilometers square using standard insulated copper wire of 10 or 12 gauge. The multi-turn loop is made in two sections with screw connectors. The 10 or 12 gauge loop wire comes on spools in either 300m or 400m lengths. The spools can be mounted on packframe winders for laying out or retrieving.

Power Supply

The PEM system normally operates with an input voltage from 24v to 120v. Modifications have recently been made to increase the power to 240 volts. The maximum current is still 20 amps. For low power surveys a 20amp/hr 24v battery can be used. The power supply requires a motor generator and a voltage regulator to control and filter the input voltage to the transmitter.

Specifications: PEM Motor Generator

- 4.5 hp Wisconsin, (2 kw) - 11 hp Honda (4 kw); 4 cycle engine
- belt drive to D.C. alternator
- cable output to regulator

- maximum output: 120v, 20amp (2 kw); 240v, 20amp (4 kw)
- fuse type overload protection
- steel frame
- external gas tank
- unit weight: 33kg (2 kw); 52kg (4 kw)
- optional packframe
- wooden shipping box
- shipping weight: 47kg (2 kw); 80kg (4 kw)

Specifications: PEM Variable Voltage Regulator

- selectable voltage between 24v and 120v or 48v and 240v
- 20amp maximum current
- fuse and internal circuit breaker protection
- cable connections to motor generator and transmitter
- anodized aluminum case
- unit weight 10kg; shipping weight 18kg
- padded wooden shipping box

Transmitter

The transmitter controls the bi-polar on-off waveform and linear current shut-off ramp. The latest 2000w PEM Transmitter has the following specifications:

Specifications: PEM Transmitter

- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, 30ms
- ramp times: 0.5ms, 1.0ms, 1.5ms
- operating voltage: 24v to 120v (2 kw); 48v to 240v (4 kw)
- output current: 5amp to 20amp
- monitors for input voltage, output current, shut-off ramp, tx loop continuity, instrument temperature, and overload output current
- automatic shut-off for open loop, high instrument temperature, and overload
- fuse and circuit breaker overload protection
- three sync modes: 1) built-in radio and antenna
  2) cable sync output for direct wire link to receiver or remote radio
  3) connectors for the crystal clock
- anodized aluminum case
- optional packframe
- unit weight 12.5kg; shipping weight 22kg
- padded wooden shipping box

Receiver

The receivers measure the rate of decay of the secondary field across several time channels. Three types of receivers are available with the PEM system: Analog Rx, Datalogger Rx, and Digital Rx. The Analog Rx and Datalogger Rx read eight fixed time channels while the Digital Rx, under software control, offers a variety of channel configurations. The Digital Rx has been used in the field for contract surveys since 1987.

Specifications: Digital PEM Receiver

- operating temperature -40°C to 50°C
- optional packframe
- unit weight 15kg; shipping weight 25.5kg
- padded wooden shipping box

Menu driven operating software system offering the following functions:
- controls channel positions, channel widths, and number of channels
- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, and 30ms
- ramp time selection
- sample stacking from 512 to 65536
- scrolling routines for viewing data
- graphic display of decay curve and profile with various plotting options
- routines for memory management
- control of data transmission
- provides information on instrument and operating status

Sync Equipment

There are three modes of synchronization available; radio, cable, and crystal clock. The radio sync signal can be transmitted through a booster antenna from either the PEM Transmitter internal radio or through a Remote Radio.

Specifications: Sync Cable
- 2 conductor, 24awg, Teflon coated
- approx. 900m per aluminum spool with connectors

Specifications: Remote Radio
- operating frequency 27.12mhz
- 12v rechargeable gel cell battery supply
- fuse protection
- sync wire link to transmitter
- coaxial link to booster antenna
- anodized aluminum case
- unit weight 2.7kg

Specifications: Booster Antenna
- 8m, 4 section aluminum mast
- guide rope support
- ¼ wave CB fiberglass antenna
- range up to 2km
- coaxial connection to transmitter or remote radio

Specification: Crystal Clocks
- heat stabilized crystals
- 24v rechargeable gel cell battery supply
- anodized aluminum case
- rx unit can be separate or housed in the receiver
- outlet for external supplementary battery supply

Surface PEM Receive Coil

The Surface PEM Receive Coil picks up the EM field to be measured by the receiver. The coil is mounted on a tripod that can be positioned to take readings of any component of the field.

Specifications: Surface PEM Receive Coil

- ferrite core antenna
- VLF filter
- 10khz bandwidth
- two 9v transistor battery supply
- tripod adjustable to all planes
- unit weight 4.5kg; shipping weight 13.5kg
- padded wooden shipping box

Borehole PEM Z Component Probe

The Z component probe measures the axial component of the EM field. The Z component data is not affected by probe rotation so no correction are required.

Specifications: Borehole PEM Z Component Probe

- ferrite core
- dimensions: length - 1.6m; dia - 3.02cm (3.15cm for high pressure tested probes)
- internal rechargeable ni-cad battery supply
- replaceable heat shrink tubing for abrasion protection
- pressure tested for depths 1300m, 2000m, and 2800m
- packaged in padded cover and aluminum tube
- shipped in padded wooden box; total weight 17kg

Borehole PEM XY Component Probe

The XY probe measures two orthogonal components of the EM field perpendicular to the axis of the hole. Correction for probe rotation can be achieved by two methods. The standard approach is to use the measurement of the primary field from the "PP" channel, apply a "cleaning" algorithm to remove most of the secondary field contamination, and compare this to theoretical values. The amount of probe rotation is then calculated, and the correction can be made. The second method involves the use of an optional orientation device for the X-Y probe that uses dipmeters to calculate the probe rotation.

Specifications: Borehole PEM XY Component Probe

- ferrite core
- dimensions: length - 2.01m; dia - 3.02cm
- internal rechargeable ni-cad battery supply
- selection of X or Y coils by means of a switch box on surface or automatic switching with Digital receiver
- replaceable heat shrink tubing for abrasion protection
- pressure tested for depths to 2800m
- packaged in padded cover and aluminum tube
- shipped in padded wooden box; total shipping weight 20kg

Orientation Device

The orientation device is an optional attachment for the XY probe which measures the rotation of the probe using two dipmeters.

Specifications: Orientation Device

- 2 axis tilt sensors
- sensitivity +/- 0.1 deg.

- operating range -89.5 to -10 deg.
- dimensions: length - 0.94m; dia - 28.5cm
- packaged in padded cover and aluminum tube
- shipped in padded wooden box; total shipping weight 11kg

Borehole Equipment

To lower the probe down a drill hole requires a cable and spool, winch assembly frame and cable counter. Borehole surveys also require equipment to "dummy probe" the hole before doing the survey.

Specifications: Borehole Cable

- two conductor shielded cable
- kevlar strengthened
- lengths are available up to 2600m on three sizes of spools.
- shipped in wooden box

Specifications: Slip Ring

- attaches to side of borehole cable spool providing a connection to the receiver while allowing the spool to turn.
- VLF filter
- pure silver contacts

Specifications: Borehole Frame

- welded aluminum frame
- removable axle
- chain driven, 3 speed gear box
- hand or optional power winding
- hand brake and lock
- two sizes: standard for up to 1300m cable; larger for longer cables
- shipped in wooden box

Specifications: Borehole Counter

- attaches to the drill hole casing
- calibrated in meters
- shipped in wooden box; total weight 13kg

Specifications: Dummy Probe and Cable

- solid steel or steel pipe
- same dimensions as borehole probe
- shear pin connection to dummy cable
- steel dummy cable on aluminum spool
- cable mounts on borehole frame
- various lengths to 2600m on 3 spool sizes.

Appendum to: Crone Geophysical Report dated November 2003, submission by Ursa Major Minerals Inc. on November 3, 2005.

`Geophysical Survey Report 2.30863
covering
3D Borehole Pulse EM Surveys
over the
Shakespeare Property
for
Ursa Major Minerals Incorporated.
during
November 2003'

including;

Fig.1:Crone Nov.'03 Borehole Pulse EM Survey Location Map.

Fig.2a:Crone November 2003 Loop 1 Borehole EM Survey

Fig.2b: Crone November 2003 Loop 2 Borehole EM Survey

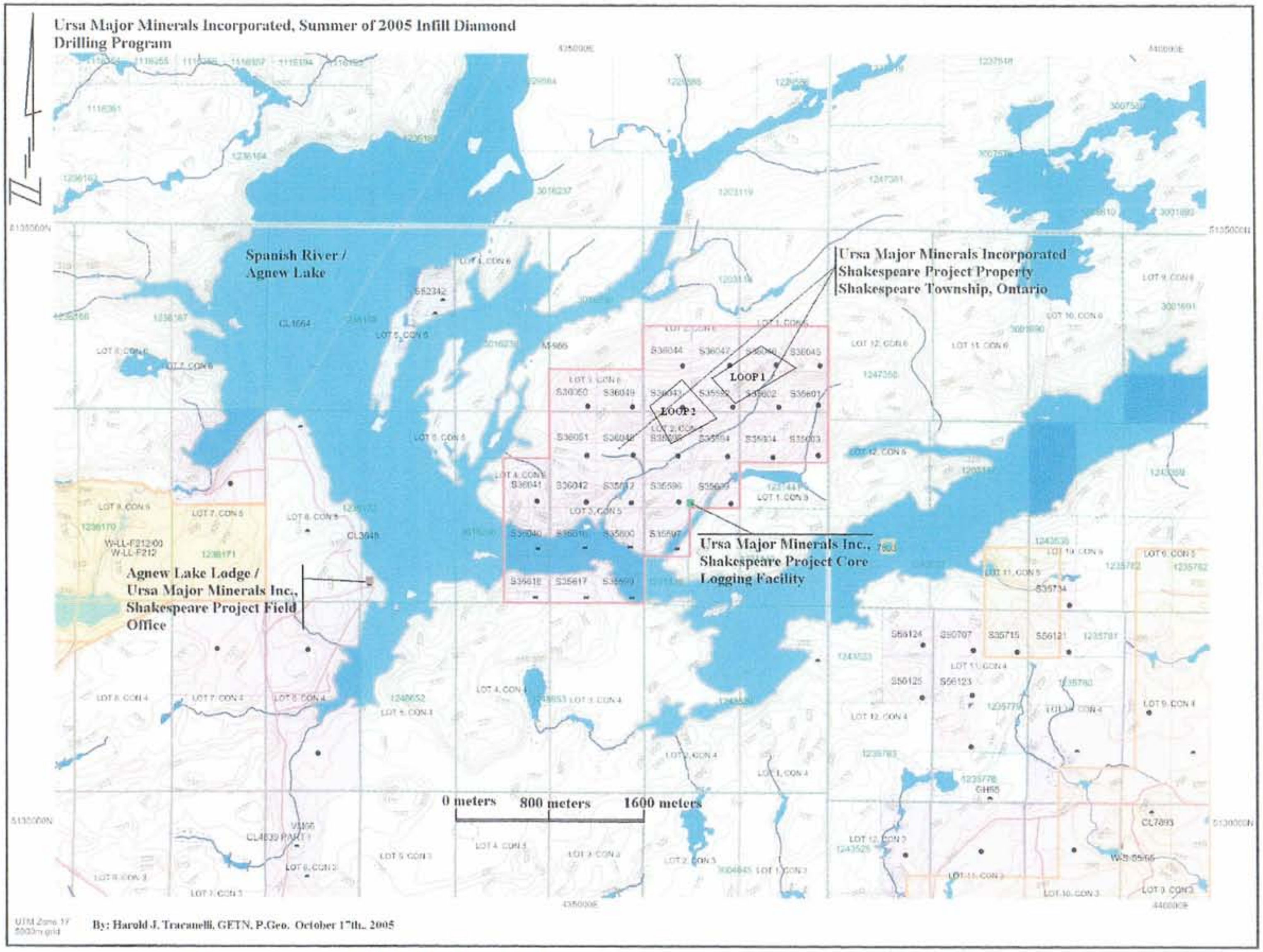


Fig.1: Crone Nov.'03 Borehole Pulse EM Survey Location Map

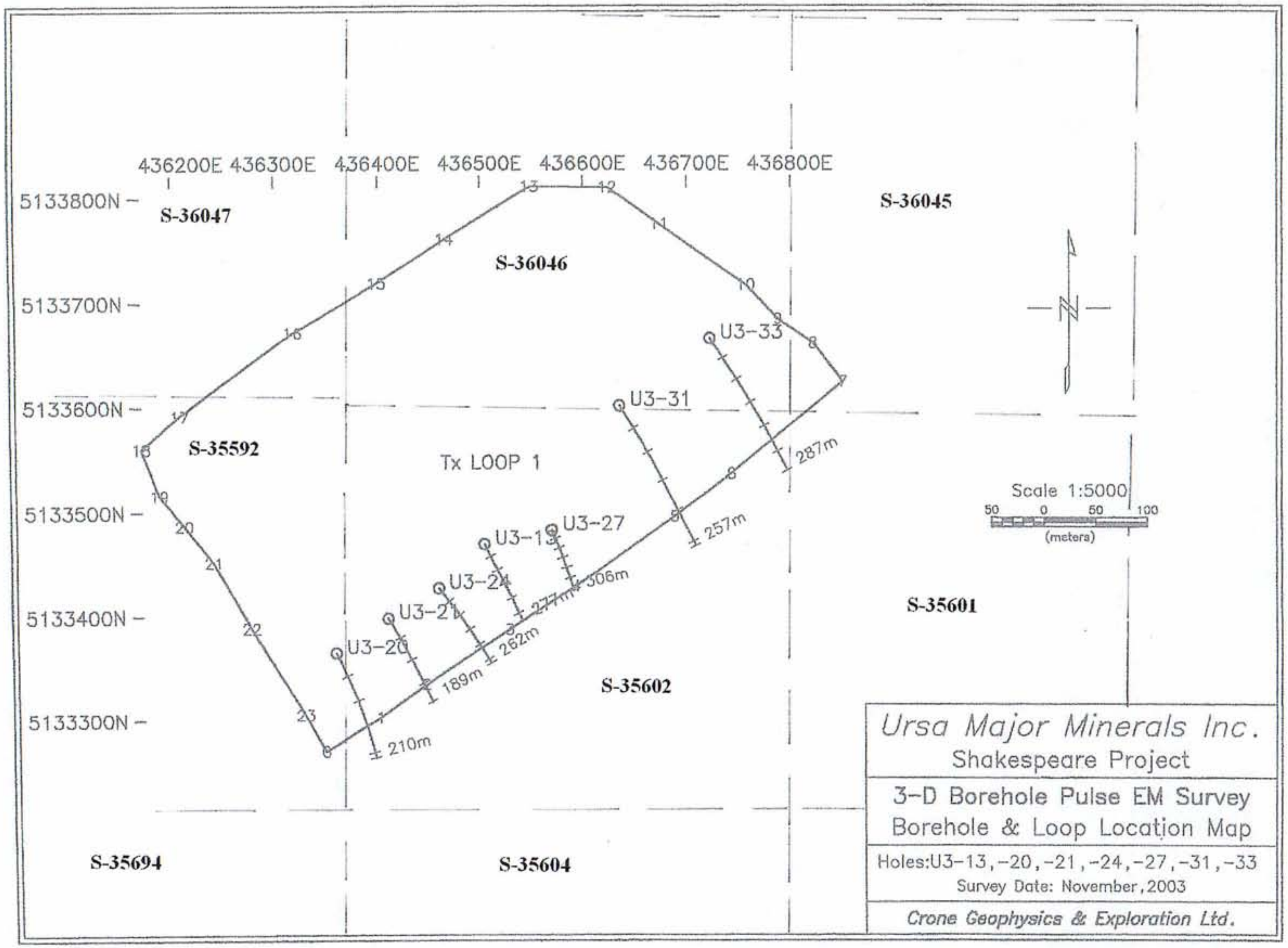


Fig.2a: Crone November 2003 Loop 1 Borehole EM Survey

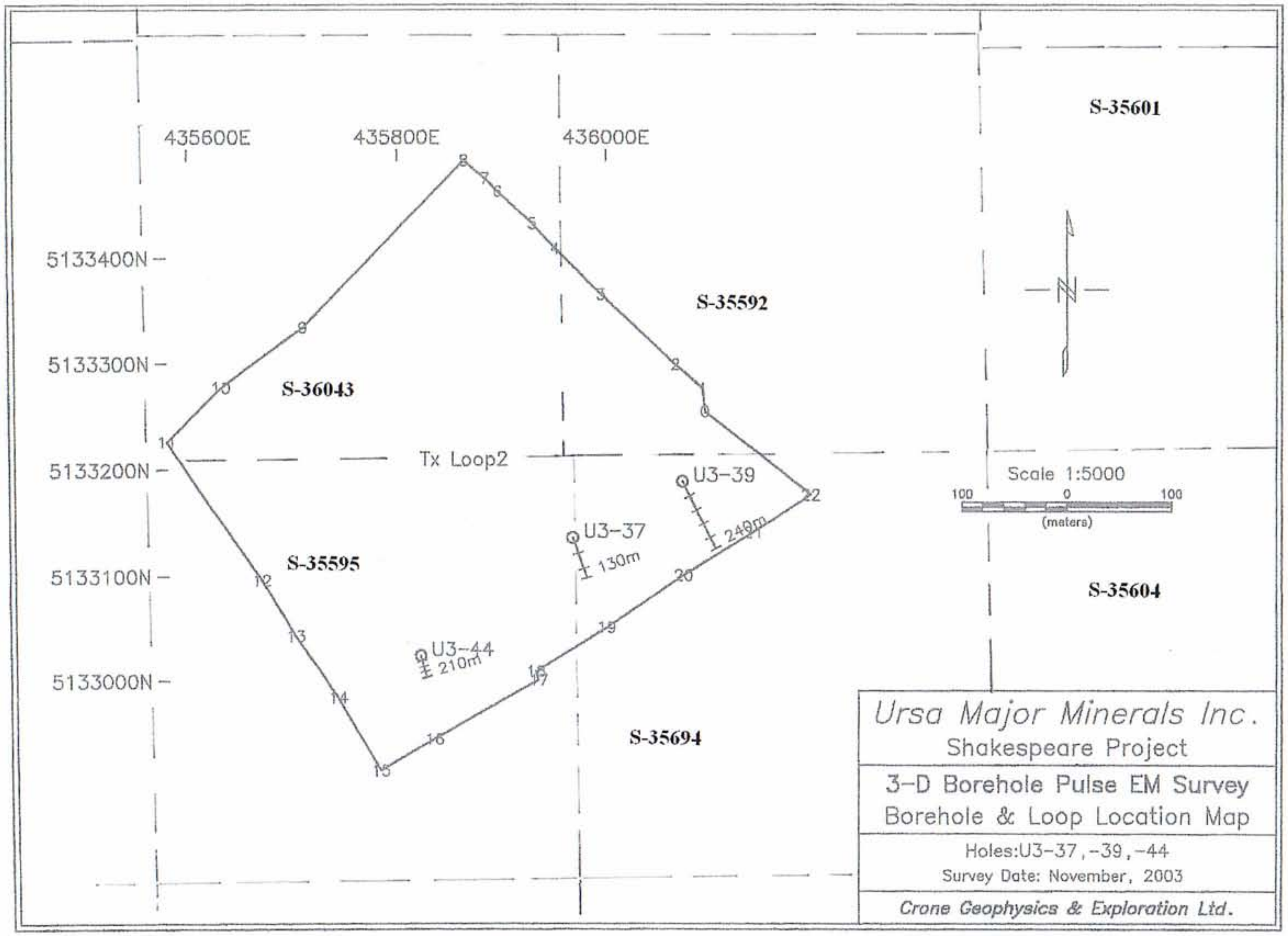


Fig.2b: Crone November 2003 Loop 2 Borehole EM Survey