2.30836

Geophysical Survey Report
covering
Surface Pulse EM Surveys
over the
Shakespeare Property, Shakespeare East Grid
for
URSA Major Minerals Incorporated.

during
March, 2005

by

CRONE GEOPHYSICS & EXPLORATION LTD.

Survey Area:	**Shakespeare Project, Shakespeare East Grid Sudbury, Ont.**
Survey Type:	**Surface Pulse EM Survey**
Lines Surveyed:	**100E– 3300E (lines spaced at 800 ft. intervals)**
Survey Operator:	**Wayne Pearson**
Survey Period:	**March 14th-30th, 2005**
Report By:	**Kevin Ralph**
Report Date:	**May, 2005**
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 Surface Pulse Time Domain Electromagnetic (PEM) survey on its Shakespeare Project, Shakespeare East Grid near Sudbury Ontario. The survey was conducted over the interval of March 14th -30th, 2005 during which time approximately 34,700 ft. were surveyed over five lines from one transmit loops. This report outlines the geophysical work performed on this property and presents a brief discussion of the results. The appendices to this report contain page size profile plan maps, 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 electromagnetic 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 Surface system. This includes a 4.8kW transmitter with a 240V voltage regulator powered by an 11 hp motor generator. The Crone Digital Receiver was used to collect the field data.

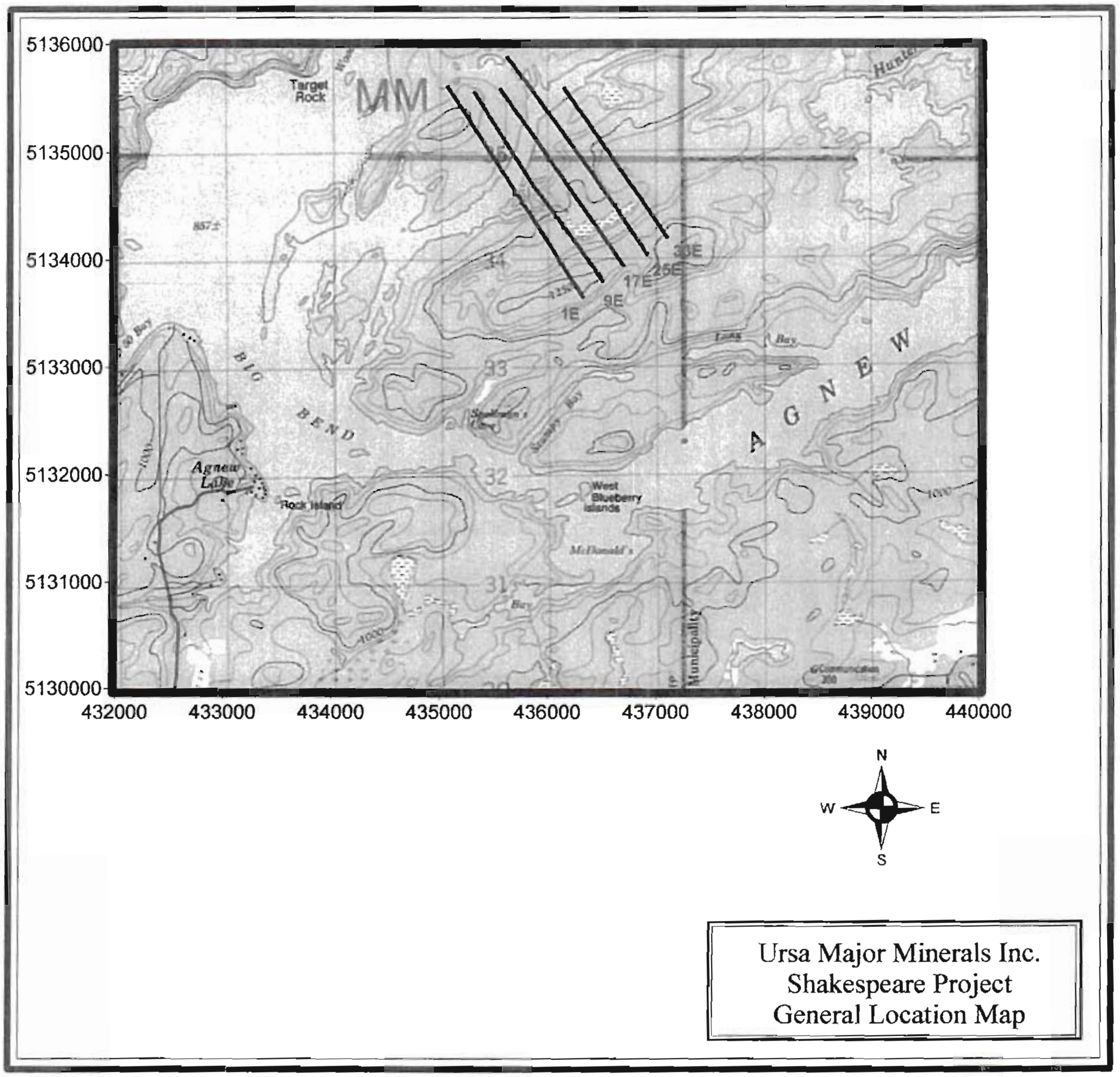


Figure 1 : Shakespeare Project Shakespeare East Grid Location Map

The synchronization between the Transmitter and the Receiver was maintained by crystal clock synchronization for surface work.

In addition to measuring the standard Primary Pulse channel on the ramp and the 20 off-time channels, the Step Response was also calculated. Step Response requires accurate geometrical control in which the loop and line position are accurately determined. GPS data was collected by the Crone crew utilizing a GPS unit with sub-meter accuracy.

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 I: 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			

5 SURVEY PARAMETERS

Table II: Surface Survey Coverage

Line	Tx loop	From	To	Length (ft)	Component
100E	Loop E1	500N	8300N	7800	X,Z
900E	Loop E1	600N	7700N	7100	X,Z
1700E	Loop E1	600N	7200N	6600	X,Z
2500E	Loop E1	500N	7800N	7300	X,Z
3300E	Loop E1	300N	6200N	5900	X,Z

Table III: Surface Transmitter Loop Locations

Loop	GPS Readings on Loop Corners (UTM, Zone 17 North NAD 1983(Canada))		Ramp Time	Current	Time Base
Loop 1	Easting	Northing	1.5 ms	14amps	16.66 ms
	435459	5134651			
	435868	5133988			
	437006	5134651			
	436183	5135766			

6 PRODUCTION SUMMARY

Table IV: Production Summary

March 14th, 2005	Started laying loop.
March 15th, 2005	Finished laying loop and carried in all equipment to grid area.
March 22nd, 2005	Started reading line 100E, slow going.
March 23rd, 2005	Finished reading line 100E.
March 24th, 2005	Read line 900E and started reading line 1700E. Helper GPSing loop and lines.
March 26th, 2005	Finished line 1700E and started reading line 2500E. Helper GPSing lines.
March 28th, 2005	Finished line 2500E and read line 3300E. Helper GPSing loop lines.
March 29th, 2005	Picked up loop while helper finished GPSing remaining lines
March 30th, 2005	Finishing picking up loop and pulled all equipment from the property.

7.0 INTERPRETATION SUMMARY

The following provides a brief interpretive summary of the Surface PEM data collected over the Shakespeare Property, Shakespeare East Grid. No anomalous responses due to large and high conductance sources have been identified from this survey. However, several responses have been identified from the surface results which are noteworthy.

In Figure 1 below an anomalous response has been identified near station 5900-6000N on both lines 100E and 900E. On both lines the response extends to channel 10 -11 which is indicative of a weak to moderate conductive source. Such responses are many times attributed to and indeed explained by weakly conductive features such as clay filled overburdened troughs, weakly conductive shear zones etc. However because the expected target in this immediate area could be a disseminated or weakly conductive sulphide source, such responses deserve much closer scrutiny. A rough depth estimate for the source here indicates a depth to top on the order of 80-90m. Figure 3 below shows the interpreted conductor position superimposed on the Total Field Magnetic contour map (from a previous Fugro Airborne Survey). It is quite interesting to note that there appears to be a direct correlation between the Ground EM and the Airborne Magnetic data here which now makes this much more interesting and indeed now elevates it to the status of a potential target.

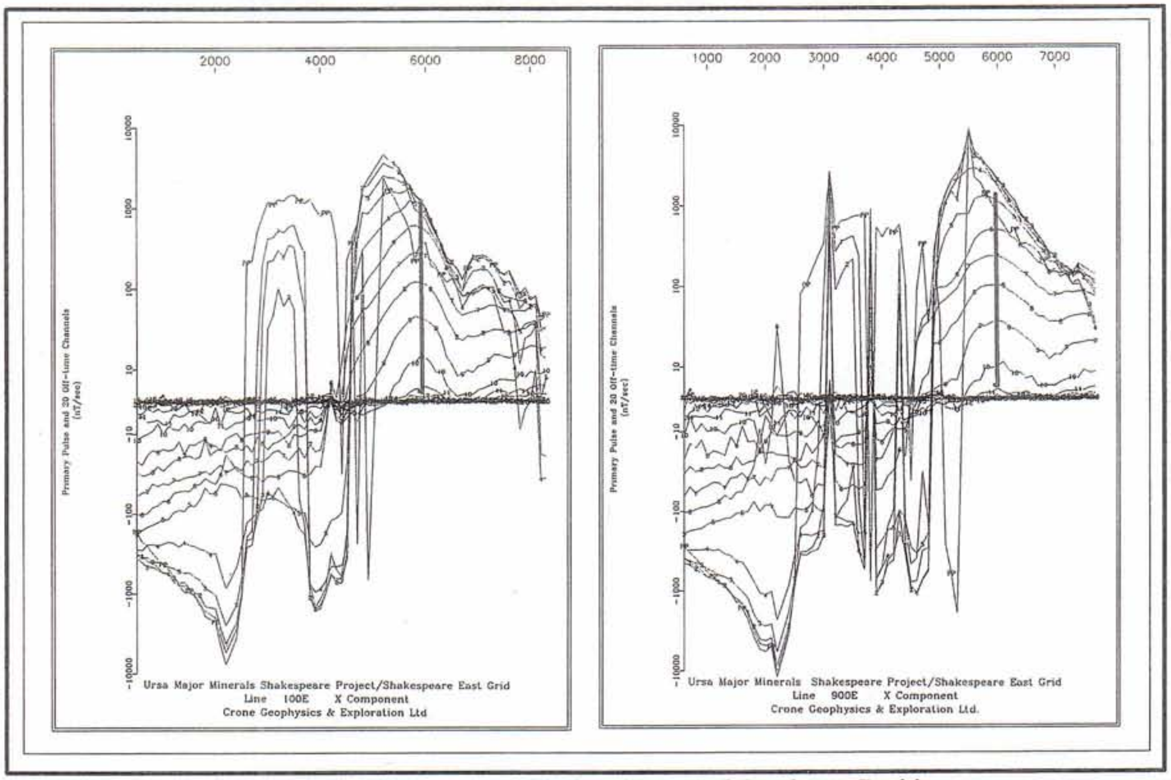


Figure 2: Lines 100E and 900E X Component Showing Interpreted Conductor Position

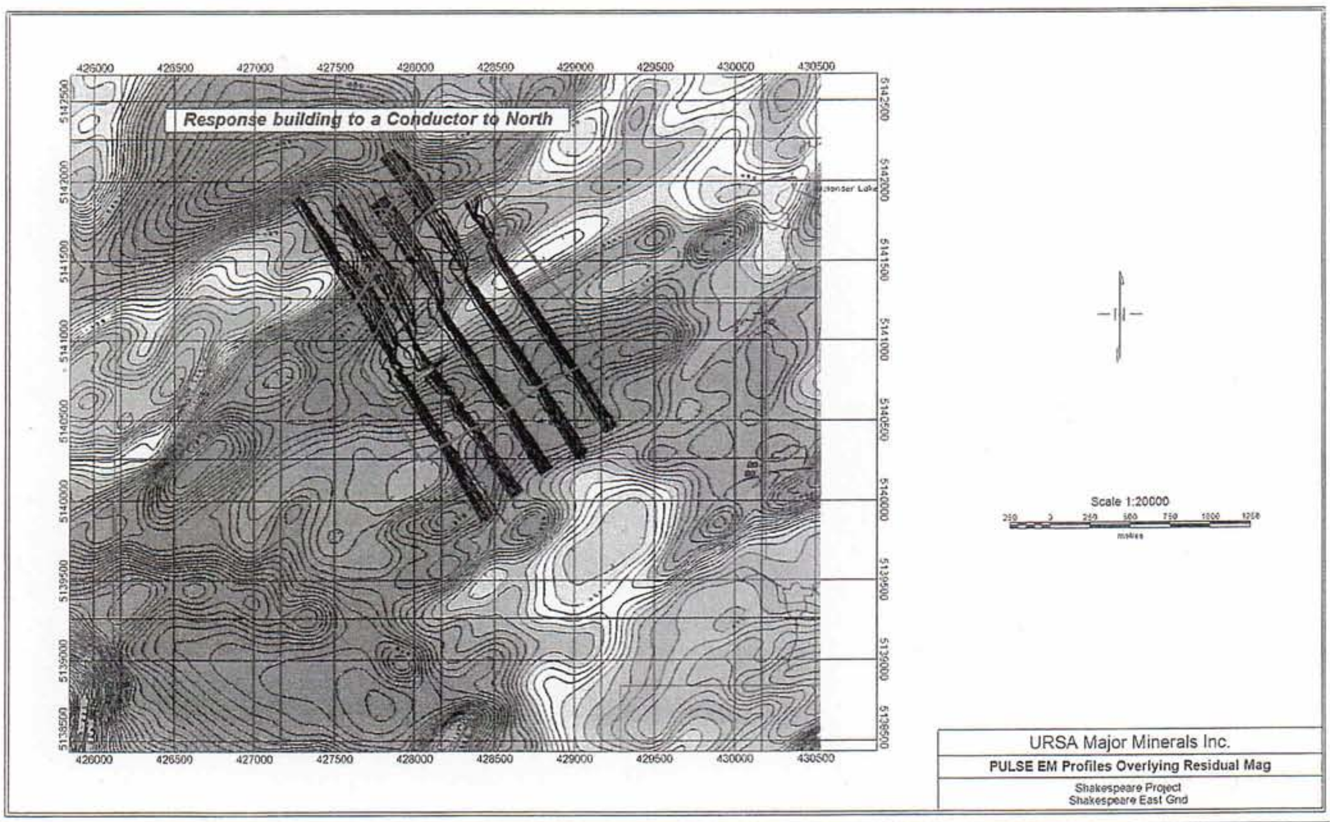


Figure 3: X component Profiles Overlying Total Field Magnetics

In Figure 3 above another conductor axis has been identified on lines 1700E and 2500E, with figure 4 below showing these positions on the line profiles. The responses here are much weaker and less well defined than on lines 100E and 900E. It is unclear if these responses are due to bedrock sources or not, and indeed it is quite likely they are overburden related.

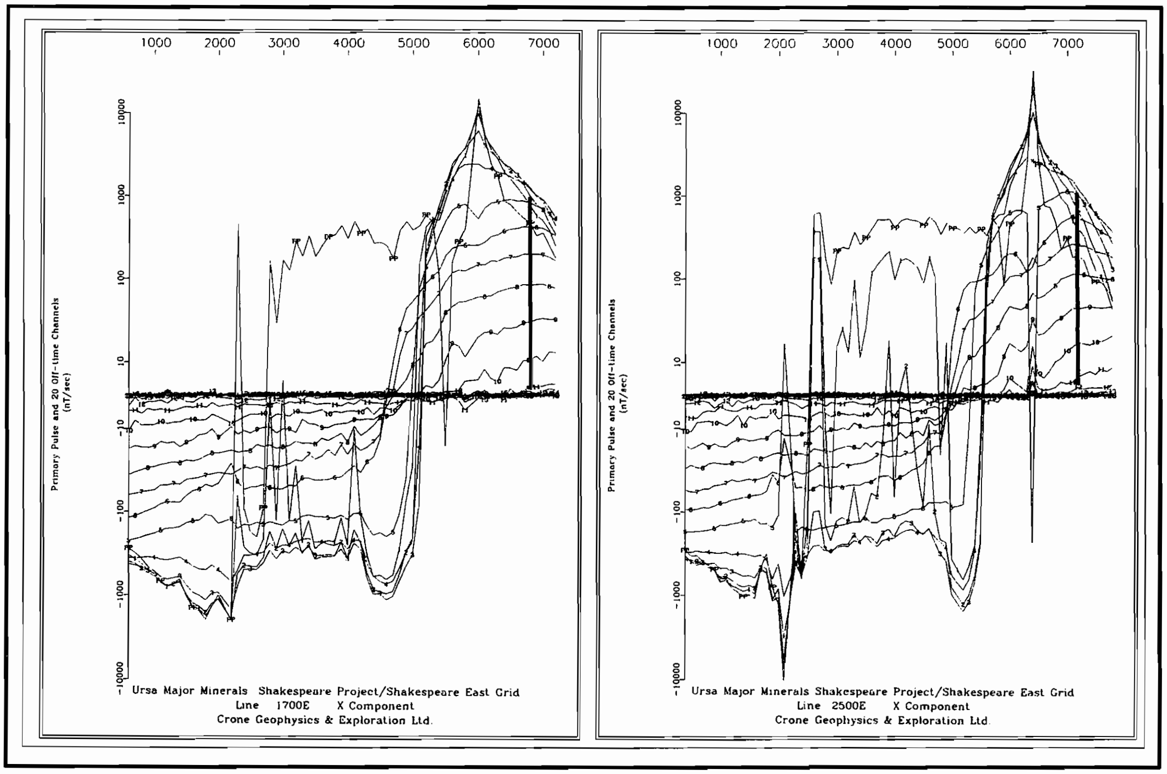


Figure 4: Lines 1700E and 2500E X Component Showing Interpreted Conductor Position

One final anomalous feature worth noting is that on all lines shown in figures 2 and 4, there is a build-up to a long wavelength anomaly on the Northern end of each line. The significance of this is unclear and indeed the only conclusion we can derive is there is a large conductive source located immediately North of the survey area. I cannot make any comments regarding the strength or depth of the causative source here because so little of the anomaly shape is seen. Because of the presence of a large isolated Magnetic signature to the immediate North, this immediate area is indeed worthy of further investigation.

Summary

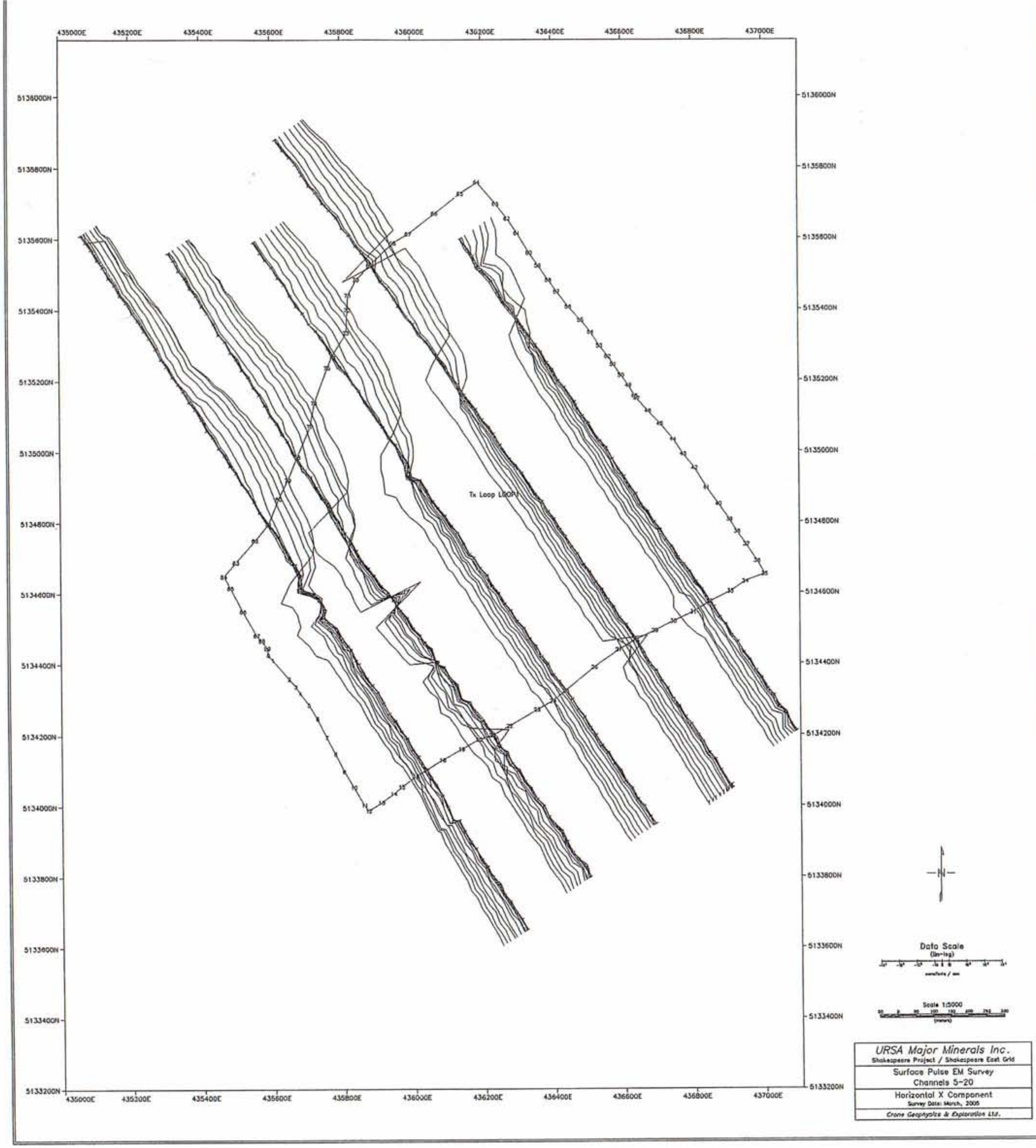
Several anomalous responses have been identified from the PEM survey over the Shakespeare East Grid. Of these the responses on lines 100E and 900E near 6000N appear the most interesting and this is in large part due to the apparent correlation with the Magnetic signature here. Of potential interest as well is the build-up evident in the PEM data on all lines to the North which indicates the presence of a large conductive source immediately North of the survey area. However, more (EM) surveys would have to be conducted before further comments could be provided on the potential or significance of this anomalous source.

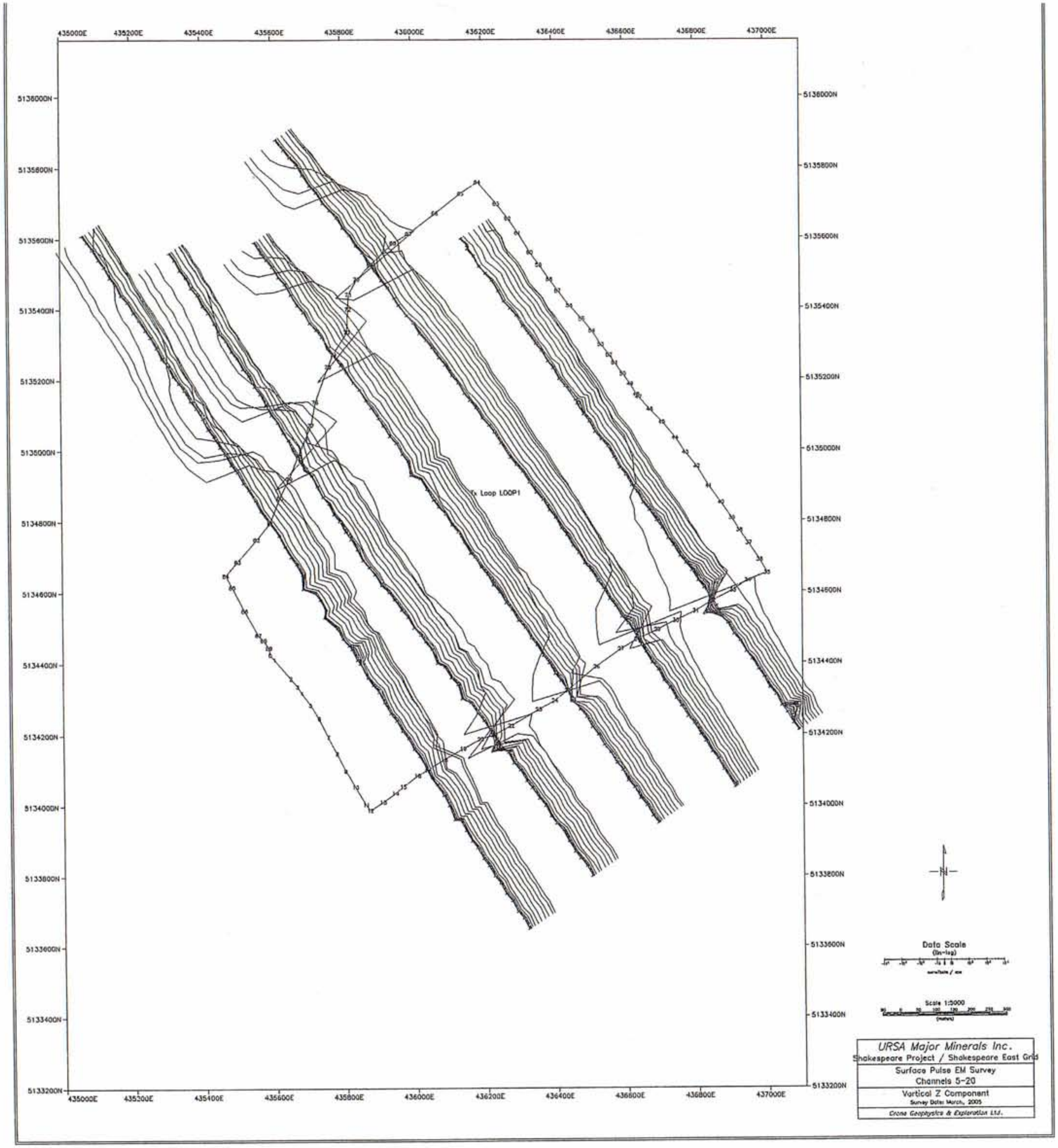
Respectfully submitted,

Kevin Ralph
Geophysicist
Crone Geophysics & Exploration Ltd.

APPENDIX I

PAGE SIZE PROFILE PLAN MAPS


435000E
435200E
435400E
435600E
435800E
436000E
436200E
436400E
436600E
436800E
437000E
5136000N
5135800N
5135600N
5135400N
5135200N
5135000N
5134800N
5134600N
5134400N
5134200N
5134000N
5133800N
5133600N
5133400N
5133200N
Tx Loop LOOP1
Data Scale
(lin-log)
Scale 1:5000
(meters)
URSA Major Minerals Inc.
Shakespeare Project / Shakespeare East Grid
Surface Pulse EM Survey
Channels 5-20
Horizontal X Component
Survey Date: March, 2005
Crone Geophysics & Exploration Ltd.


435000E
435200E
435400E
435600E
435800E
436000E
436200E
436400E
436600E
436800E
437000E
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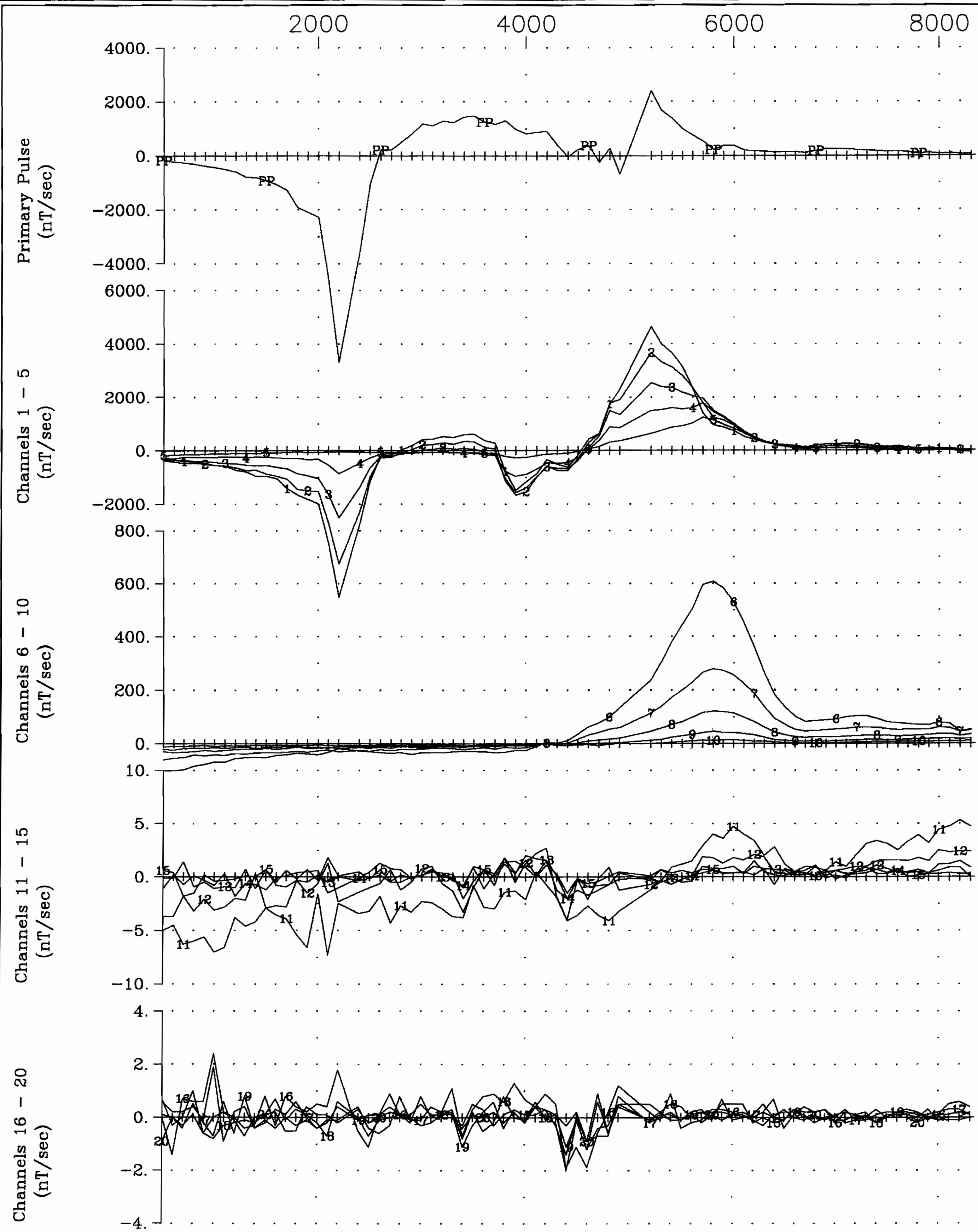
5135600N
5135400N
5135200N
5135000N
5134800N
5134600N
5134400N
5134200N
5134000N
5133800N
5133600N
5133400N
5133200N
Tx Loop LOOP1
N
Data Scale
(lin-log)
Scale 1:5000
(metres)
URSA Major Minerals Inc.
Shakespeare Project / Shakespeare East Grid
Surface Pulse EM Survey
Channels 5-20
Vertical Z Component
Survey Date: March, 2005
Crone Geophysics & Exploration Ltd.

APPENDIX II

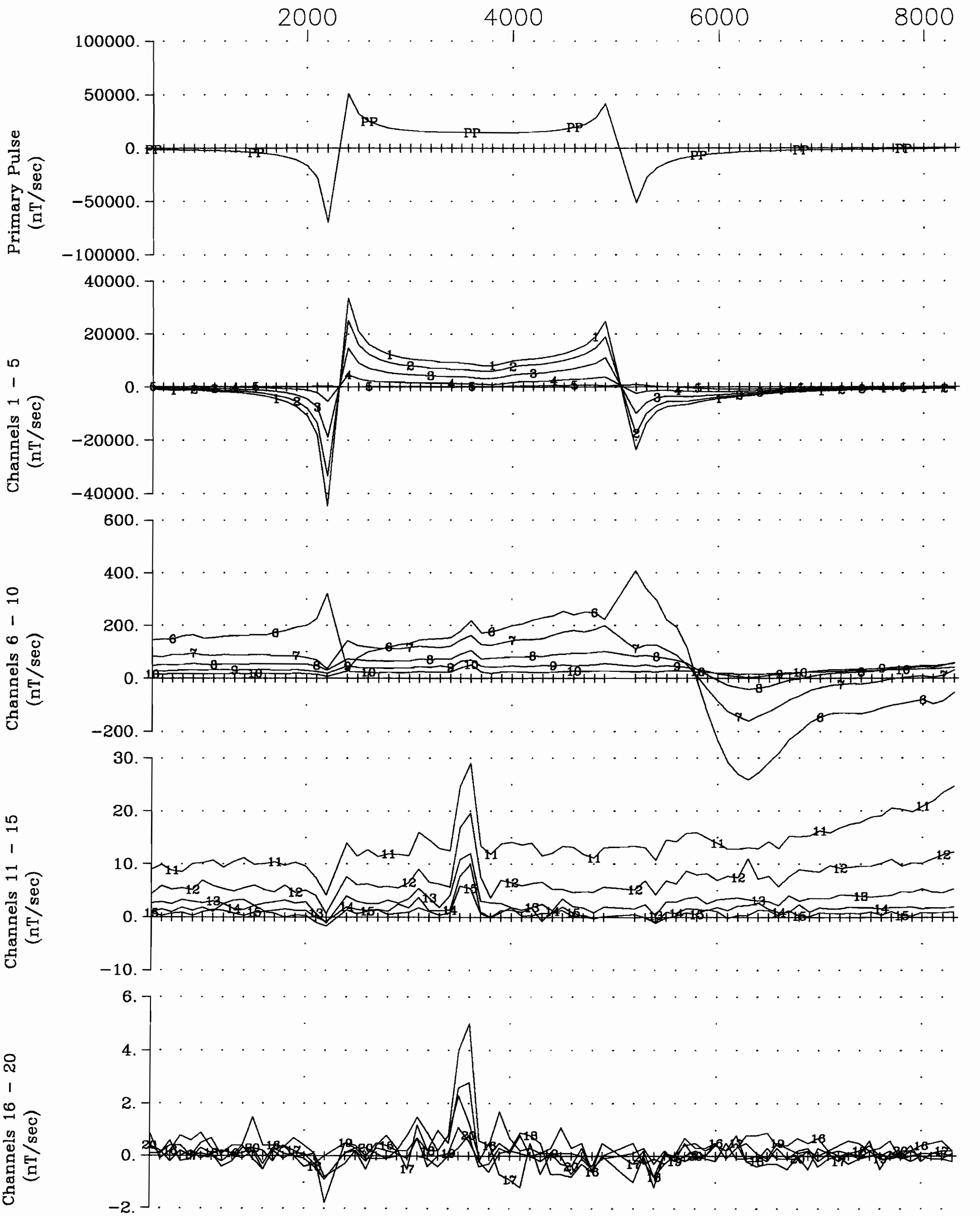
LINEAR (5-AXIS) PULSE EM DATA PROFILES



Ursa Major Minerals Shakespeare Project/Shakespeare East Grid

Line L100E X Component

Crone Geophysics & Exploration Ltd.



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Line L100E Z Component

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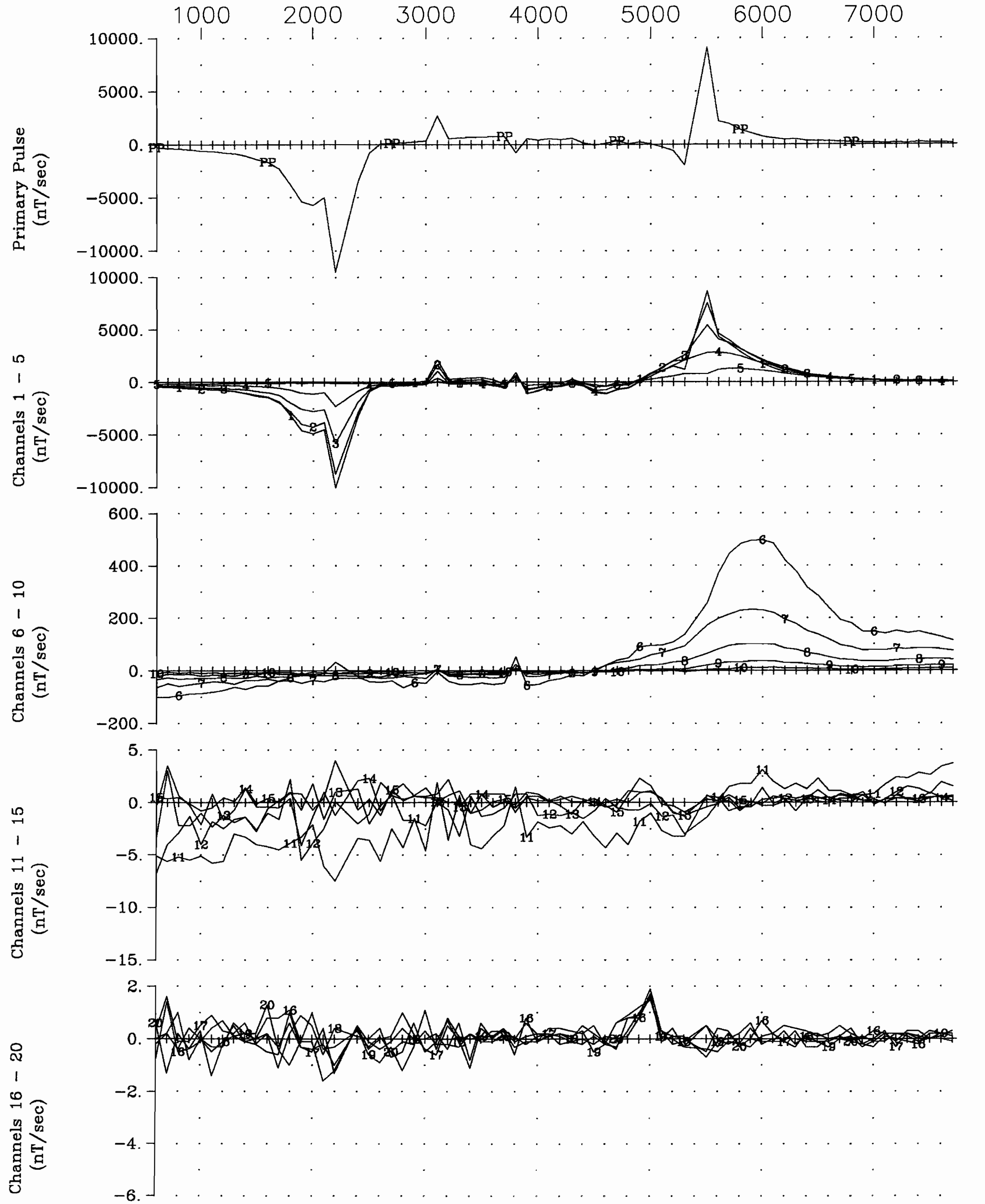

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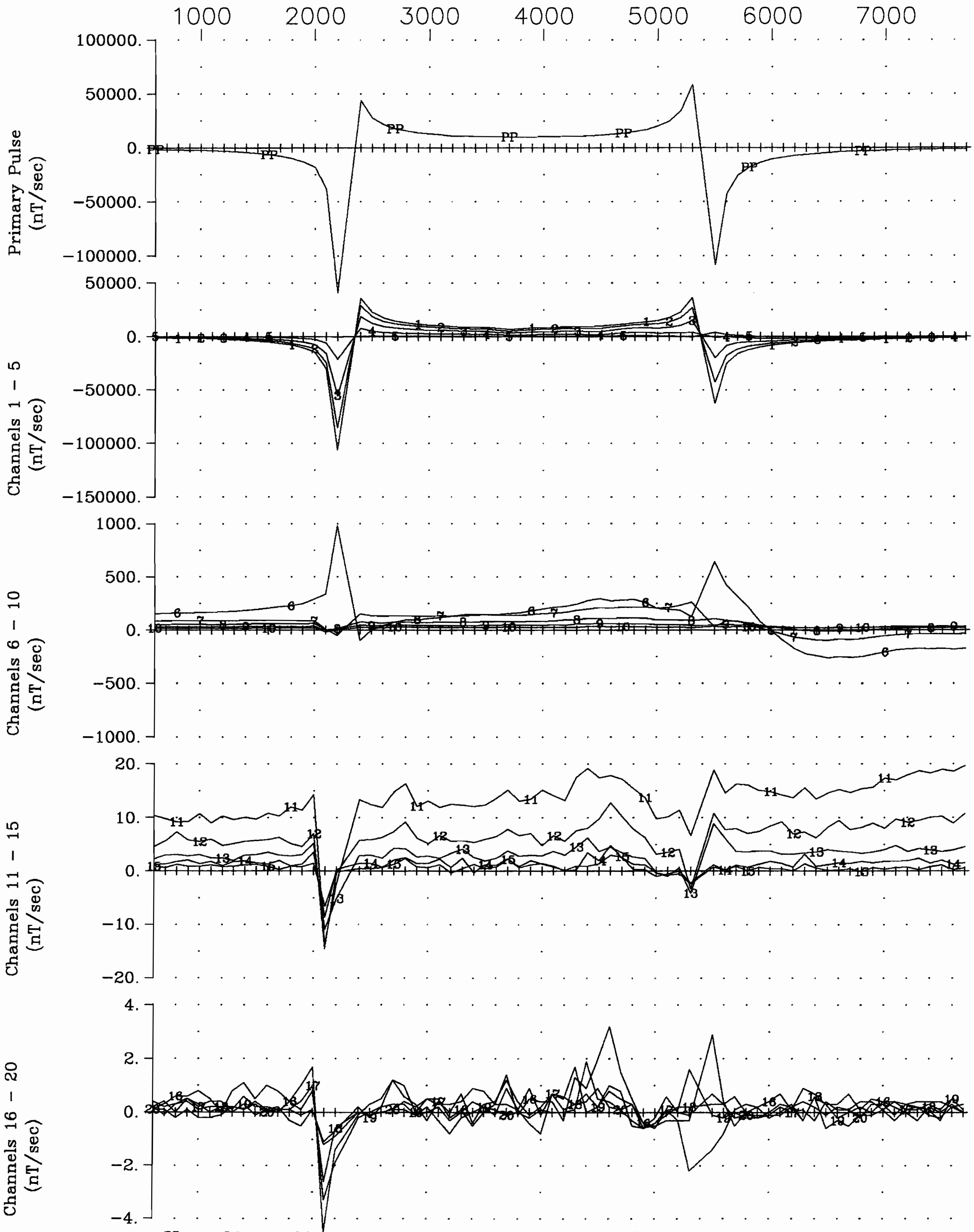
Line L900E X Component
Crone Geophysics & Exploration Ltd.



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Line L900E Z Component

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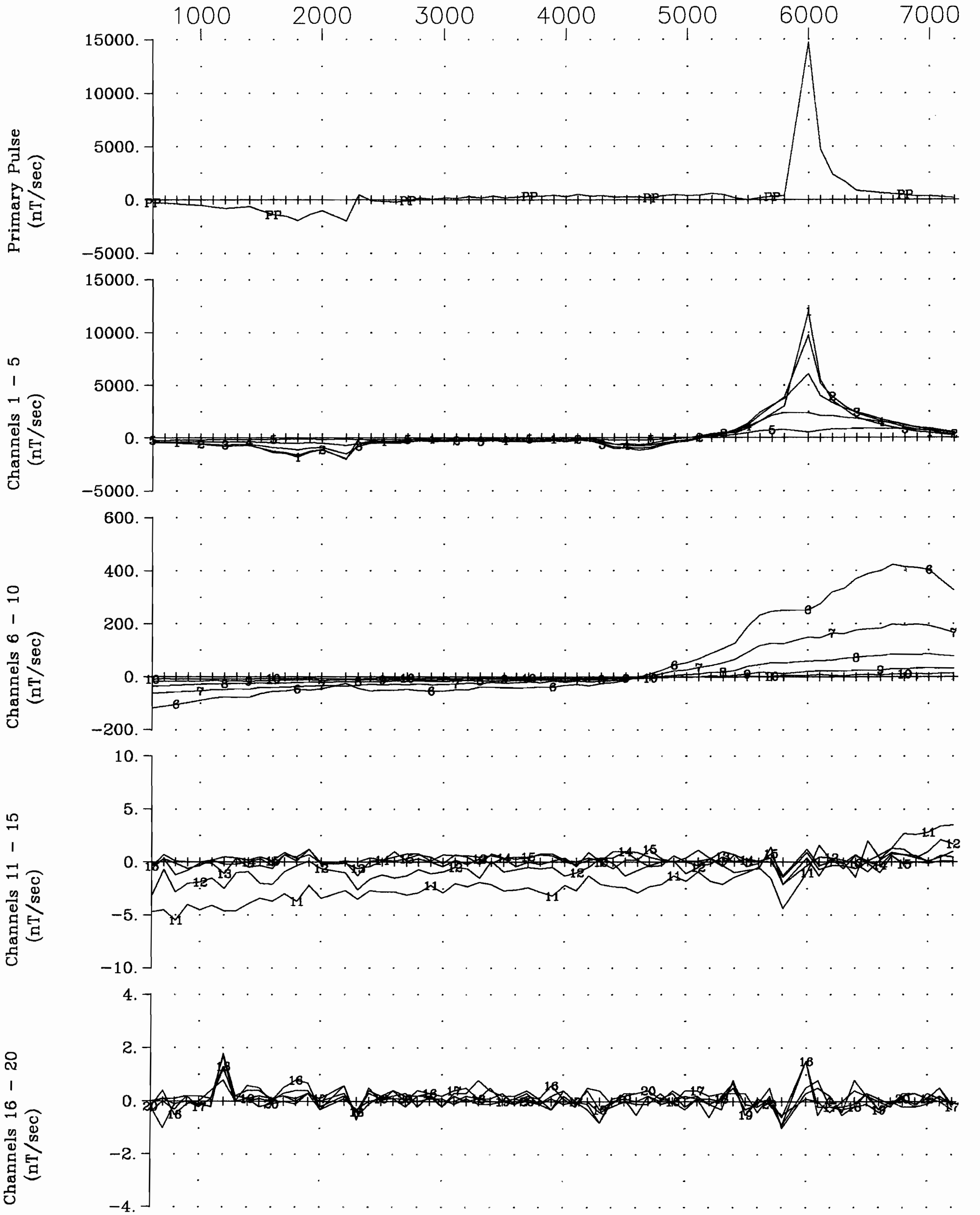

Ursa Major Minerals Shakespeare Project/Shakespeare East Grid

Line L1700E X Component

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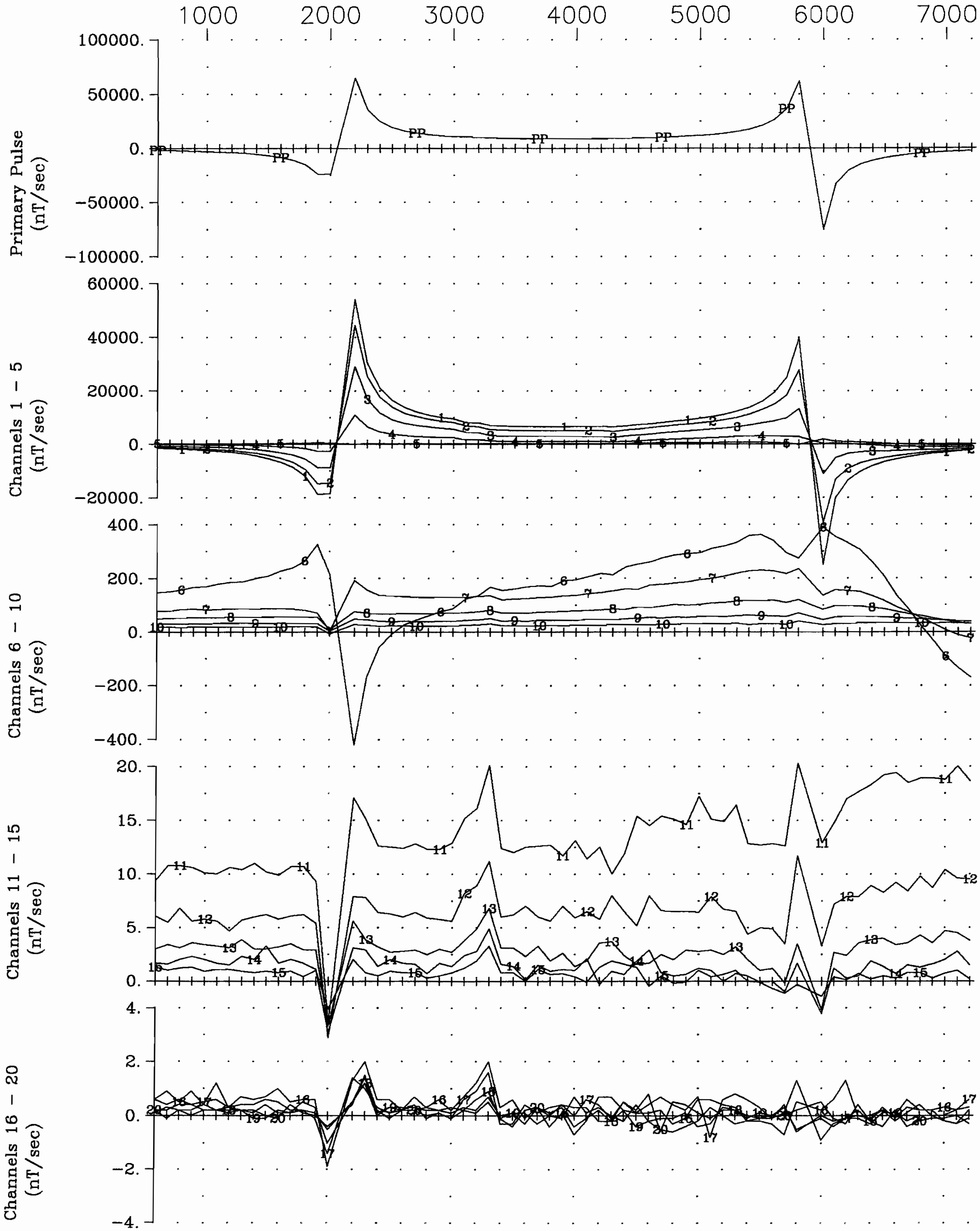
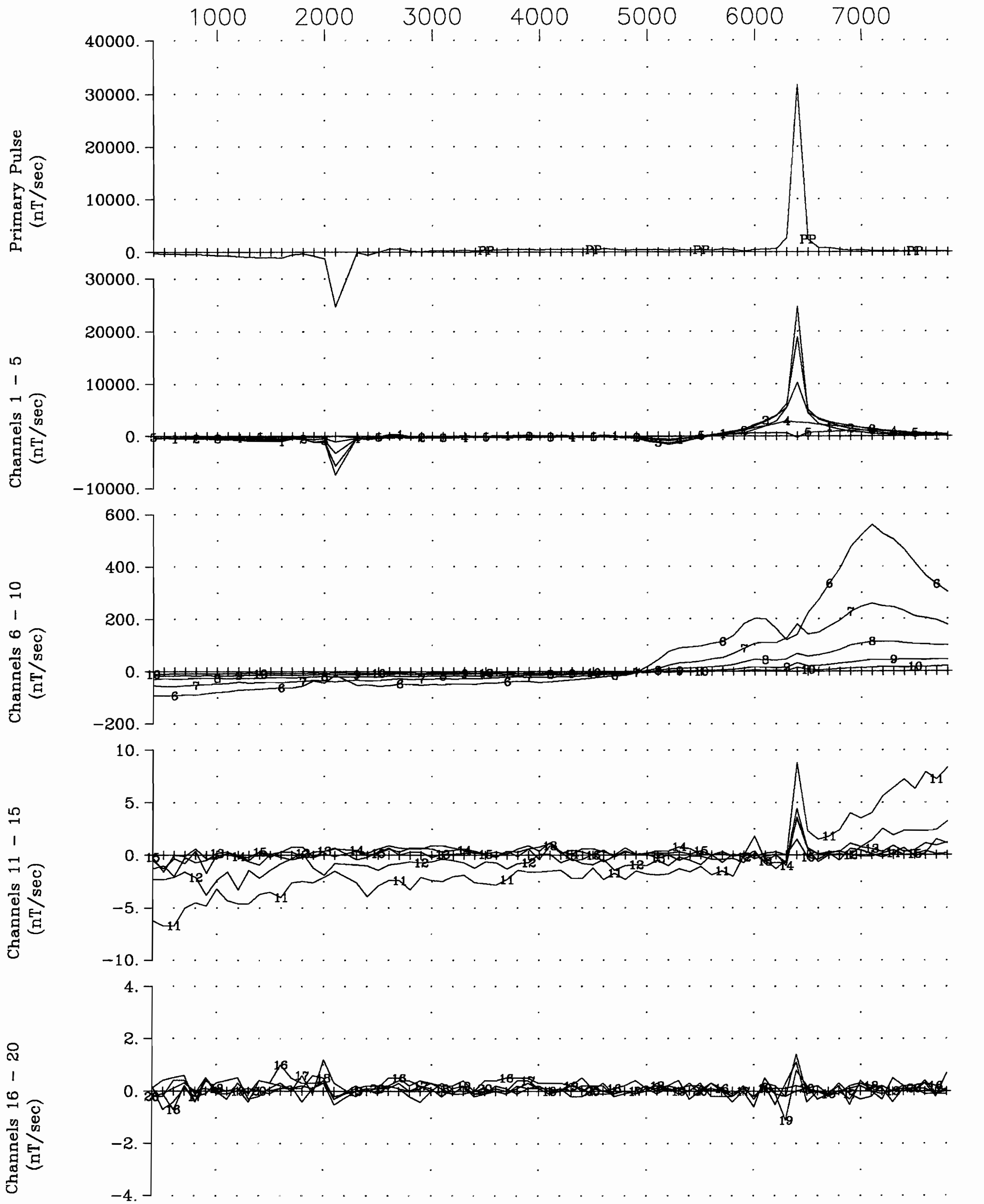


Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line L1700E Z Component
Crone Geophysics & Exploration Ltd.



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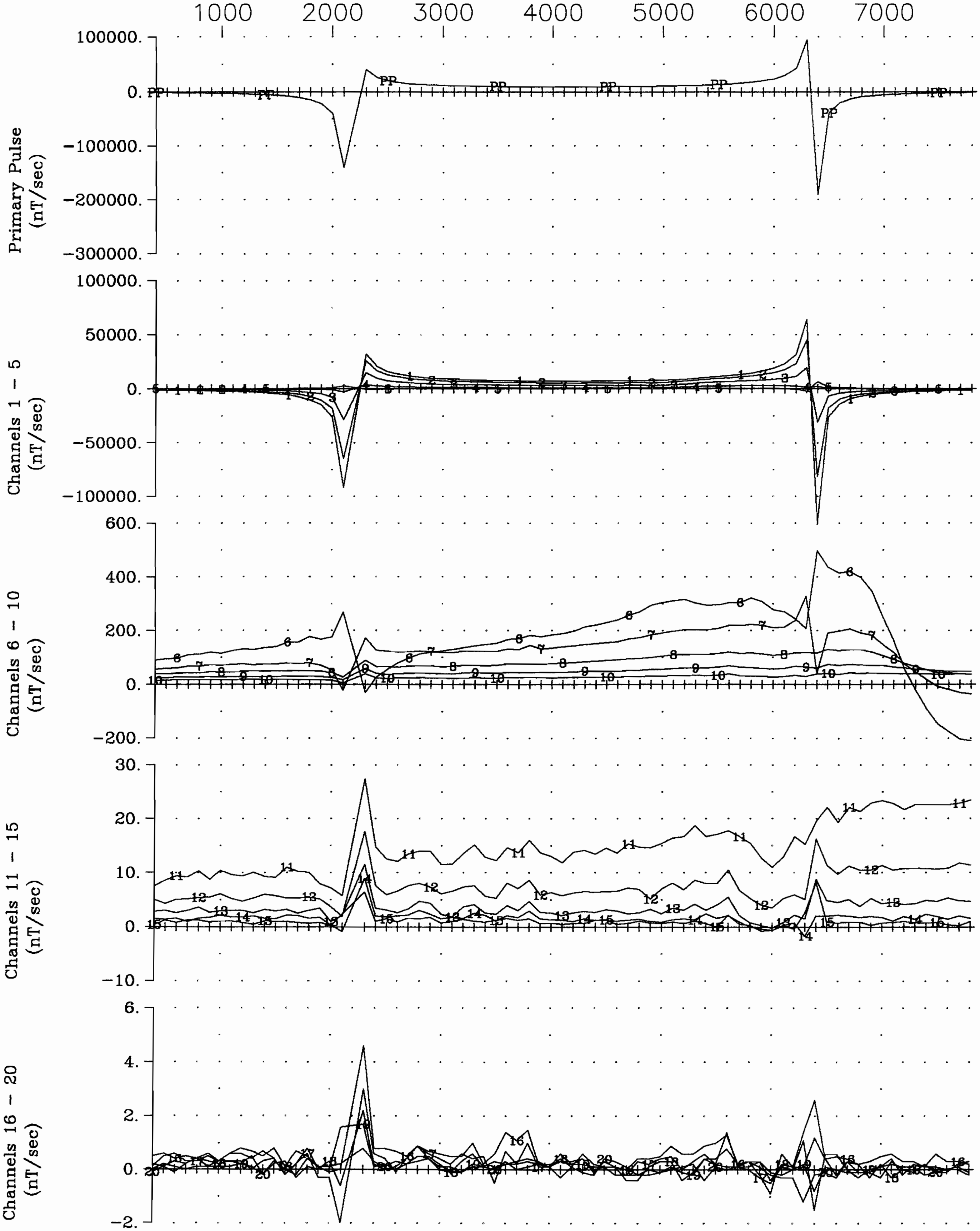
Line L2500E X Component
Crone Geophysics & Exploration Ltd.



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Line L2500E Z Component

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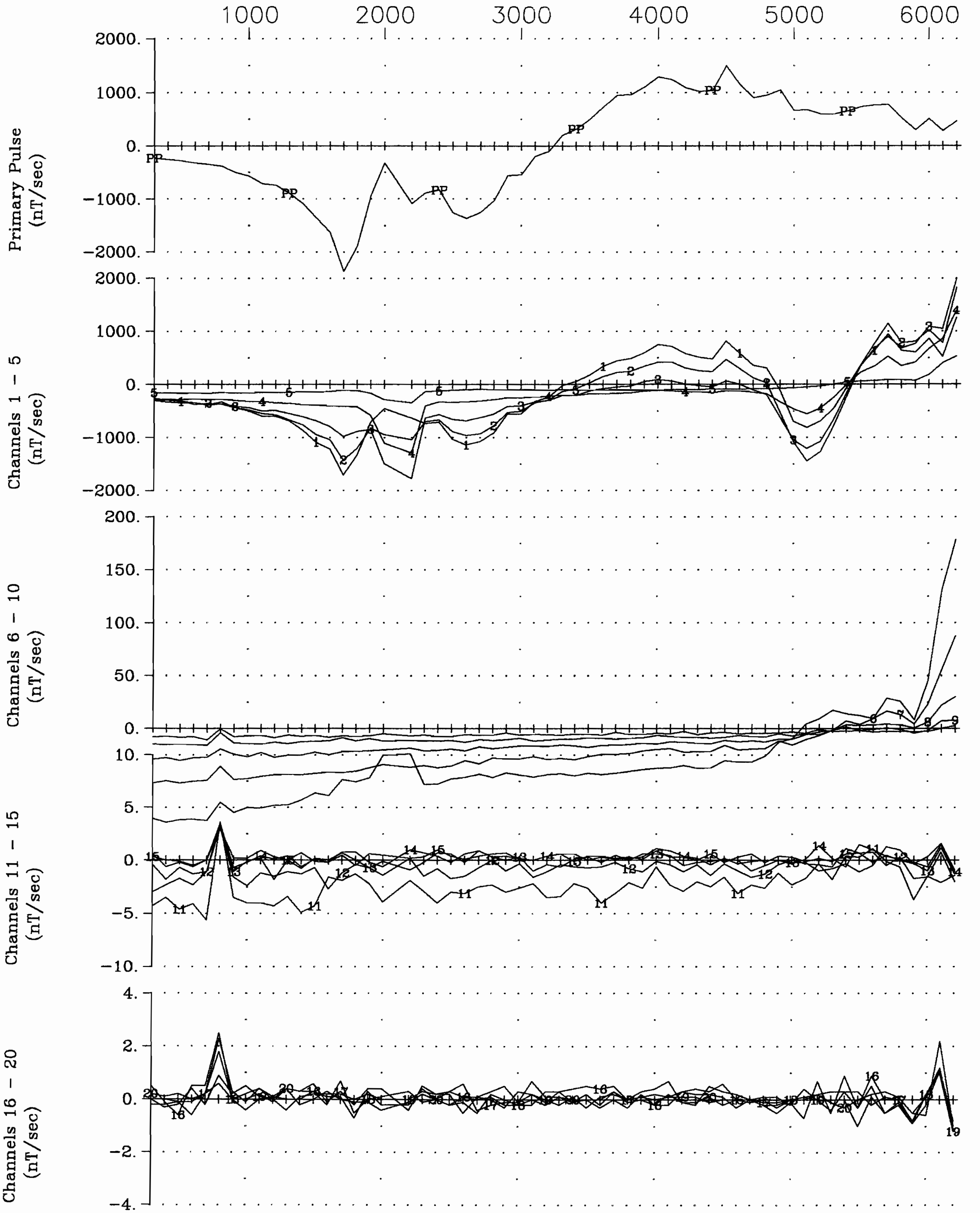

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Line L3300E X Component

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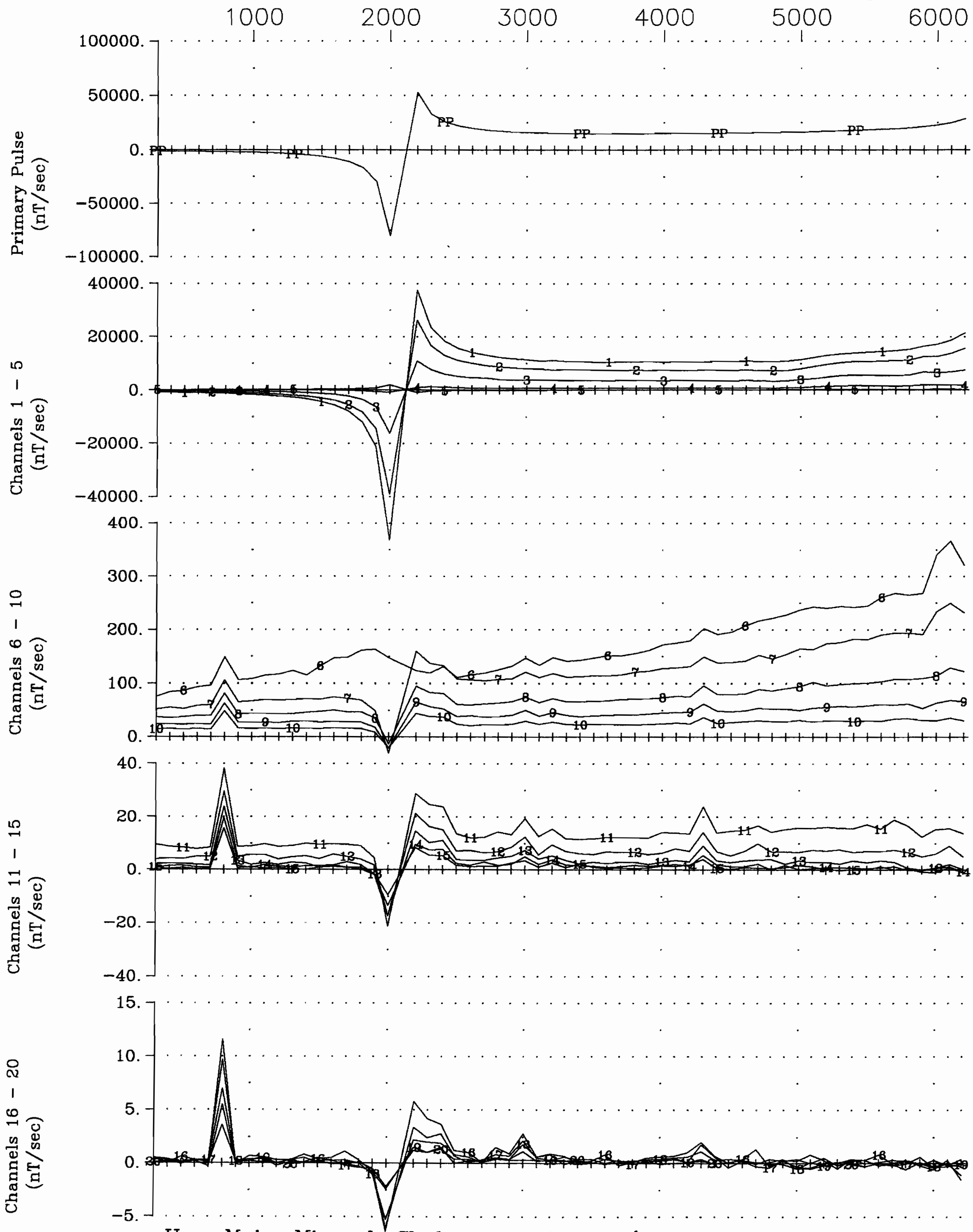


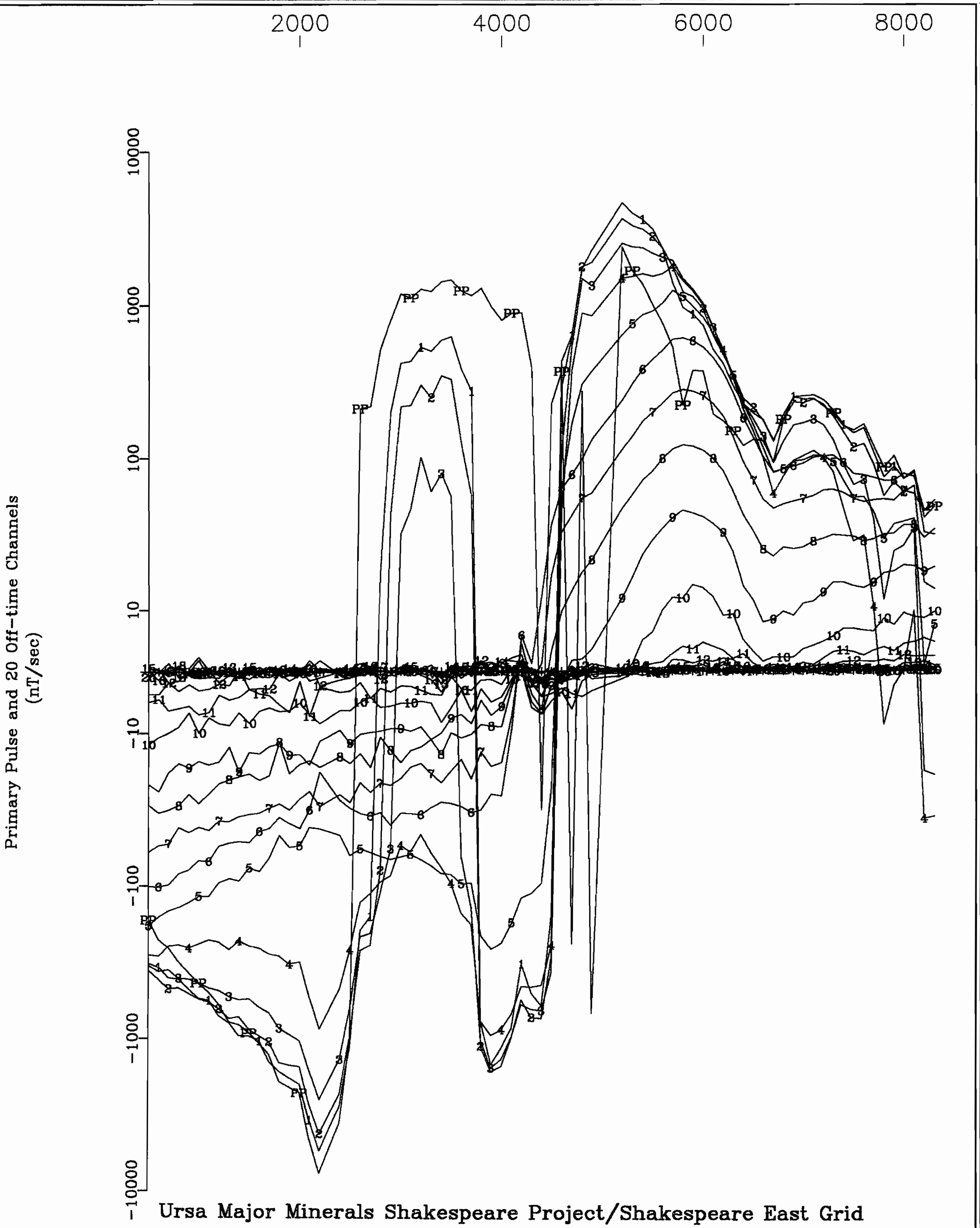
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid

Line L3300E Z Component

Crone Geophysics & Exploration Ltd.

APPENDIX III

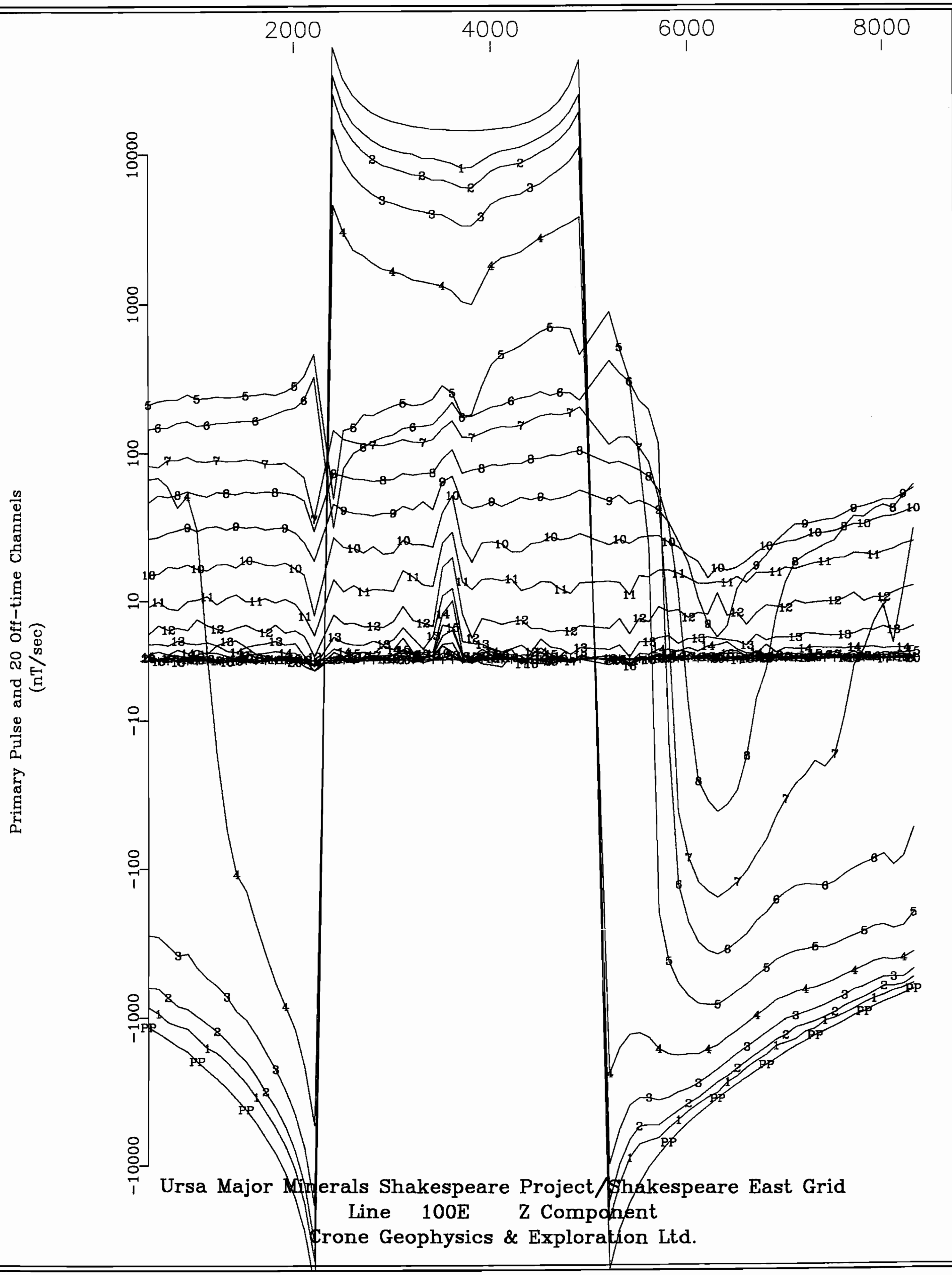
PULSE EM DATA PROFILES (LIN-LOG SCALE)



Ursa Major Minerals Shakespeare Project/Shakespeare East Grid

Line 100E X Component

Crone Geophysics & Exploration Ltd.



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Line 100E Z Component
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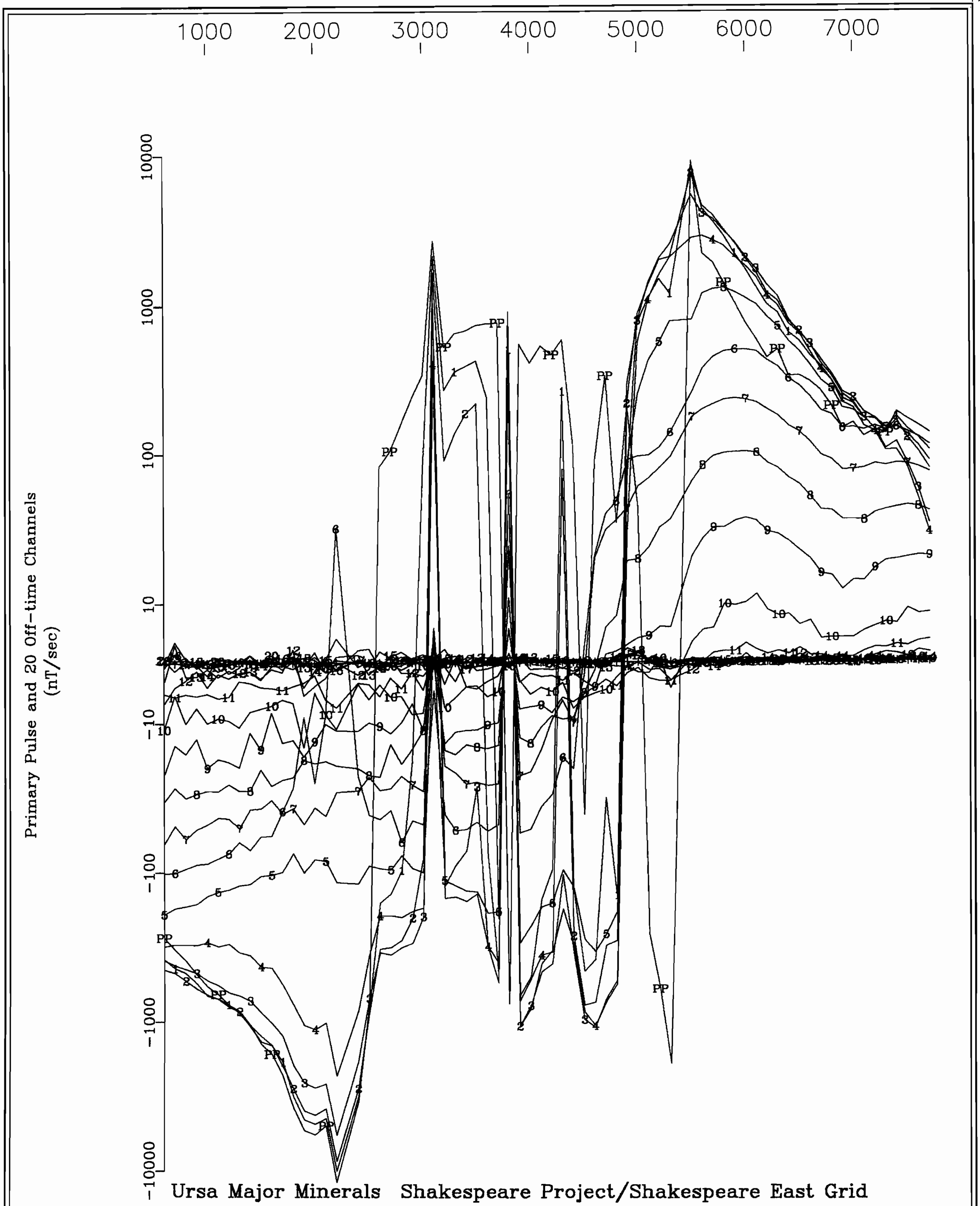

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Line 900E X Component
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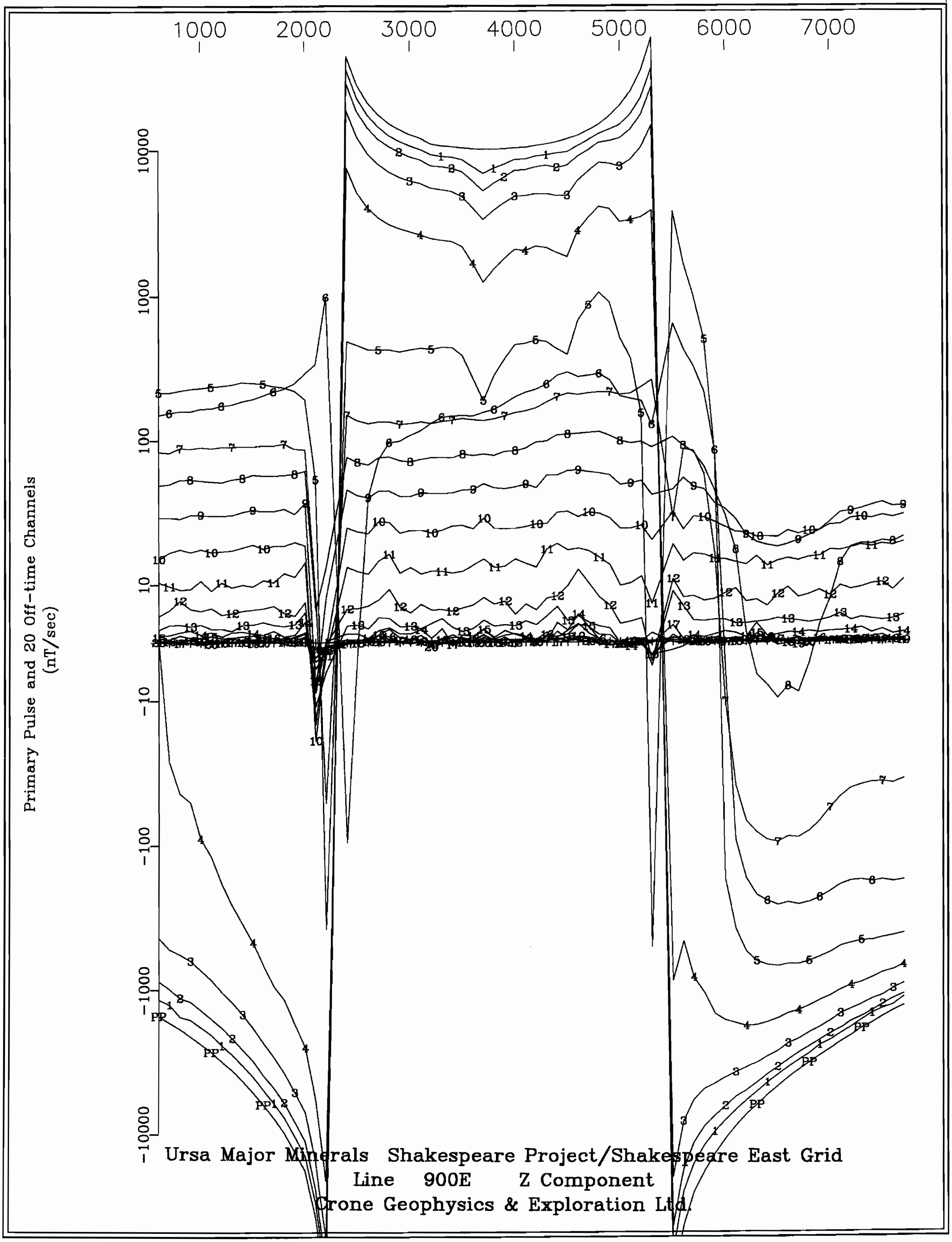
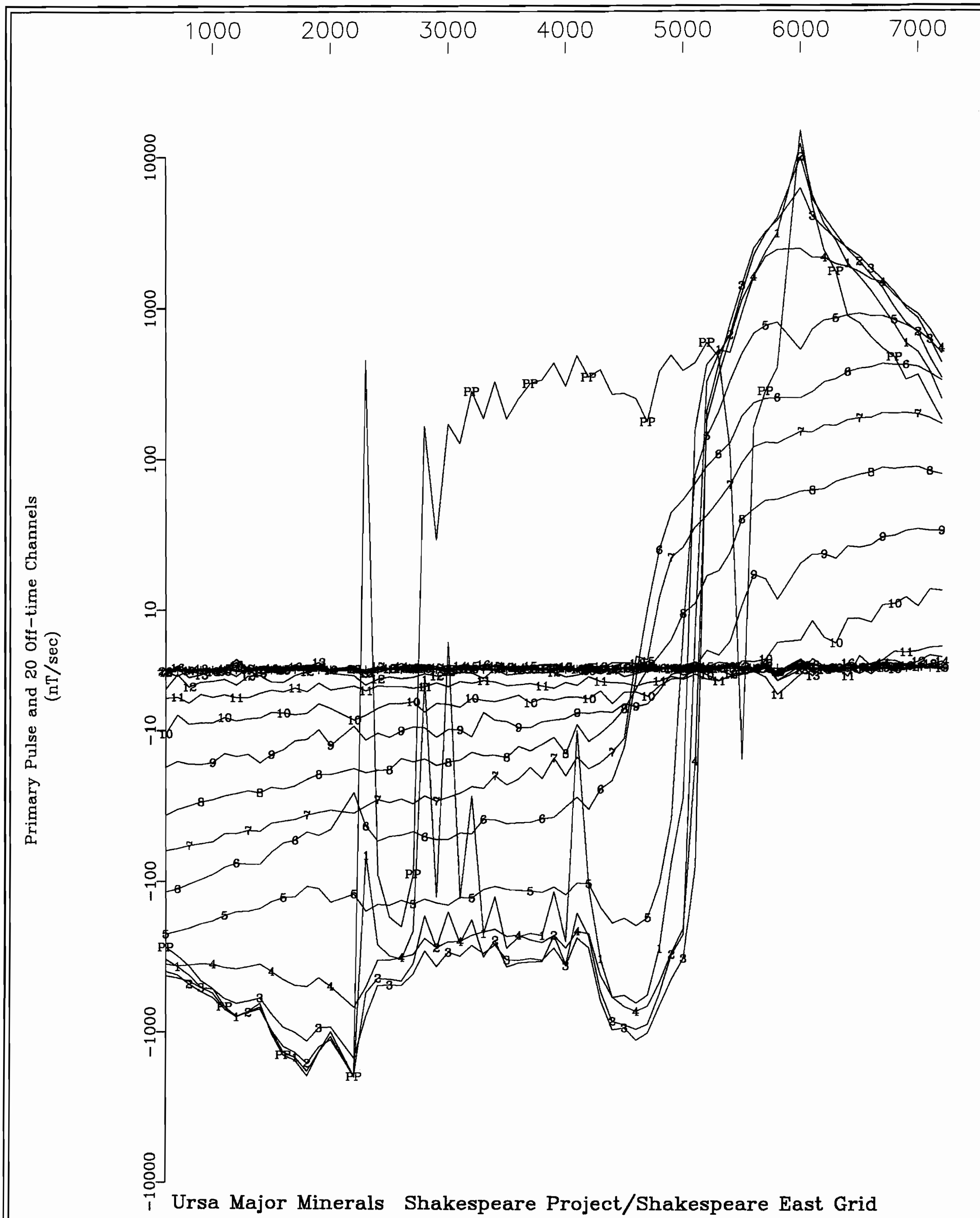

1000
2000
3000
4000
5000
6000
7000
Primary Pulse and 20 Off-time Channels
(nT/sec)
10000
1000
100
10
-10
-100
-1000
-10000
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 900E Z Component
Crone Geophysics & Exploration Ltd.



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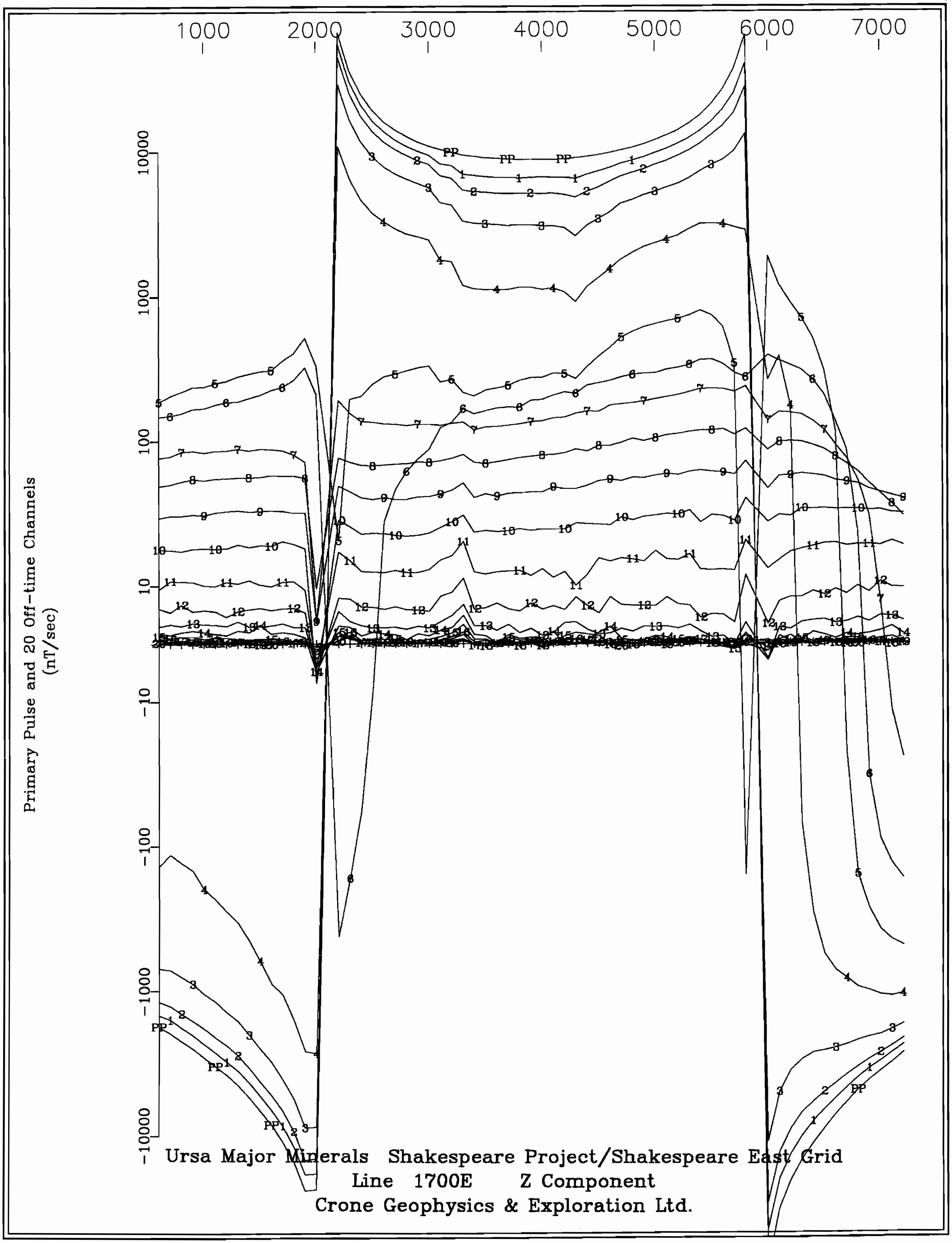
Line 1700E X Component
Crone Geophysics & Exploration Ltd.



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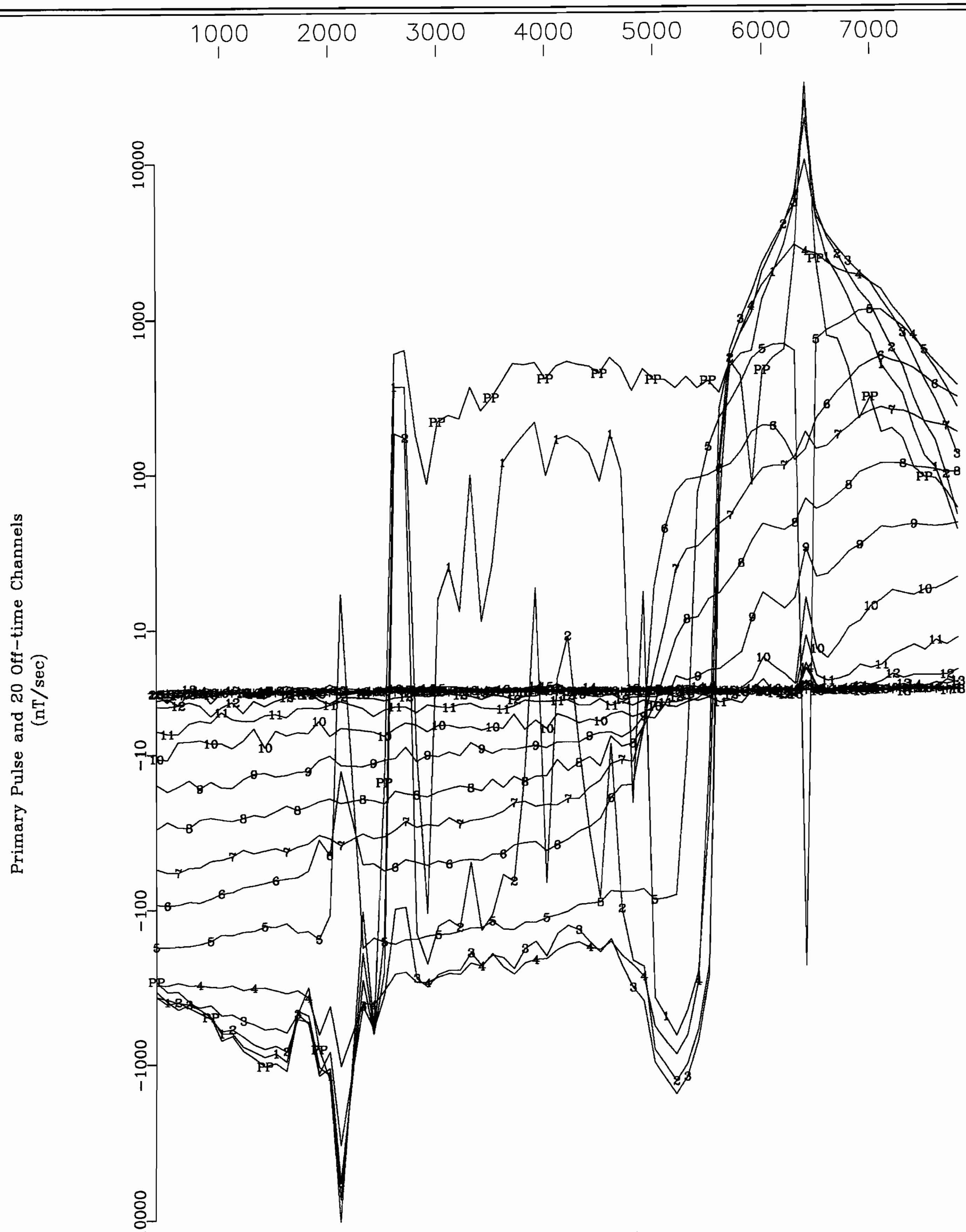
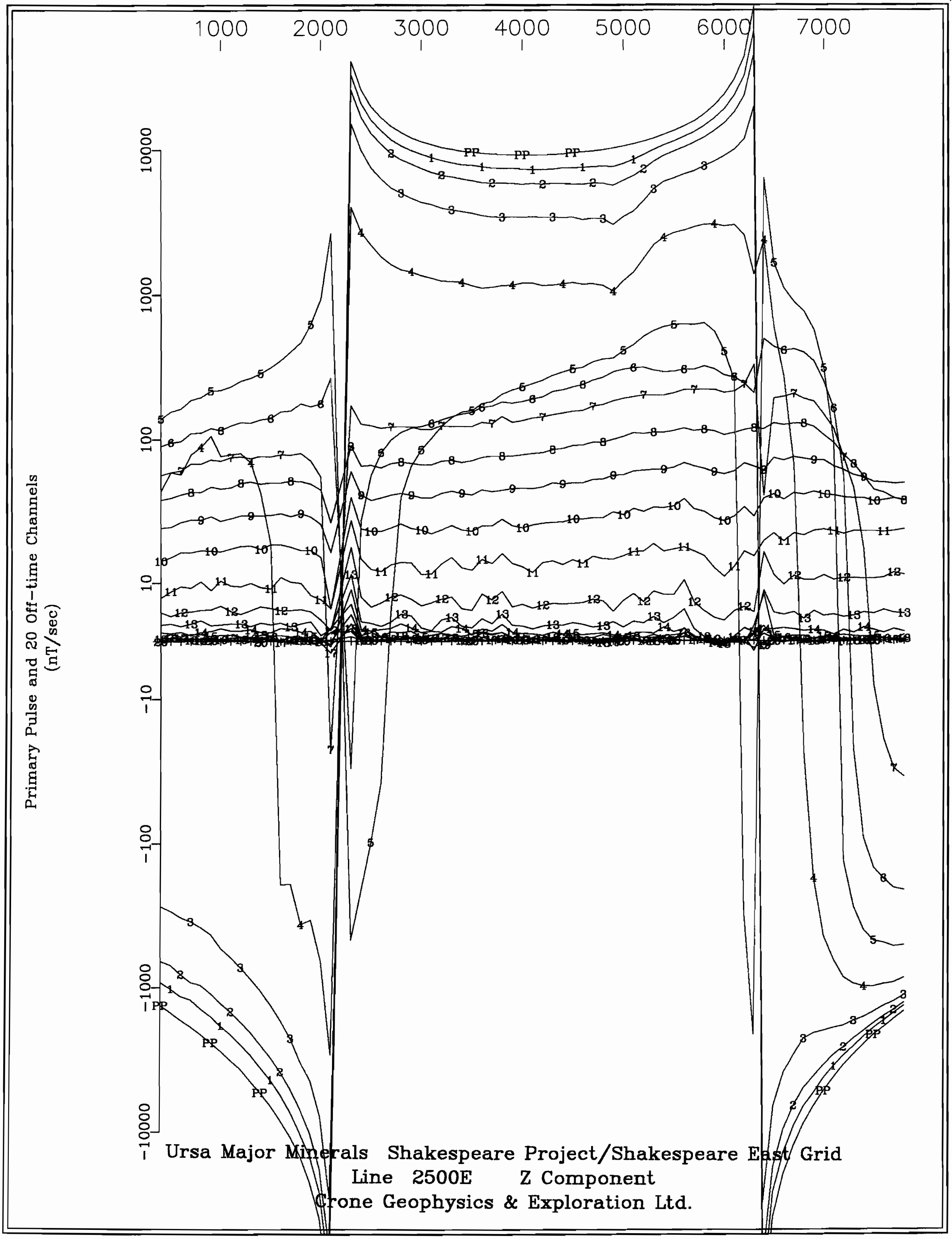
Line 1700E Z Component

Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 2500E X Component
Crone Geophysics & Exploration Ltd.



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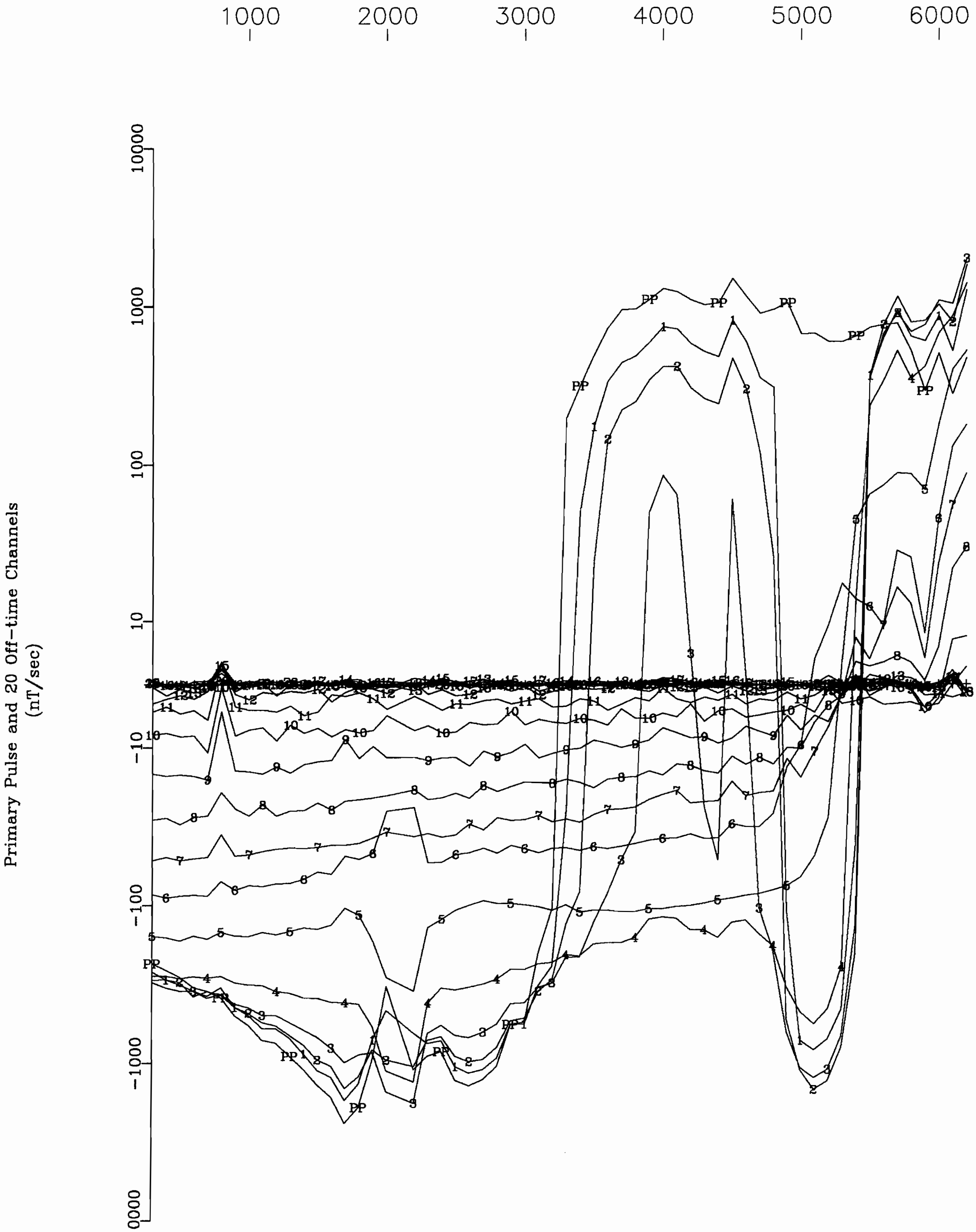
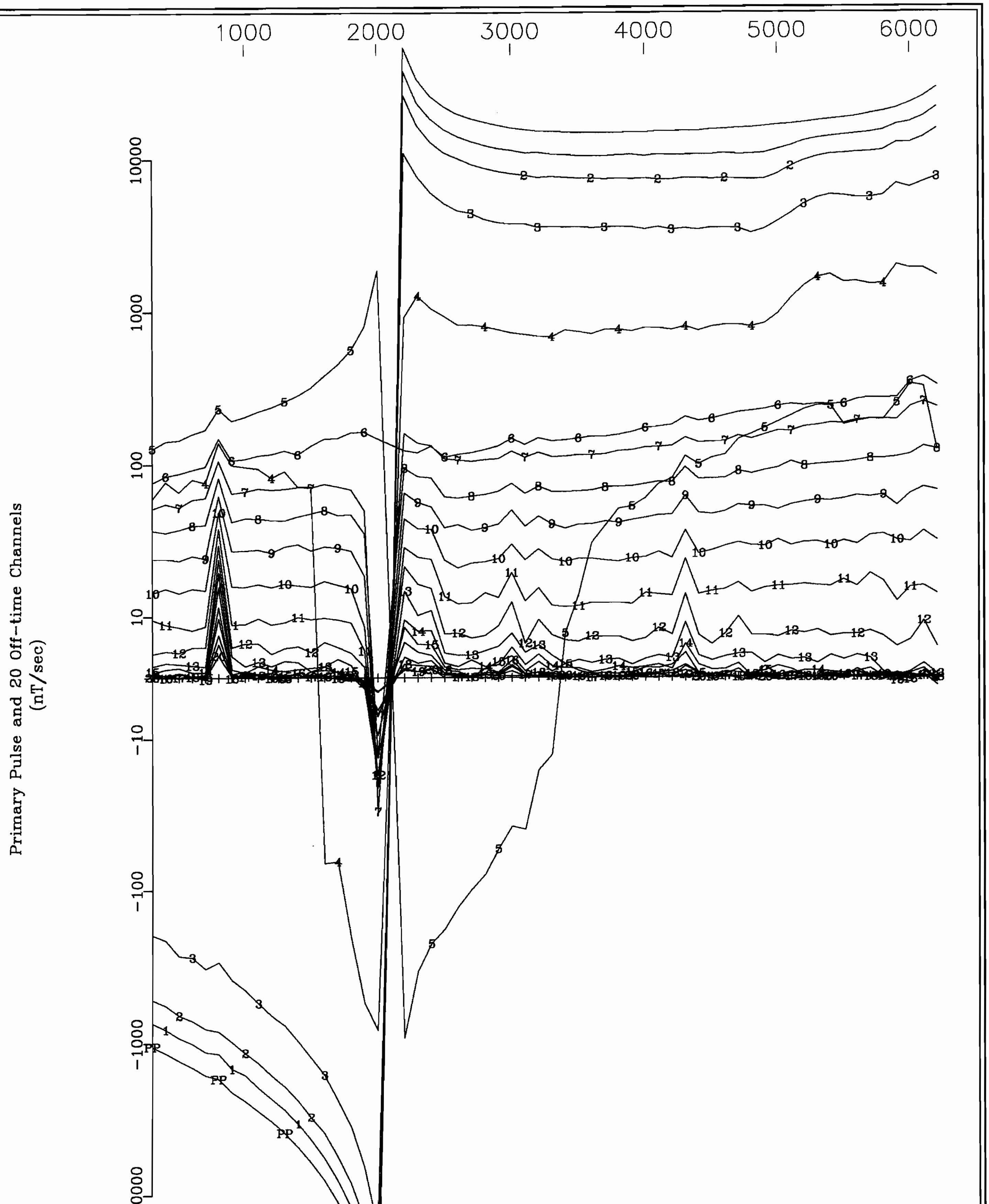
Line 2500E Z Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Shakespeare Project /Shakespeare East Grid

Line 3300E X Component

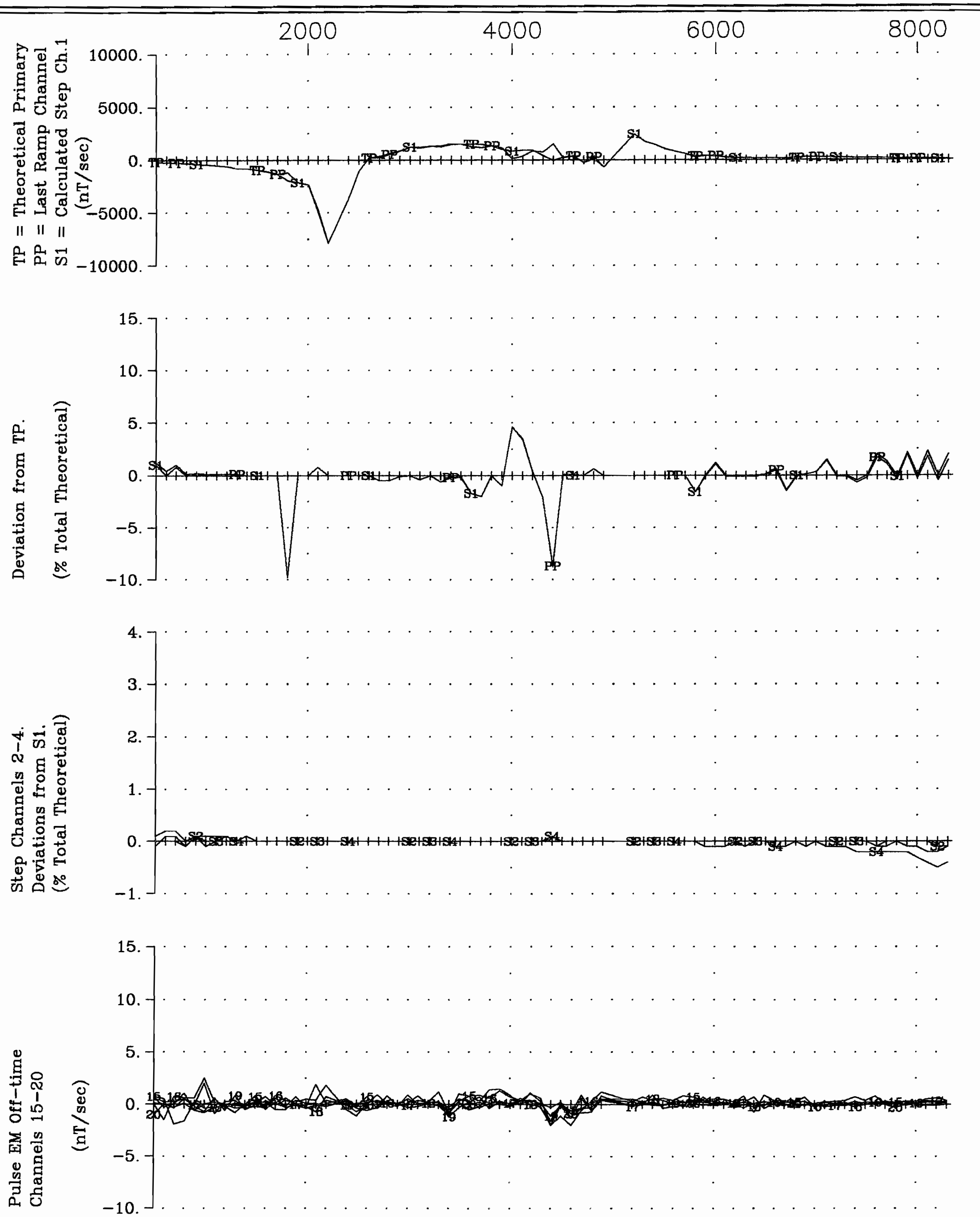
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 3300E Z Component
Crone Geophysics & Exploration Ltd.

APPENDIX IV

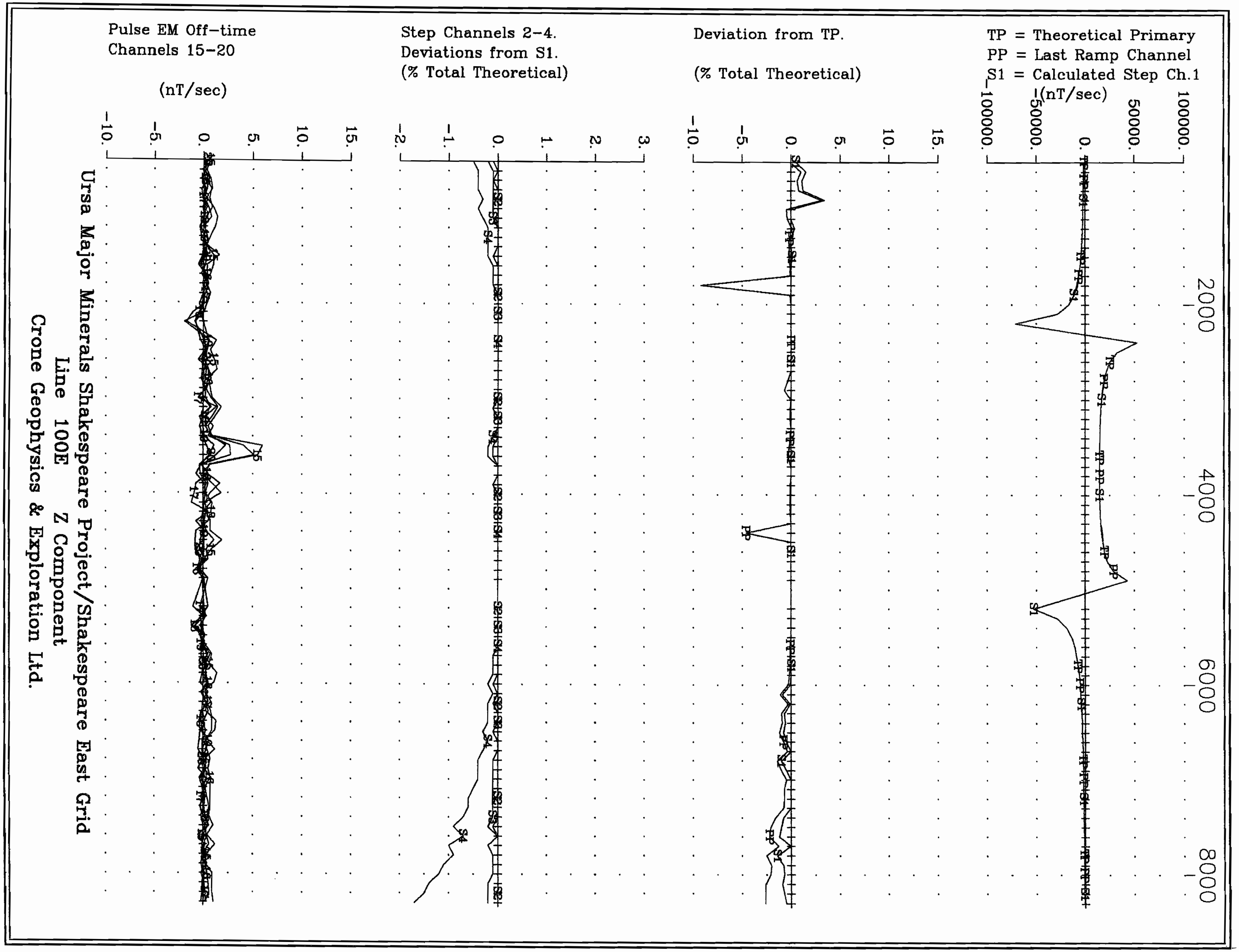
STEP RESPONSE DATA PROFILES



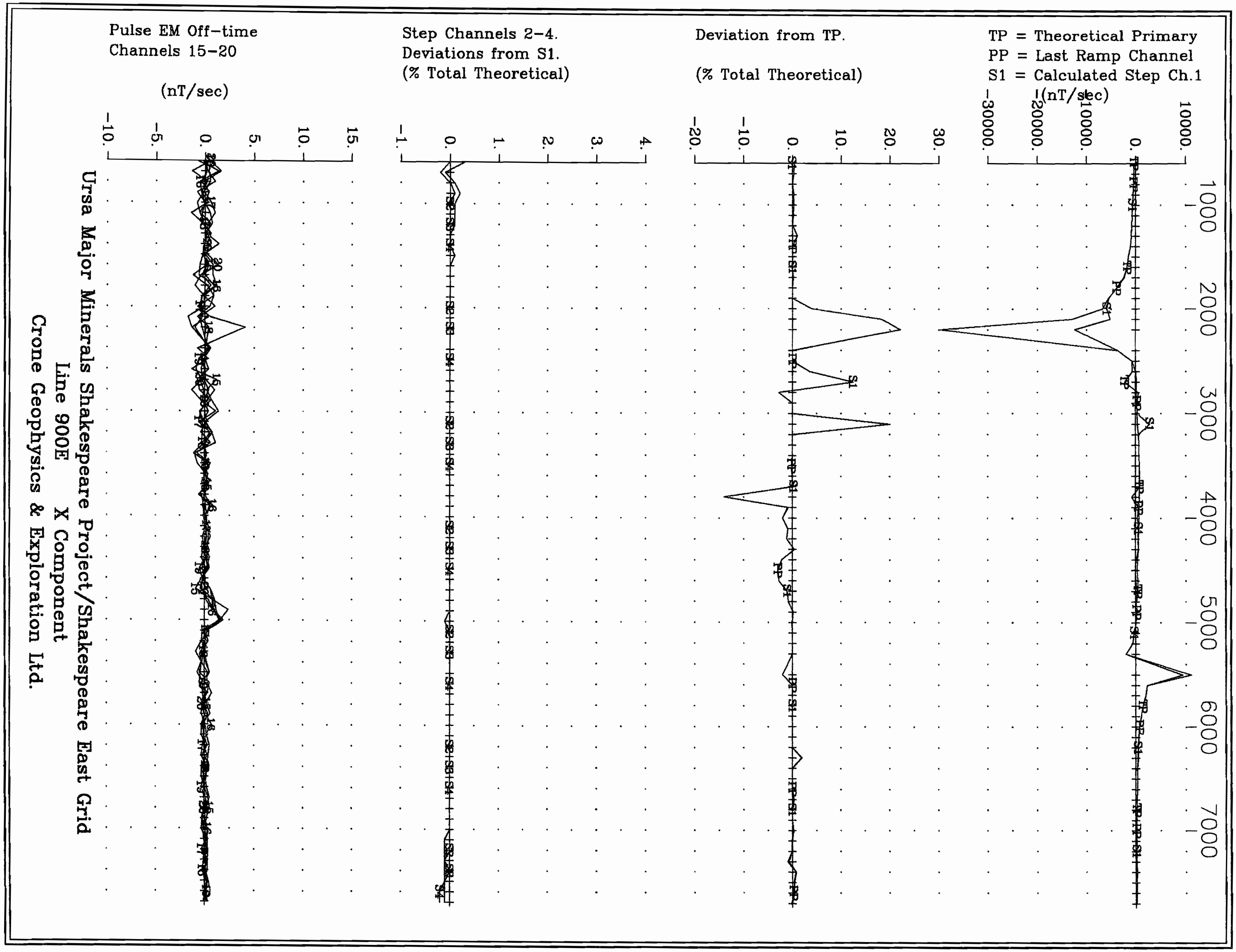
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid

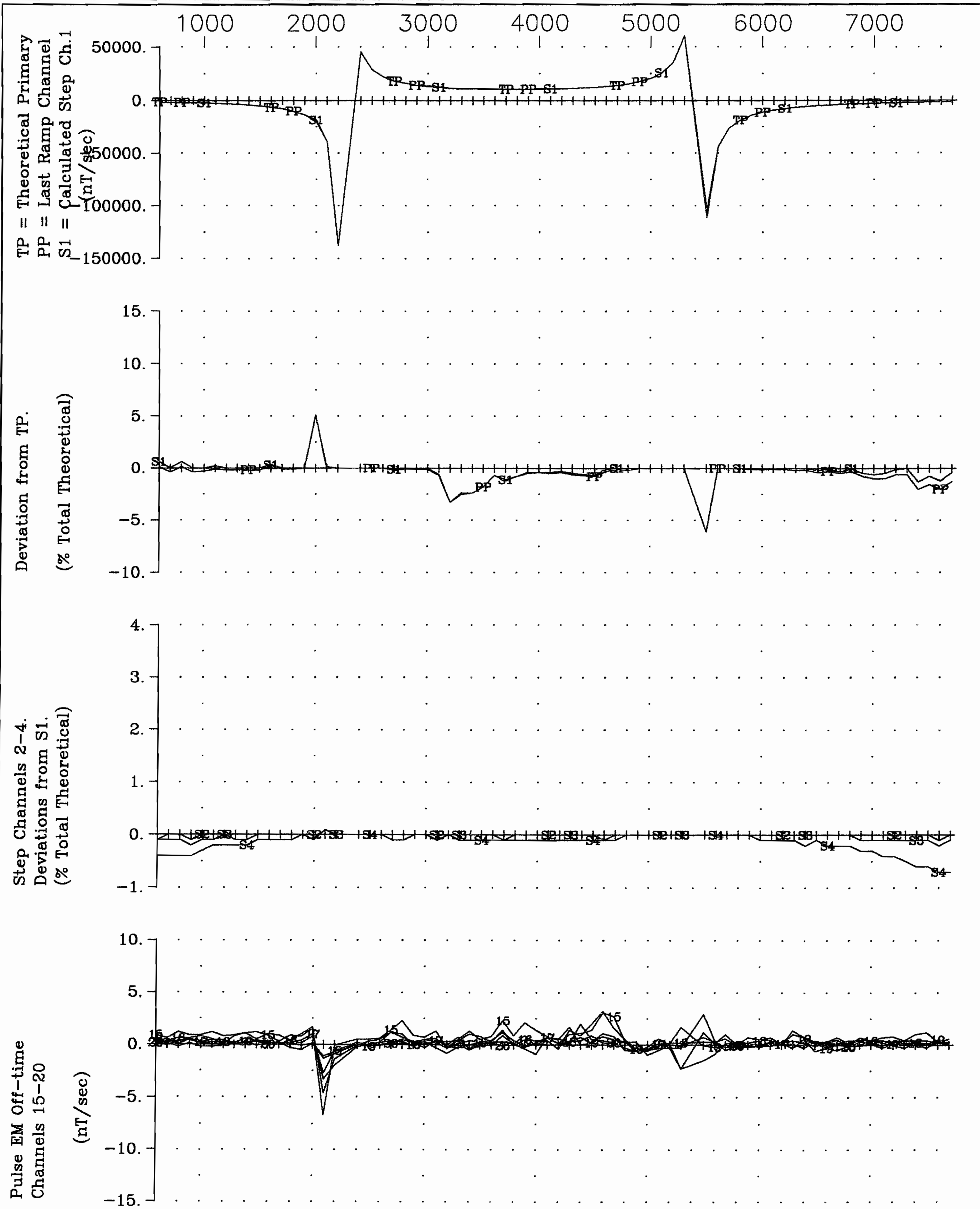
Line 100E X Component

Crone Geophysics & Exploration Ltd.



Pulse EM Off-time
Channels 15-20
(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
4000
6000
8000
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 100E Z Component
Crone Geophysics & Exploration Ltd.

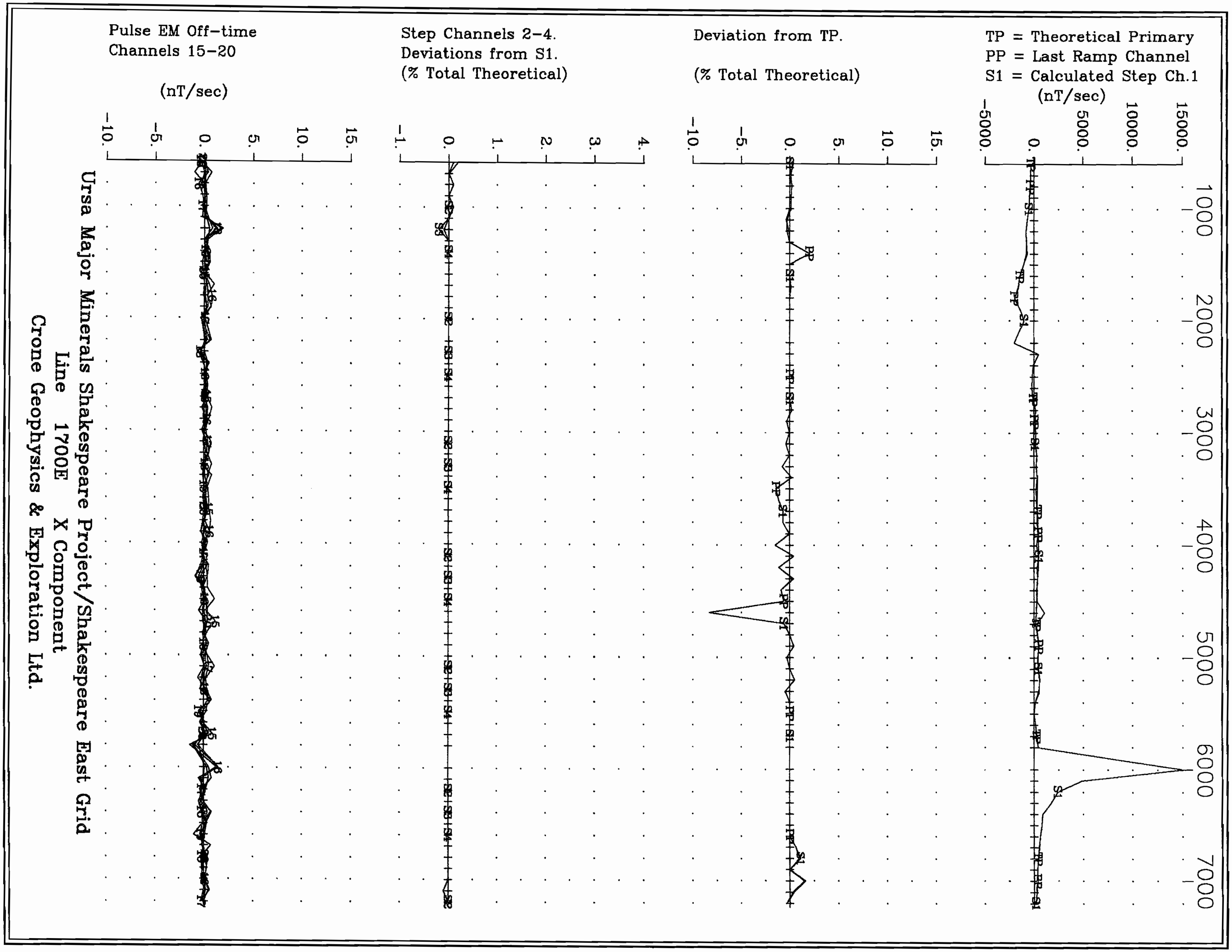

Pulse EM Off-time
Channels 15-20
(nT/sec)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Deviation from TP.
(% Total Theoretical)
TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 900E X Component
Crone Geophysics & Exploration Ltd.



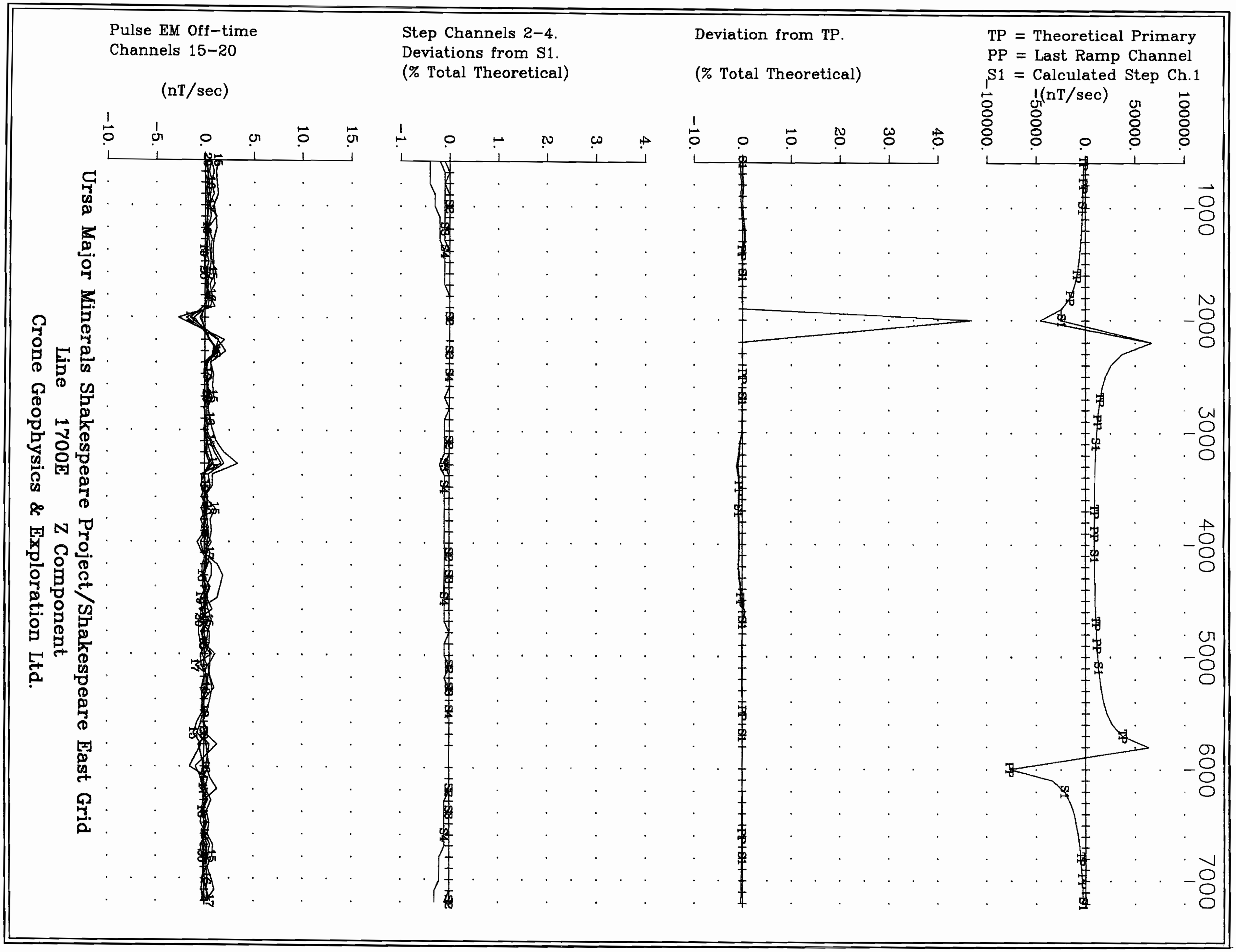
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid

Line 900E Z Component

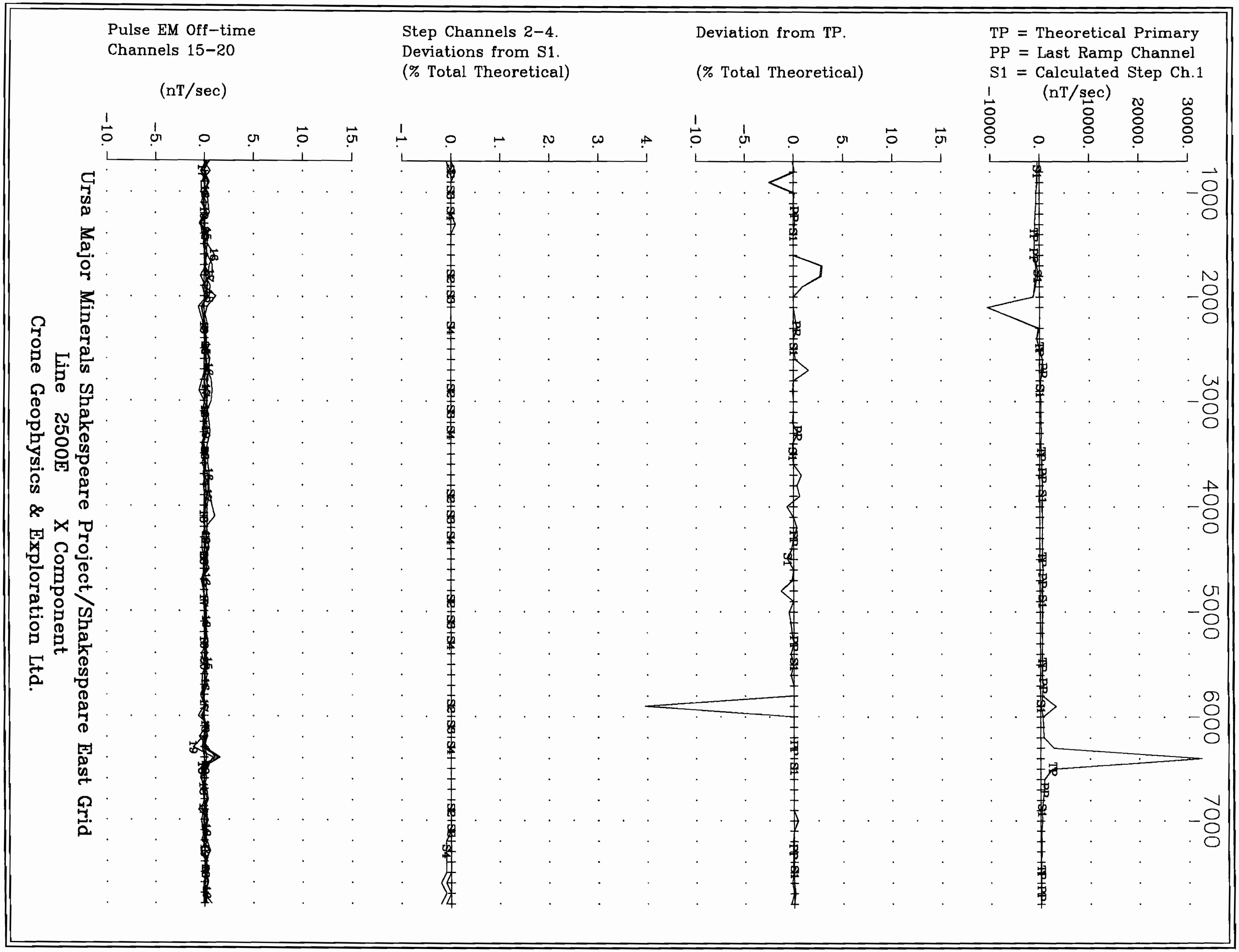
Crone Geophysics & Exploration Ltd.

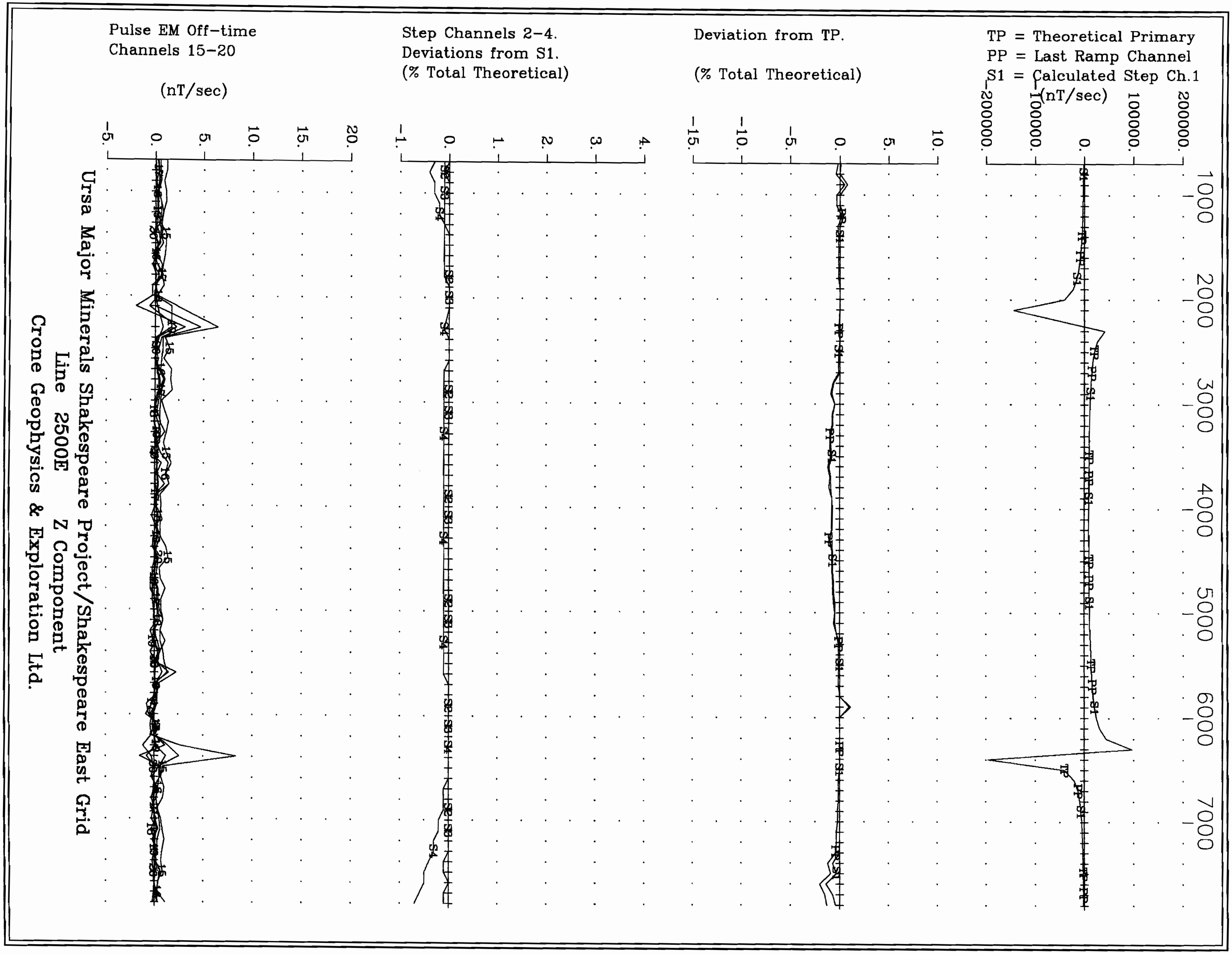


Pulse EM Off-time
Channels 15-20
(nT/sec)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Deviation from TP.
(% Total Theoretical)
TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
1000
2000
3000
4000
5000
6000
7000
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 1700E X Component
Crone Geophysics & Exploration Ltd.

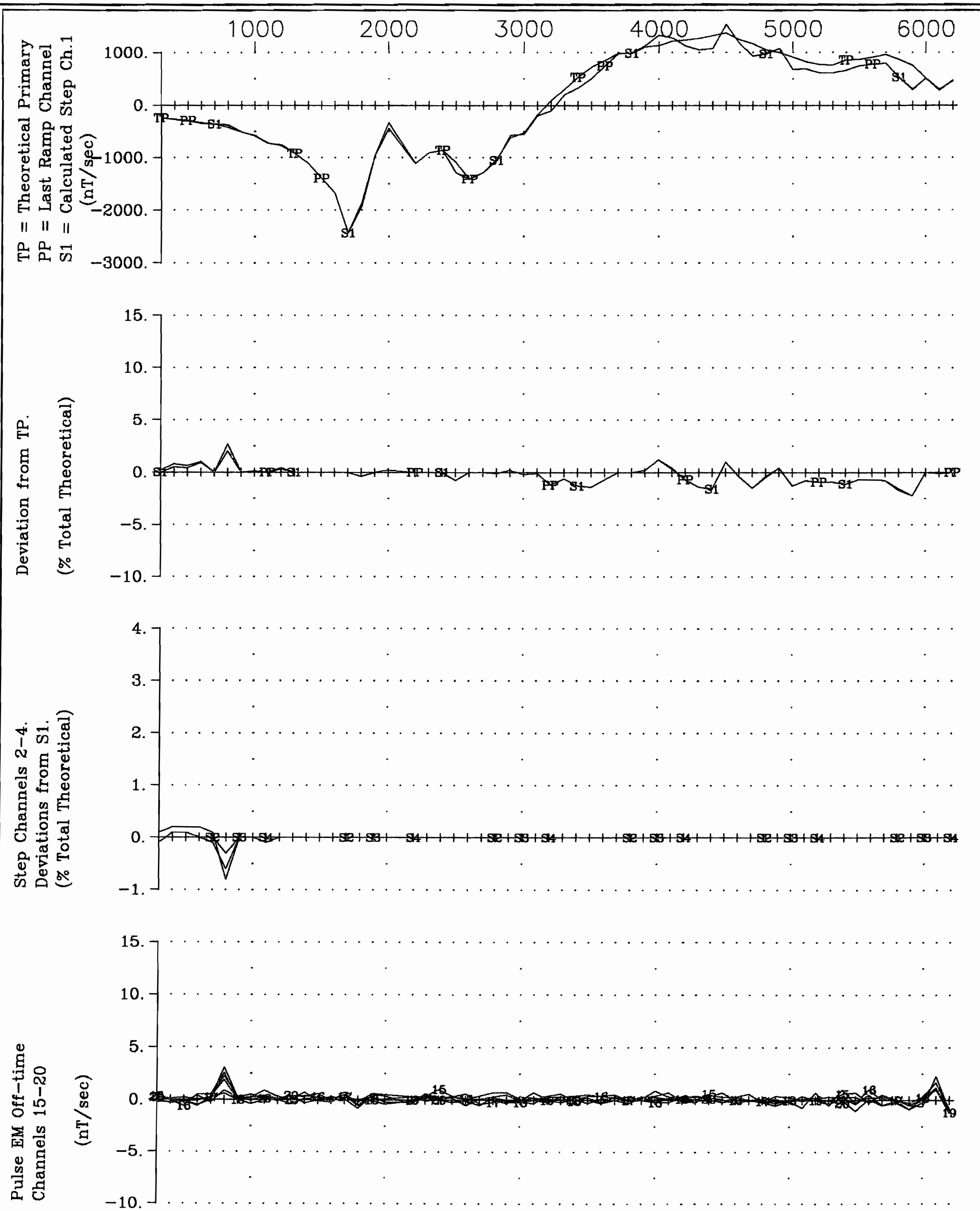


TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Deviation from TP.
(% Total Theoretical)
Step Channels 2-4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off-time
Channels 15-20
(nT/sec)
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 1700E Z Component
Crone Geophysics & Exploration Ltd.

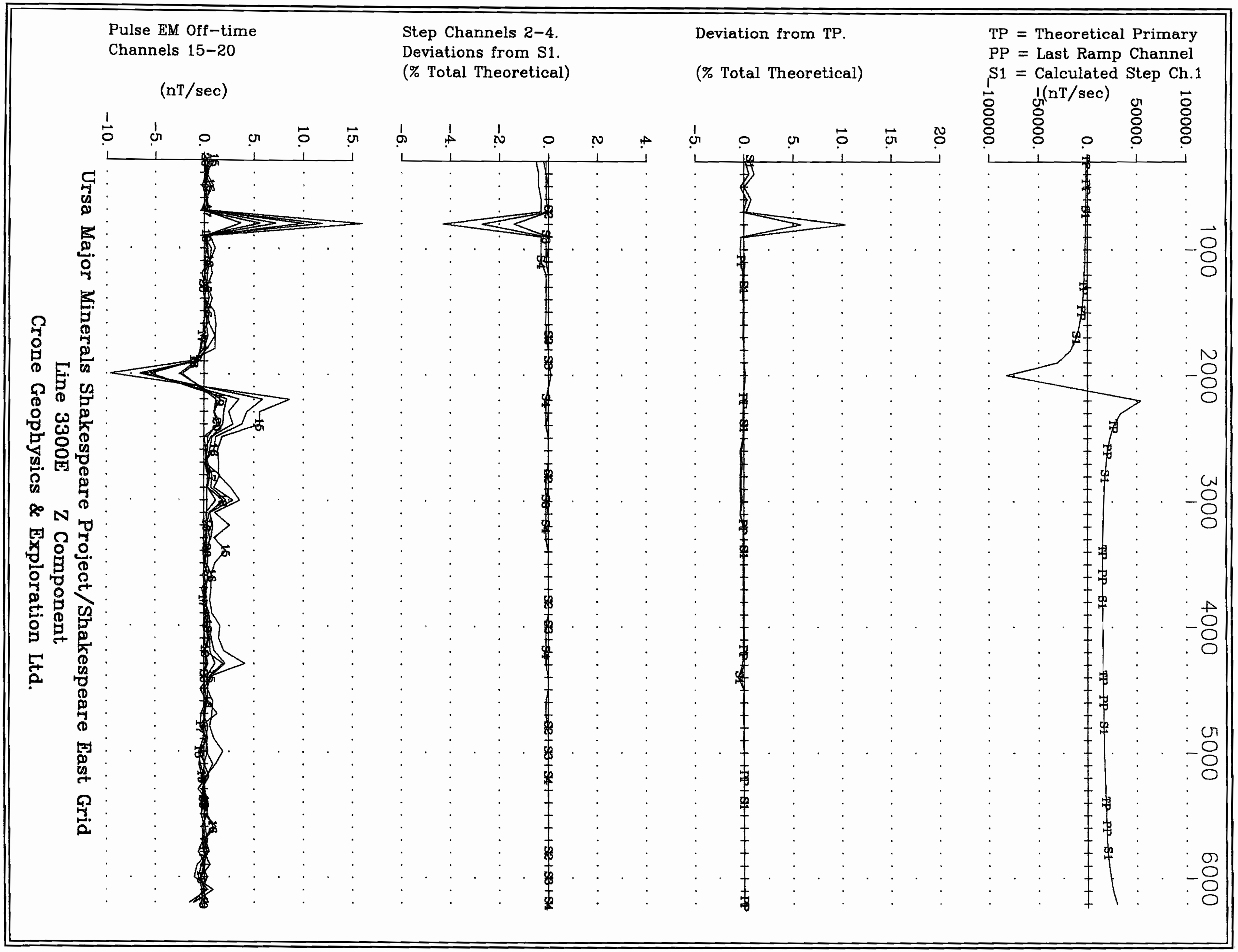

TP = Theoretical Primary
PP = Last Ramp Channel
S1 = Calculated Step Ch.1
(nT/sec)
Deviation from TP.
(% Total Theoretical)
Step Channels 2–4.
Deviations from S1.
(% Total Theoretical)
Pulse EM Off–time
Channels 15–20
(nT/sec)
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 2500E X 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)
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 2500E Z Component
Crone Geophysics & Exploration Ltd.



Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
Line 3300E 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)
1000
2000
3000
4000
5000
6000
Ursa Major Minerals Shakespeare Project/Shakespeare East Grid
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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
covering
Surface Pulse EM Surveys
over the
Shakespeare Property
for
Ursa Major Minerals Incorporated.
during
March, 2005'

including;

Fig.1:Crone March 2005 EM Survey Survey Key Map.

Fig.2:Crone March 2005 EM Survey Location Map

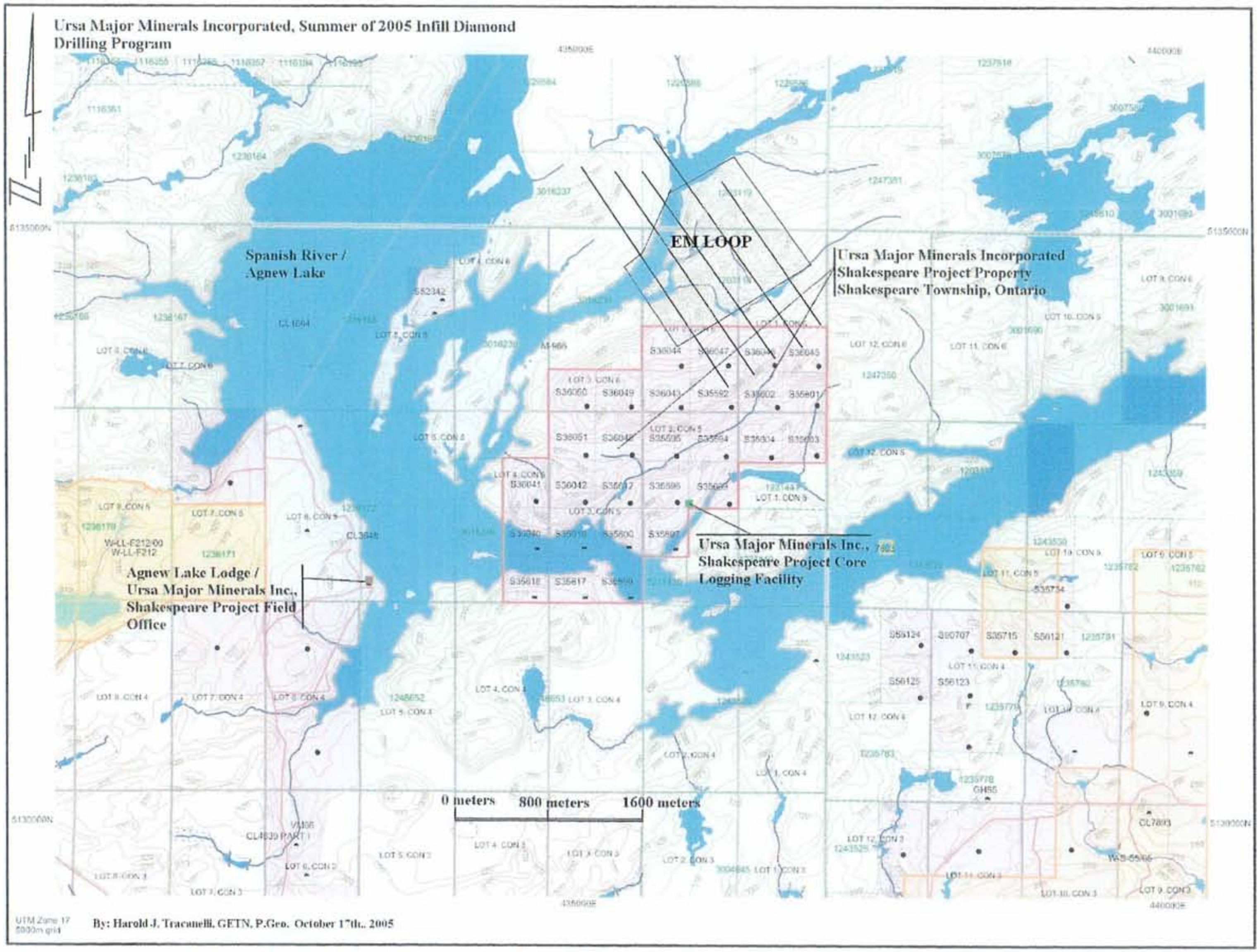

Fig. 1:Crone March 2005 EM Survey Key Map

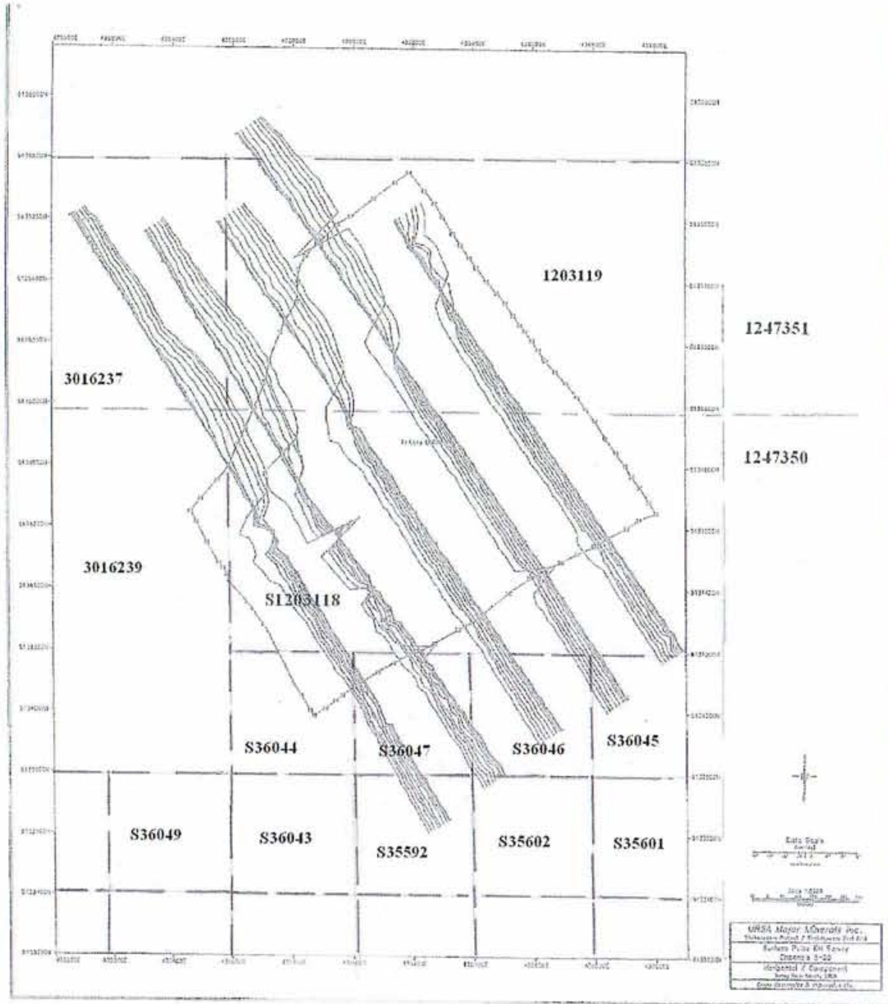

Fig. 2: Crone Pulse EM Survey Location Map