

GM 61452

GEOPHYSICAL SURVEY REPORT COVERING 3D BOREHOLE PULSE EM SURVEYS OVER ZONE 2, RAGLAN PROPERTY

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Énergie et Ressources
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Québec 

Geophysical Survey Report

covering

3D Borehole Pulse EM Surveys

over

Zone 2

Raglan Property

for

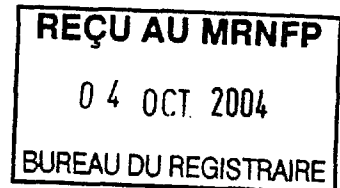
Falconbridge Ltd.

during

May - August of 2003

by

CRONE GEOPHYSICS & EXPLORATION LTD.



Survey Area:	Ungava Peninsula, Quebec Raglan Property
Survey Type:	3D Borehole Pulse EM Survey
Survey Operator:	Dan Brazeau, Matt Holden, Ryan Kilty, Tom Myers, Sheldon Pittman, Robert Small
Holes Surveyed:	718-1761, 718-1762, 718-1763, 718-1764, 718-1765, 718-1766, 718-1767, 718-1768, 718-1769, 718-1770, 718-1771, 718-1772, 718-1773, 718-1774, 718-1775, 718-1776, 718-1777, 718-1778, 718-1779, 718-1780, 718-1791, 718-1792, 718-1793, 718-1836, 718-1837, 718-1838, 718-1839, 718-1841, 718-1842
Survey Period:	May 27th – August 26th, 2003
Report By:	Conrad Dix
Report Date:	December 2003
Submitted To:	Falconbridge Ltd. Laval, Quebec

MRNF-GÉOINFORMATION 2005

GM 61452

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1. INTRODUCTION

Crone Geophysics & Exploration Limited was contracted by Falconbridge Ltd. to conduct 3D Borehole Pulse Electromagnetic surveys on its Raglan (Zone 2) Property in Northern Quebec. This report summarizes the geophysical work carried out in Zone 2 in which a total of 29 holes were surveyed during the survey period between May - August 2003.

In most cases the borehole surveys utilized a single 400 x 400m or 600 x 600m collar loop which in some cases was used for more than one hole if the loop layout model fit for all the holes inside the loop. Each hole would be surveyed with the Crone 3-D borehole system acquiring XYZ component data as well as IFG physical rock property information.

The appendices to this report contain plan and section maps, linear (5-axis) Pulse EM data profiles, Lin-Log PEM profiles, step response profiles and Crone Instrument Specifications for the Borehole and Surface equipment.

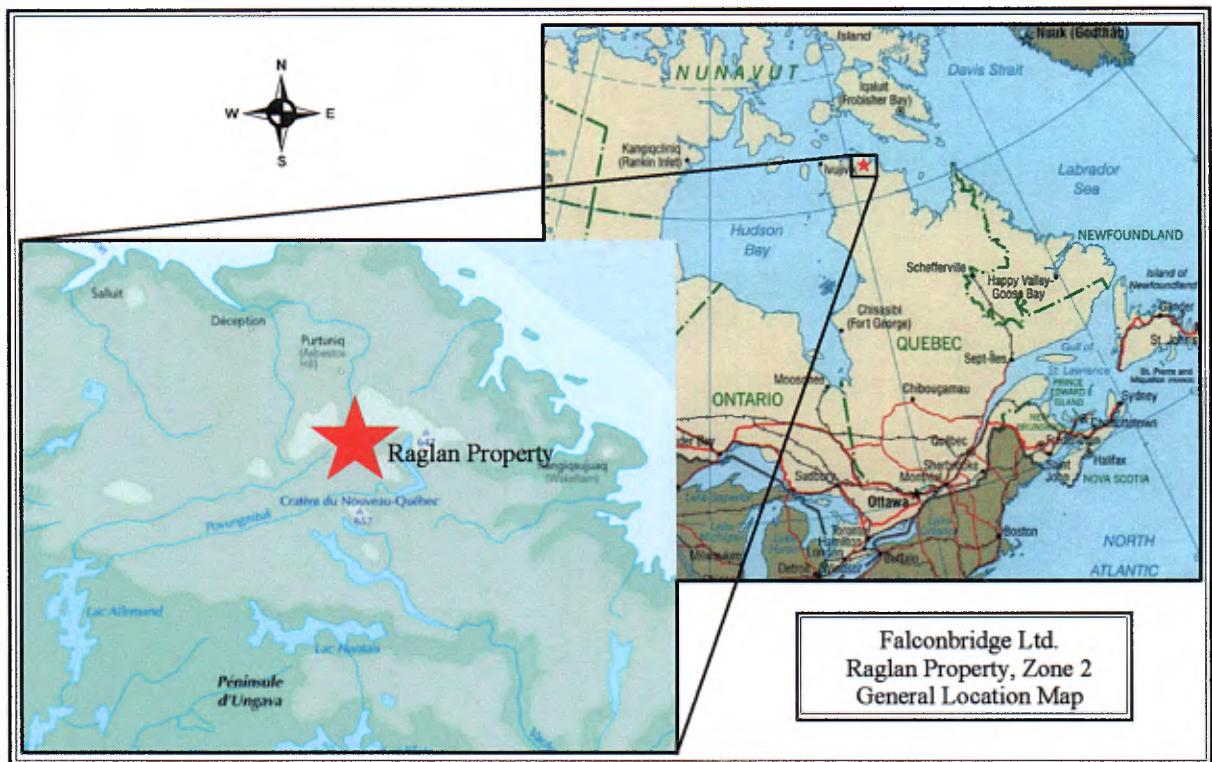


Figure 1: General Location Map

2. **Personnel**

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

Survey Operators: Dan Brazeau, Matt Holden, Ryan Kilty,
Tom Myers, Sheldon Pittman, Robert Small
Data Processing: Conrad Dix, Henry Odwar
Final Report: Conrad Dix

3. **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 system. This includes a 2.4kW transmitter with a 120V voltage regulator powered by a 4.5hp motor generator. The Crone Digital Receiver was used to collect the field data. The synchronization between the Transmitter and the Receiver was maintained by direct cable synchronization.

On this project, a 3D Borehole Pulse EM survey was conducted in which an axial component (Z) probe and 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. Along with the 3D Borehole Pulse EM survey an IFG Borehole Physical Rock Properties survey was conducted on the Raglan Property. The IFG Physical Rock Properties survey measured Inductive Conductivity, Magnetic Susceptibility and Natural Gamma (K, U, Th and Total Count).



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.

For most of the borehole survey period there was a Crone crew of 2 operators and 2 helpers, one data processor as well as 2 persons to lay loops. There were two full borehole systems on site that made it possible to survey two holes at the same time if there was suitable distance between the two holes that the fields generated by each loop would not interfere with the two surveys that were being conducted. There was also a third full system on site that was used for back up in case the Crone crew had any problems with the equipment they were using. The third system on site was a great help to the Crone survey crews as well to Falconbridge Ltd. since it greatly reduced down time due to minor equipment problems.

Each operator was responsible for filling a daily log detailing tasks performed. Prior to surveying a hole, a geologist would give the operator instructions on paper informing the individual which hole was to be surveyed, number of sections the hole would be surveyed in and the location of any blocky or faulted sections in the hole. The daily log also included equipment test measurements taken prior and during the borehole survey. The log was then forwarded to Falconbridge personnel on site. This procedure enabled smooth interaction between Crone crew and Falconbridge personnel.

In areas where the ground was blocky or where a borehole went through faults or dykes, the Crone survey crews would be asked to survey the holes in more than one section (up to 4 sections in some cases). This would result in the crew passing survey probes through the drill bit. This method of surveying is not encouraged but due to the circumstances and the importance of data, this method was used.

The Crone crew stayed at the Donaldson Camp, which was located on the Raglan Property. All the survey areas were accessed by use of truck, ATV, or Unimog, all supplied by Falconbridge. The Crone crew would do routine checks and minor maintenance on all trucks and ATV's. The Crone crew was supplied a semi-heated shop for which to store equipment and to do general repairs and routine check up on all of the Crone equipment.

Due to the remote location of the Raglan property, weather conditions were always a concern. If the equipment had been damaged because of rain or thunderstorms the crew would have been down for at least a few days because the only way to get equipment in or out was by plane. In most cases the spare equipment would correct the problems but in some cases new equipment would have to be shipped in. The general weather conditions did not cause problems to production for the borehole surveys as most of the time the crew was in the shelter of a drill and the Transmitter was sheltered as well.



In addition to measuring the standard Primary Pulse channel on the ramp and the 20 off-time channels, the Step Response was also calculated. Since this requires accurate geometrical control, the loop position was determined by GPS and the hole geometry was determined with the gyroscopic survey provided by Falconbridge Ltd. The number of GPS points used for the loop was dependent on the topography of the area. The Gyro readings (as supplied to Crone) were generally taken every 15 meters. This Gyro data was then processed by Crone to produce a smoothly segmented hole. The Crone Step Response transformation was then performed on the data.

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

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	1.091e-02	1.440e-02			



4. Survey Parameters

Table II: Borehole Survey Coverage

Drill Hole No.	TX Loop	Collar location (UTM)	Dip (Degrees)	Azimuth (Degrees)	Actual Depth (m)	Length Surveyed (m)	Component Measured	IFG Surveyed
718-1761	1761	567450E, 6837921N, 1548m	-63.5°	180°	304	30 – 300	X, Y, Z	Yes
718-1762	1762	567363E, 6837867N, 1558m	-59°	180°	239	30 – 235	X, Y, Z	Yes
718-1763	1763	567525E, 6837999N, 1547m	-64°	180°	251	60 – 245	X, Y, Z	Yes
718-1764	1764	566774E, 6837652N, 1592m	-65°	180°	272	35 – 270	X, Y, Z	Yes
718-1765	1764	566865E, 6837675N, 1593m	-69°	180°	281	40 – 280	X, Y, Z	Yes
718-1766	1766	566898E, 6837574N, 1588m	-58°	180°	182	10 – 178	X, Y, Z	Yes
718-1767	1767	567200E, 6837683N, 1582m	-51°	180°	185	30 – 180	X, Y, Z	Yes
718-1768	1768	567450E, 6838152N, 1579m	-64°	180°	488	40 – 480	X, Y, Z	Yes
718-1769	1769	566687E, 6837740N, 1592m	-76°	180°	569	40 – 575	X, Y, Z	Yes
718-1770	1770	567625E, 6838310N, 1578m	-68°	180°	449	30 – 440	X, Y, Z	No, XY stuck in hole.
718-1771	1771	566913E, 6837913N, 1592m	-69.5°	180°	458	30 – 450	X, Y, Z	Yes
718-1772	1772	566938E, 6837828N, 1596m	-66.5°	180°	389	30 – 385	X, Y, Z	Yes
718-1773	1773	567025E, 6837892N, 1596m	-71	180°	479	30 – 475	X, Y, Z	Yes
718-1774	1773	567100E, 6837918N, 1594m	-76°	180°	485	40 – 480	X, Y, Z	Yes
718-1775	1775	566975E, 6838001N, 1588m	-72°	180°	530	70 – 530	X, Y, Z	Yes
718-1776 16.66ms	1775	566788E, 6837937N, 1586m	-73°	180°	593	45 – 590	X, Y, Z	No, Hole Froze.
718-1776 150ms	1775	566788E, 6837937N, 1586m	-73°	180°	593	45 – 590	X, Y, Z	No, Hole Froze.
718-1777	1777	567274E, 6838141N, 1583m	-69°	180°	584	60 – 580	X, Y, Z	Yes
718-1778	1778	567058E, 6837919N, 1594m	-73	180°	491	30 – 490	X, Y, Z	Yes
718-1779	1779	566963E, 6837913N, 1594m	-76	180°	479	30 – 475	X, Y, Z	Yes
718-1780	1780	567130E, 6837939N, 1594m	-76°	180°	494	200 – 485	X, Y, Z	Yes
718-1791	1791	567070E, 6837506N, 1562m	-50°	180°	217	20 – 215	X, Y, Z	Yes
718-1792	1792	567162E, 6837537N, 1561m	-63°	180°	161	30 – 160	X, Y, Z	Yes



Table II: Borehole Survey Coverage, Continued

Drill Hole No.	TX Loop	Collar location (UTM)	Dip (Degrees)	Azimuth (Degrees)	Actual Depth (m)	Length Surveyed (m)	Component Measured	IFG Surveyed
718-1793	1793	567250E, 6837770N, 1581m	-50°	165°	200	20 – 200	X, Y, Z	Yes
718-1836	1836	567175E, 6837681N, 1583m	-53°	180°	181	15 – 180	X, Y, Z	Yes
718-1837	1836	567225E, 6837665N, 1572m	-59°	180°	125	10 – 125	X, Y, Z	Yes
718-1838	1838	567100E, 6837920N, 1594m	-81°	180°	533	30 – 525	X, Y, Z	Yes
718-1839	1839	566882E, 6837862N, 1593m	-66°	180°	401	50 – 400	X, Y, Z	Yes
718-1841	1841	566910E, 6837848N, 1595m	-70°	180°	407	30 – 405	X, Y, Z	Yes
718-1842	1842	567500E, 6838313N, 1583m	-68°	180°	545	30 – 545	X, Y, Z	Yes

Table III: Borehole Transmitter Loop Coverage

TX Loop	Size (m)	Loop Corners (Approximate)	Ramp Time (ms)	Current (Amps)	Time Base (ms)	Channel Version
1761	400 x 400	567238E, 6838231N, 567210E, 6837845N, 567548E, 6837892N, 567604E, 6838356N	1.5	12	16.66	1
1762	450 x 500	567237E, 6838230N, 567236E, 6837748N, 567455E, 6837738N, 567565E, 6837834N, 567604E, 6838356N	1.5	12	16.66	1
1763	500 x 500	567237E, 6838231N, 567237E, 6837749N, 567475E, 6837744N, 567628E, 6837836N, 567655E, 6838334N	1.5	12	16.66	1
1764	600 x 600	566635E, 6838228N, 566630E, 6837491N, 567225E, 6837577N, 567236E, 6838232N	1.5	12	16.66	1
1766	600 x 650	566605E, 6837964N, 566670E, 6837256N, 567225E, 6837404N, 567210E, 6837987N	1.5	12	16.66	1
1767	300 x 300	567116E, 6837896N, 567070E, 6837609N, 567368E, 6837604N, 567391E, 6837882N	1.5	12	16.66	1
1768	400 x 400	567199E, 6837442N, 567200E, 6838052N, 567597E, 6838050N, 567603E, 6838442N	1.5	12	16.66	1



Table III: Borehole Transmitter Loop Coverage, Continued

TX Loop	Size (m)	Loop Corners (Approximate)	Ramp Time (ms)	Current (Amps)	Time Base (ms)	Channel Version
1769	400 x 400	566448E, 6837931N, 566450E, 6837621N, 566828E, 6837647N, 566792E, 6837926N	1.5	12	16.66	1
1770	400 x 400	567373E, 6838563N, 567376E, 6838207N, 567783E, 6838215N, 567767E, 6838596N	1.5	12	16.66	1
1771	400 x 400	566836E, 6838234N, 566813E, 6837834N, 567210E, 6837845N, 567238E, 6838231N	1.5	12	16.66	1
1772	400 x 400	566836E, 6838236N, 566854E, 6837730N, 567231E, 6837753N, 567236E, 6838230N	1.5	12	16.66	1
1773	600 x 400	566636E, 6838229N, 566581E, 6837832N, 567208E, 6837846N, 567236E, 6838232N	1.5	12	16.66	1
1775	600 x 400	566635E, 6838265N, 566594E, 6837795N, 566742E, 6837816N, 566929E, 6837916N, 567197E, 6837904N, 567237E, 6838289N	1.5	12	16.66	1
1775	600 x 400	566635E, 6838265N, 566594E, 6837795N, 566742E, 6837816N, 566929E, 6837916N, 567197E, 6837904N, 567237E, 6838289N	1.5	14	150	1
1777	400 x 400	567103E, 6838403N, 567110E, 6838021N, 567422E, 6838044N, 567425E, 6838439N	1.5	12	16.66	1
1778	400 x 400	566949E, 6838194N, 566957E, 6837795N, 567305E, 6837810N, 567340E, 6838203N	1.5	12	16.66	1
1779	400 x 400	566851E, 6838209N, 566892E, 6837792N, 567305E, 6837809N, 567341E, 6838203N	1.5	12	16.66	1
1780	400 x 400	566851E, 6838209N, 566892E, 6837792N, 567305E, 6837809N, 567333E, 6838209N	1.5	12	16.66	1
1791	800 x 800	566598E, 6837992N, 566595E, 6837234N, 567194E, 6837247N, 567205E, 6837986N	1.5	12	16.66	1



Table III: Borehole Transmitter Loop Coverage, Continued

1792	400 x 400	566598E, 6837993N, 566596E, 6837235N, 567300E, 6837246N, 567300E, 6837995N	1.5	12	16.66	1
1793	400 x 400	567096E, 6838007N, 567099E, 6837630N, 567447E, 6837707N, 567451E, 6838070N	1.5	12	16.66	1
1836	400 x 400	567014E, 6837938N, 567019E, 6837582N, 567409E, 6837586N, 567421E, 6837955N	1.5	12	16.66	1
1838	400 x 400	566826E, 6838191N, 566831E, 6837791N, 567224E, 6837789N, 567222E, 6838187N	1.5	12	16.66	1
1839	400 x 400	566784E, 6838156N, 566785E, 6837758N, 567177E, 6837748N, 567177E, 6838158N	1.5	12	16.66	1
1841	400 x 400	566807E, 6838188N, 566803E, 6837766N, 567191E, 6837758N, 567200E, 6838194N	1.5	12	16.66	1
1842	400 x 400	567206E, 6838592N, 567199E, 6838195N, 567595E, 6838192N, 567608E, 6838585N	1.5	12	16.66	1

5. DATA PRESENTATION

The data has been presented in the form of PEM lin-log profiles, linear profile plots and step response profile plots, plan maps and primary field section maps have been generated for the borehole surveys.



6. PRODUCTION SUMMARY

Table VI: *Production Summary*

Date	Activity	Description
May 27 th , 2003	Survey	Tom Myers surveyed hole 718-1761.
May 29 th	Survey	Tom Myers surveyed hole 718-1771.
May 30 th	Survey	Tom Myers surveyed hole 718-1762.
June 1 st	Survey	Tom Myers surveyed hole 718-1763.
June 2 nd	Survey	Tom Myers surveyed hole 718-1772.
June 4 th	Survey	Tom Myers surveyed hole 718-1764.
June 6 th	Survey	Tom Myers surveyed hole 718-1765.
June 7 th	Survey	Dan Brazeau surveyed hole 718-1773.
June 8 th	Survey	Ryan Kilty surveyed hole 718-1766.
June 10 th	Survey	Tom Myers surveyed hole 718-1767.
June 13 th	Survey	Dan Brazeau surveyed hole 718-1774. The IFG data was only collected on the way up because the system malfunctioned on the way down the hole.
June 15 th	Survey	Tom Myers surveyed hole 718-1768.
June 20 th	Survey	Sheldon Pittman surveyed hole 718-1775.
June 25 th	Survey	Sheldon Pittman surveyed hole 718-1769.
June 29 th	Survey	Dan Brazeau surveyed hole 718-1776. (16.66 ms Time Base)
June 30 th	Survey	Sheldon Pittman surveyed hole 718-1776. (150 ms Time Base)
July 2 nd	Survey	Matt Holden surveyed hole 718-1770. While surveying with the XY probe it became stuck in the hole. The probe was retrieved from the hole. No IFG was acquired.
July 5 th	Survey	Sheldon Pittman surveyed hole 718-1791. Zone from 85m – 110m not surveyed due to bad ground.
July 6 th	Survey	Sheldon Pittman surveyed hole 718-1792.
July 7 th	Survey	Sheldon Pittman surveyed hole 718-1777.
July 9 th	Survey	Robert Small surveyed hole 718-1793.
July 13 th	Survey	Matt Holden surveyed hole 718-1778.
July 19 th	Survey	Dan Brazeau surveyed hole 718-1779.
July 26 th	Survey	Dan Brazeau surveyed hole 718-1780.
July 31 st	Survey	Sheldon Pittman surveyed hole 718-1841.
August 7 th	Survey	Robert Small surveyed hole 718-1842.
August 10 th	Survey	Robert Small surveyed hole 718-1836.
August 11 th	Survey	Robert Small surveyed hole 718-1837.
August 20 th	Survey	Sheldon Pittman surveyed hole 718-1838.
August 26 th	Survey	Robert Small surveyed hole 718-1839.

Respectfully submitted,



Conrad Dix
Crone Geophysics & Exploration Ltd.
December 2003



Appendix A
Plan Map and Primary Field Sections



567100E 567200E 567300E 567400E 567500E 567600E
6838400N -

6838300N -

6838200N -

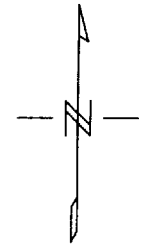
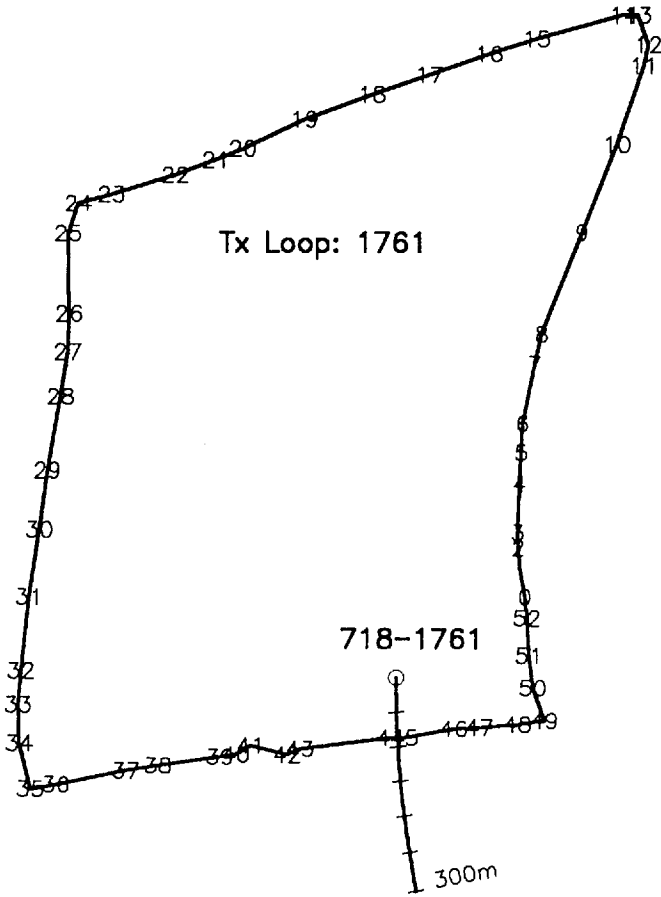
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6838000N -

6837900N -

6837800N -

6837700N -

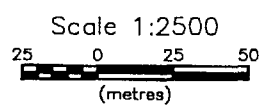
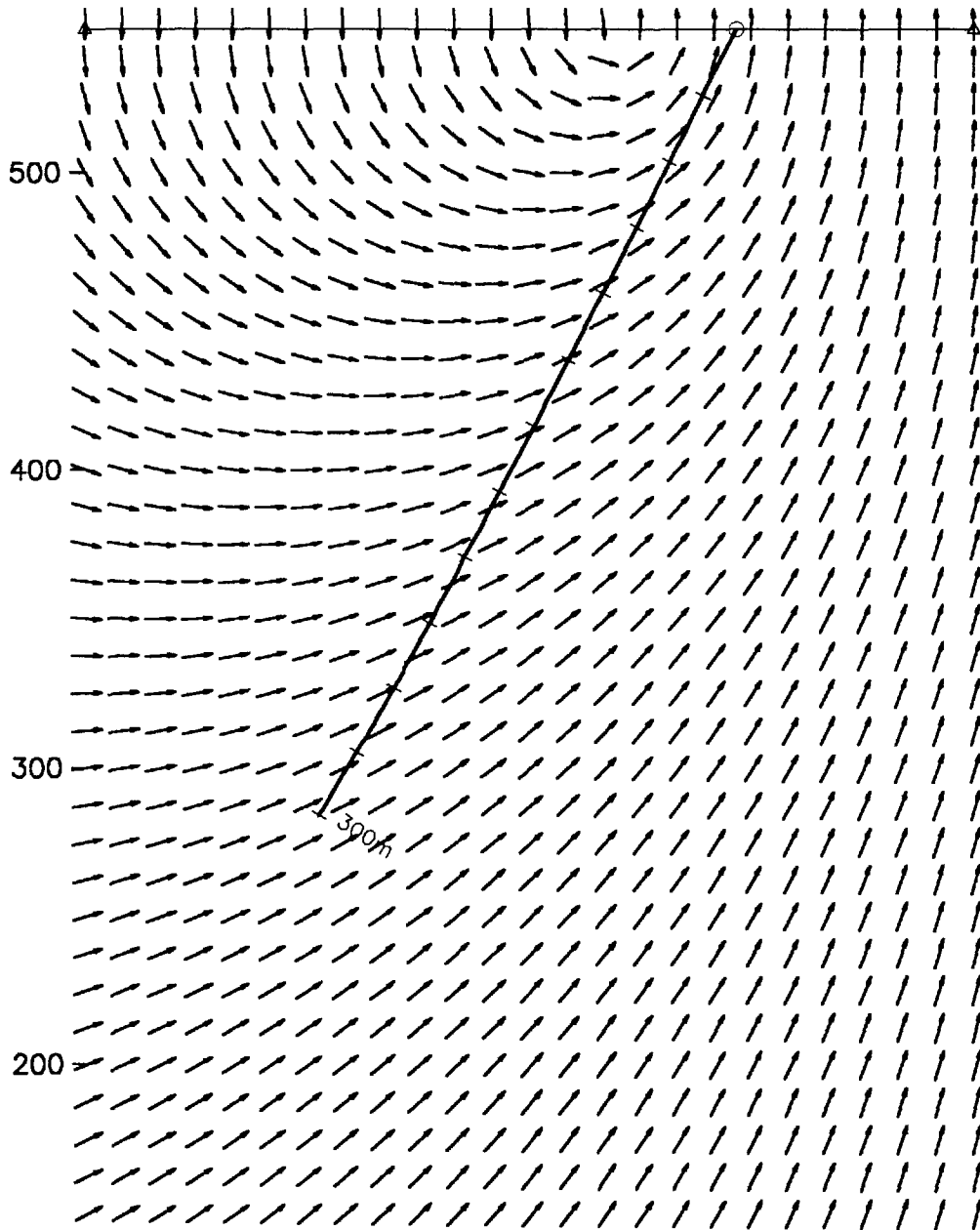


Scale 1:5000
50 0 50 100
(metres)

<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1761 Survey Date: May 27, 2003
Crone Geophysics & Exploration Ltd.

(567450.0 E, 6837700.0 N)

718-1761 (567450.0 E, 6838000.0 N)



<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Hole Section with Primary Field
Hole: 718-1761 Survey Date: May 27, 2003
Crone Geophysics & Exploration Ltd.

567100E 567200E 567300E 567400E 567500E 567600E
6838400N -

6838300N -

6838200N -

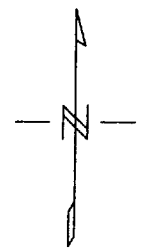
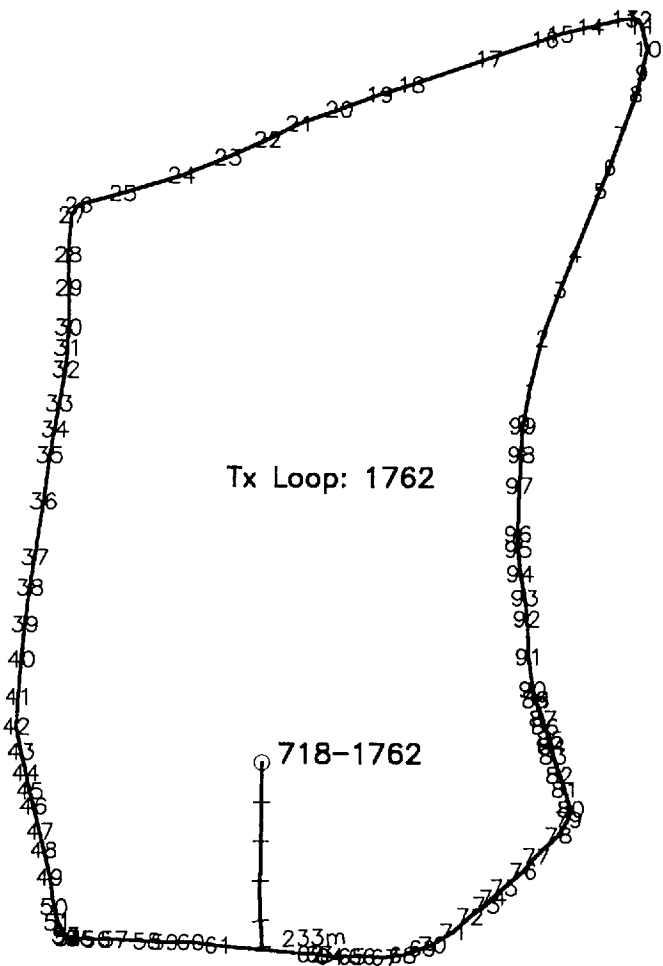
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6838000N -

6837900N -

6837800N -

6837700N -

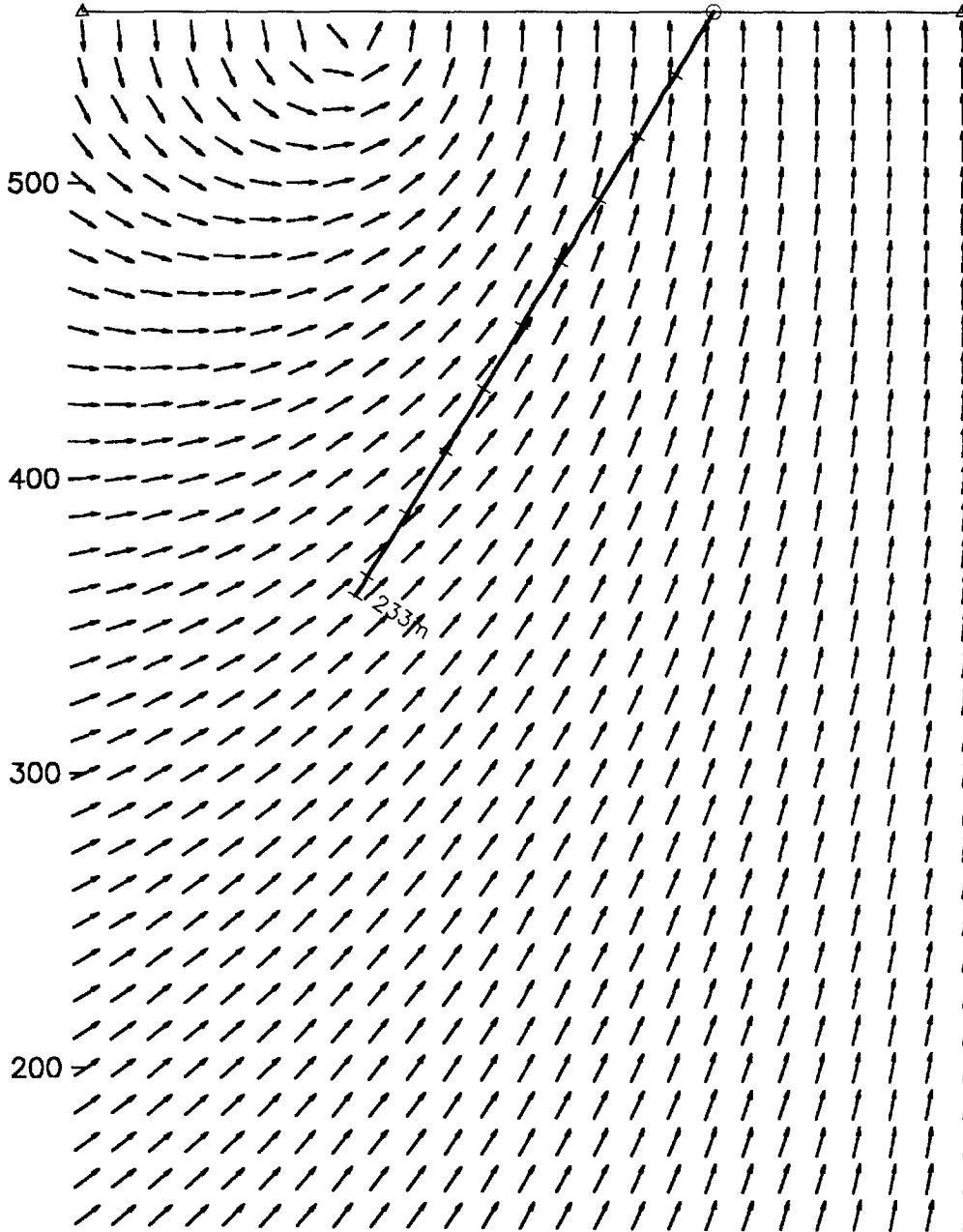


Scale 1:5000
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(metres)

<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1762 Survey Date: May 30, 2003
Crone Geophysics & Exploration Ltd.

(567350.0 E, 6837650.0 N)

718-1762 (567350.0 E, 6837950.0 N)



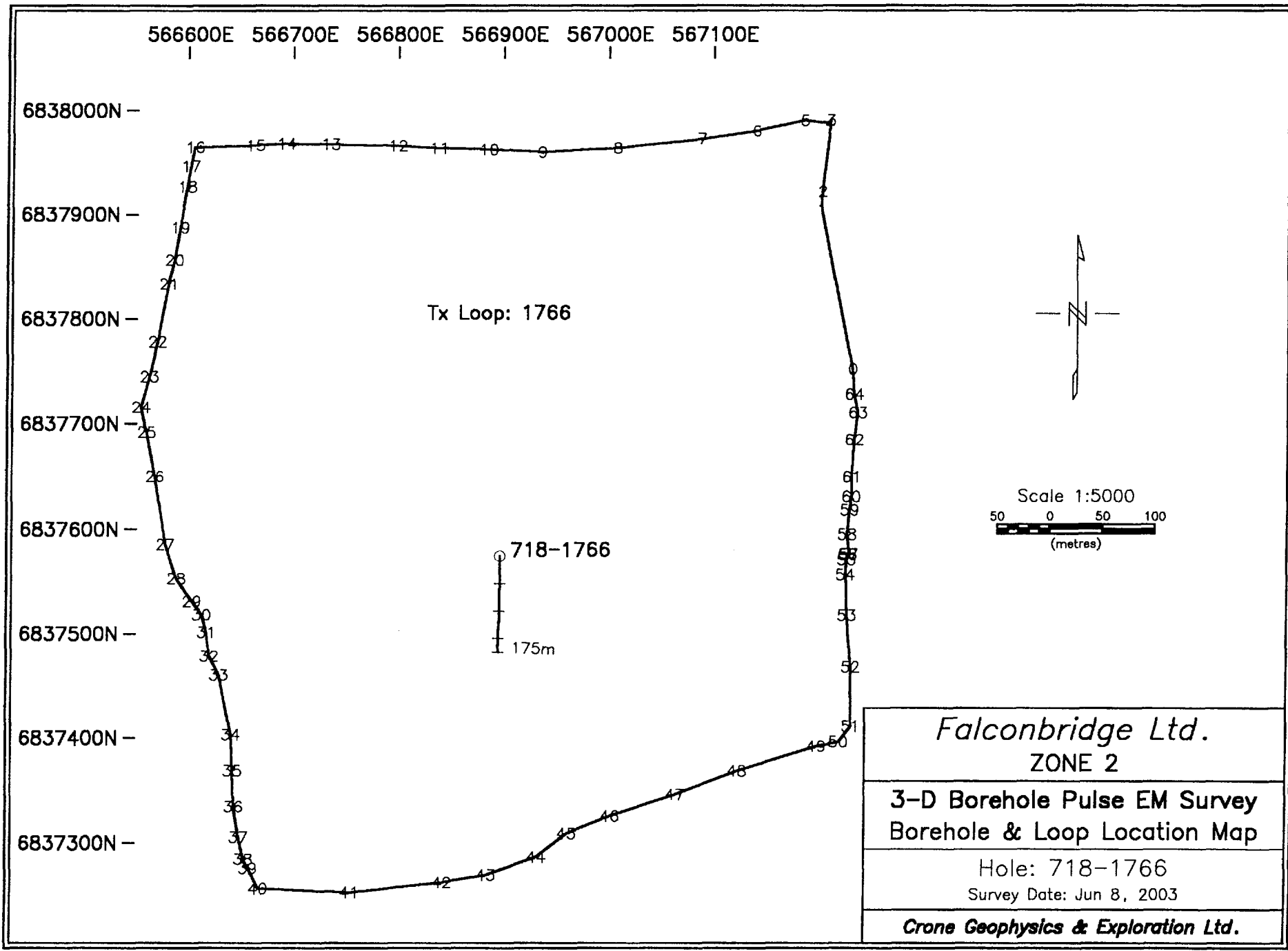
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(metres)

Falconbridge Ltd.
ZONE 2

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

Hole: 718-1762
Survey Date: May 30, 2003

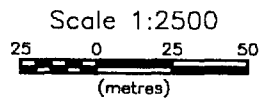
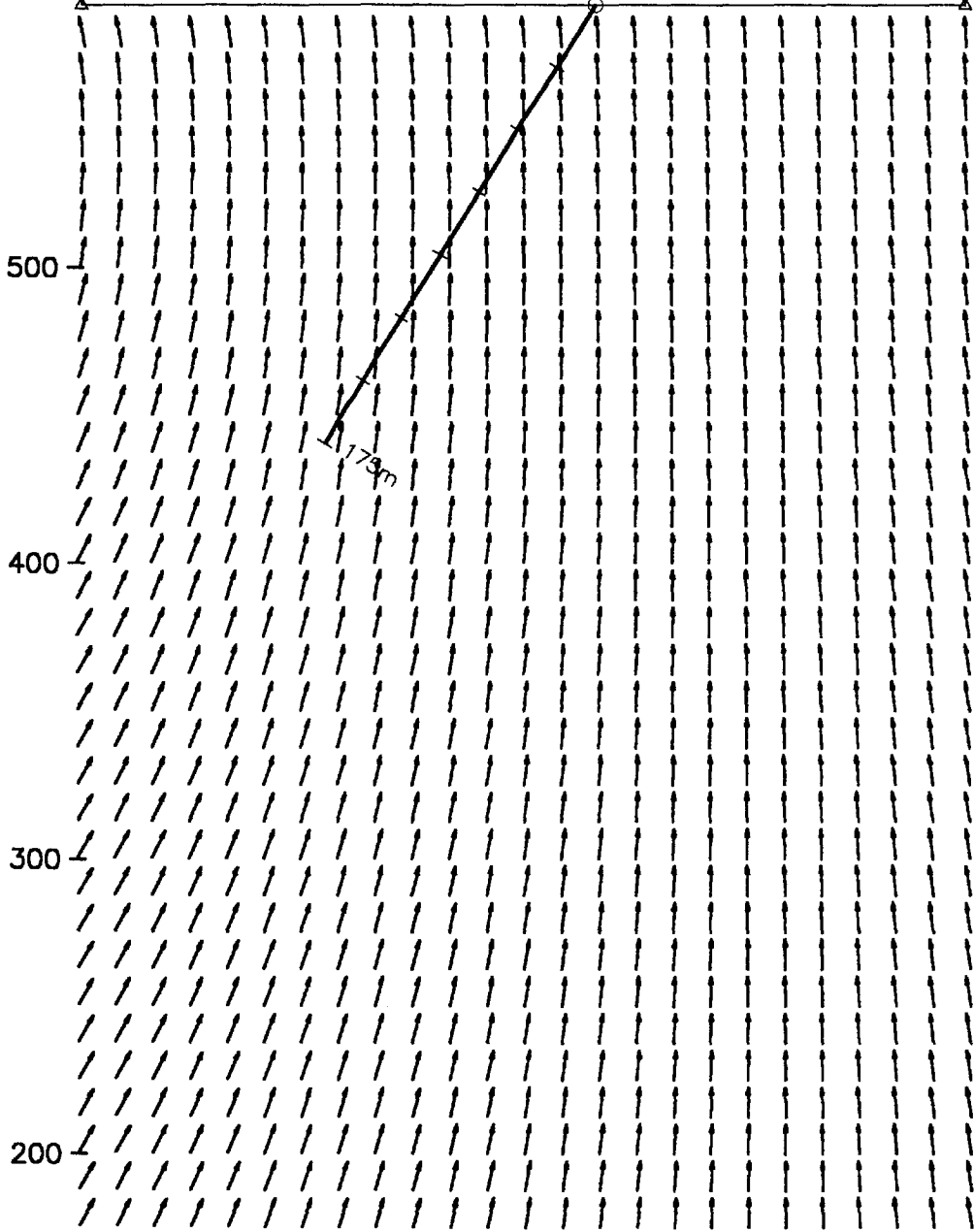
Crone Geophysics & Exploration Ltd.



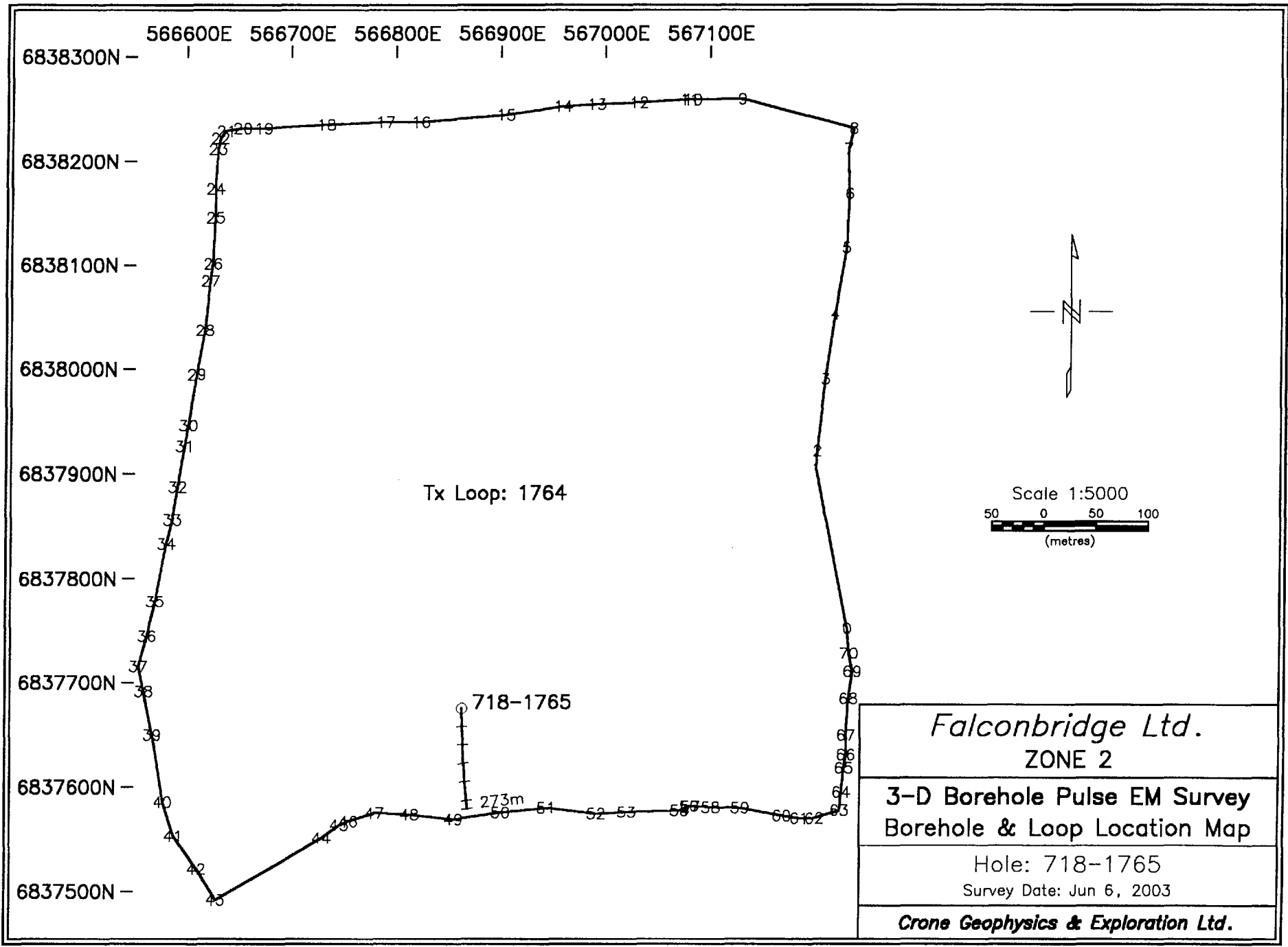
(566900.0 E, 6837400.0 N)

718-1766

(566900.0 E, 6837700.0 N)



<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Hole Section with Primary Field
Hole: 718-1766 Survey Date: Jun 8, 2003
Crone Geophysics & Exploration Ltd.

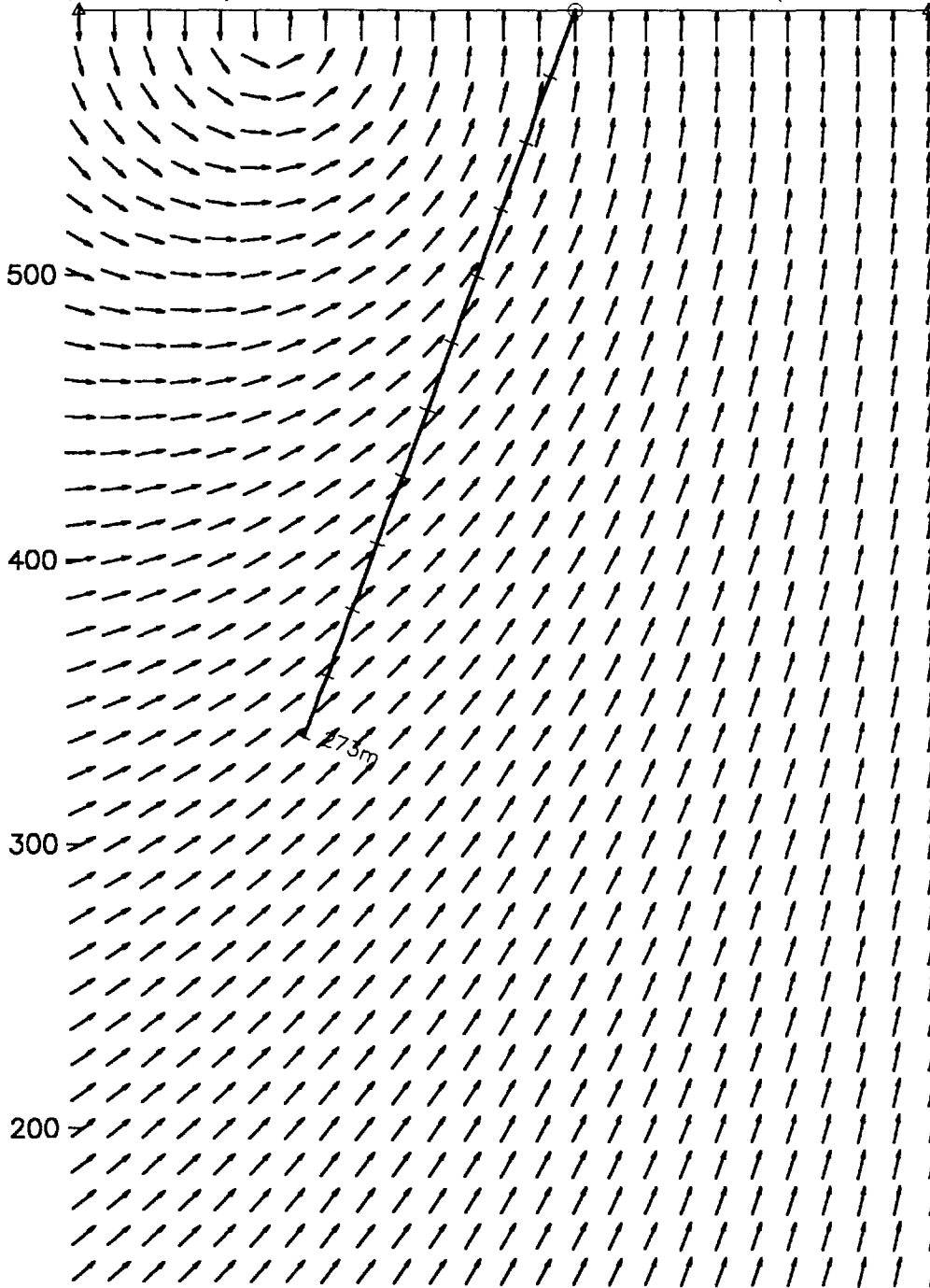


<i>Falconbridge Ltd.</i>
ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1765 Survey Date: Jun 6, 2003
Crone Geophysics & Exploration Ltd.

(566860.0 E, 6837500.0 N)

718-1765

(566860.0 E, 6837800.0 N)



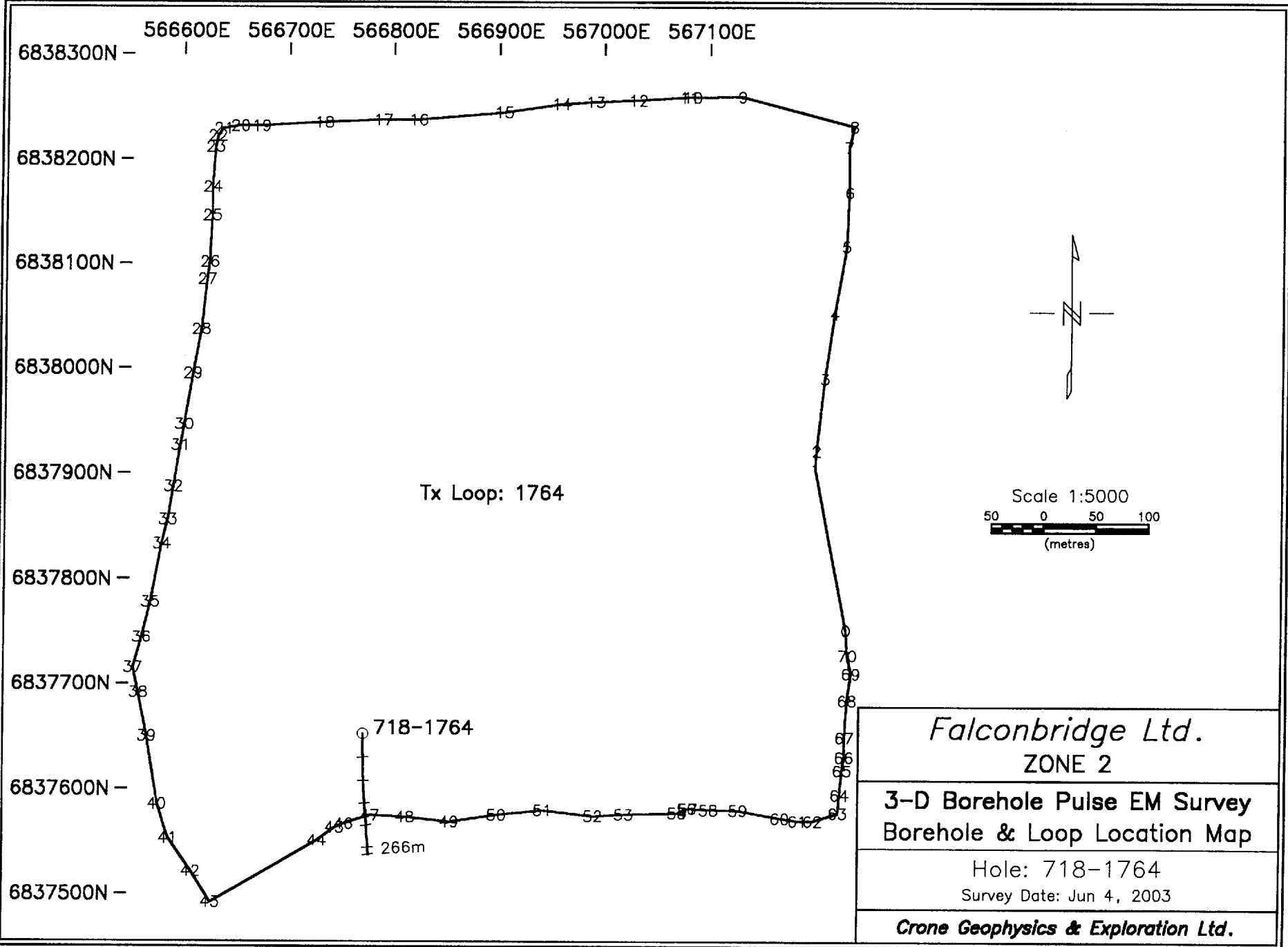
Scale 1:2500
25 0 25 50
(metres)

Falconbridge Ltd.
ZONE 2

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

Hole: 718-1765
Survey Date: Jun 6, 2003

Crone Geophysics & Exploration Ltd.



Tx Loop: 1764

718-1764

266m

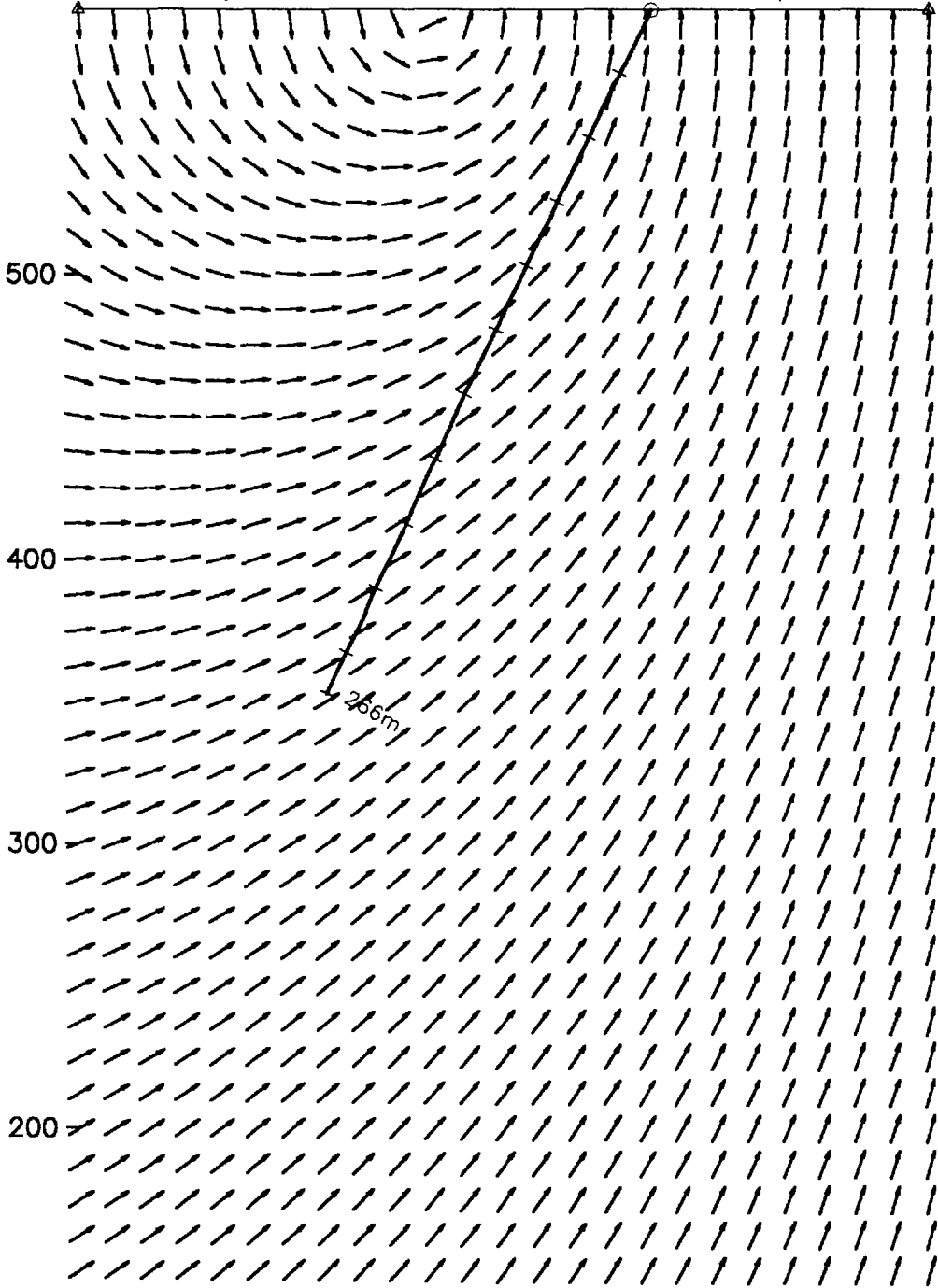
Scale 1:5000
50 0 50 100
(metres)

<i>Falconbridge Ltd.</i>
ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1764 Survey Date: Jun 4, 2003
Crone Geophysics & Exploration Ltd.

(566775.0 E, 6837450.0 N)

718-1764

(566775.0 E, 6837750.0 N)



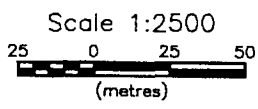
500

400

300

200

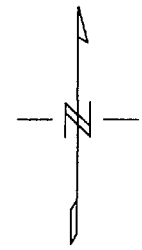
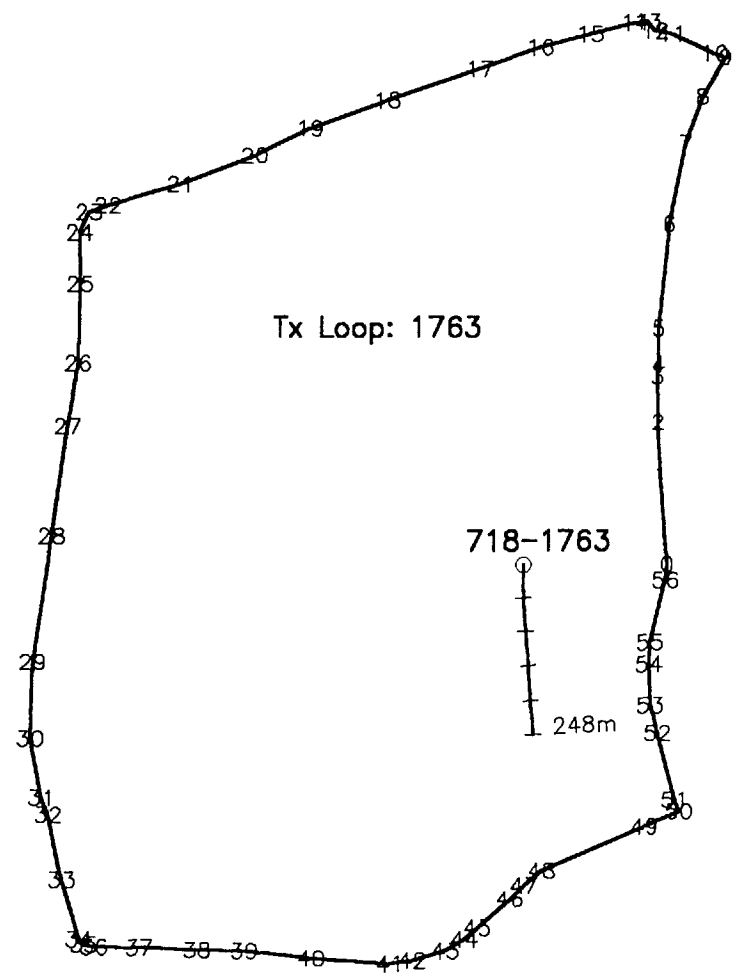
266m



<p><i>Falconbridge Ltd.</i> ZONE 2</p>
<p>3-D Borehole Pulse EM Survey Hole Section with Primary Field</p>
<p>Hole: 718-1764 Survey Date: Jun 4, 2003</p>
<p>Crone Geophysics & Exploration Ltd.</p>

567200E 567300E 567400E 567500E 567600E 567700E

6838400N -
6838300N -
6838200N -
6838100N -
6838000N -
6837900N -
6837800N -
6837700N -



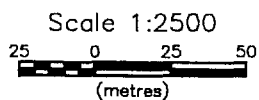
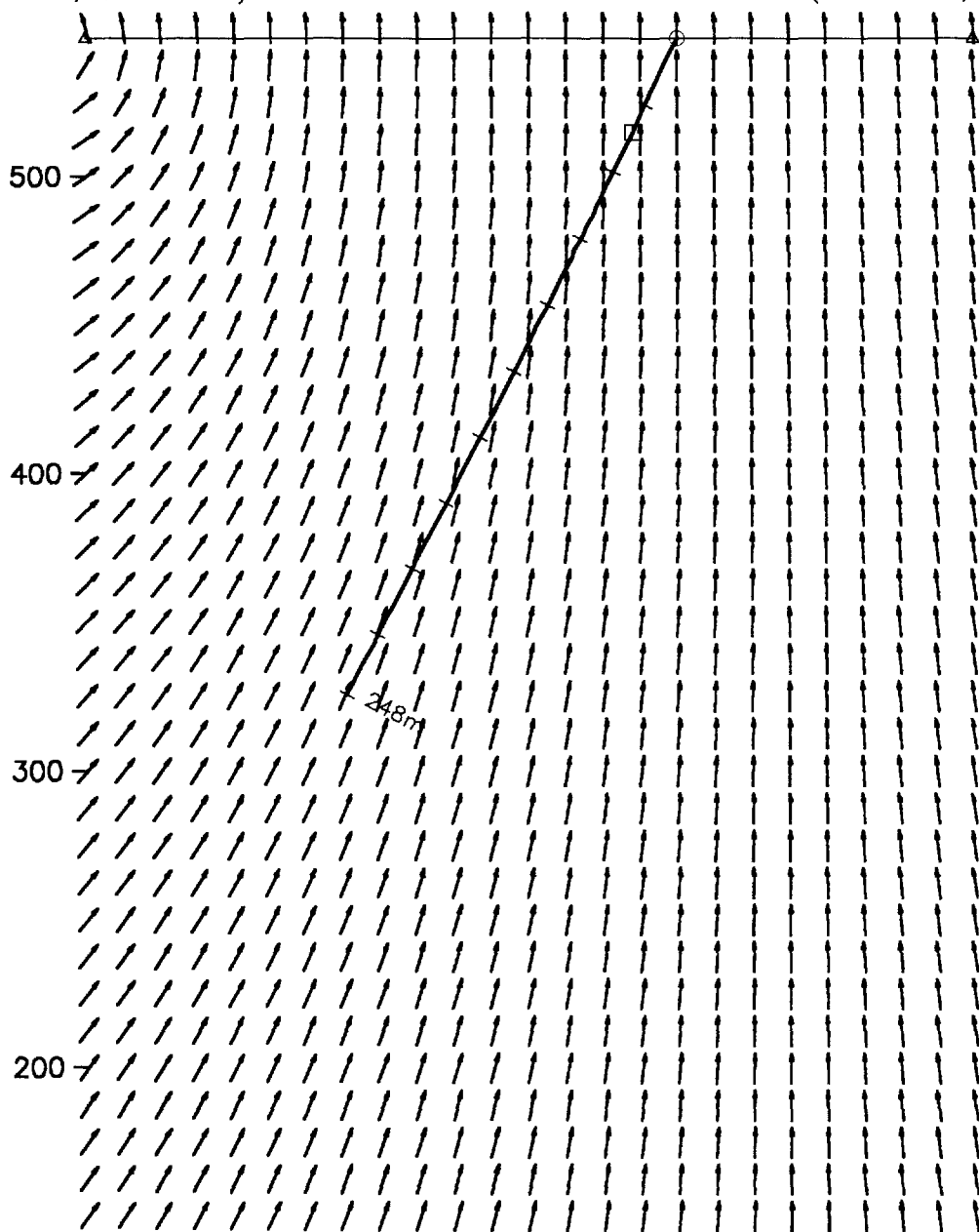
Scale 1:5000
50 0 50 100
(metres)

<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1763 Survey Date: Jun 1, 2003
Crone Geophysics & Exploration Ltd.

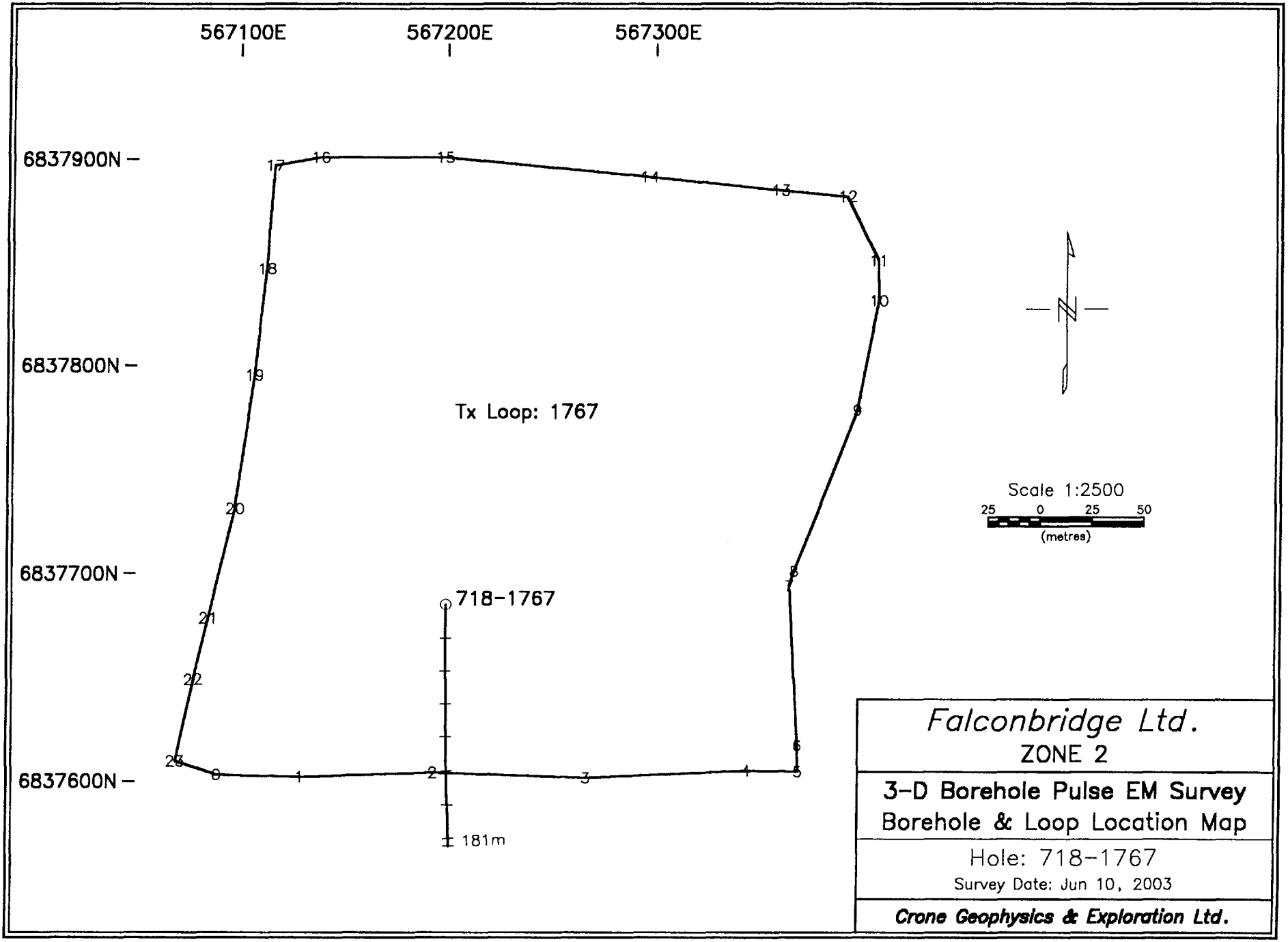
(567525.0 E, 6837800.0 N)

718-1763

(567525.0 E, 6838100.0 N)



<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Hole Section with Primary Field
Hole: 718-1763 Survey Date: Jun 1, 2003
Crone Geophysics & Exploration Ltd.



Falconbridge Ltd.
ZONE 2

**3-D Borehole Pulse EM Survey
Borehole & Loop Location Map**

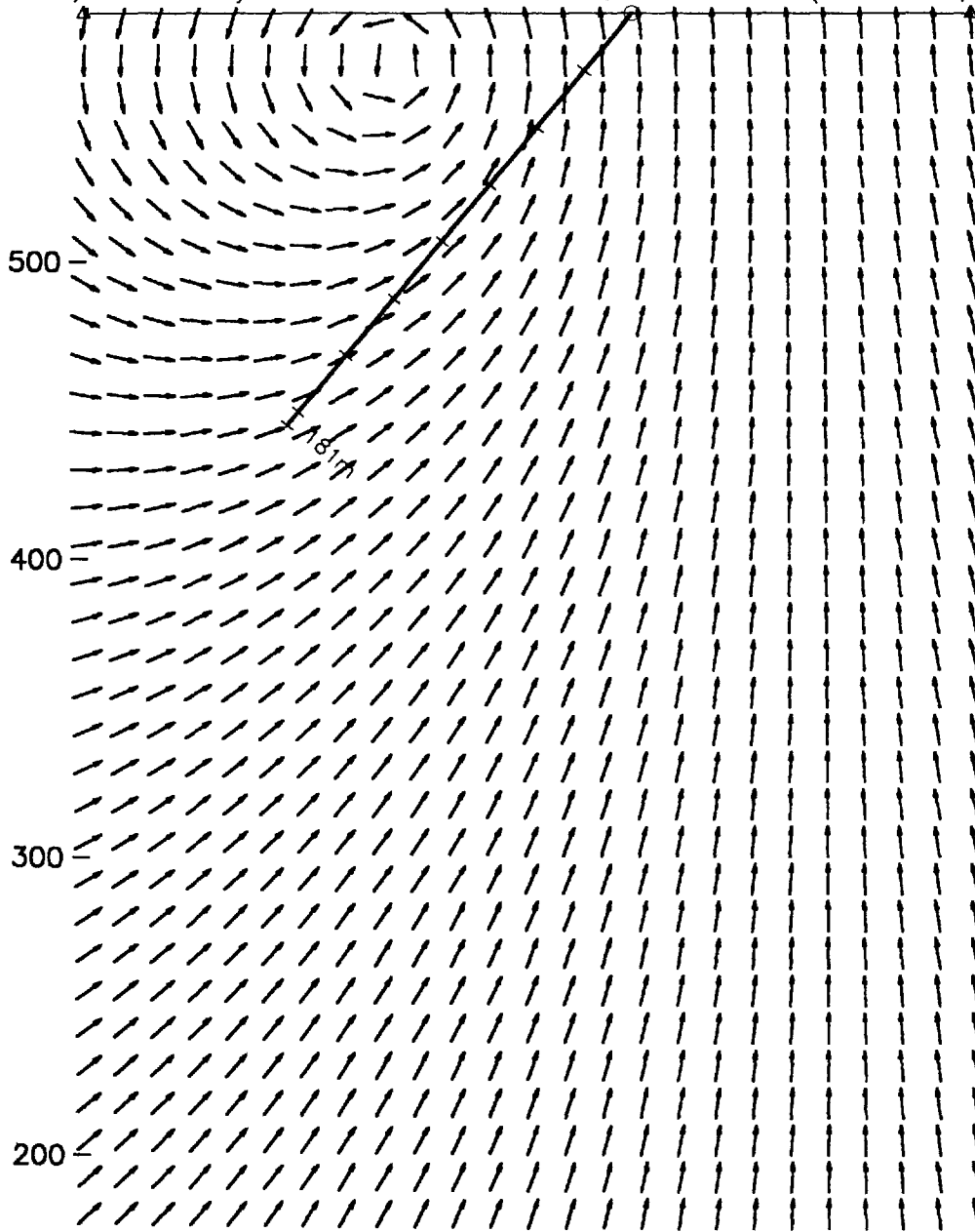
Hole: 718-1767
Survey Date: Jun 10, 2003

Crone Geophysics & Exploration Ltd.

(567200.0 E, 6837500.0 N)

718-1767

(567200.0 E, 6837800.0 N)



500

400

300

200

Scale 1:2500
25 0 25 50
(metres)

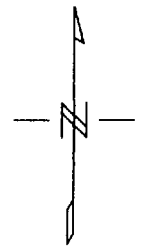
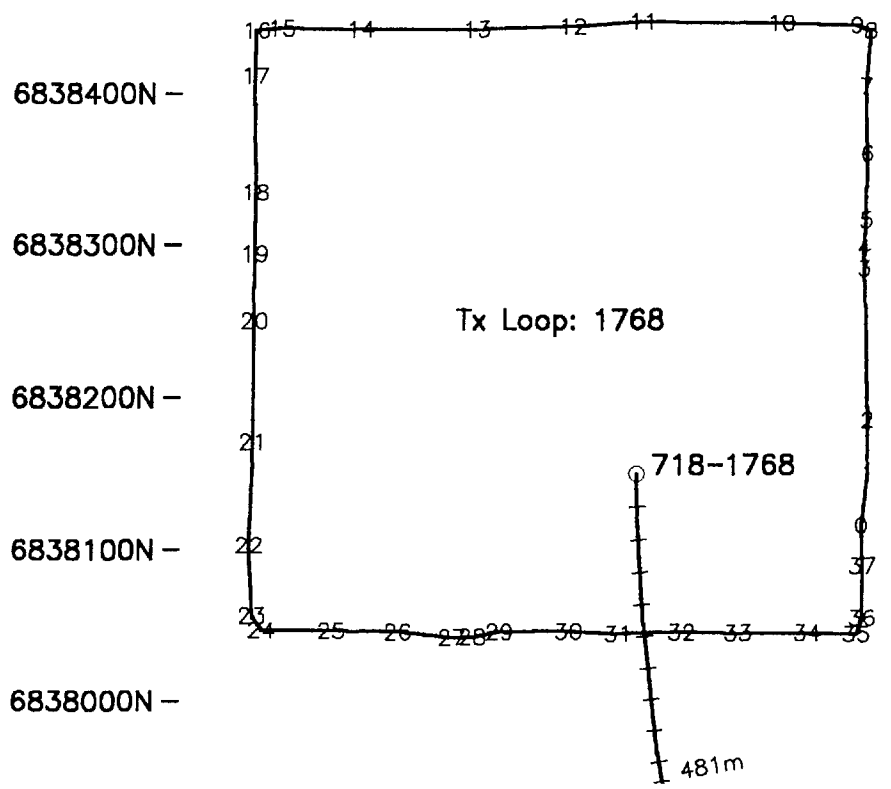
Falconbridge Ltd.
ZONE 2

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

Hole: 718-1767
Survey Date: Jun 10, 2003

Crone Geophysics & Exploration Ltd.

567200E 567300E 567400E 567500E 567600E 567700E
6838500N -



Scale 1:5000
50 0 50 100
(metres)

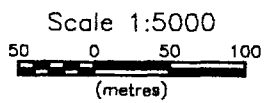
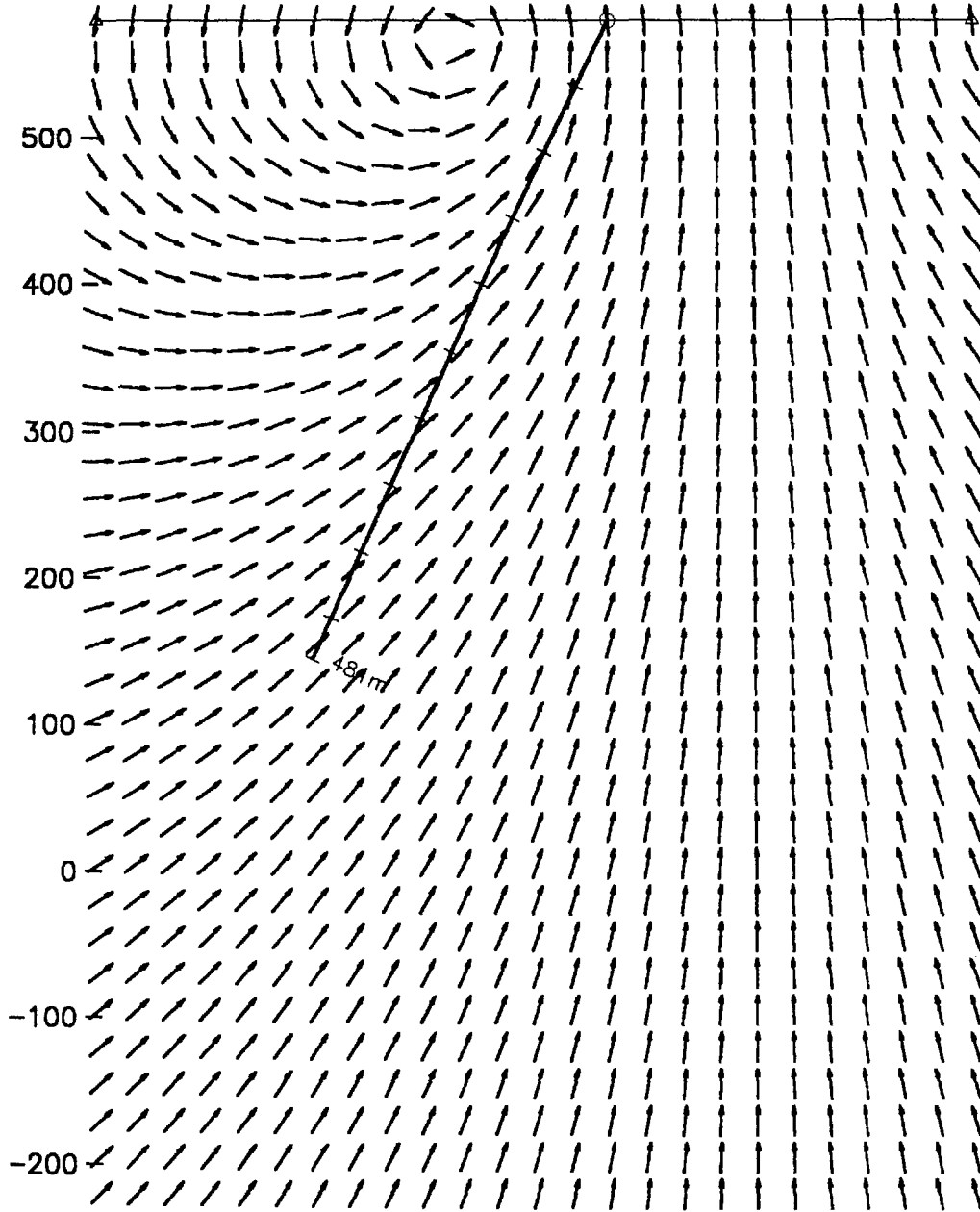
6838400N -
6838300N -
6838200N -
6838100N -
6838000N -
6837900N -

<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1768 Survey Date: Jun 15, 2003
Crone Geophysics & Exploration Ltd.

(567450.0 E, 6837800.0 N)

718-1768

(567450.0 E, 6838400.0 N)



Falconbridge Ltd.
ZONE 2

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

Hole: 718-1768
Survey Date: Jun 15, 2003

Crone Geophysics & Exploration Ltd.

566400E 566500E 566600E 566700E 566800E 566900E
6838100N

6838000N -

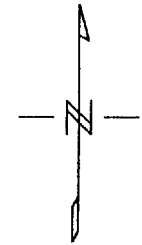
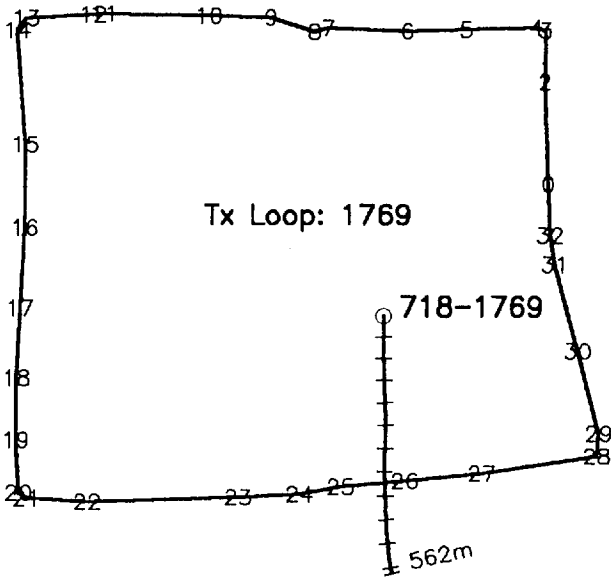
6837900N -

6837800N -

6837700N -

6837600N -

6837500N -



Scale 1:5000
50 0 50 100
(metres)

Falconbridge Ltd.
ZONE 2

**3-D Borehole Pulse EM Survey
Borehole & Loop Location Map**

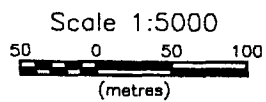
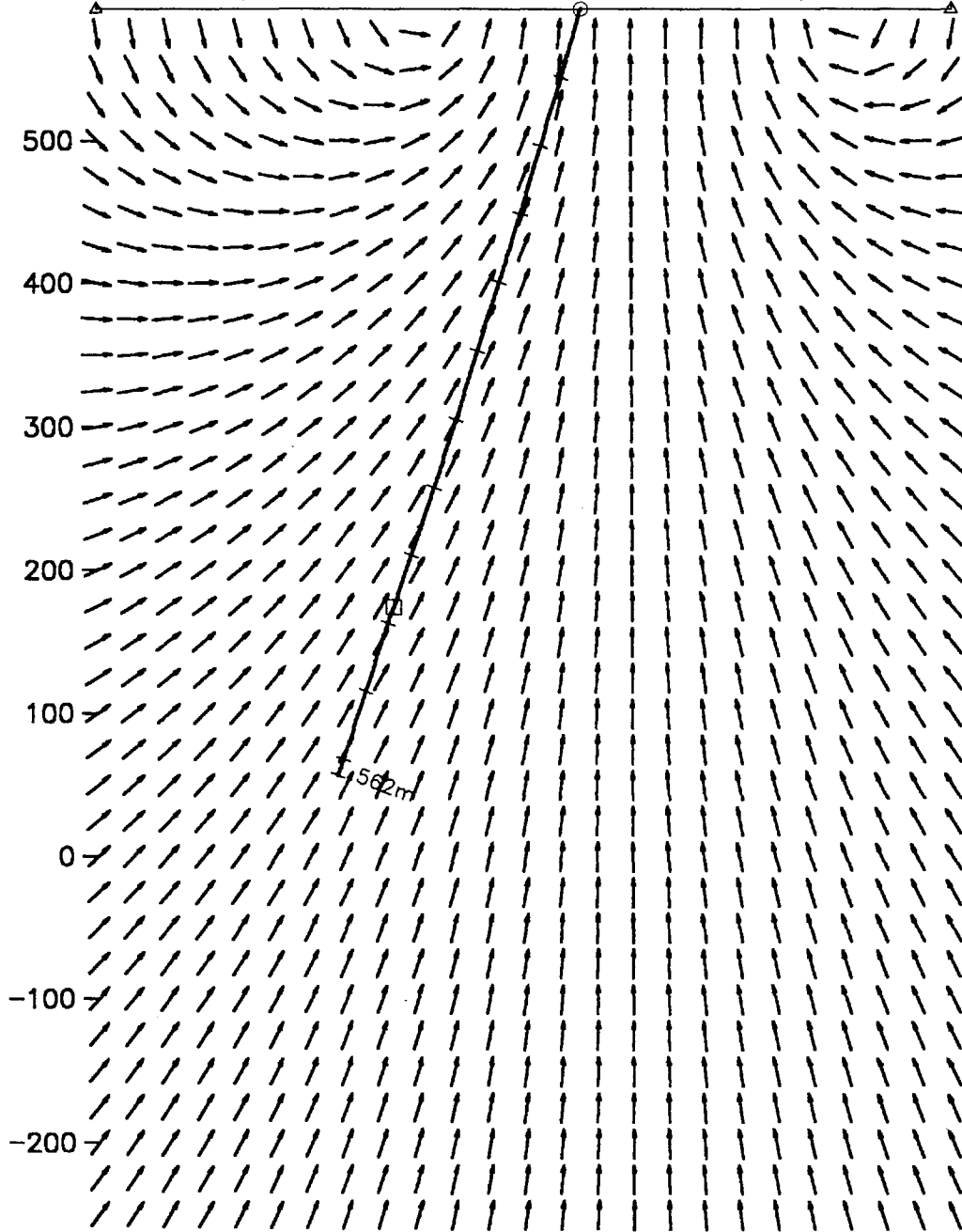
Hole: 718-1769
Survey Date: Jun 25, 2003

Crone Geophysics & Exploration Ltd.

(566690.0 E, 6837400.0 N)

718-1769

(566690.0 E, 6838000.0 N)



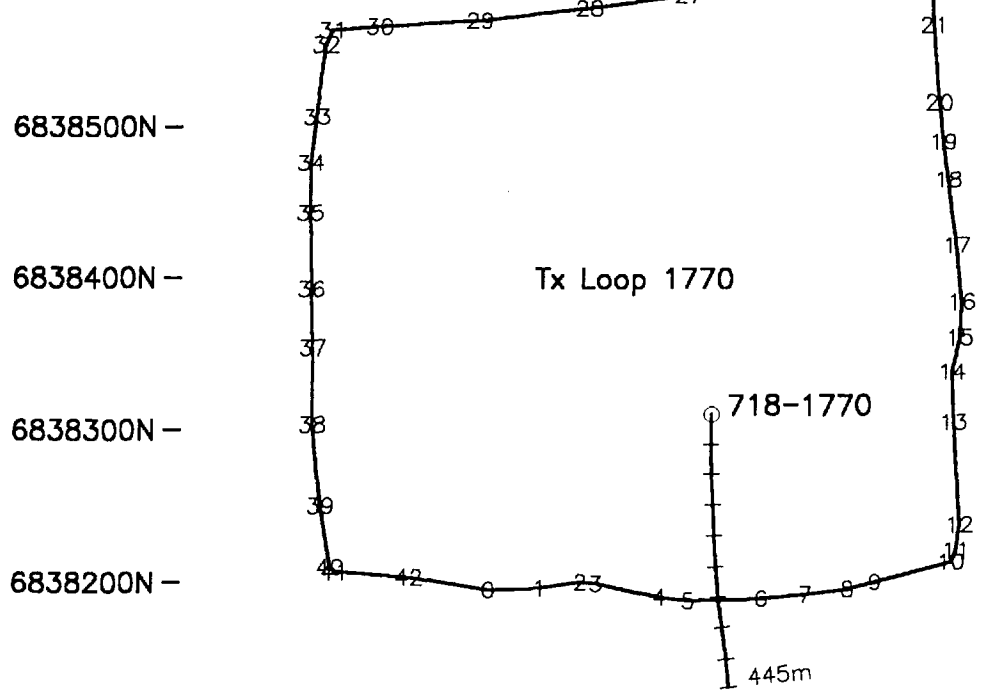
Falconbridge Ltd.
ZONE 2

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

Hole: 718-1769
Survey Date: Jun 25, 2003

Crone Geophysics & Exploration Ltd.

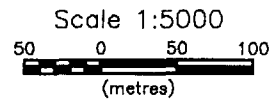
567300E 567400E 567500E 567600E 567700E 567800E
6838600N - | | | | | |



Tx Loop 1770

718-1770

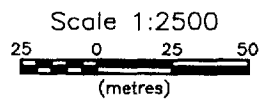
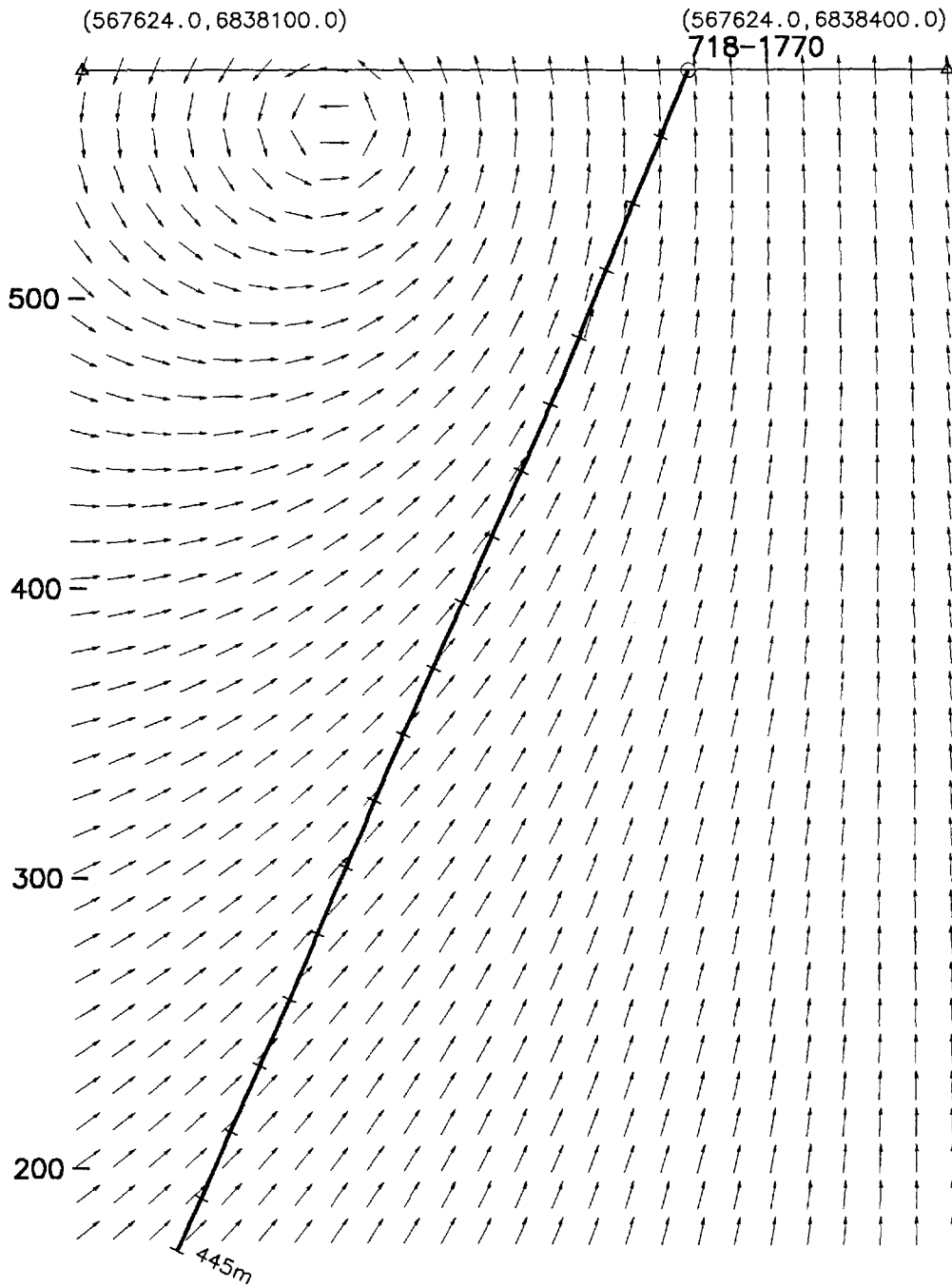
445m



6838100N -

6838000N -

FALCONBRIDGE LTD. ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1770 Survey Date: Feb 7, 2003
Crone Geophysics & Exploration Ltd.



FALCONBRIDGE LTD.
ZONE 2

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

Hole: 718-1770
 Survey Date: Feb 7, 2003

Crone Geophysics & Exploration Ltd.

566700E 566800E 566900E 567000E 567100E 567200E
6838300N

6838200N -

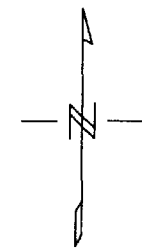
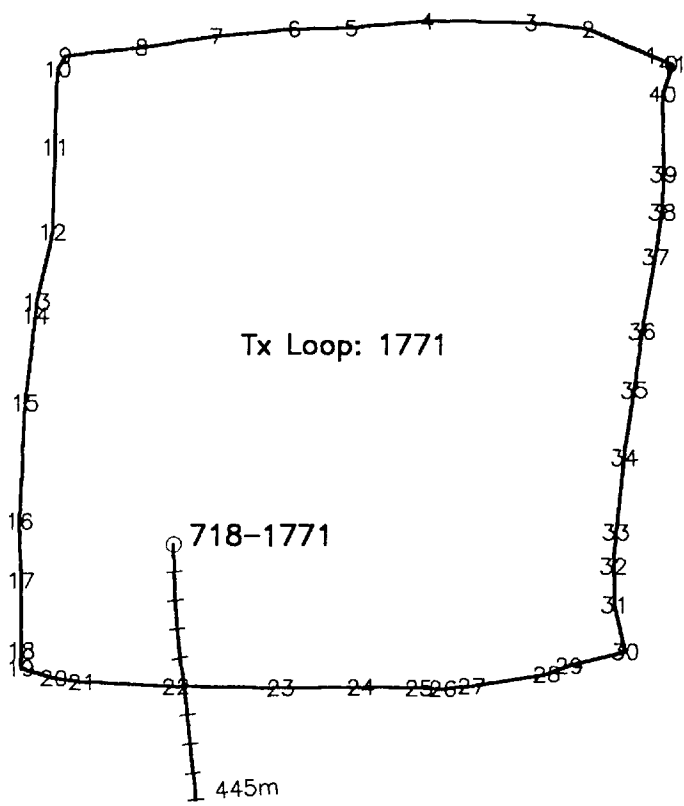
6838100N -

6838000N -

6837900N -

6837800N -

6837700N -



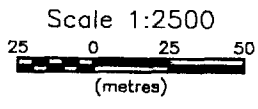
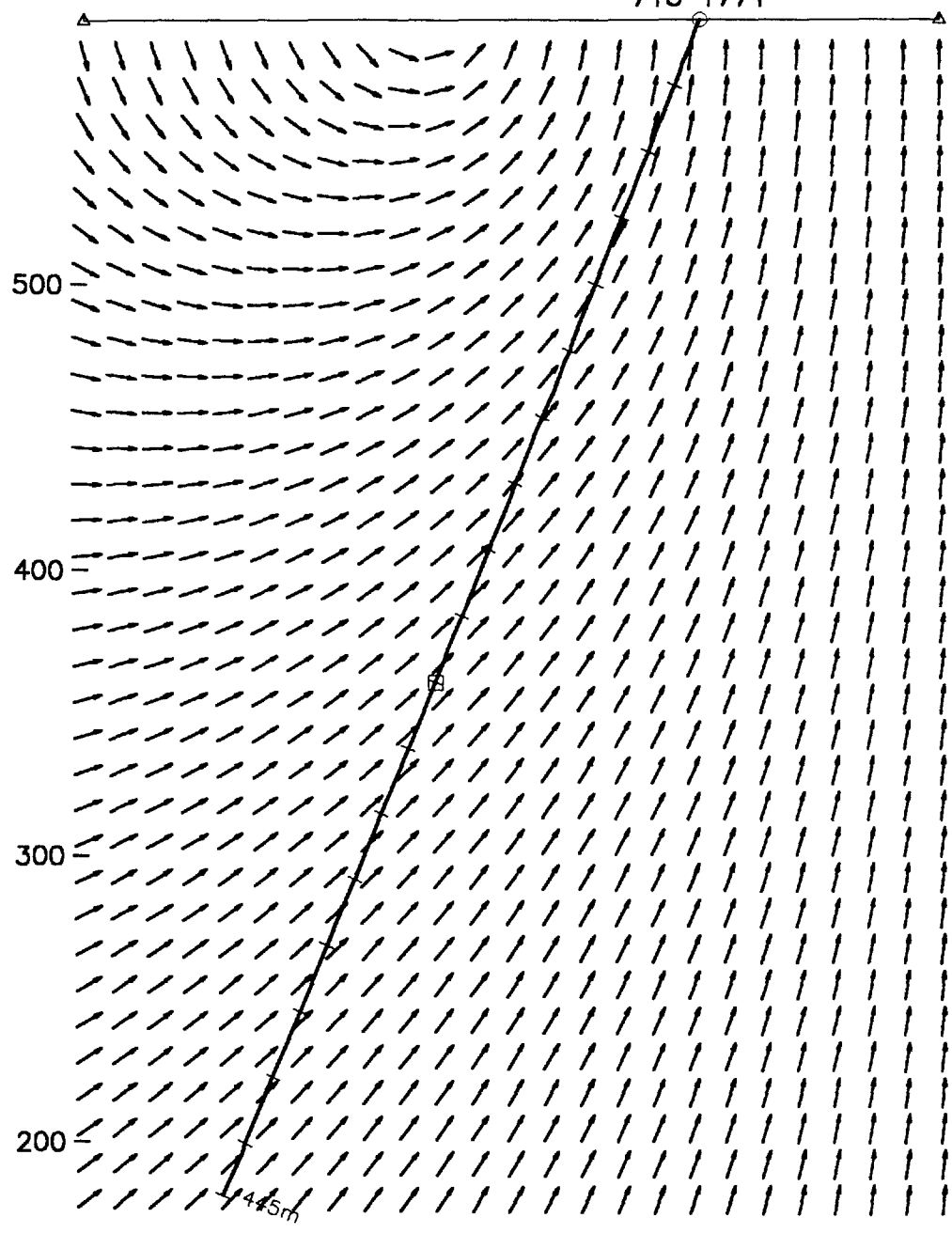
Scale 1:5000
50 0 50 100
(metres)

<p><i>Falconbridge Ltd.</i> ZONE 2</p>
<p>3-D Borehole Pulse EM Survey Borehole & Loop Location Map</p>
<p>Hole: 718-1771 Survey Date: May 29, 2003</p>
<p>Crone Geophysics & Exploration Ltd.</p>

(566920.0 E, 6837700.0 N)

(566920.0 E, 6838000.0 N)

718-1771



<p><i>Falconbridge Ltd.</i> ZONE 2</p>
<p>3-D Borehole Pulse EM Survey Hole Section with Primary Field</p>
<p>Hole: 718-1771 Survey Date: May 29, 2003</p>
<p>Crane Geophysics & Exploration Ltd.</p>

566700E 566800E 566900E 567000E 567100E 567200E
6838300N -

6838200N -

6838100N -

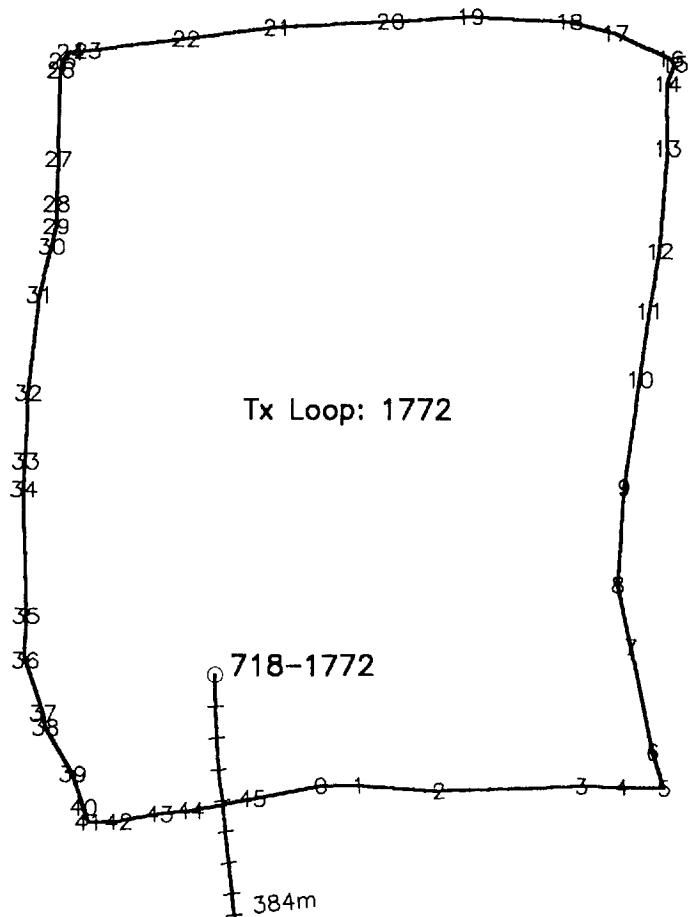
6838000N -

6837900N -

6837800N -

6837700N -

6837600N -



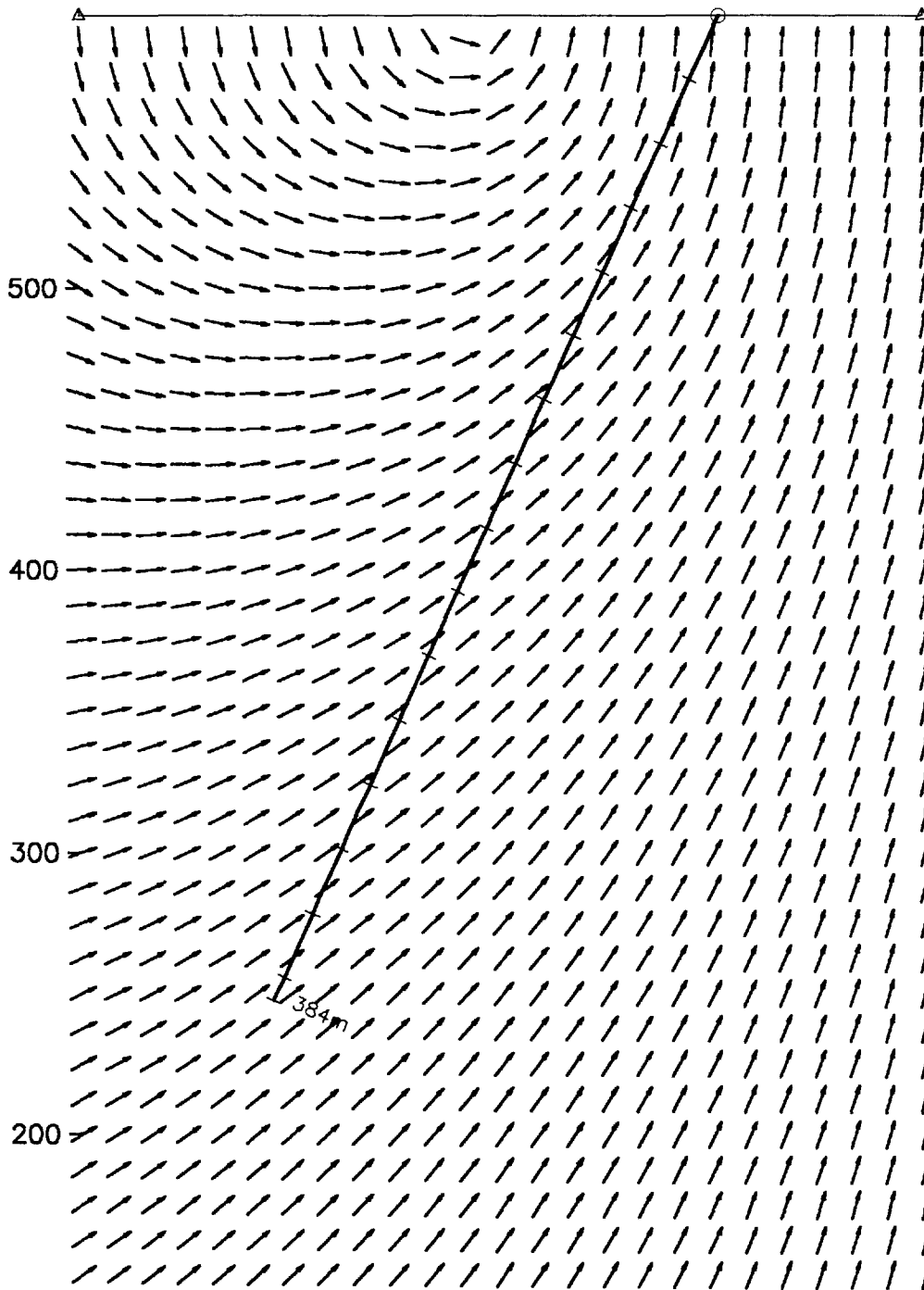
Scale 1:5000
50 0 50 100
(metres)

<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1772 Survey Date: Jun 2, 2003
Crone Geophysics & Exploration Ltd.

(566935.0 E, 6837600.0 N)

718-1772

(566935.0 E, 6837900.0 N)



Scale 1:2500
25 0 25 50
(metres)

Falconbridge Ltd.
ZONE 2

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

Hole: 718-1772
Survey Date: Jun 2, 2003

Cronos Geophysics & Exploration Ltd.

566600E 566700E 566800E 566900E 567000E 567100E
6838300N -

6838200N -

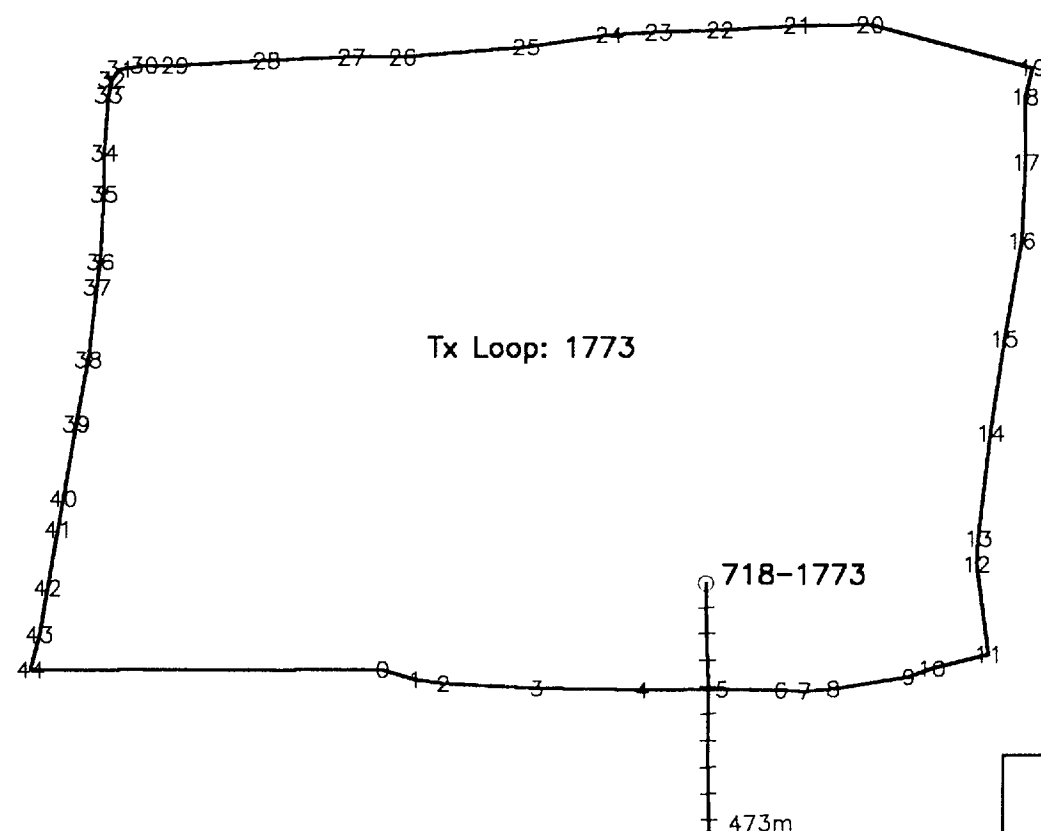
6838100N -

6838000N -

6837900N -

6837800N -

6837700N -

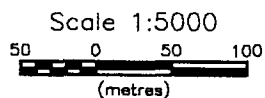
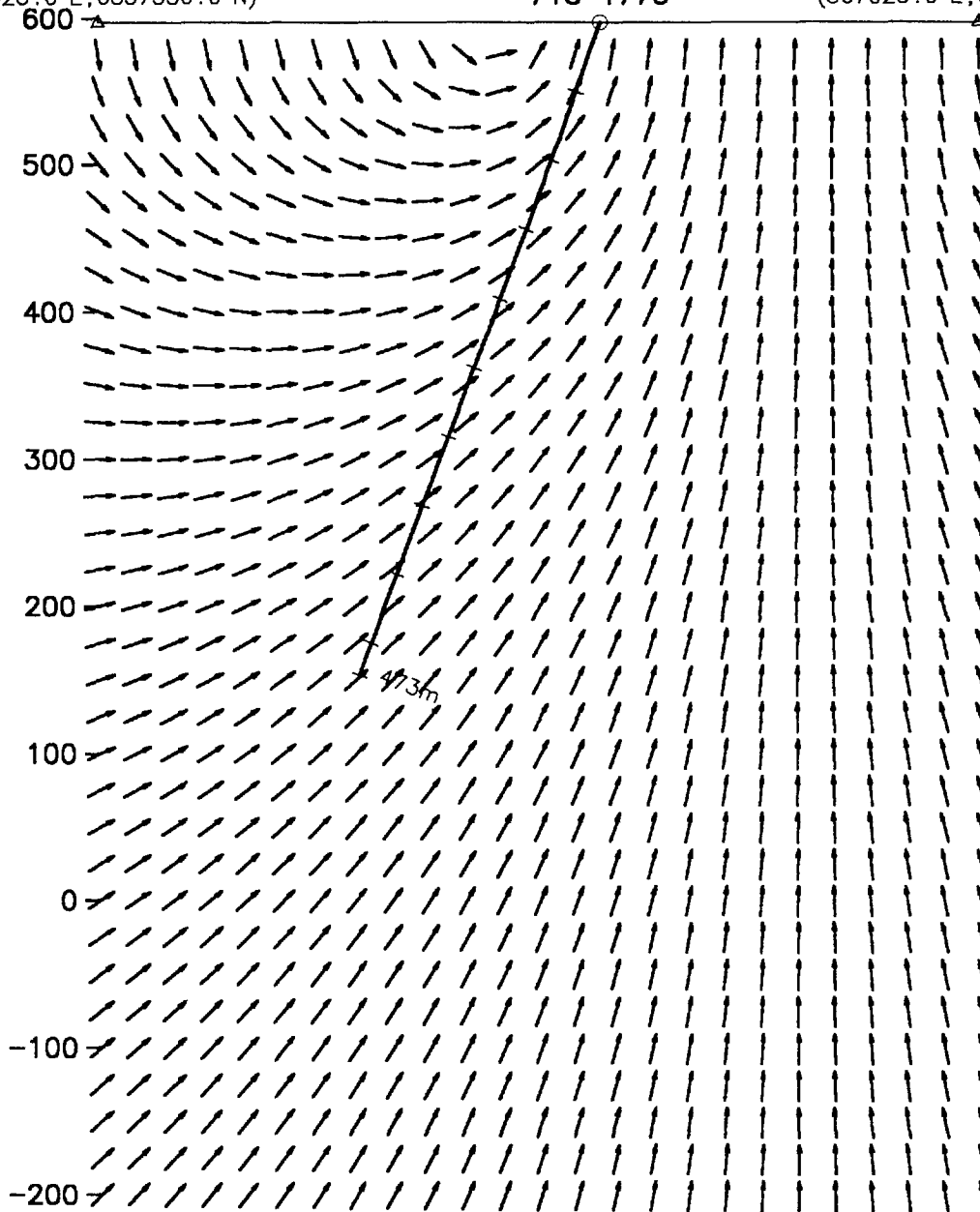


<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1773 Survey Date: Jun 7, 2003
Crone Geophysics & Exploration Ltd.

(567025.0 E, 6837550.0 N)

718-1773

(567025.0 E, 6838150.0 N)



Falconbridge Ltd.
ZONE 2

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

Hole: 718-1773

Survey Date: Jun 7, 2003

Crone Geophysics & Exploration Ltd.

566600E 566700E 566800E 566900E 567000E 567100E

6838300N -

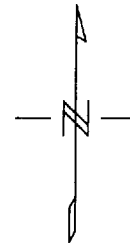
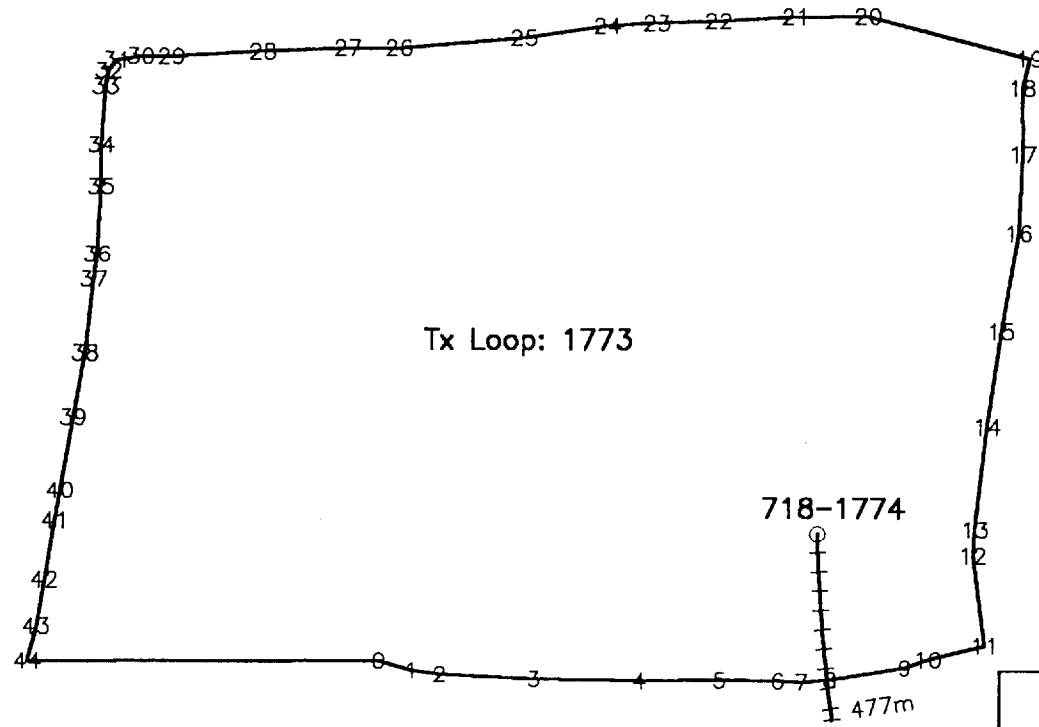
6838200N -

6838100N -

6838000N -

6837900N -

6837800N -



Scale 1:5000
50 0 50 100
(metres)

Falconbridge Ltd.
ZONE 2

**3-D Borehole Pulse EM Survey
Borehole & Loop Location Map**

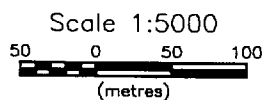
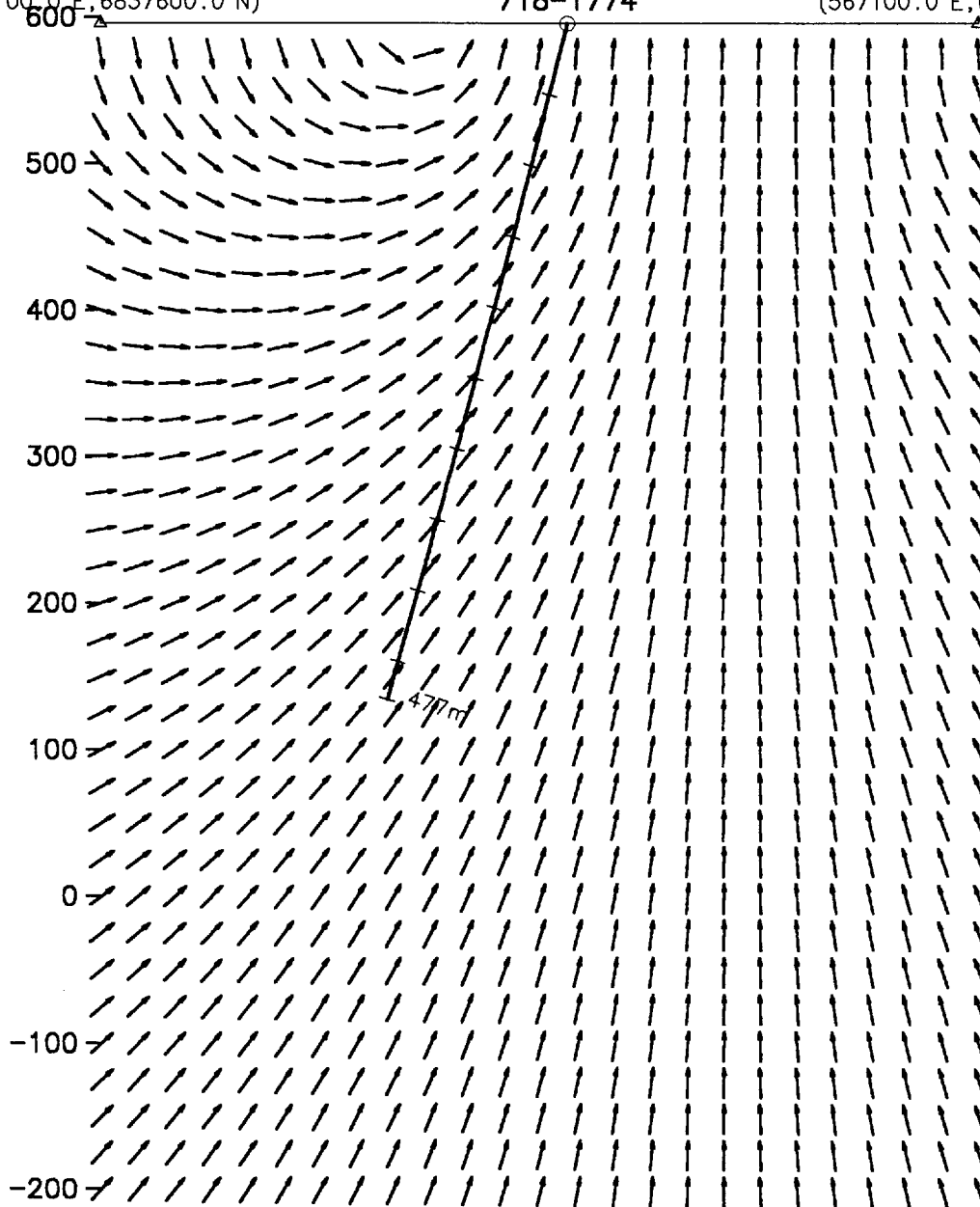
Hole: 718-1774
Survey Date: Jun 13, 2003

Crone Geophysics & Exploration Ltd.

(567100.0 E, 6837600.0 N)

718-1774

(567100.0 E, 6838200.0 N)



Falconbridge Ltd.
ZONE 2

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

Hole: 718-1774
Survey Date: Jun 13, 2003

Crone Geophysics & Exploration Ltd.

566600E 566700E 566800E 566900E 567000E 567100E
6838400N -

6838300N -

6838200N -

6838100N -

6838000N -

6837900N -

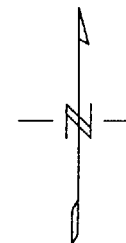
6837800N -

6837700N -

Tx Loop: 1775

718-1775

522m



Scale 1:5000
50 0 50 100
(metres)

Falconbridge Ltd.
ZONE 2

**3-D Borehole Pulse EM Survey
Borehole & Loop Location Map**

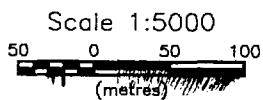
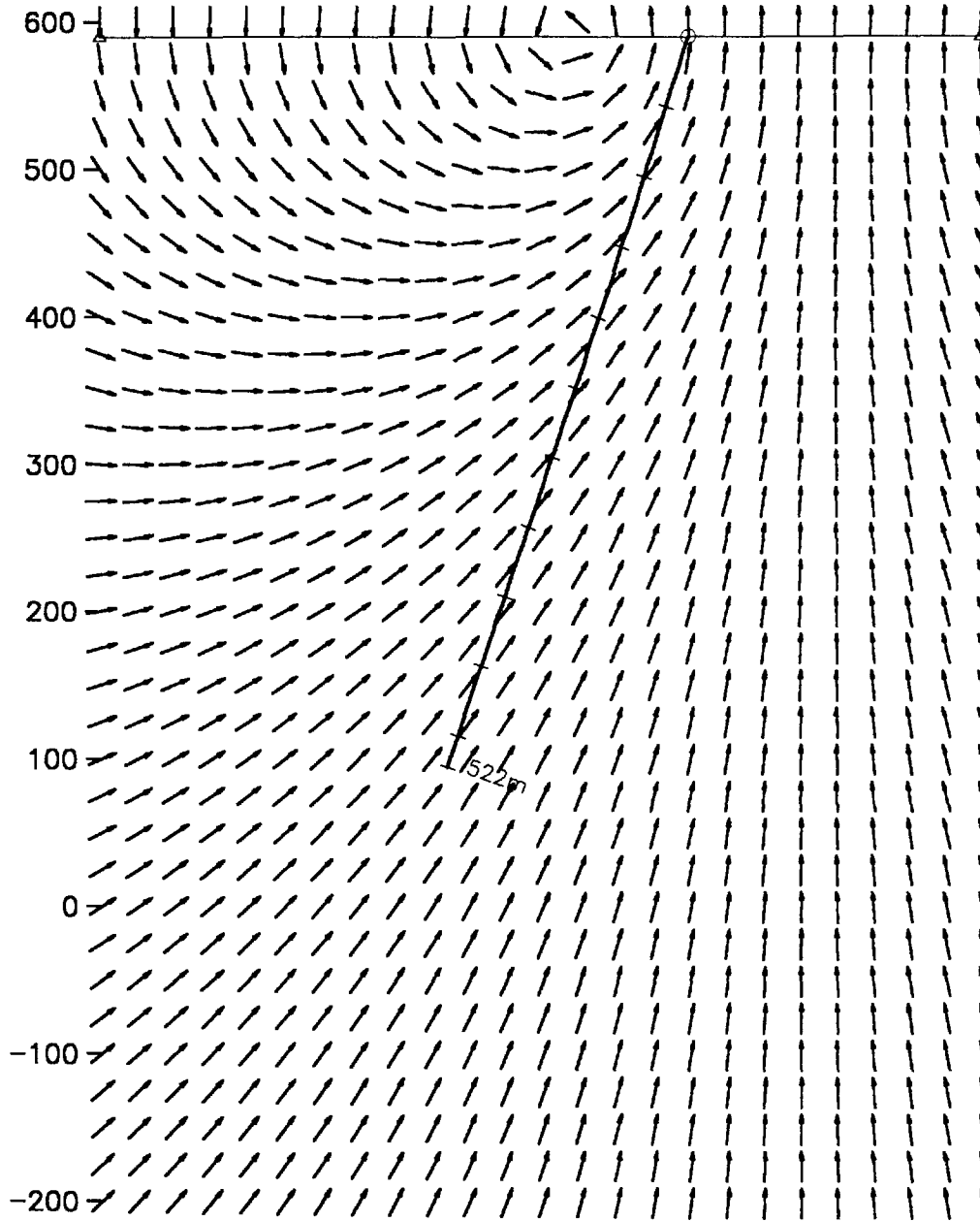
Hole: 718-1775
Survey Date: Jun 20, 2003

Crone Geophysics & Exploration Ltd.

(566985.0 E, 6837600.0 N)

718-1775

(566985.0 E, 6838200.0 N)



Falconbridge Ltd.
ZONE 2

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

Hole: 718-1775

Survey Date: Jun 20, 2003

Cronos Geophysics & Exploration Ltd.

566600E 566700E 566800E 566900E 567000E 567100E
6838400N -

6838300N -

6838200N -

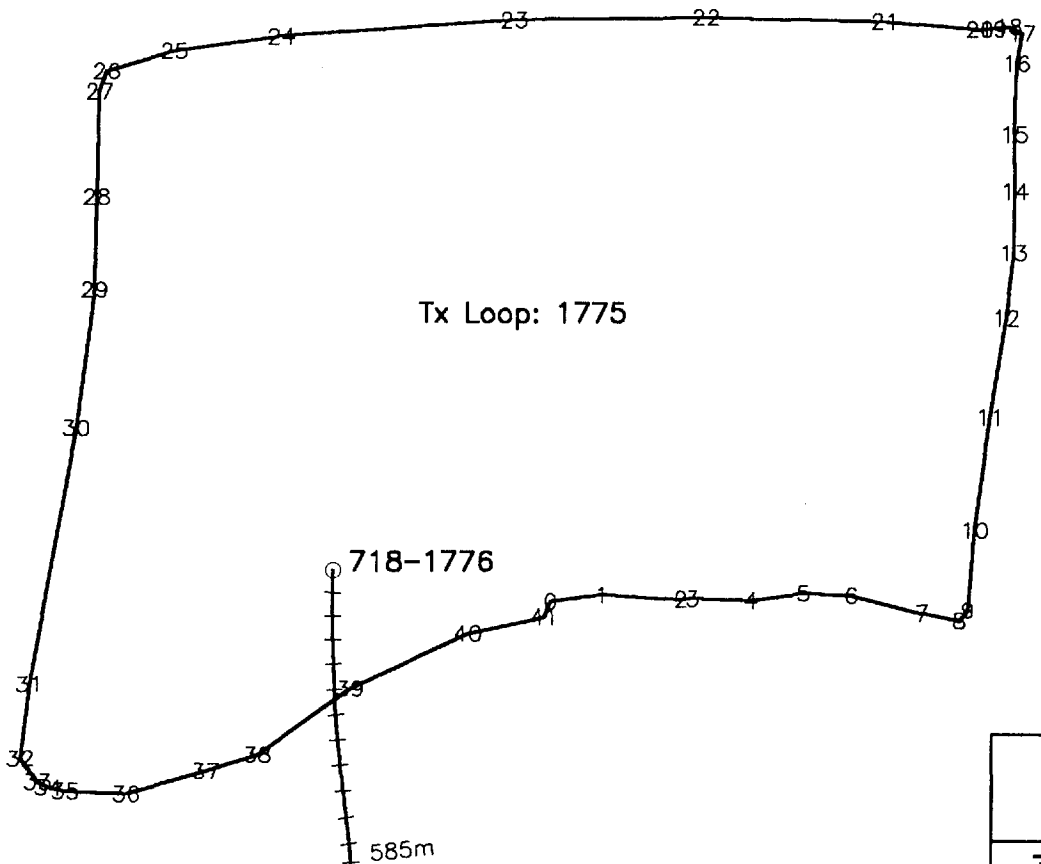
6838100N -

6838000N -

6837900N -

6837800N -

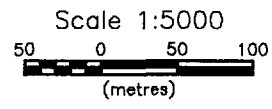
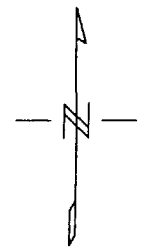
6837700N -



Tx Loop: 1775

718-1776

585m

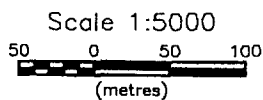
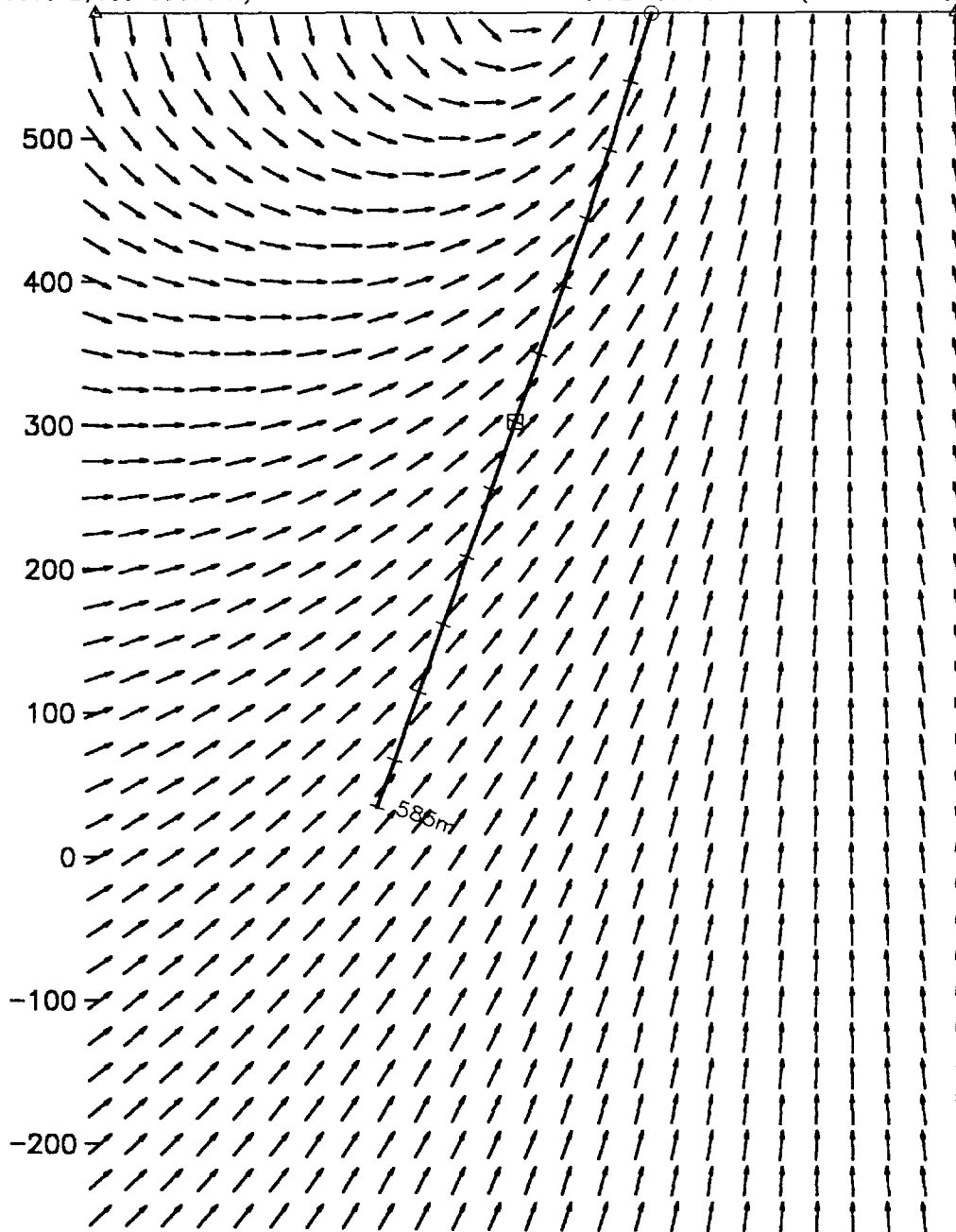


<i>Falconbridge Ltd.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1776 Survey Date: Jun 29, 2003
Crone Geophysics & Exploration Ltd.

(566790.0 E, 6837550.0 N)

718-1776

(566790.0 E, 6838150.0 N)



Falconbridge Ltd.
ZONE 2

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

Hole: 718-1776
Survey Date: Jun 29, 2003

Crone Geophysics & Exploration Ltd.

567000E 567100E 567200E 567300E 567400E 567500E
6838600N -

6838500N -

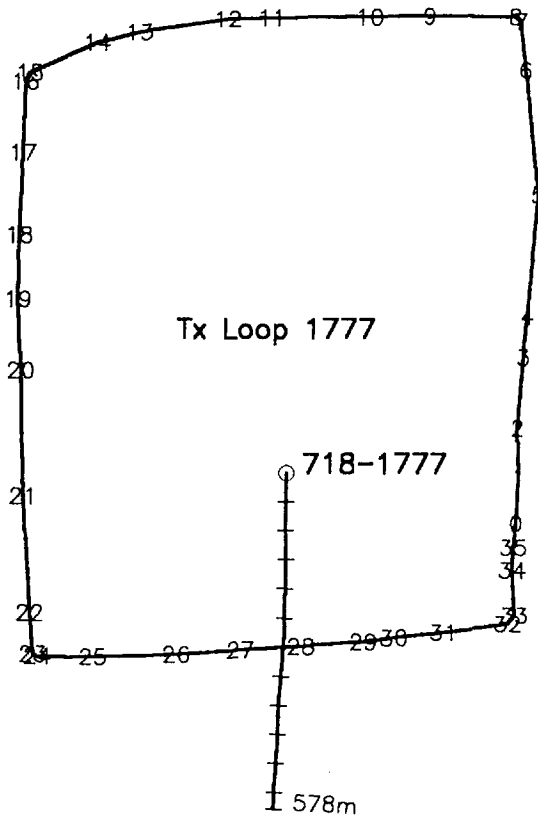
6838400N -

6838300N -

6838200N -

6838100N -

6838000N -



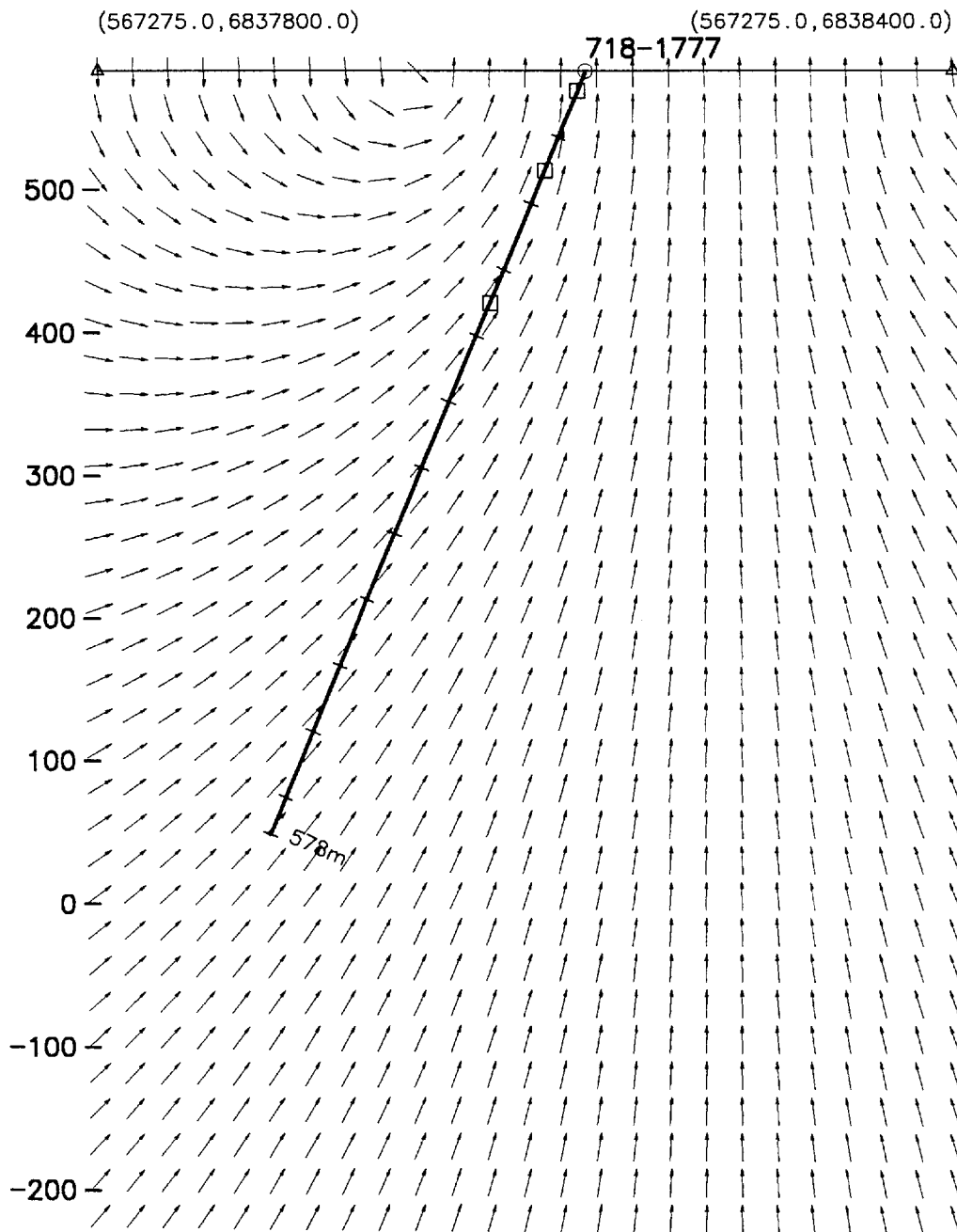
Scale 1:5000
50 0 50 100
(metres)

FALCONBRIDGE LTD.
ZONE 2

3-D Borehole Pulse EM Survey
Borehole & Loop Location Map

Hole: 718-1777
Survey Date: Jul 6, 2003

Crone Geophysics & Exploration Ltd.



Scale 1:5000
 50 0 50 100
 (metres)

FALCONBRIDGE LTD.
ZONE 2

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

Hole: 718-1777
 Survey Date: Jul 6, 2003

Crone Geophysics & Exploration Ltd.

566900E 567000E 567100E 567200E 567300E 567400E
6838300N -

6838200N -

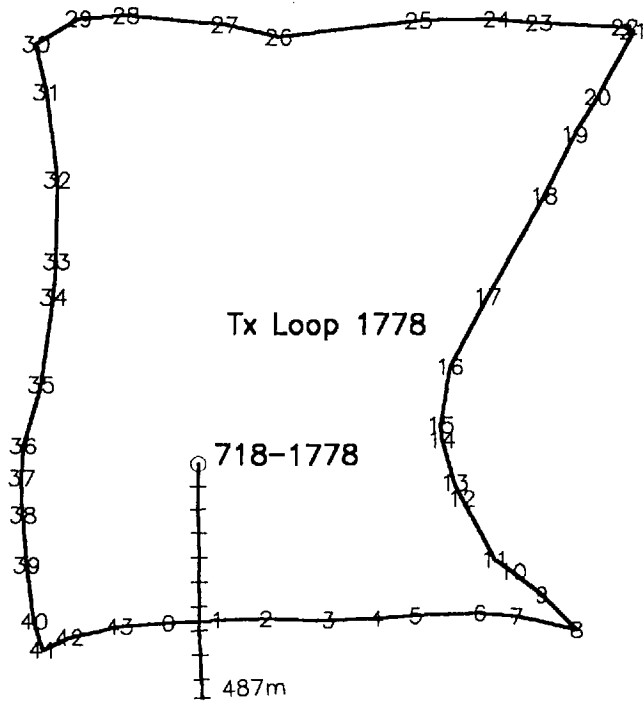
6838100N -

6838000N -

6837900N -

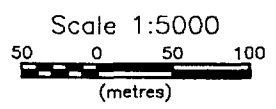
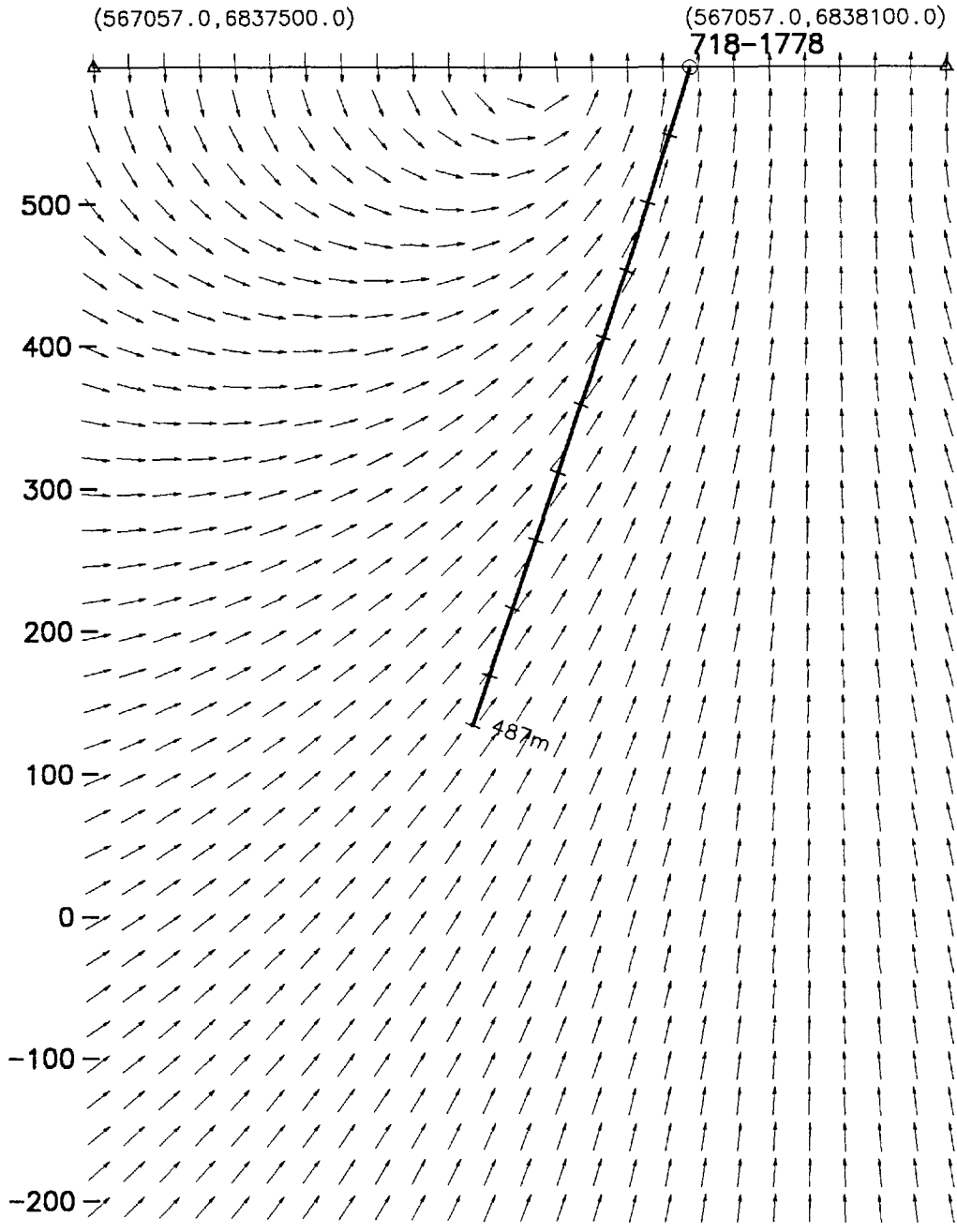
6837800N -

6837700N -



Scale 1:5000
50 0 50 100
(metres)

FALCONBRIDGE LTD. ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1778 Survey Date: Jul 13, 2003
Crone Geophysics & Exploration Ltd.



FALCONBRIDGE LTD. ZONE 2
3-D Borehole Pulse EM Survey Hole Section with Primary Field
Hole: 718-1778 Survey Date: Jul 13, 2003
Crone Geophysics & Exploration Ltd.

6838300N - 566900E 567000E 567100E 567200E 567300E

6838200N - 32 31 30 29 28 27 26 25 24 23 22 21

6838100N - 34 35 36 37 38 39 40 41 42 43 44

6838000N - 35 36 37 38 39 40 41 42 43 44

6837900N - 40 41 42 43 44

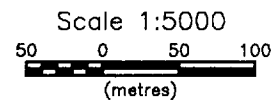
6837800N - 41 42 43 44

6837700N -

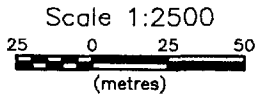
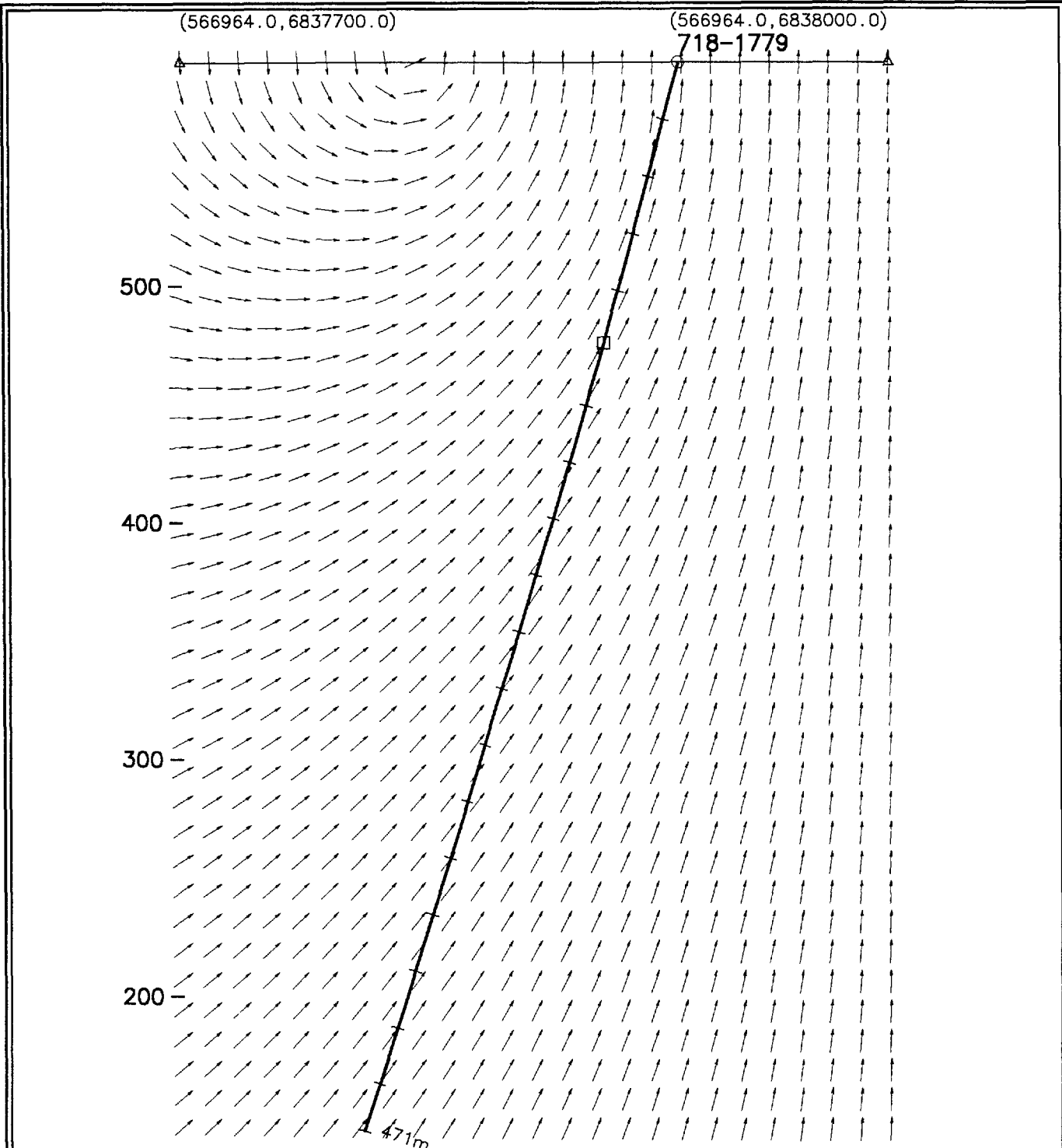
Tx Loop 1779

718-1779

471m

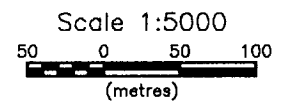
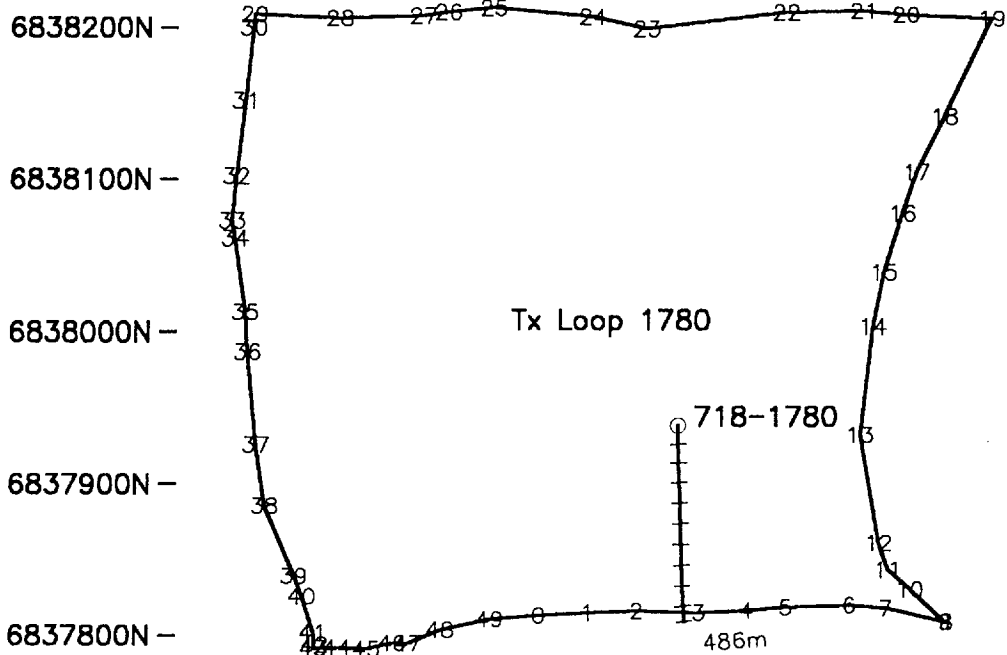


FALCONBRIDGE LTD.
ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1779 Survey Date: Jul 19, 2003
Crone Geophysics & Exploration Ltd.

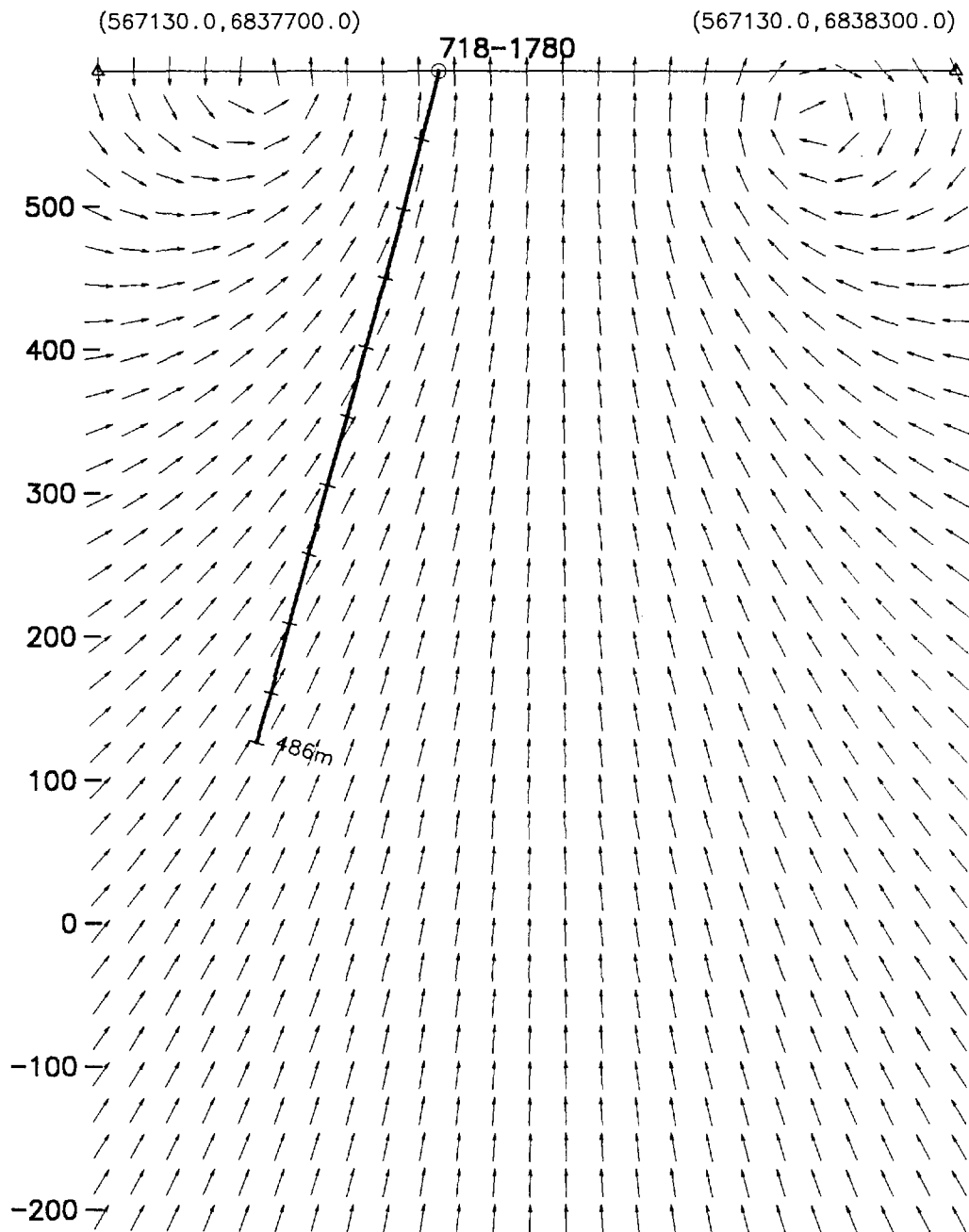


FALCONBRIDGE LTD. ZONE 2
3-D Borehole Pulse EM Survey Hole Section with Primary Field
Hole: 718-1779 Survey Date: Jul 19, 2003
Crone Geophysics & Exploration Ltd.

566800E 566900E 567000E 567100E 567200E 567300E
6838300N -

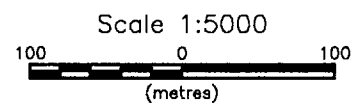
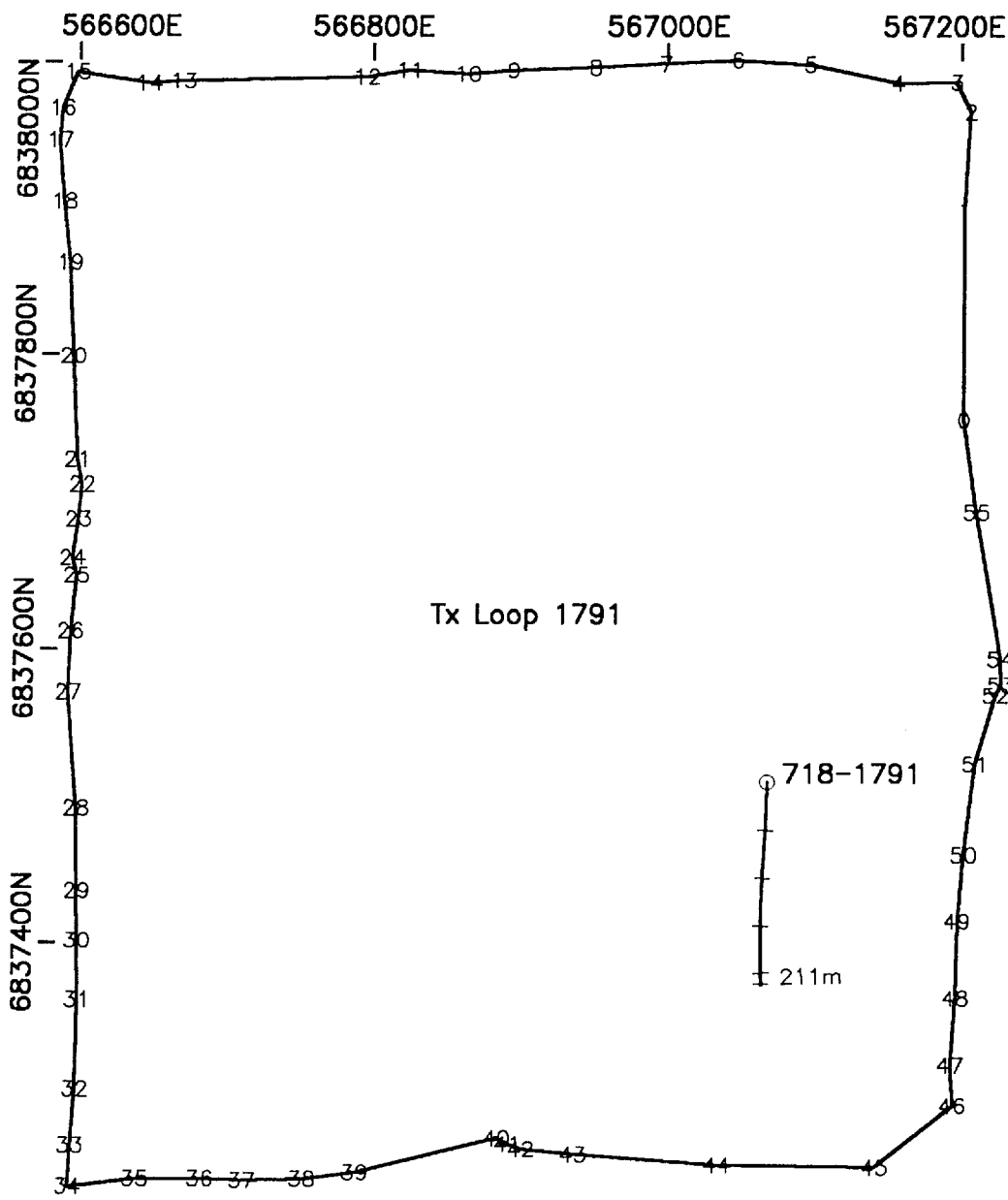


<i>FALCONBRIDGE LTD.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1780 Survey Date: Jul 26, 2003
<i>Crone Geophysics & Exploration Ltd.</i>

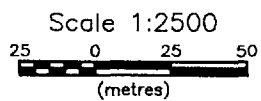
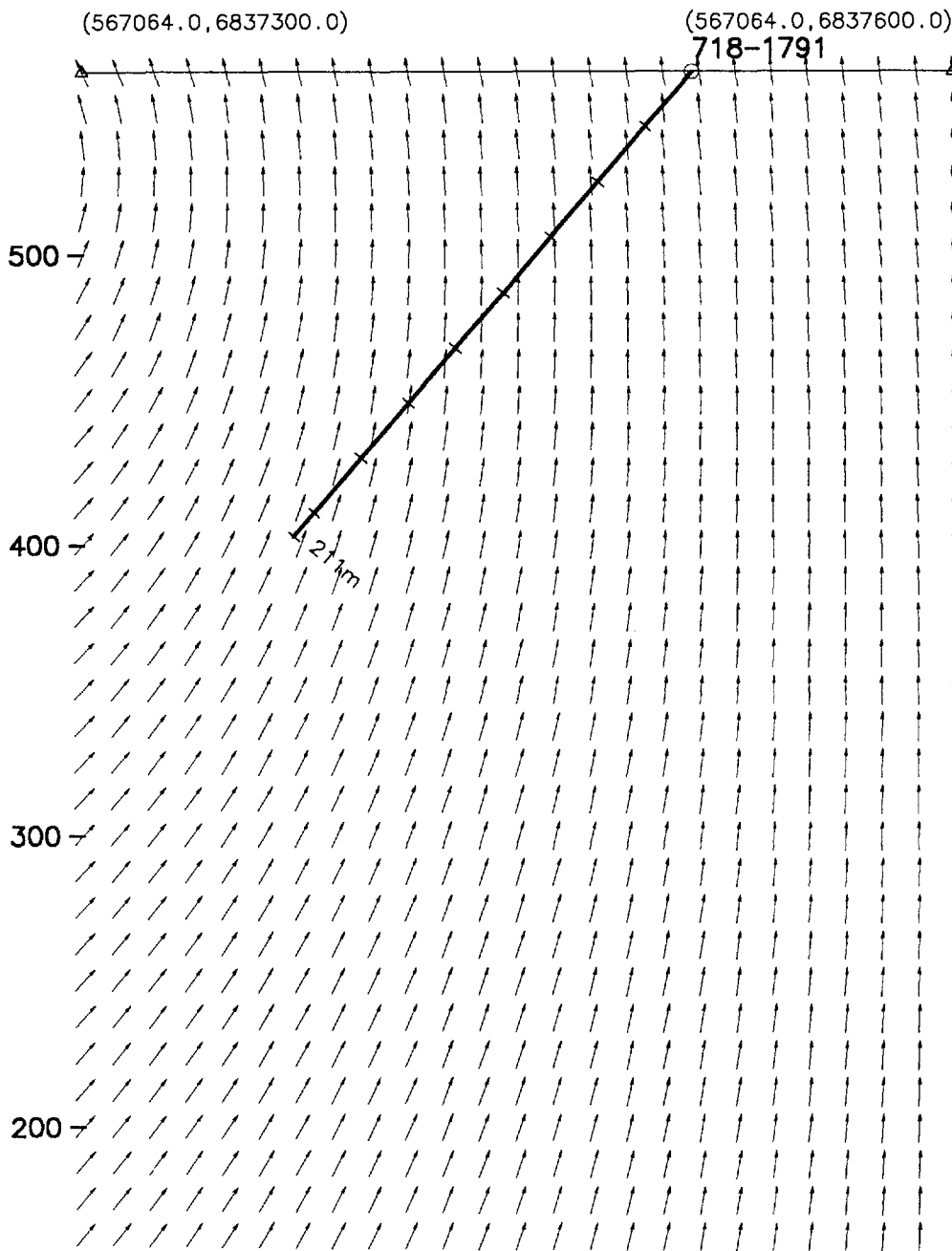


Scale 1:5000
 50 0 50 100
 (metres)

FALCONBRIDGE LTD. ZONE 2
3-D Borehole Pulse EM Survey Hole Section with Primary Field
Hole: 718-1780 Survey Date: Jul 26, 2003
Crone Geophysics & Exploration Ltd.



<i>FALCONBRIDGE LTD.</i> ZONE 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1791 Survey Date: Jul 5, 2003
<i>Crone Geophysics & Exploration Ltd.</i>



FALCONBRIDGE LTD.
ZONE 2

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

Hole: 718-1791

Survey Date: Jul 5, 2003

Crone Geophysics & Exploration Ltd.

566400E 566600E 566800E 567000E 567200E 567400E
 6838200N -

6838000N -

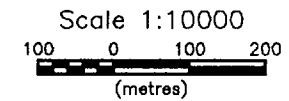
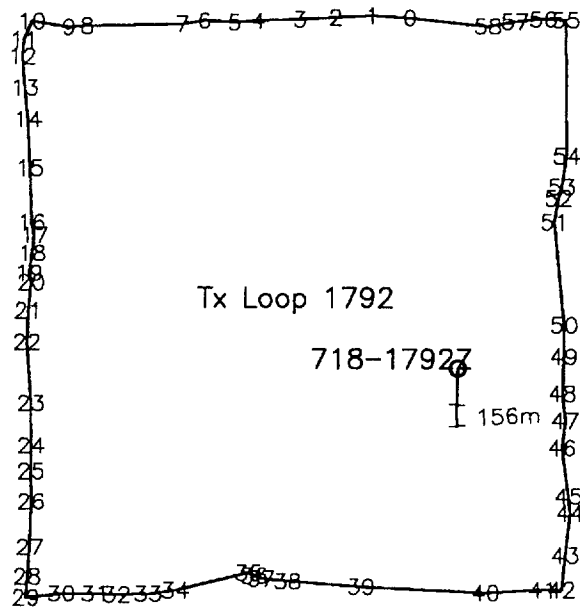
6837800N -

6837600N -

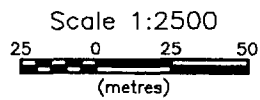
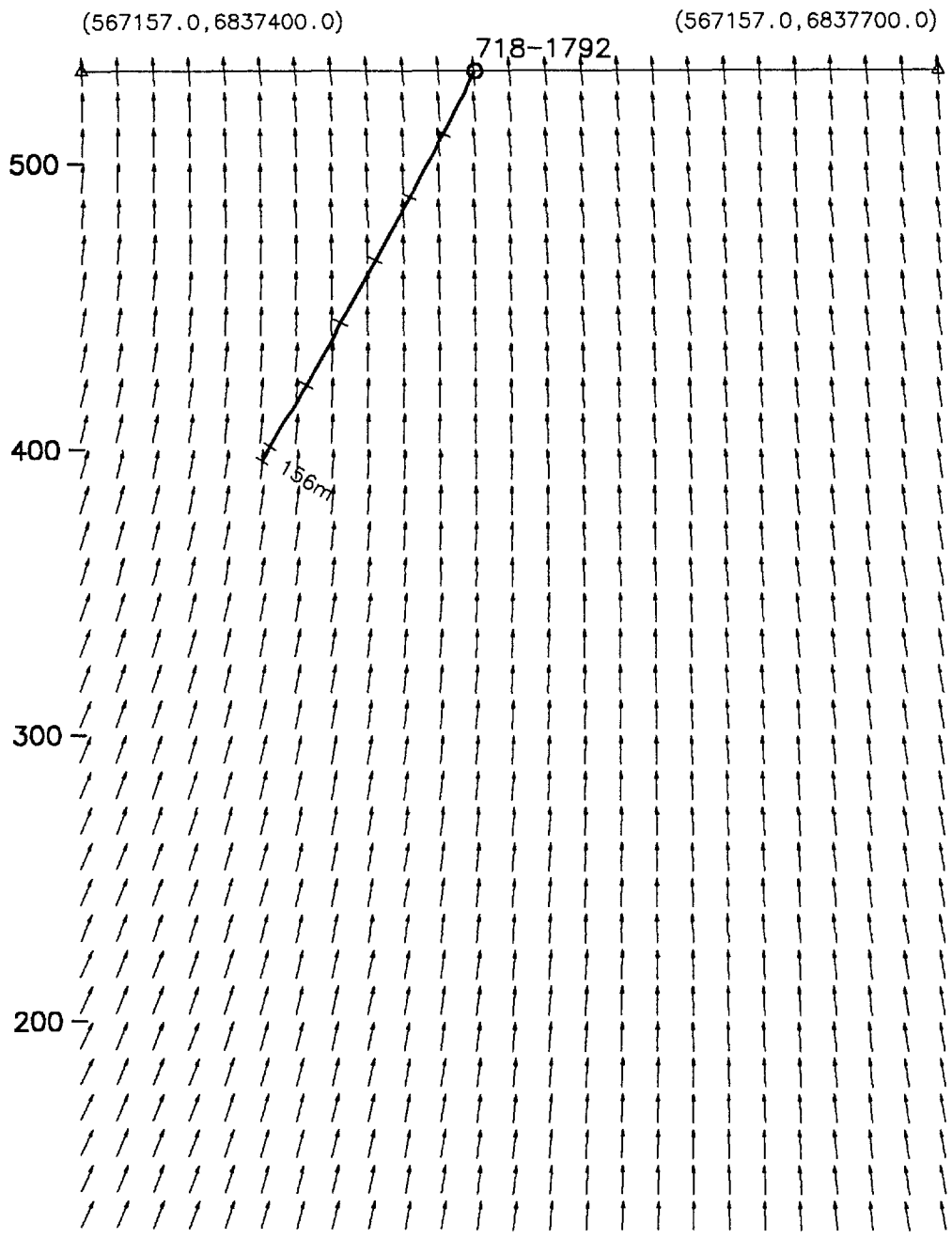
6837400N -

6837200N -

6837000N -



<i>FALCONBRIDGE LTD.</i>	
ZONE 2	
3-D Borehole Pulse EM Survey Borehole & Loop Location Map	
Hole: 718-1792Z	
Survey Date: Jul 7, 2003	Borehole
<i>Crone Geophysics & Exploration Ltd.</i>	



<i>FALCONBRIDGE LTD.</i>
ZONE 2
3-D Borehole Pulse EM Survey Hole Section with Primary Field
Hole: 718-1792 Survey Date: Jul 7, 2003
<i>Crone Geophysics & Exploration Ltd.</i>

567000E 567100E 567200E 567300E 567400E 567500E
6838200N -

6838100N -

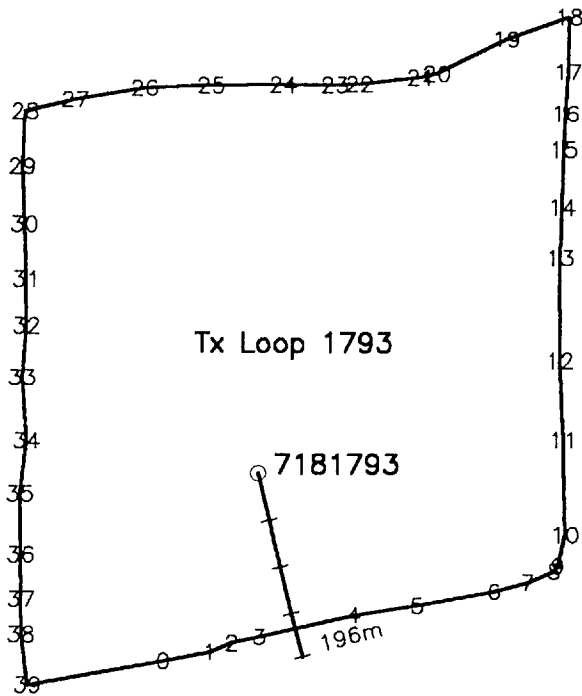
6838000N -

6837900N -

6837800N -

6837700N -

6837600N -

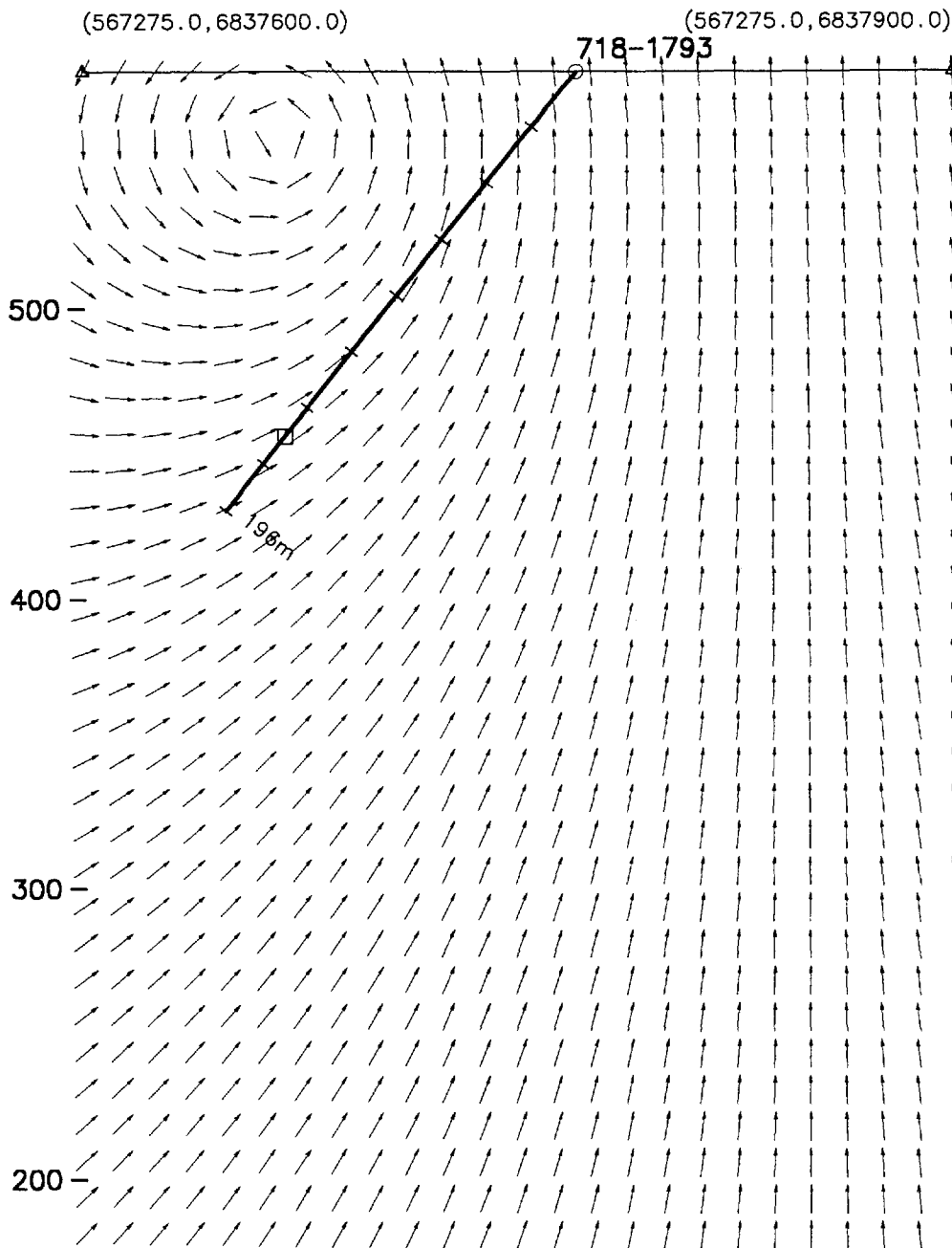


FALCONBRIDGE LTD.
ZONE 2

3-D Borehole Pulse EM Survey
Borehole & Loop Location Map

Hole: 7181793
Survey Date: Jul 9, 2003

Crone Geophysics & Exploration Ltd.



FALCONBRIDGE LTD.
ZONE 2

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

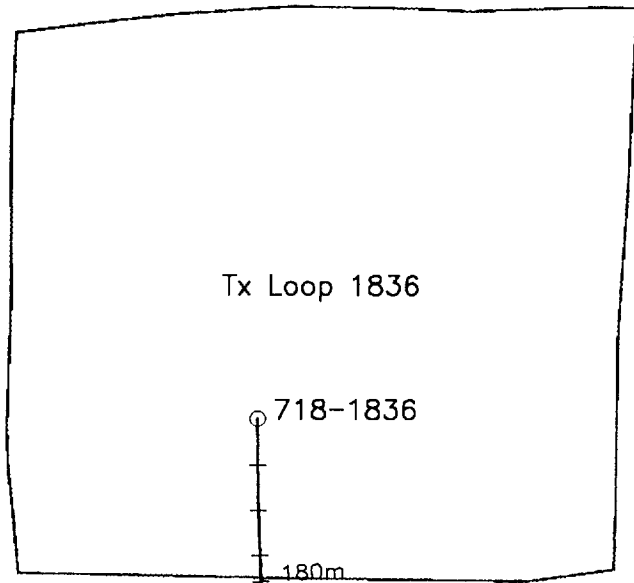
Hole: 7181793

Survey Date: Jul 9, 2003

Crone Geophysics & Exploration Ltd.

6838100N -
6838000N -
6837900N -
6837800N -
6837700N -
6837600N -
6837500N -

567000E -
567100E -
567200E -
567300E -
567400E -
567500E -



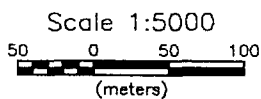
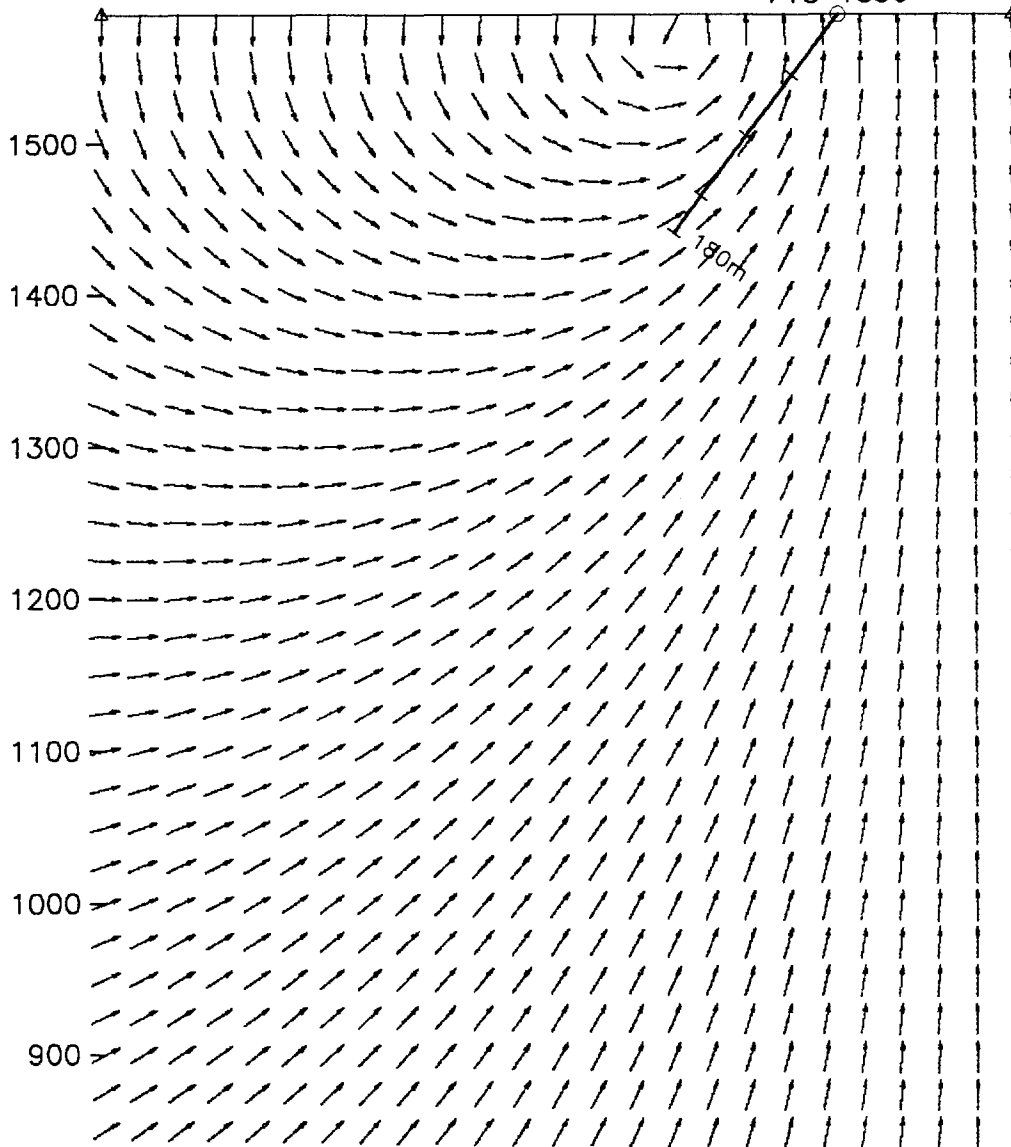
Scale 1:5000
50 0 50 100
(meters)

<i>Falconbridge Ltd.</i> Zone 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1836 Survey Date: Aug 9, 2003
Crone Geophysics & Exploration Ltd.

567175E, 6837200N

567175E, 6837800N

718-1836



Falconbridge Ltd.
Zone 2

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

Hole: 718-1836
Survey Date: Aug 9, 2003

Crone Geophysics & Exploration Ltd.

567000E 567100E 567200E 567300E 567400E

6838000N -

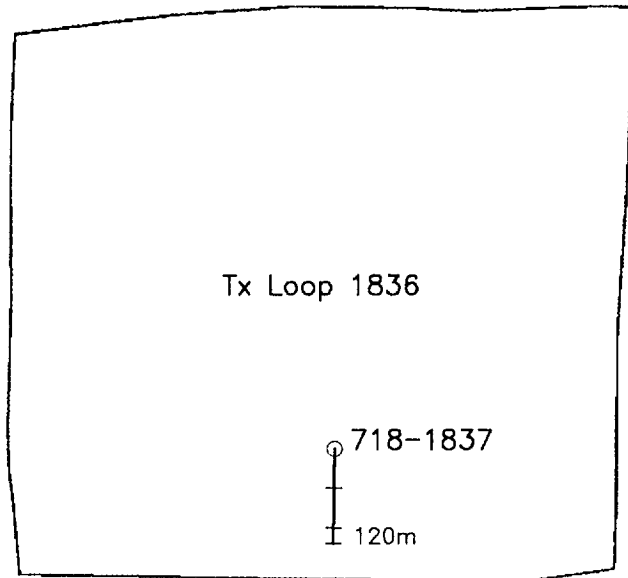
6837900N -

6837800N -

6837700N -

6837600N -

6837500N -



Scale 1:5000
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(meters)

Falconbridge Ltd.
Zone 2

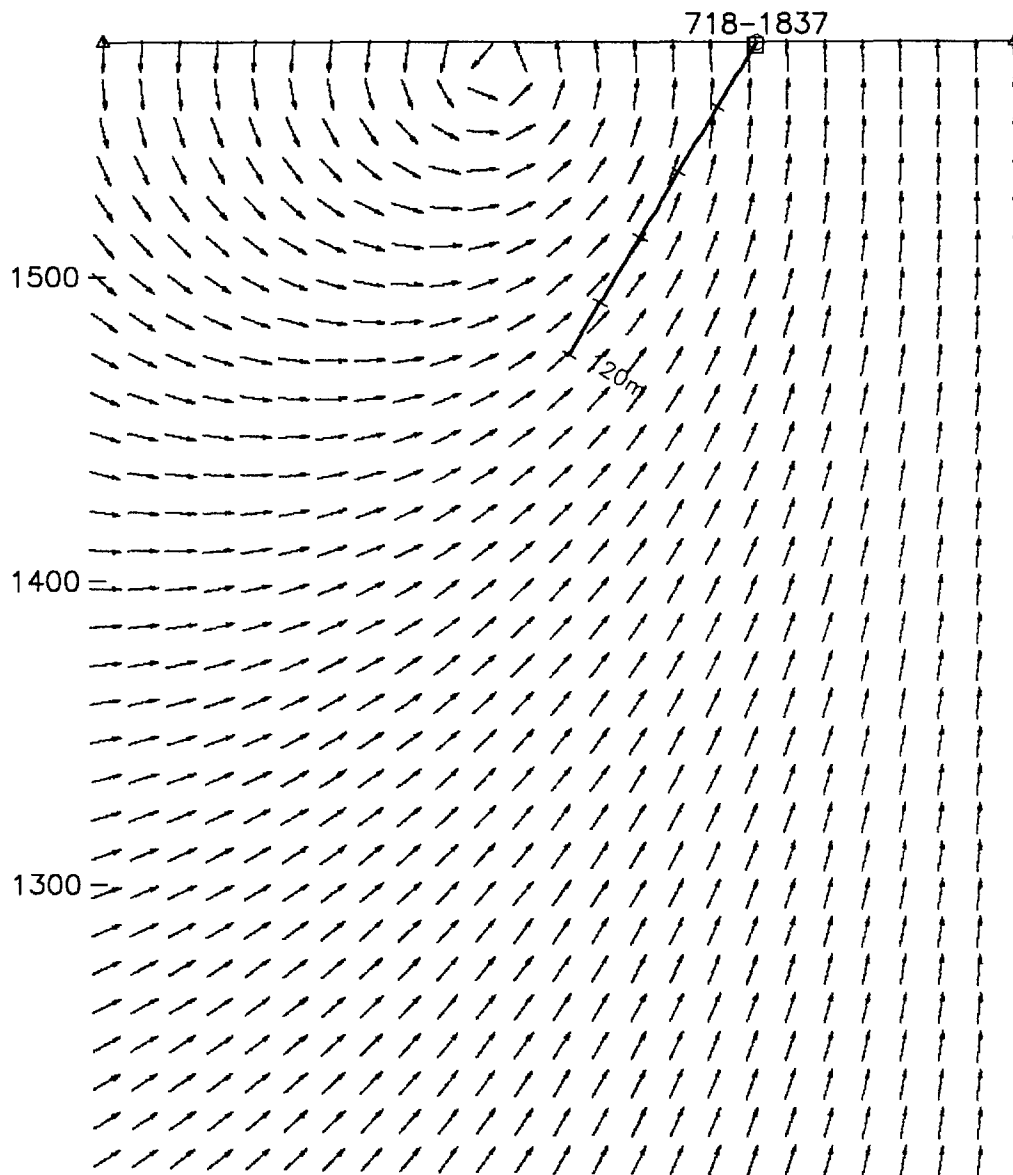
**3-D Borehole Pulse EM Survey
Borehole & Loop Location Map**

Hole: 718-1837
Survey Date: Aug 11, 2003

Crone Geophysics & Exploration Ltd.

567225E, 6837450N

567225E, 6837750N



Scale 1:2500
25 0 25 50
(meters)

Falconbridge Ltd.
Zone 2

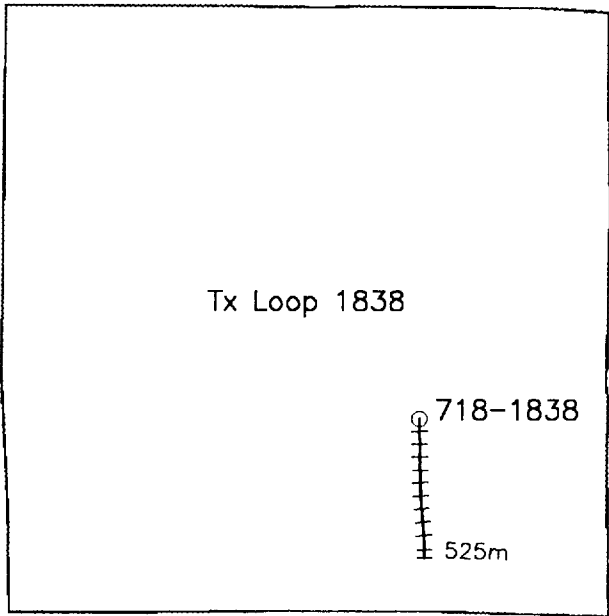
**3-D Borehole Pulse EM Survey
Hole Section with Primary Field**

Hole: 718-1837
Survey Date: Aug 11, 2003

Crone Geophysics & Exploration Ltd.

566800E -
566900E -
567000E -
567100E -
567200E -
567300E -

6838200N -
6838100N -
6838000N -
6837900N -
6837800N -
6837700N -



Scale 1:5000
50 0 50 100
(meters)

Falconbridge Ltd.
Zone 2

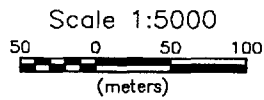
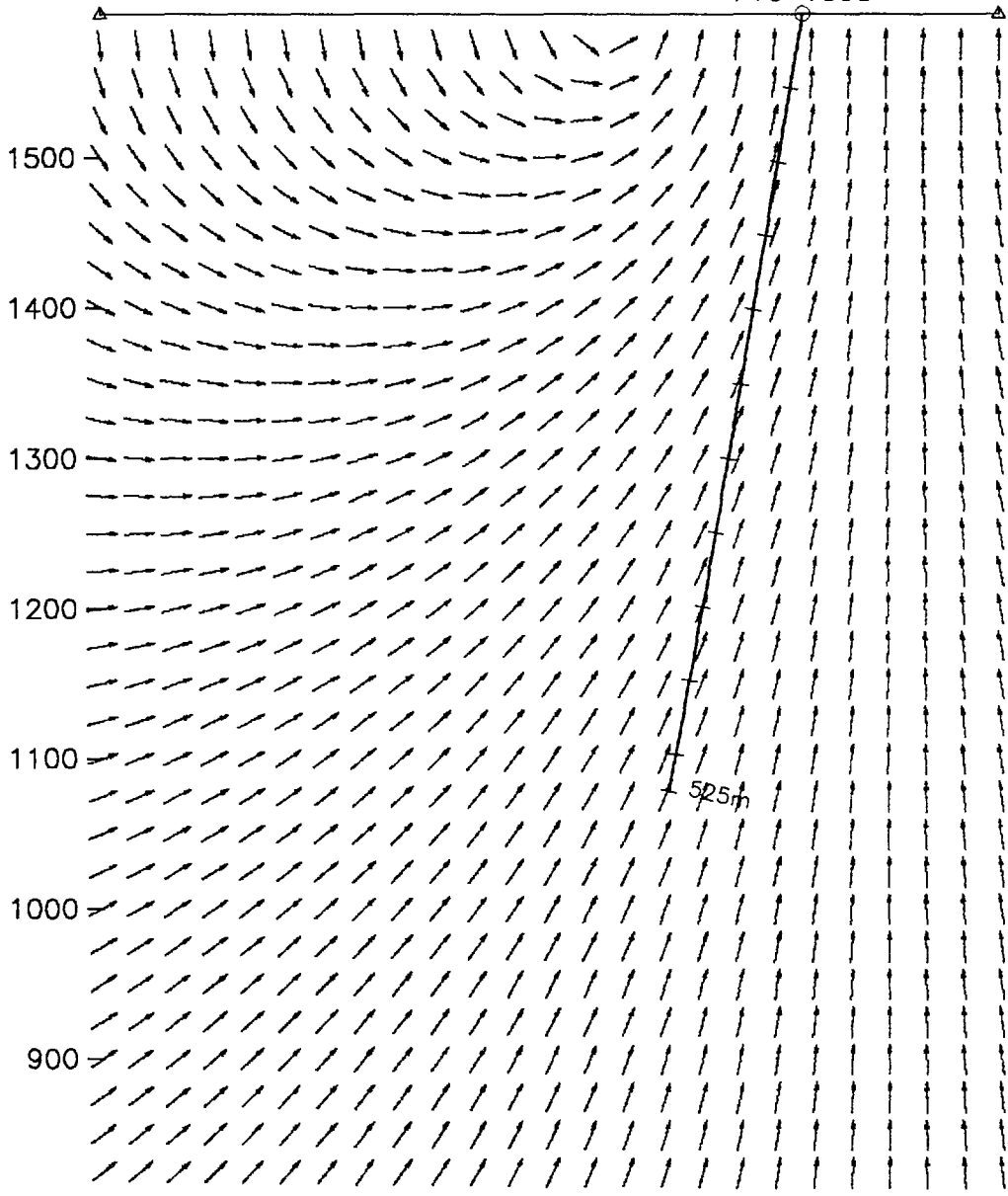
3-D Borehole Pulse EM Survey
Borehole & Loop Location Map

Hole: 718-1838
Survey Date: Aug 20, 2003

Crone Geophysics & Exploration Ltd.

567100E, 6837450N

718-1838 567100E, 6838050N



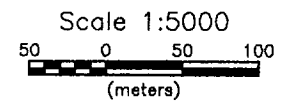
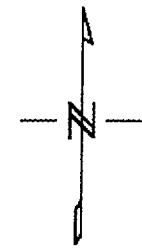
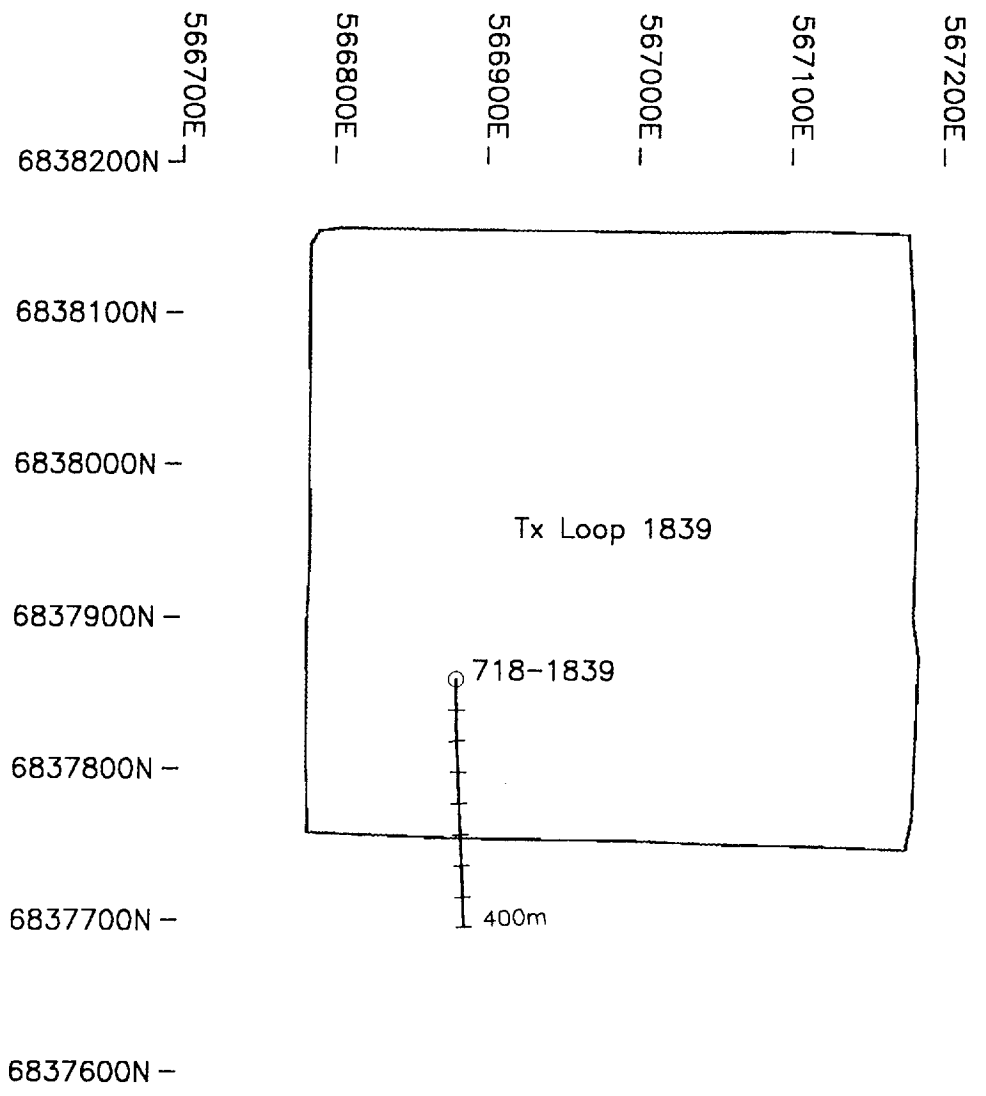
Falconbridge Ltd.
Zone 2

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

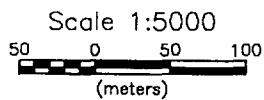
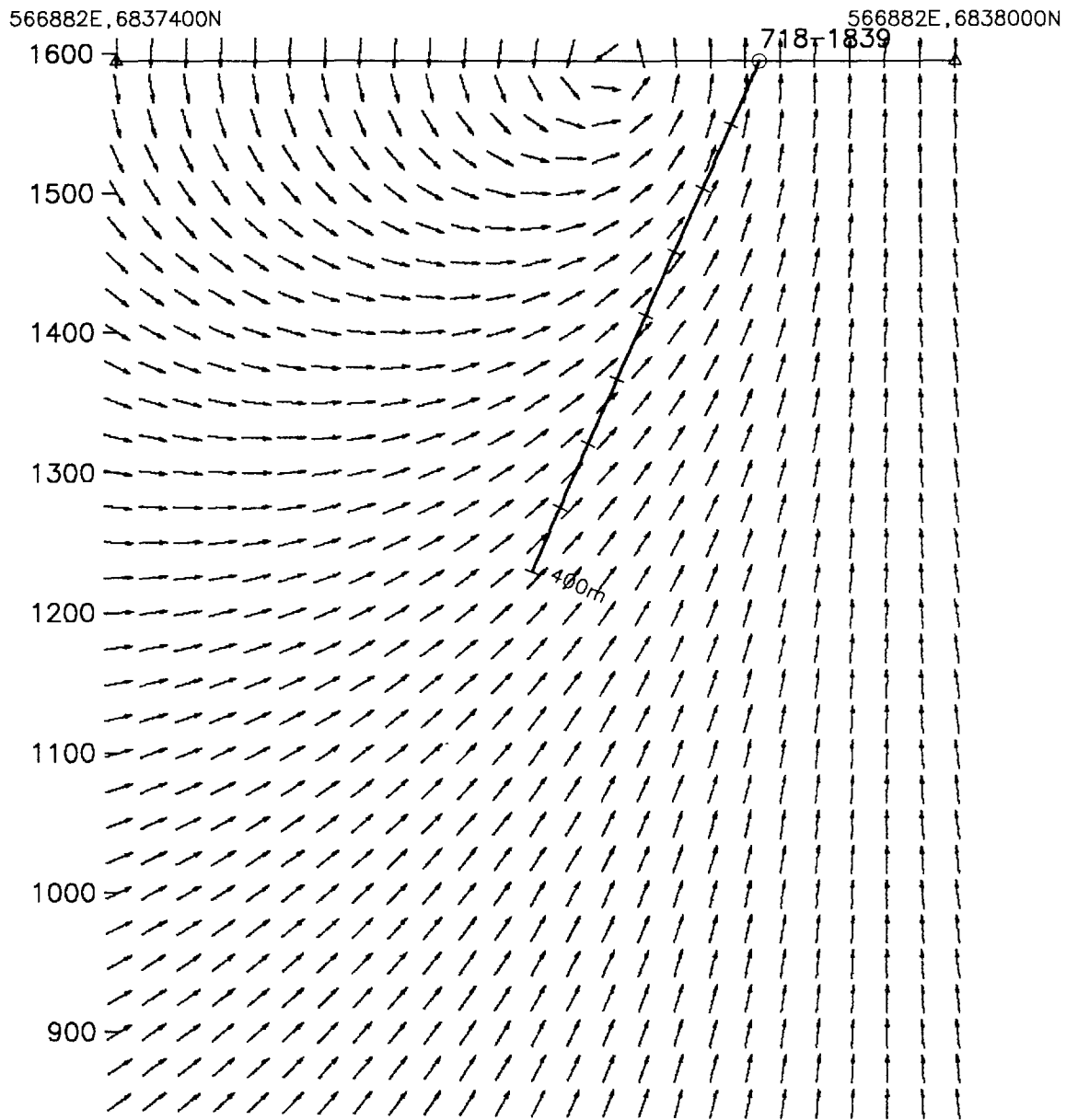
Hole: 718-1838

Survey Date: Aug 20, 2003

Crone Geophysics & Exploration Ltd.



<i>Falconbridge Ltd.</i> Zone 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1839 Survey Date: Aug 26, 2003
Crone Geophysics & Exploration Ltd.



Falconbridge Ltd.
Zone 2

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

Hole: 718-1839
Survey Date: Aug 26, 2003

Crone Geophysics & Exploration Ltd.

566700E 566800E 566900E 567000E 567100E 567200E
6838300N -

6838200N -

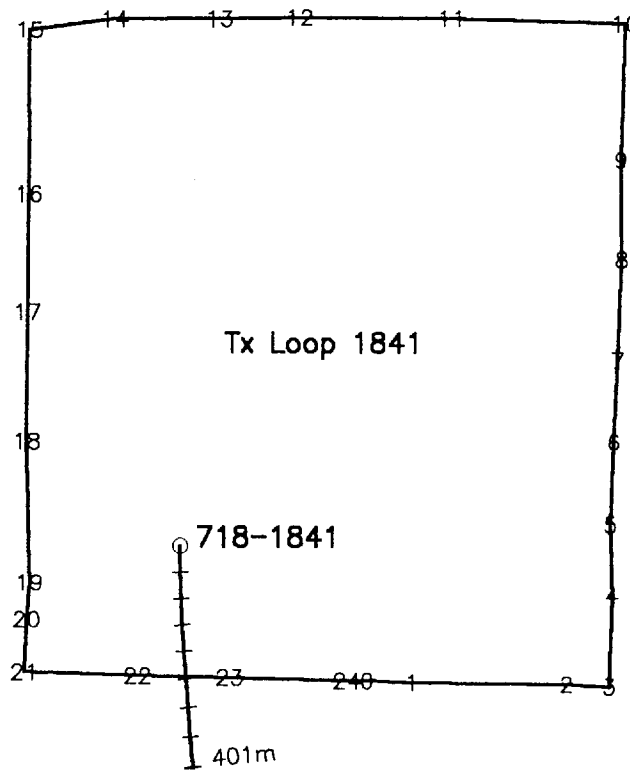
6838100N -

6838000N -

6837900N -

6837800N -

6837700N -



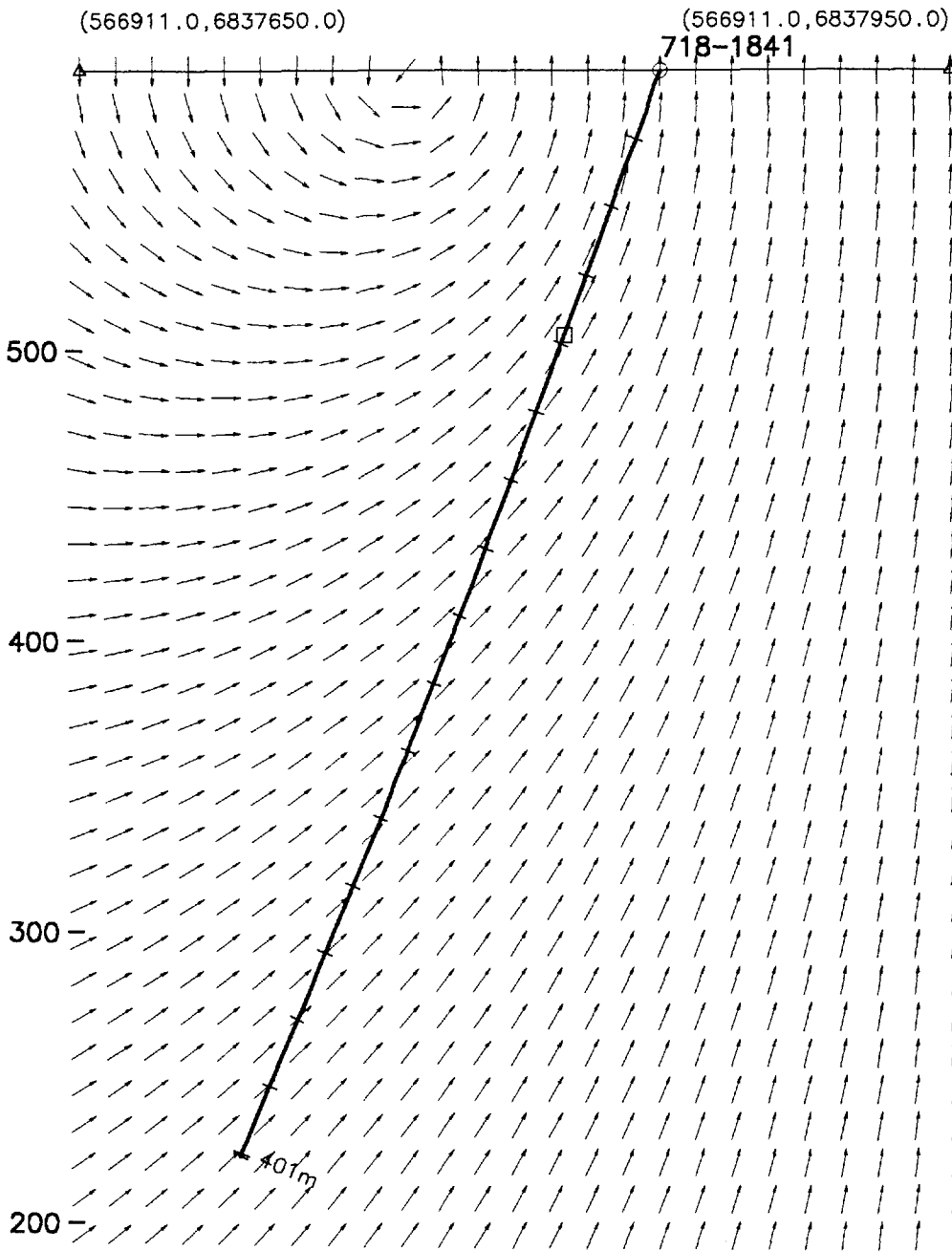
Scale 1:5000
50 0 50 100
(metres)

FALCONBRIDGE LTD.
ZONE-2

3-D Borehole Pulse EM Survey
Borehole & Loop Location Map

Hole: 718-1841
Survey Date: Jul 31, 2003

Crone Geophysics & Exploration Ltd.



Scale 1:2500
 25 0 25 50
 (metres)

FALCONBRIDGE LTD.
ZONE-2

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

Hole: 718-1841
 Survey Date: Jul 31, 2003

Crons Geophysics & Exploration Ltd.

567200E 567300E 567400E 567500E 567600E

6838600N -

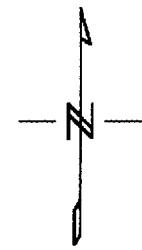
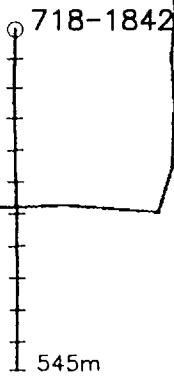
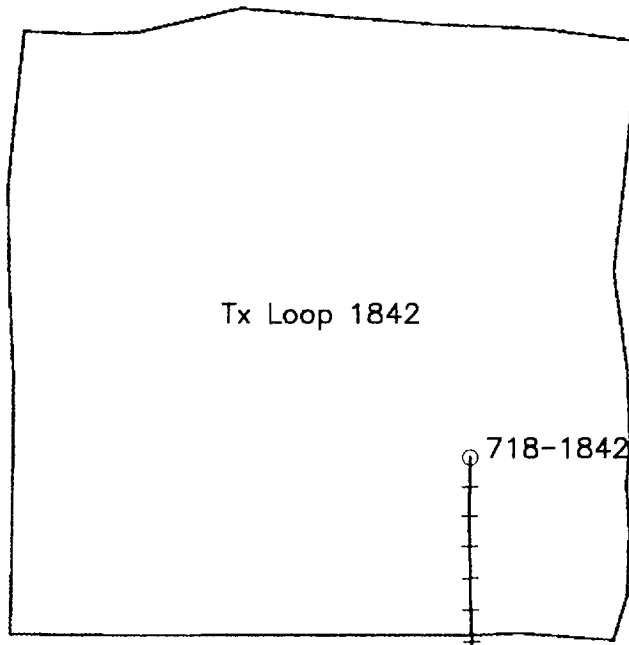
6838500N -

6838400N -

6838300N -

6838200N -

6838100N -

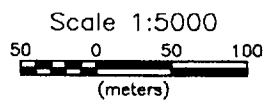
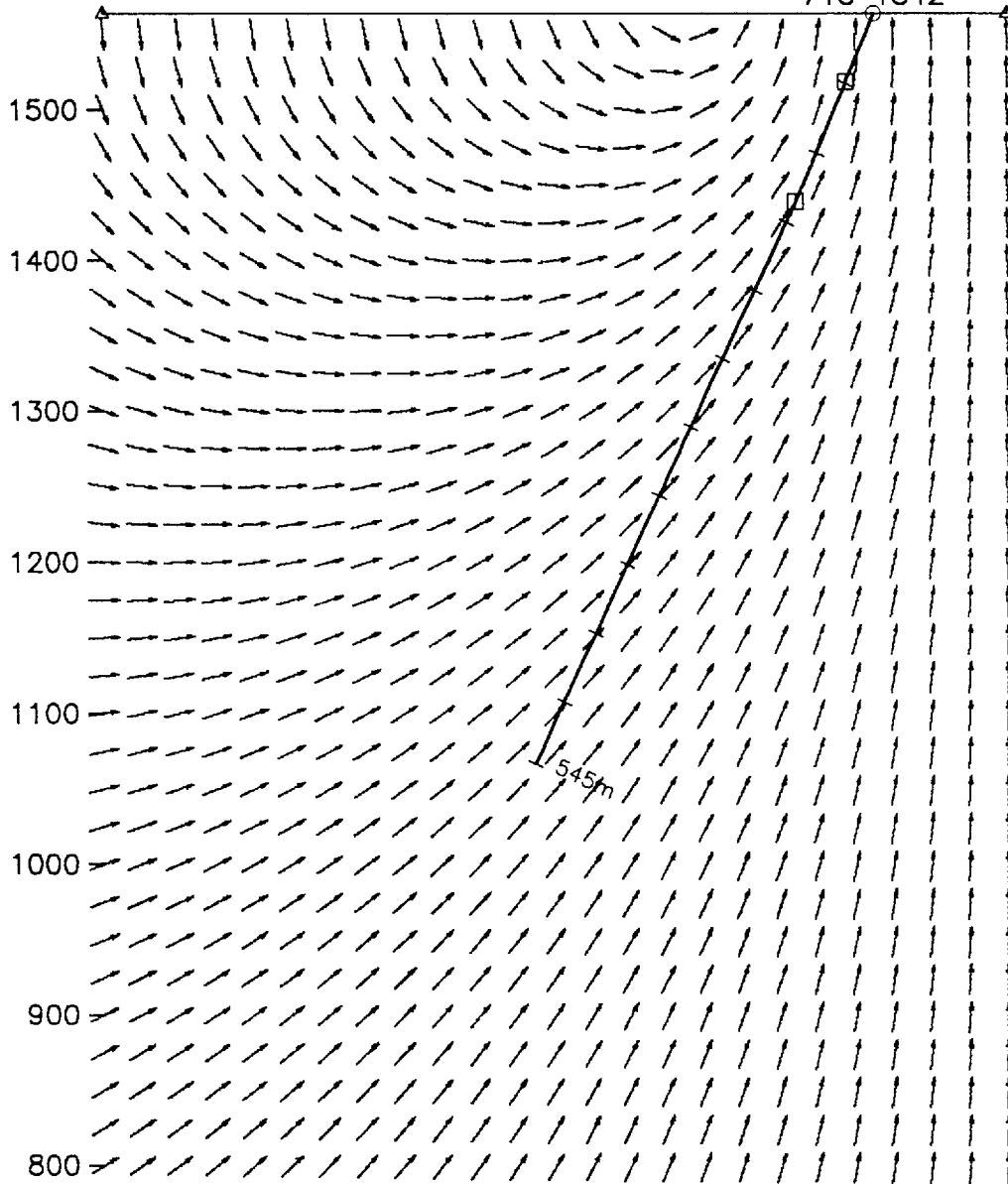


Scale 1:5000
50 0 50 100
(meters)

<i>Falconbridge Ltd.</i> Zone 2
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: 718-1842 Survey Date: Aug 7, 2003
Crone Geophysics & Exploration Ltd.

567500E, 6837800N

567500E, 6838400N
718-1842



Falconbridge Ltd.
Zone 2

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

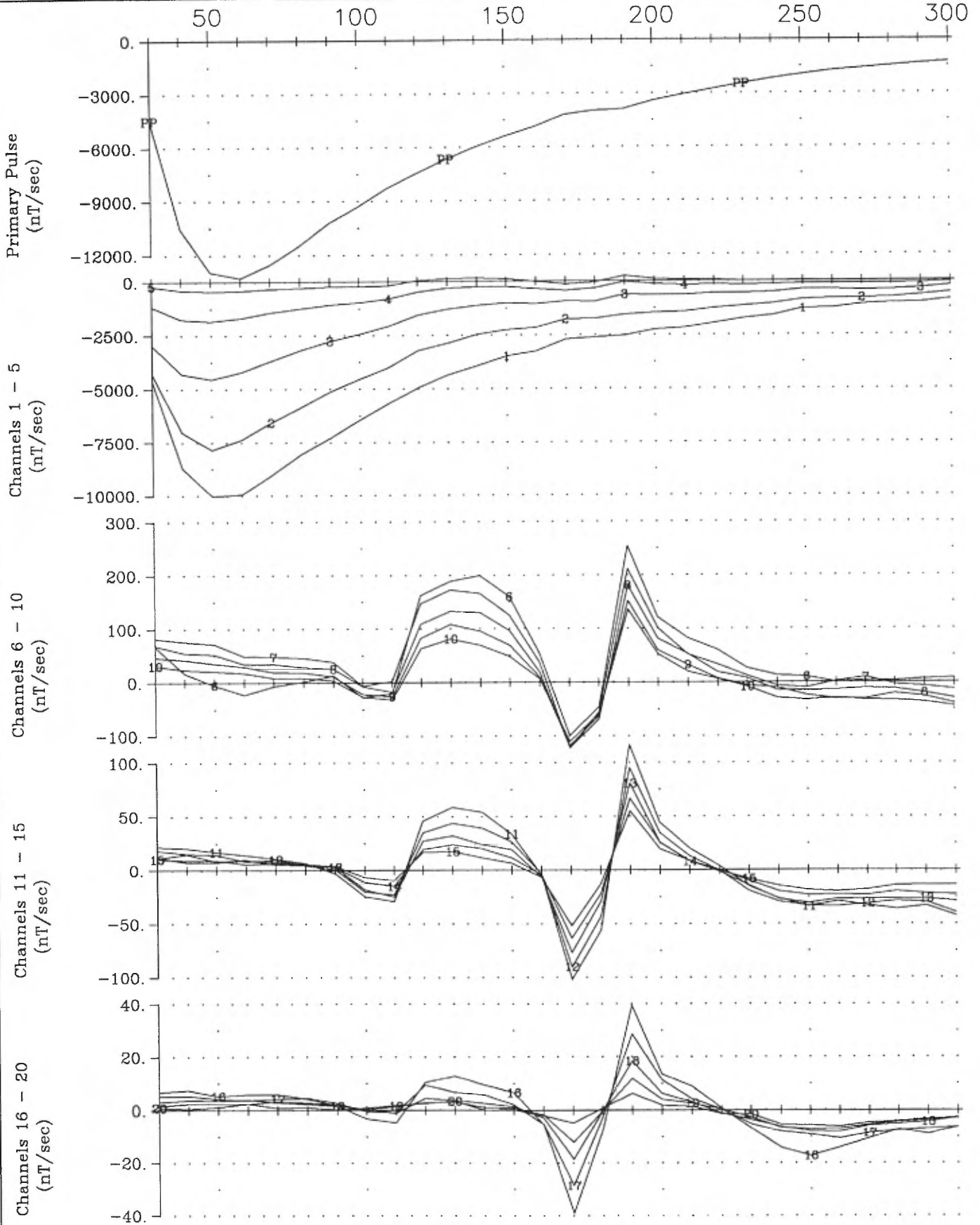
Hole: 718-1842

Survey Date: Aug 7, 2003

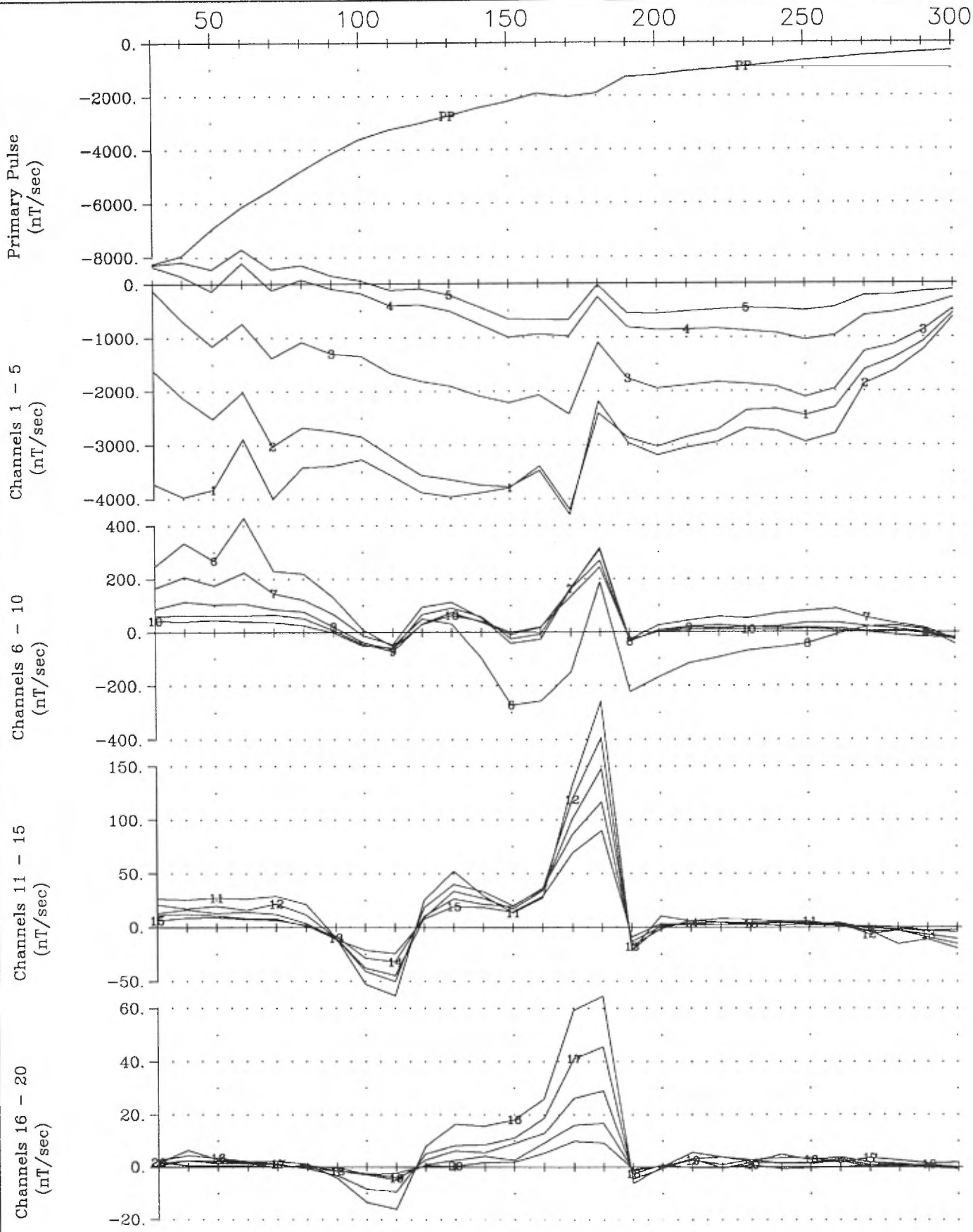
Crone Geophysics & Exploration Ltd.

Appendix B
Linear (5-axis) Pulse EM Data Profiles

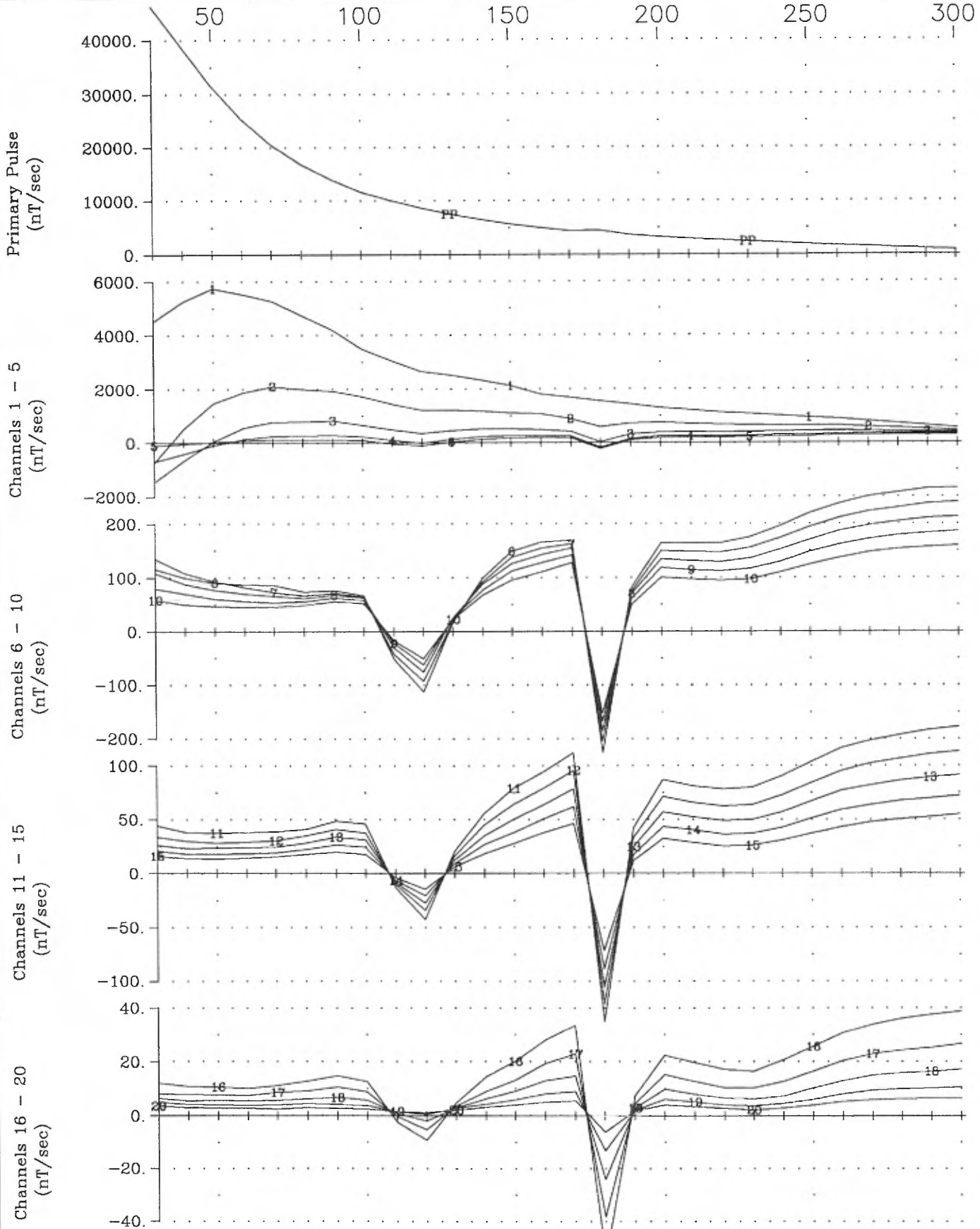




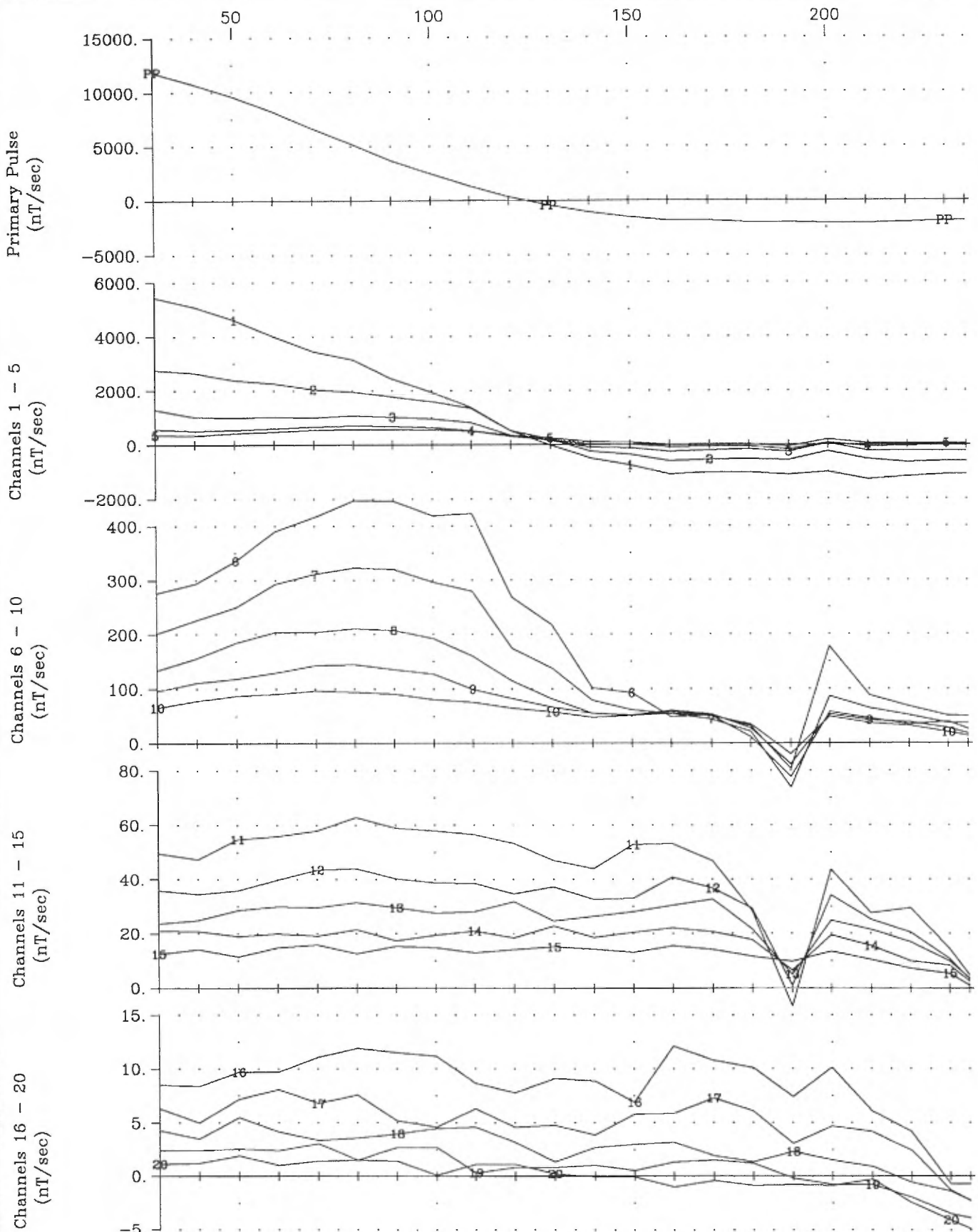
Falconbridge Ltd. ZONE 2
 Hole 718-1761 X Component
 Crone Geophysics & Exploration Ltd.



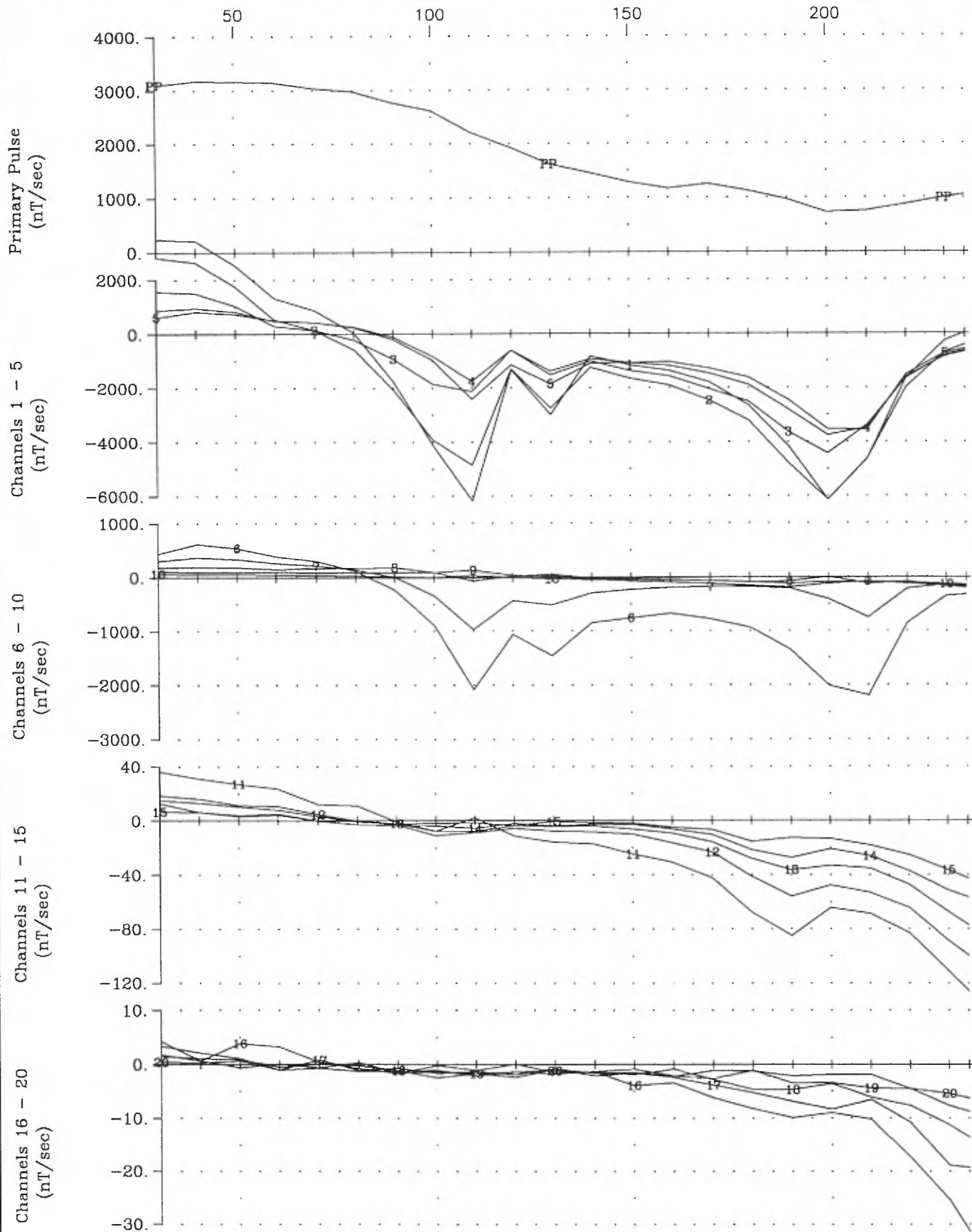
Falconbridge Ltd. ZONE 2
 Hole 718-1761 Y Component
 Crone Geophysics & Exploration Ltd.



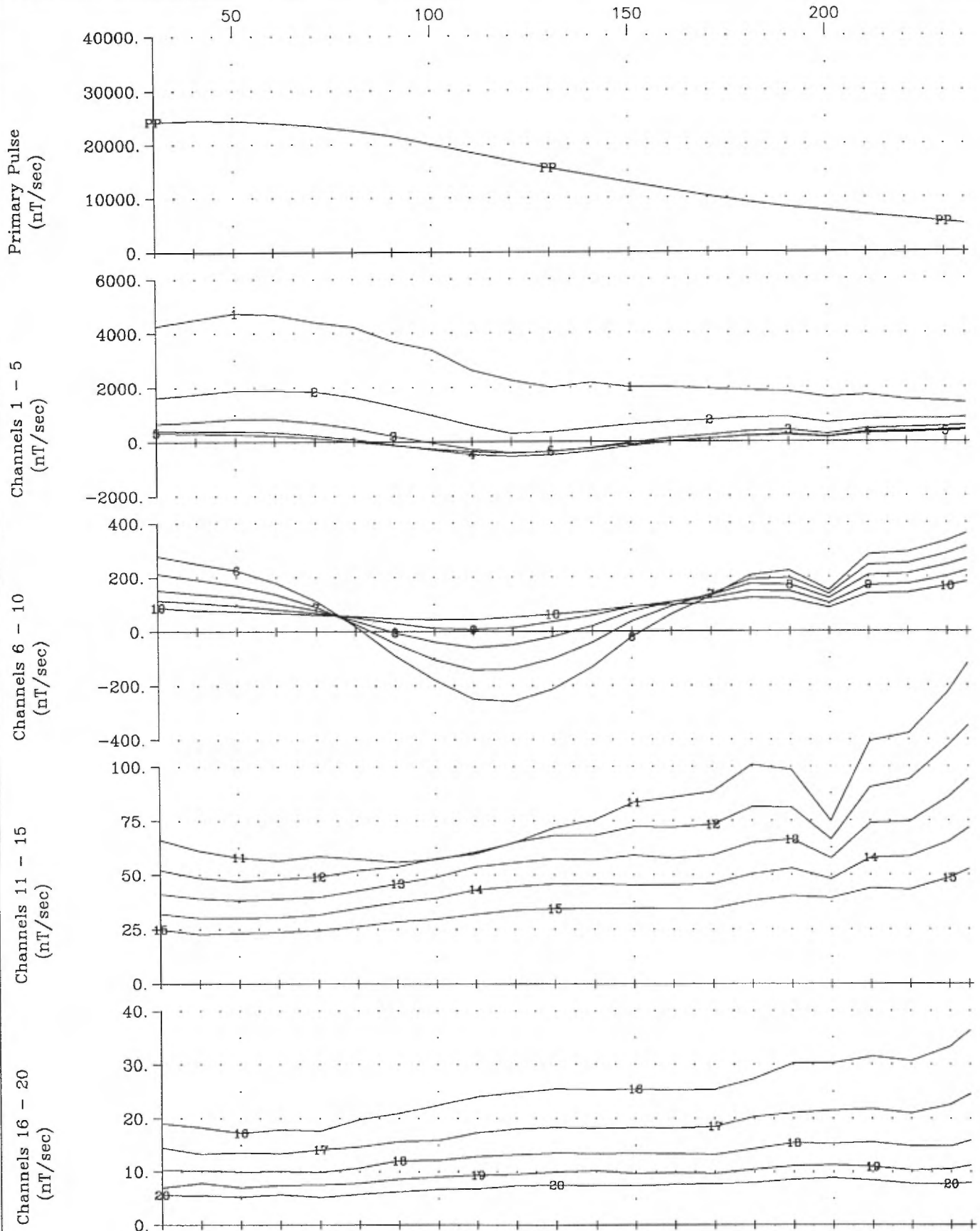
Falconbridge Ltd. ZONE 2
 Hole 718-1761 Z Component
 Crone Geophysics & Exploration Ltd.



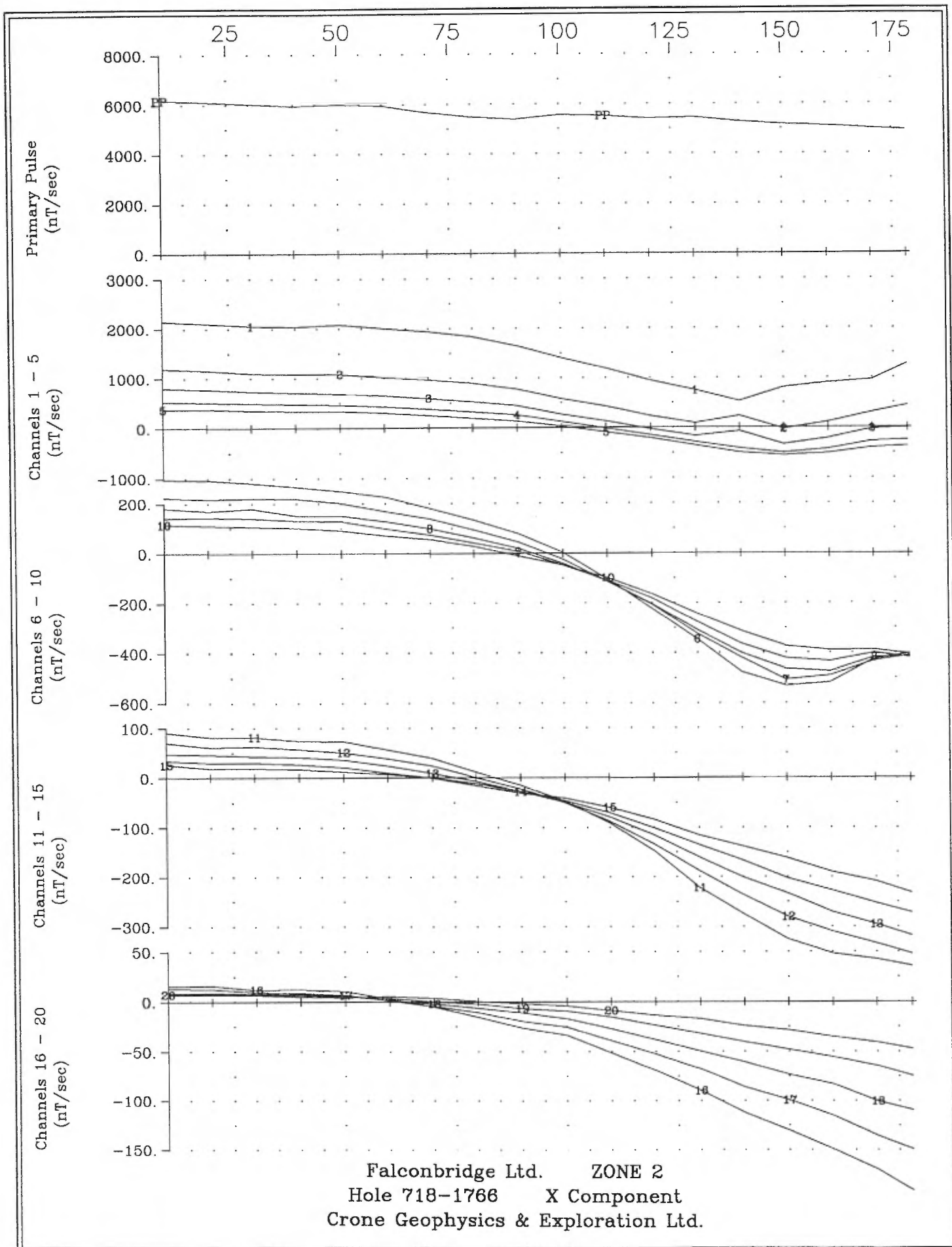
Falconbridge Ltd. ZONE 2
Hole 718-1762 X Component
Crone Geophysics & Exploration Ltd

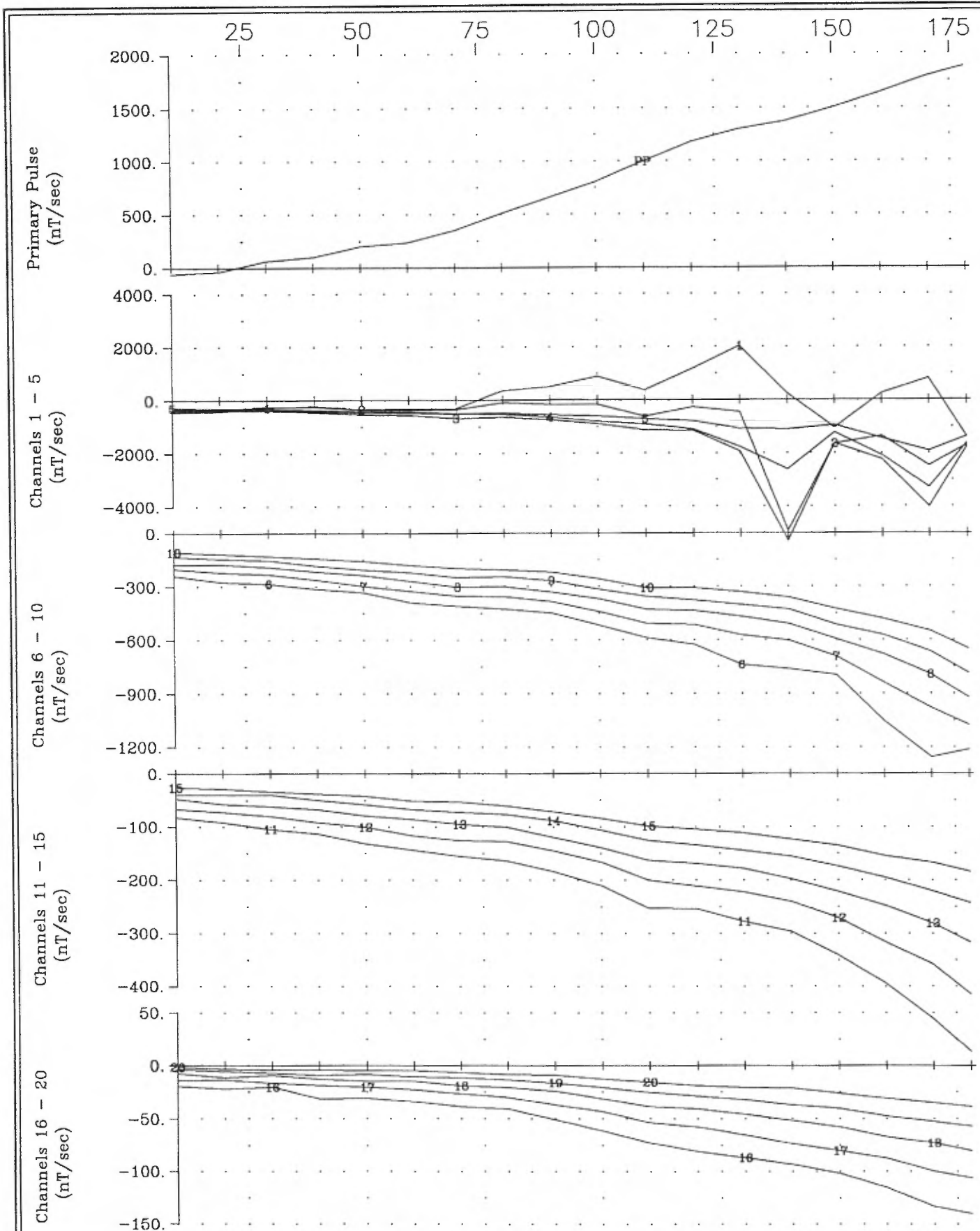


Falconbridge Ltd. ZONE 2
Hole 718-1762 Y Component
Crone Geophysics & Exploration Ltd

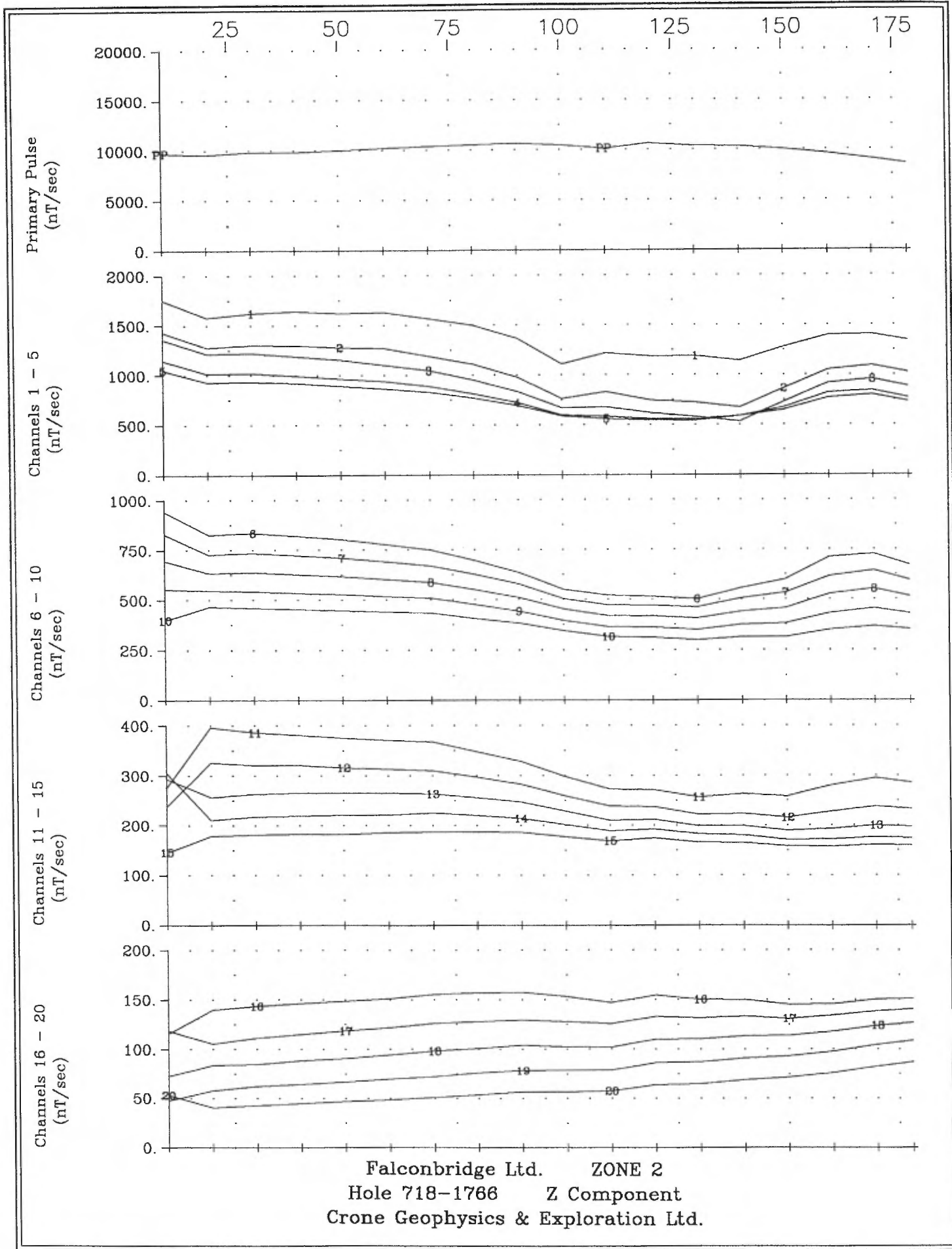


Falconbridge Ltd. ZONE 2
 Hole 718-1762 Z Component
 Crone Geophysics & Exploration Ltd

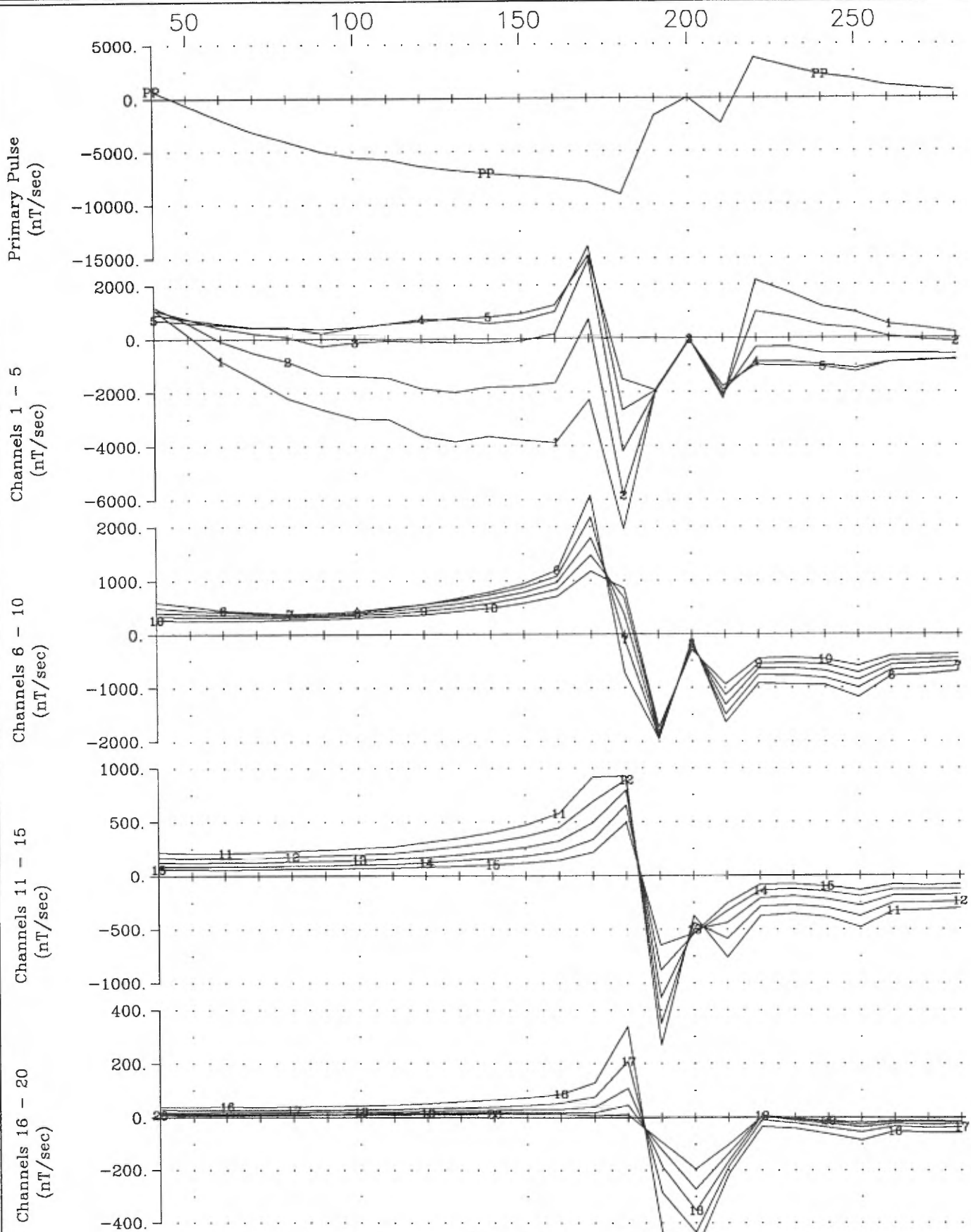




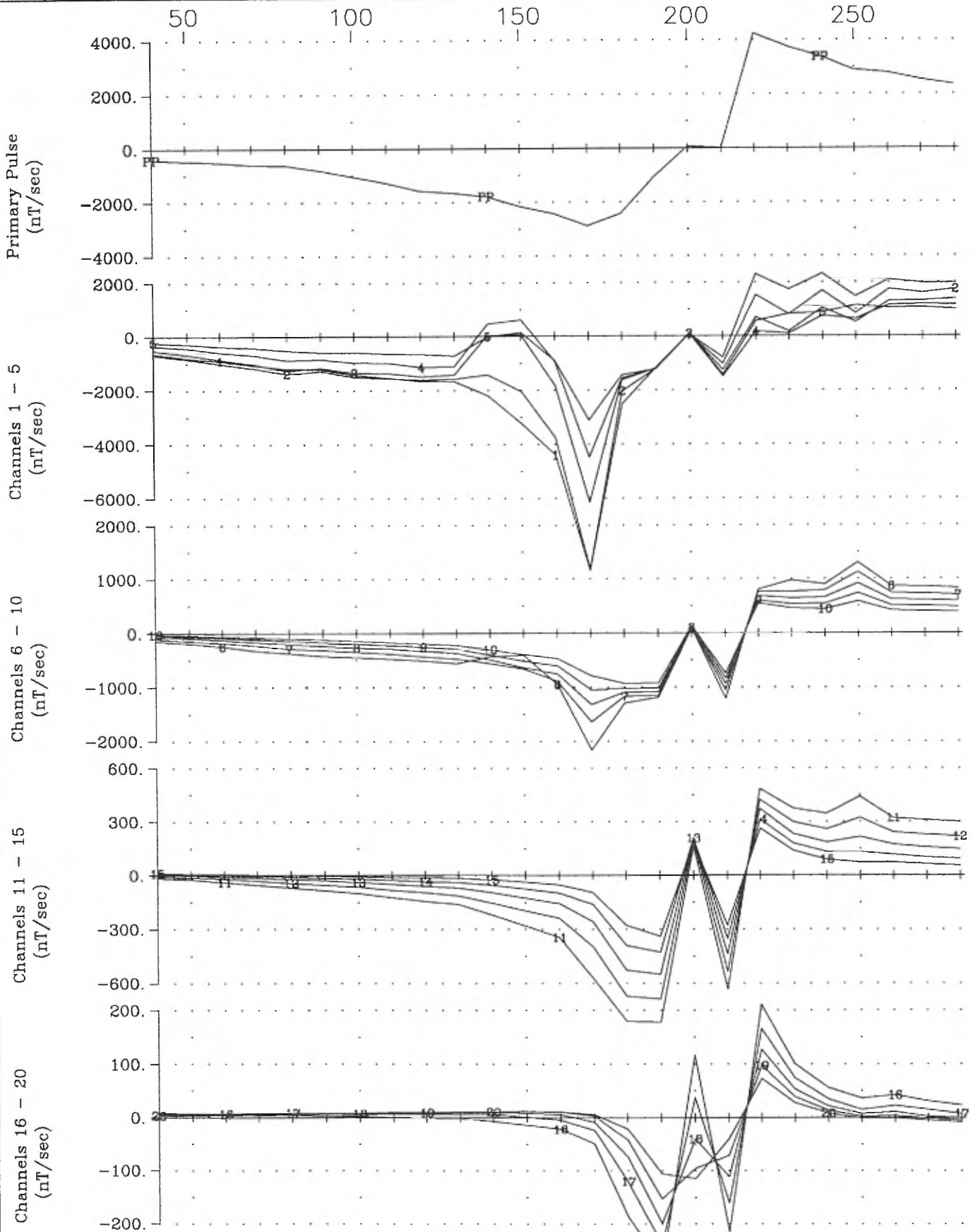
Falconbridge Ltd. ZONE 2
 Hole 718-1766 Y Component
 Crone Geophysics & Exploration Ltd.



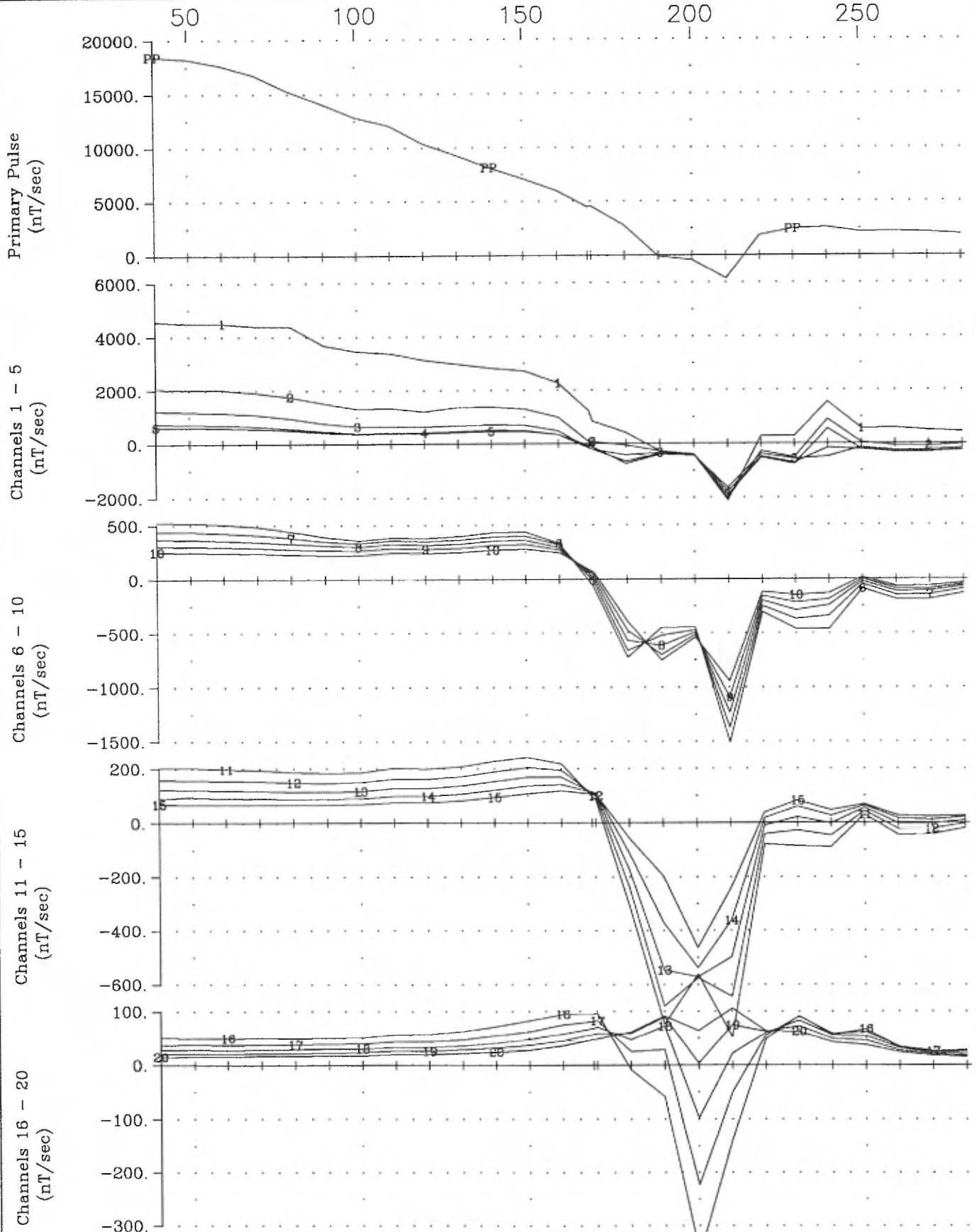
Falconbridge Ltd. ZONE 2
 Hole 718-1766 Z Component
 Crone Geophysics & Exploration Ltd.



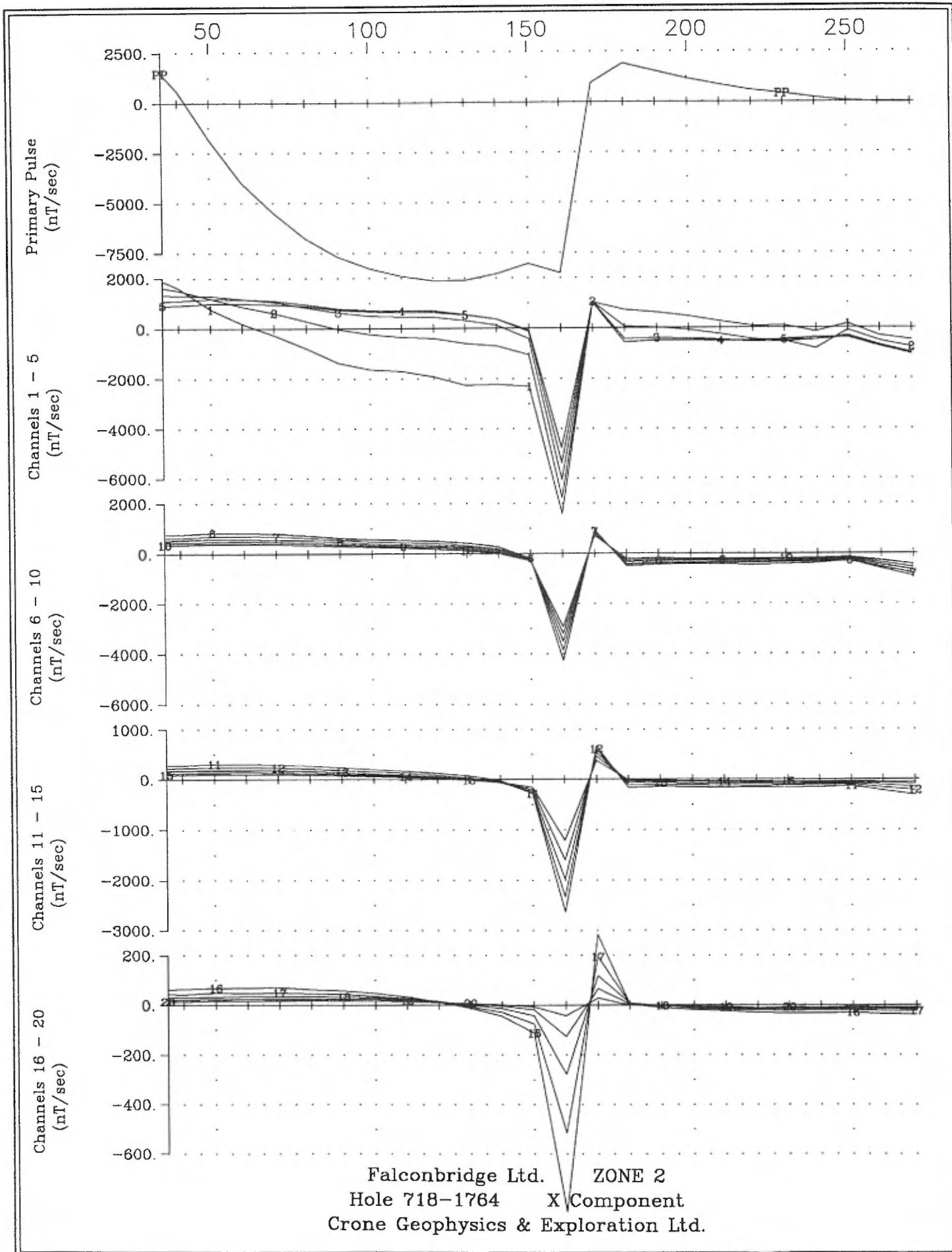
Falconbridge Ltd. ZONE 2
 Hole 718-1765 X Component
 Crone Geophysics & Exploration Ltd.

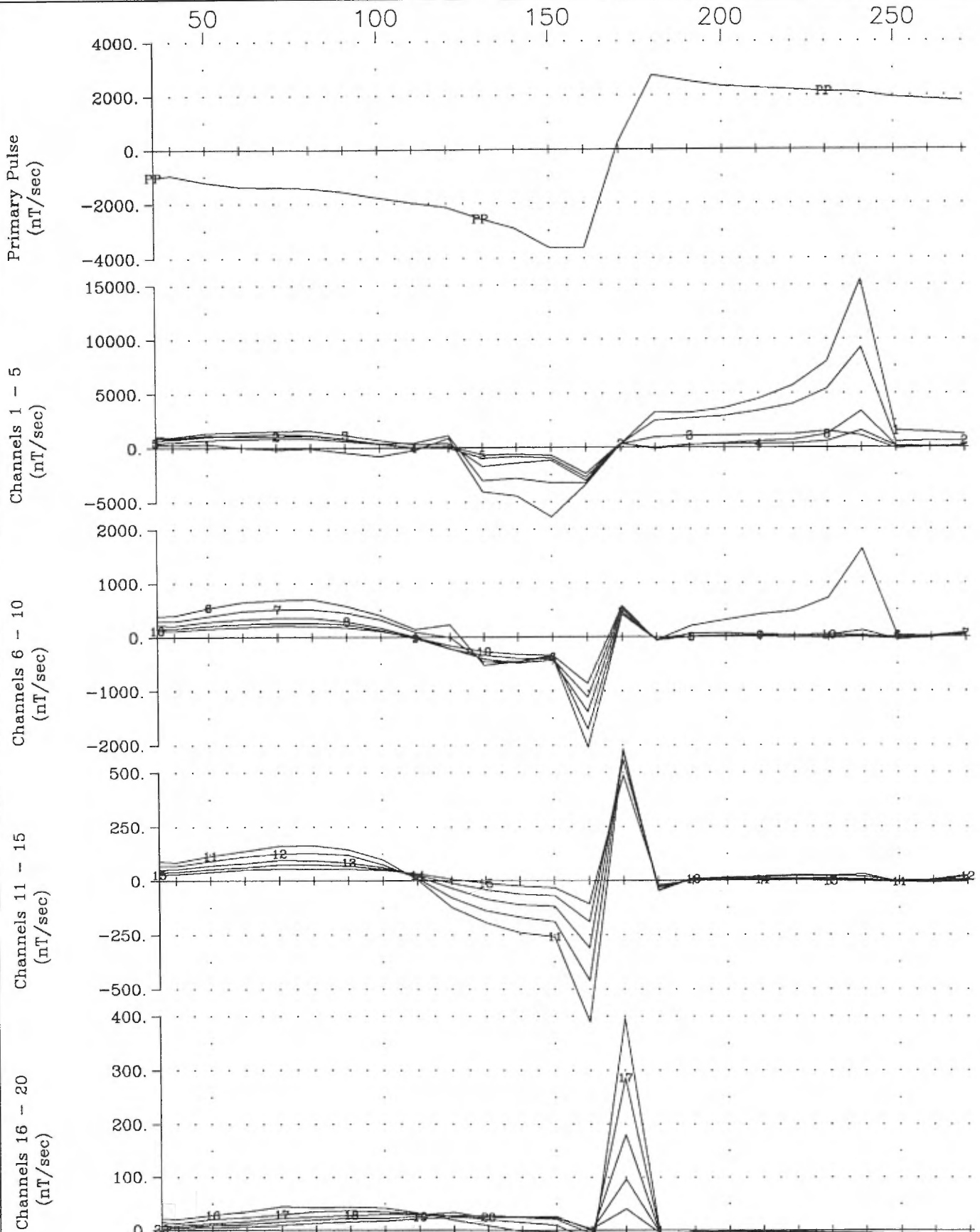


Falconbridge Ltd. ZONE 2
Hole 718-1765 Y Component
Crone Geophysics & Exploration Ltd.

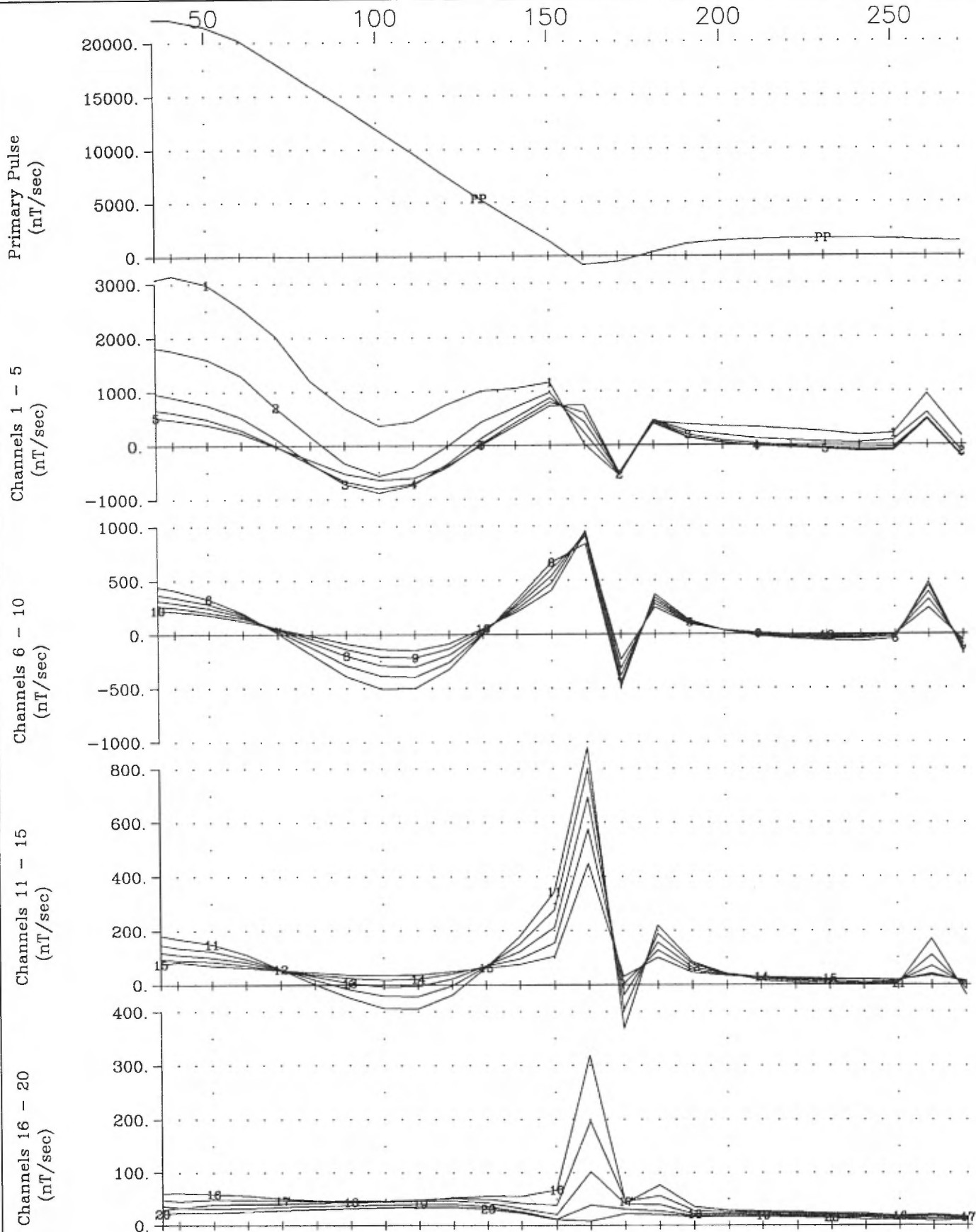


Falconbridge Ltd. ZONE 2
Hole 718-1765 Z Component
Crone Geophysics & Exploration Ltd.

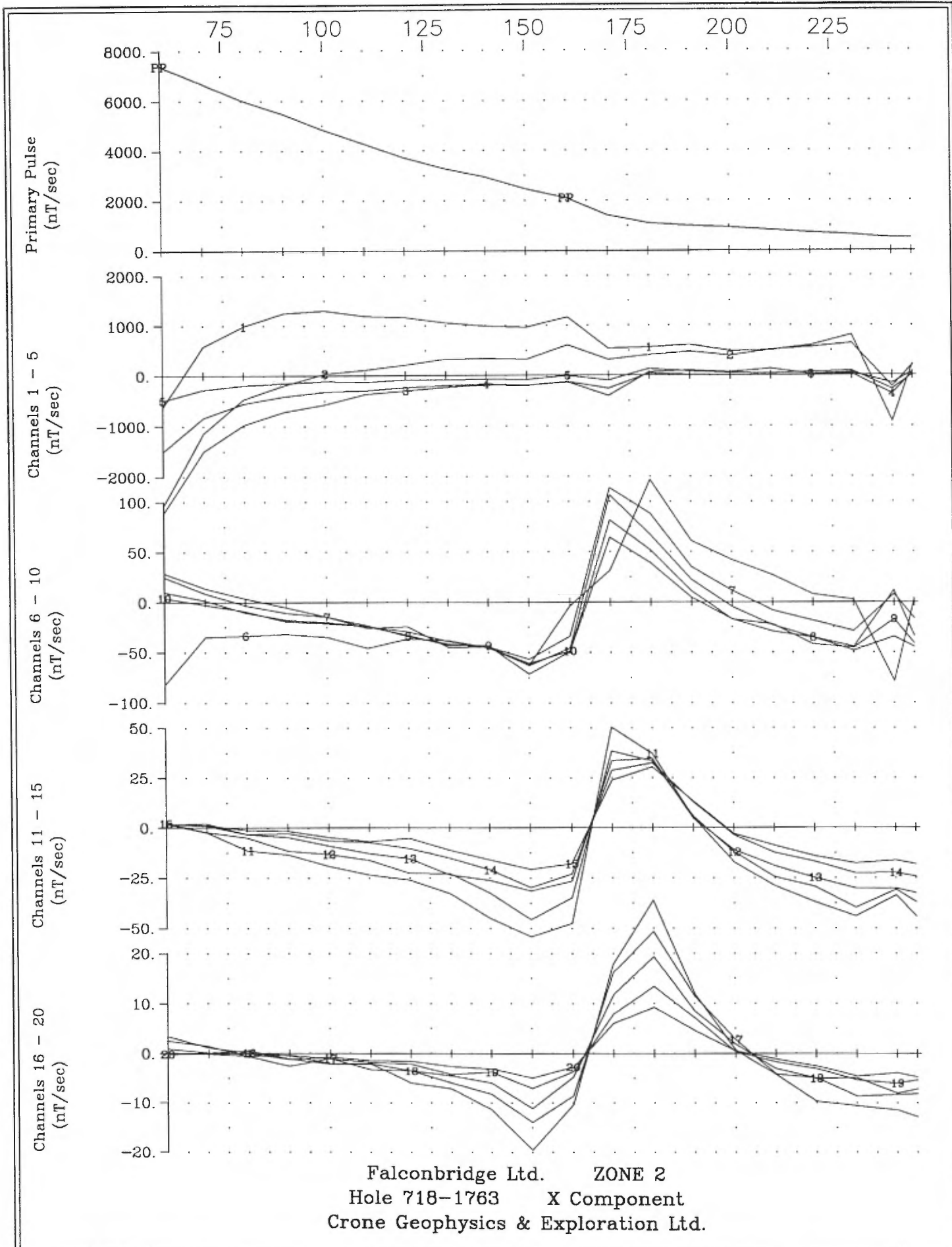


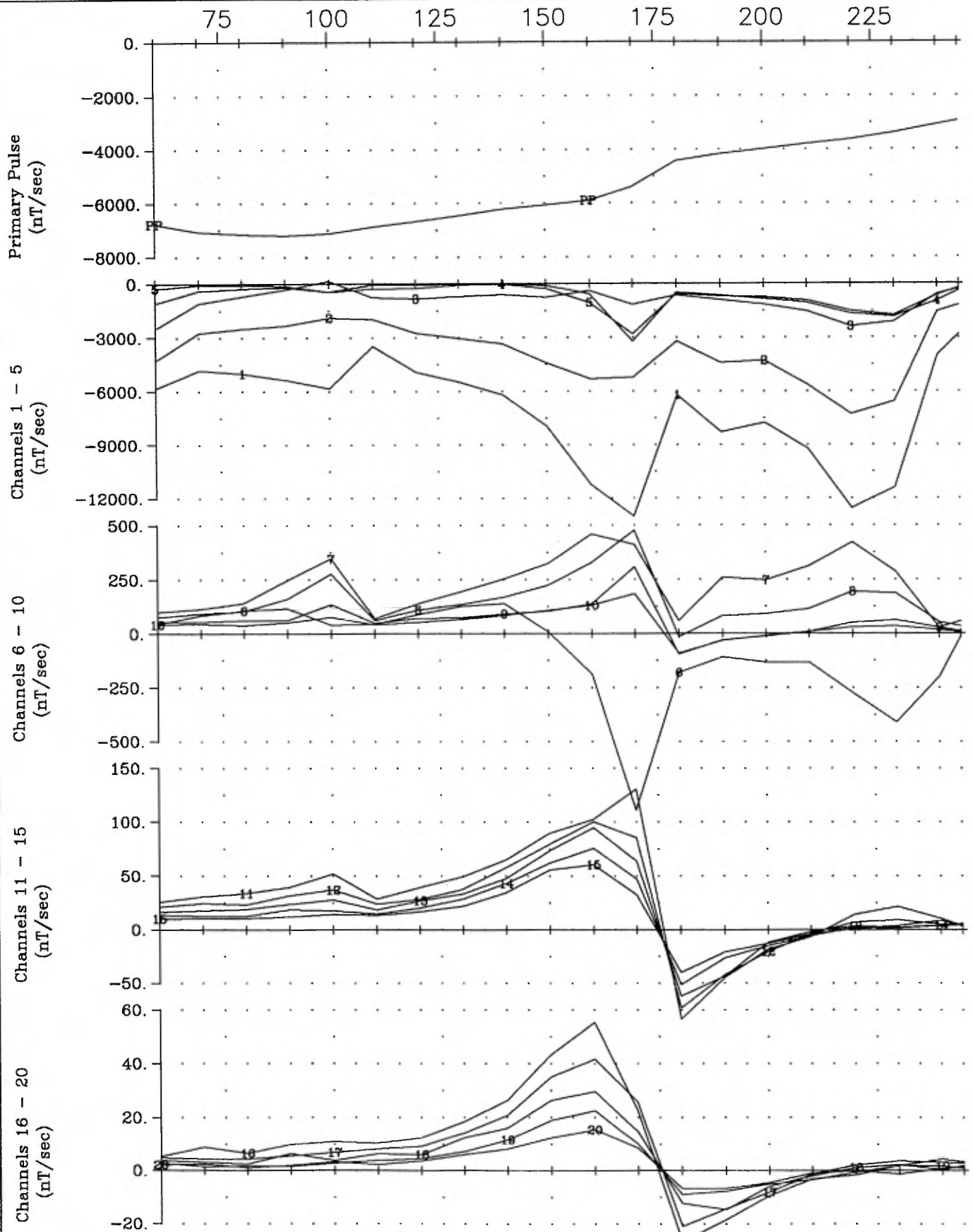


Falconbridge Ltd. ZONE 2
 Hole 718-1764 Y Component
 Crone Geophysics & Exploration Ltd.

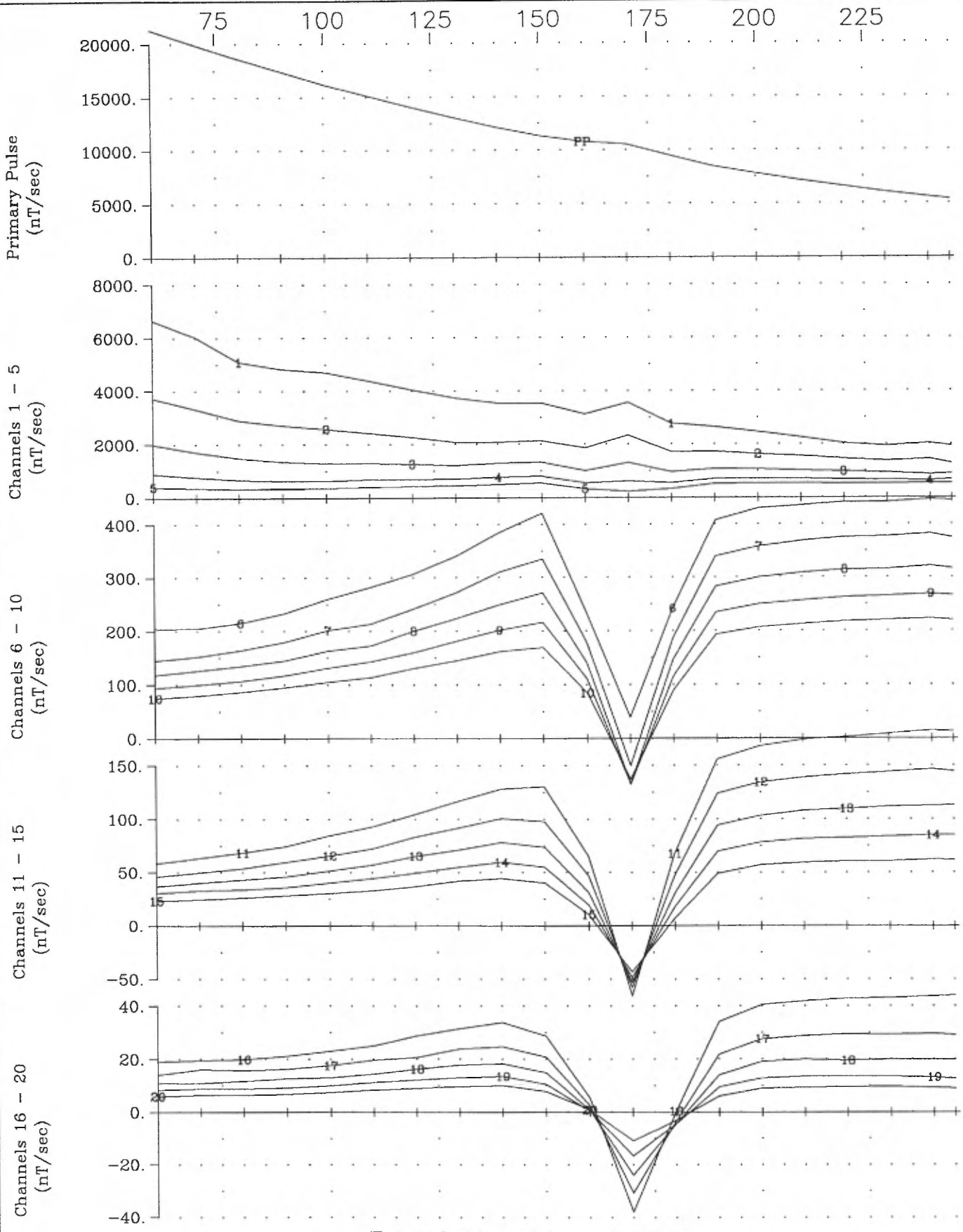


Falconbridge Ltd. ZONE 2
 Hole 718-1764 Z Component
 Crone Geophysics & Exploration Ltd.

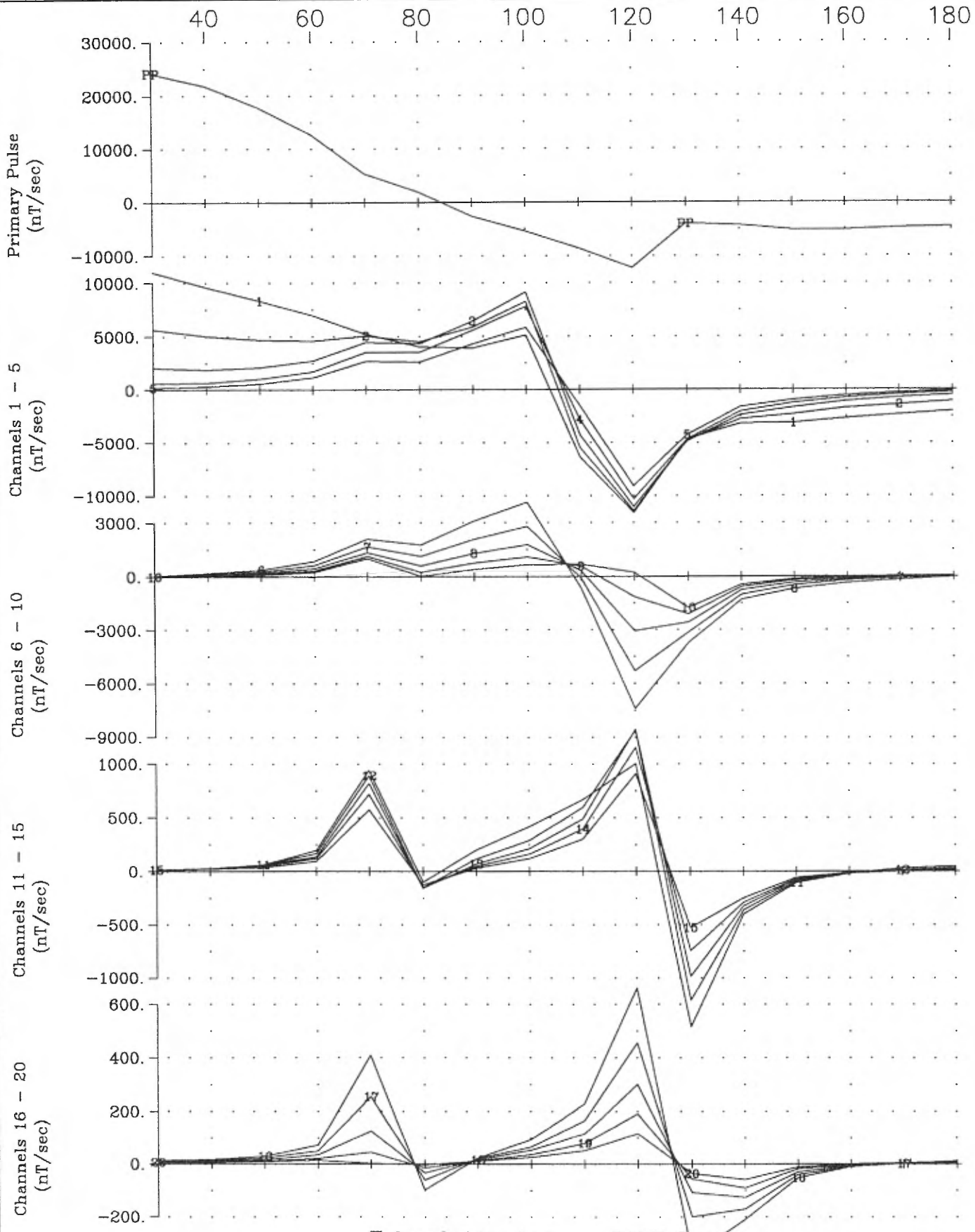




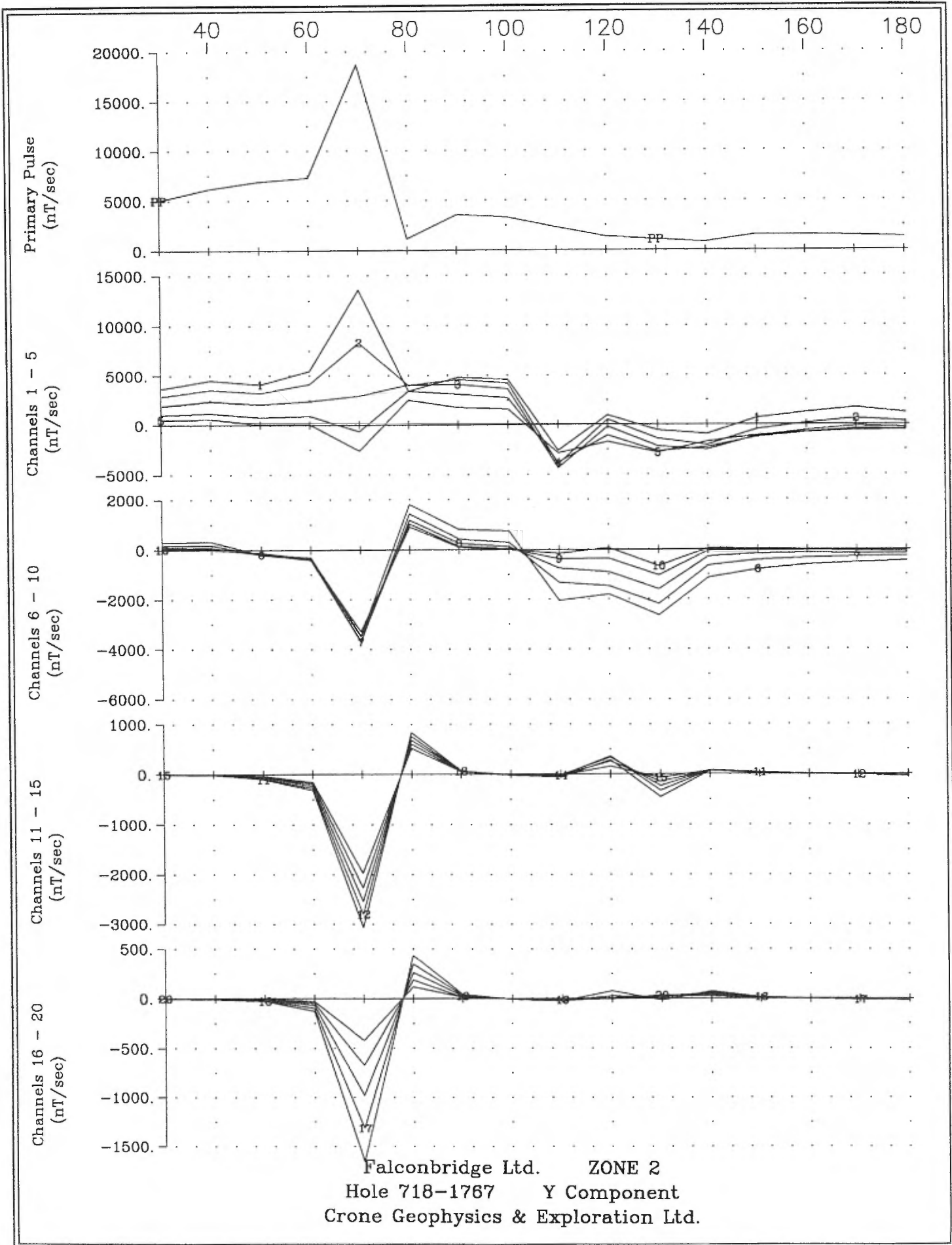
Falconbridge Ltd. ZONE 2
 Hole 718-1763 Y Component
 Crone Geophysics & Exploration Ltd.

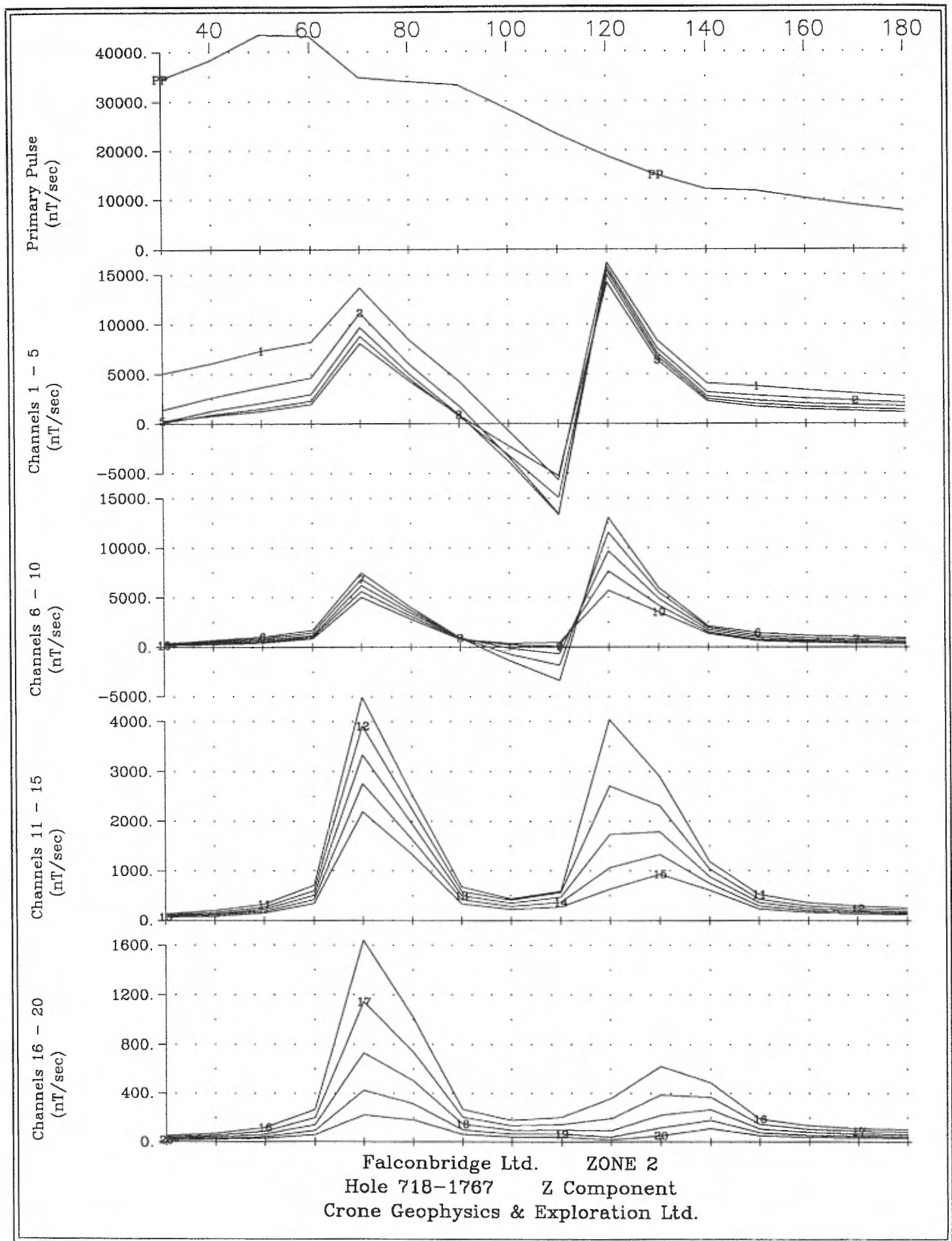


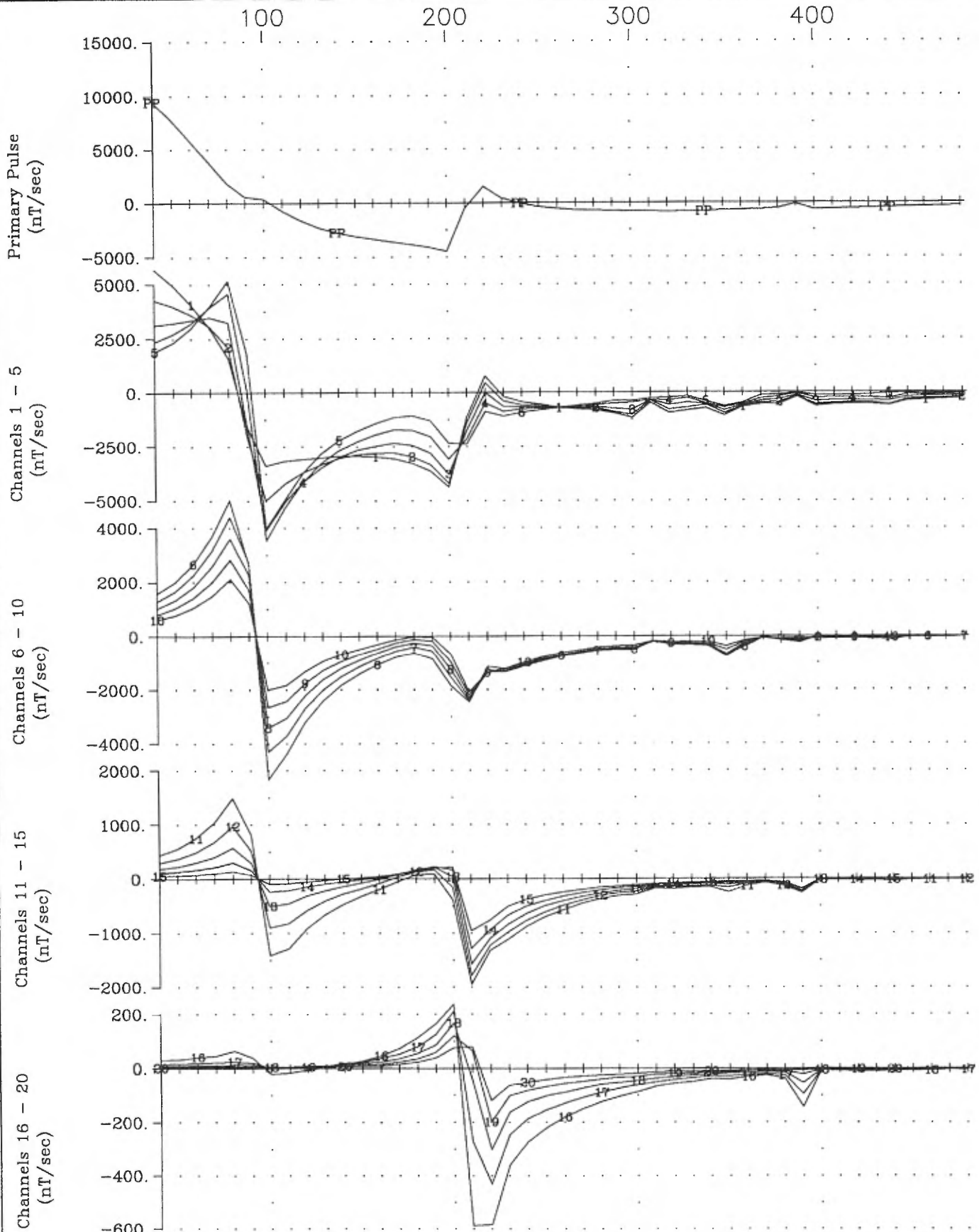
Falconbridge Ltd. ZONE 2
 Hole 718-1763 Z Component
 Crone Geophysics & Exploration Ltd.



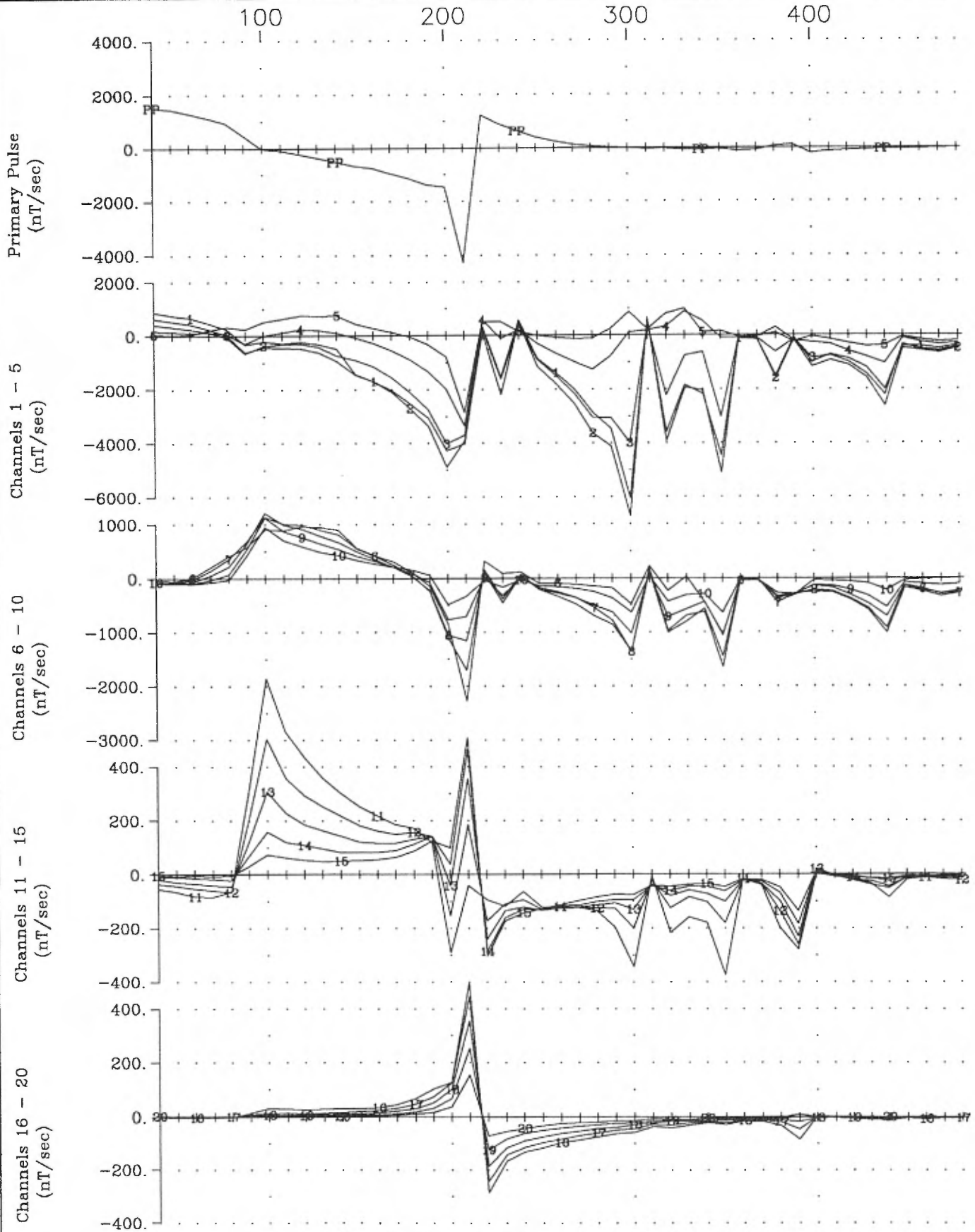
Falconbridge Ltd. ZONE 2
 Hole 718-1767 X Component
 Crone Geophysics & Exploration Ltd.



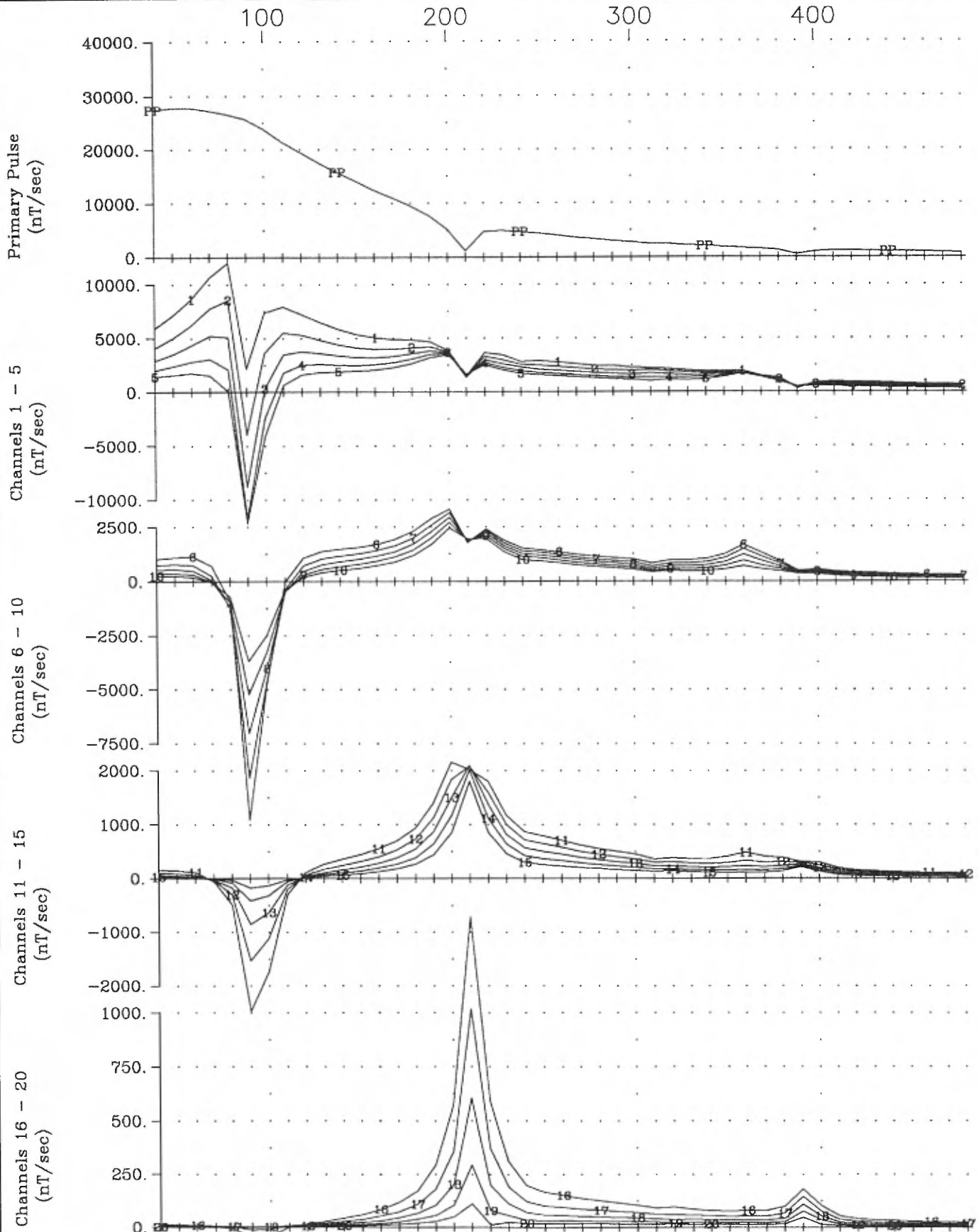




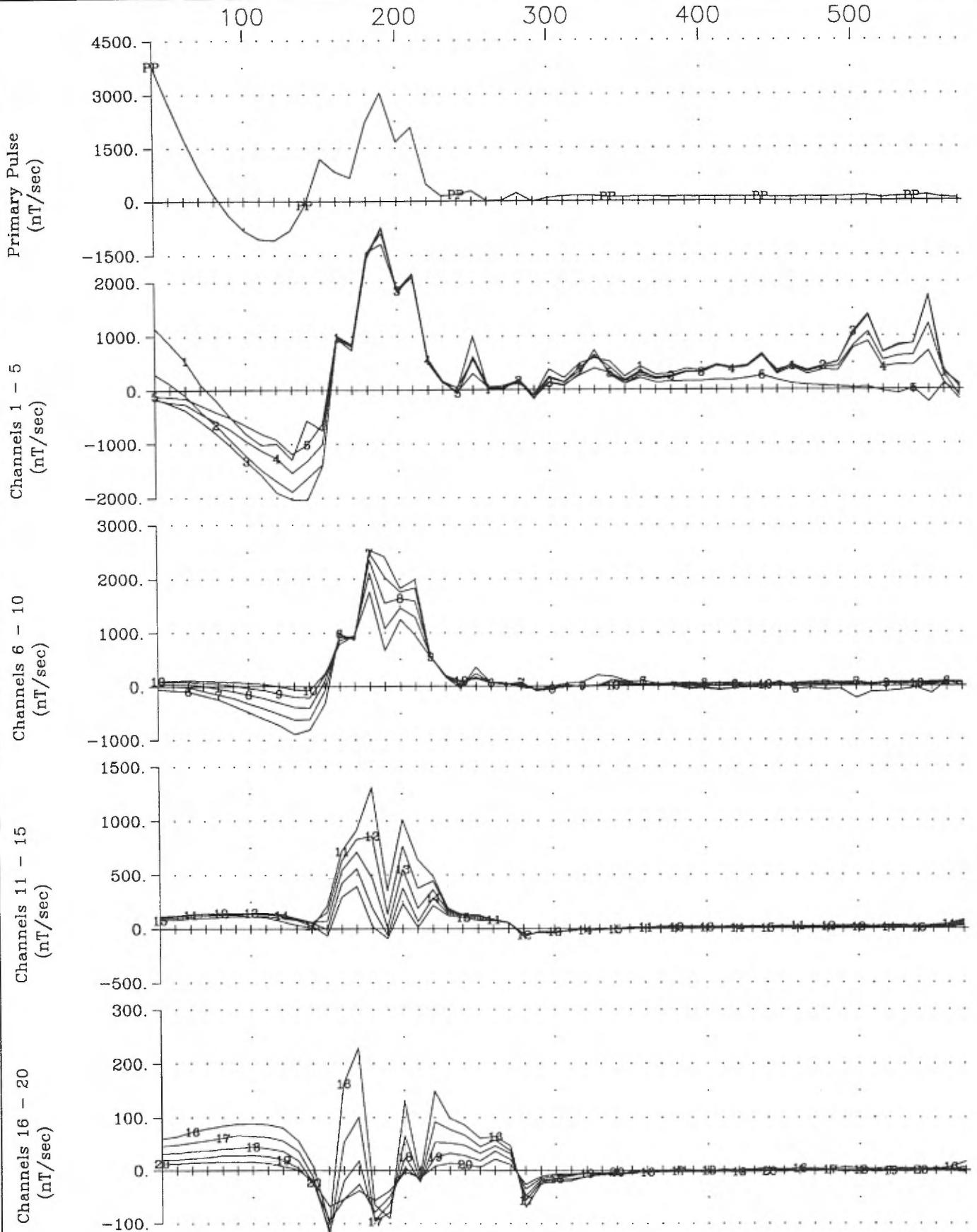
Falconbridge Ltd. ZONE 2
 Hole 718-1768 X Component
 Crone Geophysics & Exploration Ltd.



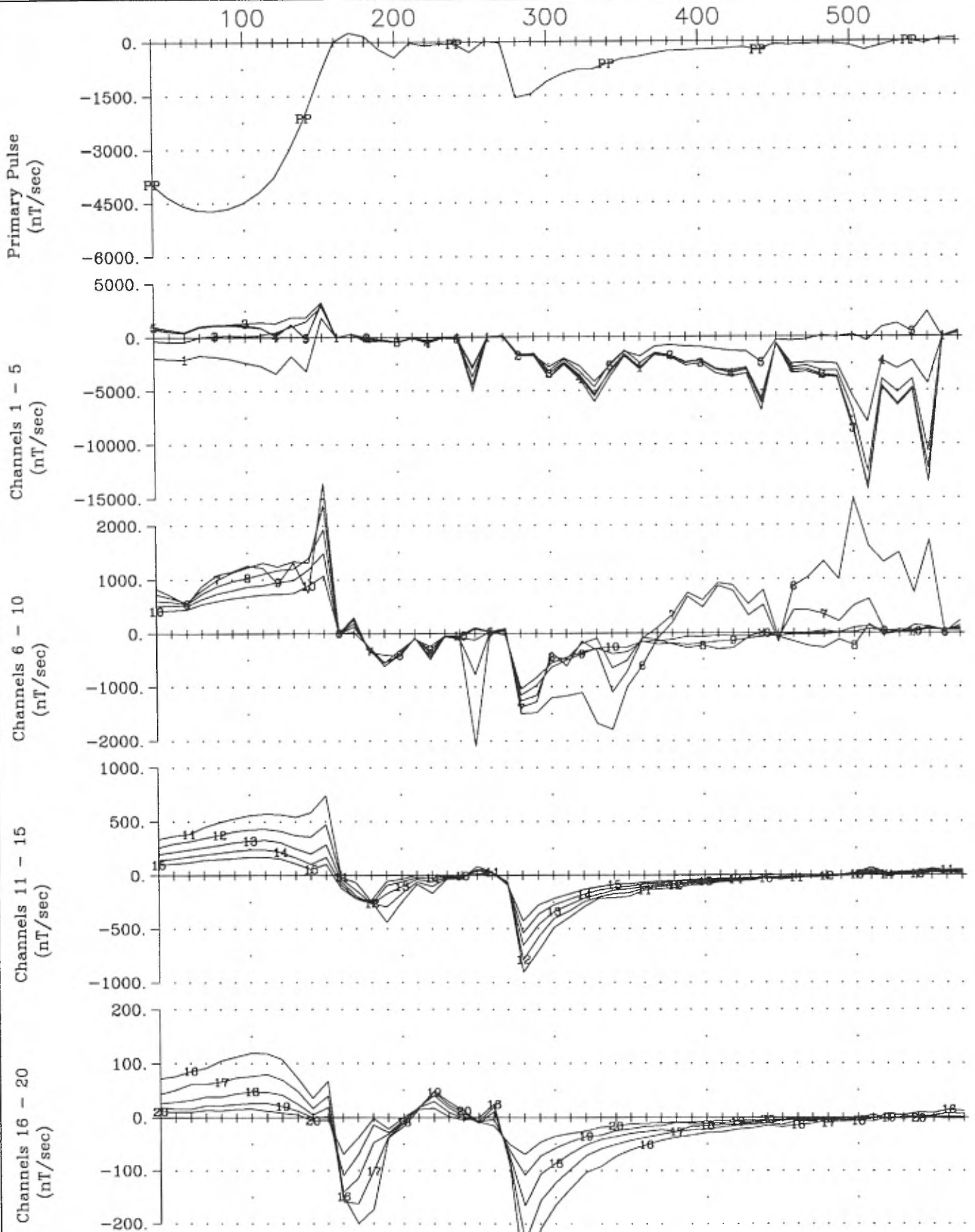
Falconbridge Ltd. ZONE 2
 Hole 718-1768 Y Component
 Crone Geophysics & Exploration Ltd.



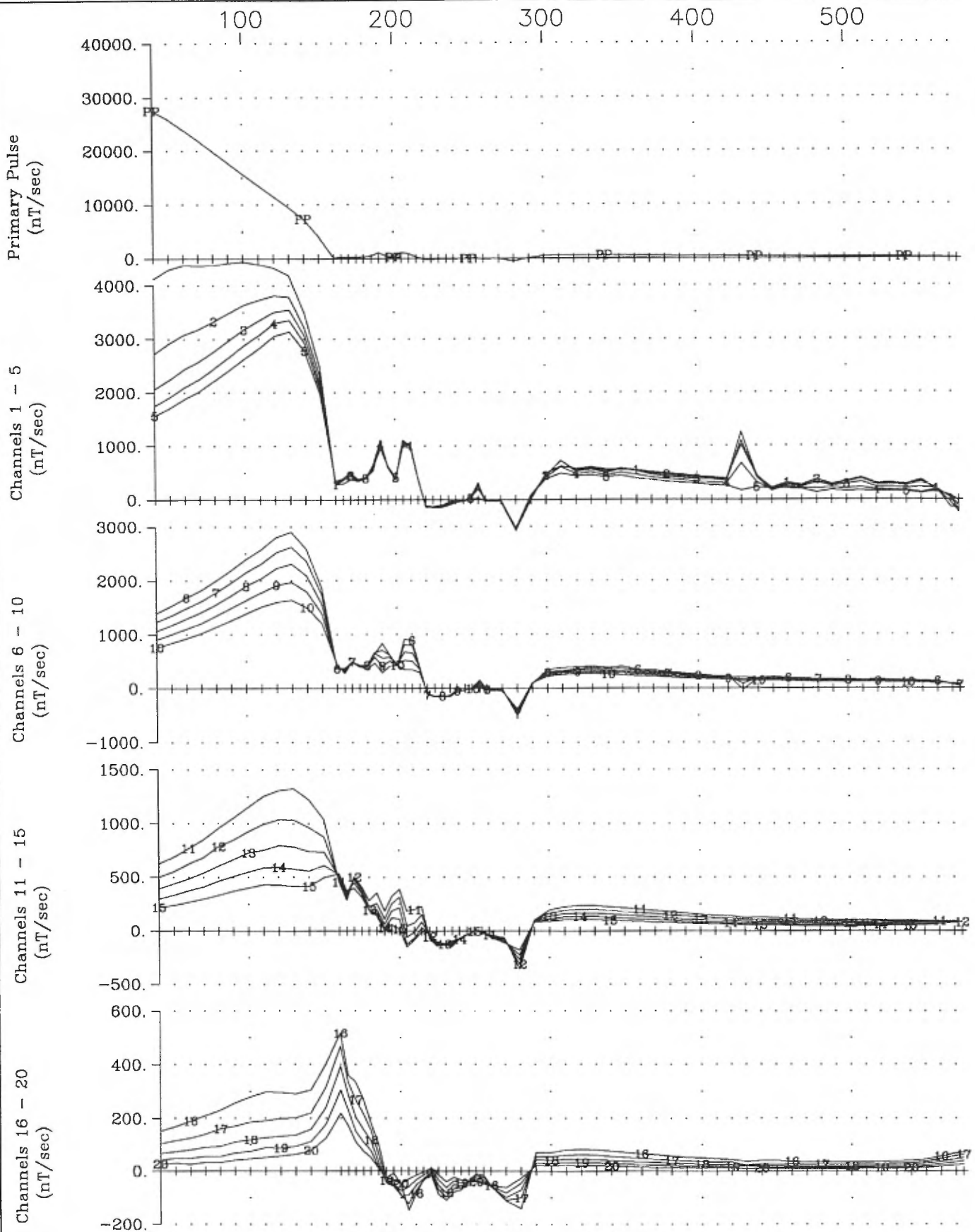
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Hole 718-1768 Z Component
Crone Geophysics & Exploration Ltd.



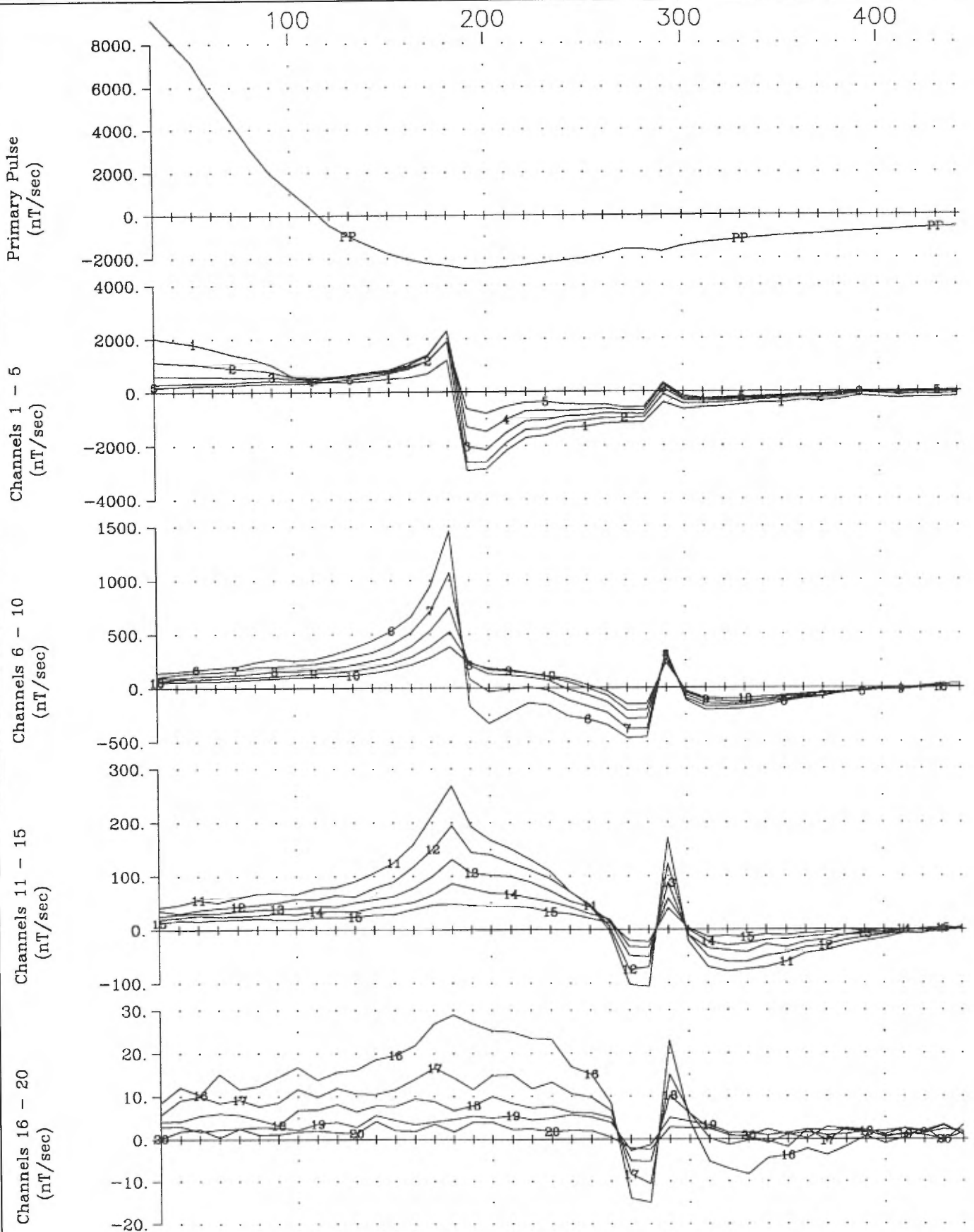
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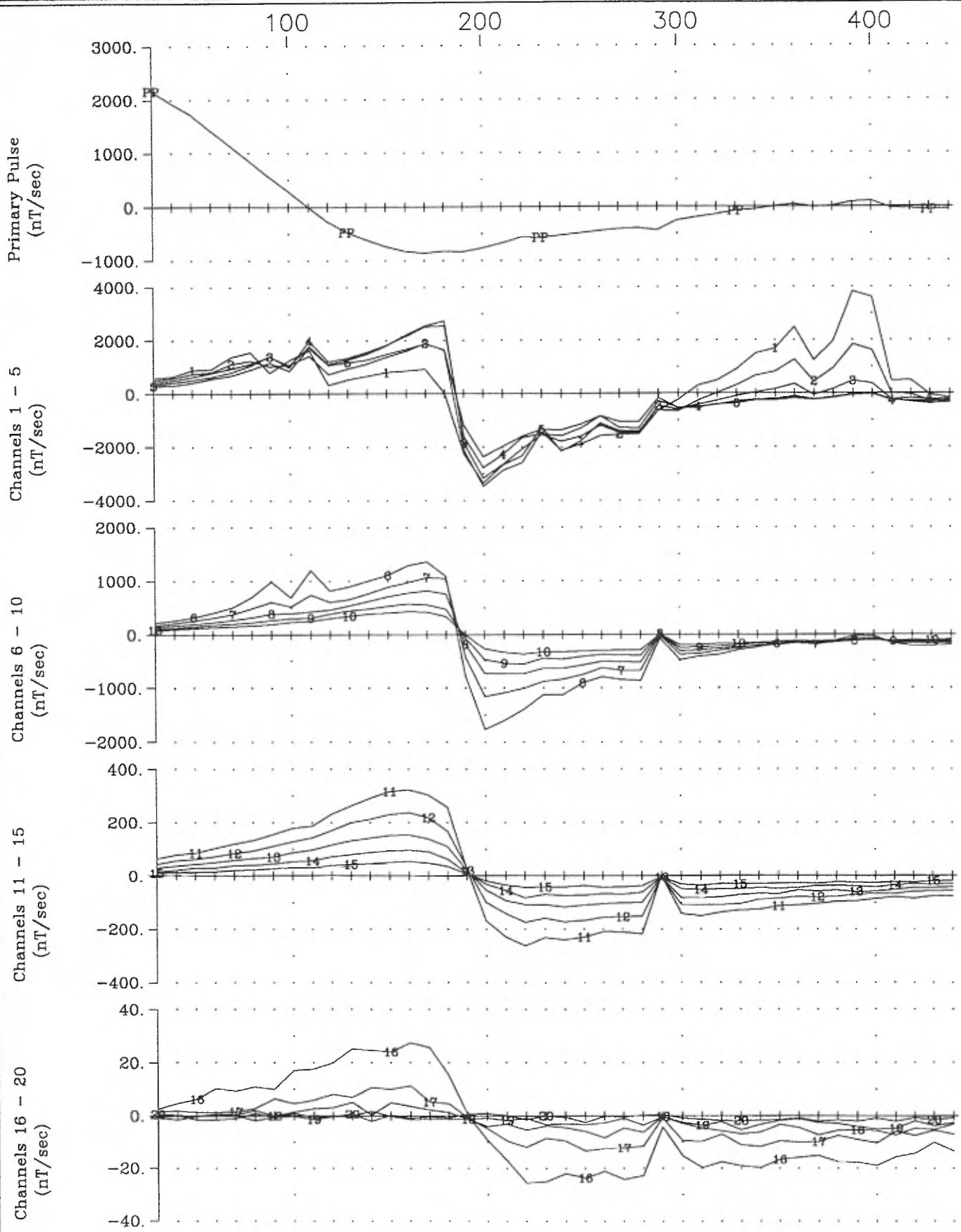
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Crone Geophysics & Exploration Ltd.



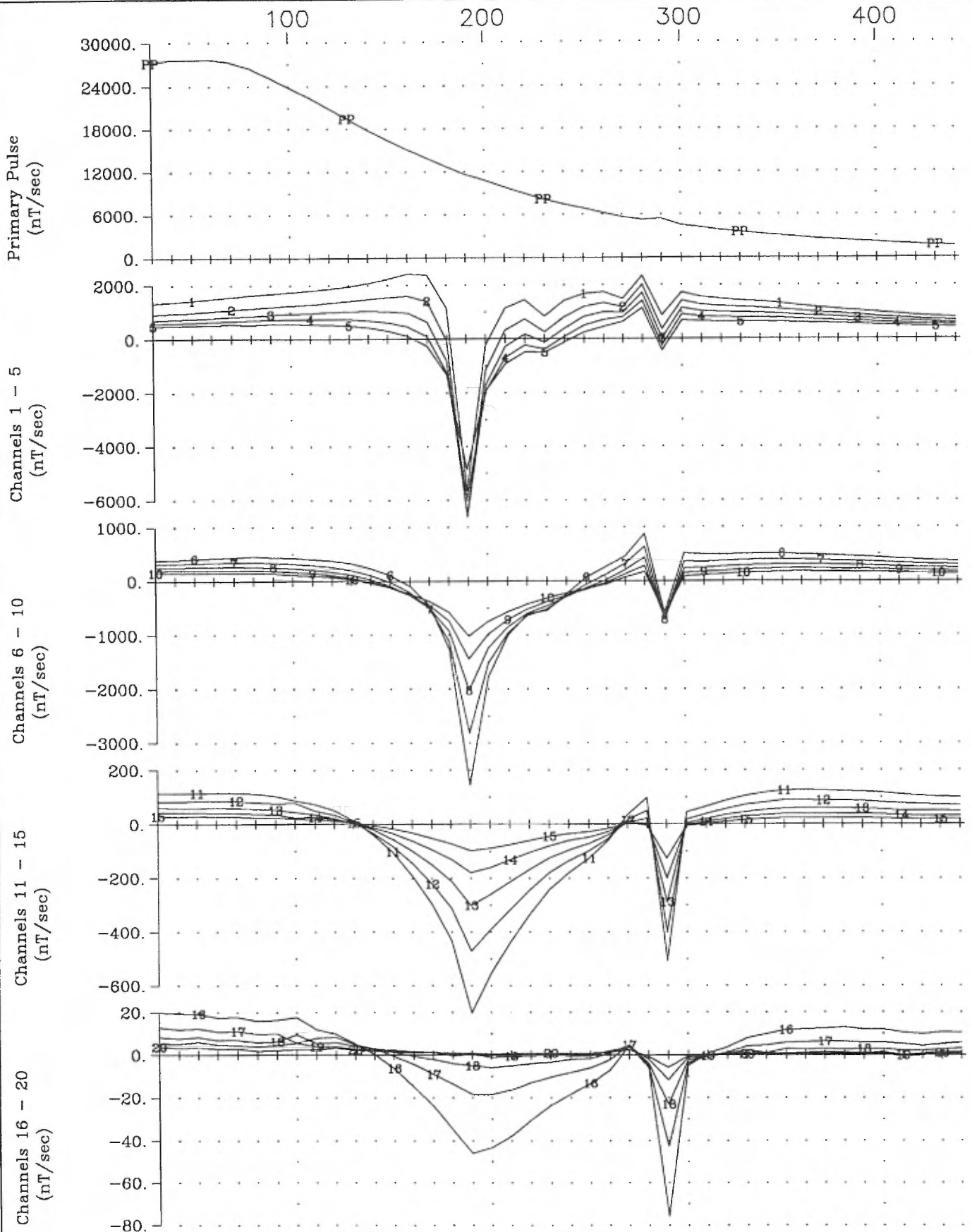
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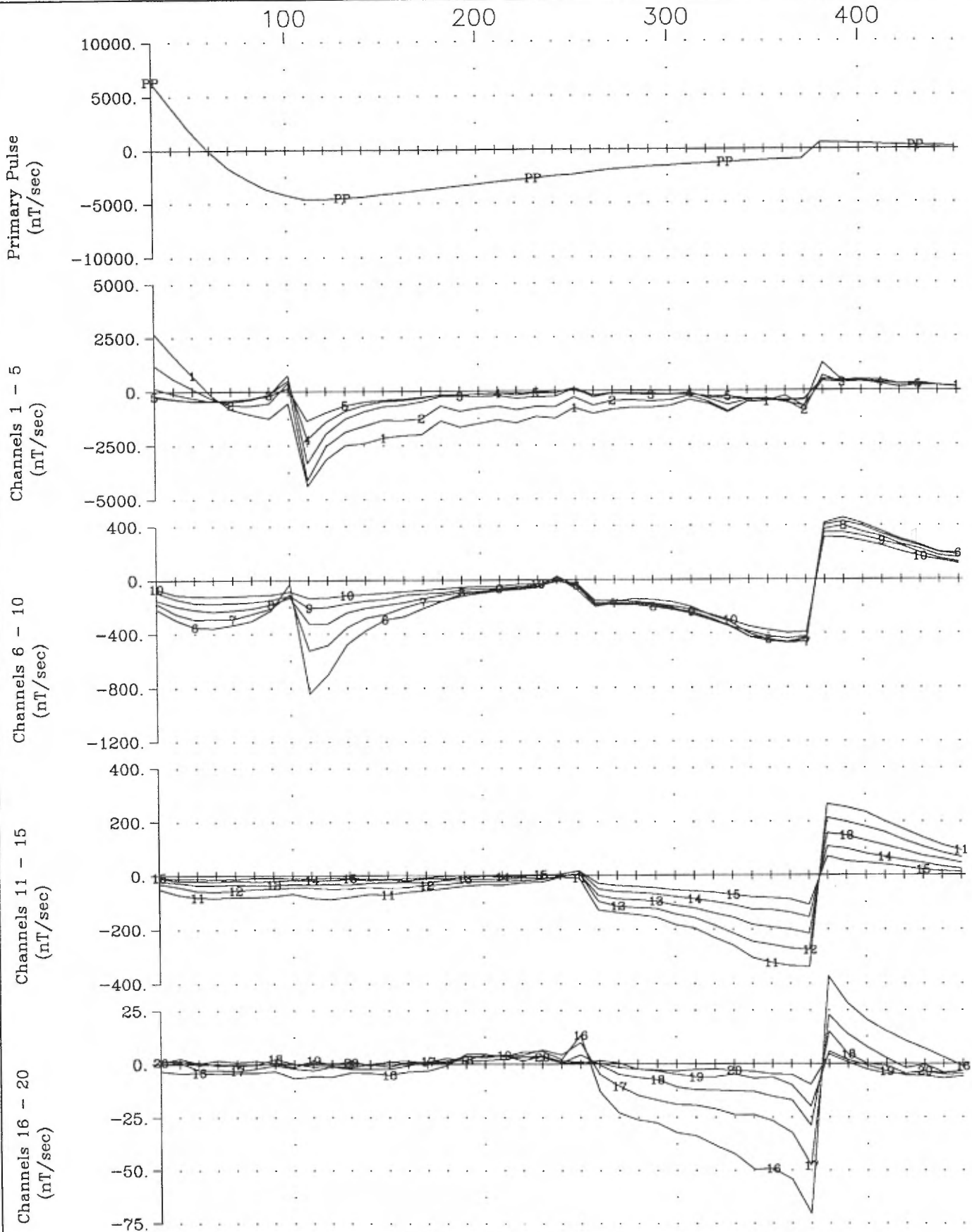
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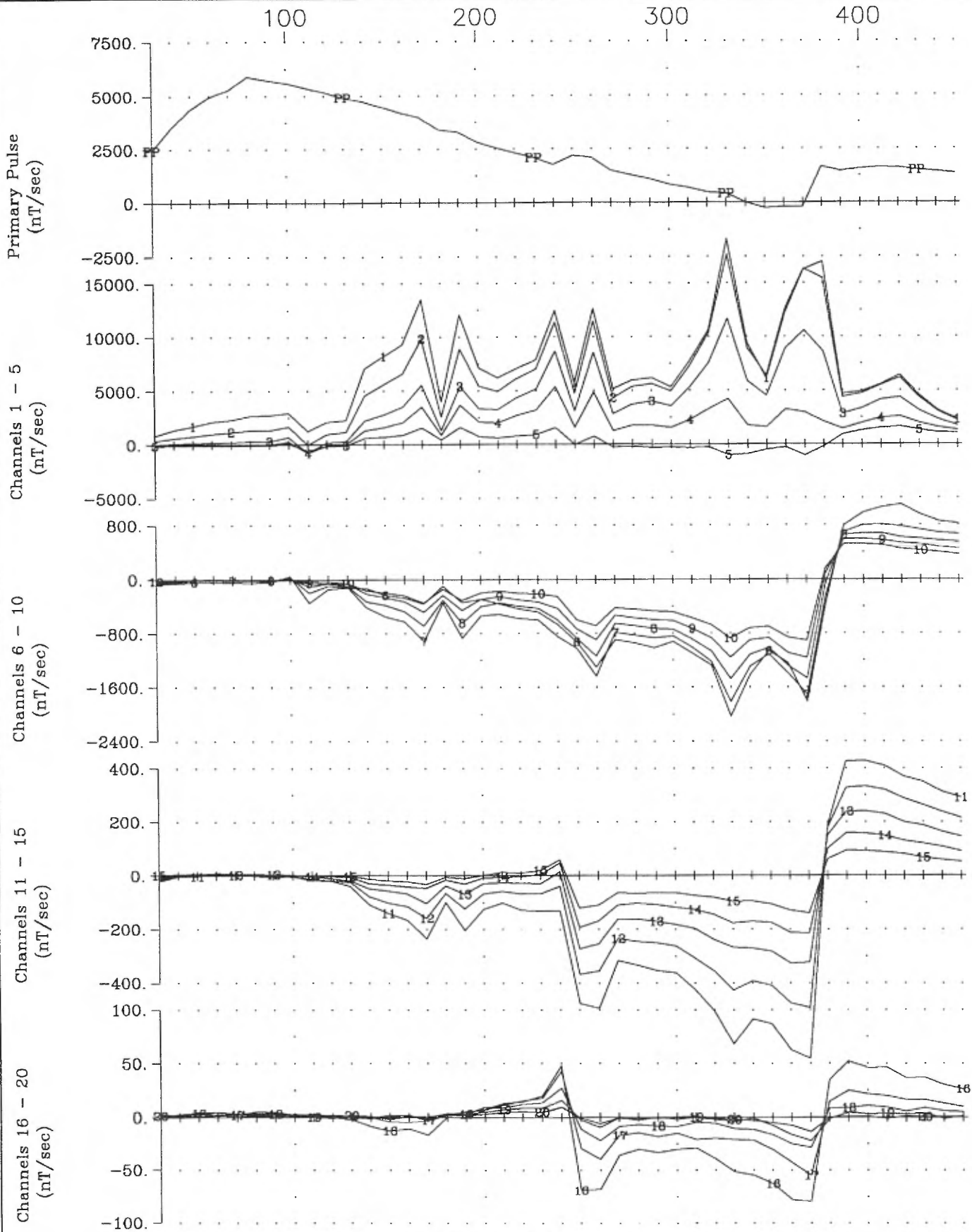
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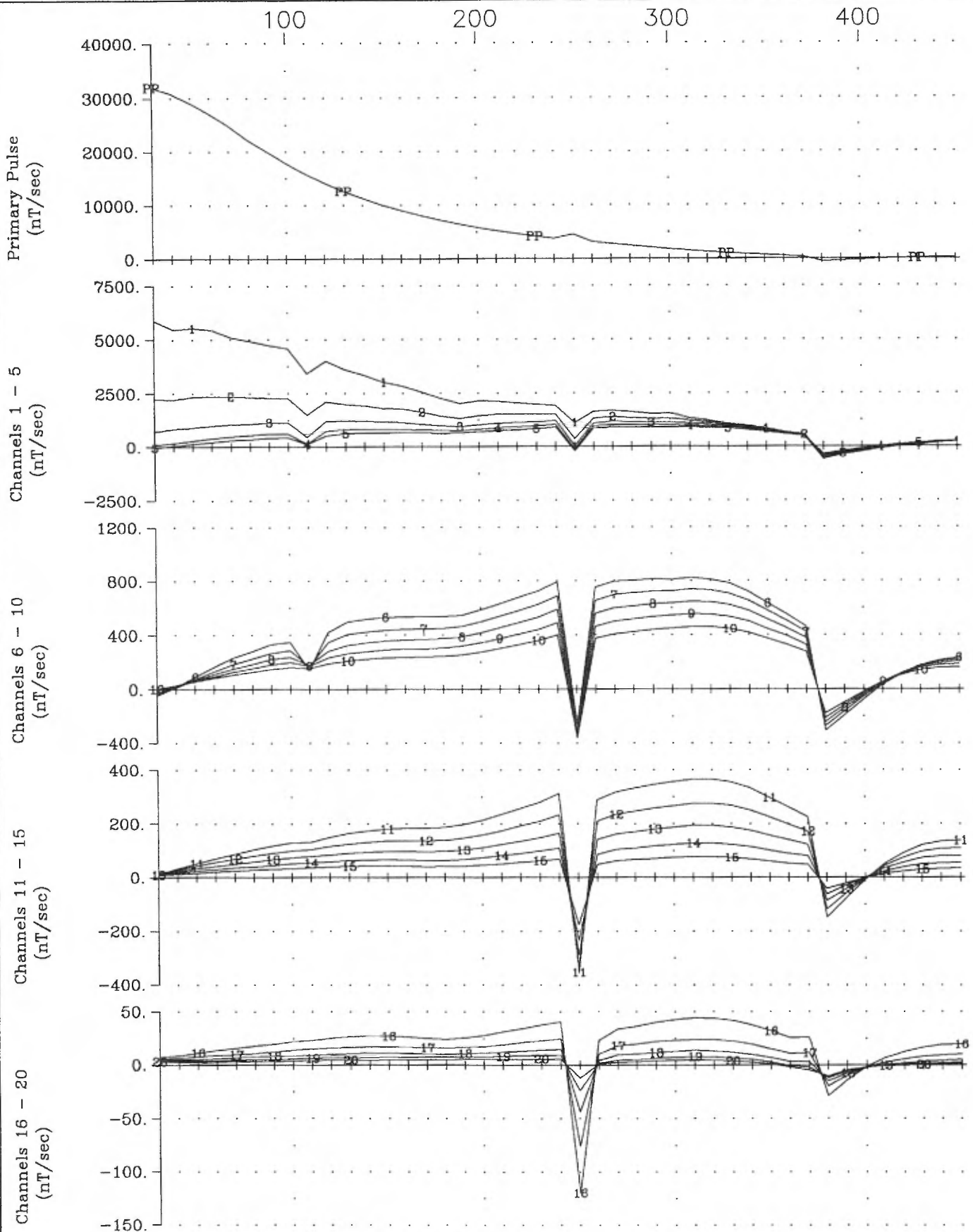
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 Hole 718-1770 Z Component
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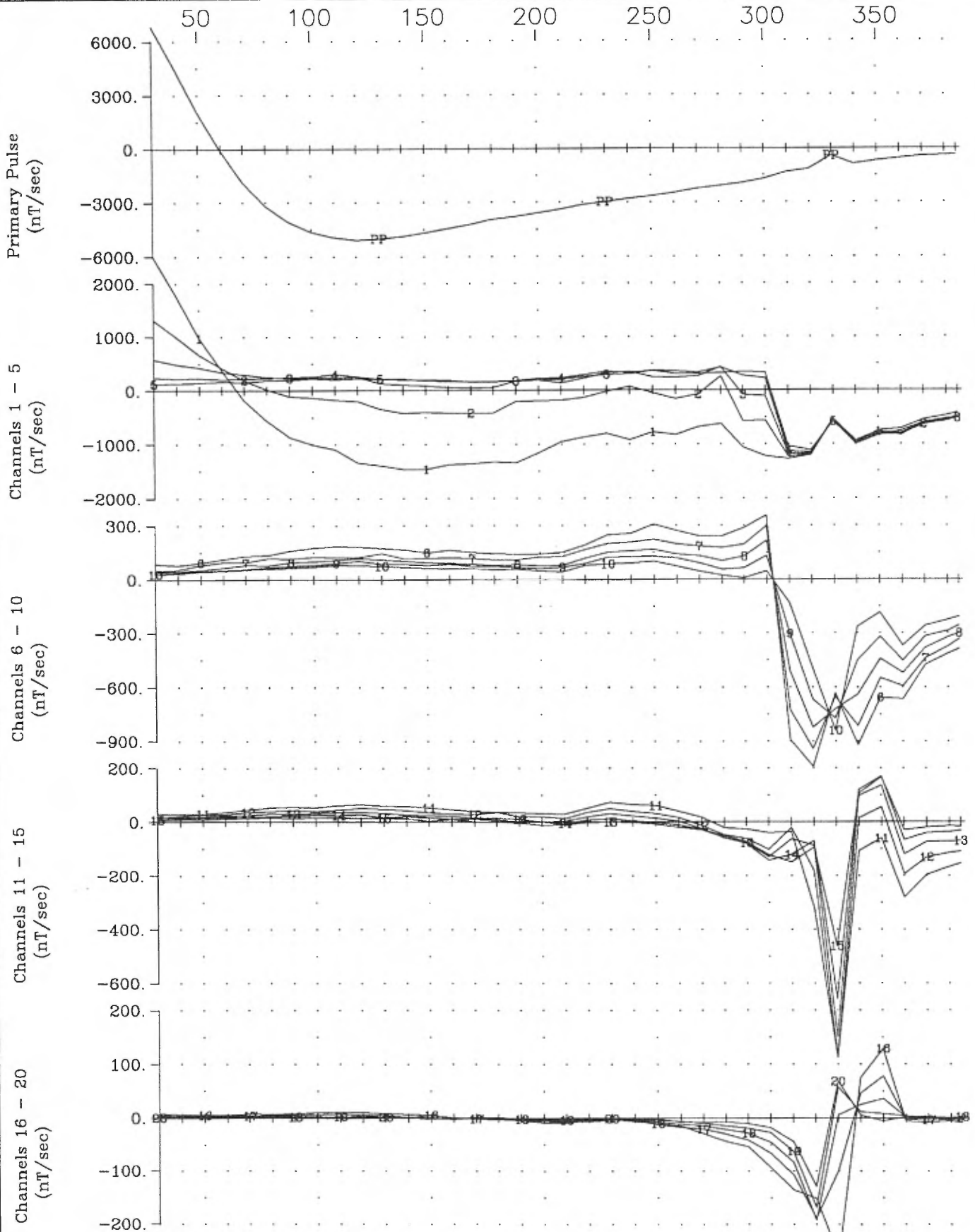
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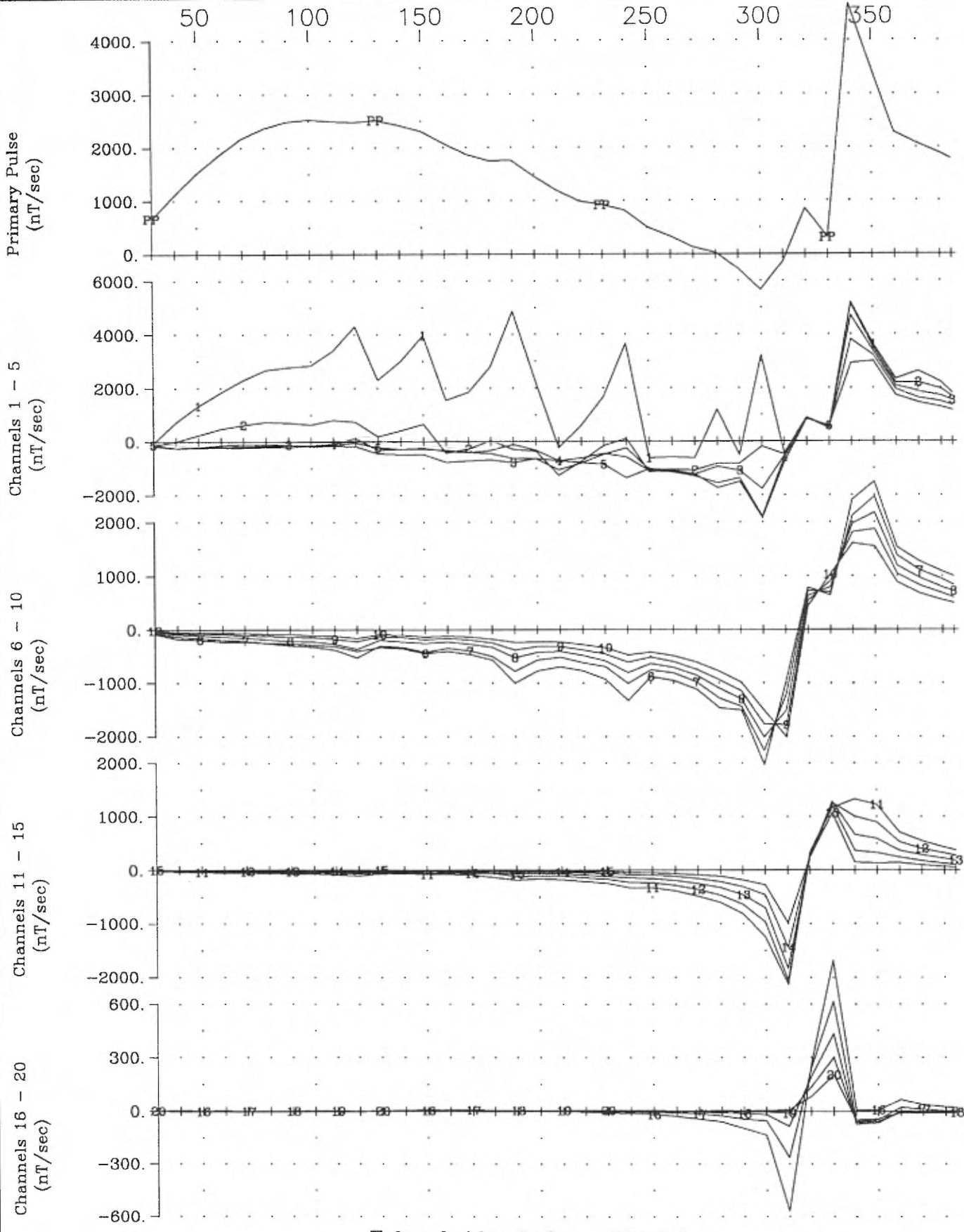
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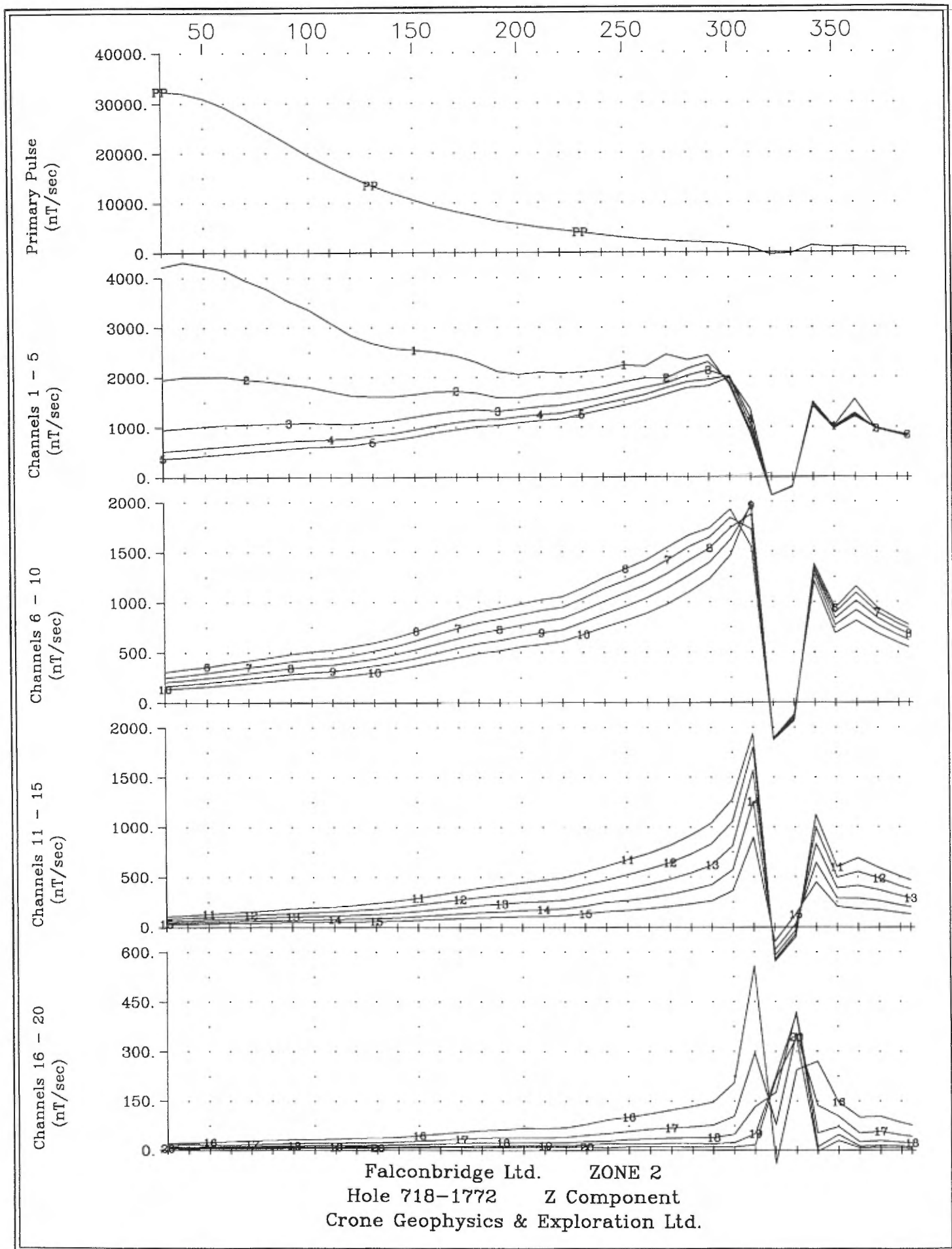
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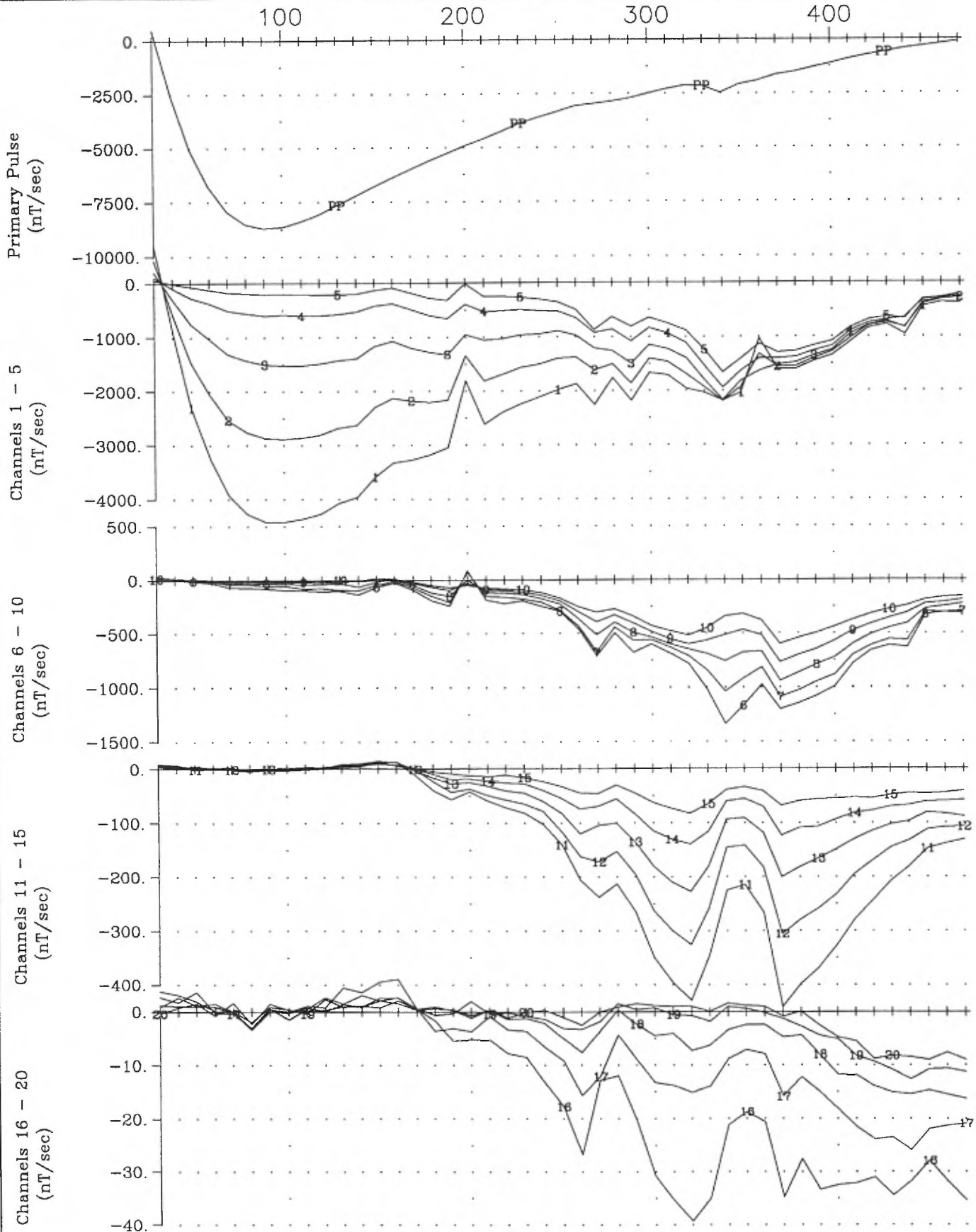


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 Hole 718-1772 X Component
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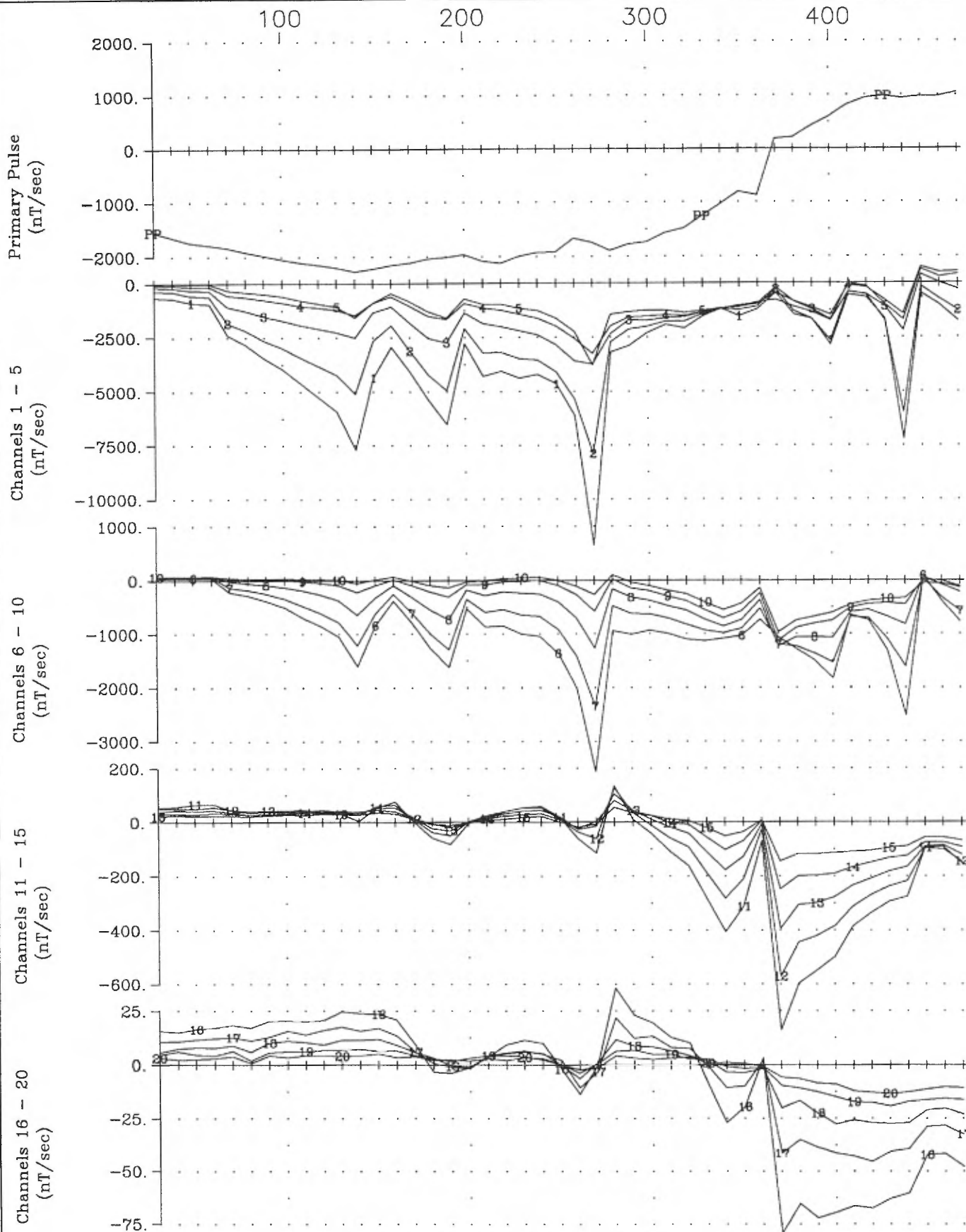


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Hole 718-1772 Y Component
Crone Geophysics & Exploration Ltd.

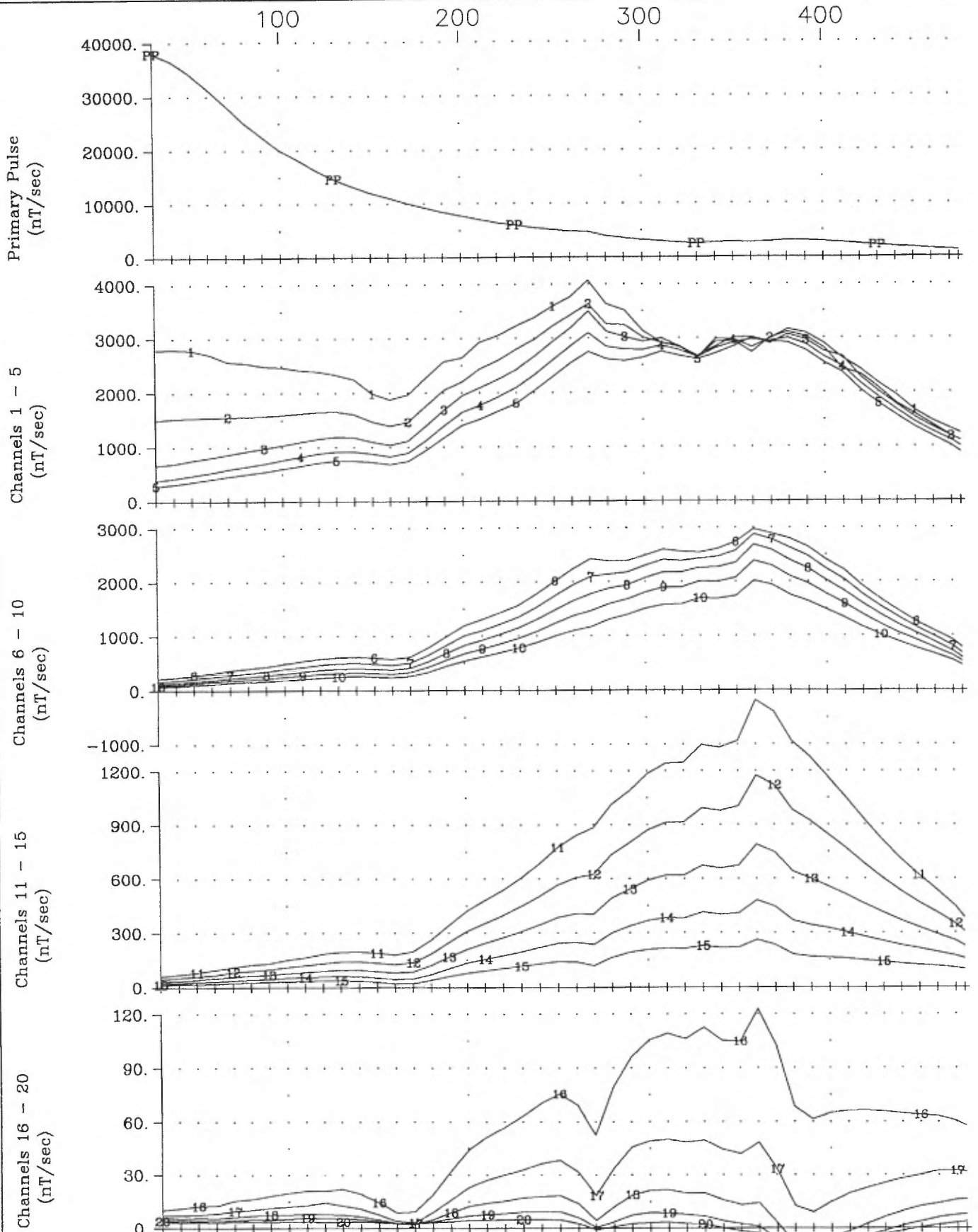




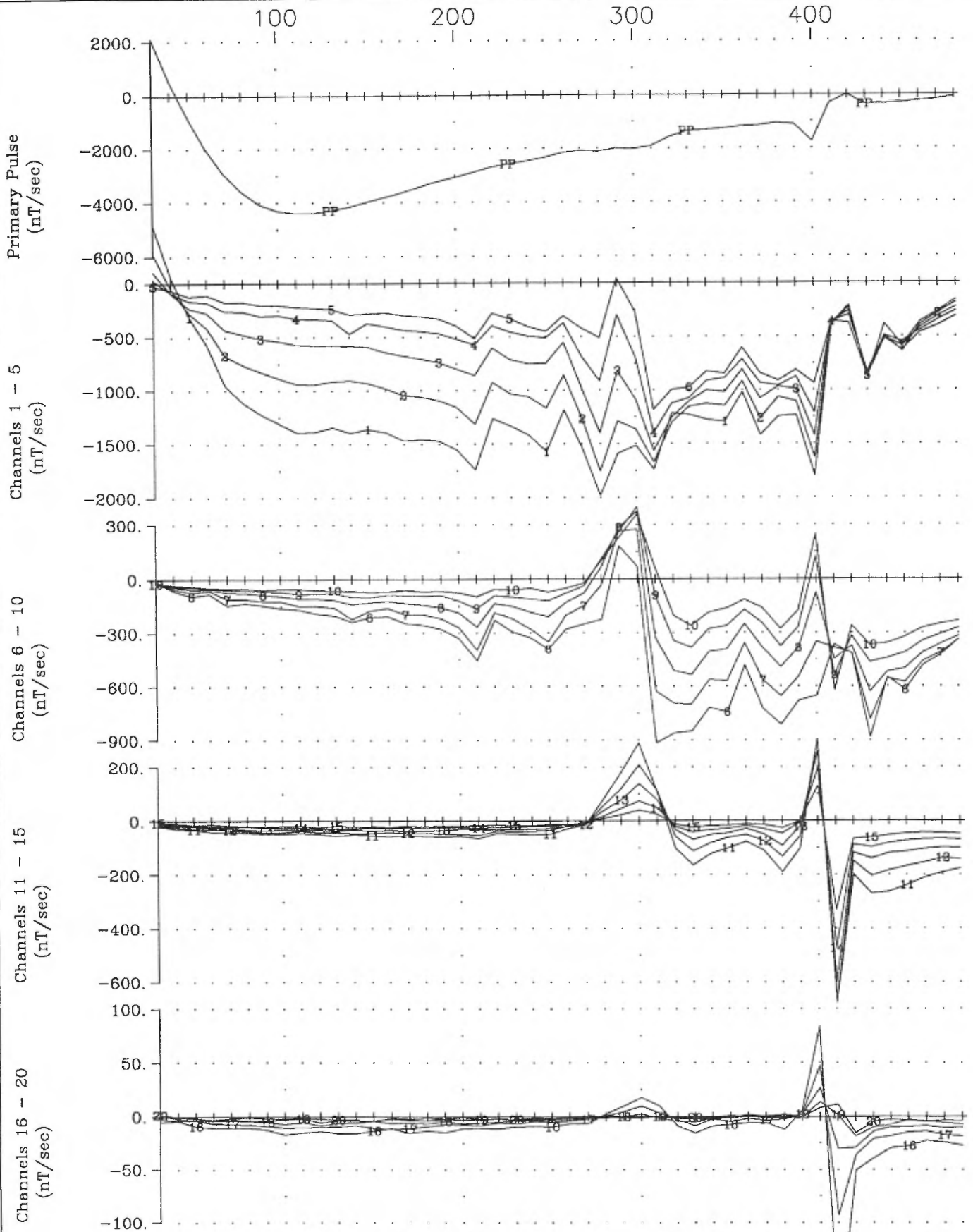
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 Hole 718-1773 X Component
 Crone Geophysics & Exploration Ltd.



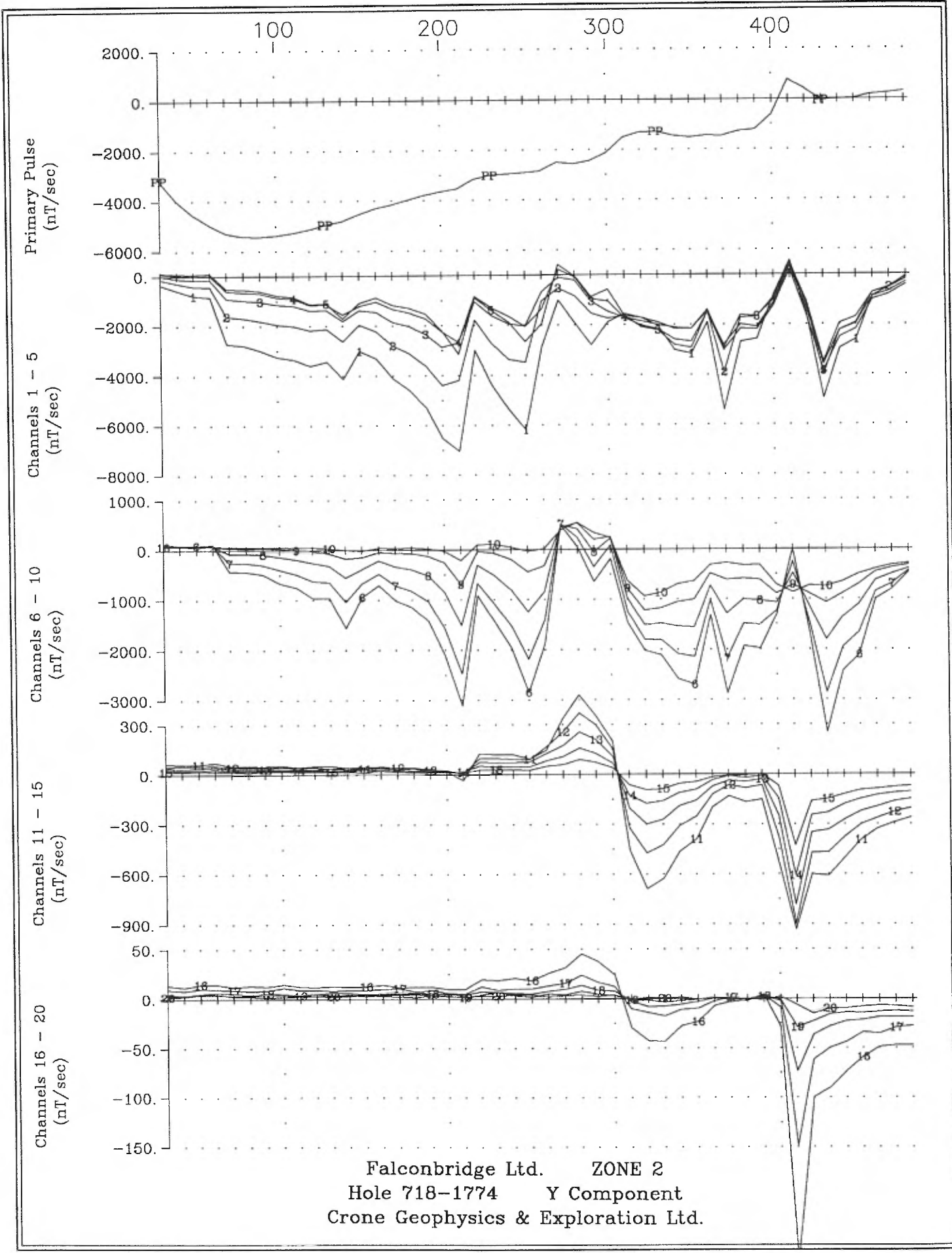
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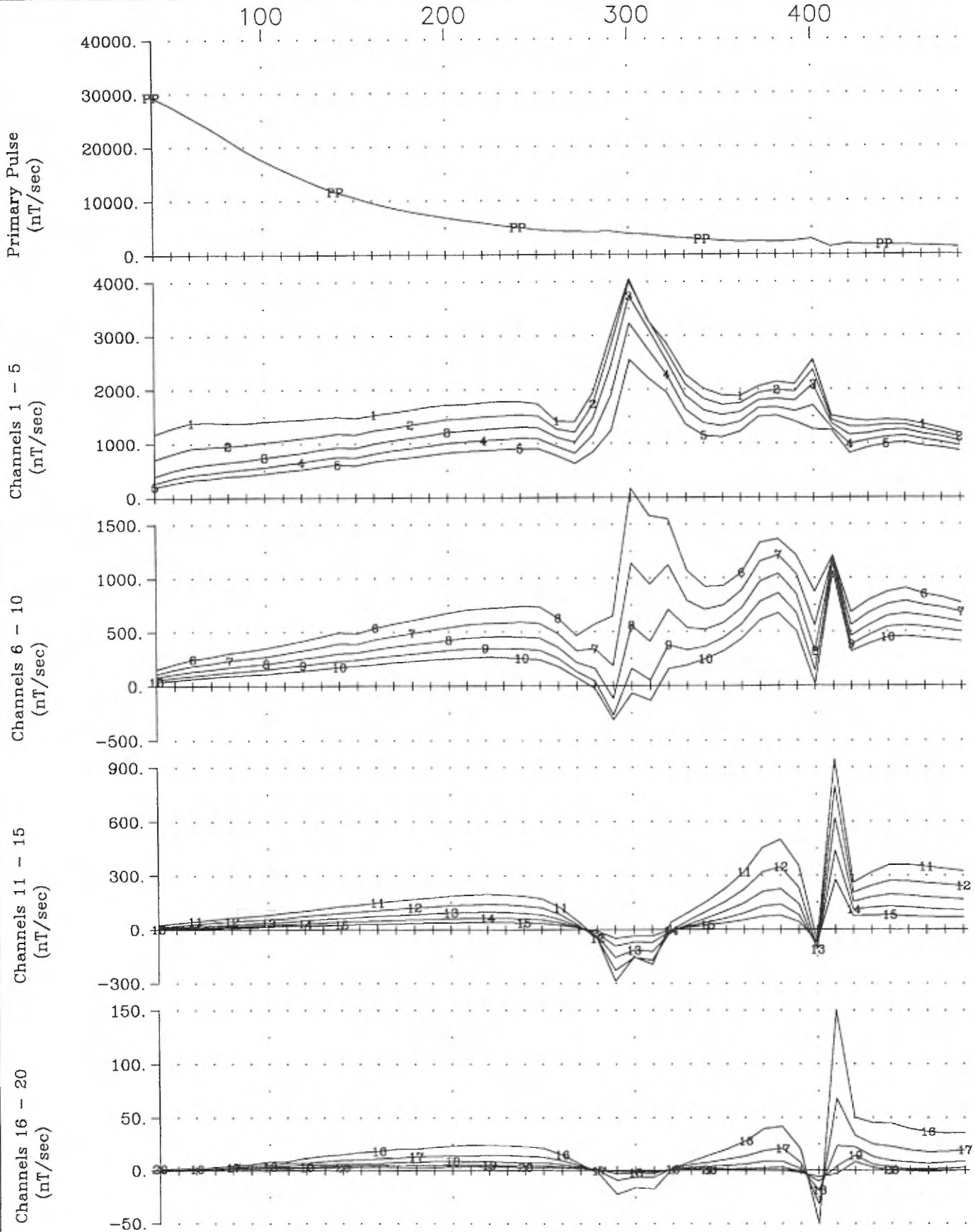
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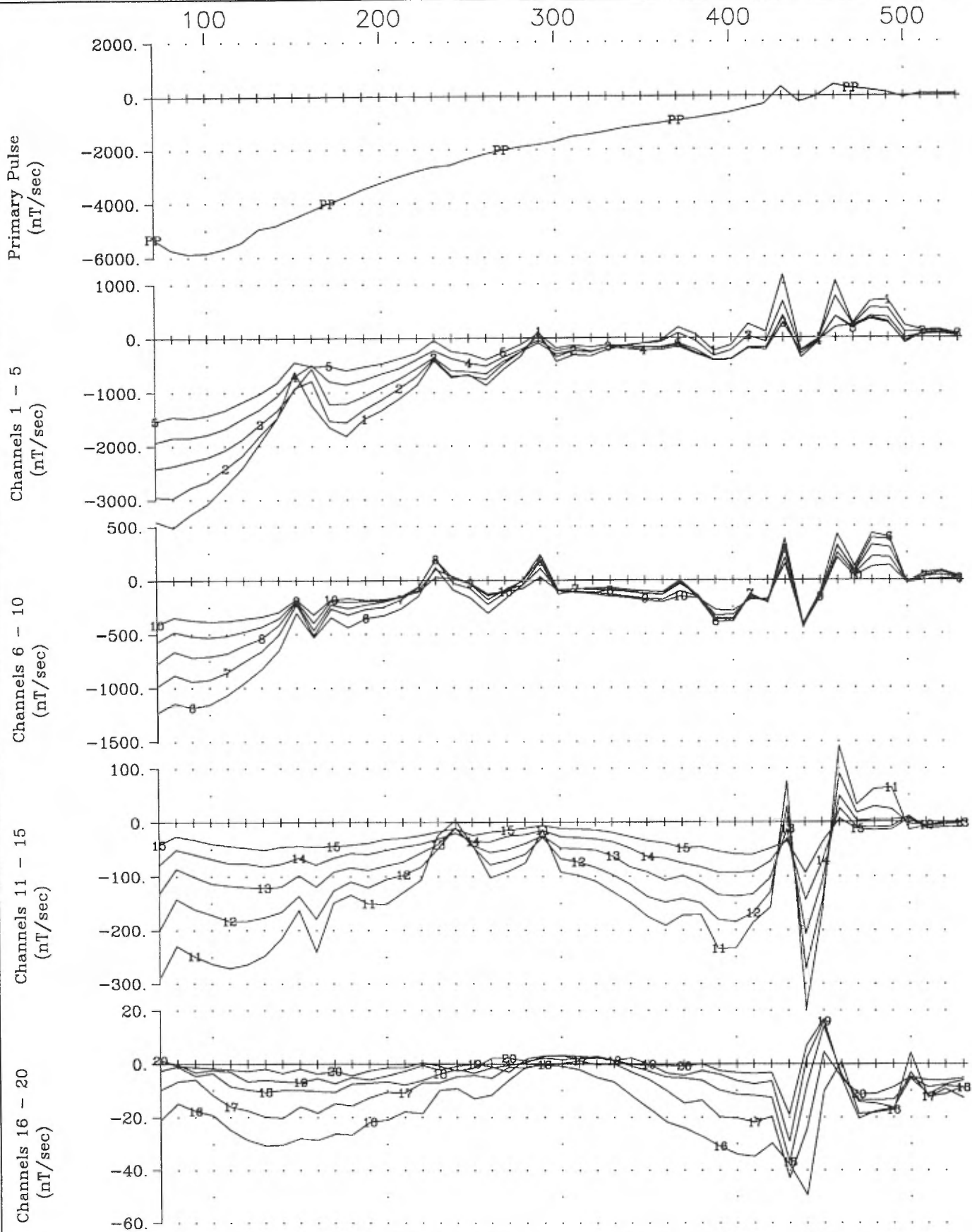
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Hole 718-1774 X Component
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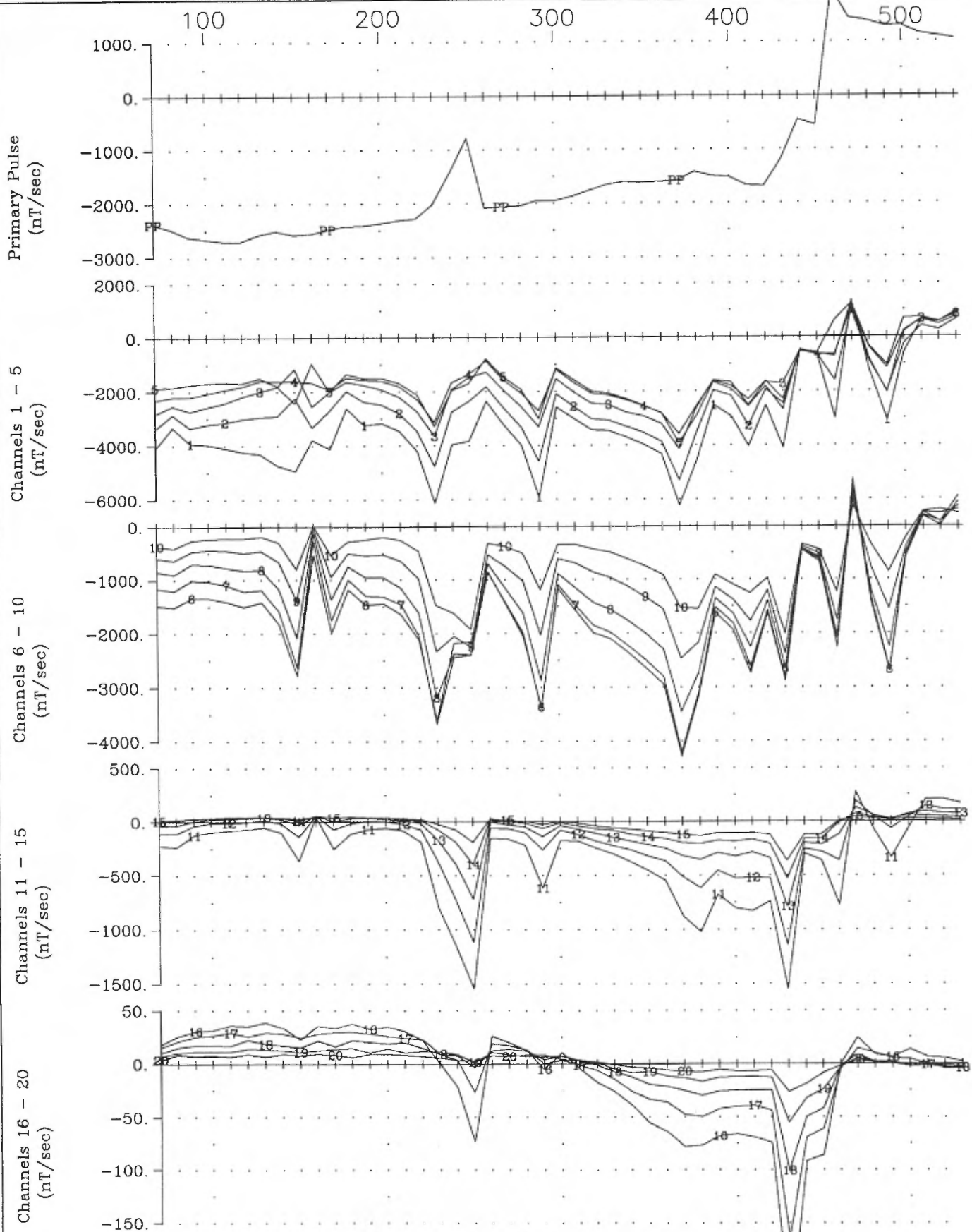
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 Hole 718-1774 Y Component
 Crone Geophysics & Exploration Ltd.



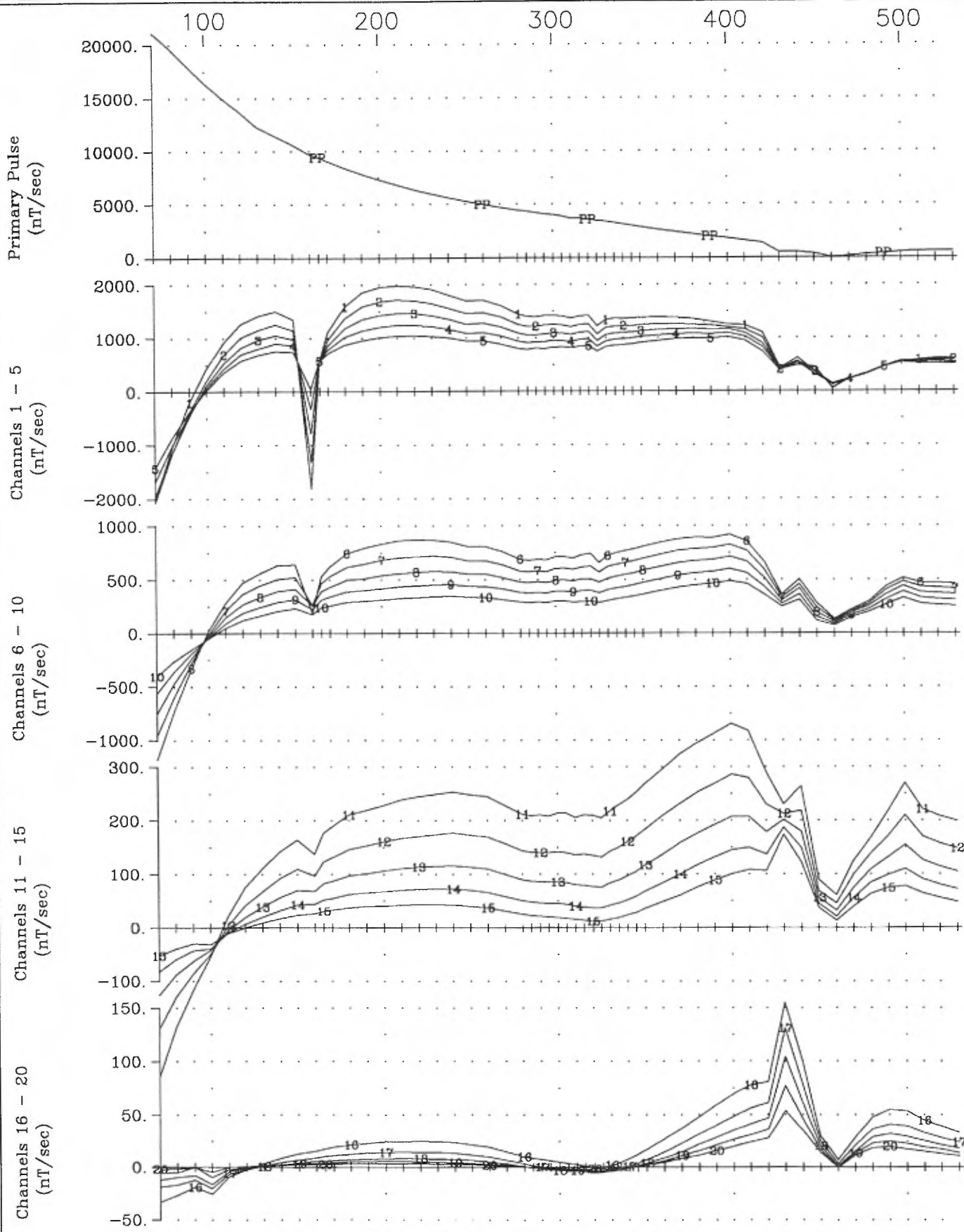
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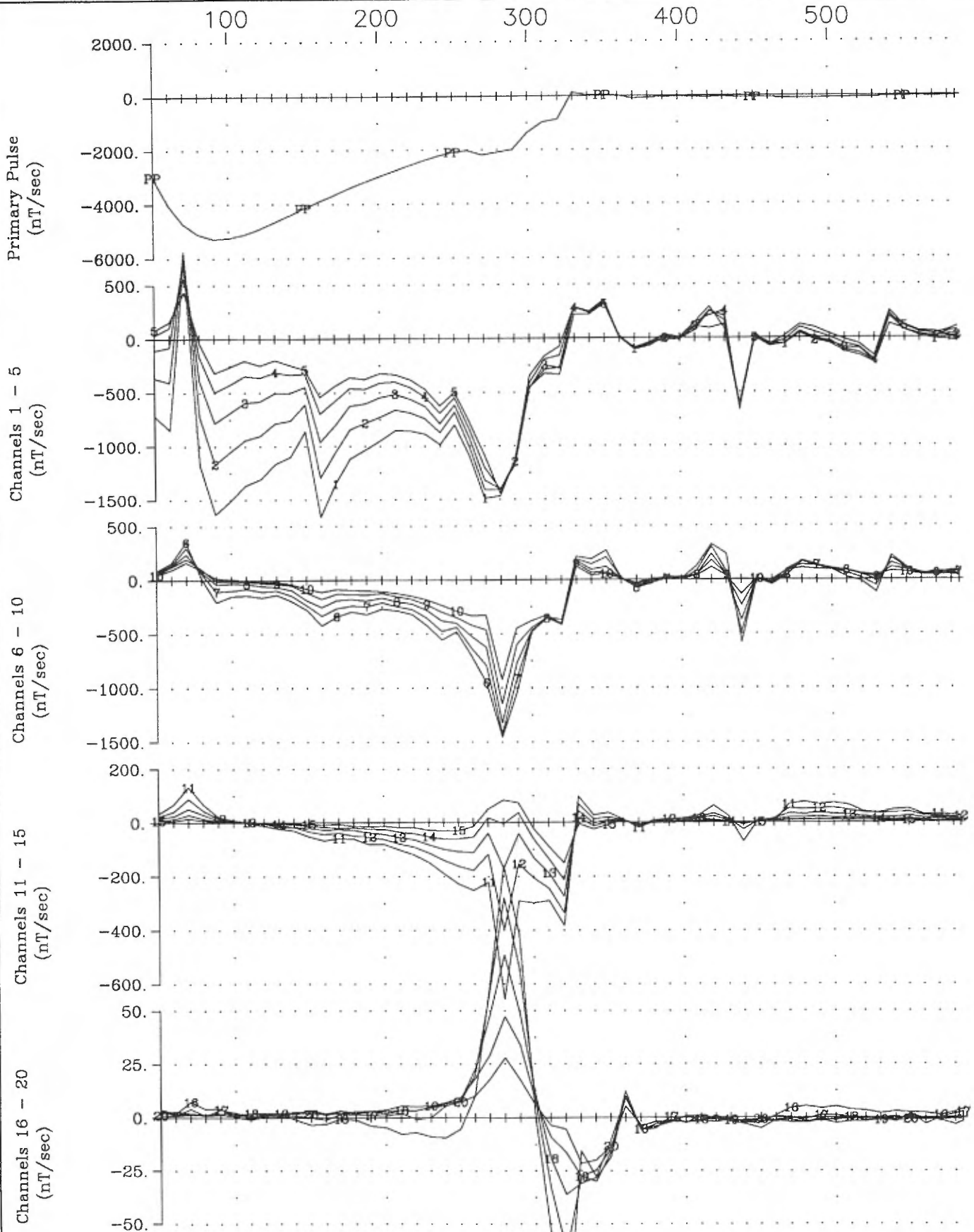
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 Crone Geophysics & Exploration Ltd.



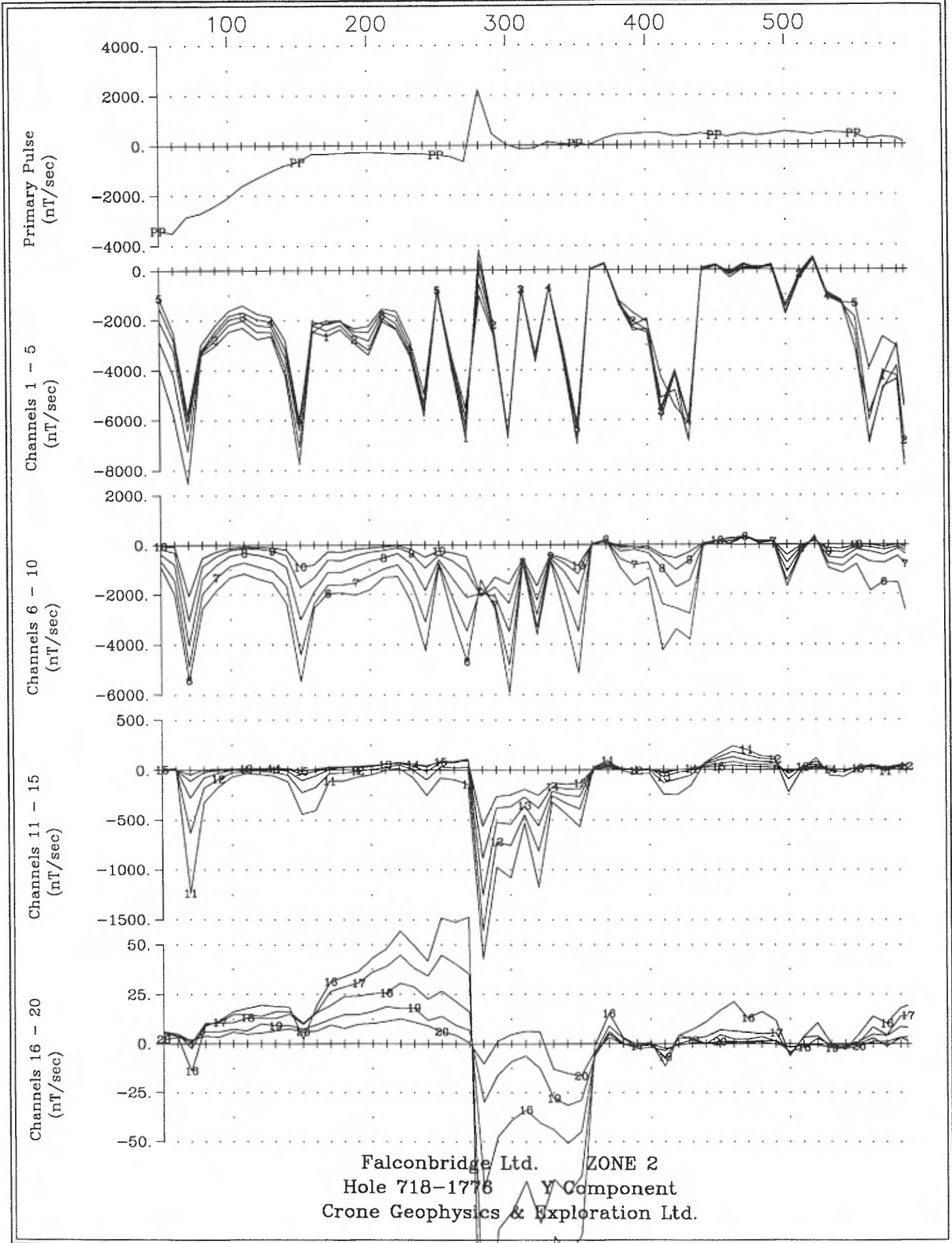
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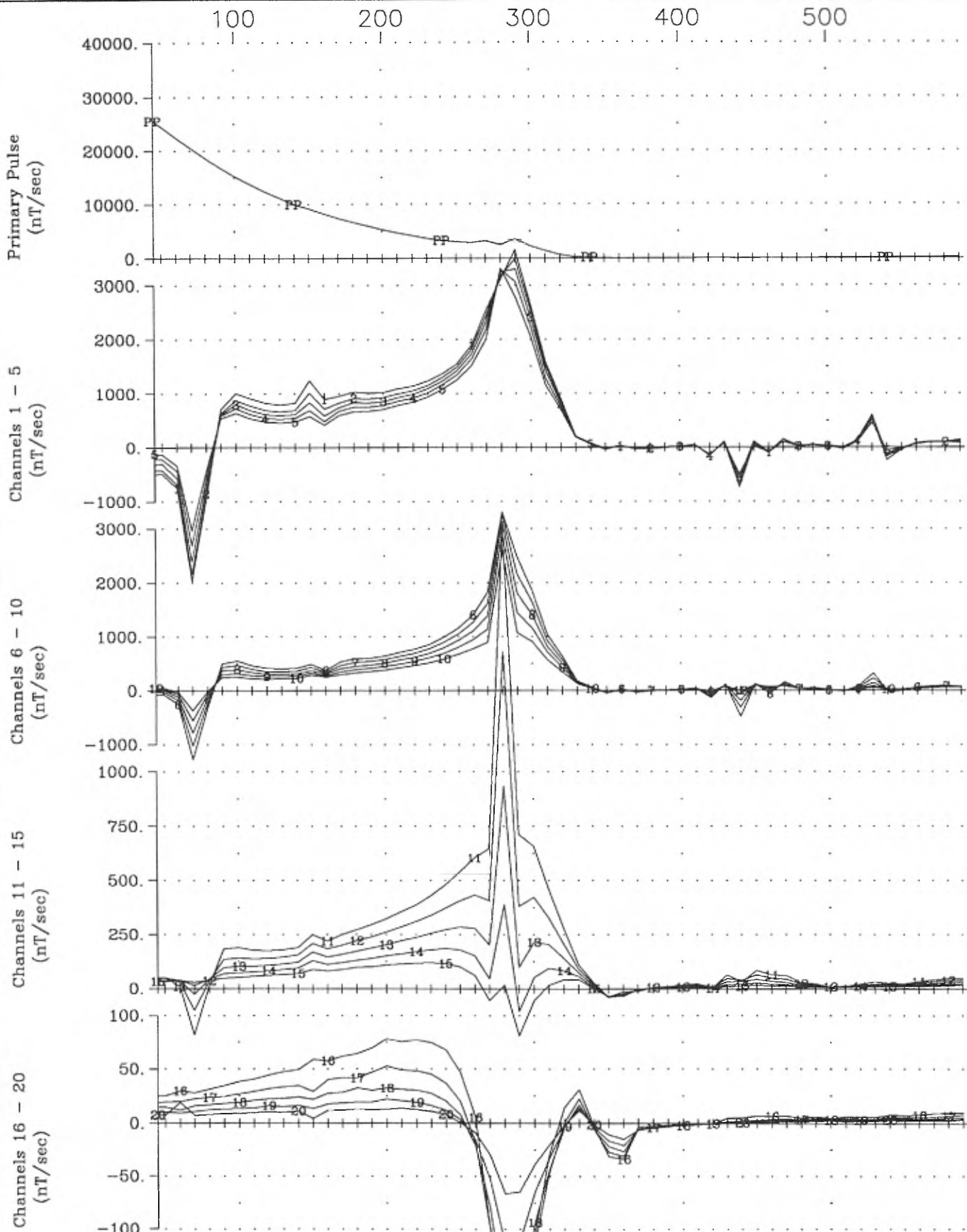


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Hole 718-1775 Z Component
Crone Geophysics & Exploration Ltd.

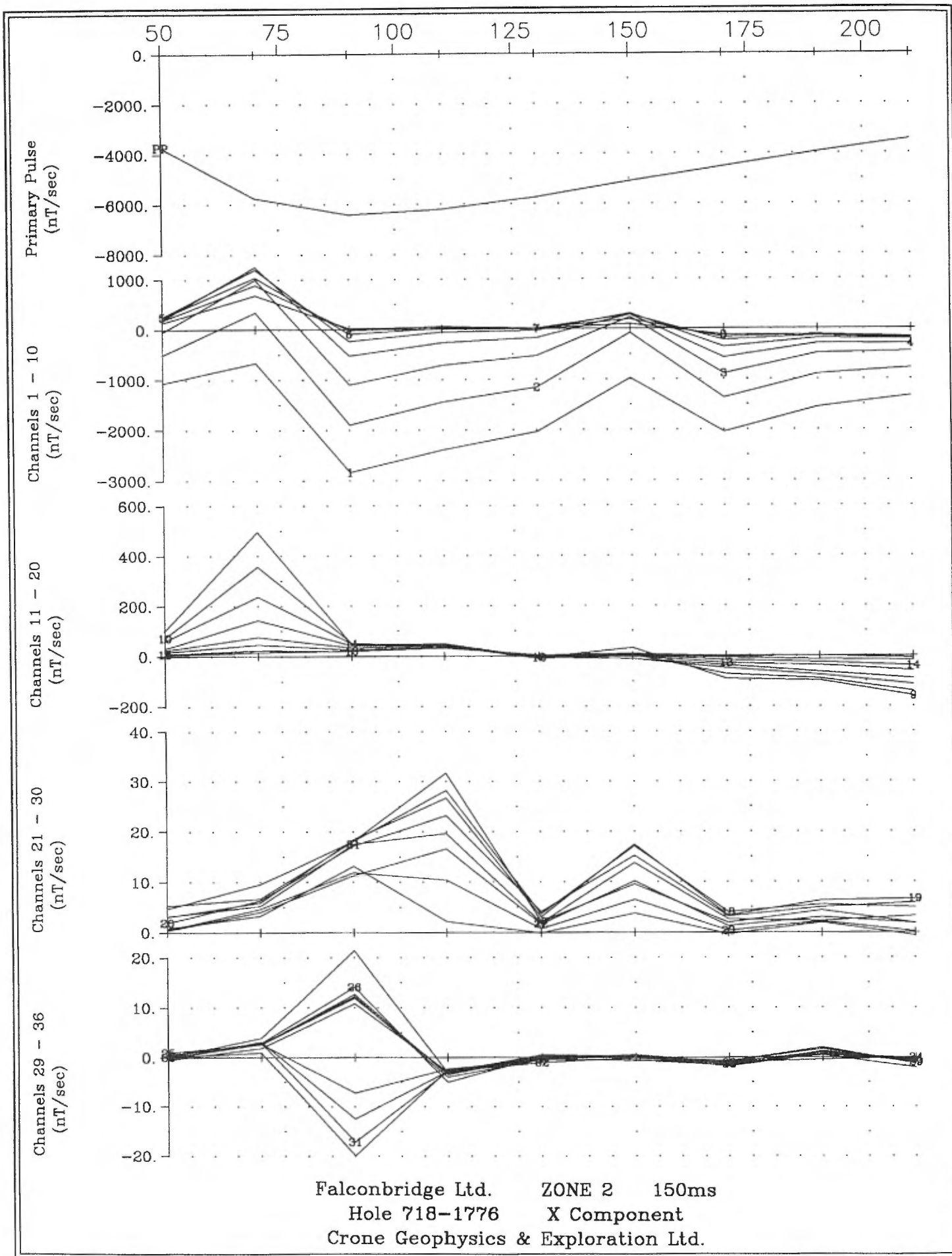


Falconbridge Ltd. ZONE 2
 Hole 718-1776 X Component
 Crone Geophysics & Exploration Ltd.

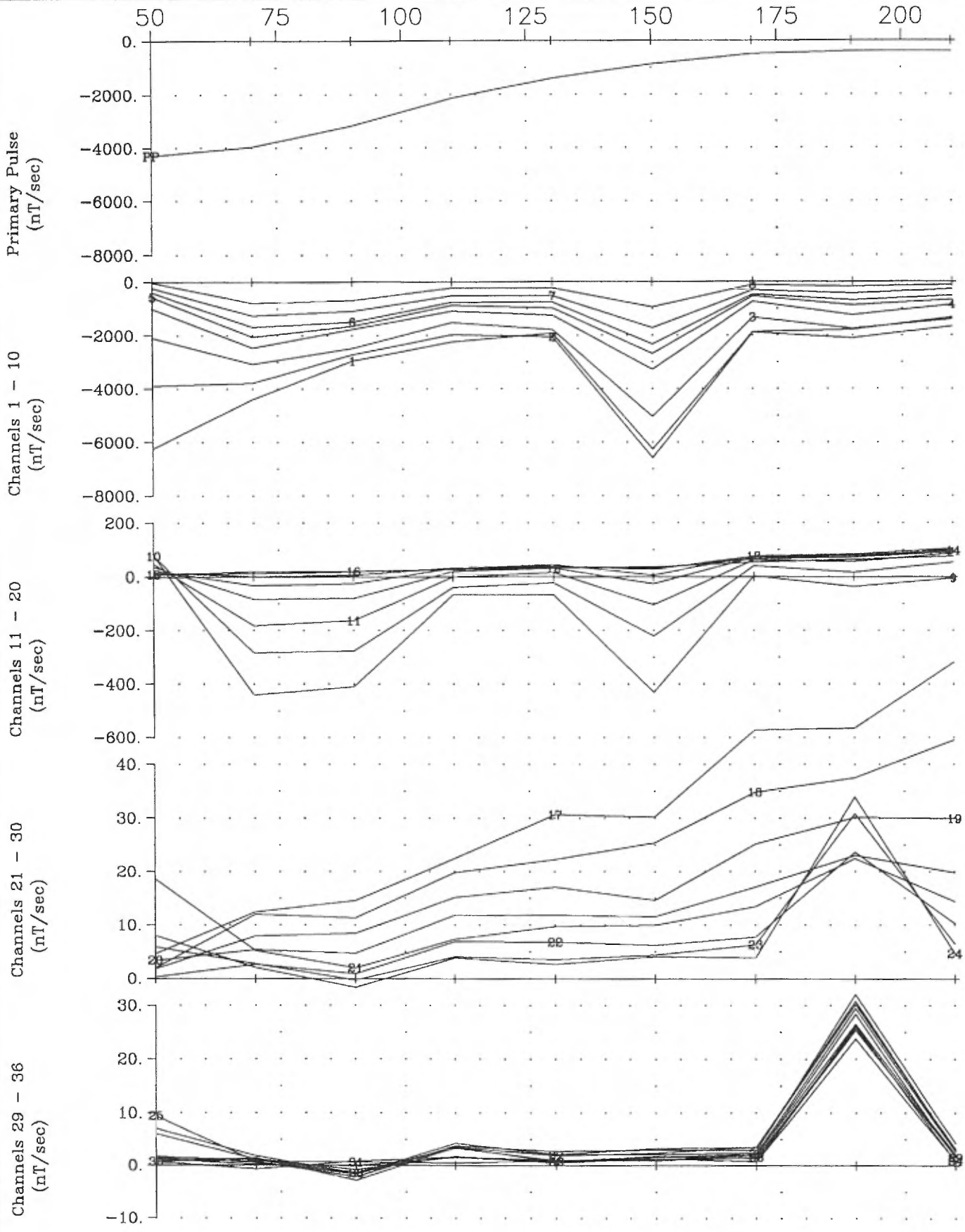




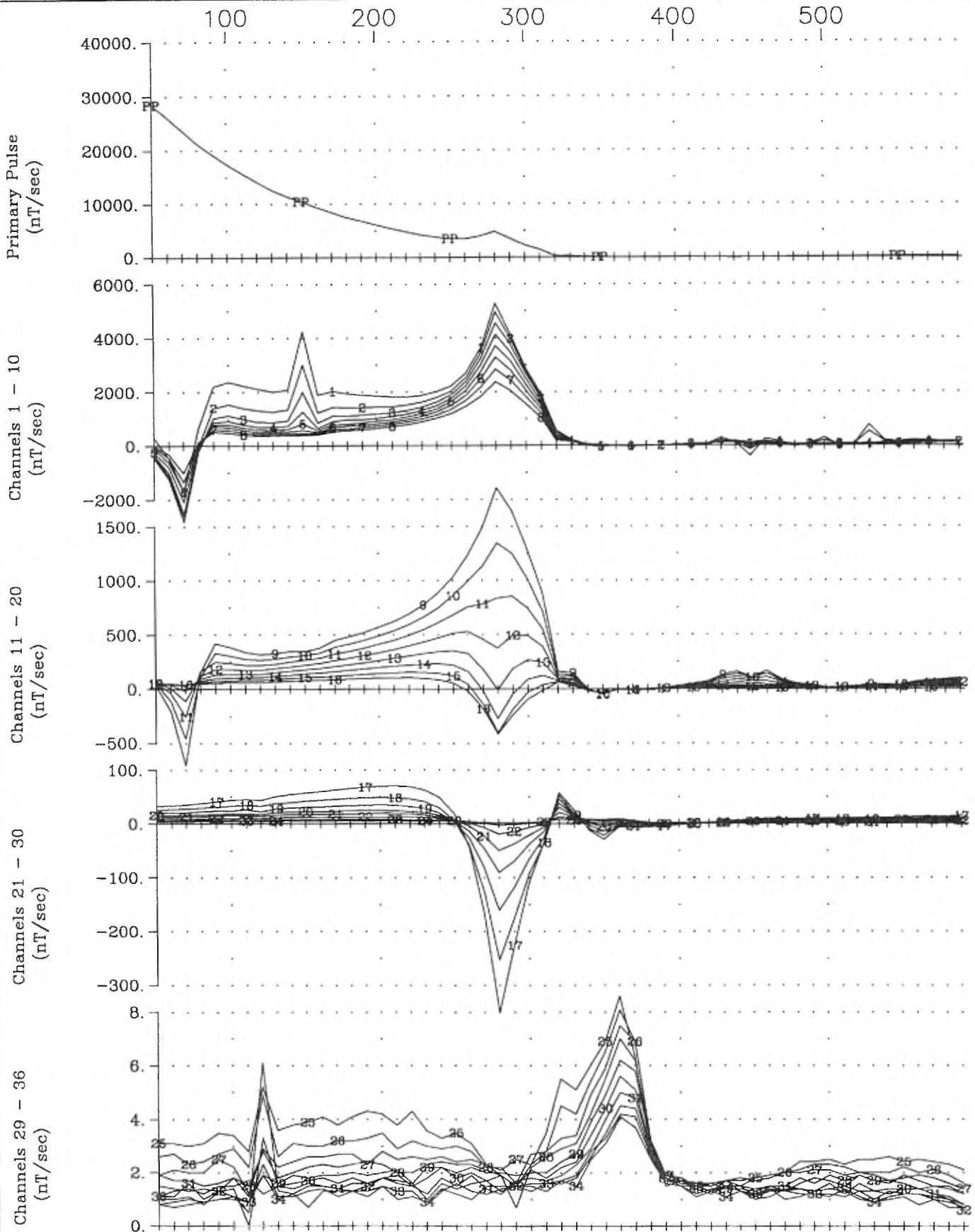
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 Hole 718-1776 Z Component
 Crone Geophysics & Exploration Ltd.



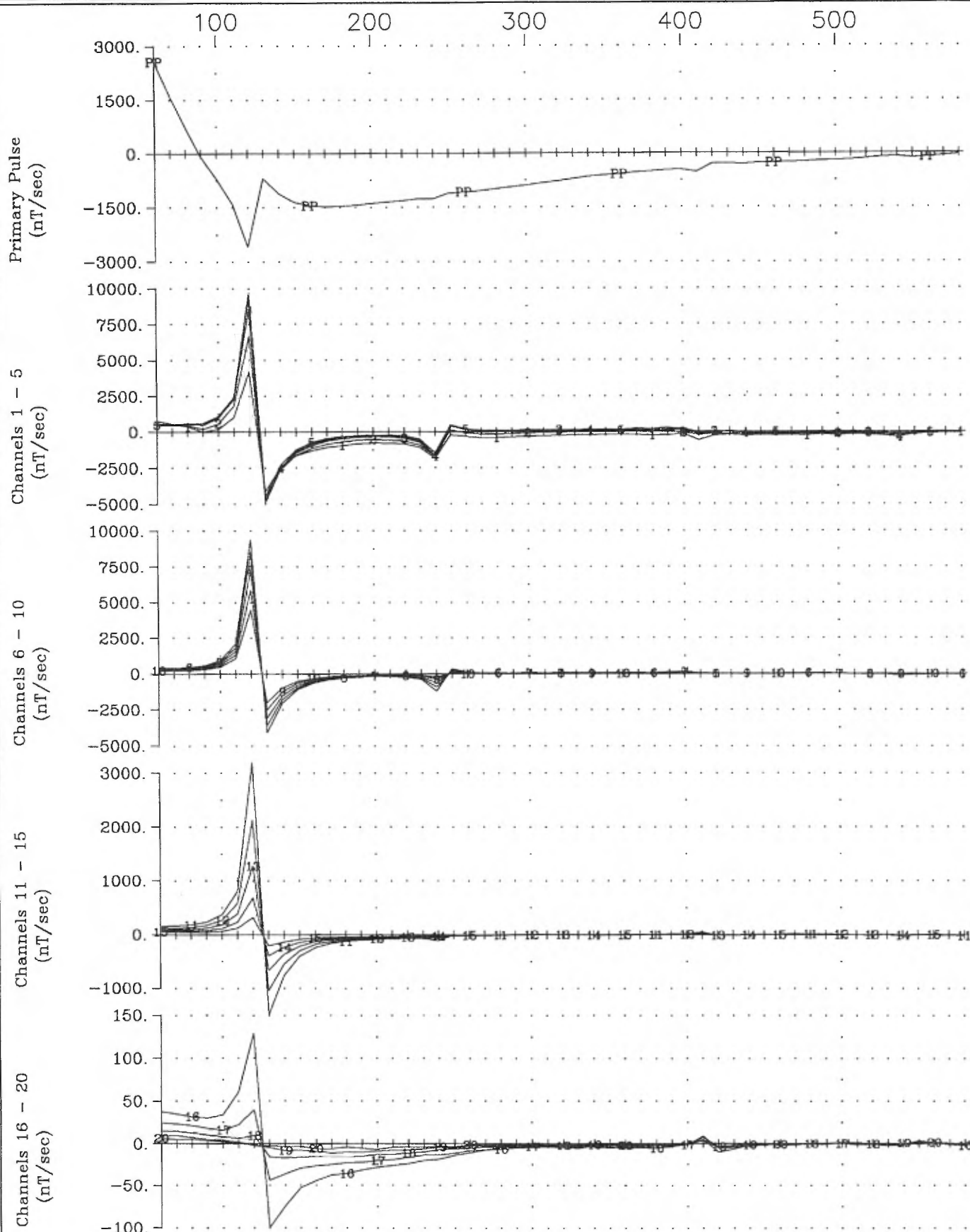
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 Hole 718-1776 X Component
 Crone Geophysics & Exploration Ltd.



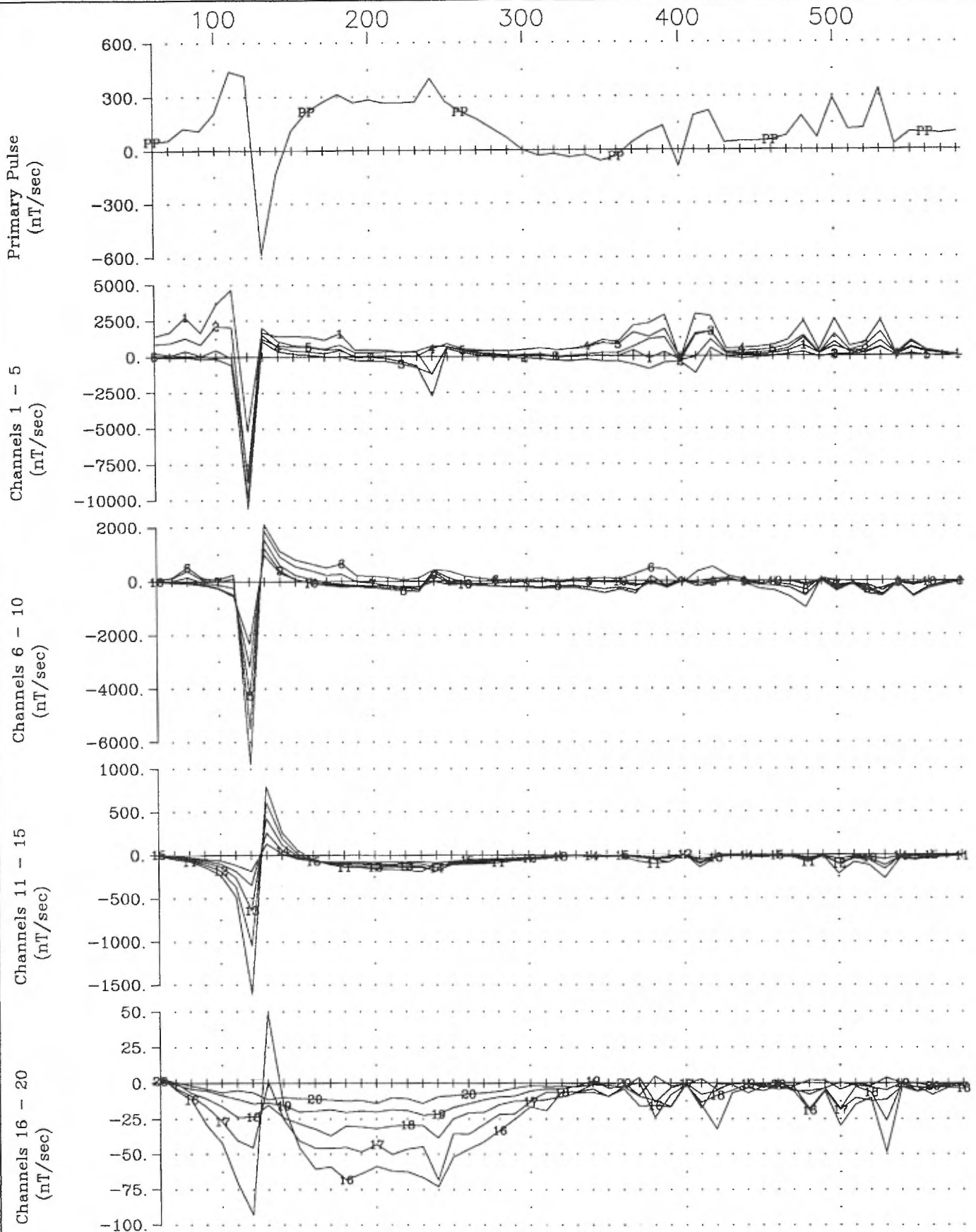
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 Hole 718-1776 Y Component
 Crone Geophysics & Exploration Ltd.



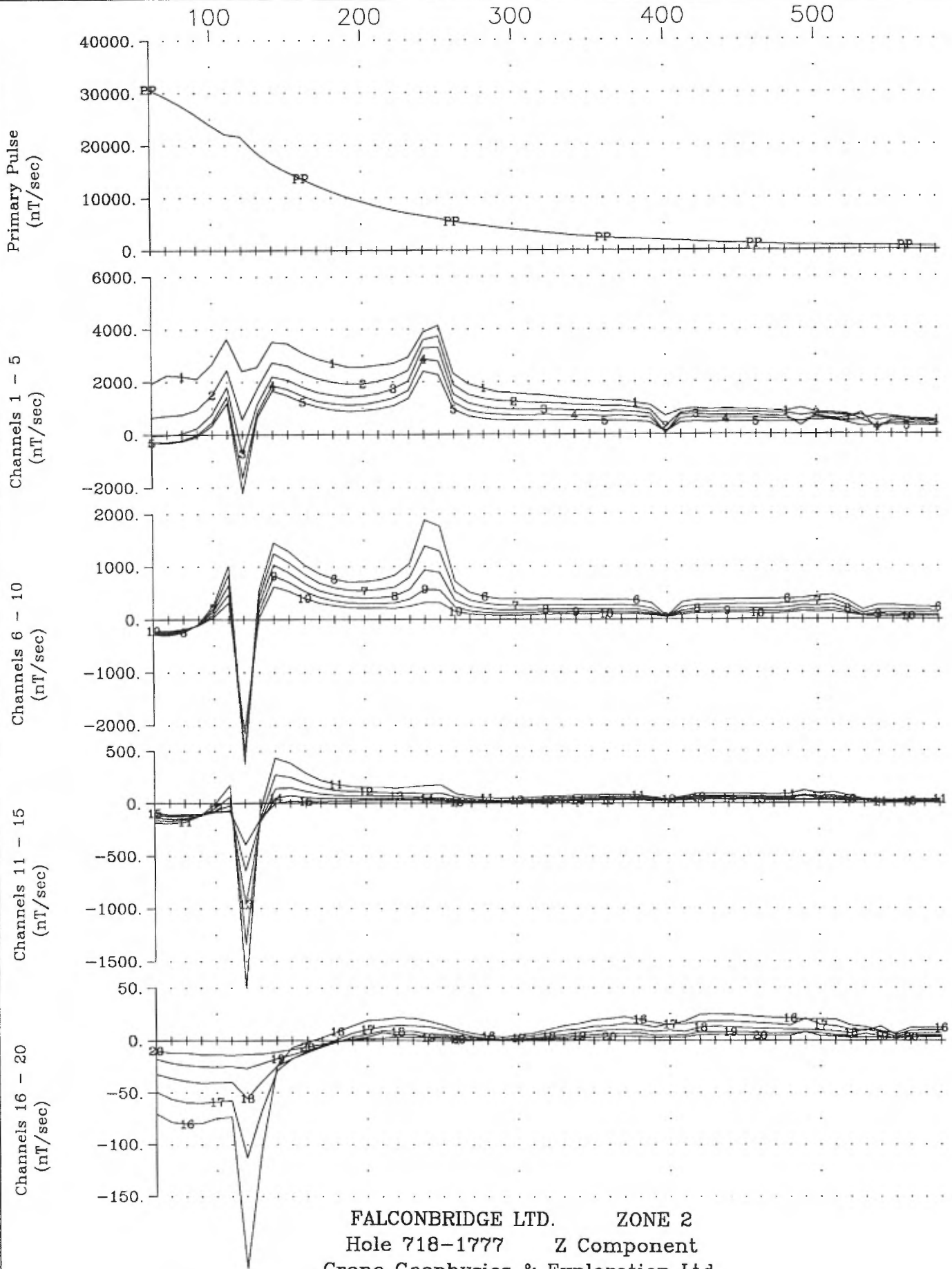
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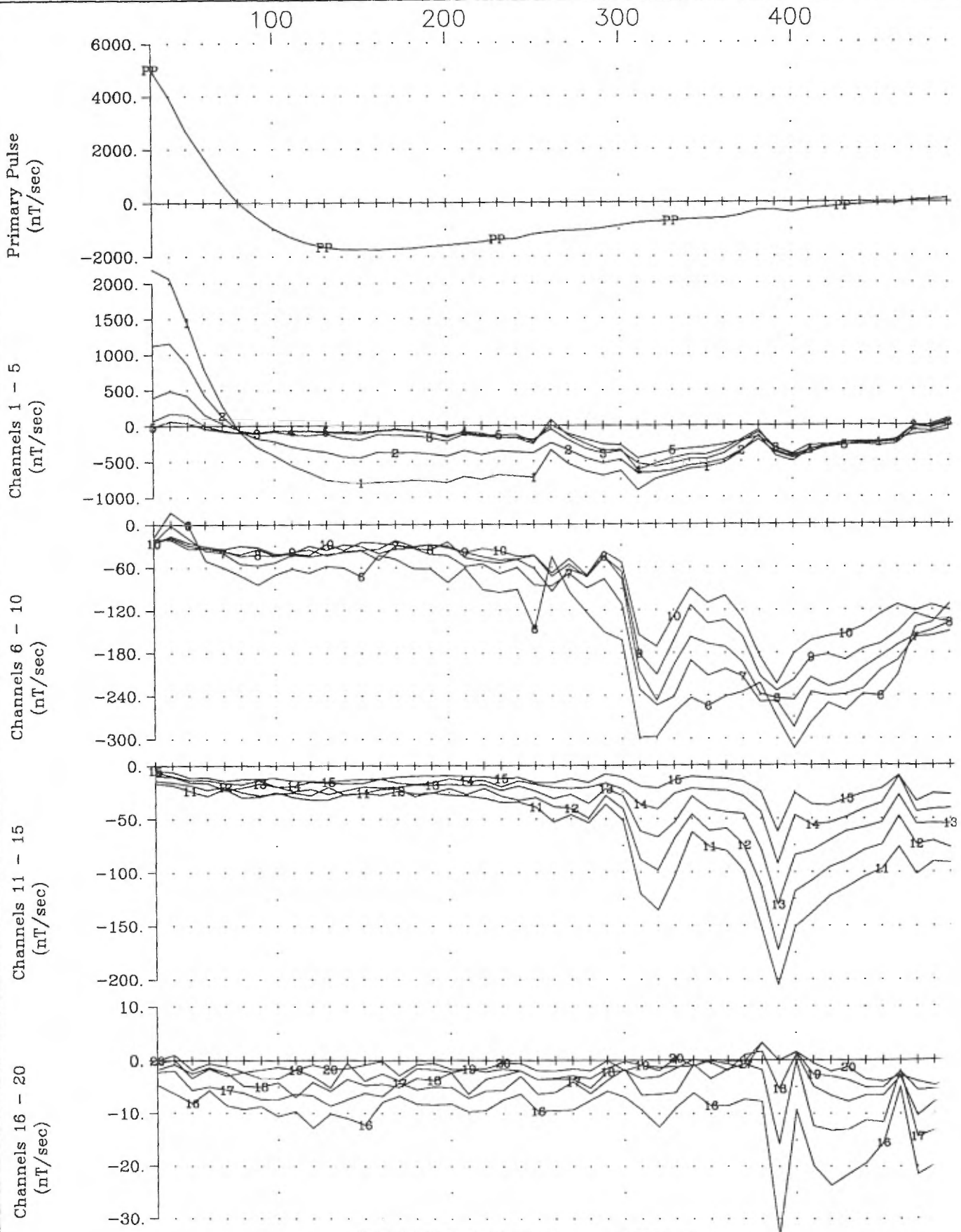


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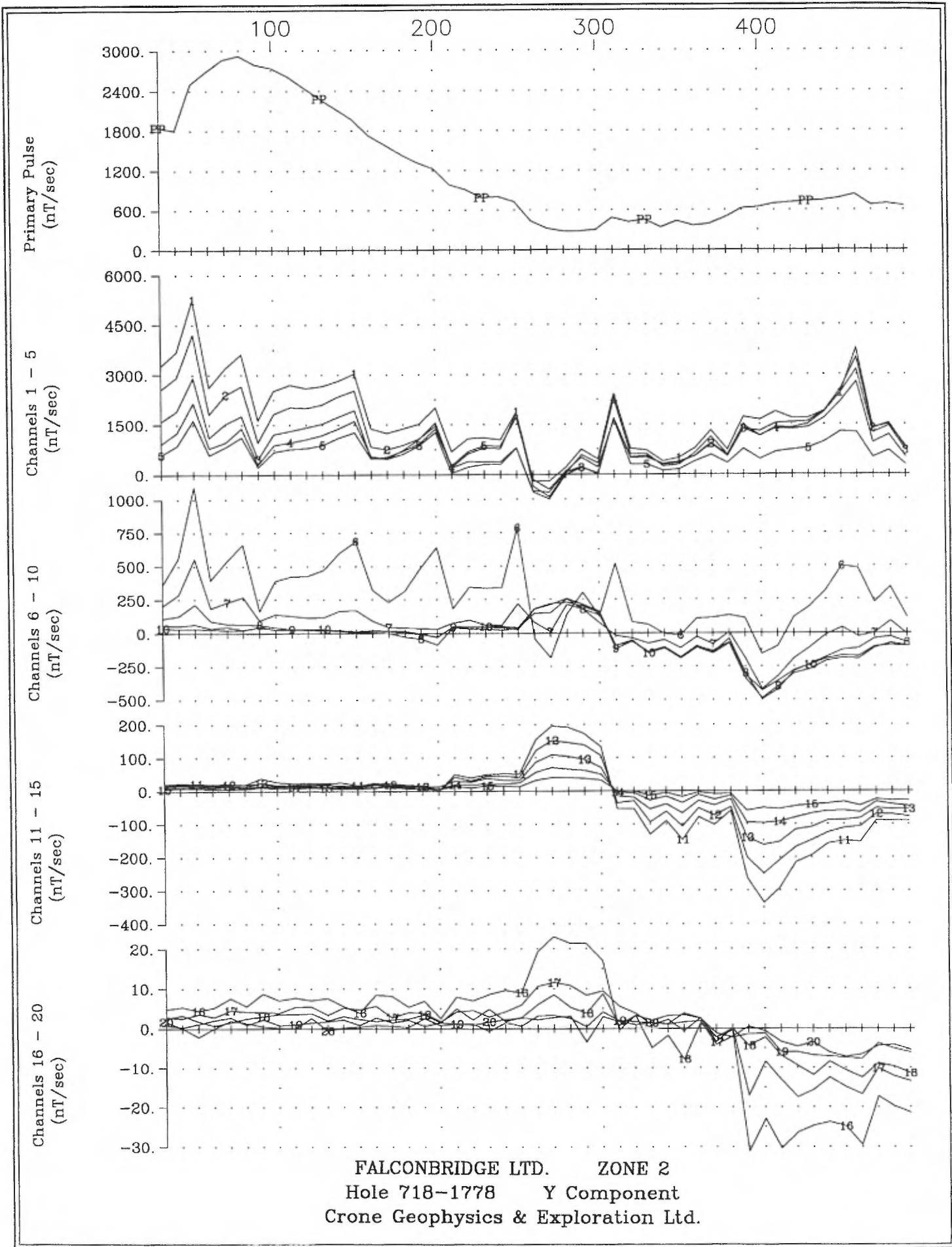


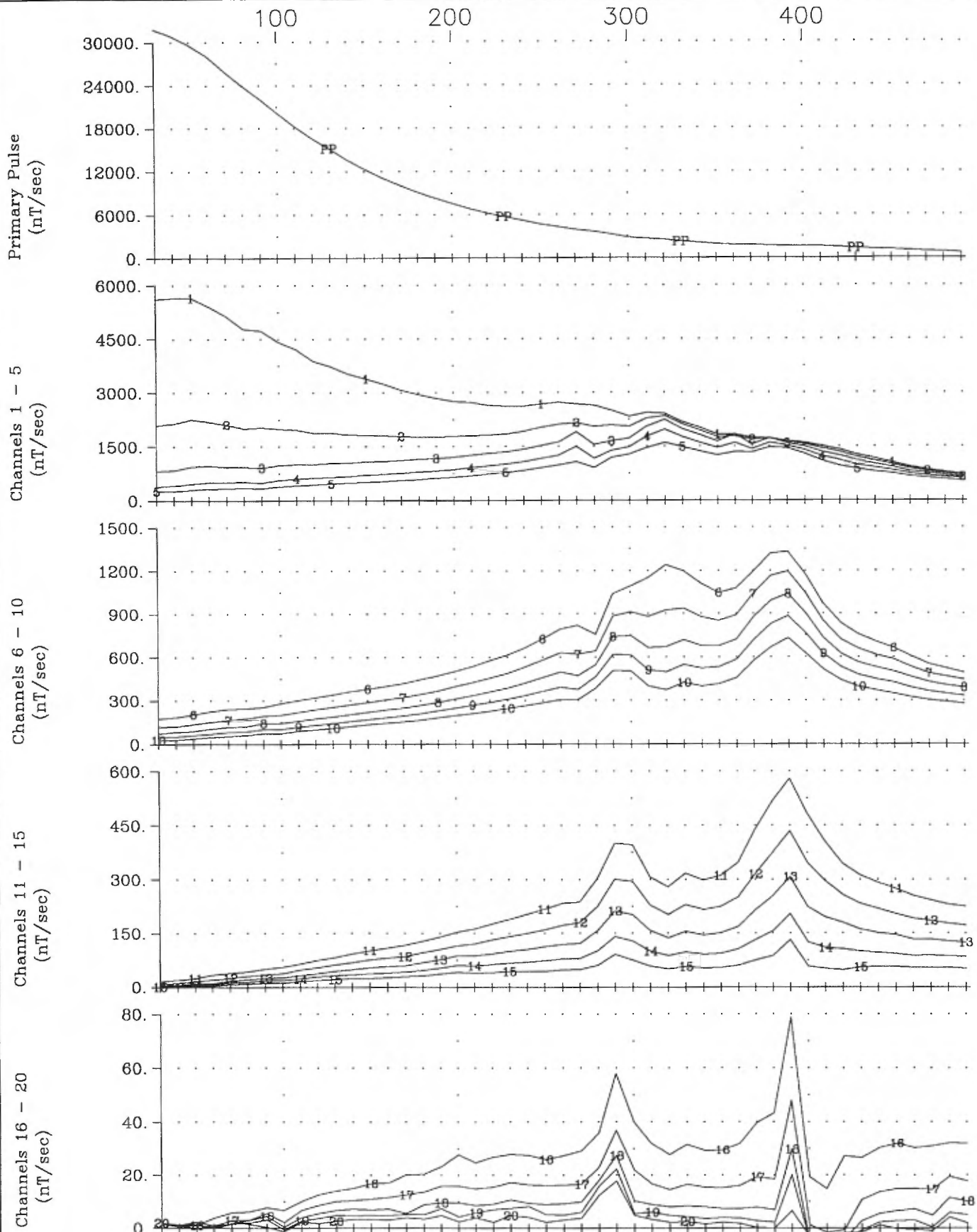
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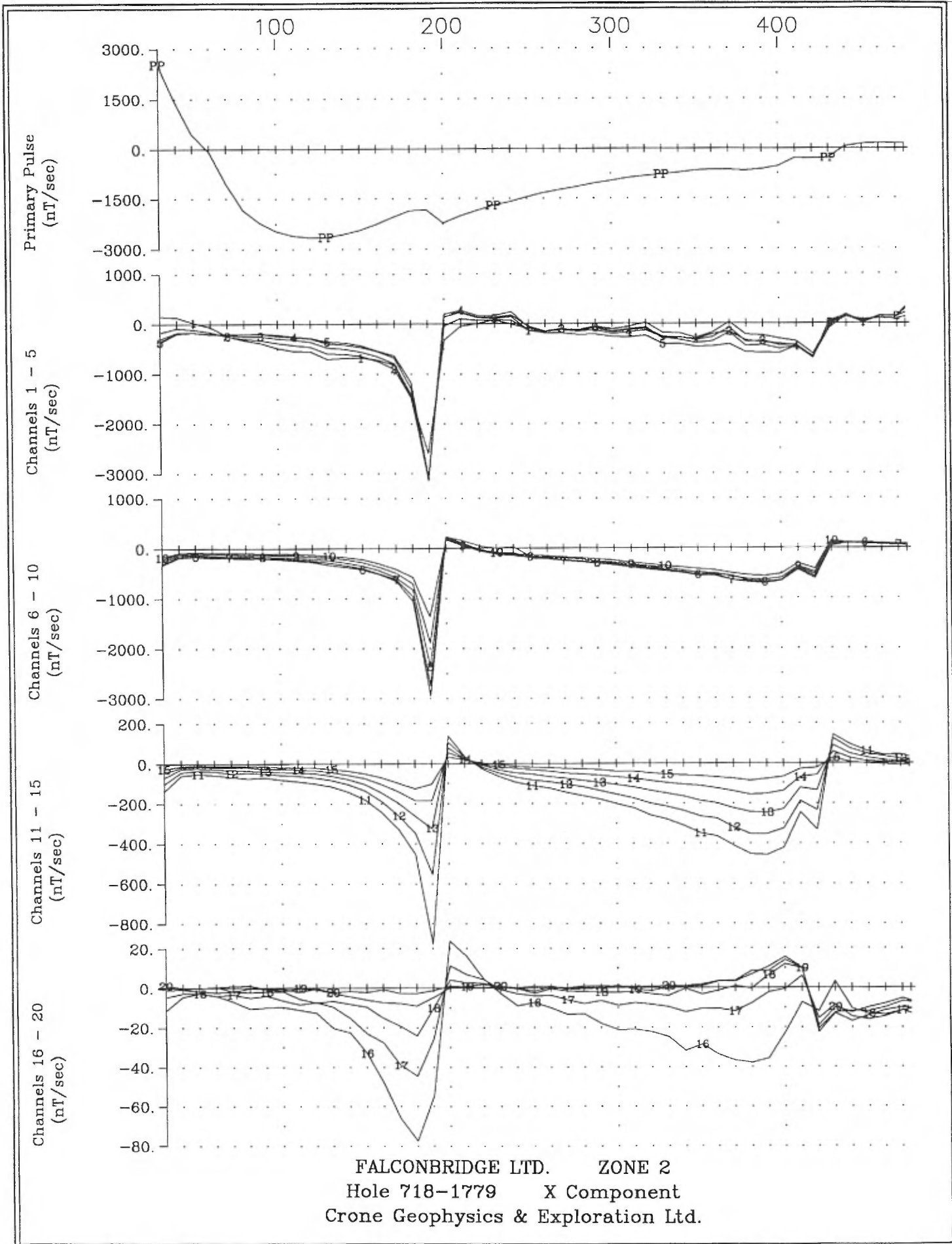


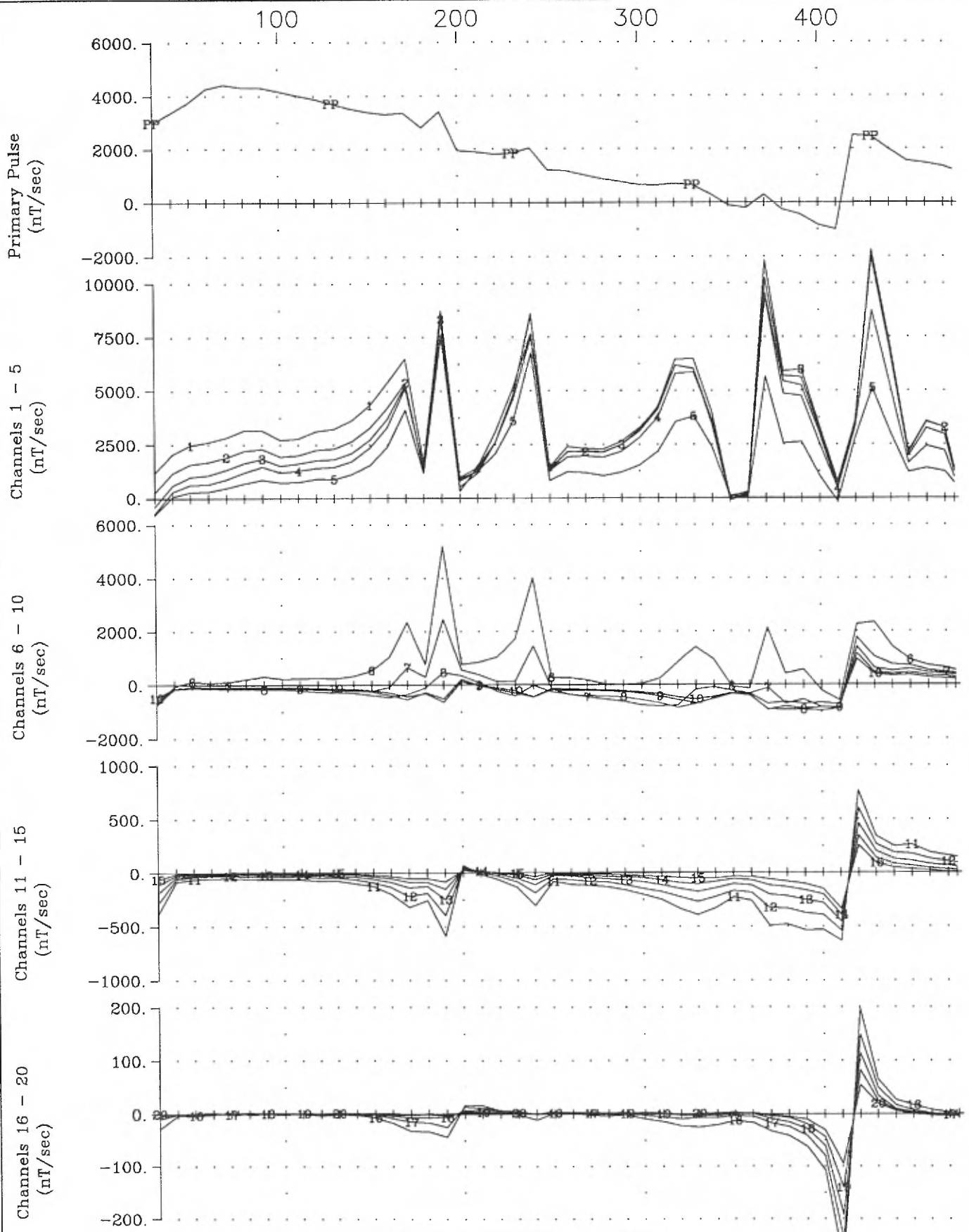
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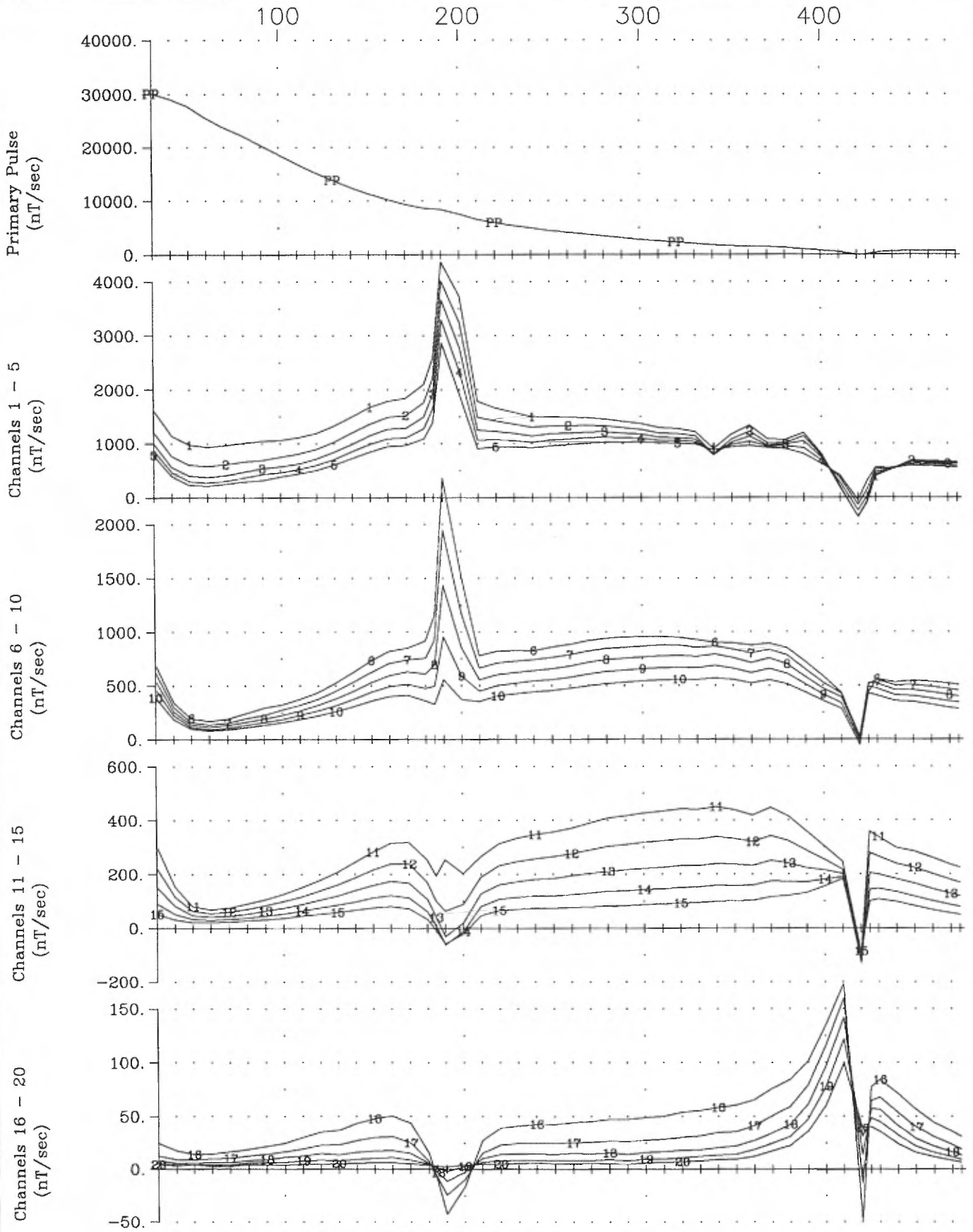


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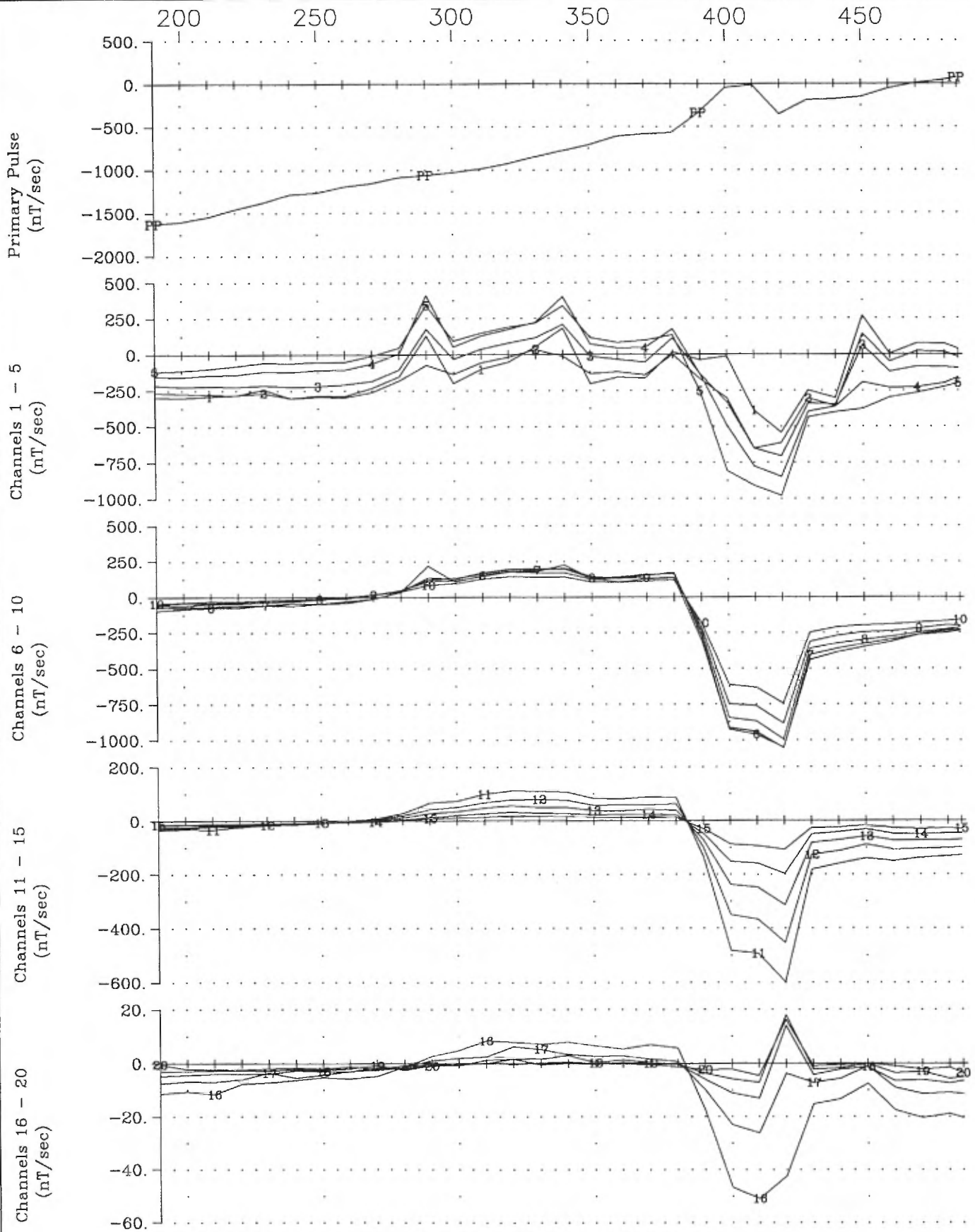




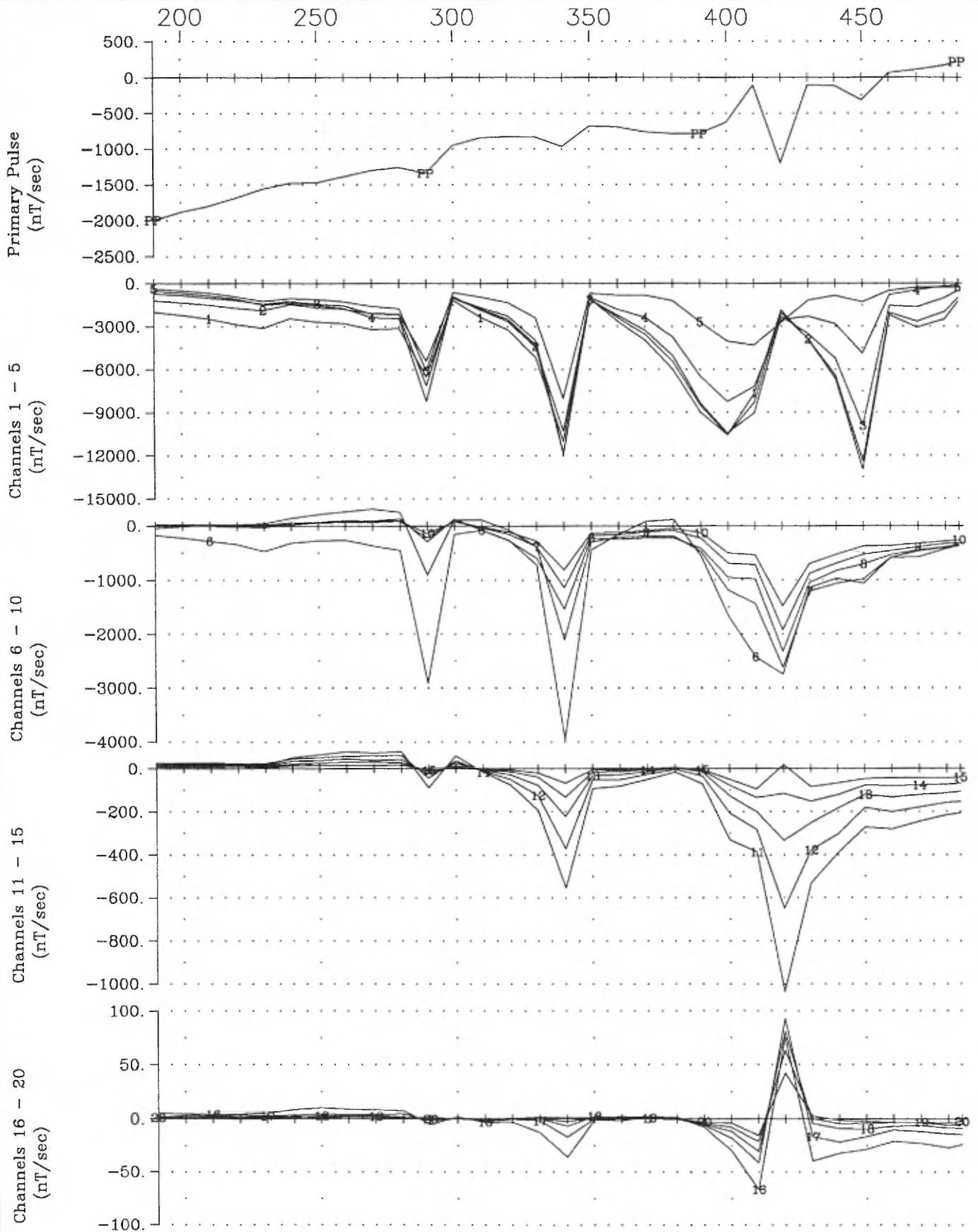
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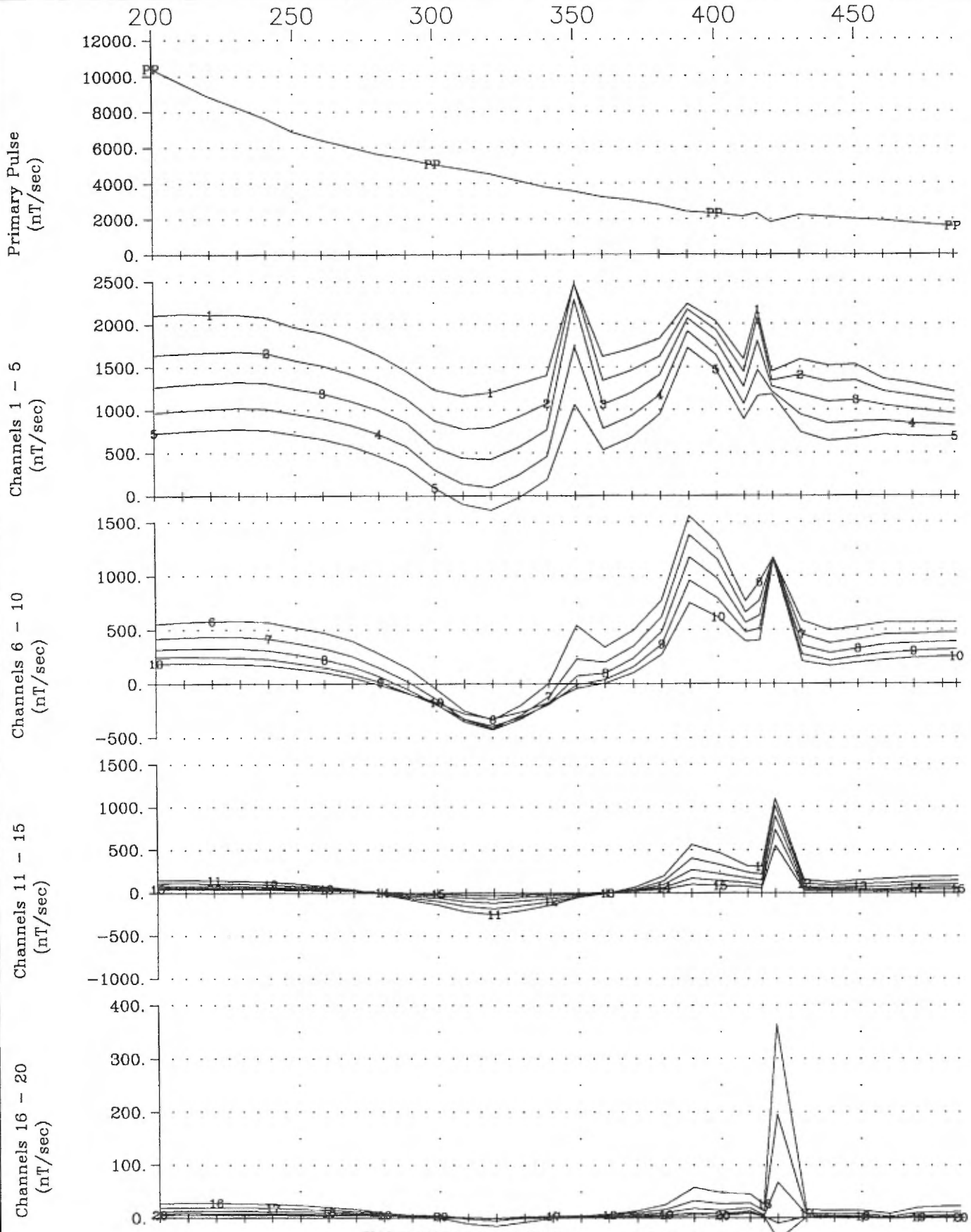
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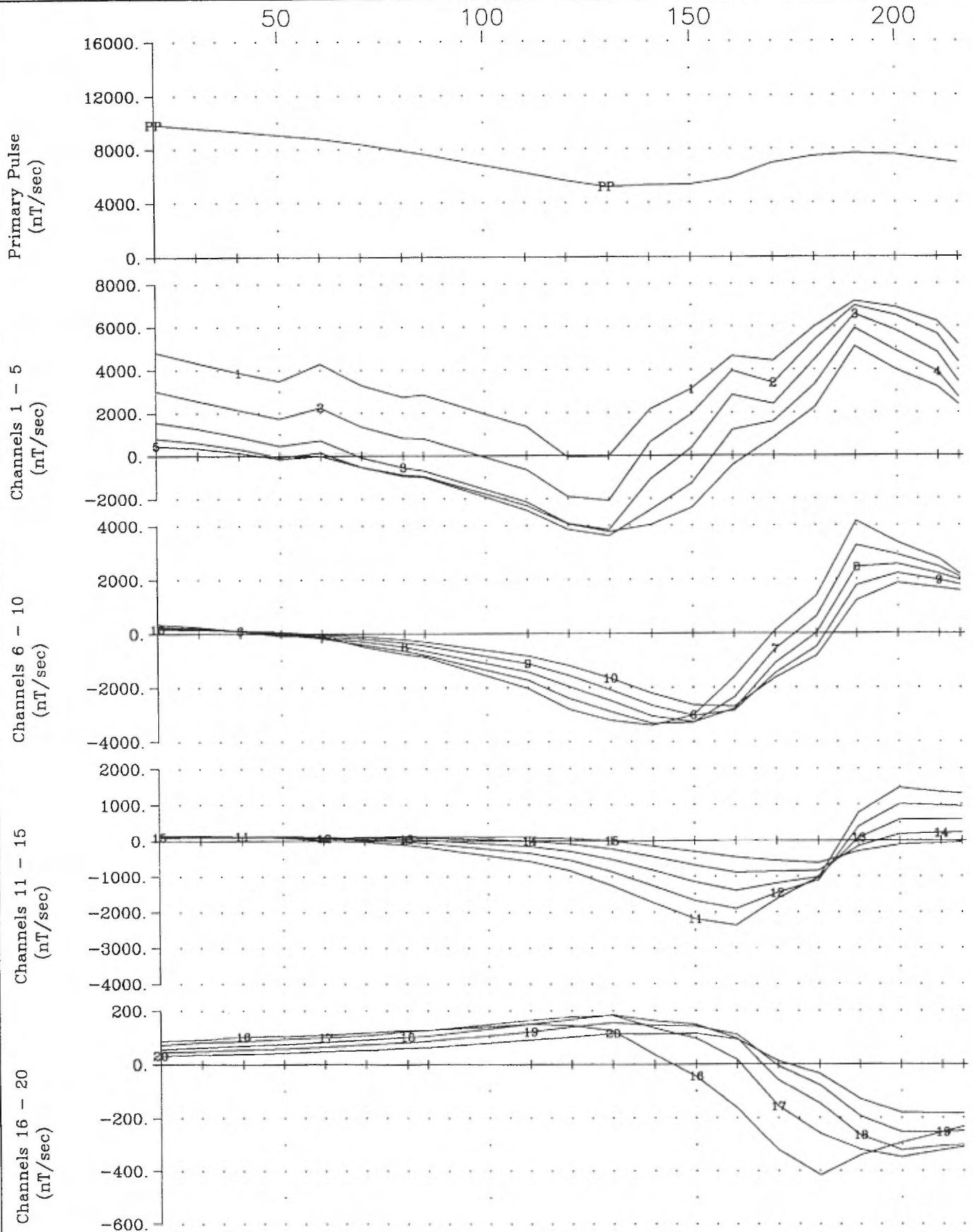
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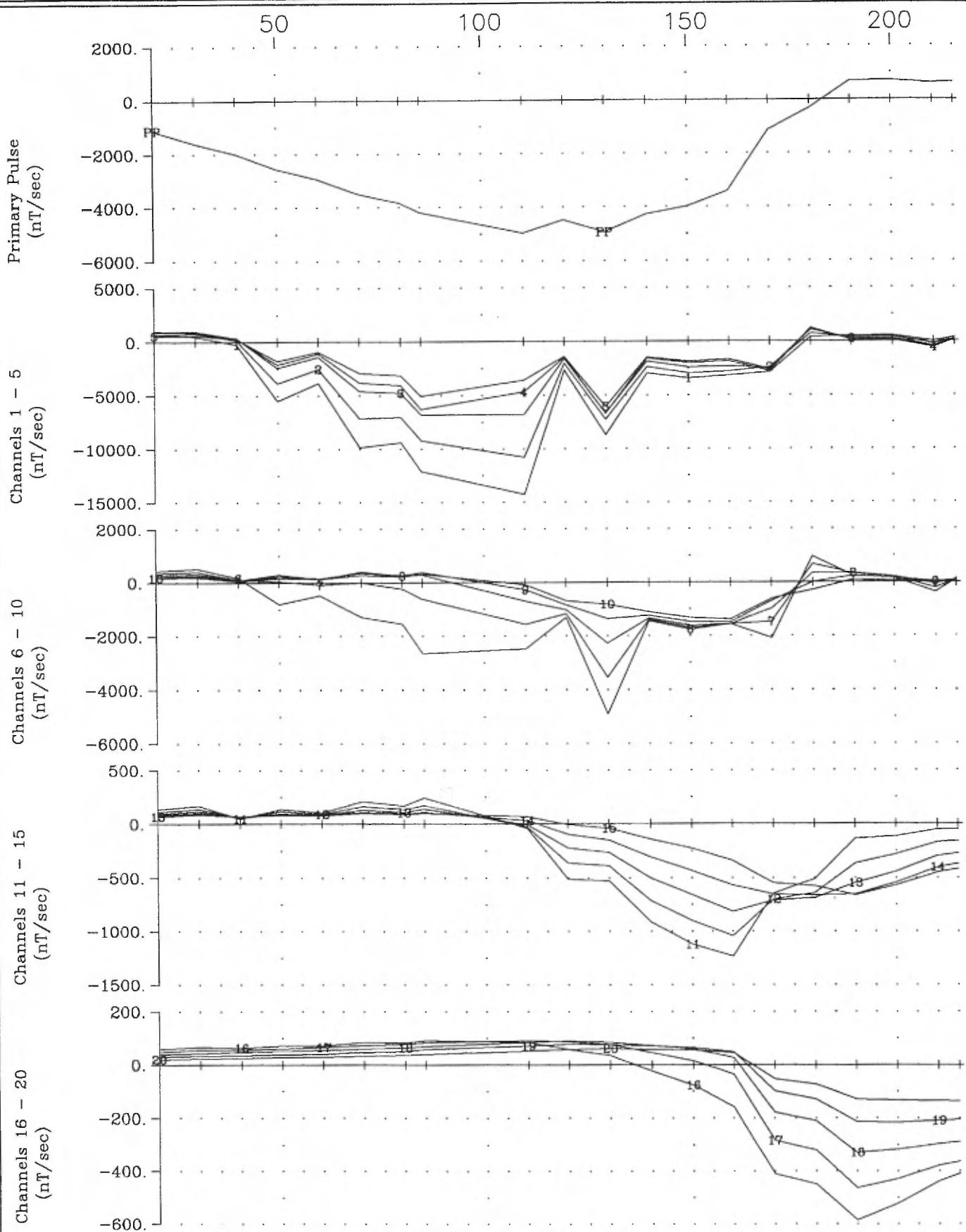
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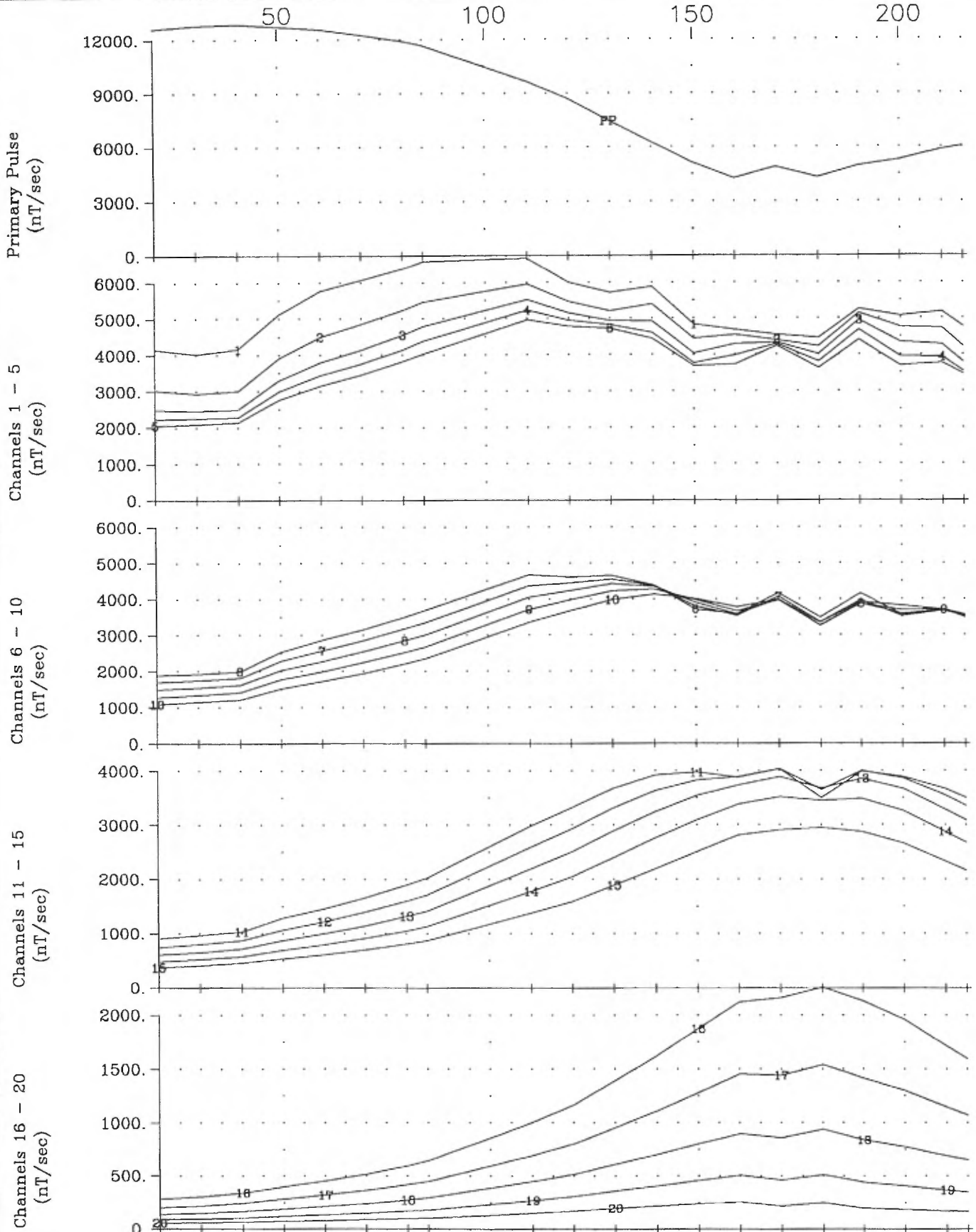
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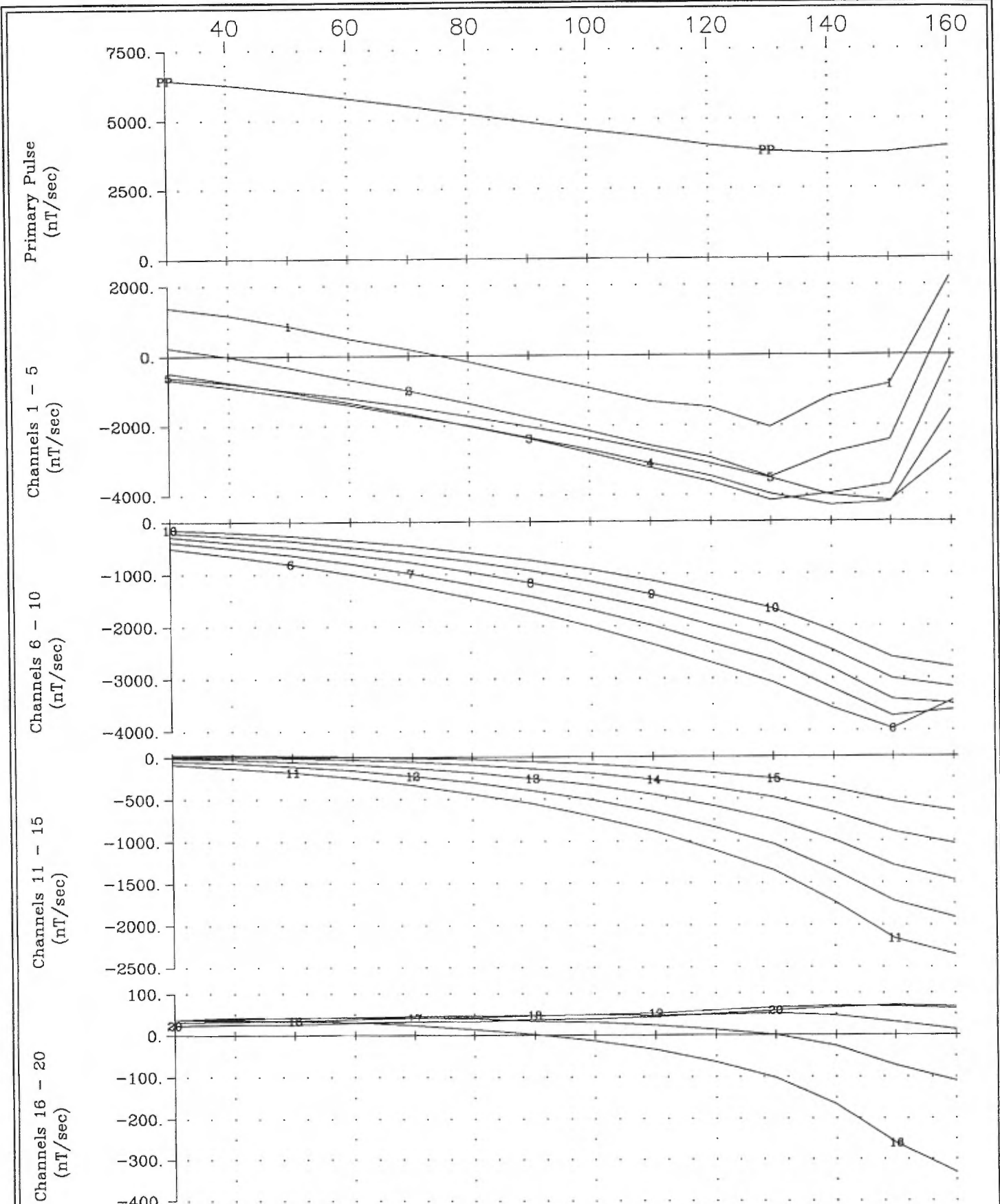
FALCONBRIDGE LTD. ZONE 2
Hole 718-1791 X Component
Crone Geophysics & Exploration Ltd.



FALCONBRIDGE LTD. ZONE 2
 Hole 718-1791 Y Component
 Crone Geophysics & Exploration Ltd.



FALCONBRIDGE LTD. ZONE 2
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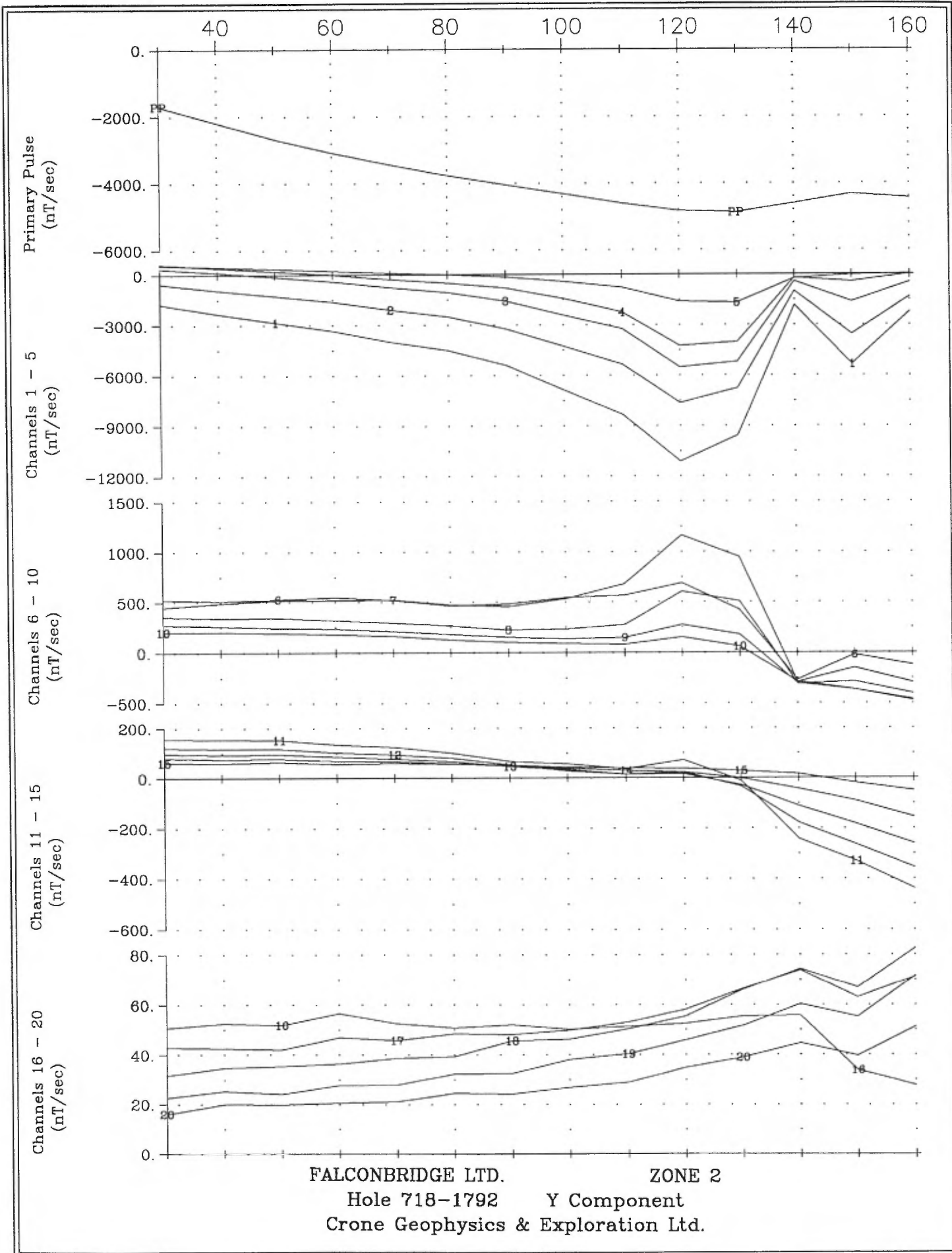
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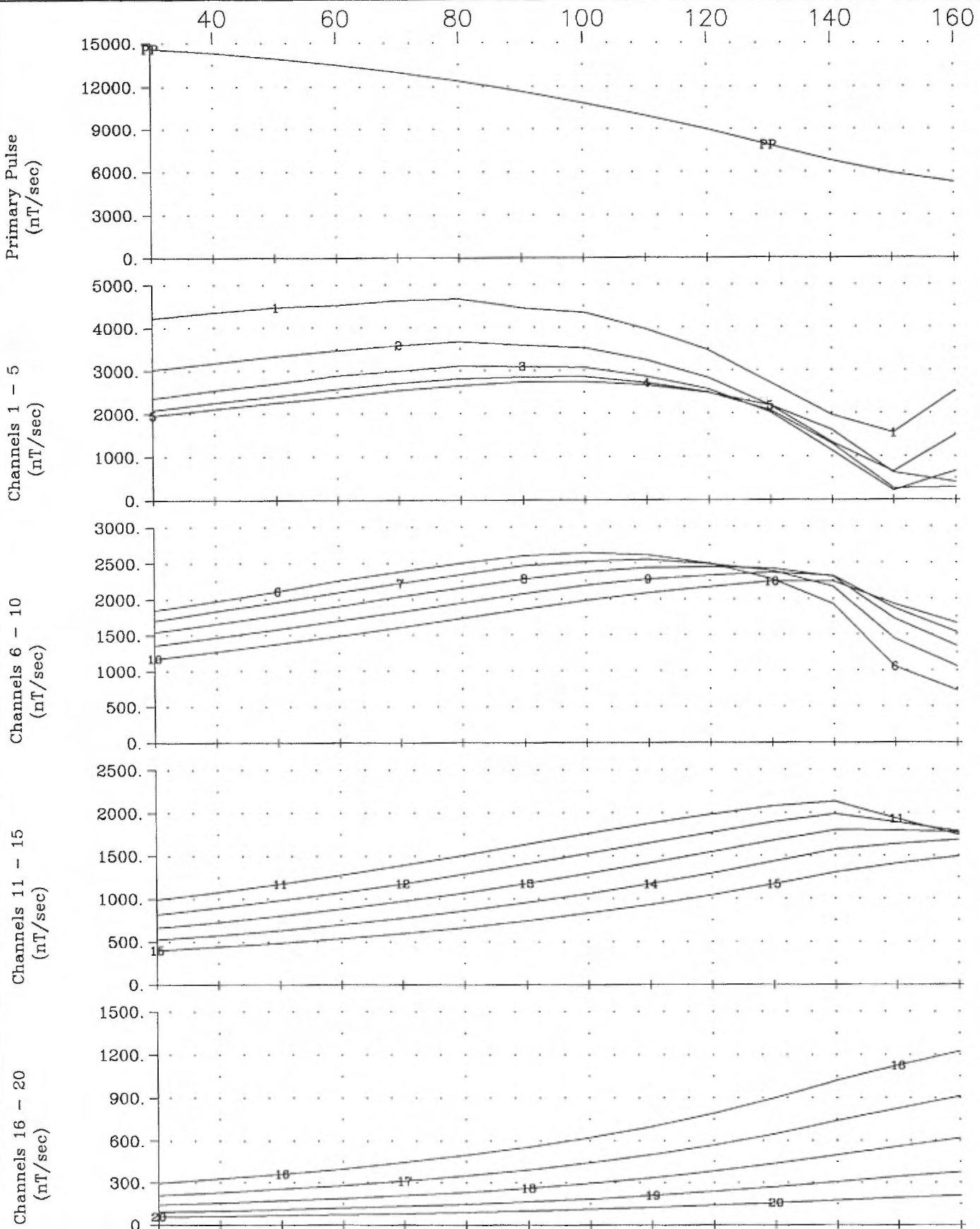
ZONE 2

Hole 718-1792

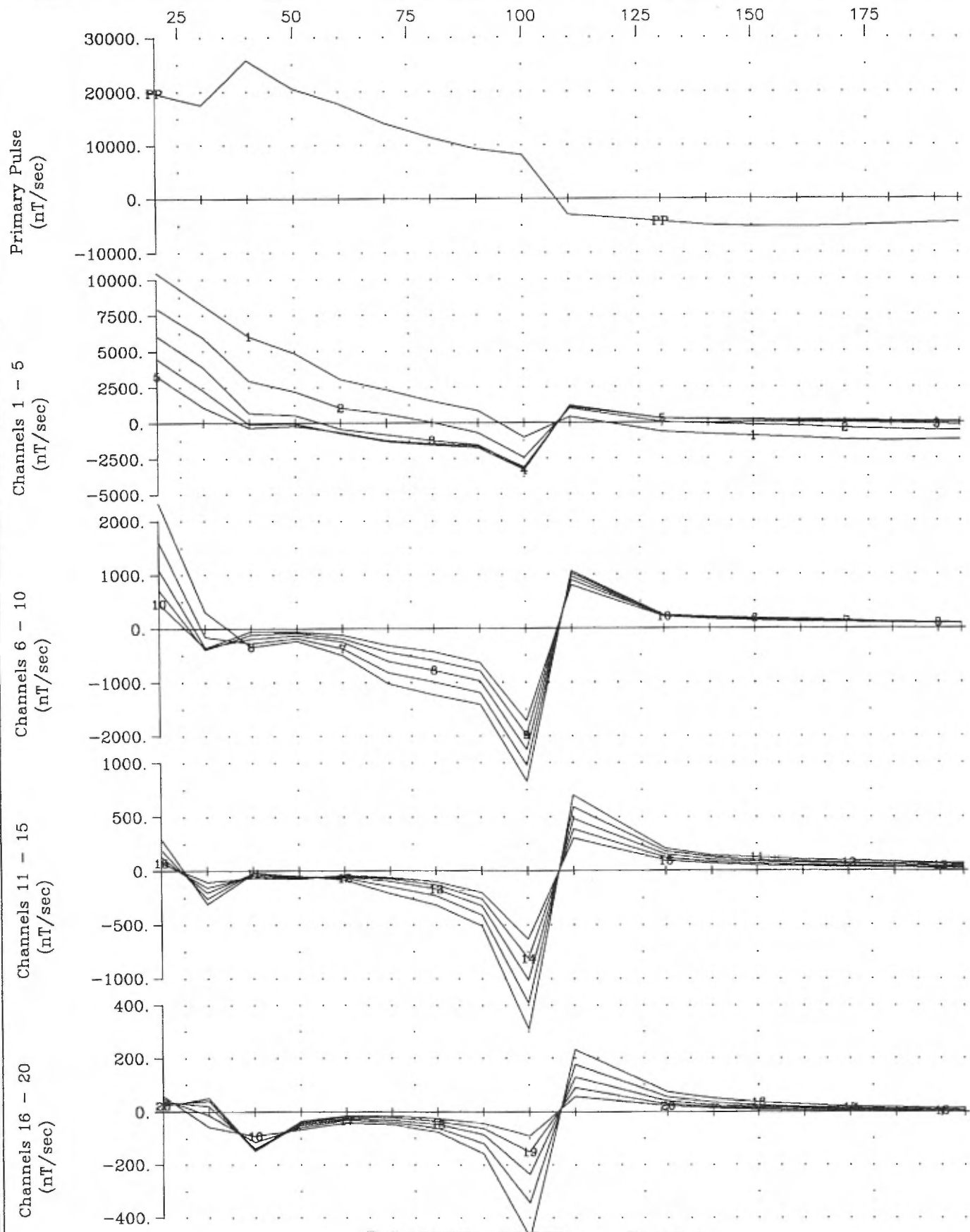
X Component

Crone Geophysics & Exploration Ltd.

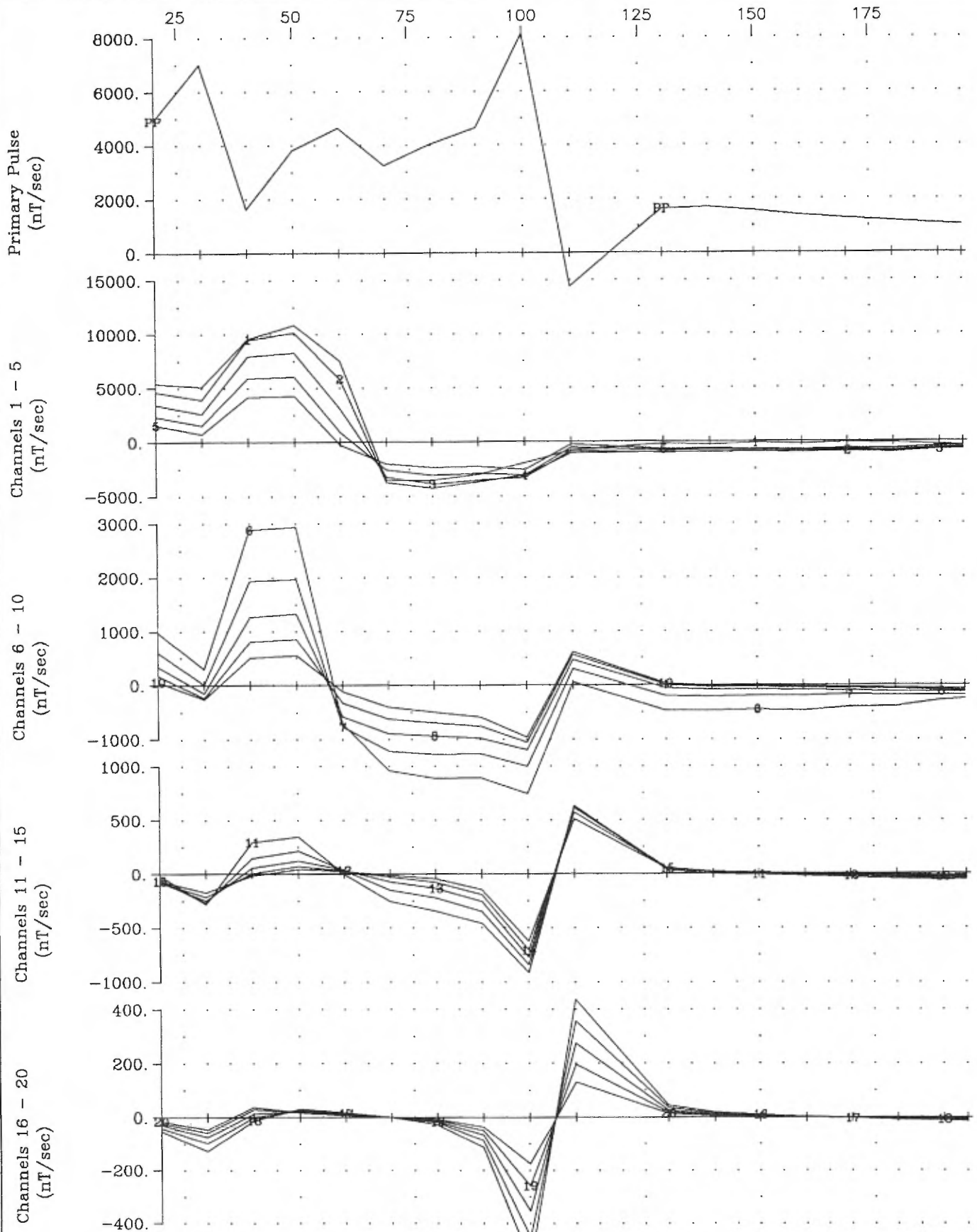




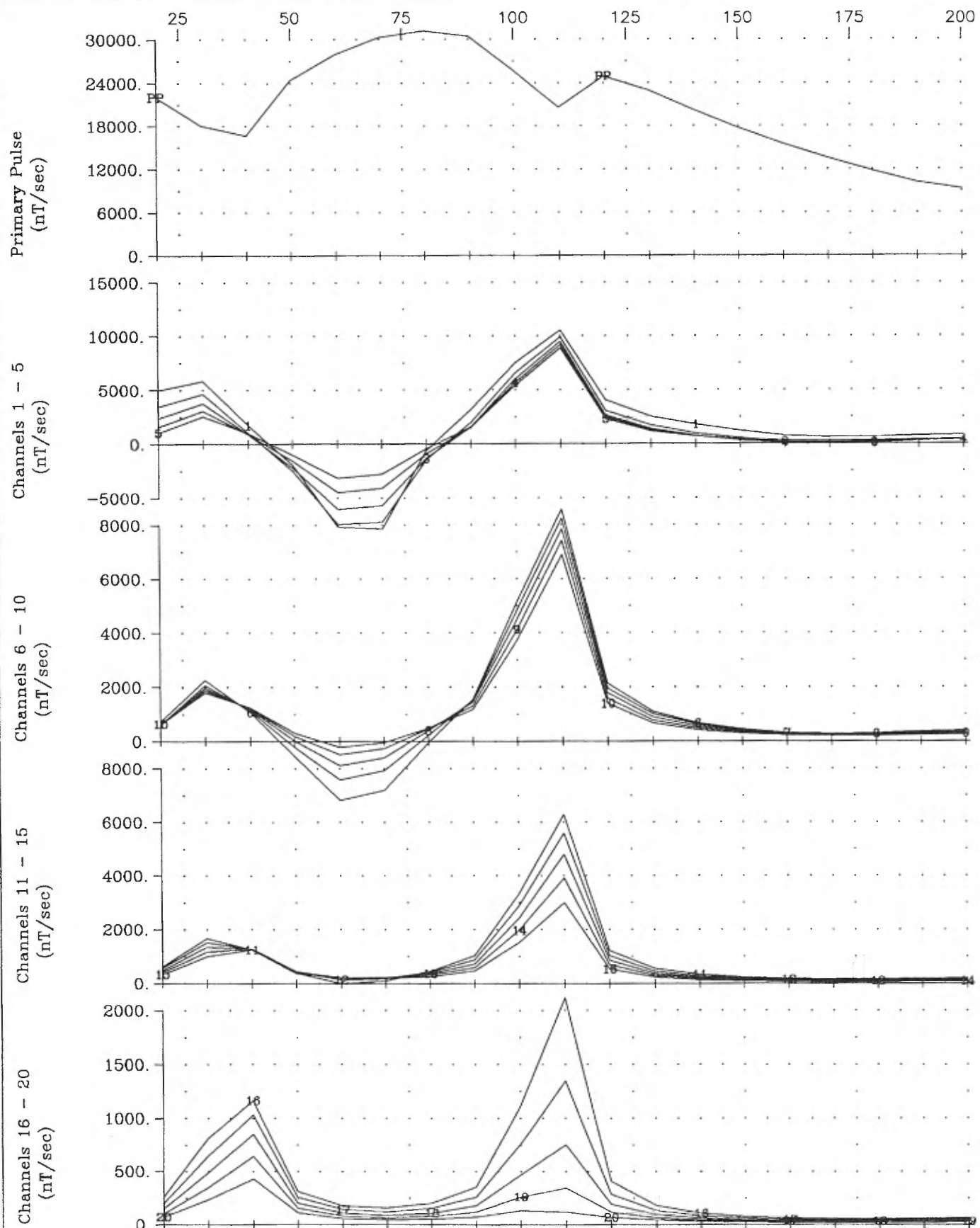
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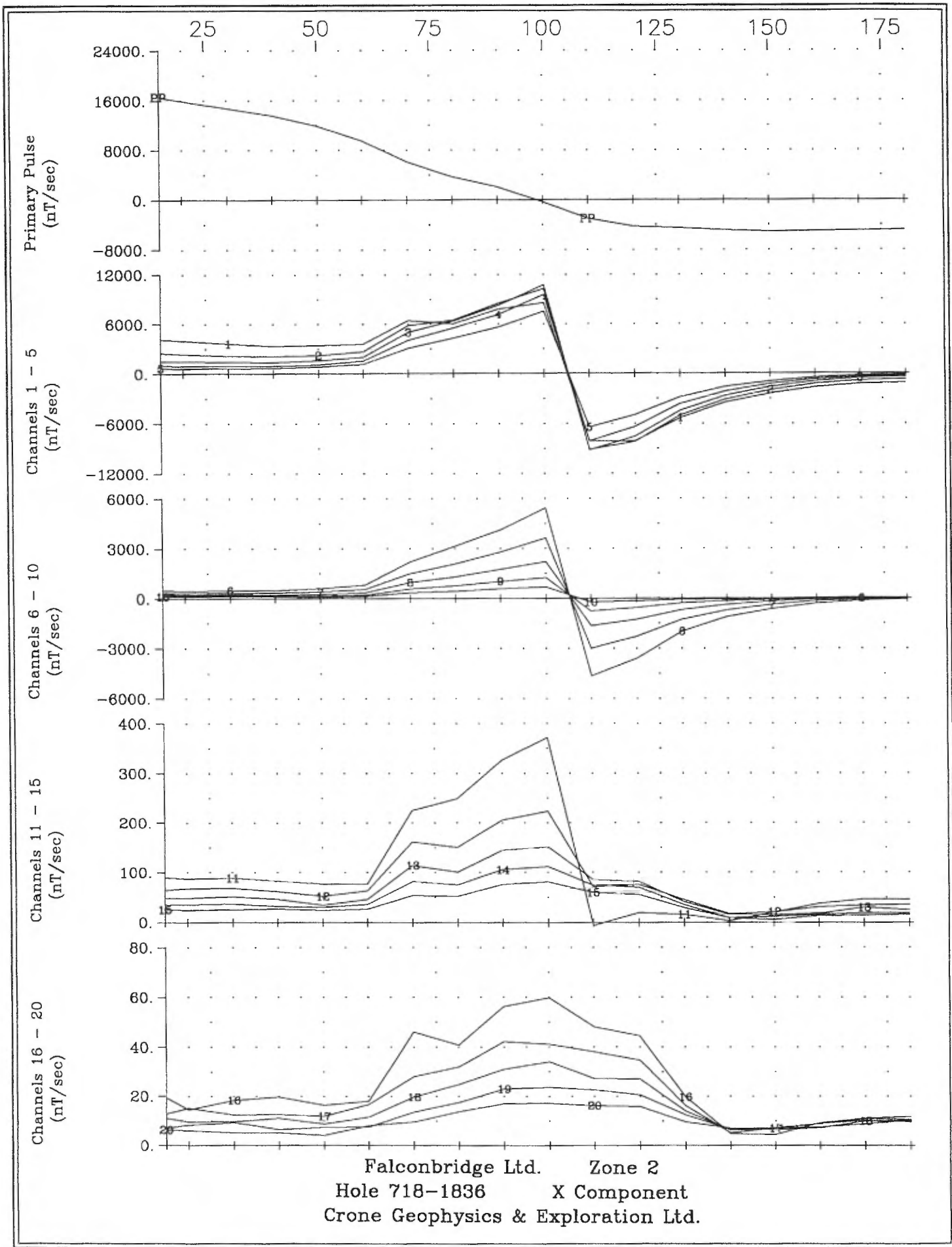
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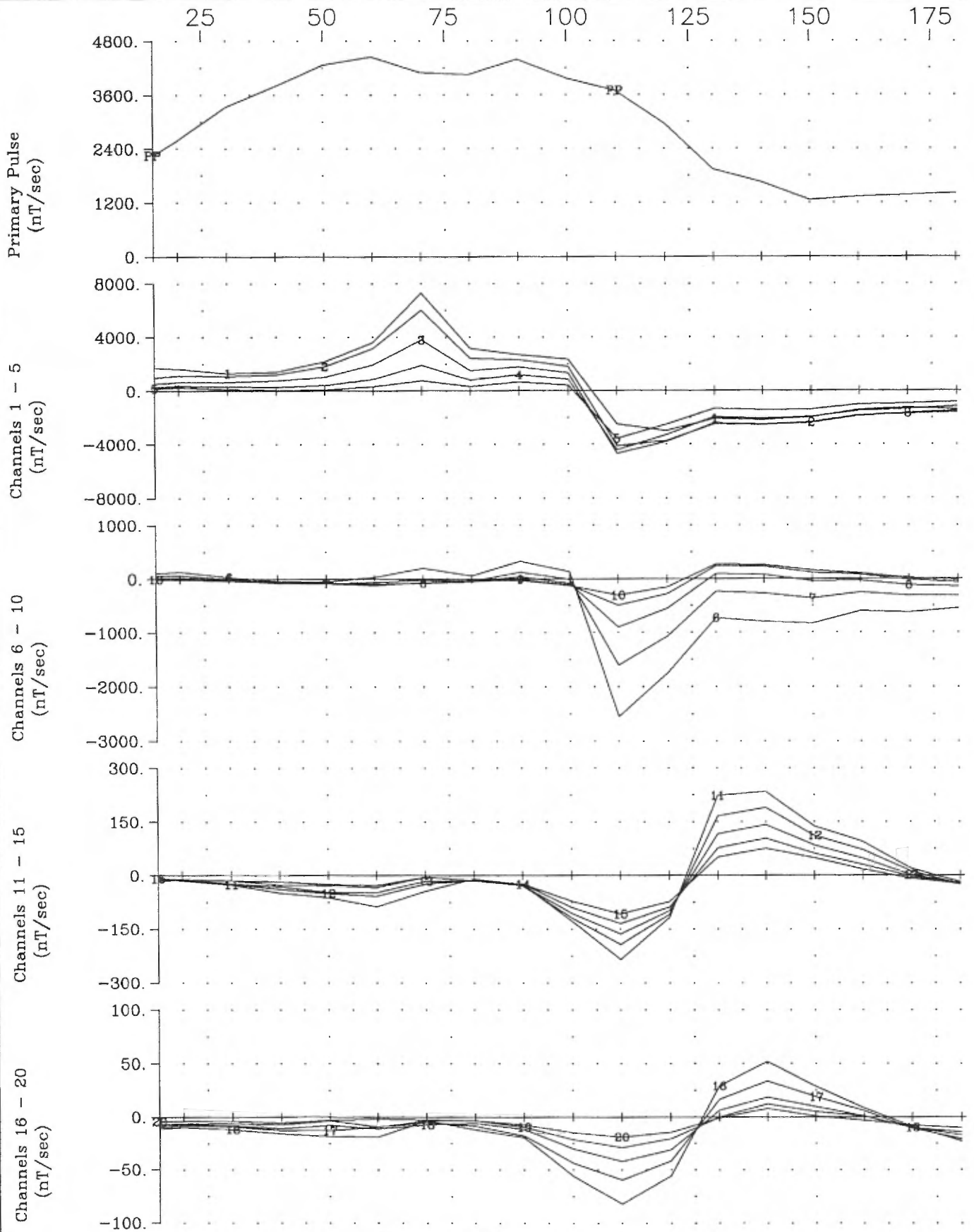


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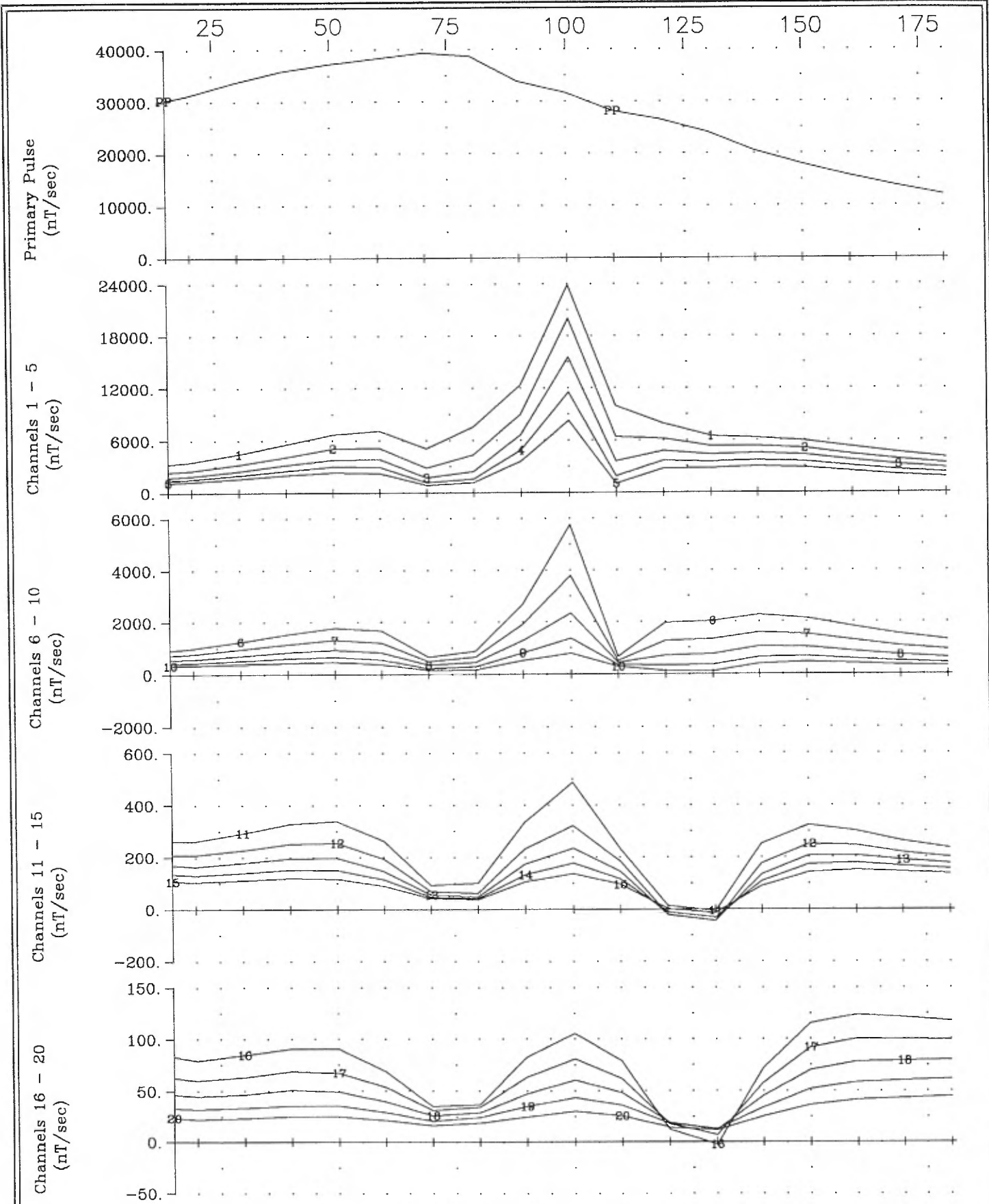


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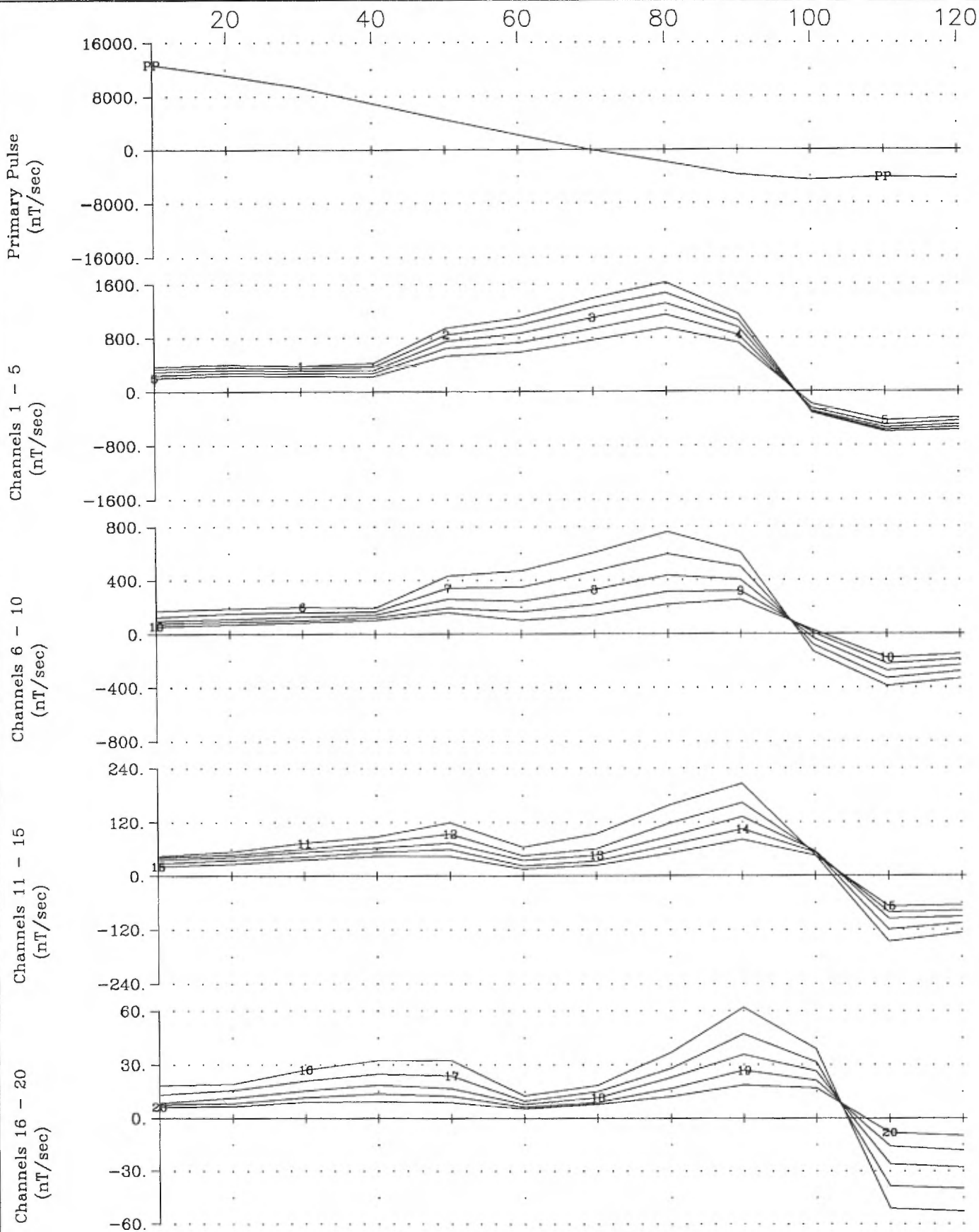




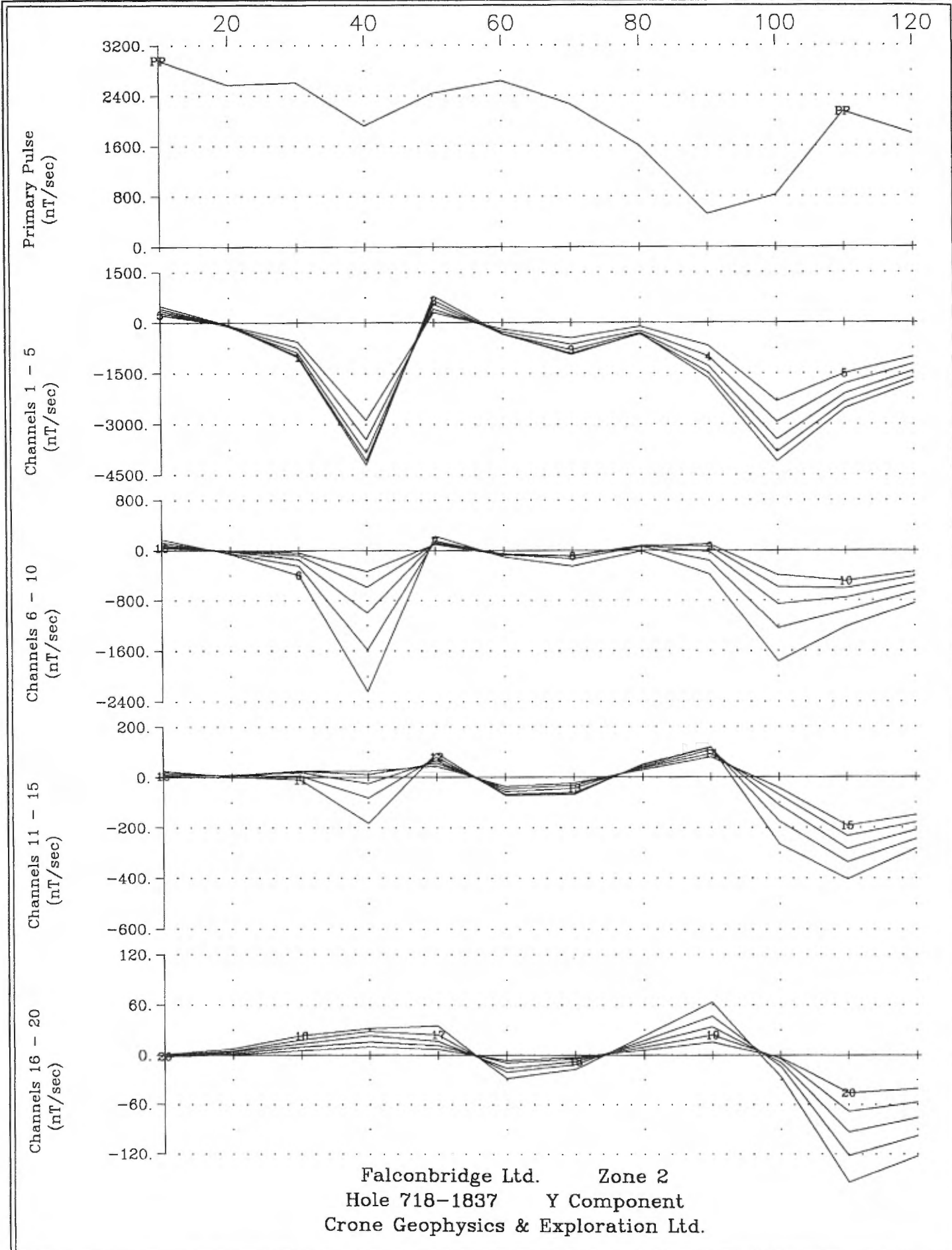
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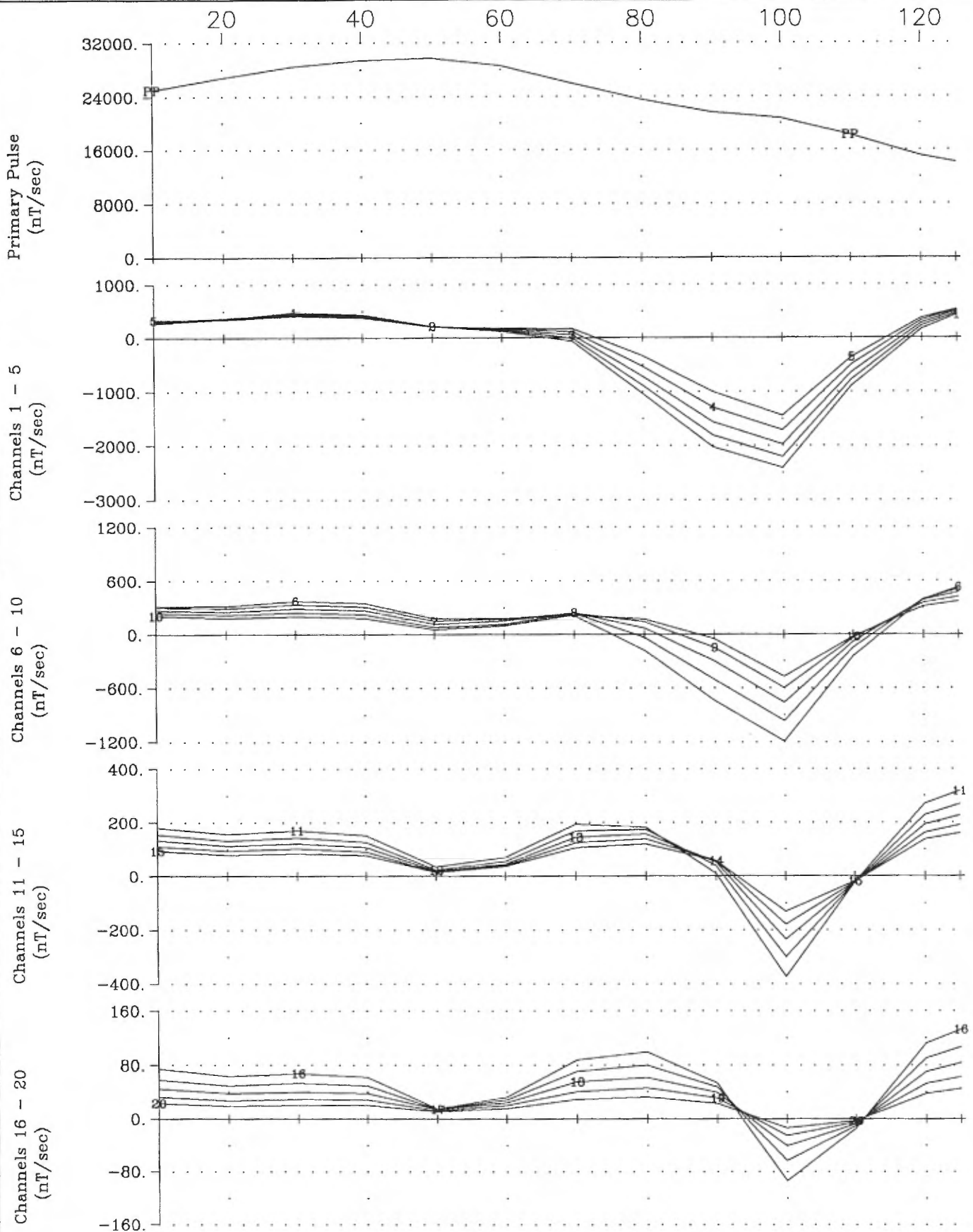
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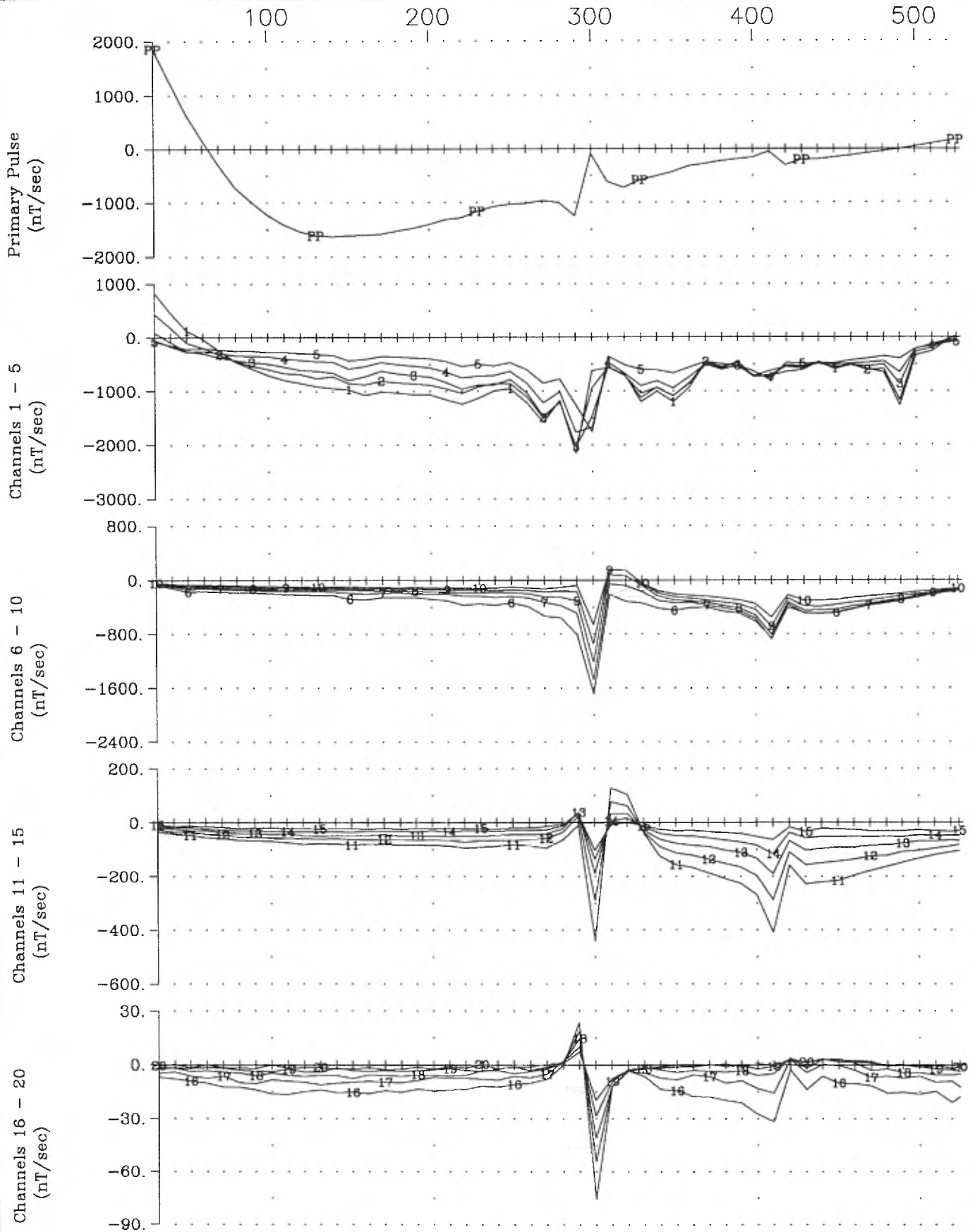
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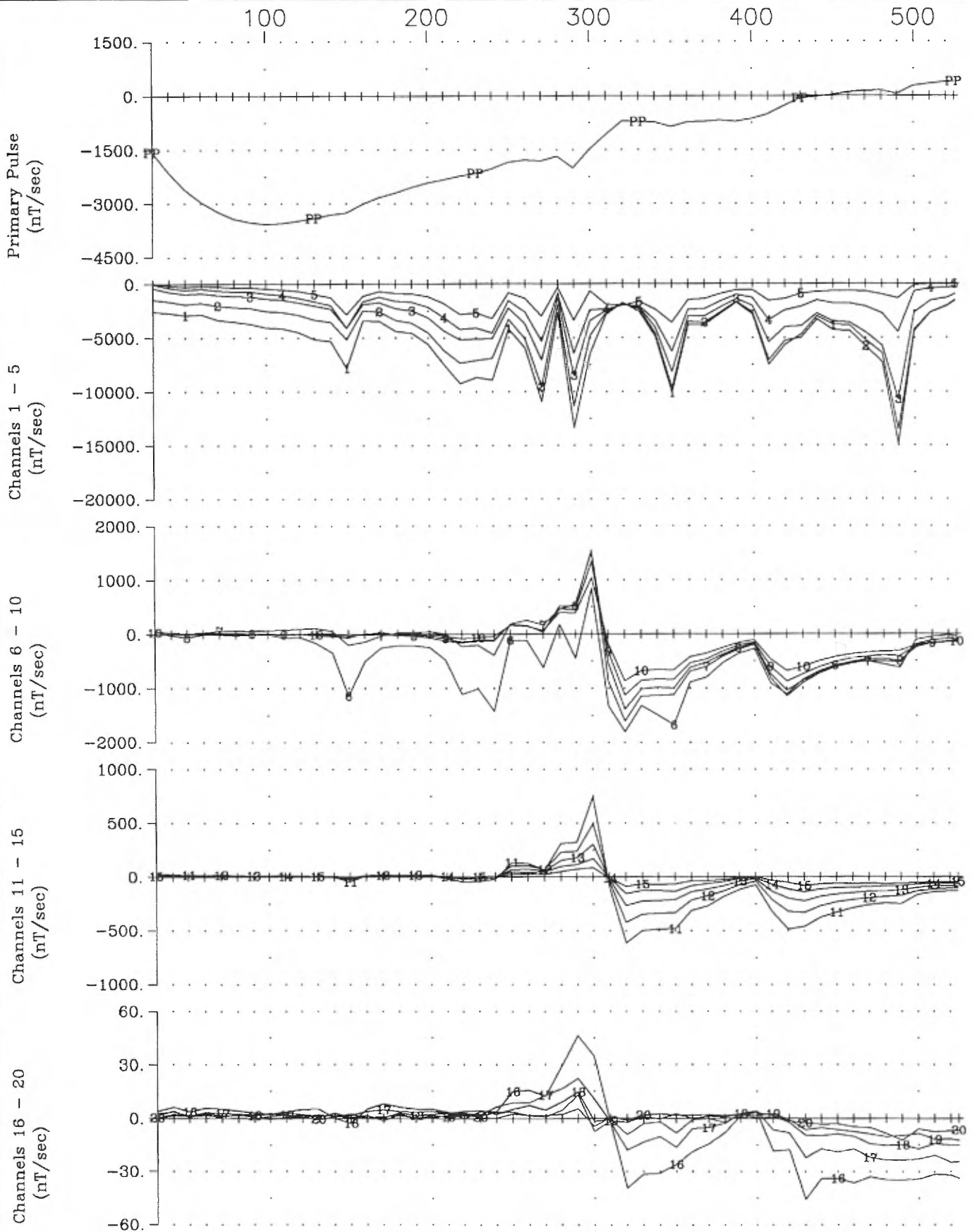
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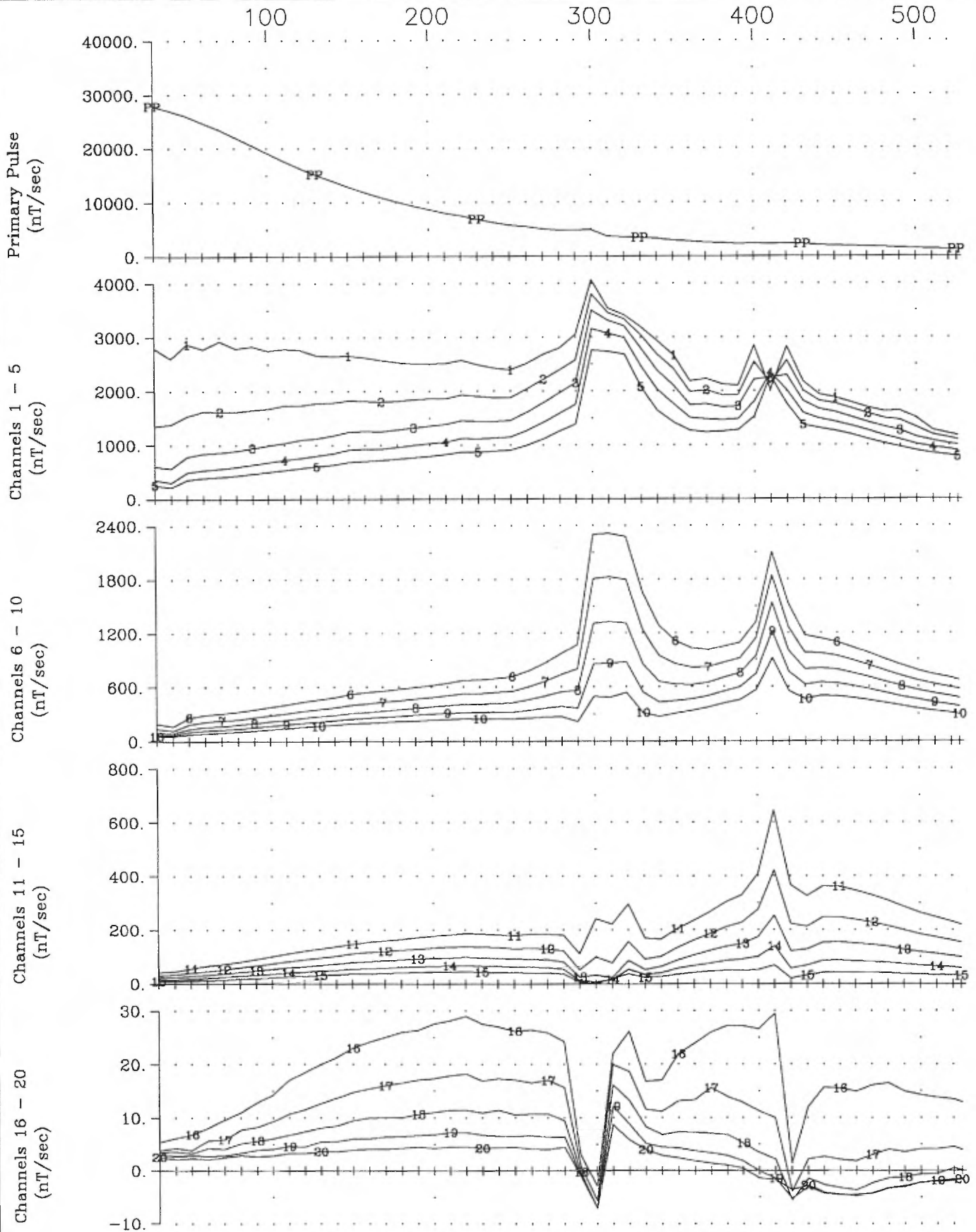
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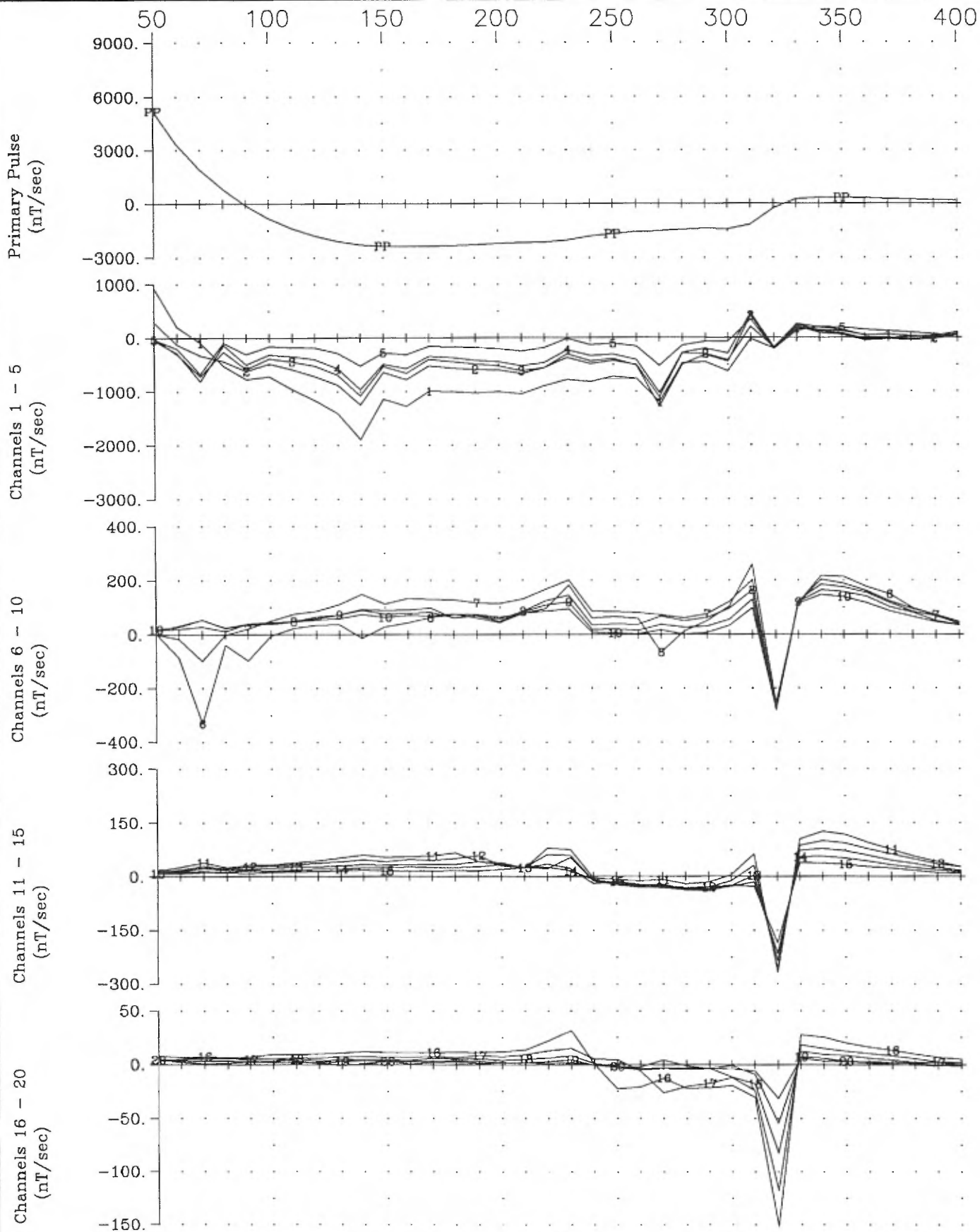
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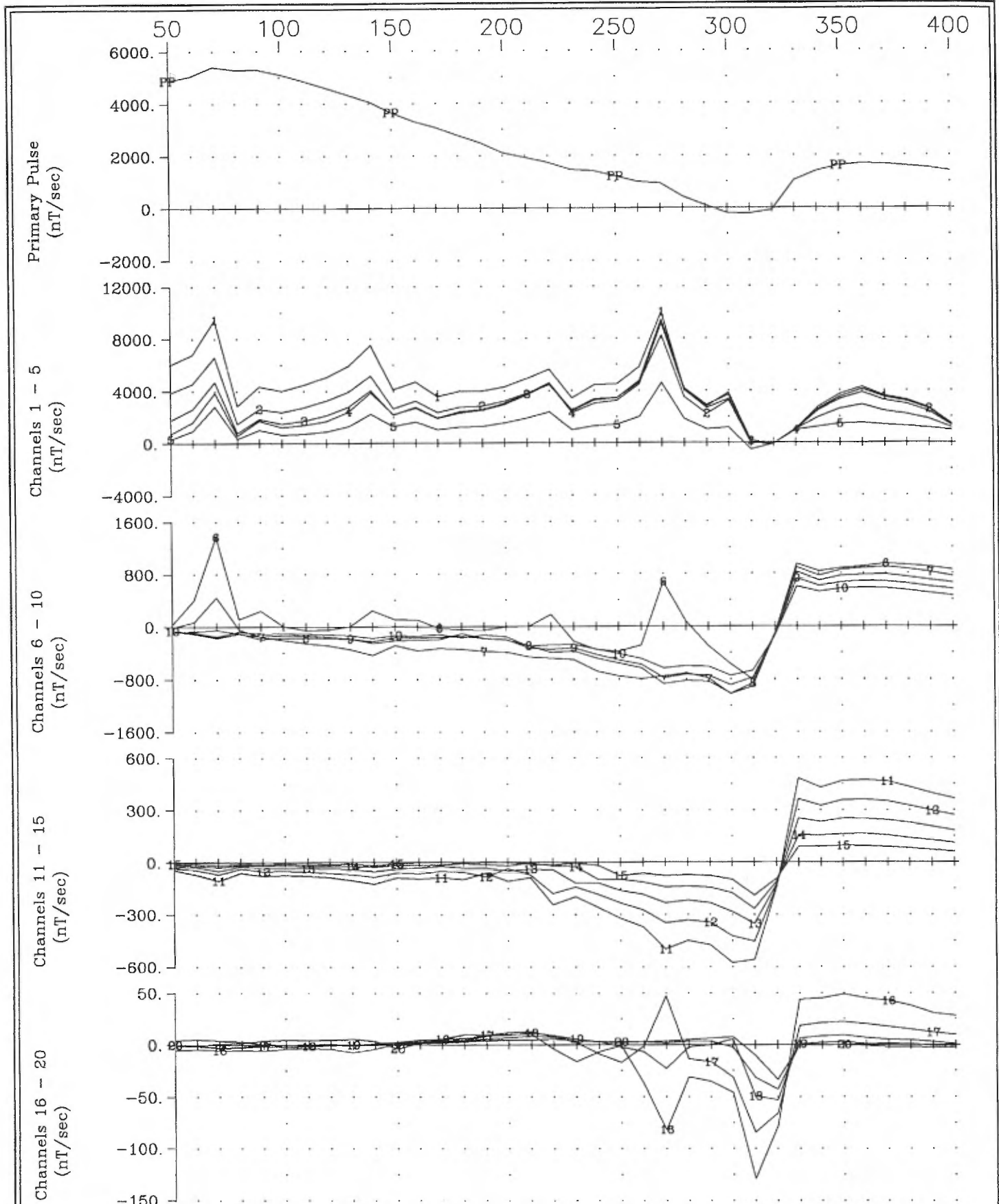
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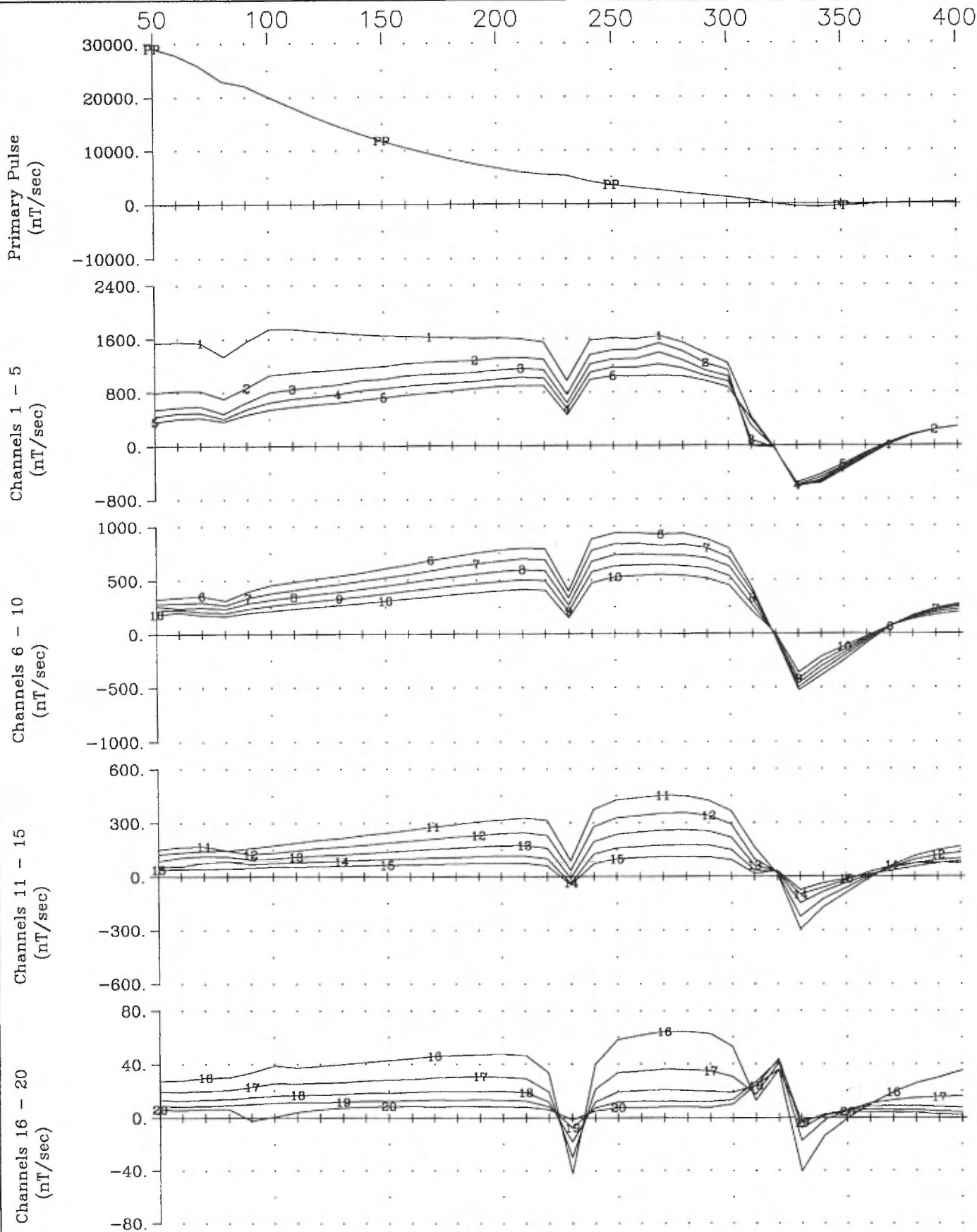
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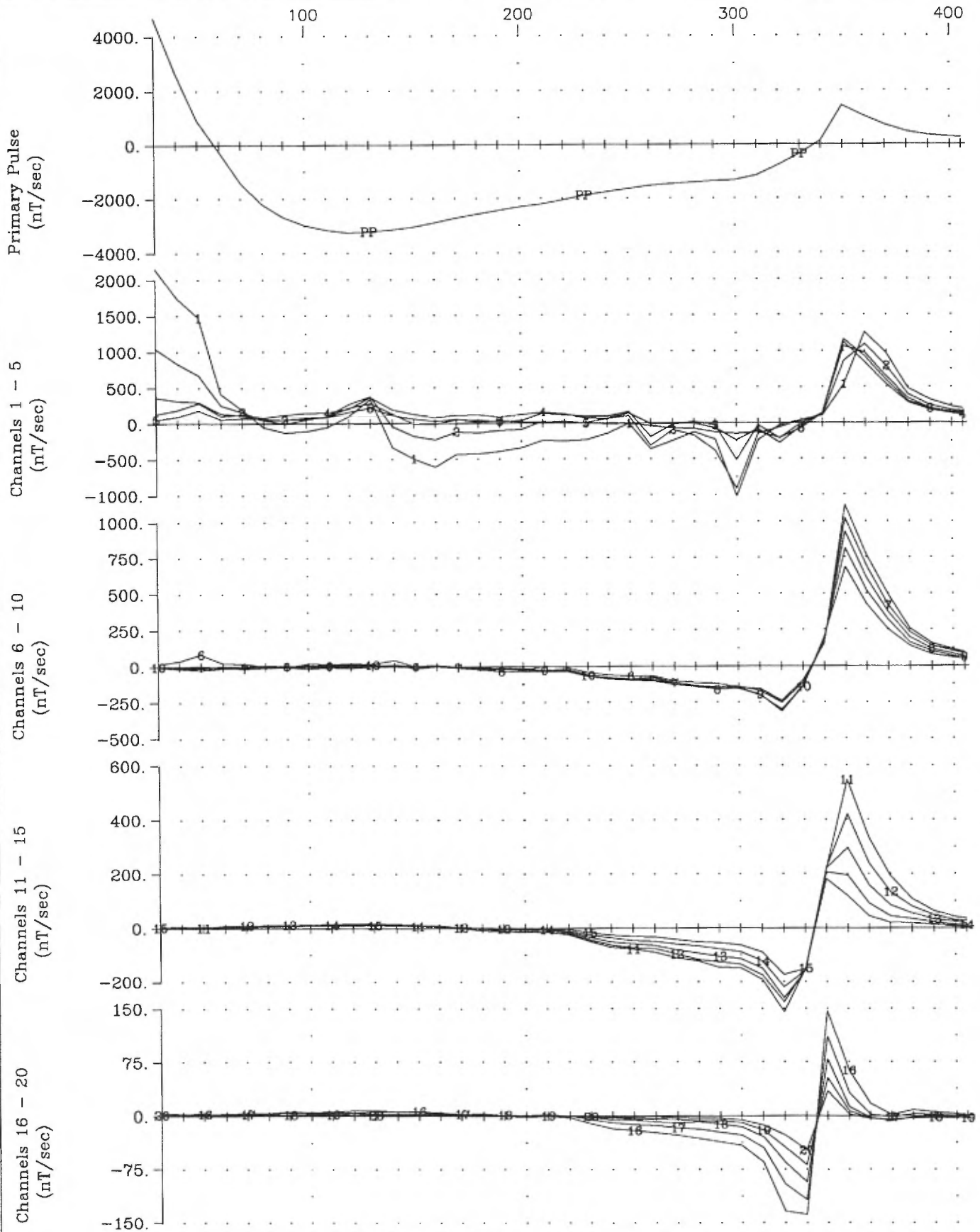
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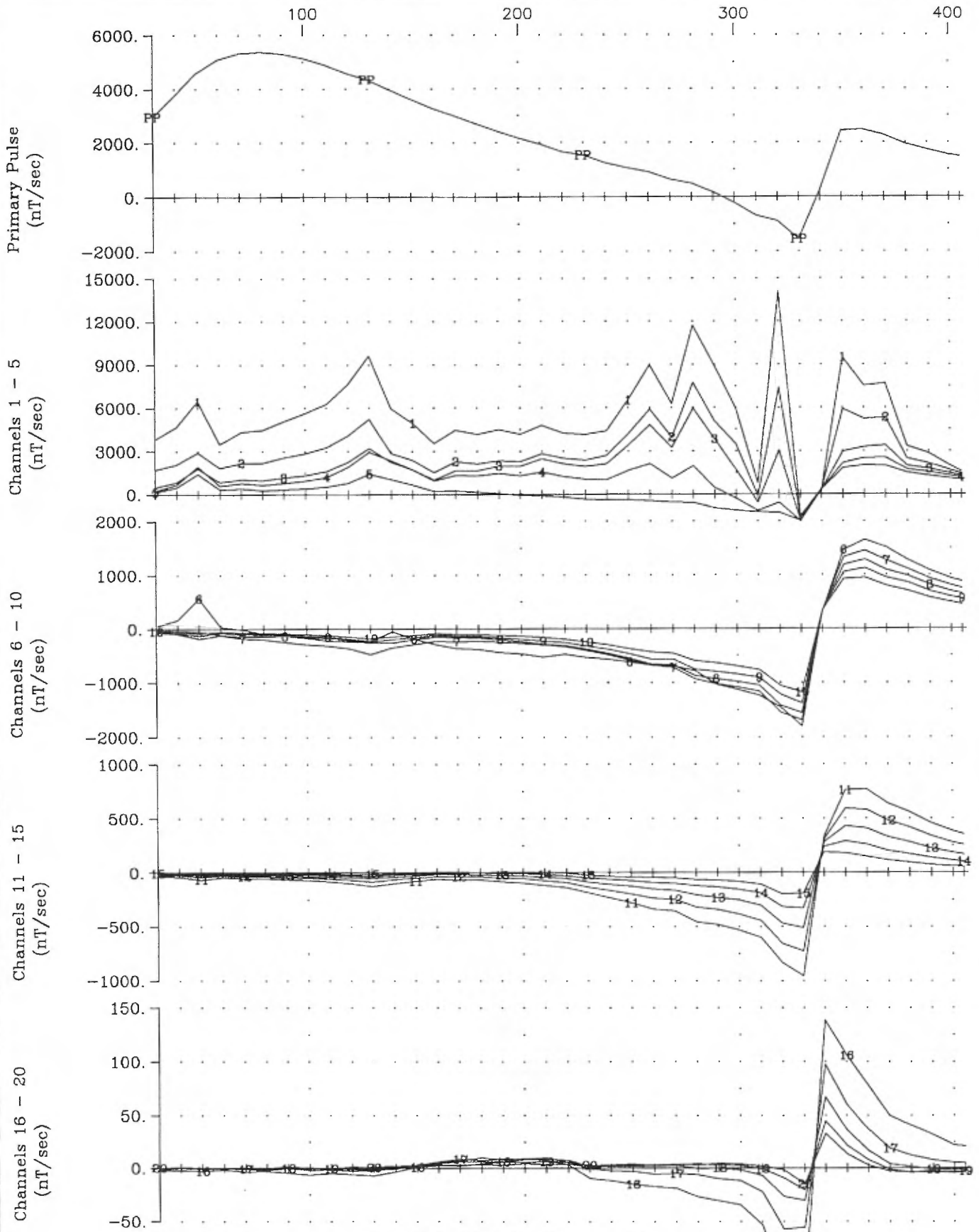
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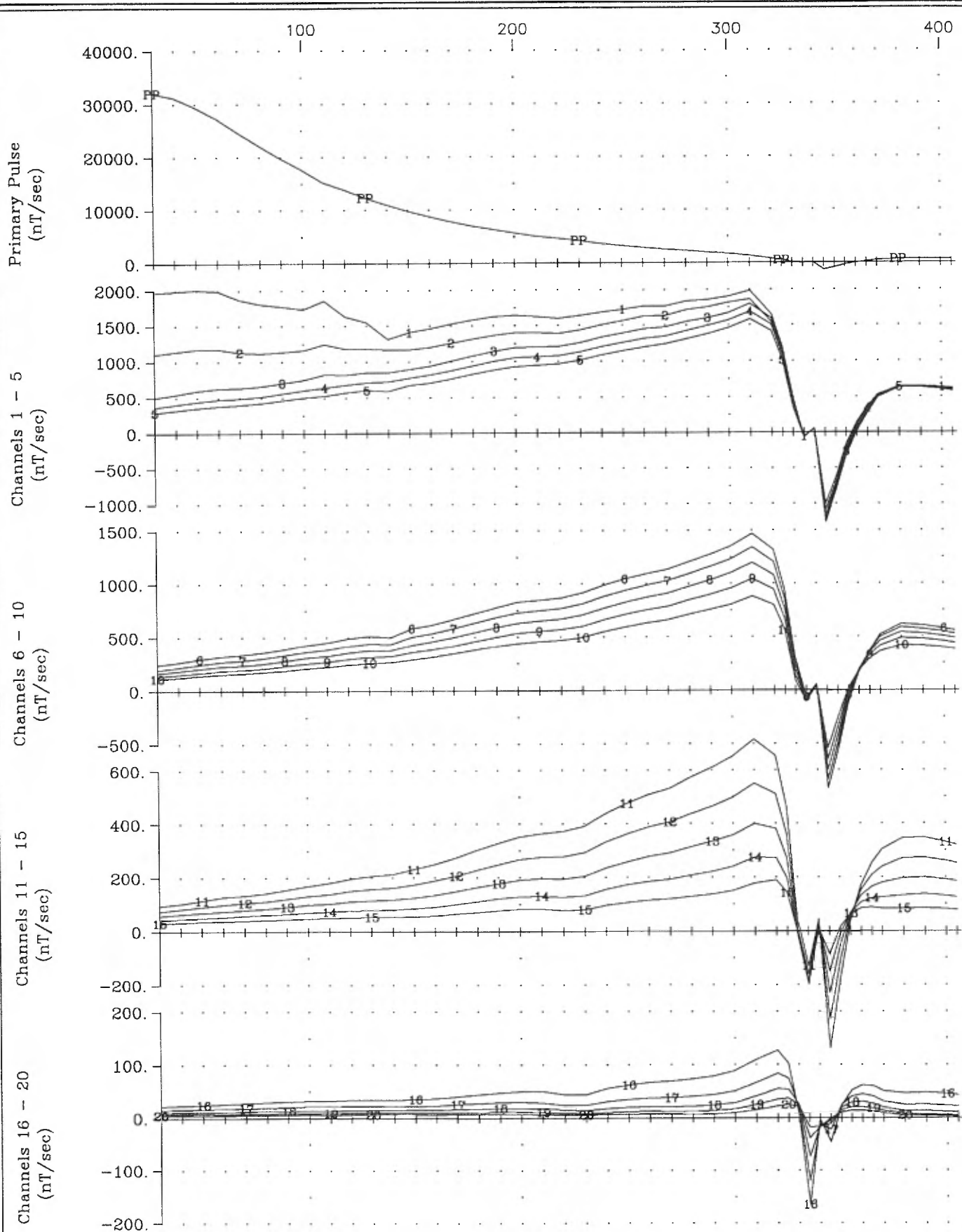
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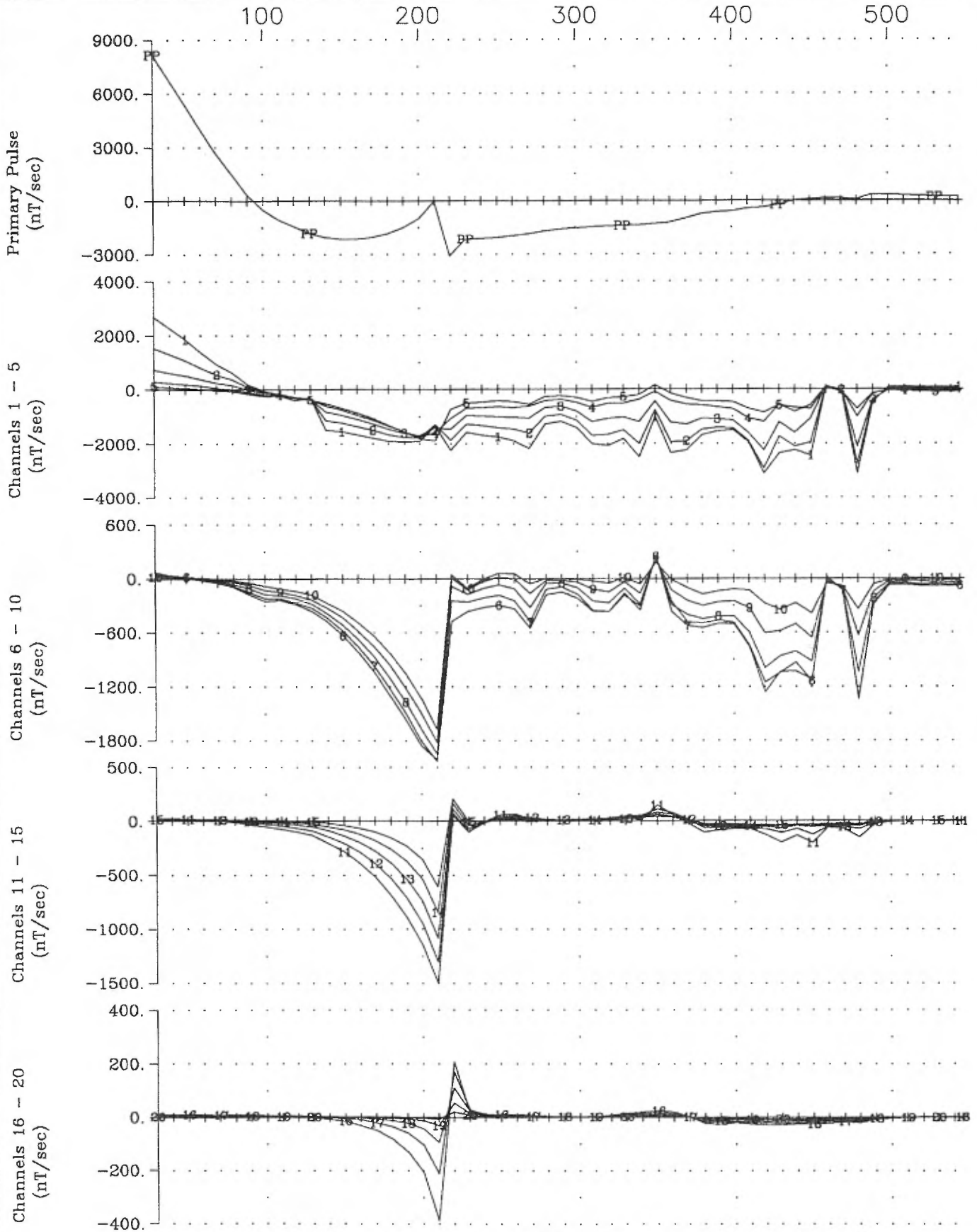
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 Crone Geophysics & Exploration Ltd.



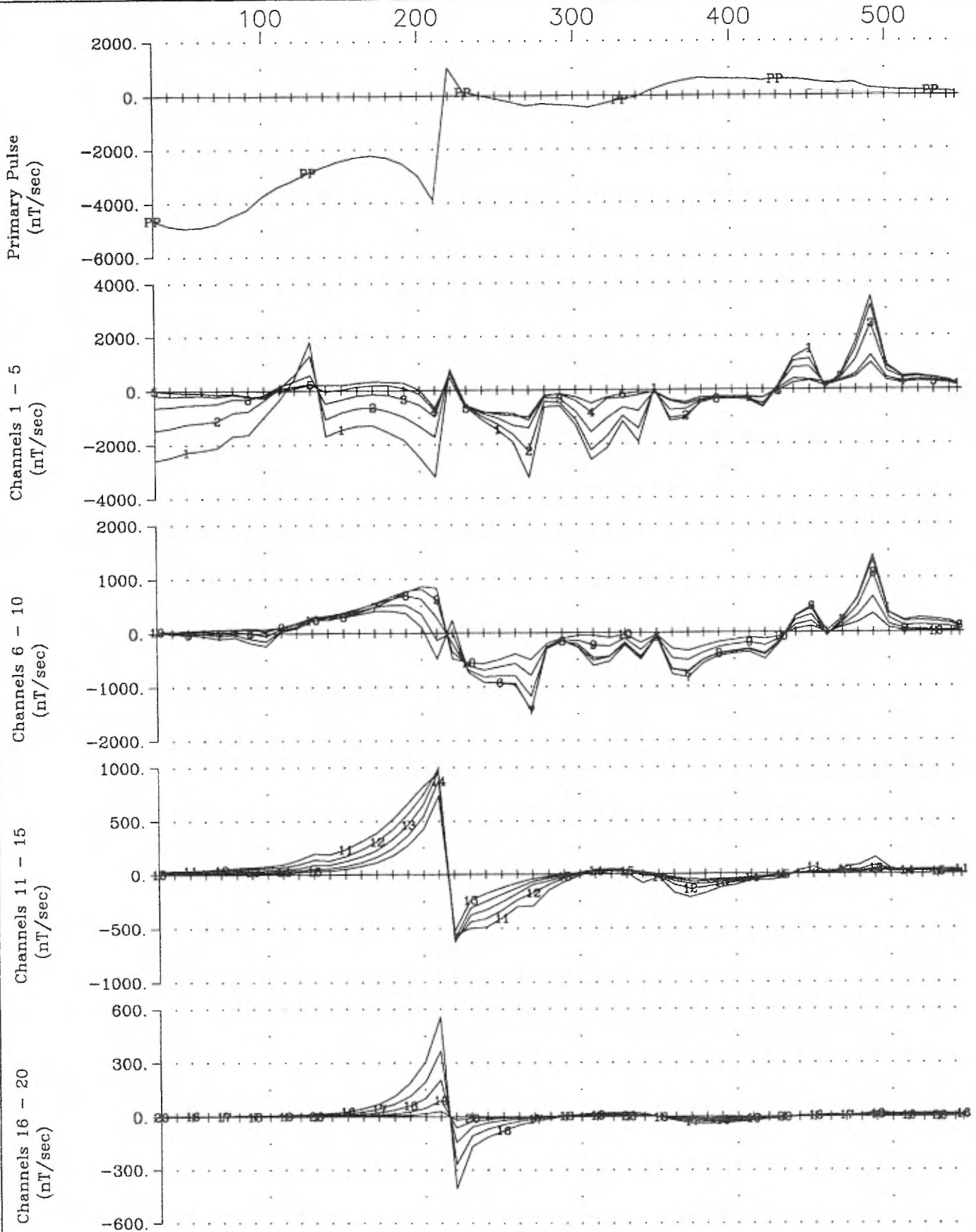
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Crone Geophysics & Exploration Ltd.



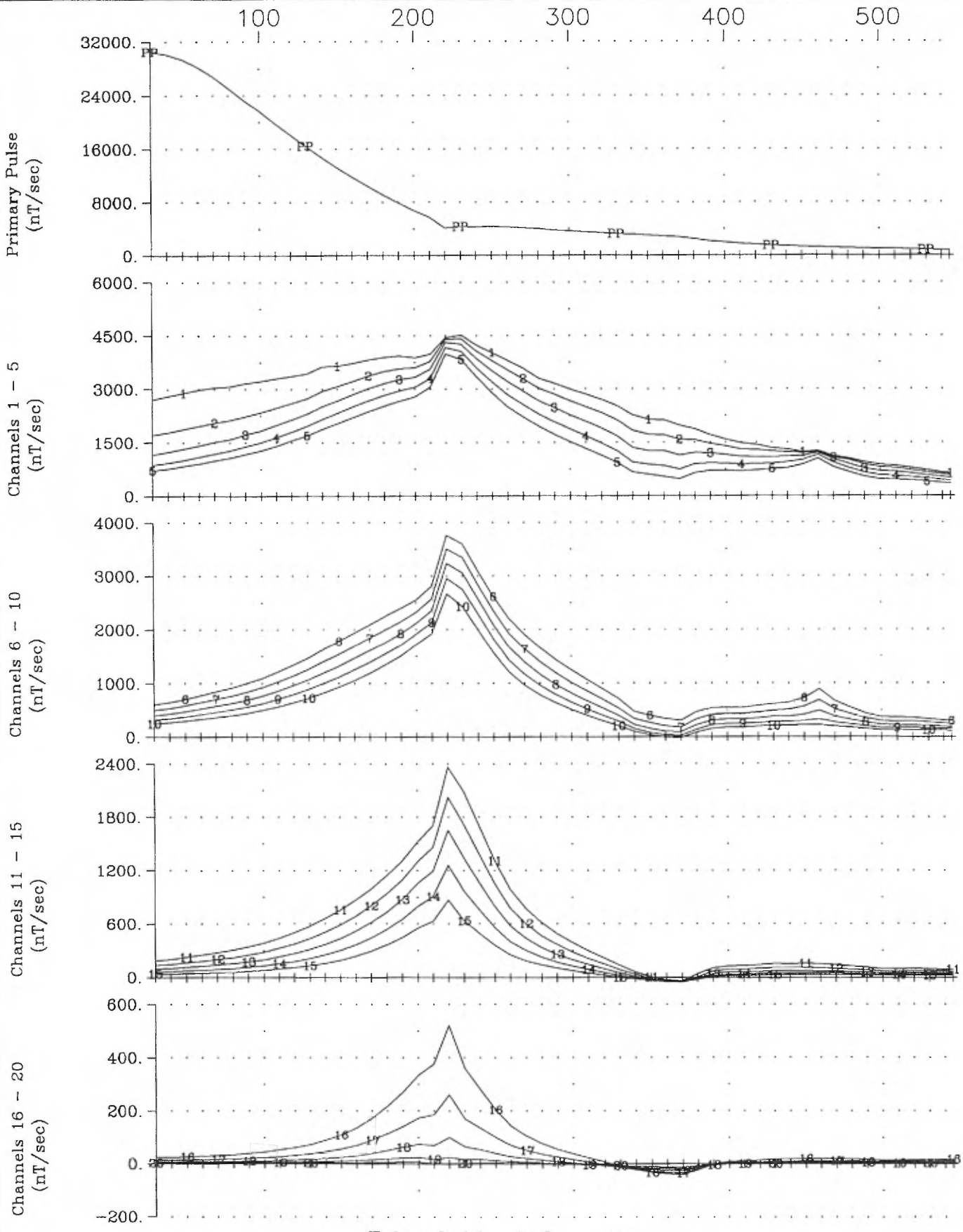
FALCONBRIDGE LTD. ZONE-2
 Hole 718-1841 Z Component
 Crone Geophysics & Exploration Ltd.



Falconbridge Ltd. Zone 2
 Hole 718-1842 X Component
 Crone Geophysics & Exploration Ltd.



Falconbridge Ltd. Zone 2
 Hole 718-1842 Y Component
 Crone Geophysics & Exploration Ltd.



Falconbridge Ltd. Zone 2
 Hole 718-1842 Z Component
 Crone Geophysics & Exploration Ltd.

Appendix C
Pulse EM Data Profiles (Lin-Log scale)



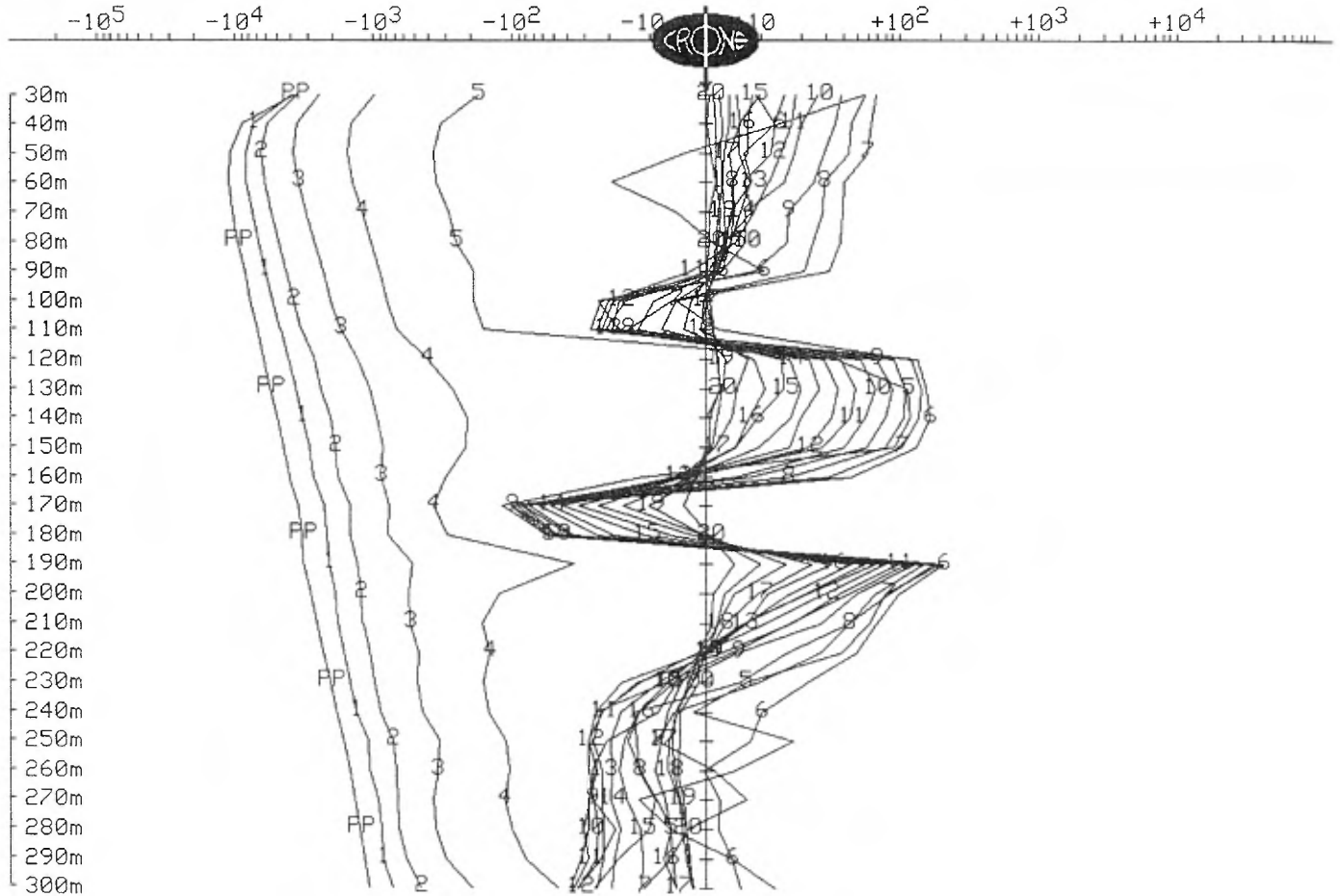
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE
Grid : ZONE 2
Date : May 27, 2003

Hole : 718-1761
Tx Loop : 1761
File name : 1761XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

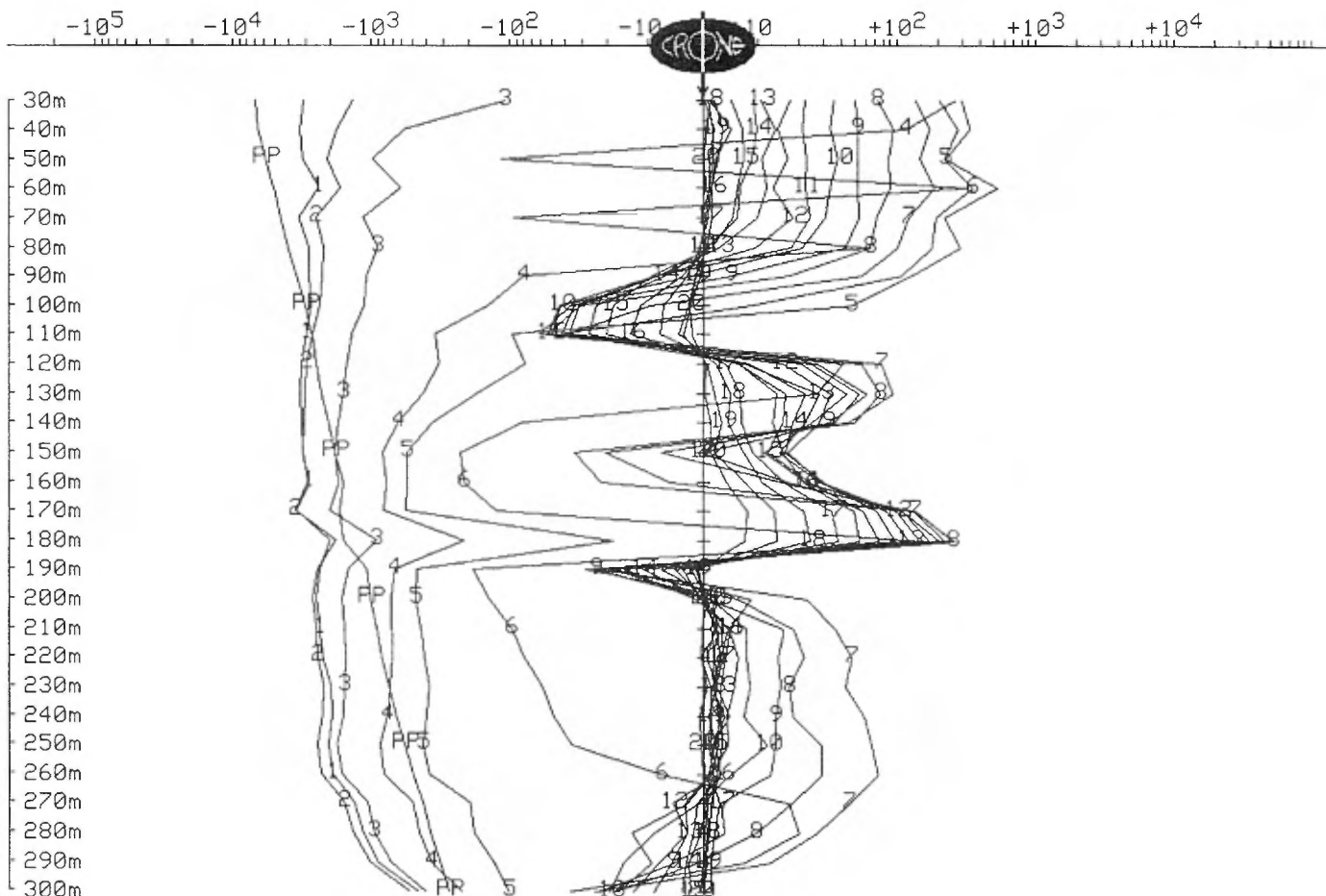


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE
Grid : ZONE 2
Date : May 27, 2003

Hole : 718-1761
Tx Loop : 1761
File name : 1761XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

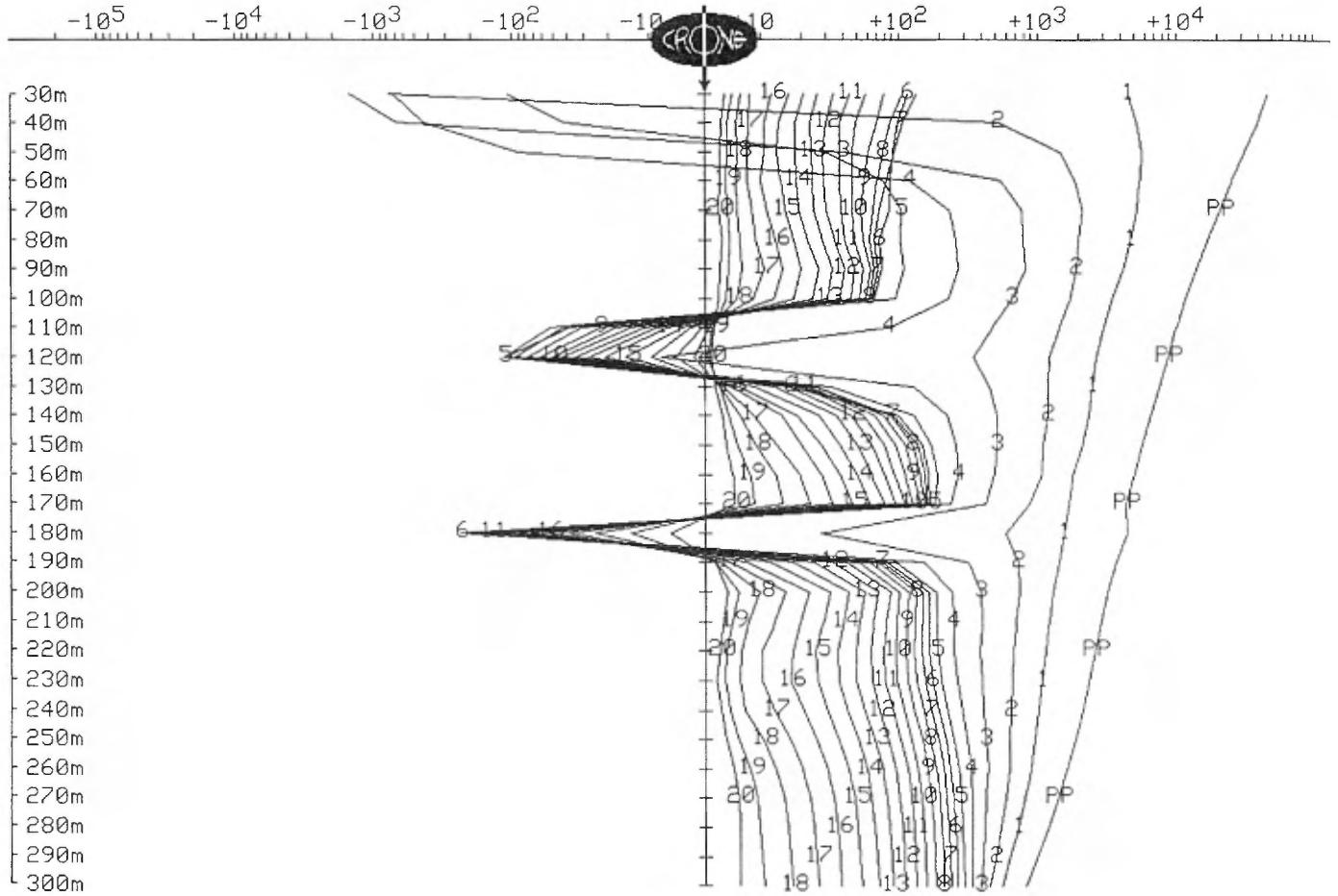


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE
Grid : ZONE 2
Date : May 27, 2003

Hole : 718-1761
Tx Loop : 1761
File name : 1761Z.PEM

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



(s10H

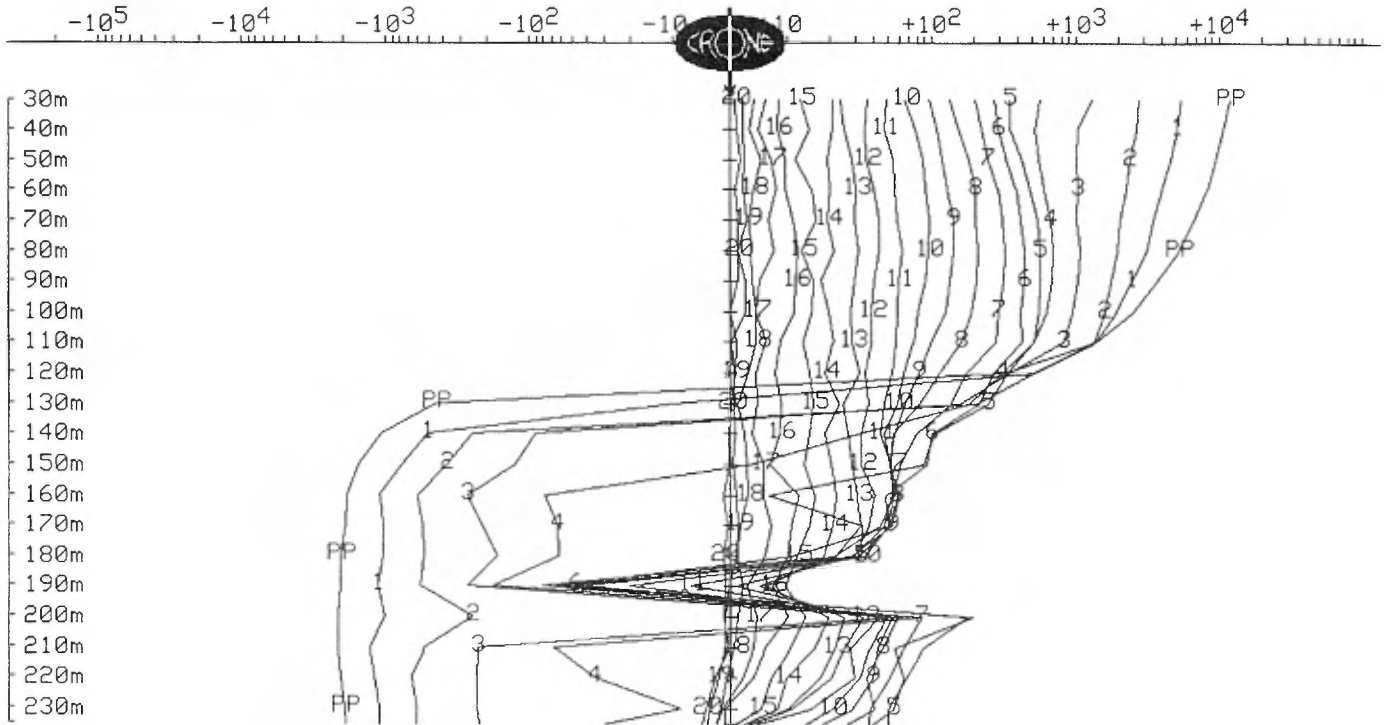
CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : May 30, 2003

Hole : 718-1762
Tx Loop : 1762
File name : 1762XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP

Scale: 1:2500

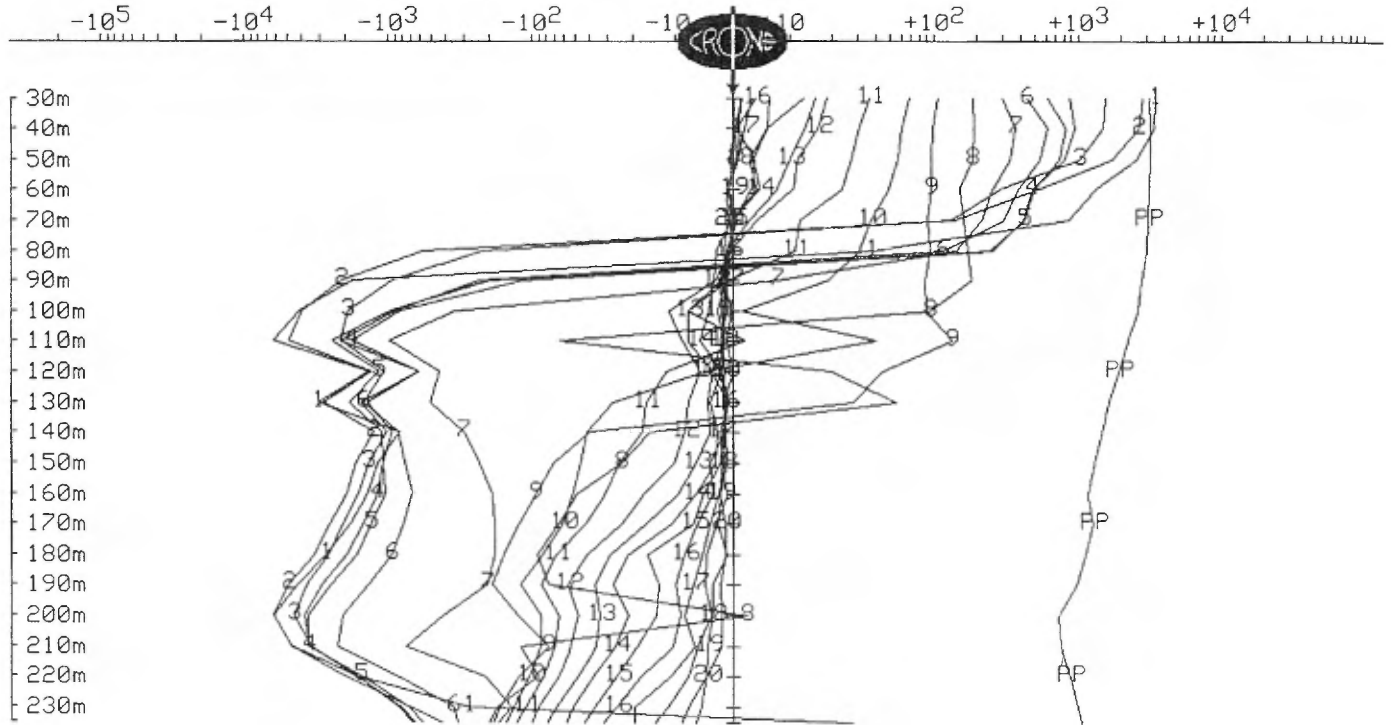


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : May 30, 2003

Hole : 718-1762
Tx Loop : 1762
File name : 1762XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

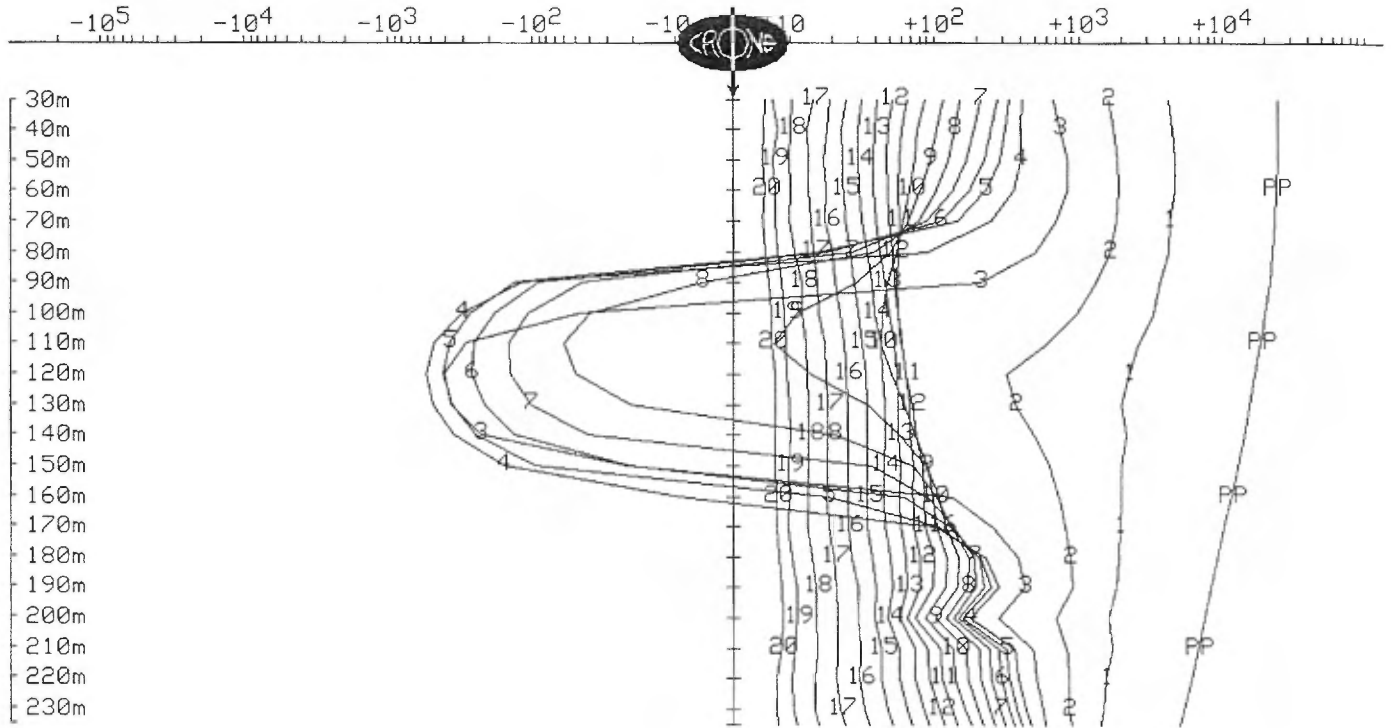


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : May 30, 2003

Hole : 718-1762
Tx Loop : 1762
File name : 1762Z.PEM

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



(s10H

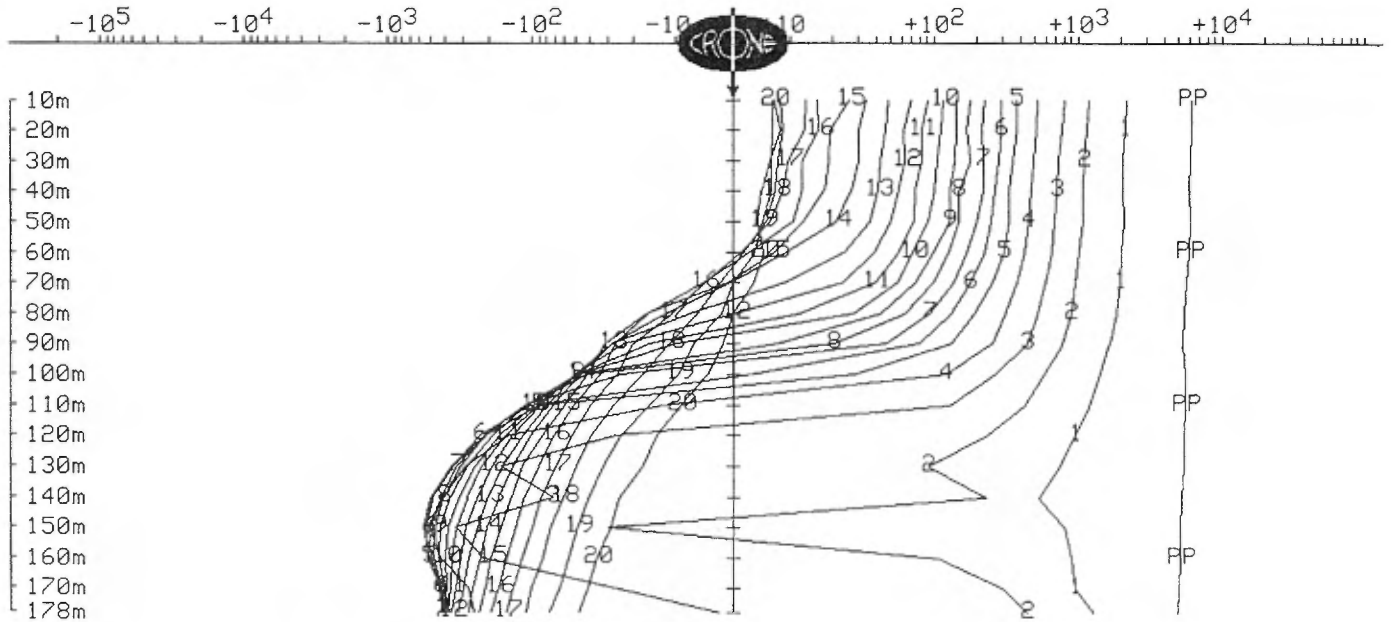
CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 8, 2003

Hole : 718-1766
Tx Loop : 1766
File name : 1766XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP

Scale: 1:2500

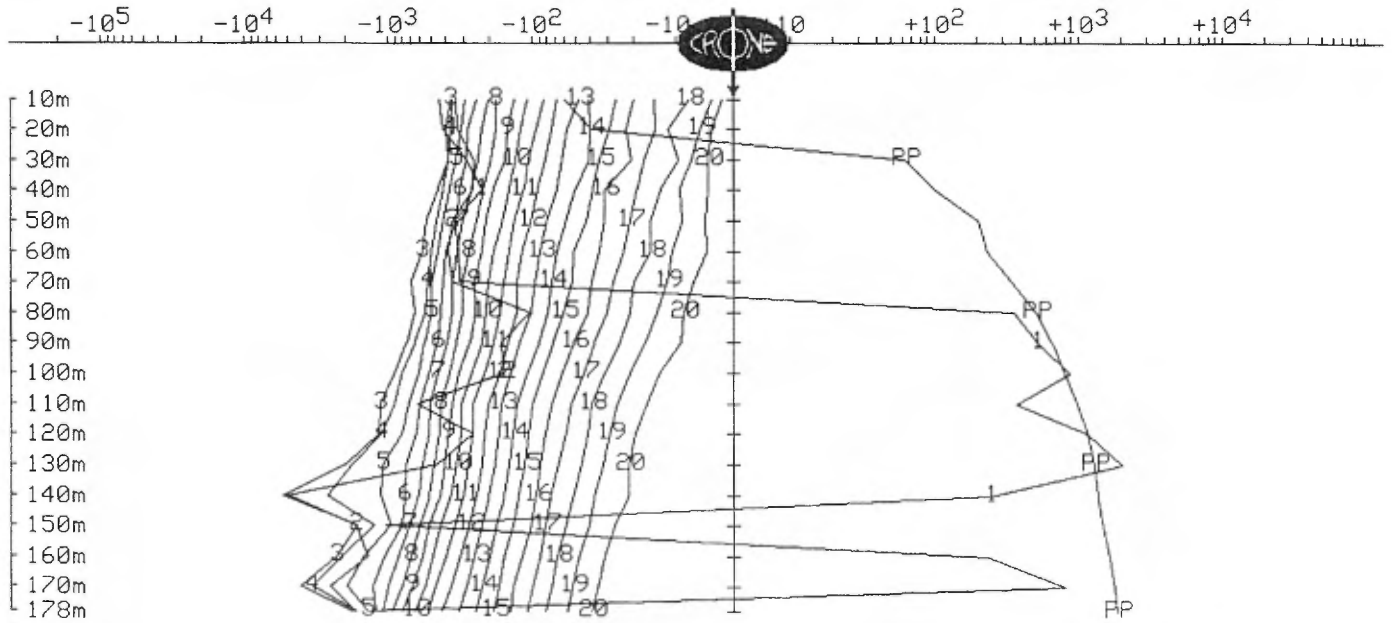


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 8, 2003

Hole : 718-1766
Tx Loop : 1766
File name : 1766XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

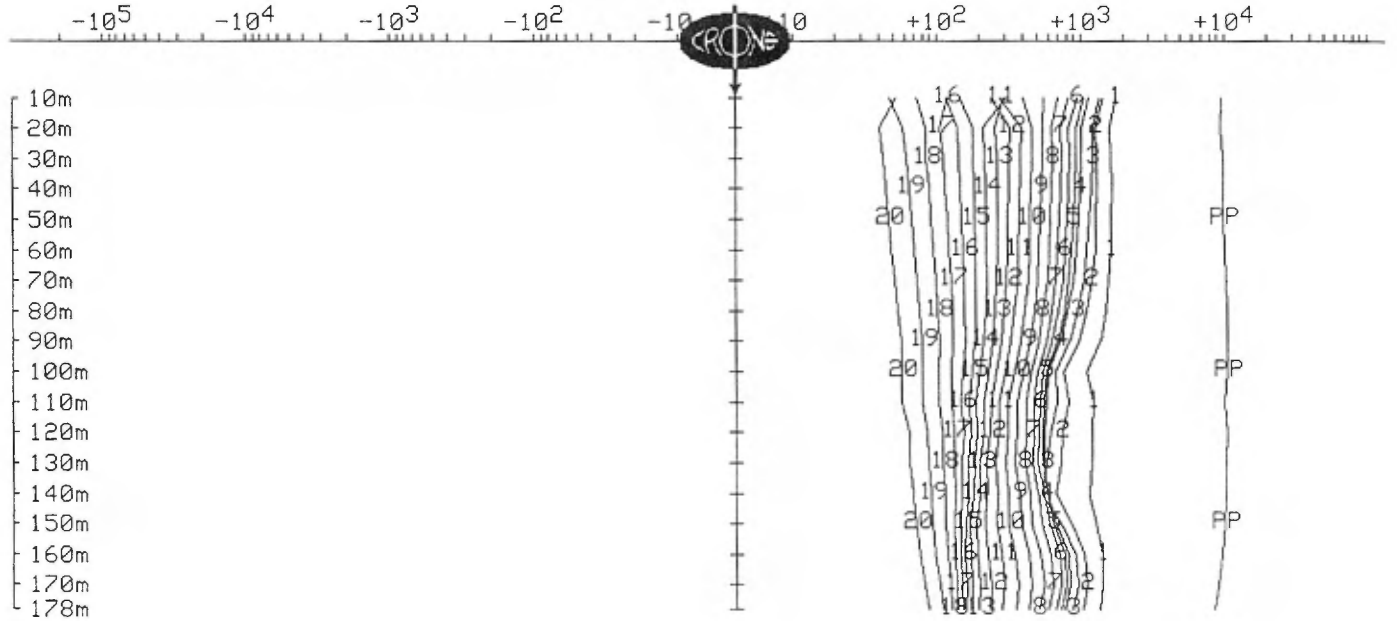


CRONE GEOPHYSICS & EXPLORATION LTD
 Borehole Pulse EM Survey

Client : Falconbridge Ltd.
 Grid : ZONE 2
 Date : Jun 8, 2003

Hole : 718-1766
 Tx Loop : 1766
 File name : 1766Z.PEM

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

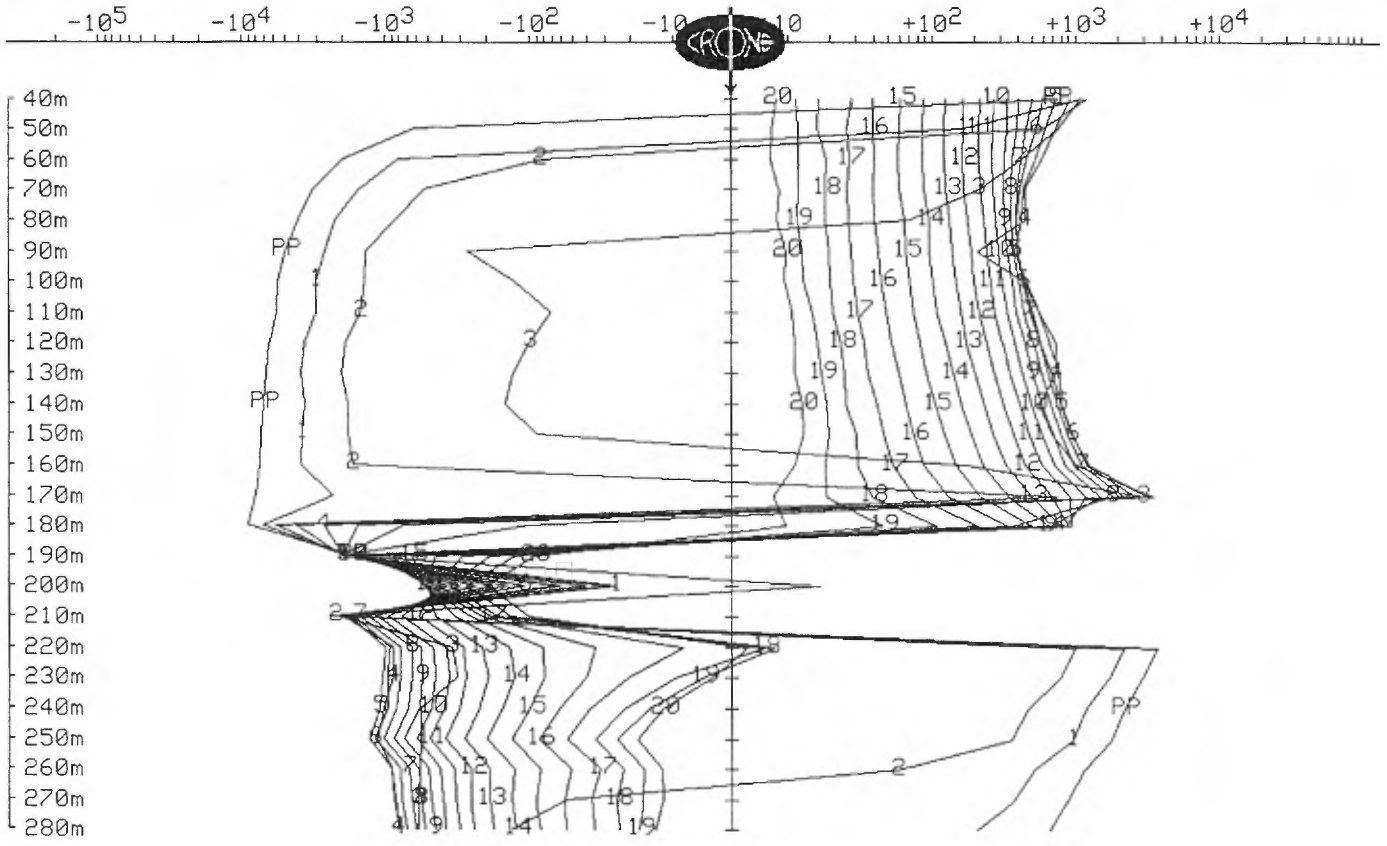


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 6, 2003

Hole : 718-1765
Tx Loop : 1764
File name : 1765XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

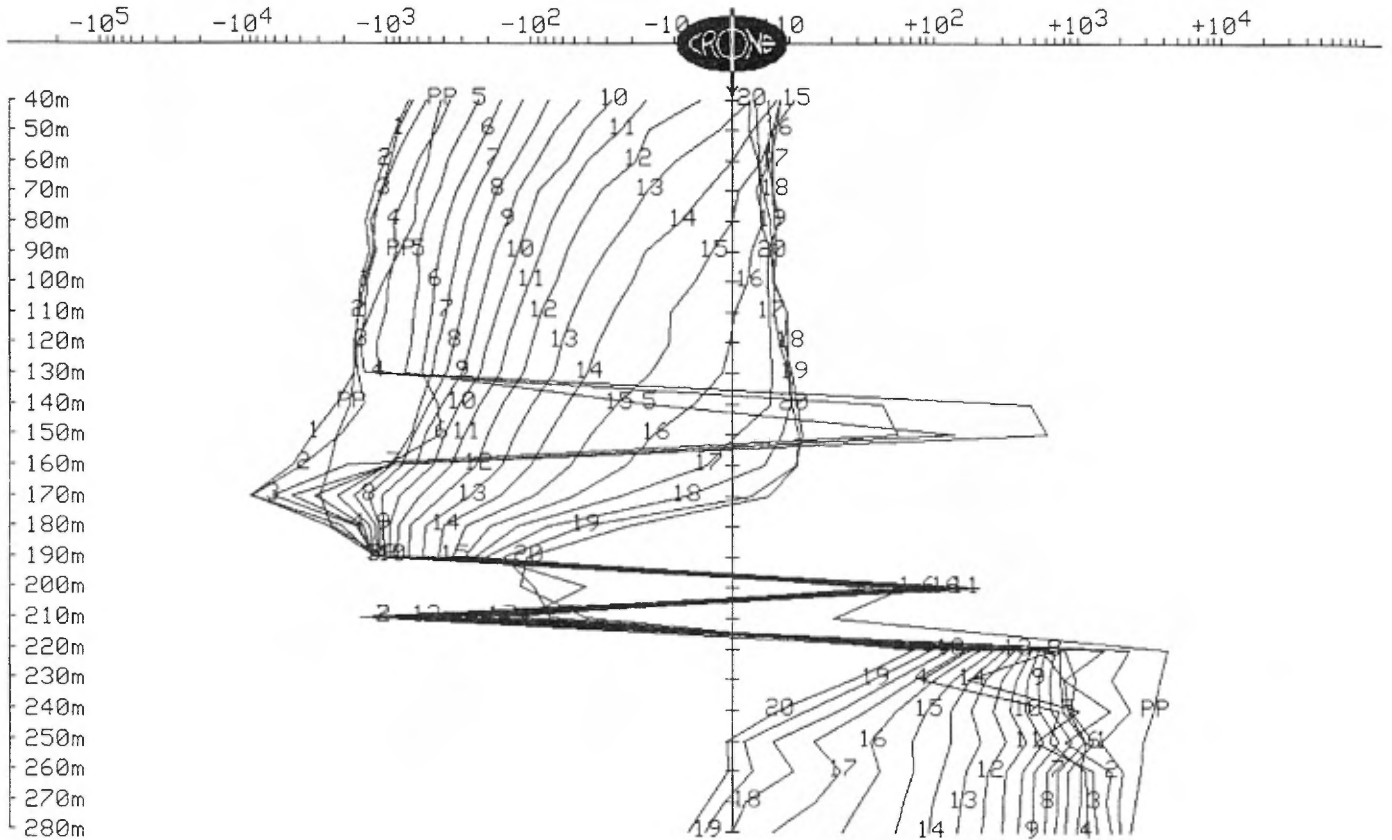


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 6, 2003

Hole : 718-1765
Tx Loop : 1764
File name : 1765XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

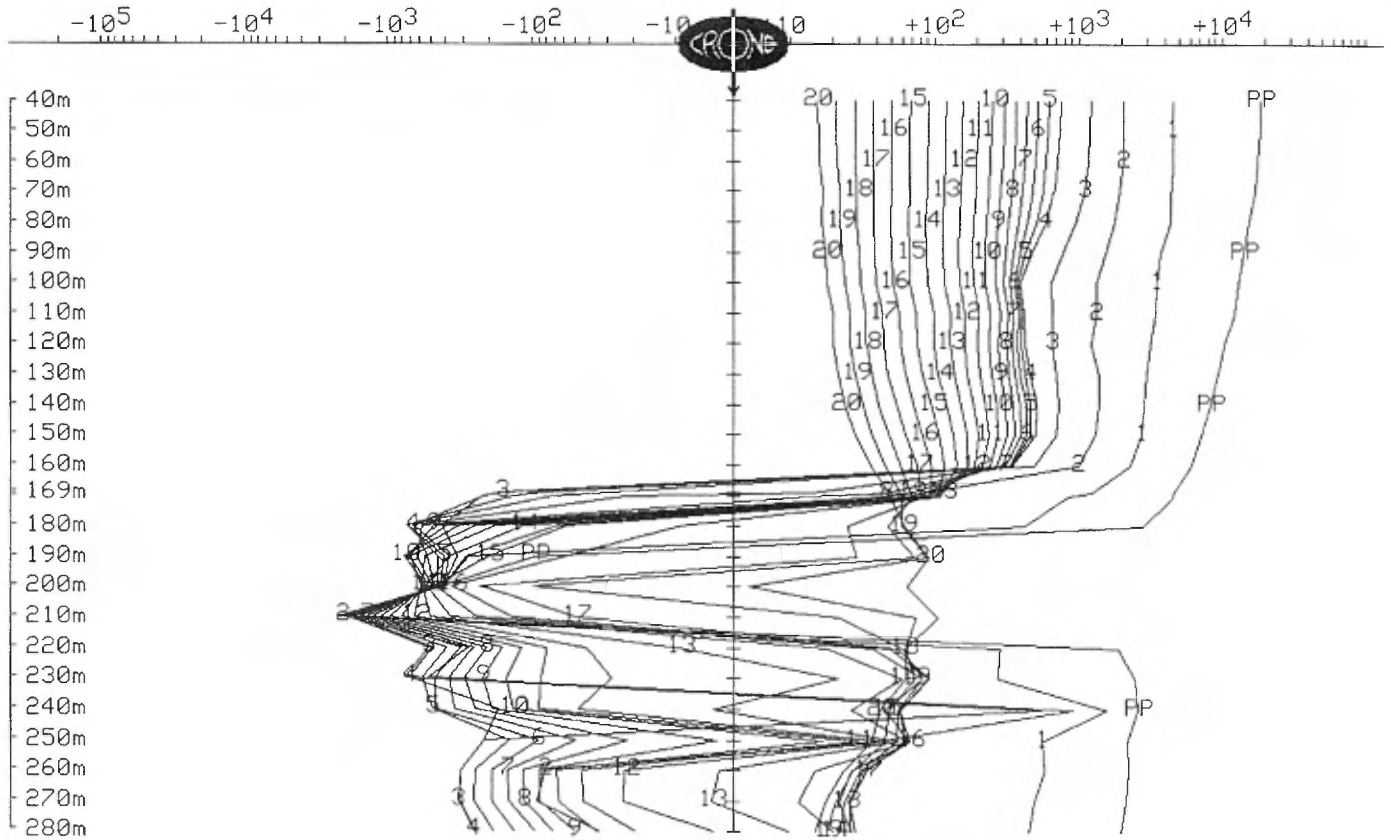


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 6, 2003

Hole : 718-1765
Tx Loop : 1764
File name : 1765ZA.PEM

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



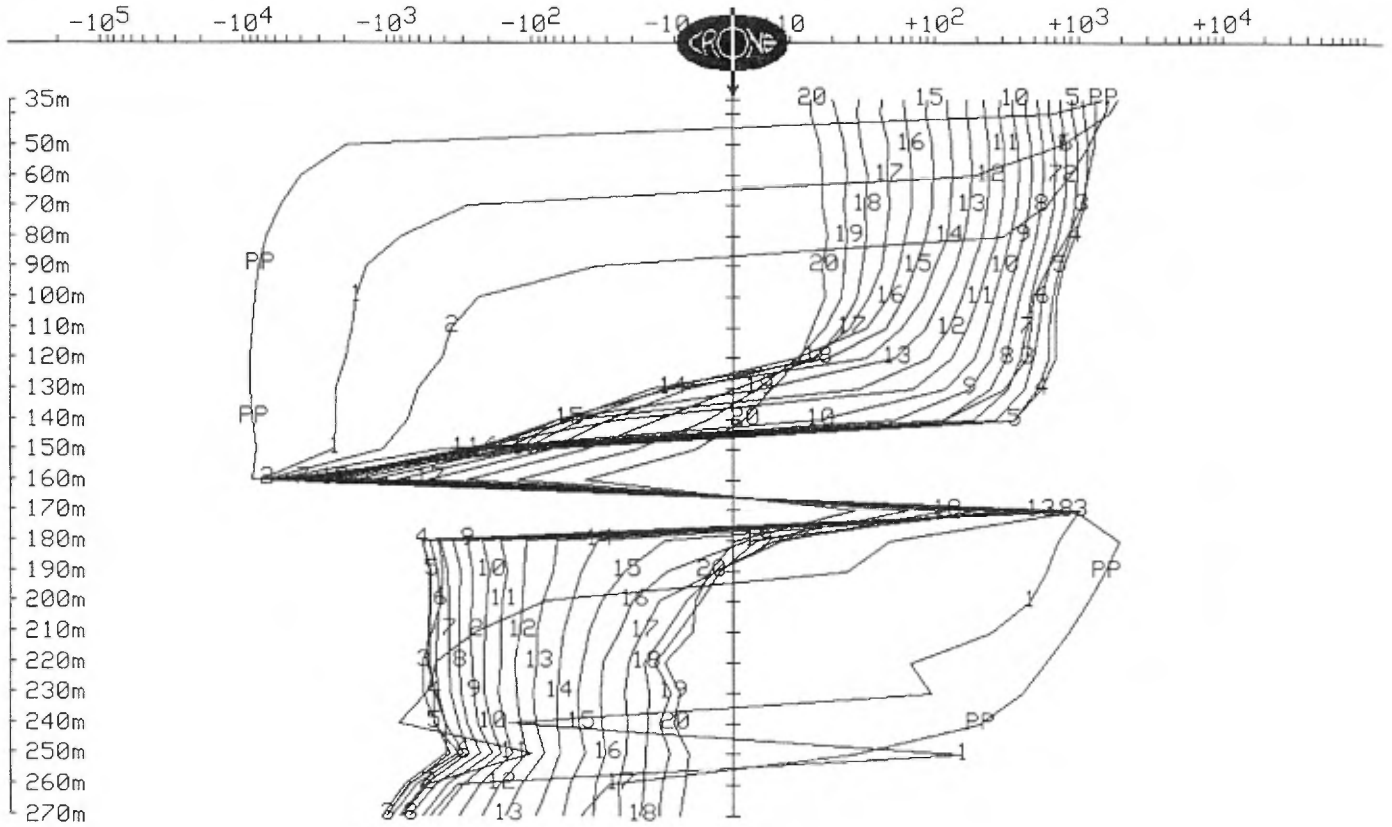
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 4, 2003

Hole : 718-1764
Tx Loop : 1764
File name : 1764XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

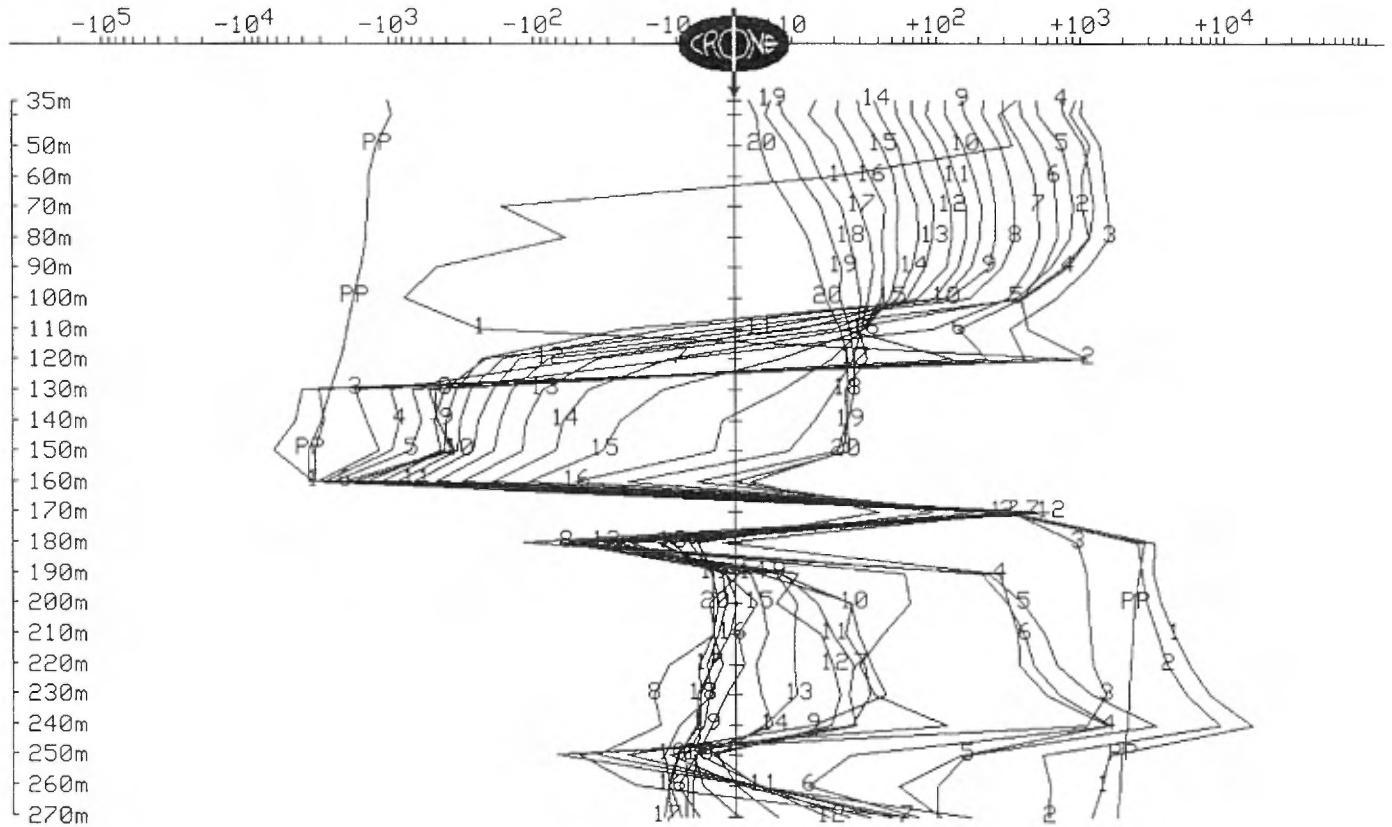


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 4, 2003

Hole : 718-1764
Tx Loop : 1764
File name : 1764XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

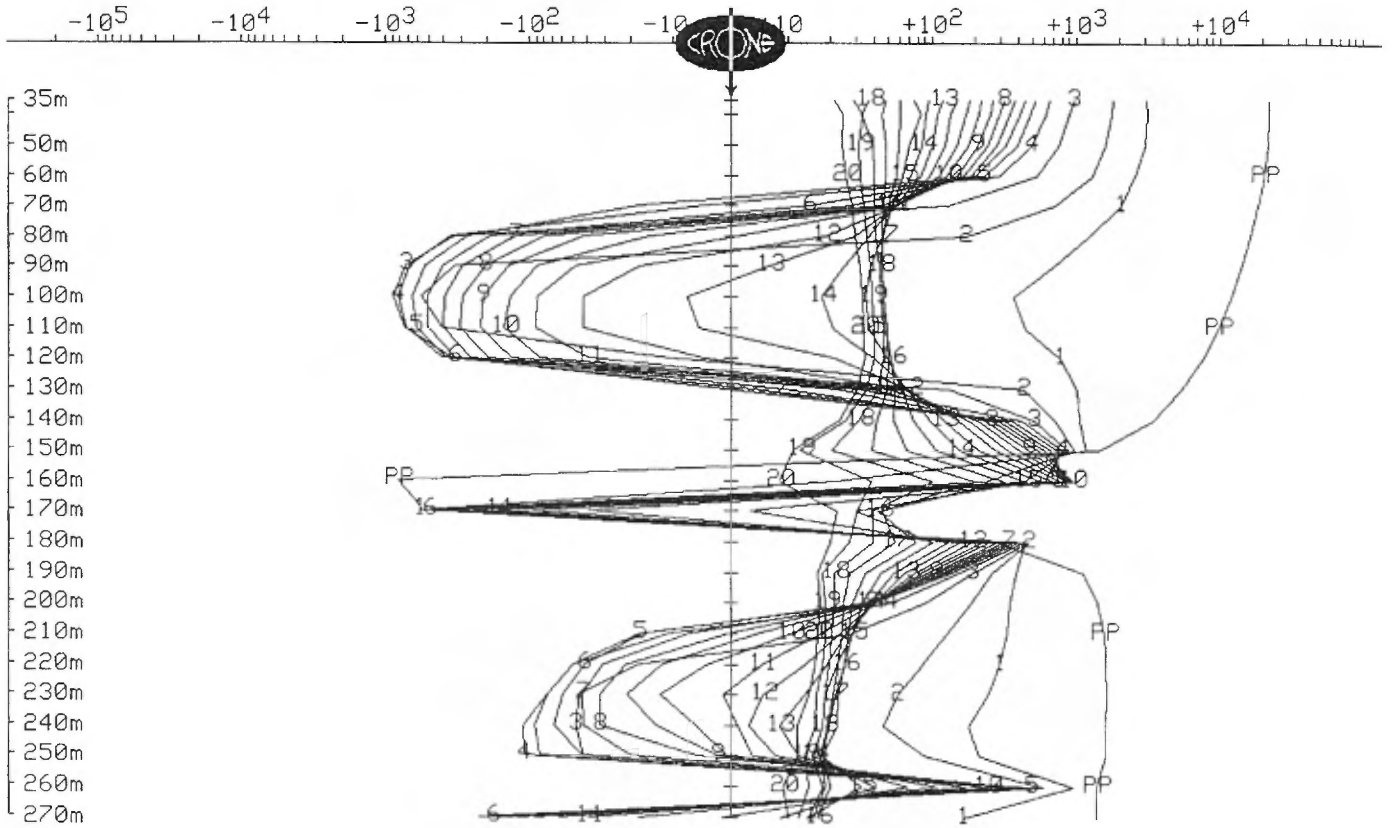


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 4, 2003

Hole : 718-1764
Tx Loop : 1764
File name : 1764Z.PEM

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



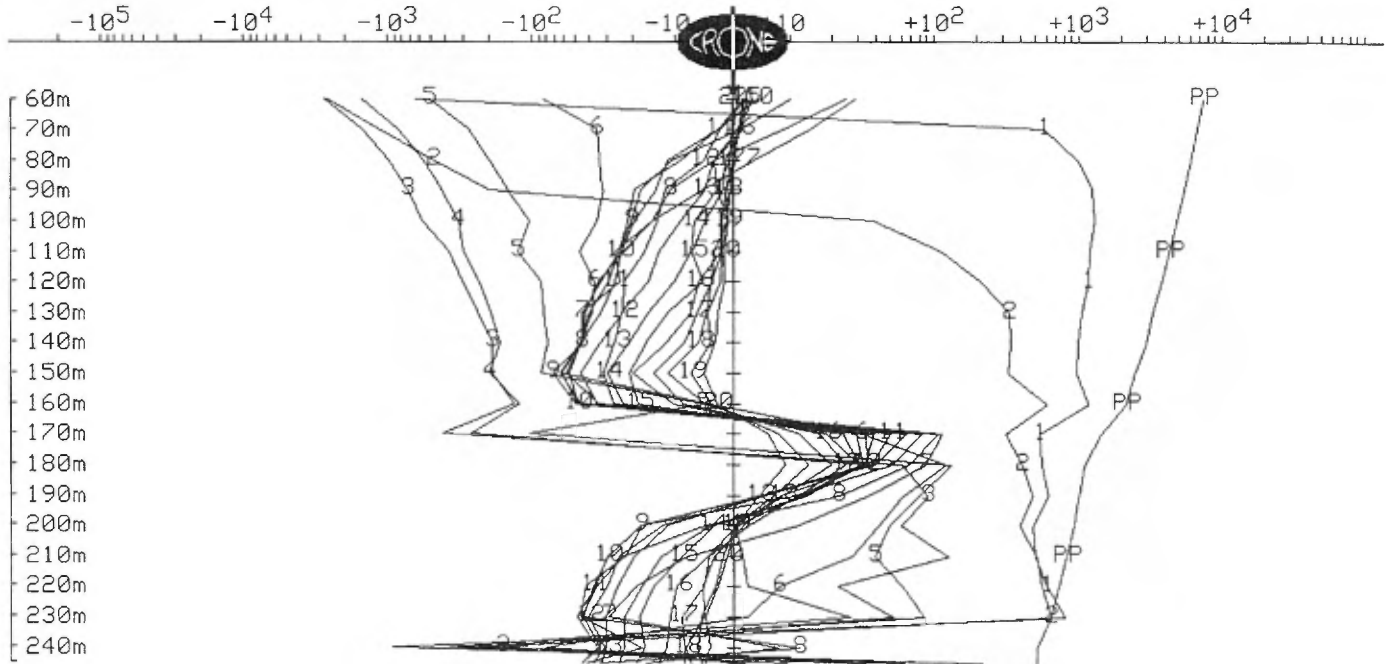
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 1, 2003

Hole : 718-1763
Tx Loop : 1763
File name : 1763XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

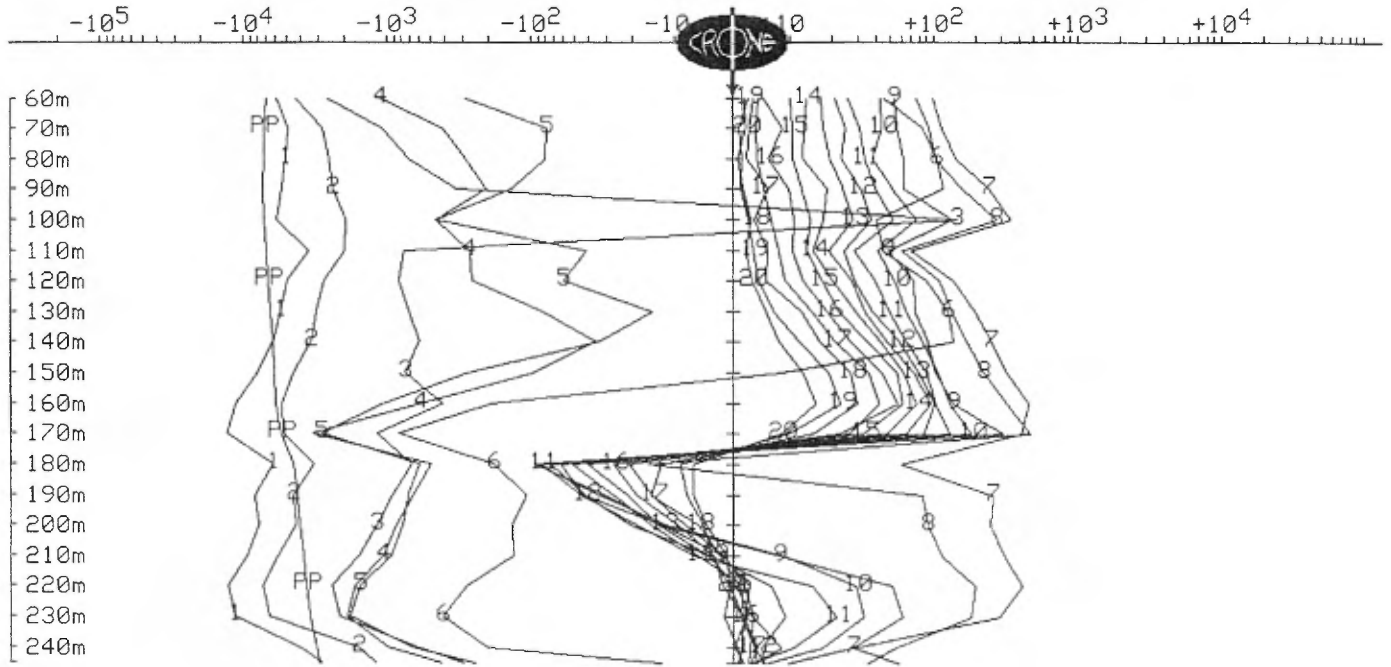


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 1, 2003

Hole : 718-1763
Tx Loop : 1763
File name : 1763XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

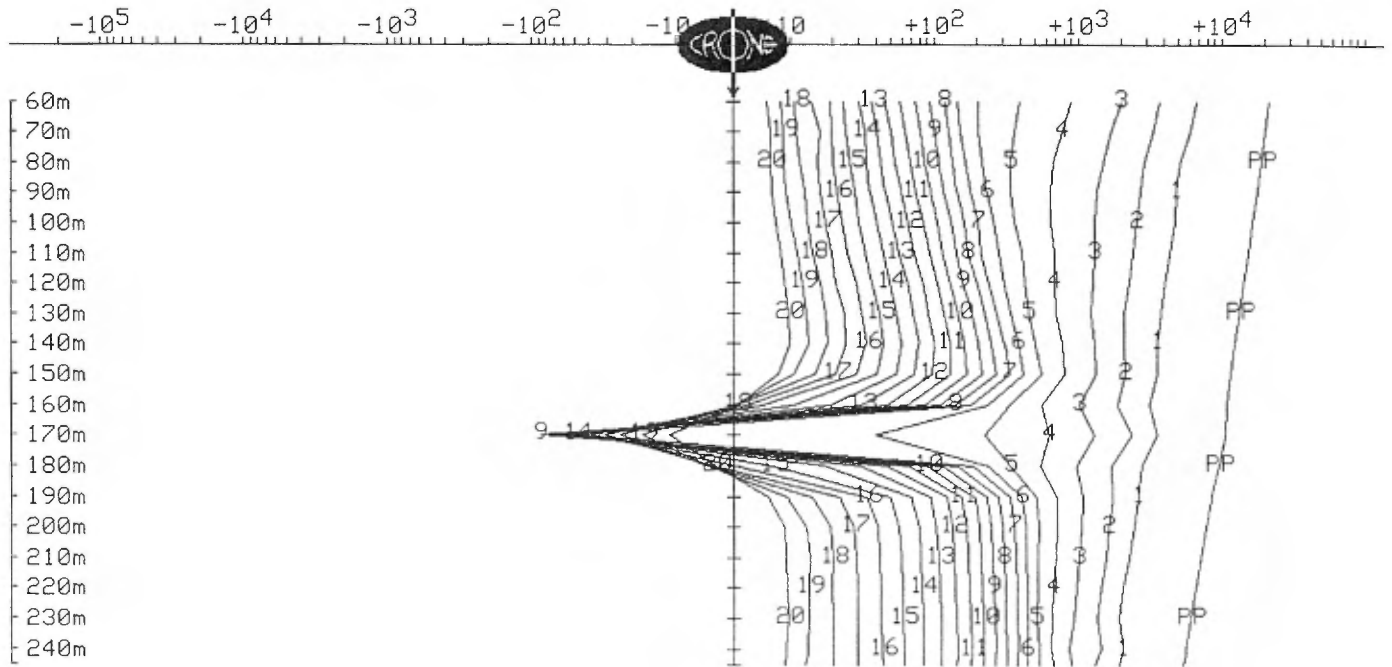


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 1, 2003

Hole : 718-1763
Tx Loop : 1763
File name : 1763ZA.PEM

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



(s10H

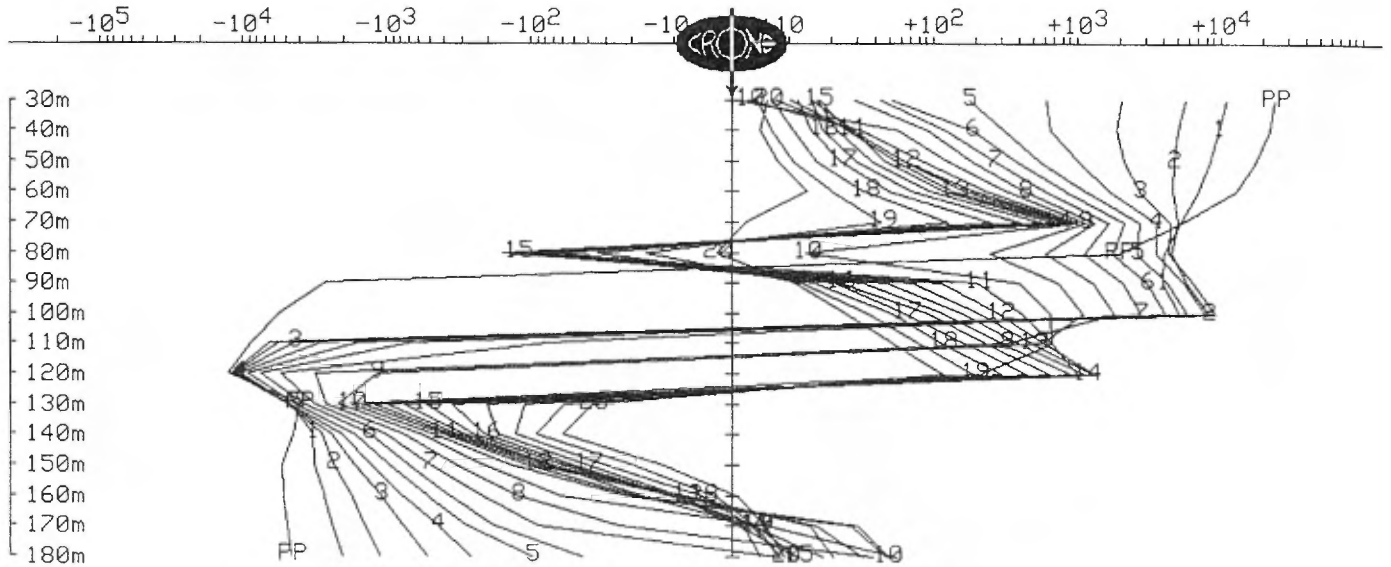
CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 10, 2003

Hole : 718-1767
Tx Loop : 1767
File name : 1767XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP

Scale: 1:2500

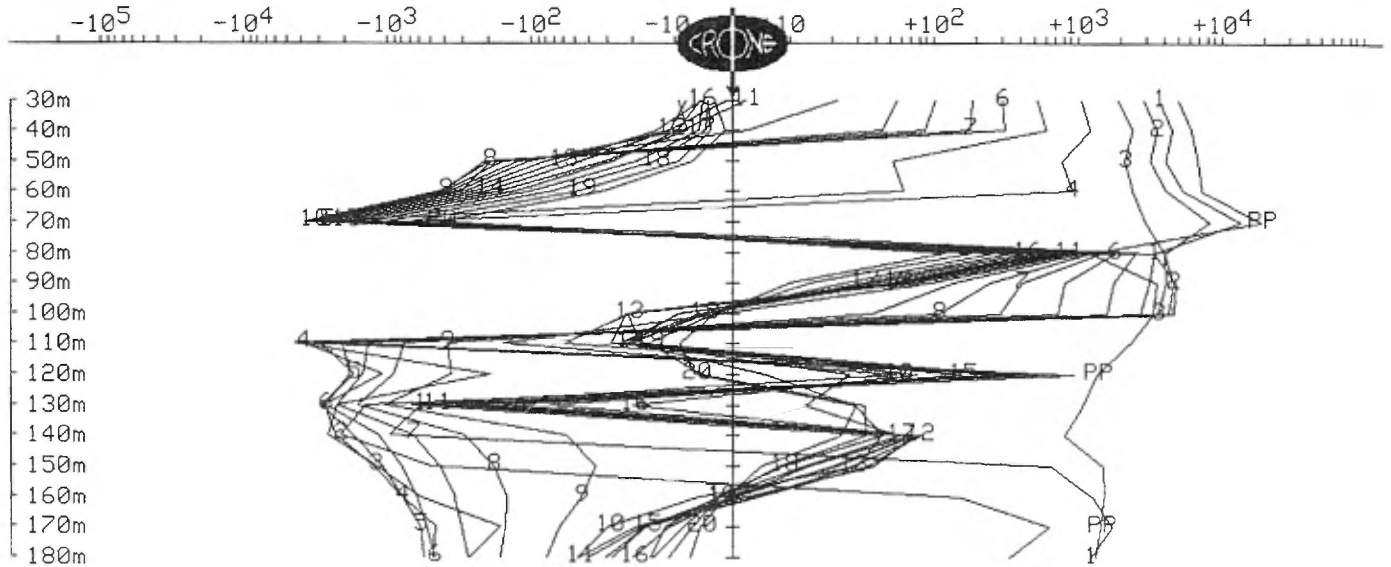


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 10, 2003

Hole : 718-1767
Tx Loop : 1767
File name : 1767XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

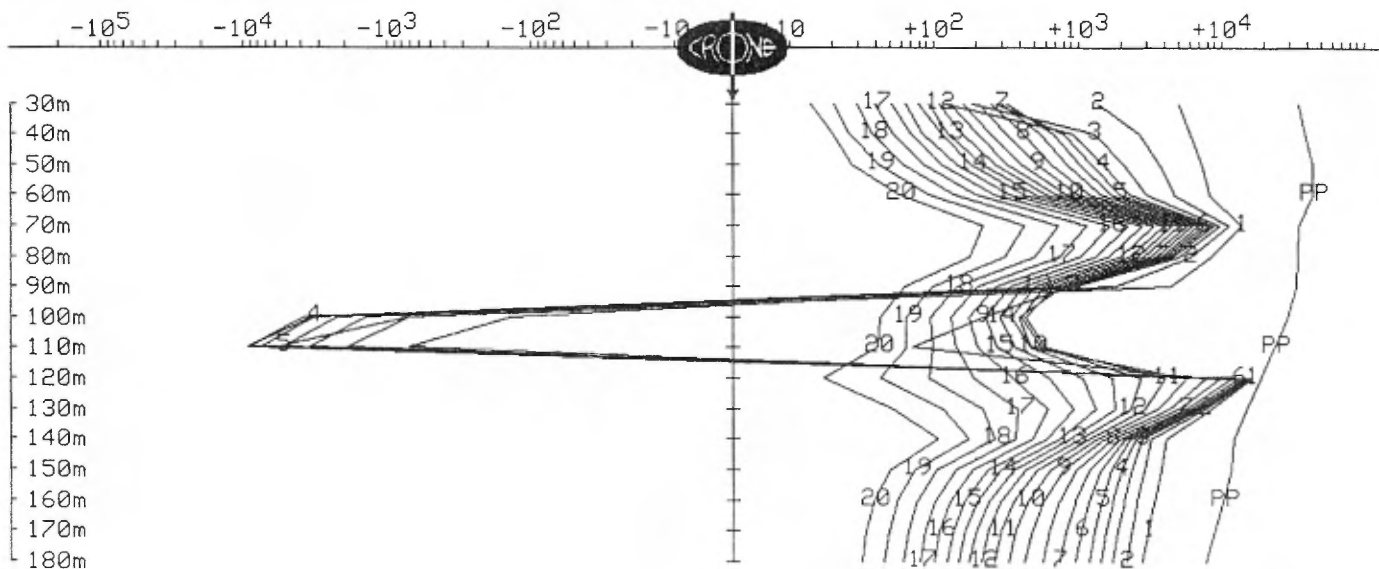


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 10, 2003

Hole : 718-1767
Tx Loop : 1767
File name : 1767ZA.PEM

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



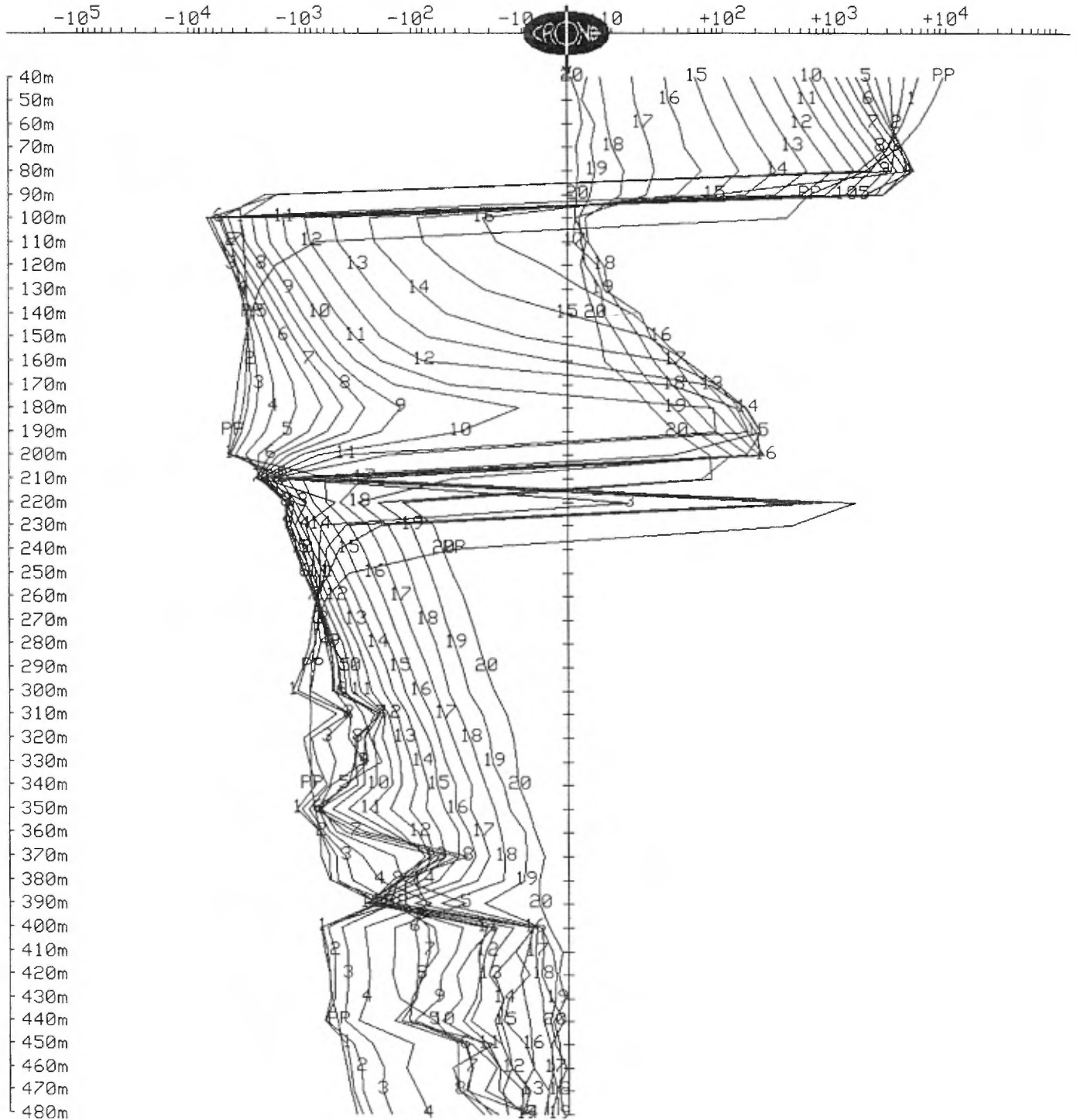
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 15, 2003

Hole : 718-1768
Tx Loop : 1768
File name : 1768XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

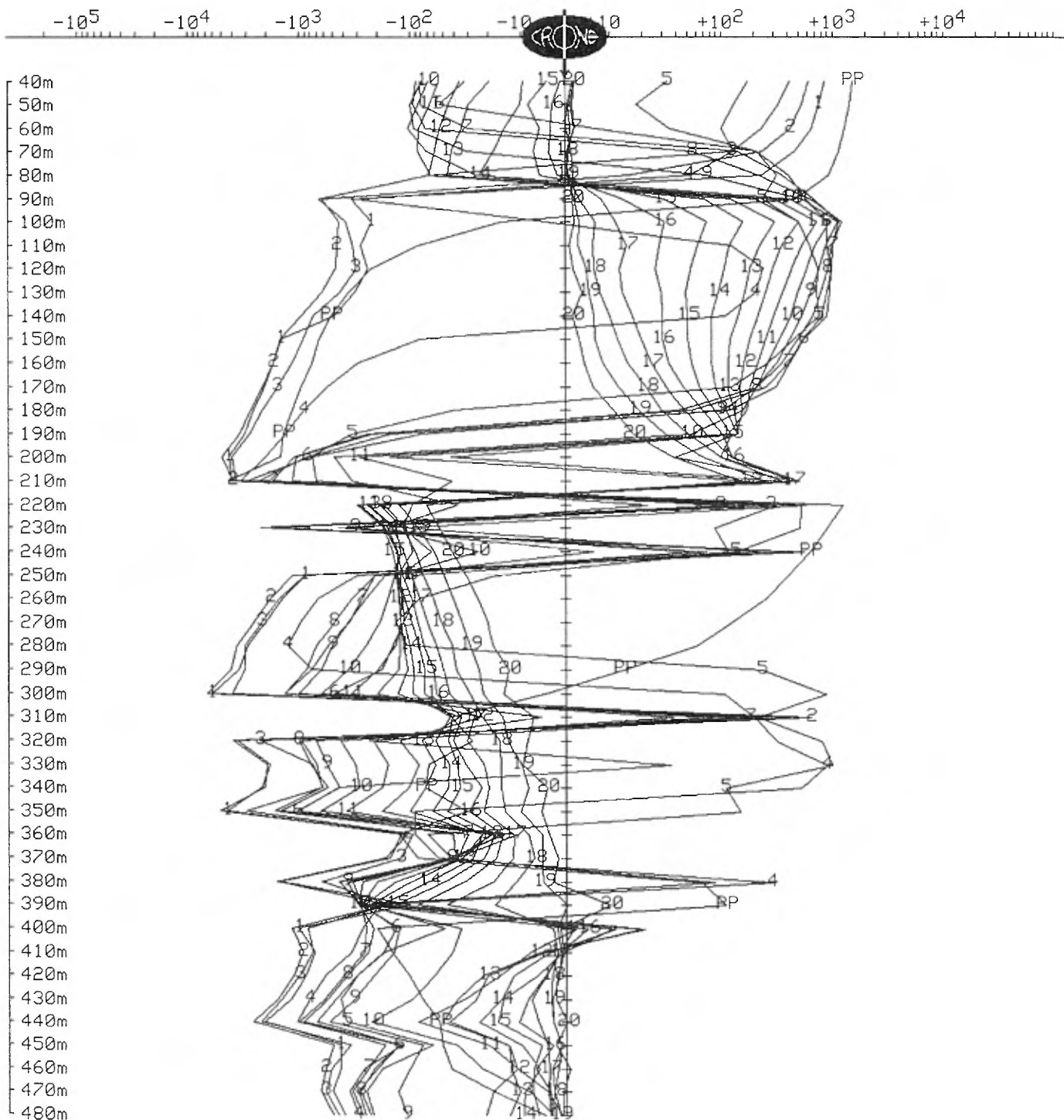


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 15, 2003

Hole : 718-1768
Tx Loop : 1768
File name : 1768XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

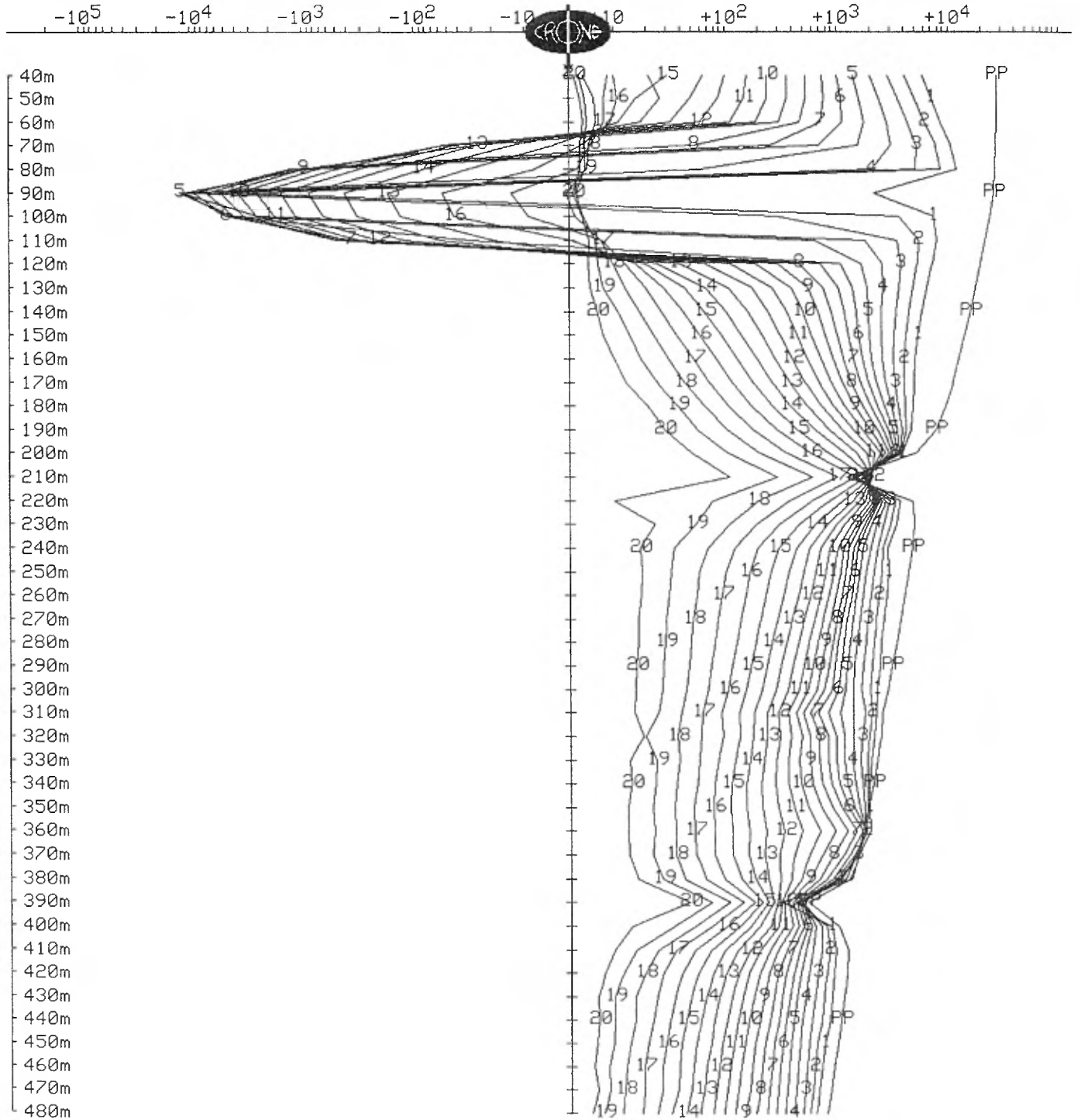


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 15, 2003

Hole : 718-1768
Tx Loop : 1768
File name : 1768ZA.PEM

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



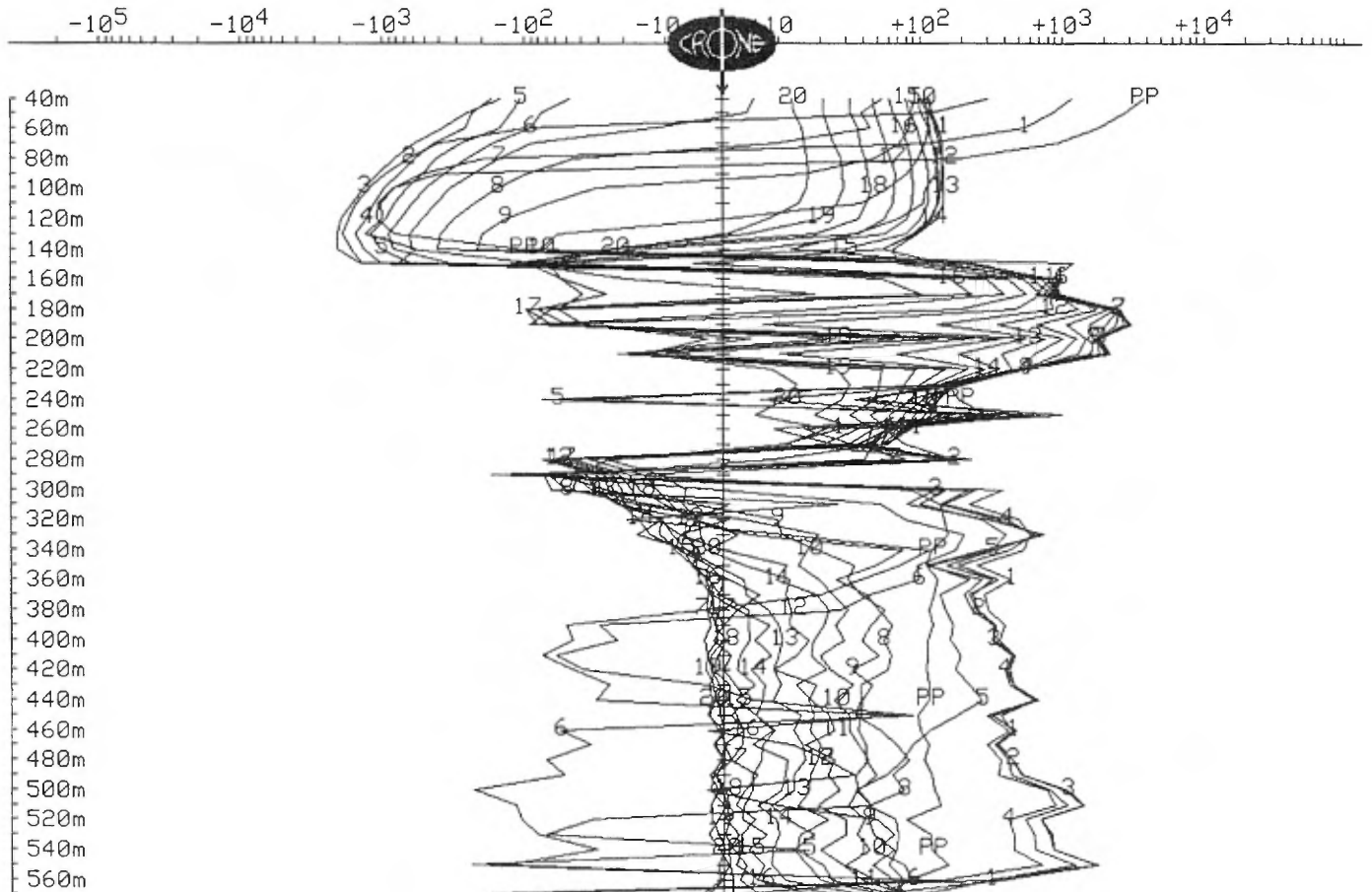
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 25, 2003

Hole : 718-1769
Tx Loop : 1769
File name : 1769XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000

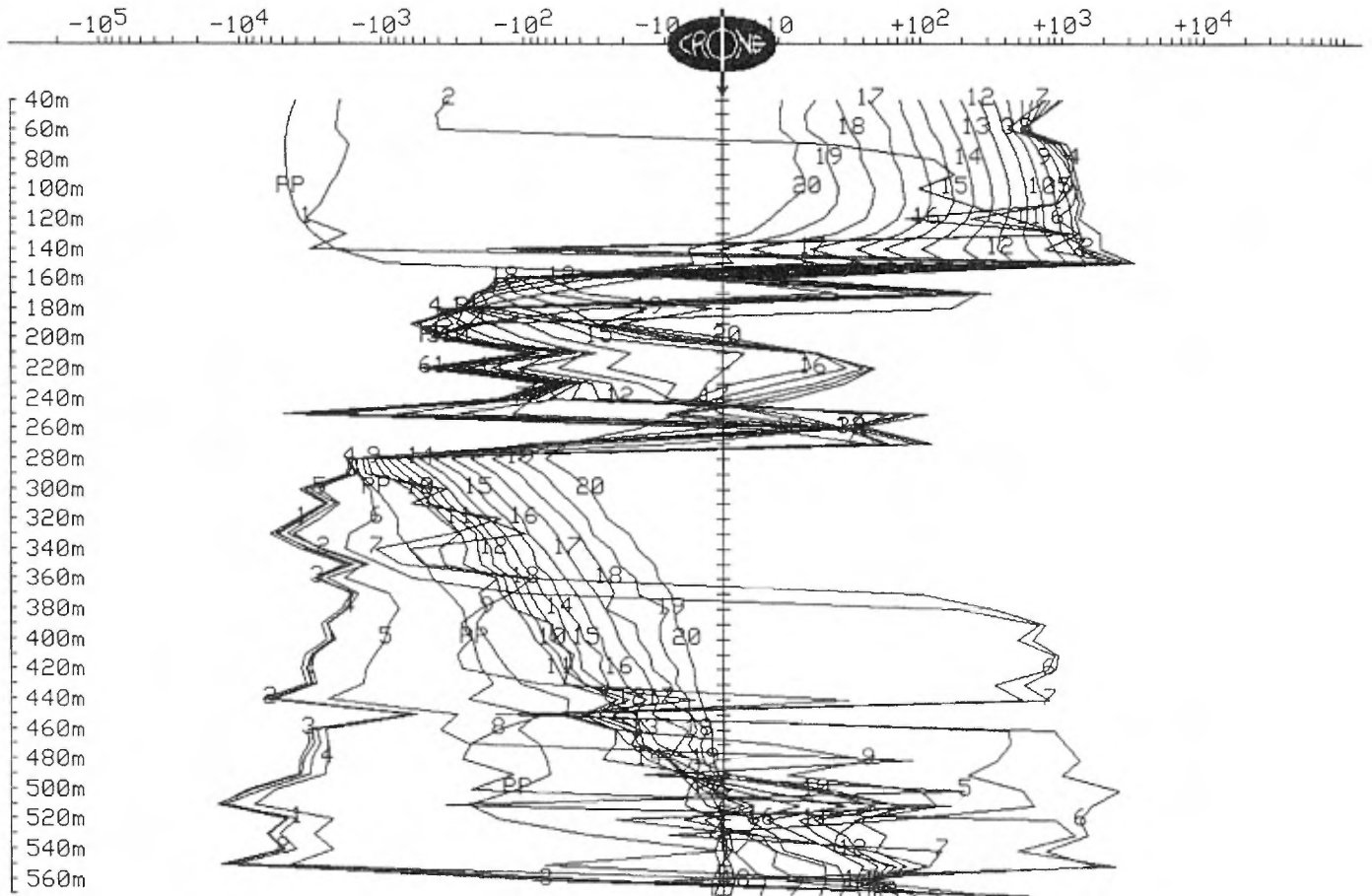


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 25, 2003

Hole : 718-1769
Tx Loop : 1769
File name : 1769XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000

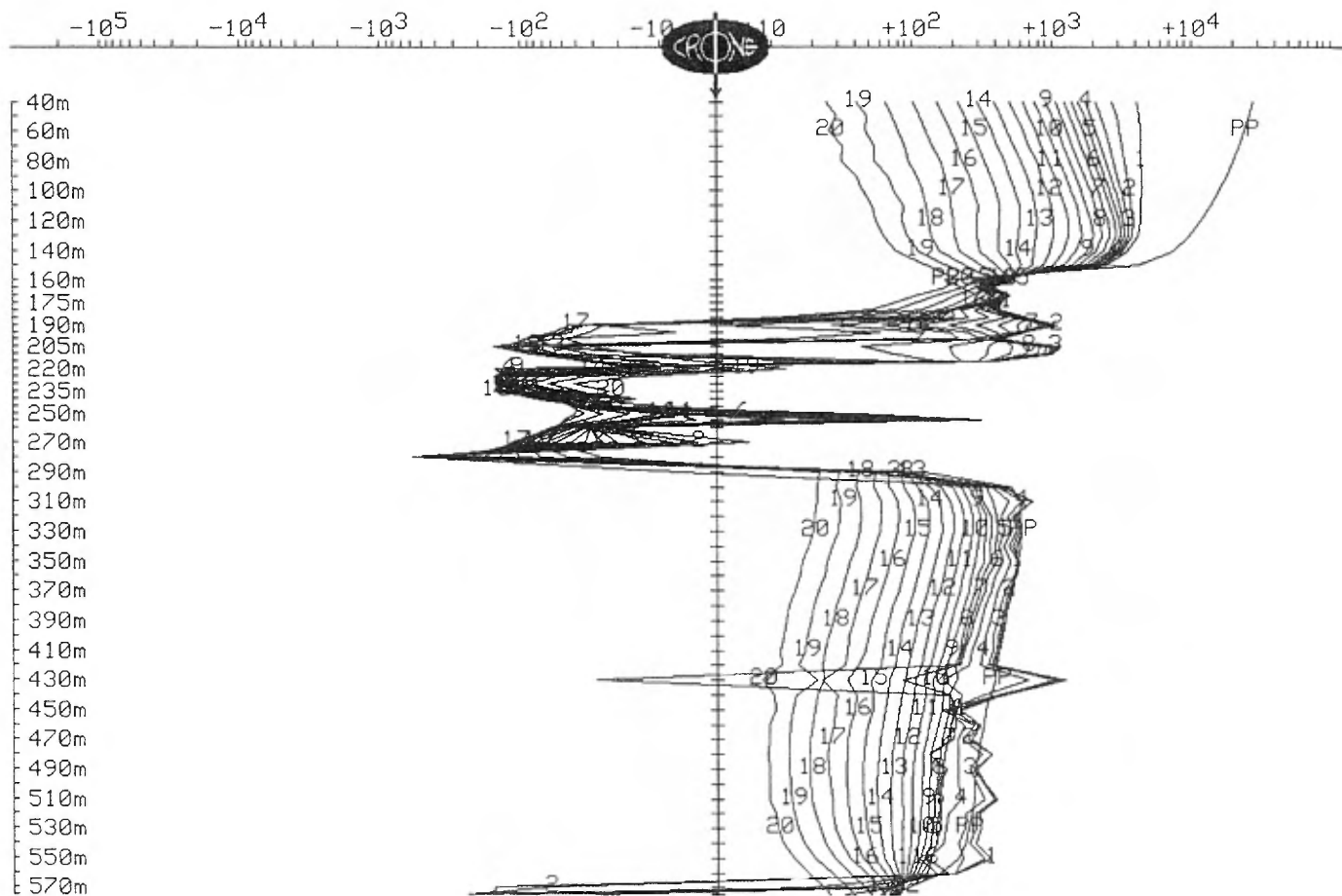


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 25, 2003

Hole : 718-1769
Tx Loop : 1769
File name : 1769ZA.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000



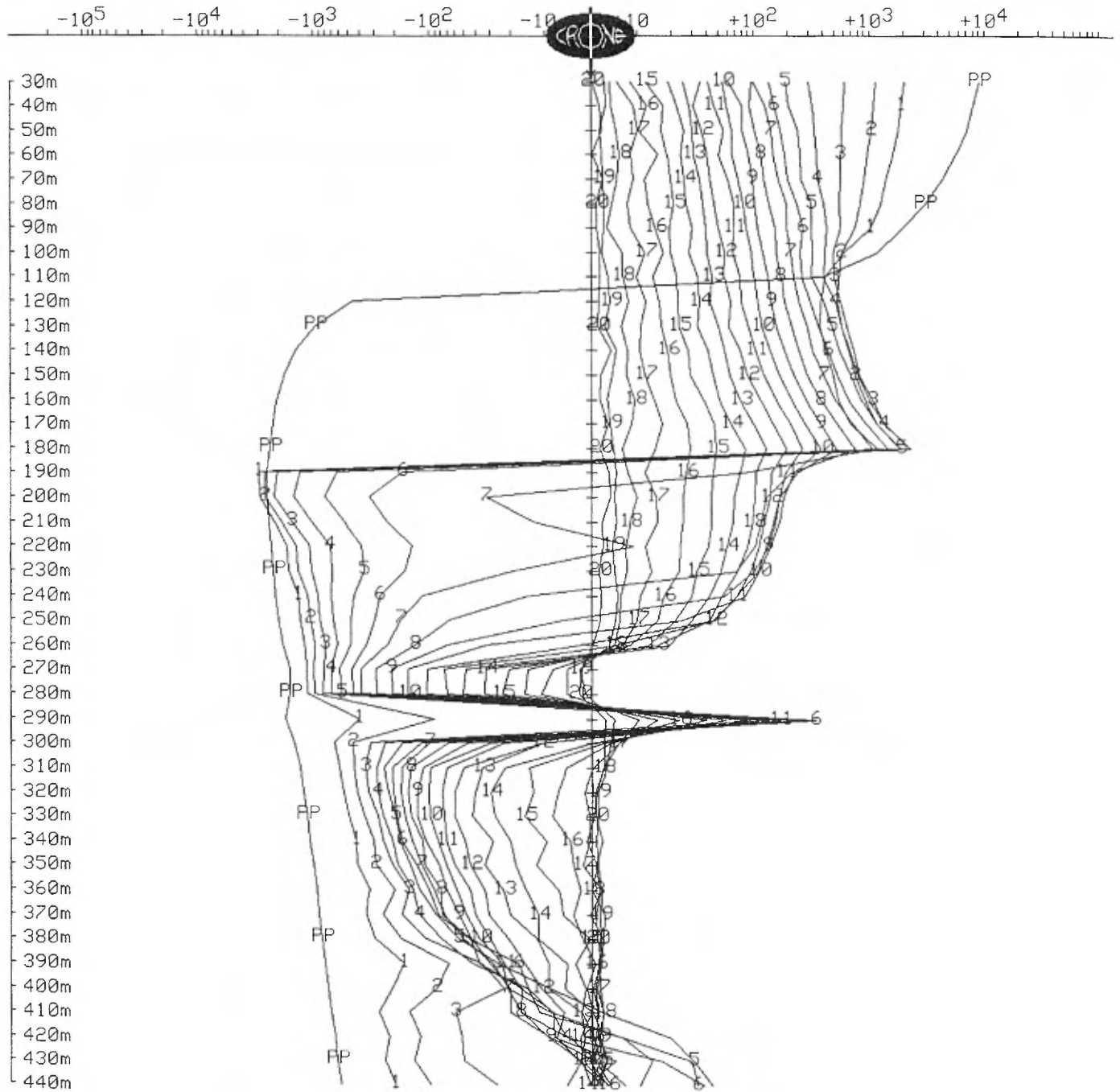
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Feb 7, 2003

Hole : 718-1770
Tx Loop : 1770
File name : 1770XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

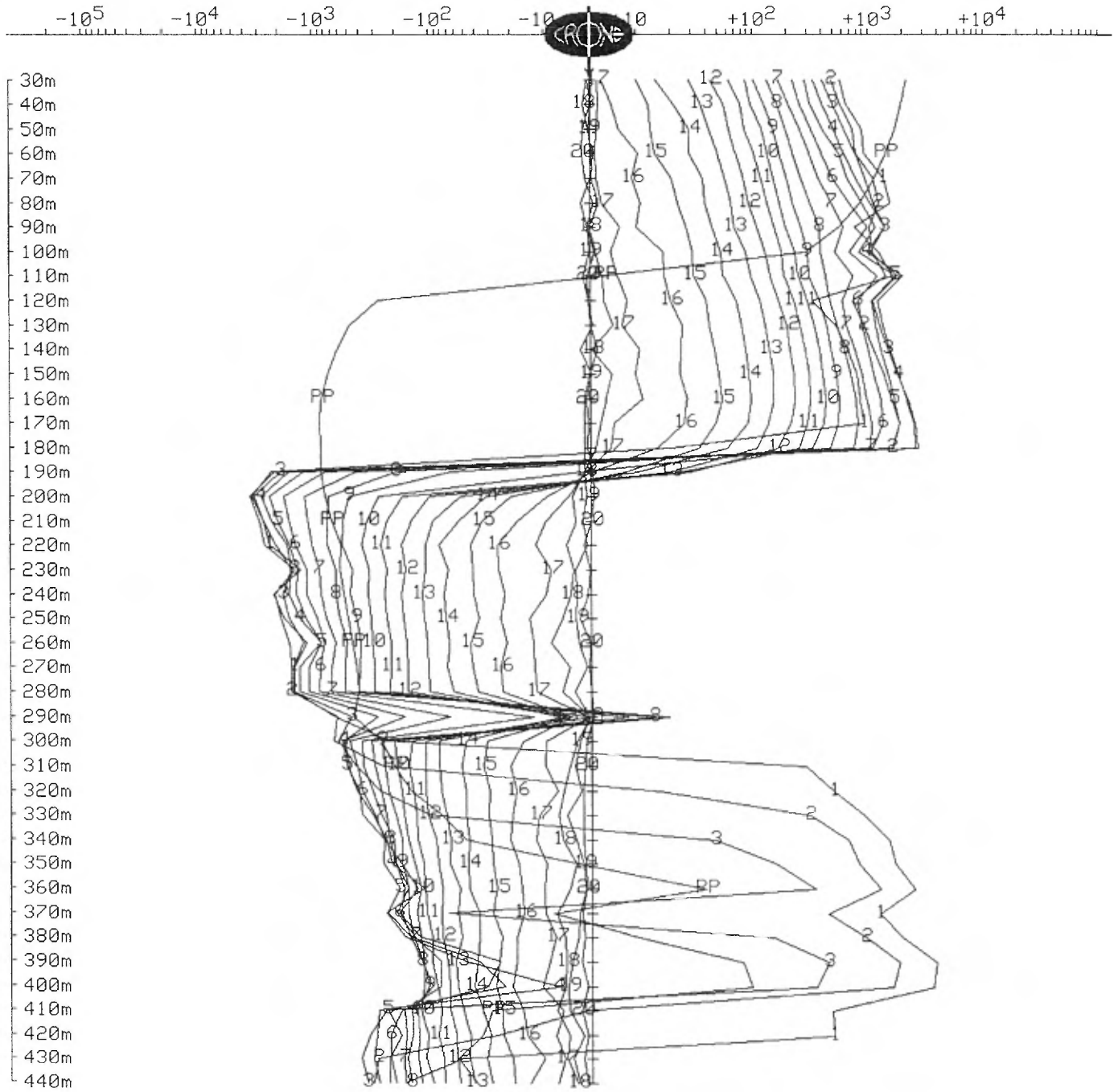


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Feb 7, 2003

Hole : 718-1770
Tx Loop : 1770
File name : 1770XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

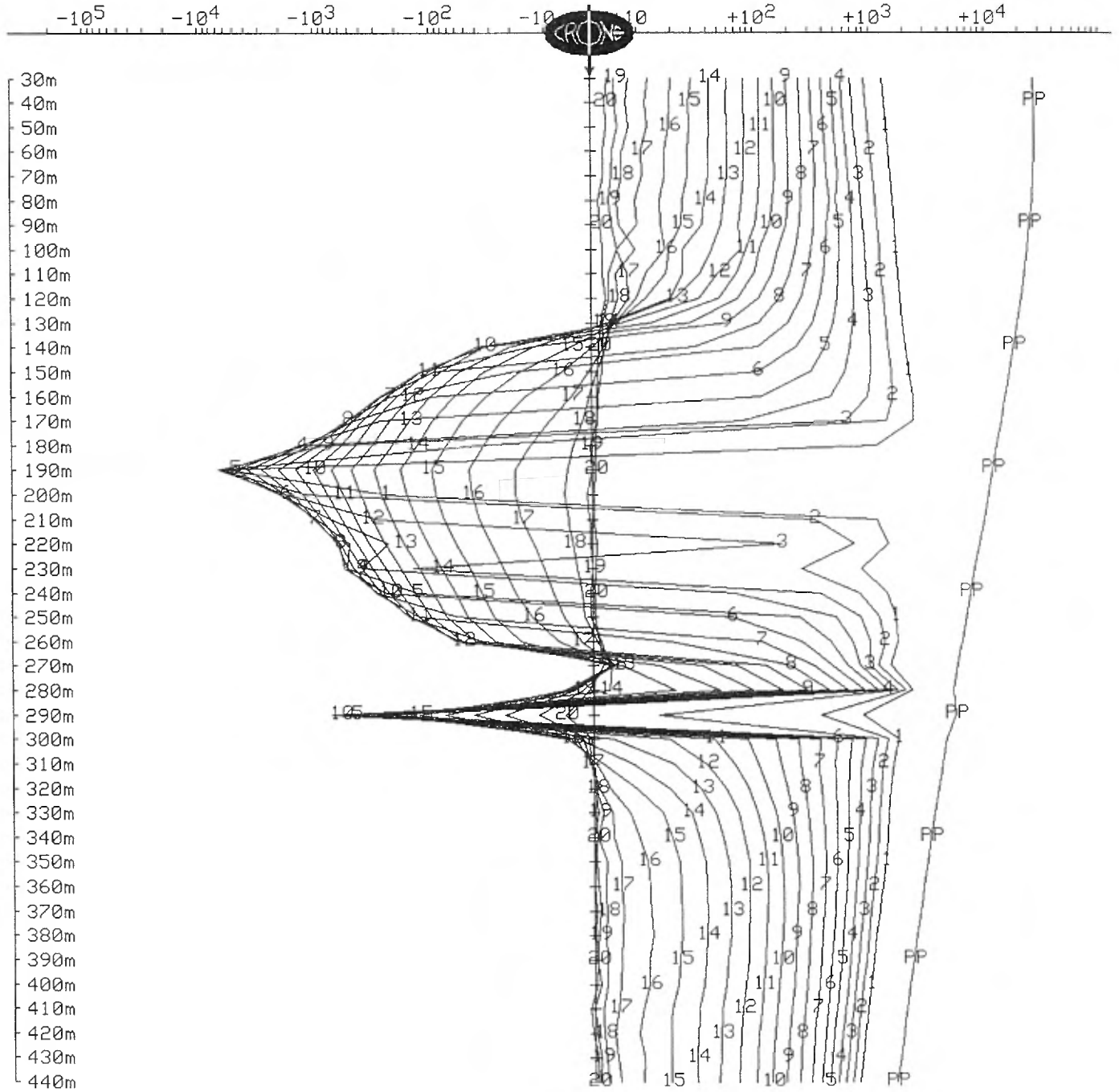


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Feb 7, 2003

Hole : 718-1770
Tx Loop : 1770
File name : 1770Z.PEM

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



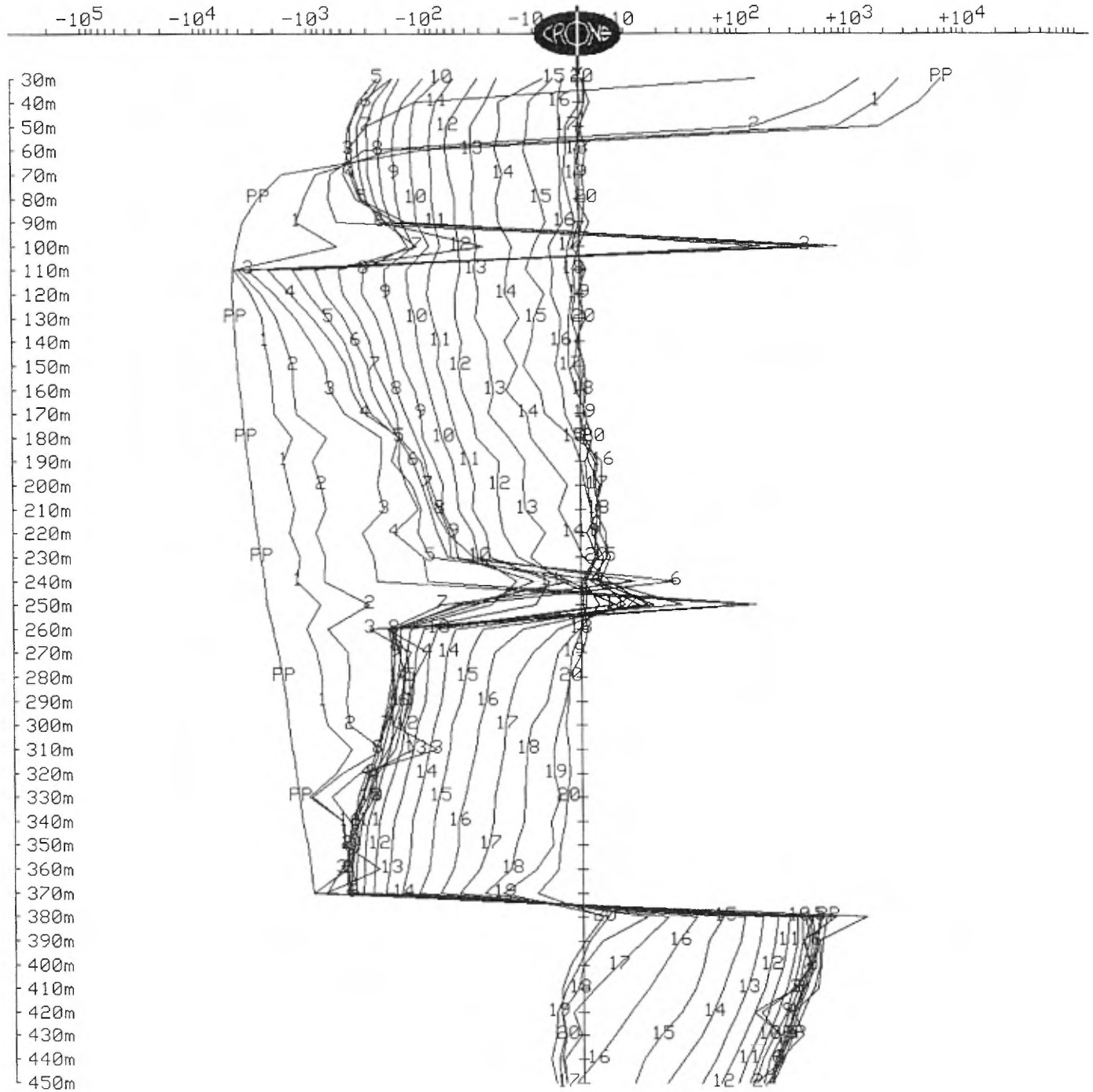
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE
Grid : ZONE 2
Date : May 29, 2003

Hole : 718-1771
Tx Loop : 1771
File name : 1771XYT.PEM

Data Scaled by Factor of 1.29
Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500



CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

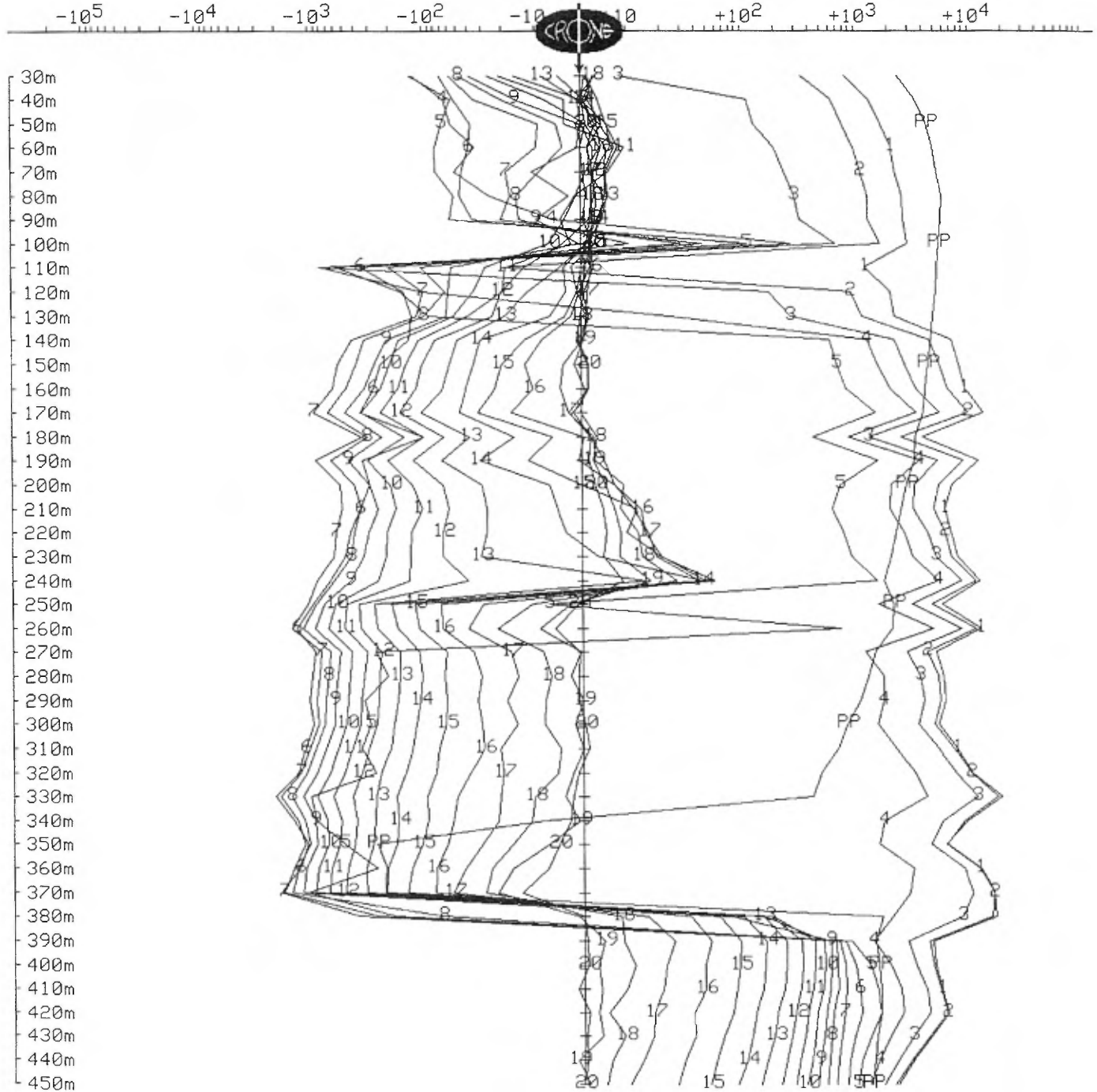
Client : FALCONBRIDGE
Grid : ZONE 2
Date : May 29, 2003

Hole : 718-1771
Tx Loop : 1771
File name : 1771XYT.PEM

Data Scaled by Factor of 1.29

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP

Scale: 1:2500

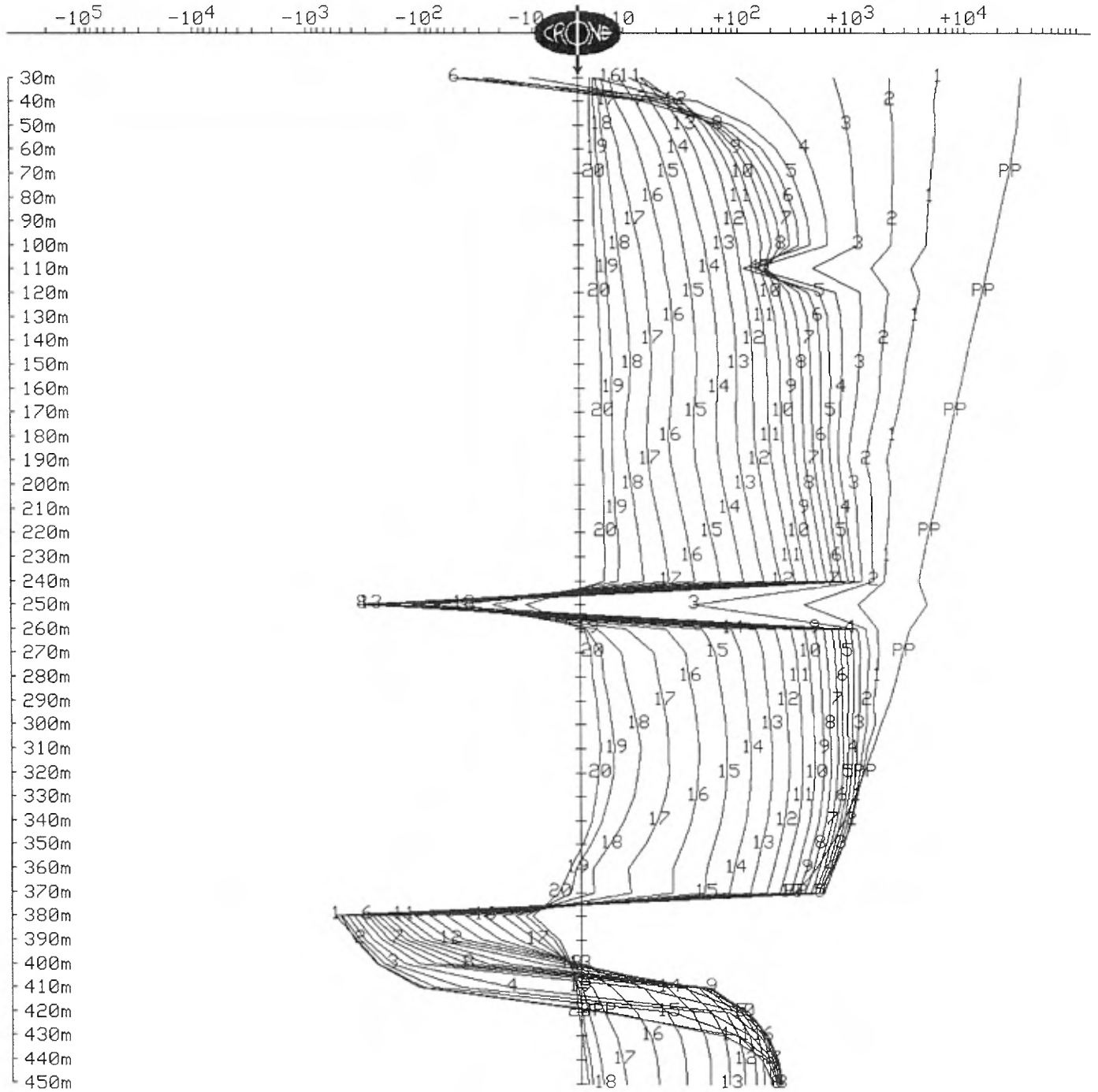


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE
Grid : ZONE 2
Date : May 29, 2003

Hole : 718-1771
Tx Loop : 1771
File name : 1771Z.PEM

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



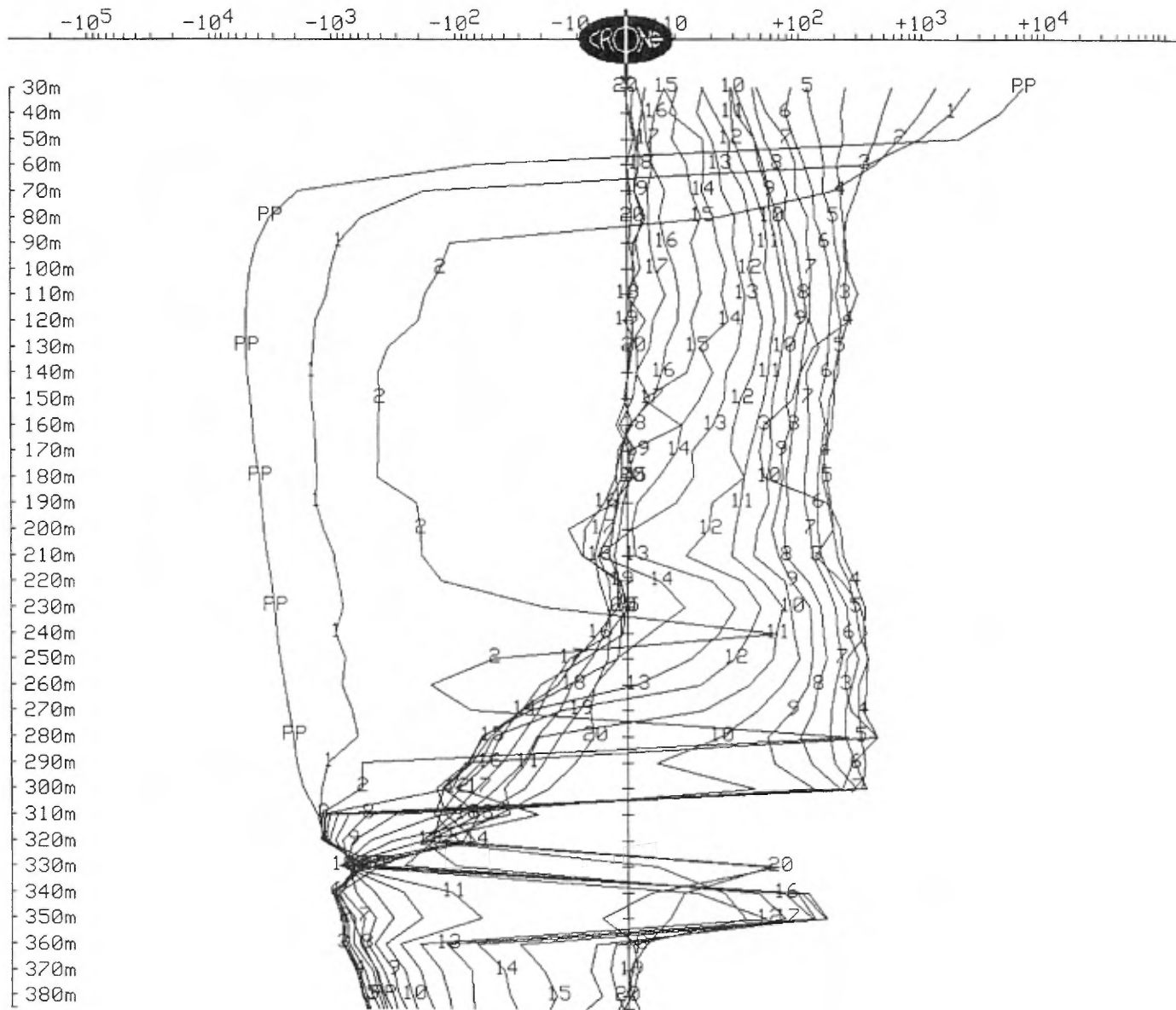
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 2, 2003

Hole : 718-1772
Tx Loop : 1772
File name : 1772XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

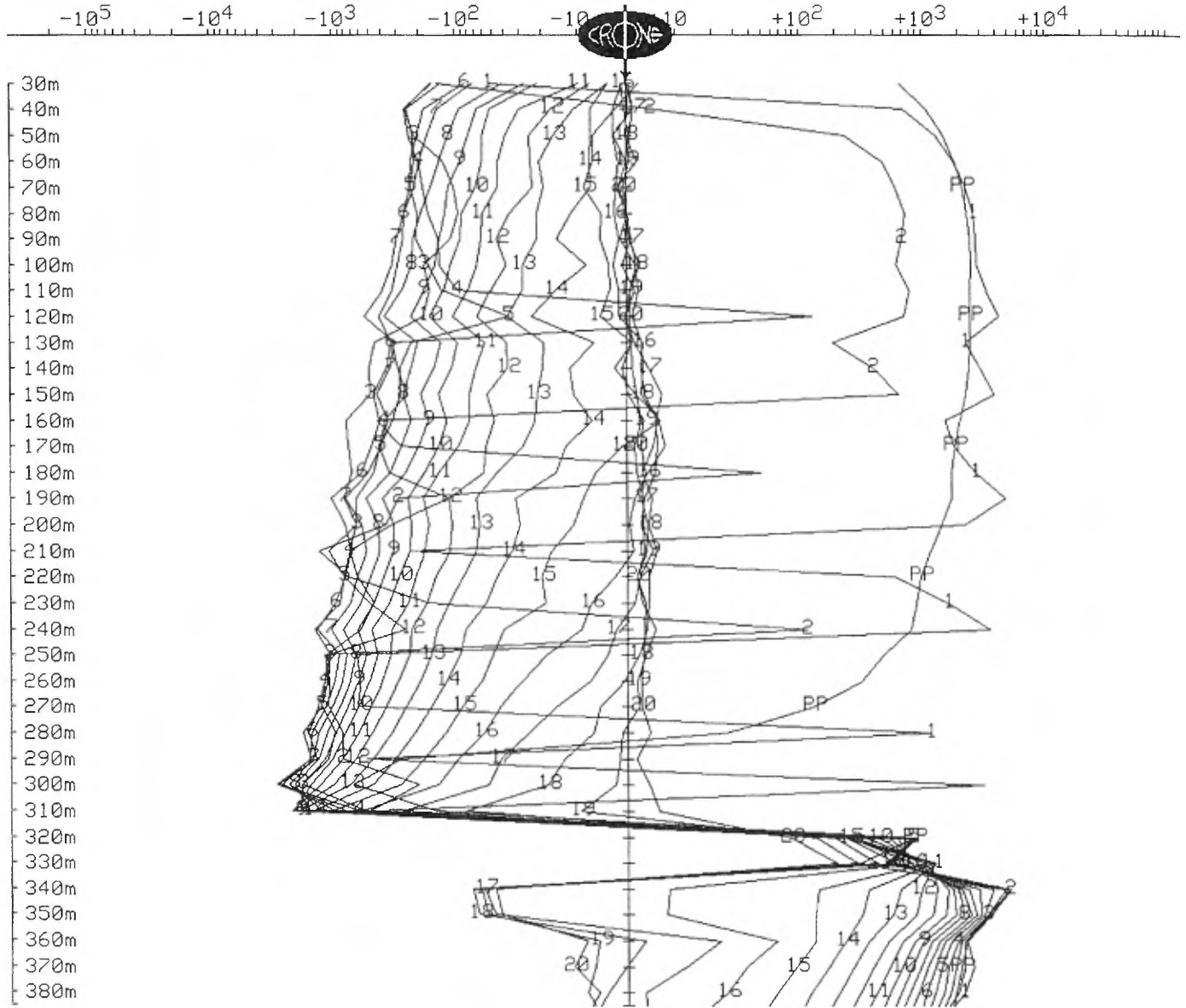


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 2, 2003

Hole : 718-1772
Tx Loop : 1772
File name : 1772XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

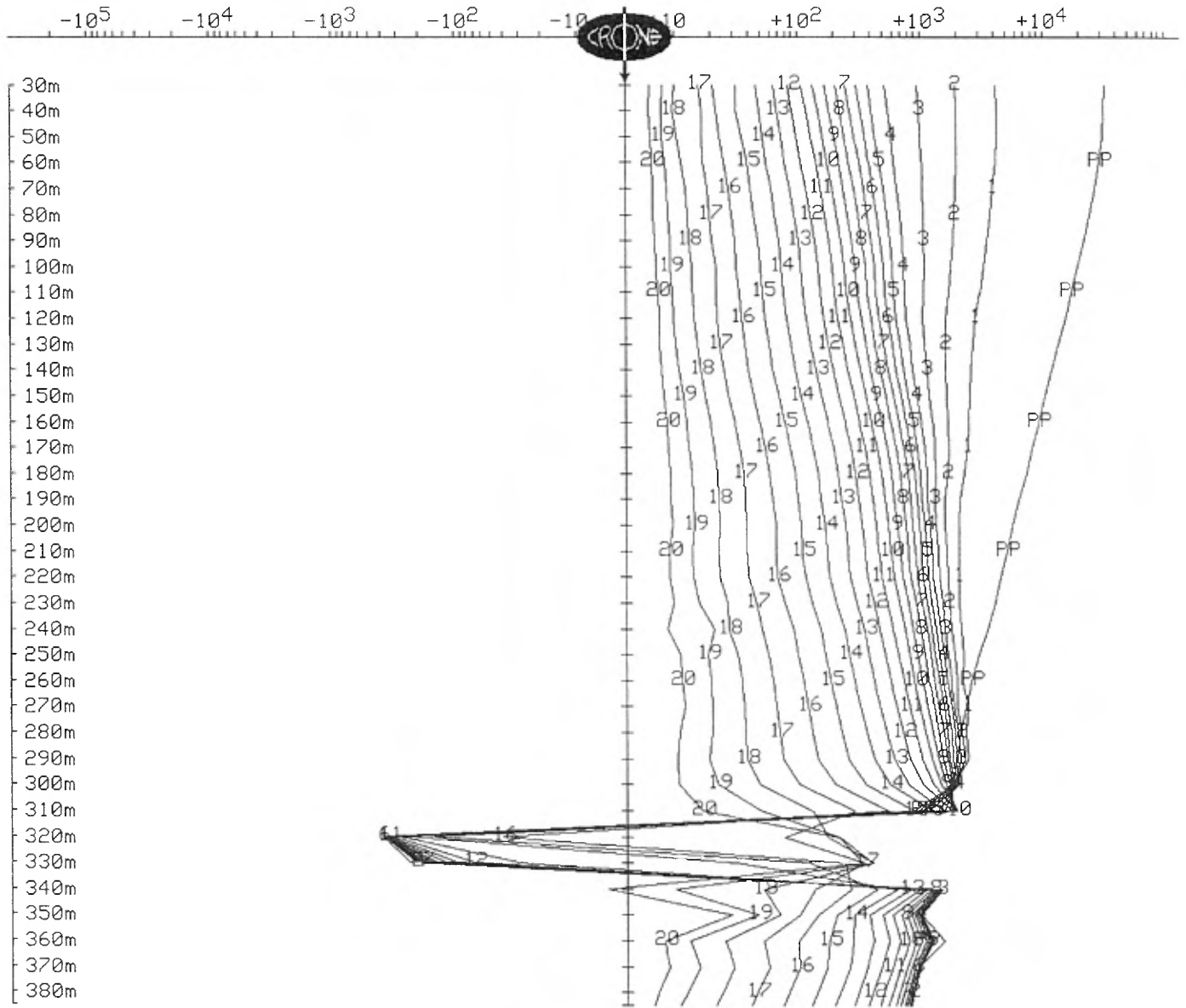


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 2, 2003

Hole : 718-1772
Tx Loop : 1772
File name : 1772ZA.PEM

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



(s10H

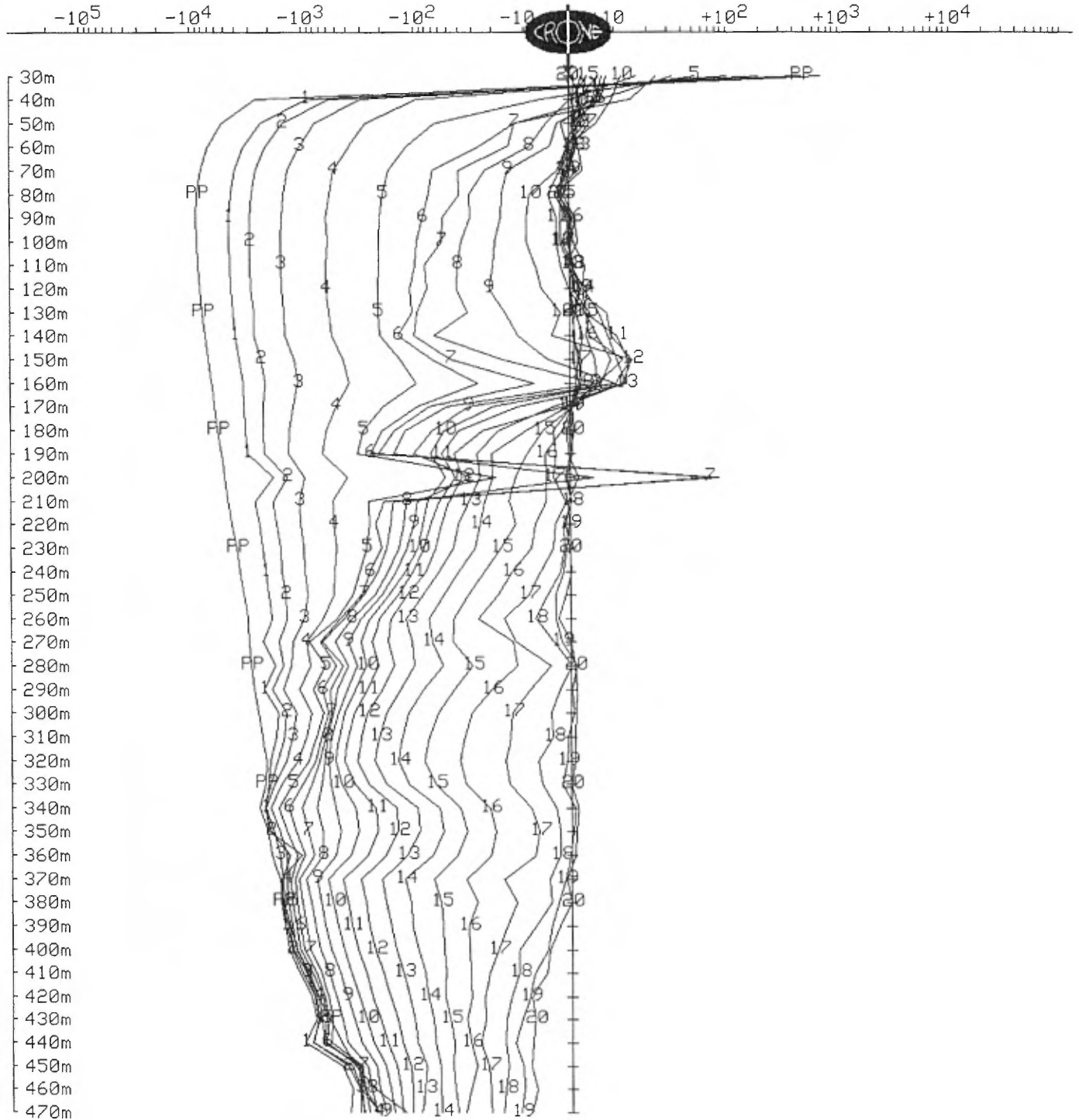
CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 7, 2003

Hole : 718-1773
Tx Loop : 1773
File name : 1773XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP

Scale: 1:2500

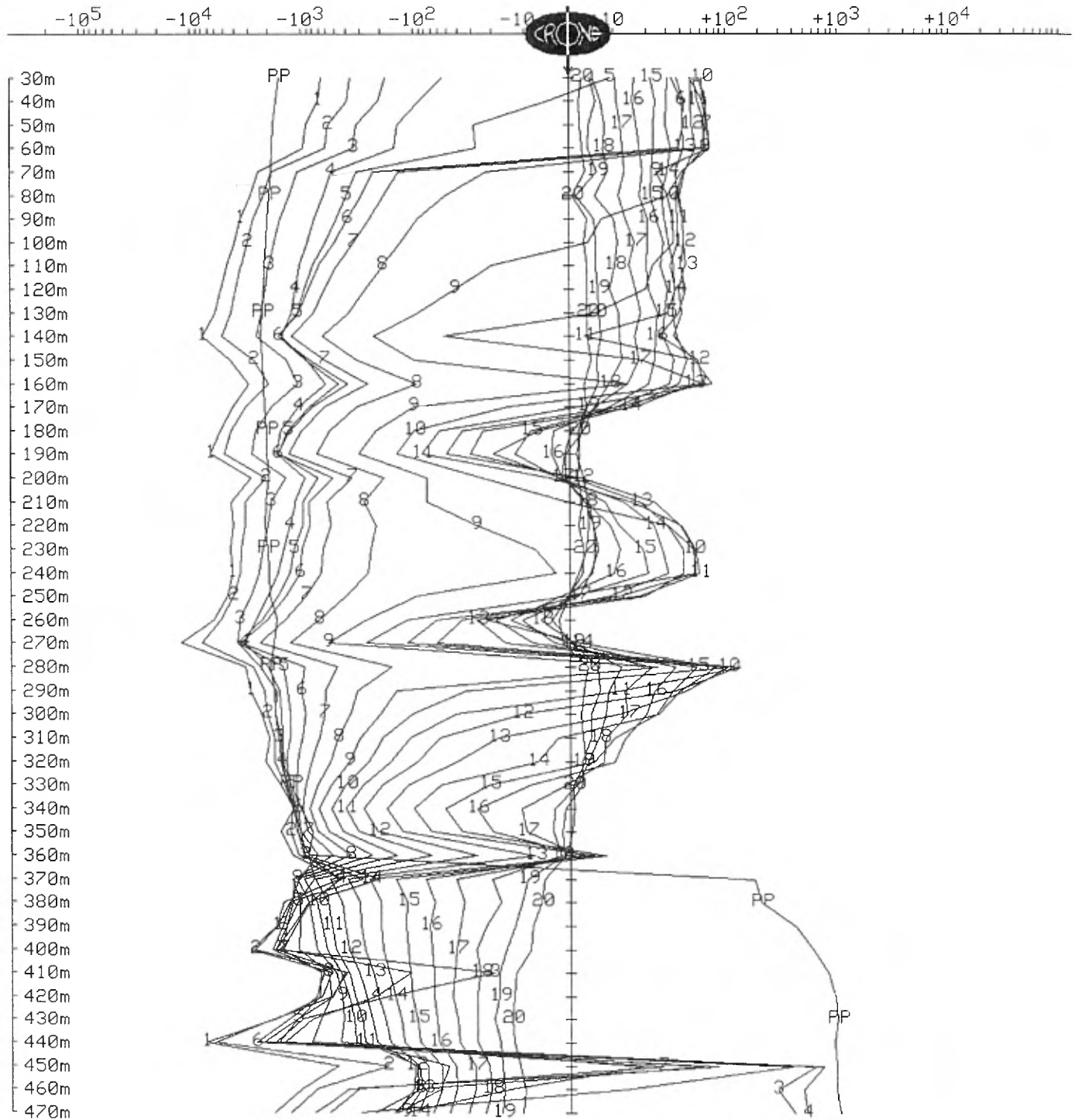


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 7, 2003

Hole : 718-1773
Tx Loop : 1773
File name : 1773XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

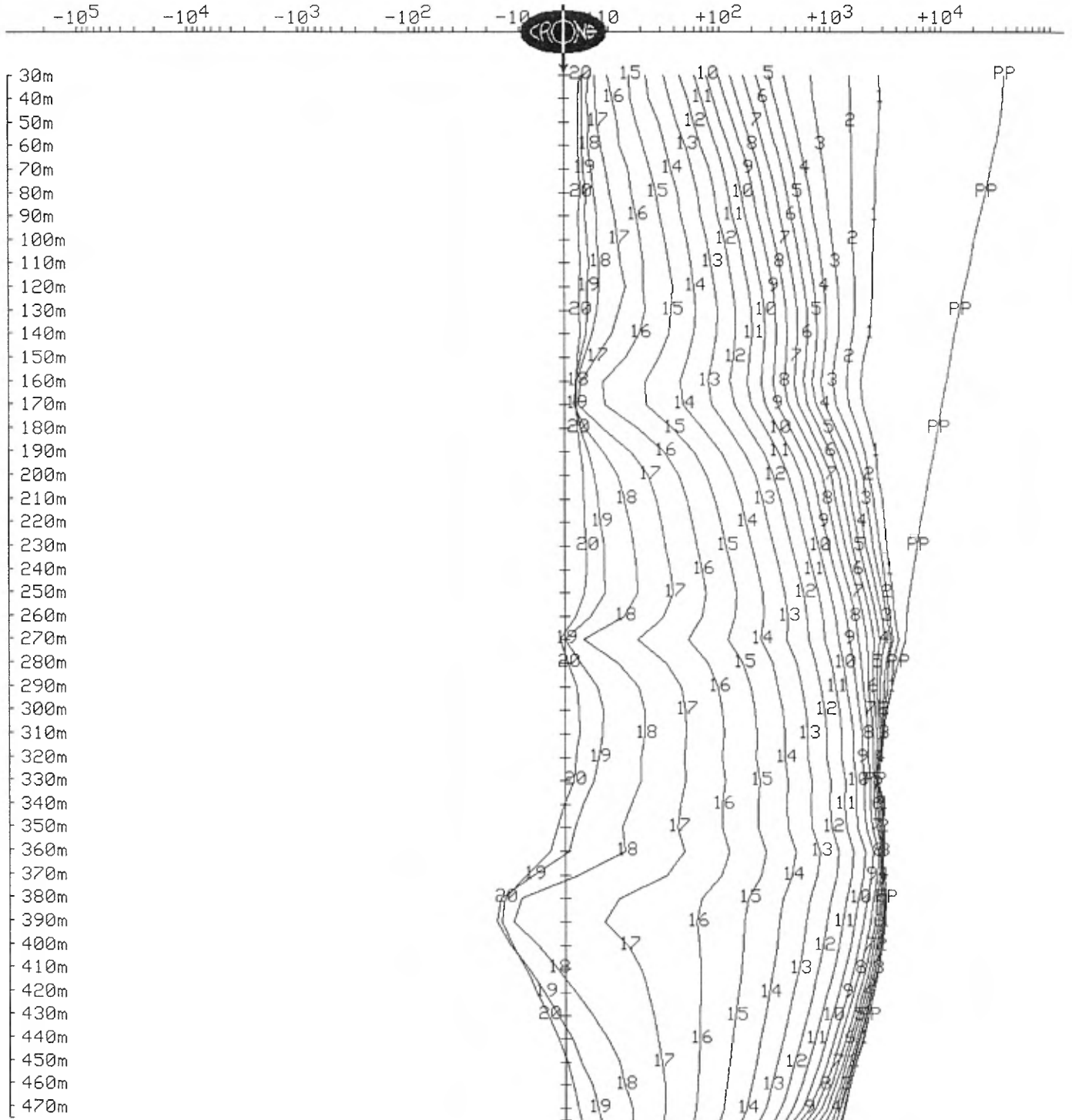


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 7, 2003

Hole : 718-1773
Tx Loop : 1773
File name : 1773ZA.PEM

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



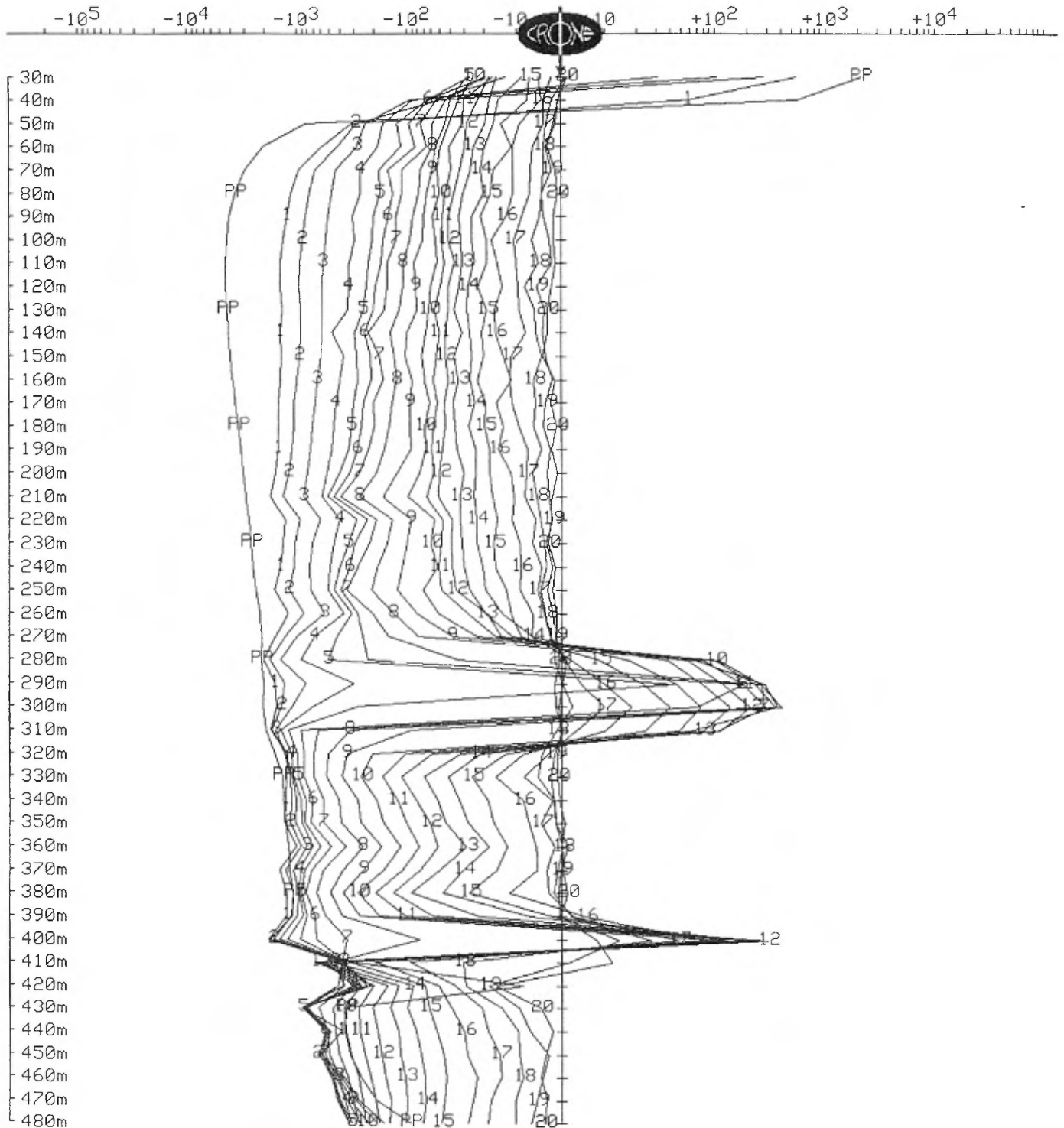
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 13, 2003

Hole : 718-1774
Tx Loop : 1773
File name : 1774XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

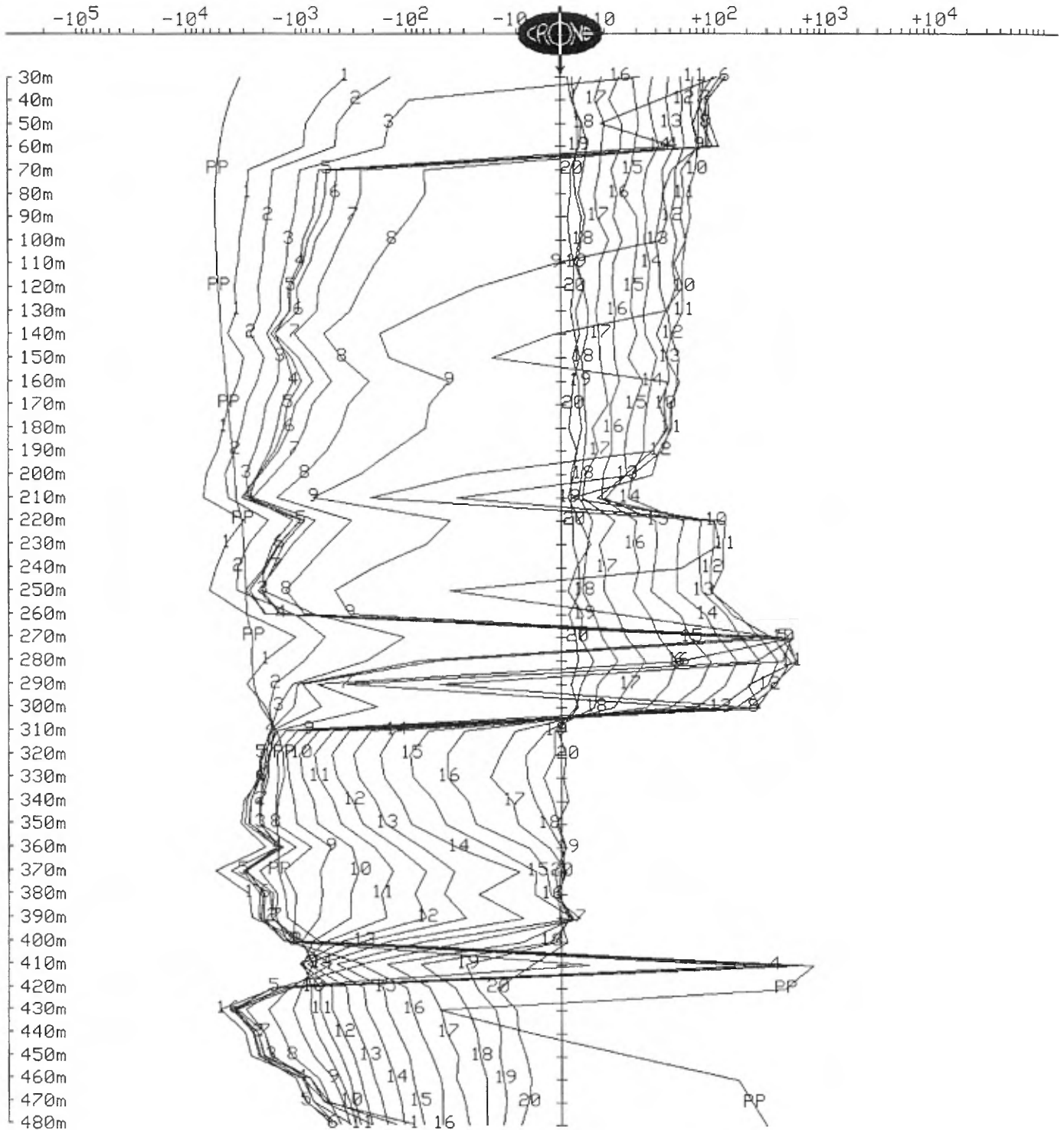


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 13, 2003

Hole : 718-1774
Tx Loop : 1773
File name : 1774XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

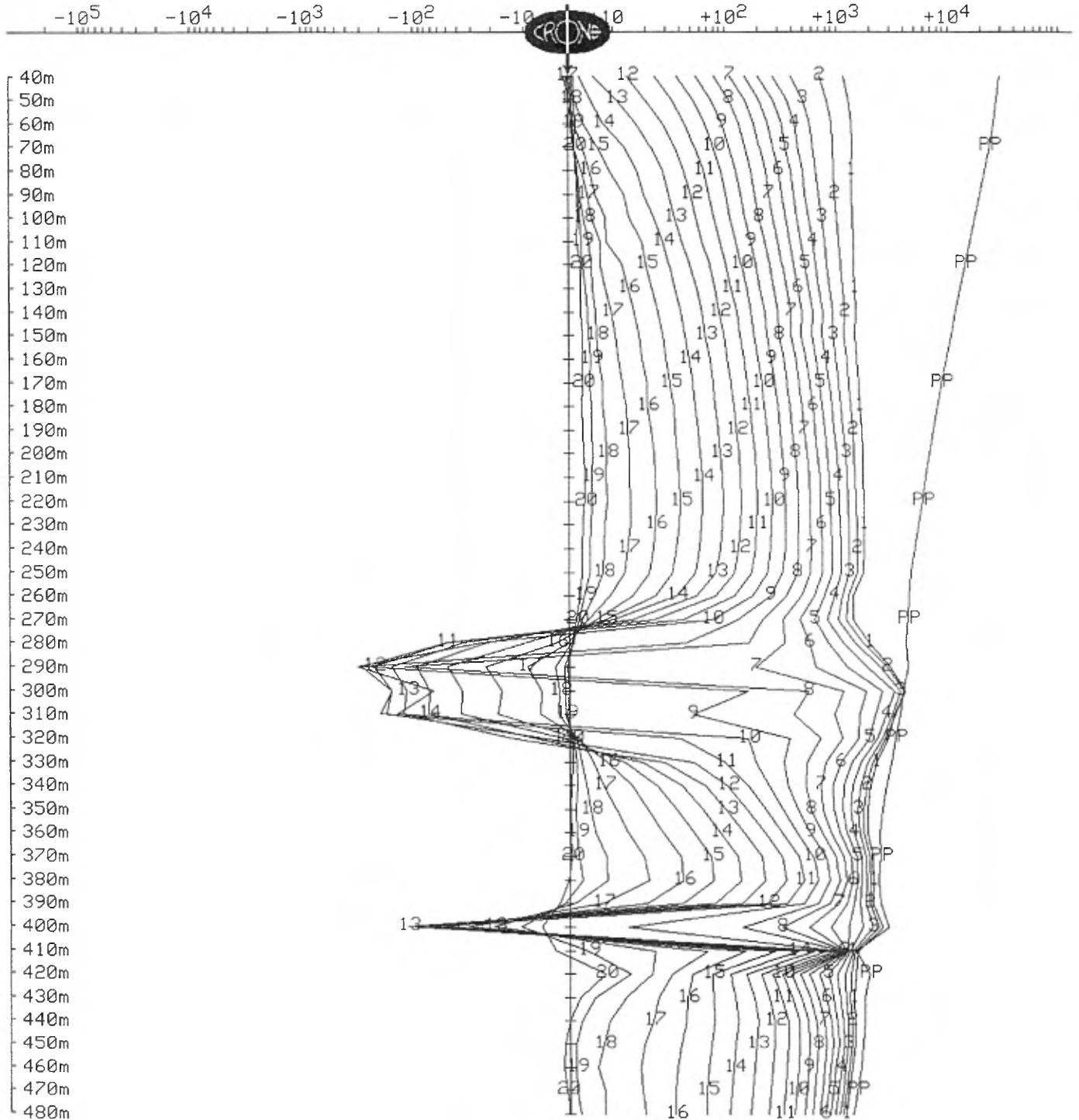


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 13, 2003

Hole : 718-1774
Tx Loop : 1773
File name : 1774ZA.PEM

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



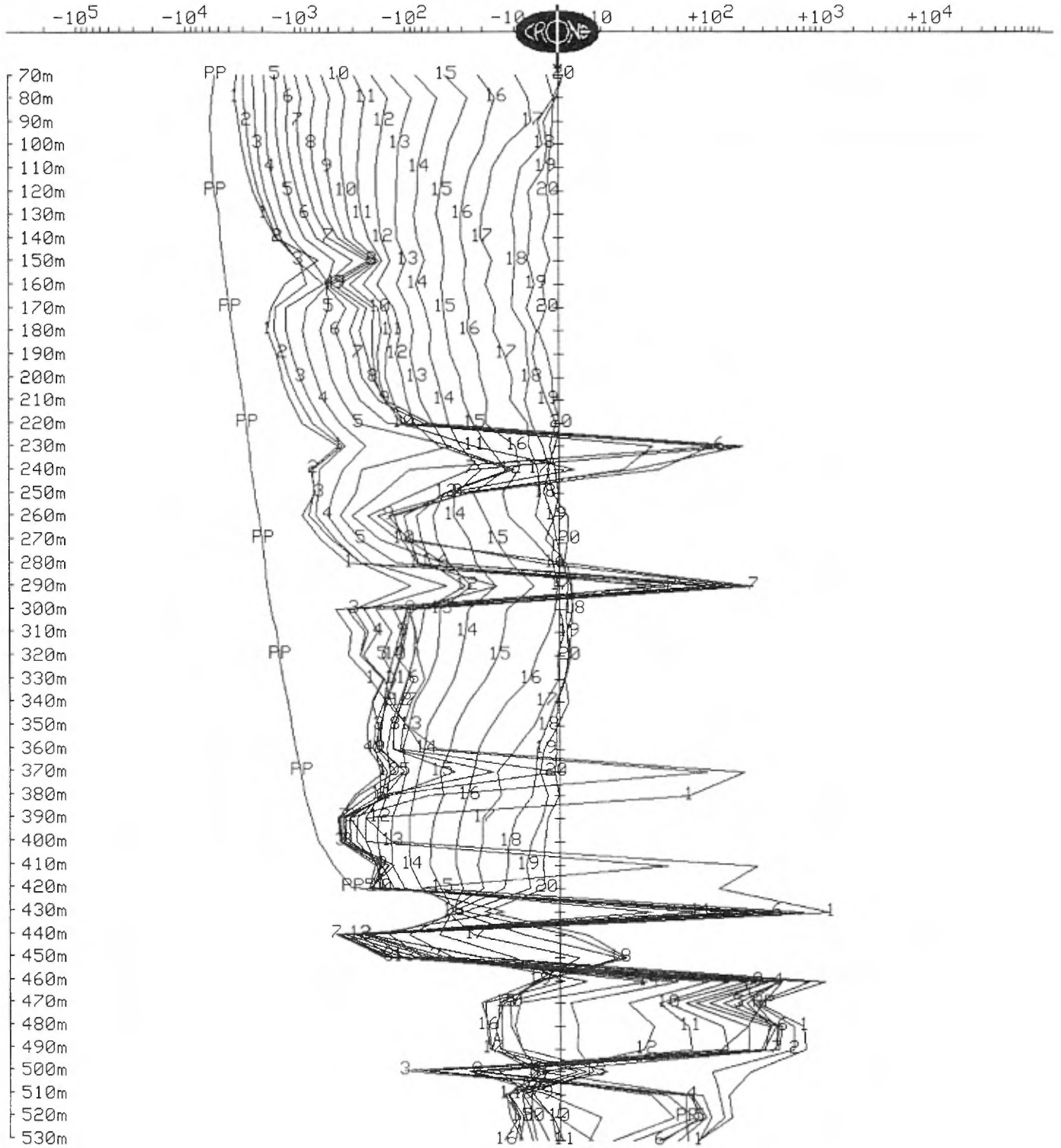
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 20, 2003

Hole : 718-1775
Tx Loop : 1775
File name : 1775XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

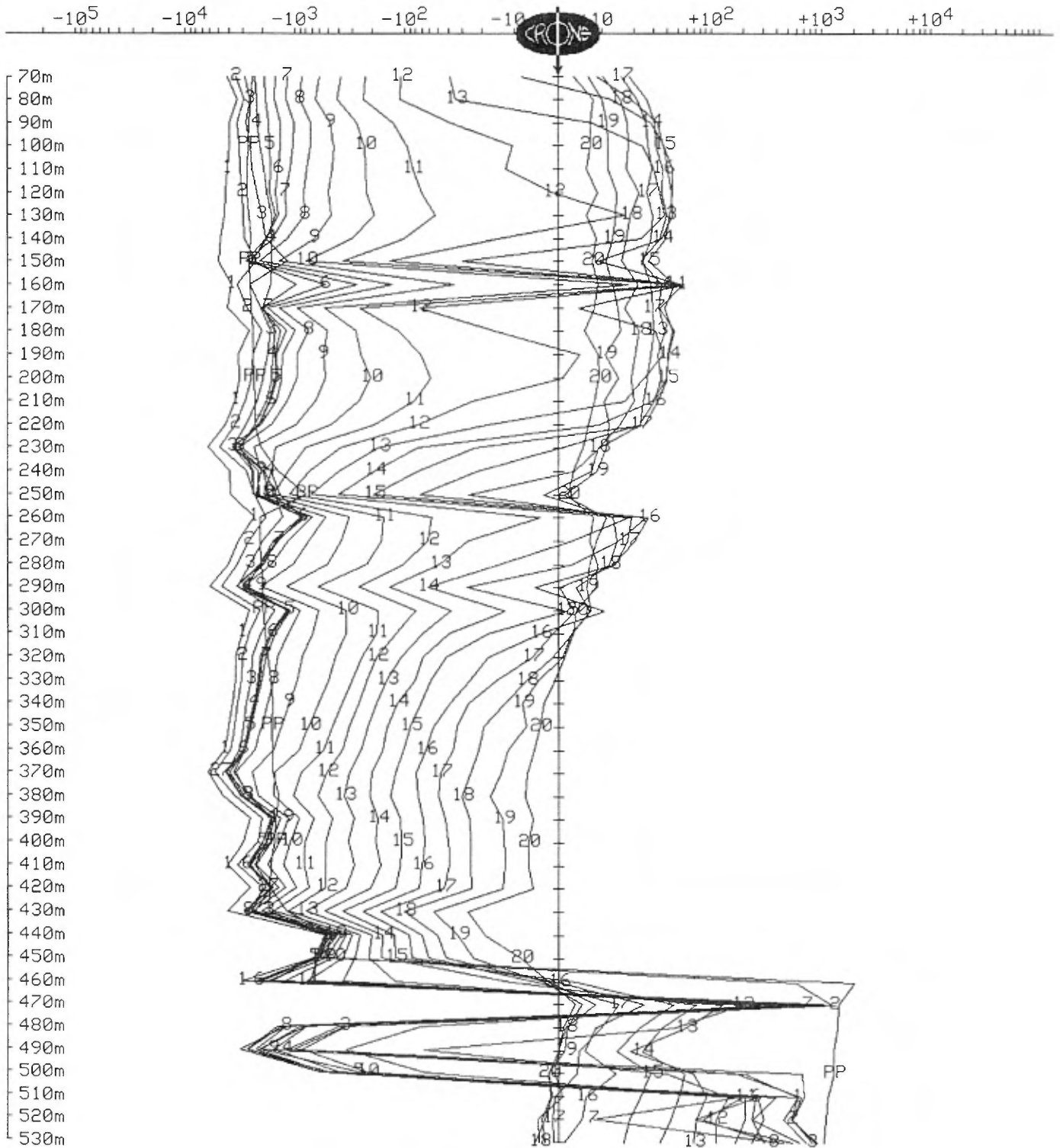


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 20, 2003

Hole : 718-1775
Tx Loop : 1775
File name : 1775XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

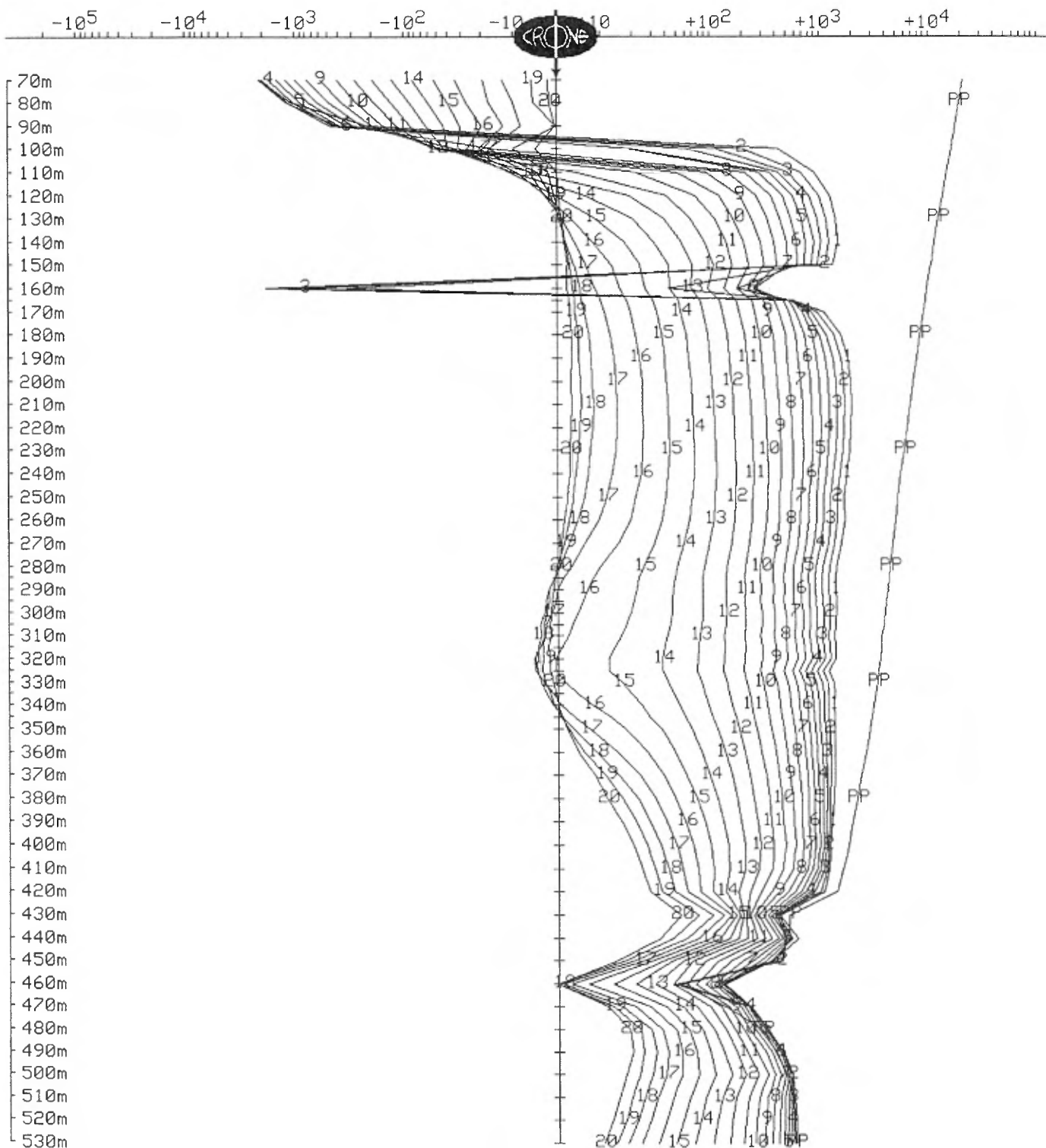


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 20, 2003

Hole : 718-1775
Tx Loop : 1775
File name : 1775ZA.PEM

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



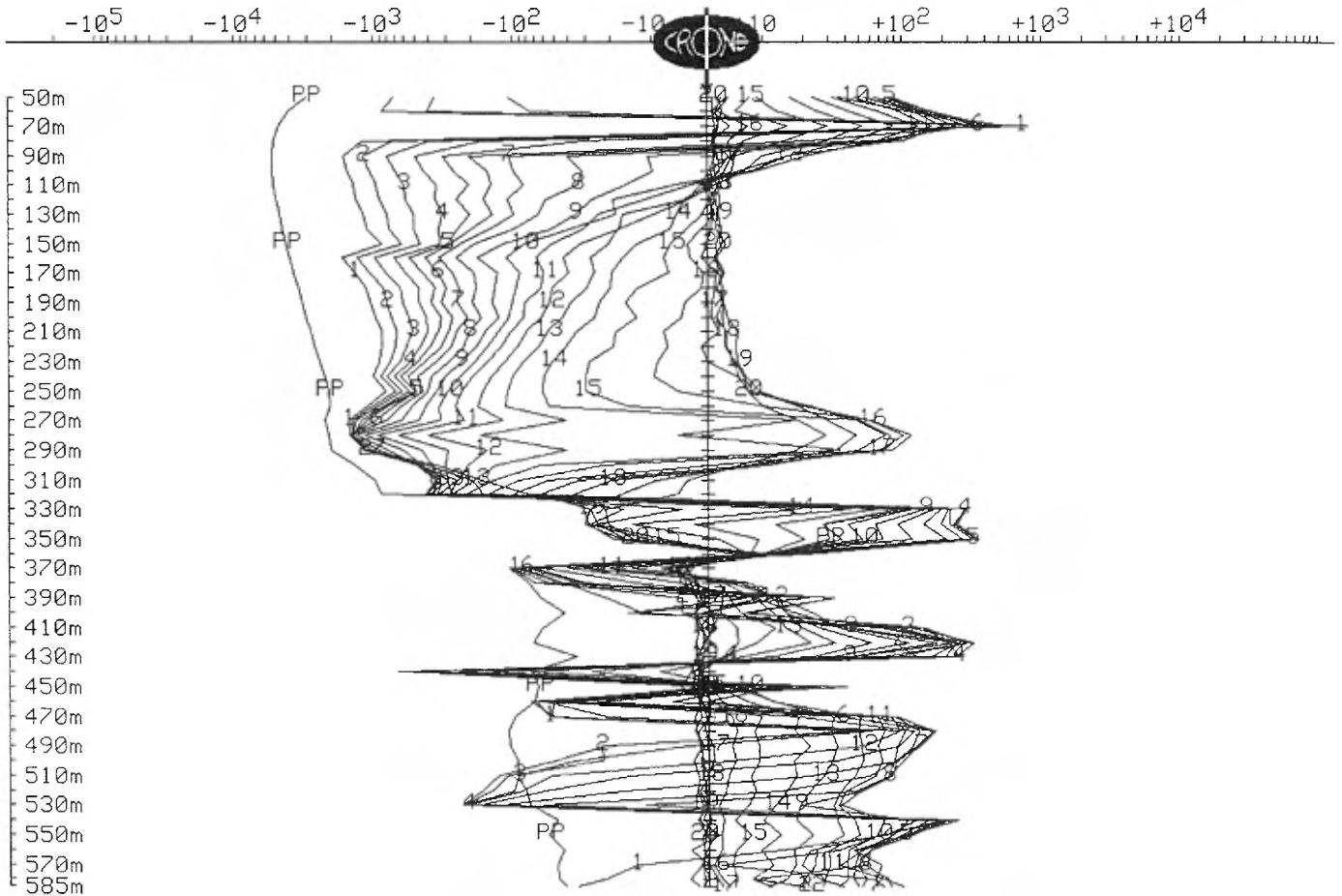
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 29, 2003

Hole : 718-1776
Tx Loop : 1775
File name : 1776XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000

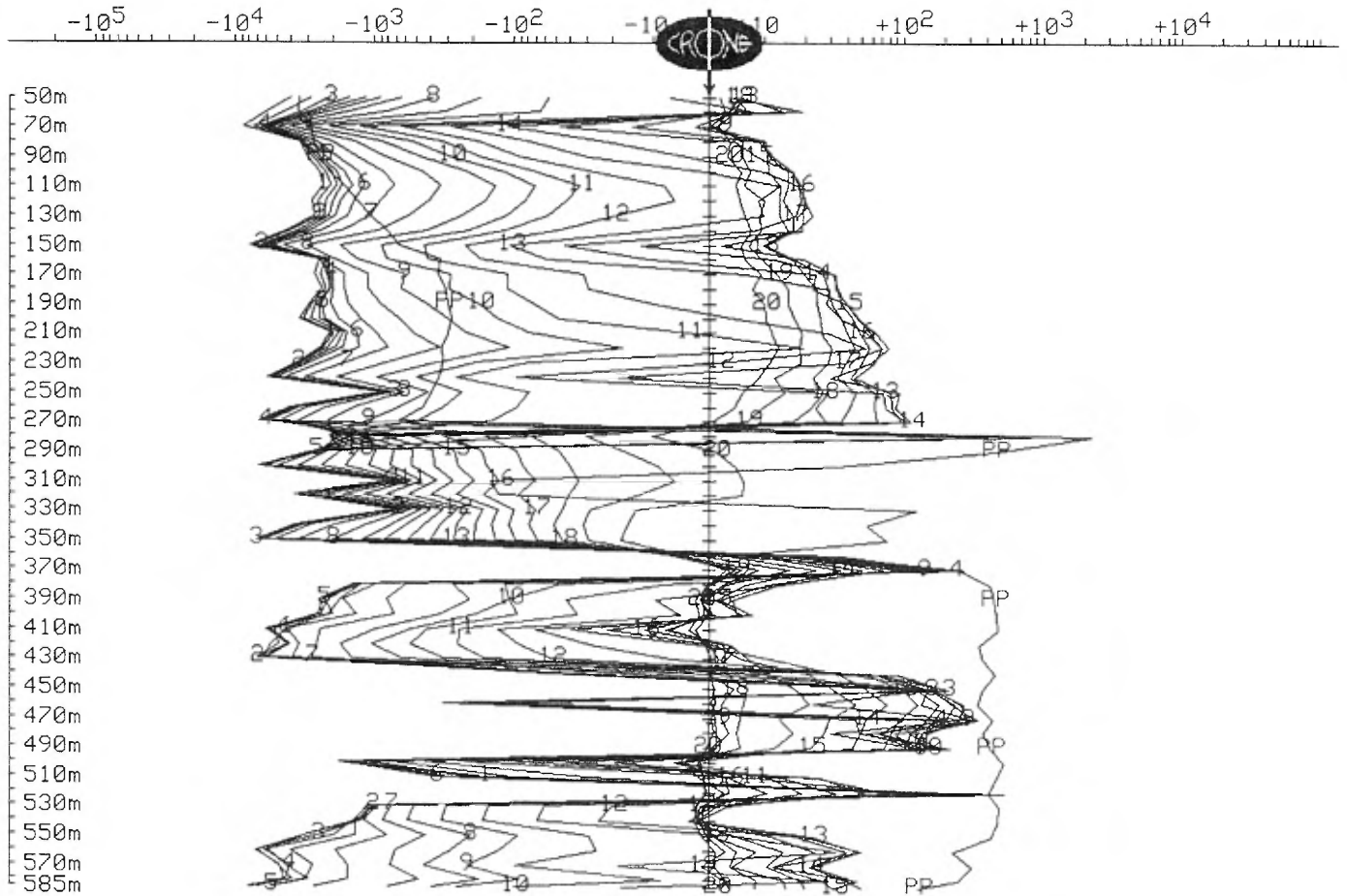


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 29, 2003

Hole : 718-1776
Tx Loop : 1775
File name : 1776XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #15
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000

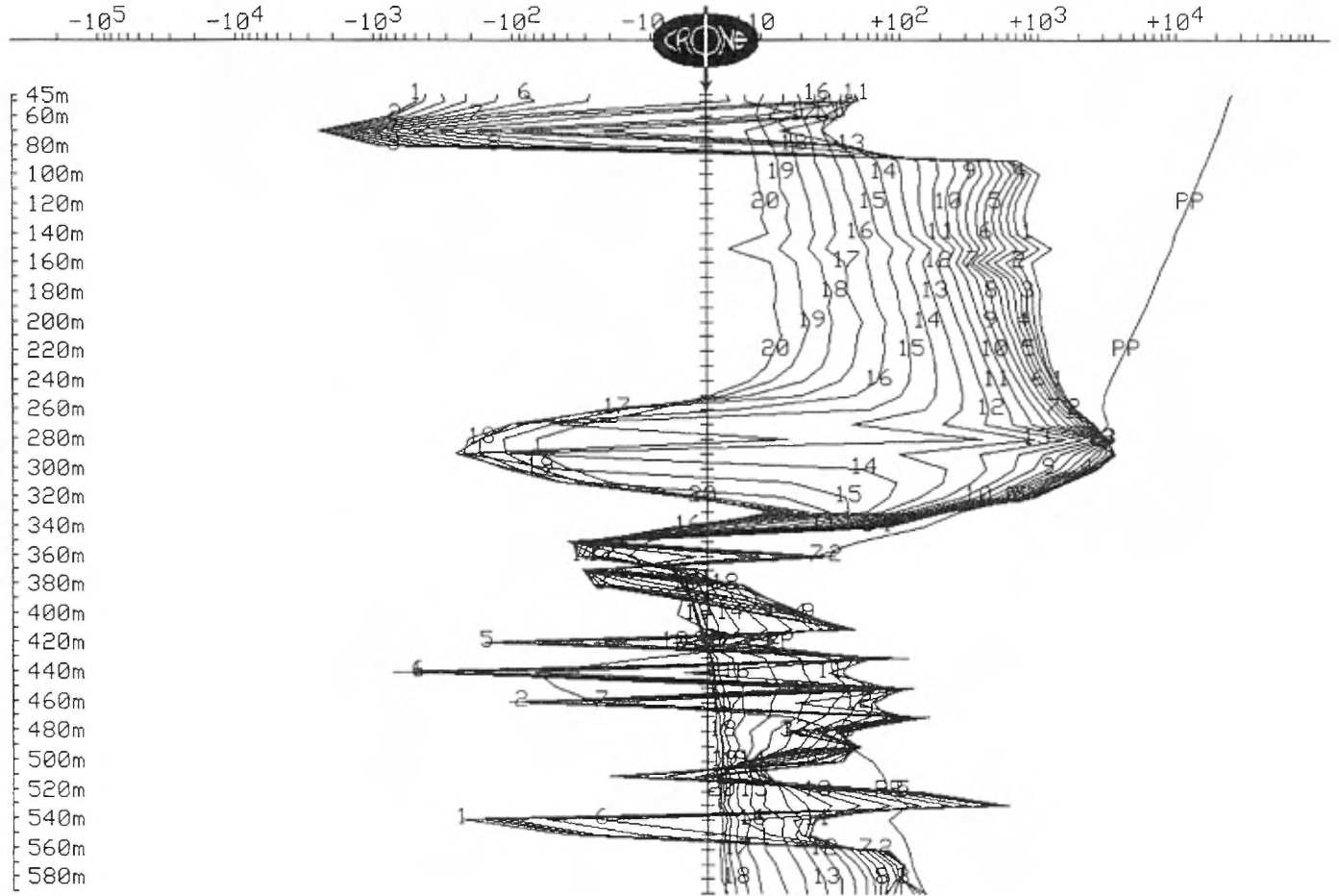


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 29, 2003

Hole : 718-1776
Tx Loop : 1775
File name : 1776ZA.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000



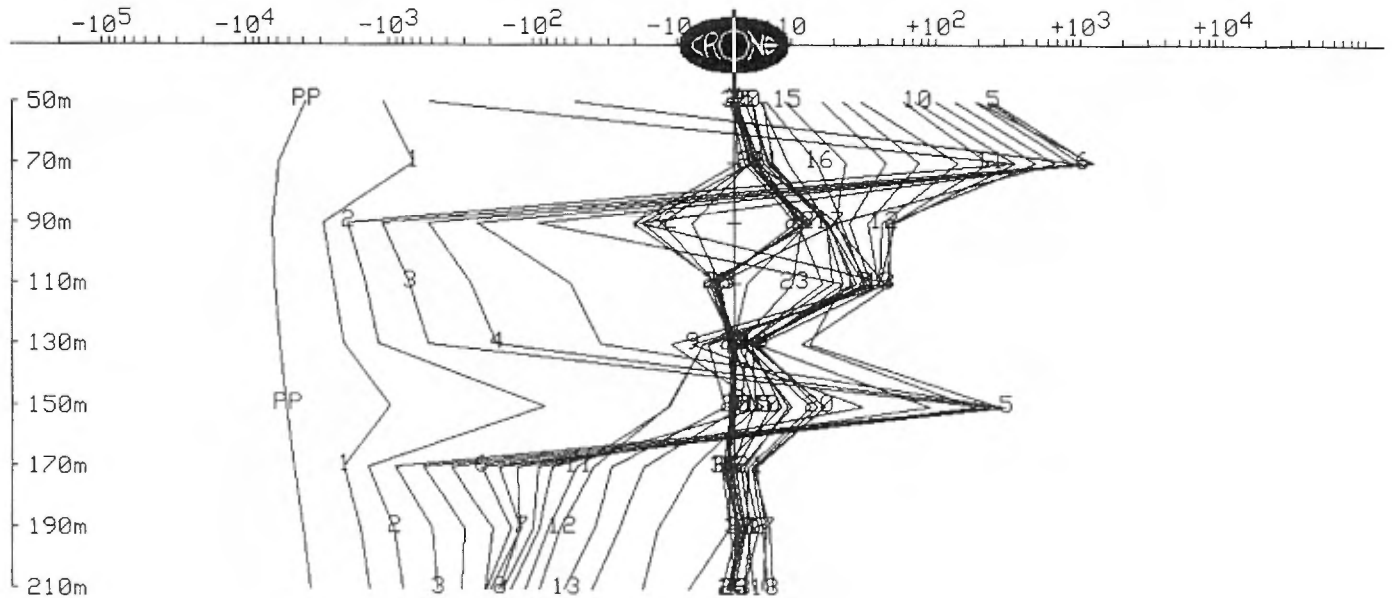
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 30, 2003

Hole : 718-1776
Tx Loop : 1775
File name : 1776XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 34 of 34 channels and PP
Scale: 1:2500

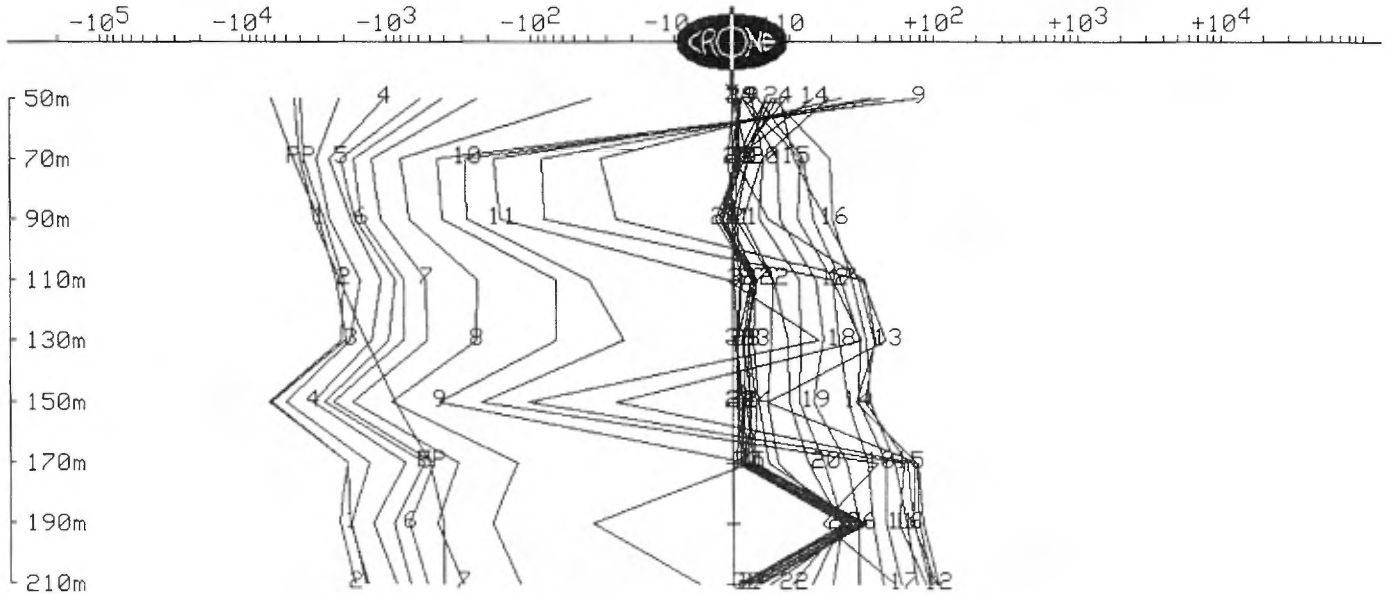


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 30, 2003

Hole : 718-1776
Tx Loop : 1775
File name : 1776XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 34 of 34 channels and PP
Scale: 1:2500

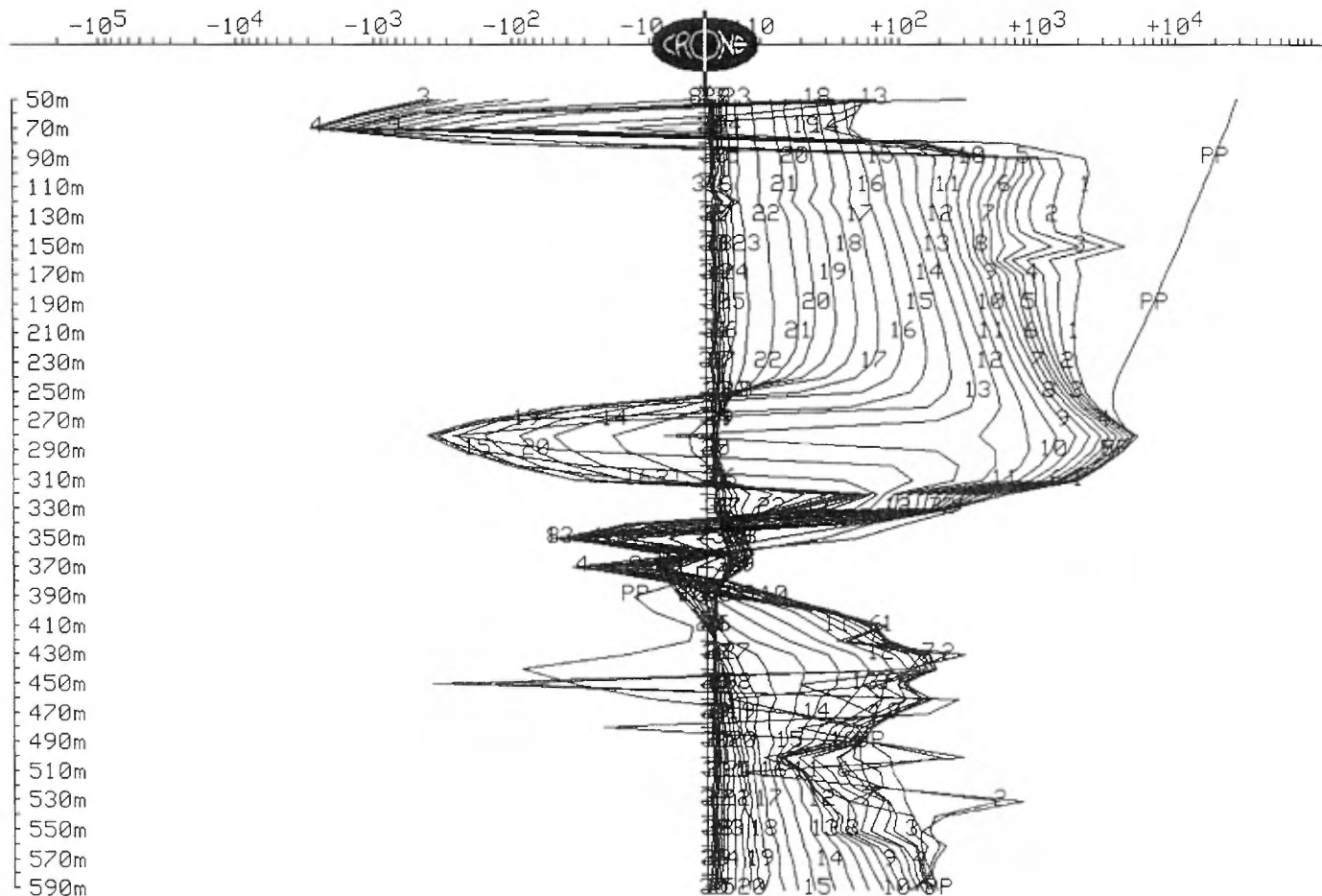


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : ZONE 2
Date : Jun 30, 2003

Hole : 718-1776
Tx Loop : 1775
File name : 1776ZA.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 34 of 34 channels and PP
Scale: 1:5000



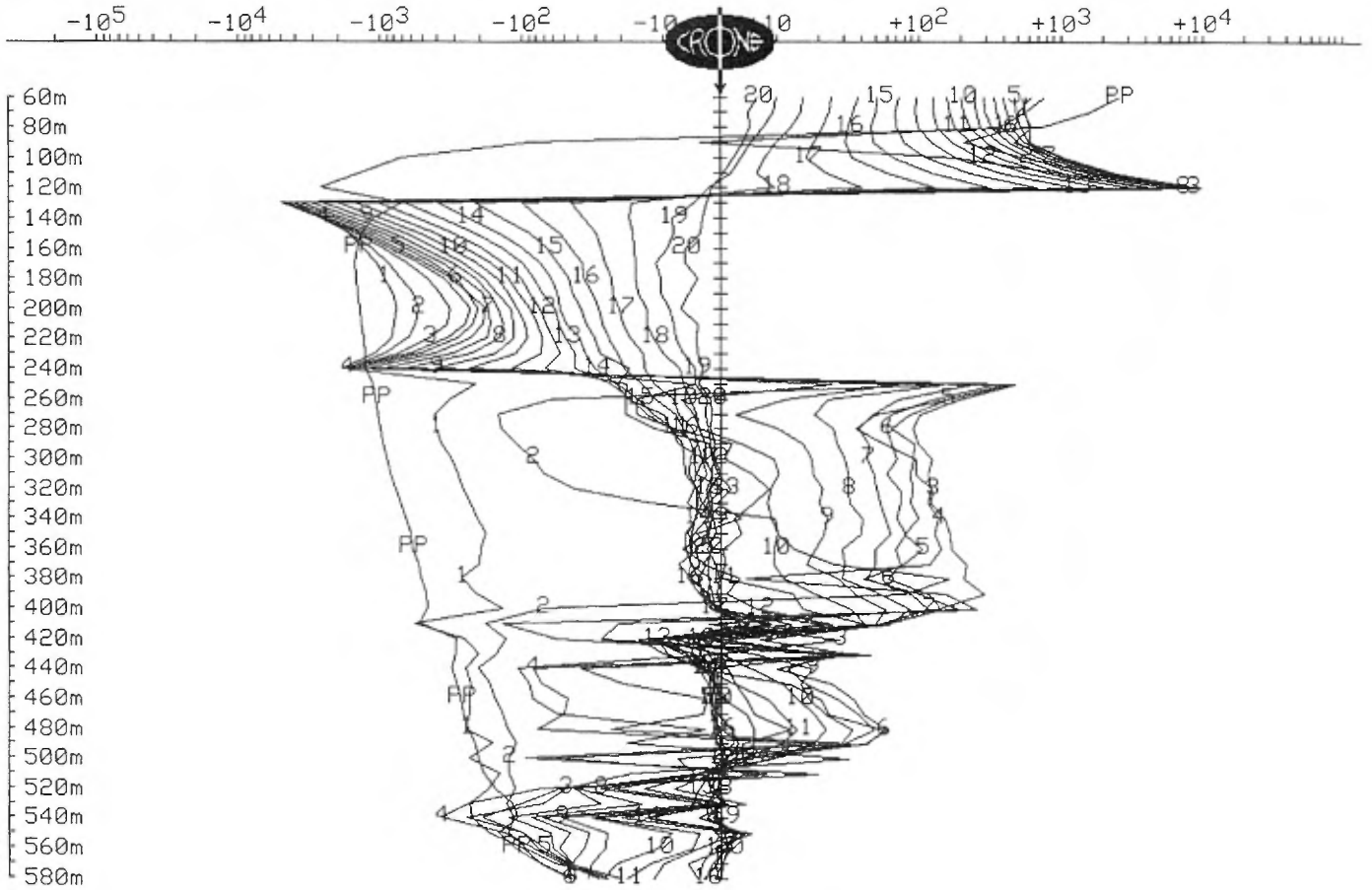
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 6, 2003

Hole : 718-1777
Tx Loop : 1777
File name : 1777XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000

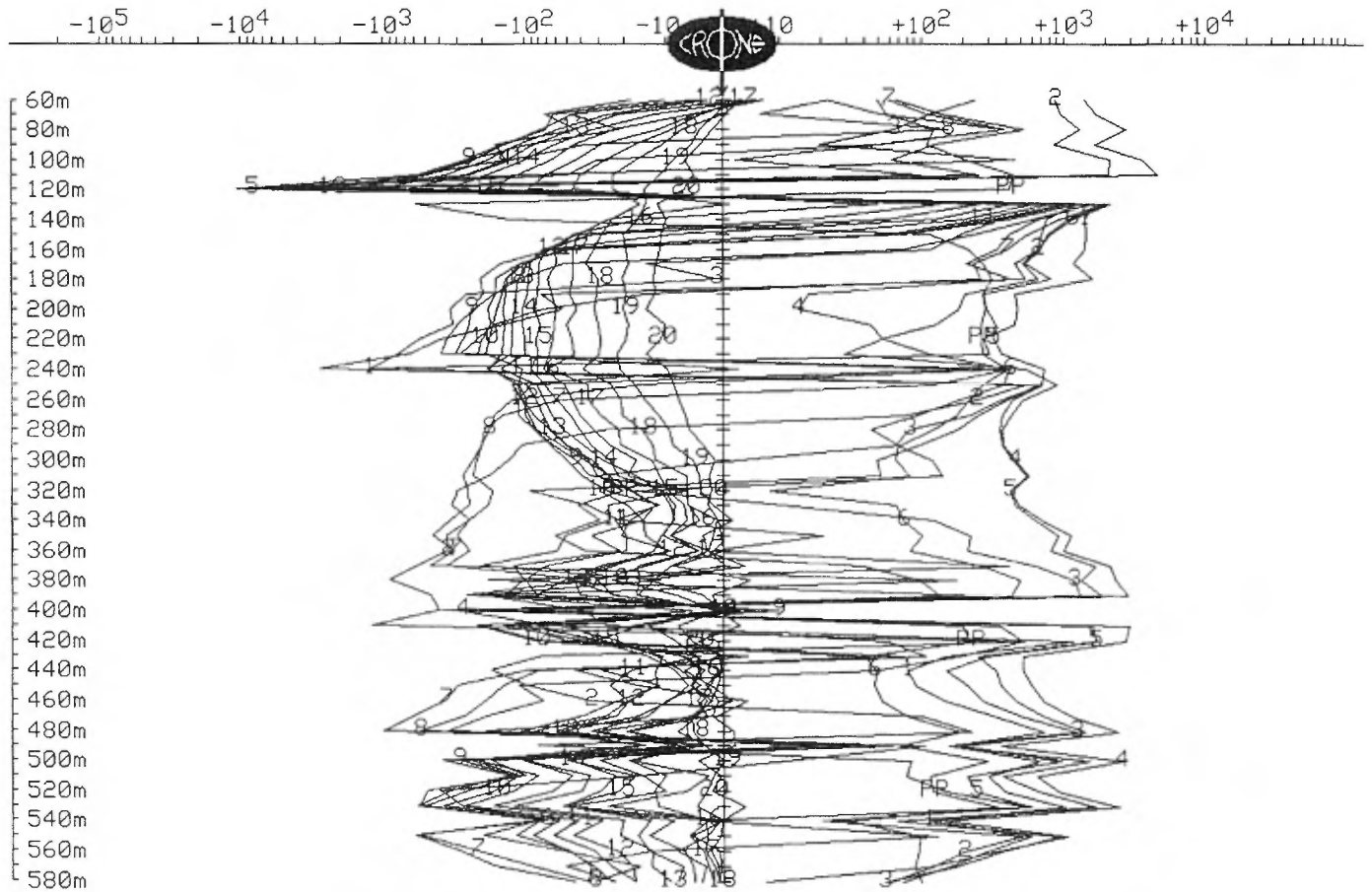


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 6, 2003

Hole : 718-1777
Tx Loop : 1777
File name : 1777XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000

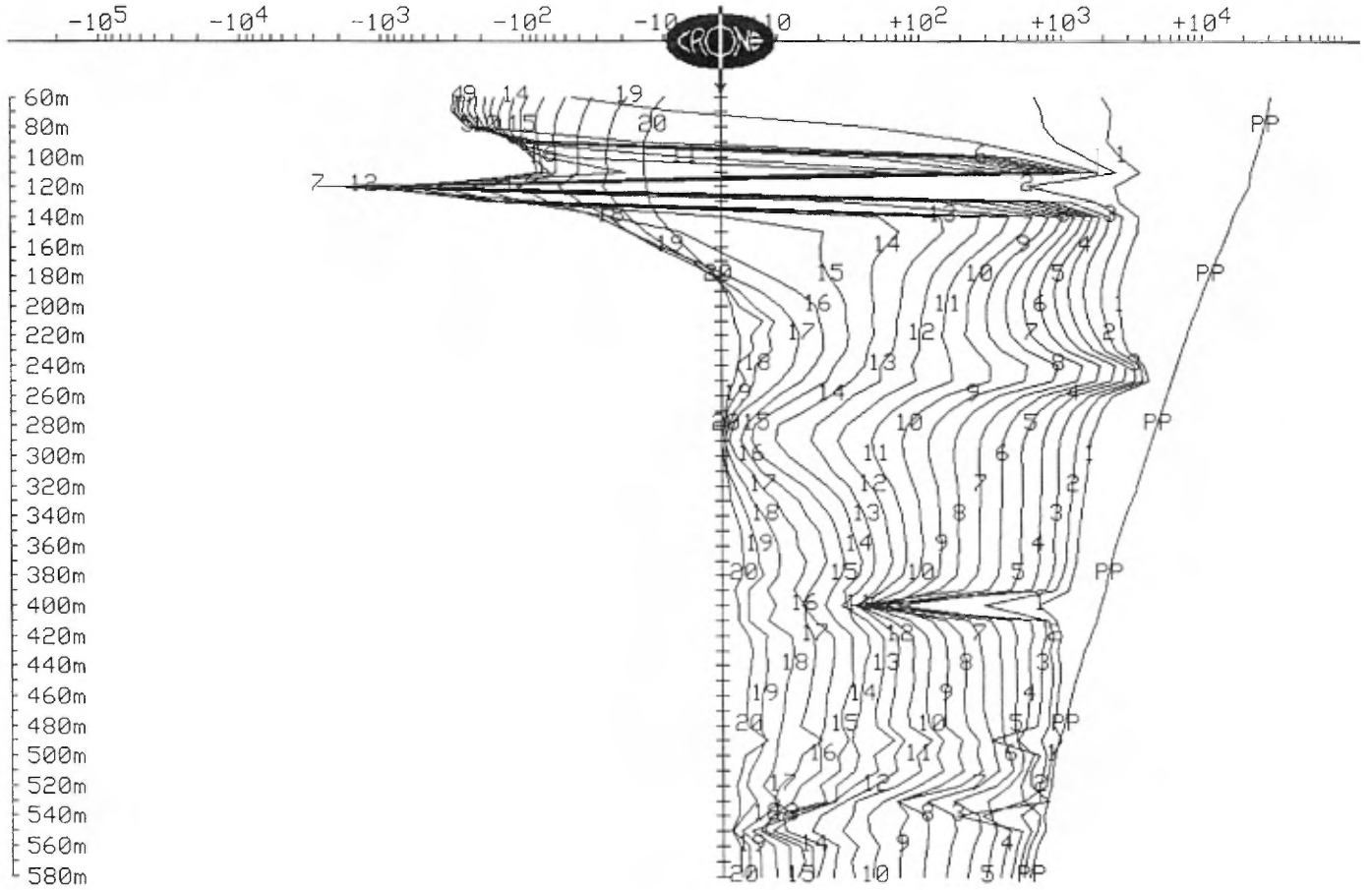


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 6, 2003

Hole : 718-1777
Tx Loop : 1777
File name : 1777Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000



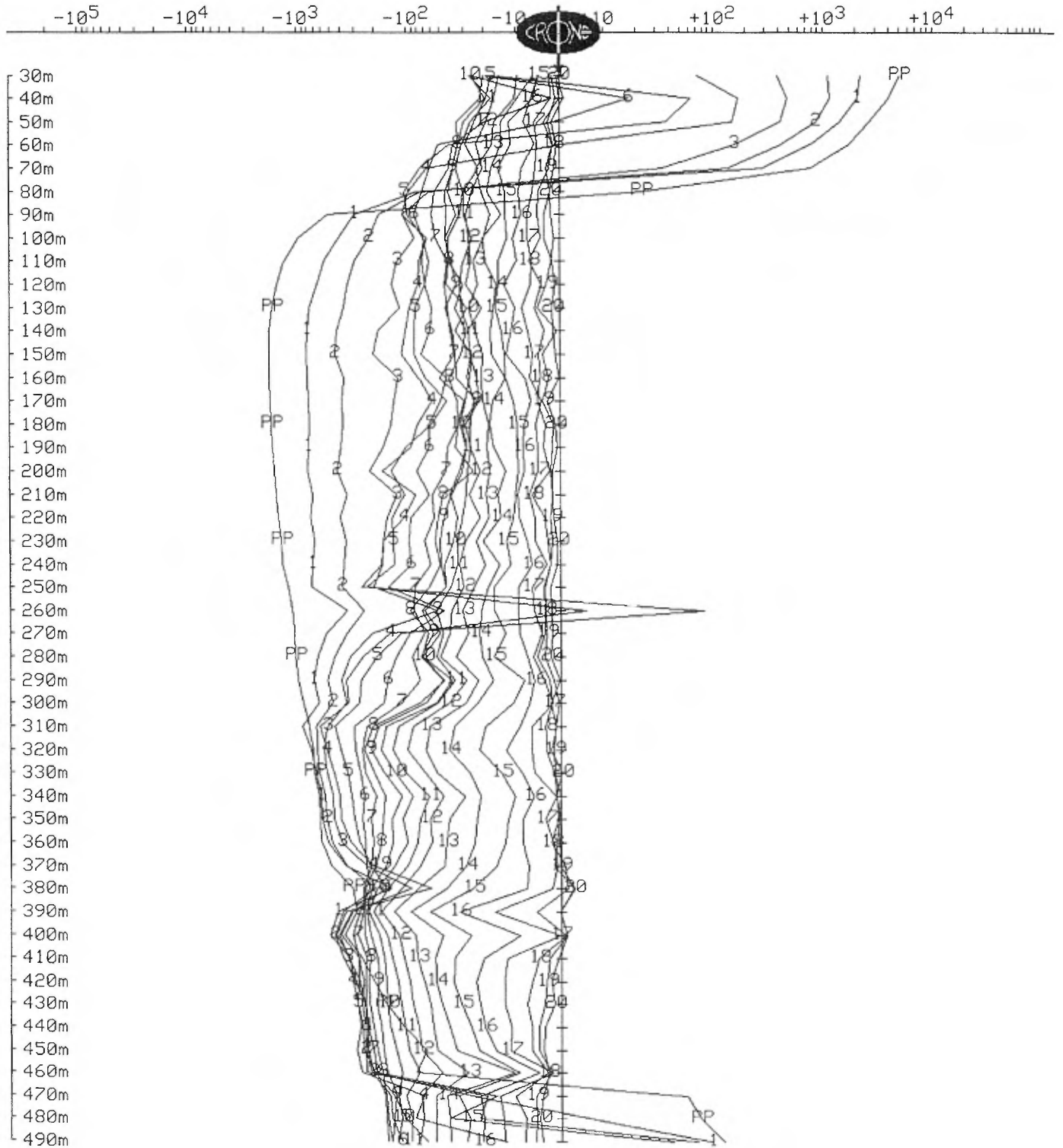
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 13, 2003

Hole : 718-1778
Tx Loop : 1778
File name : 1778XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

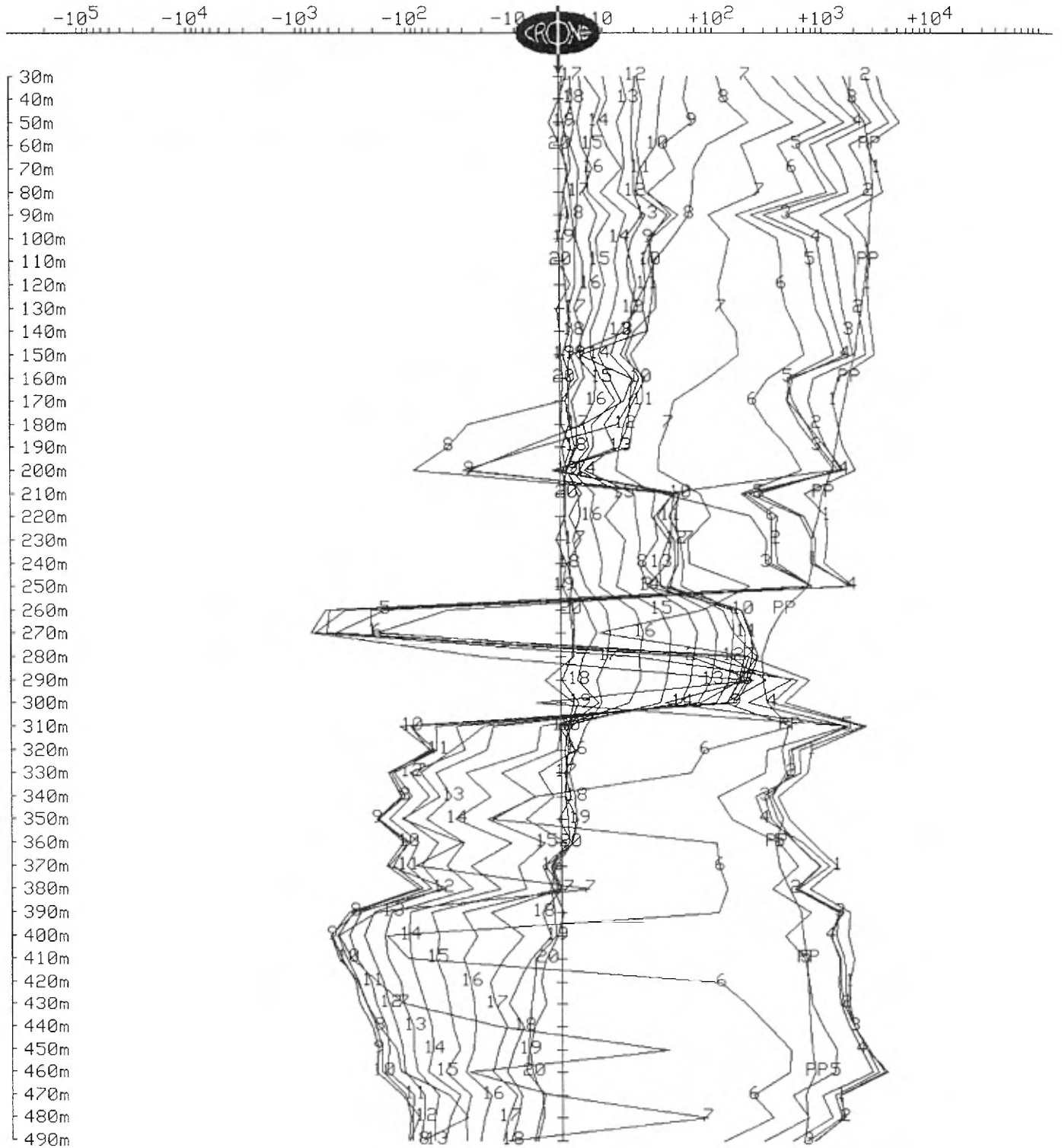


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 13, 2003

Hole : 718-1778
Tx Loop : 1778
File name : 1778XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

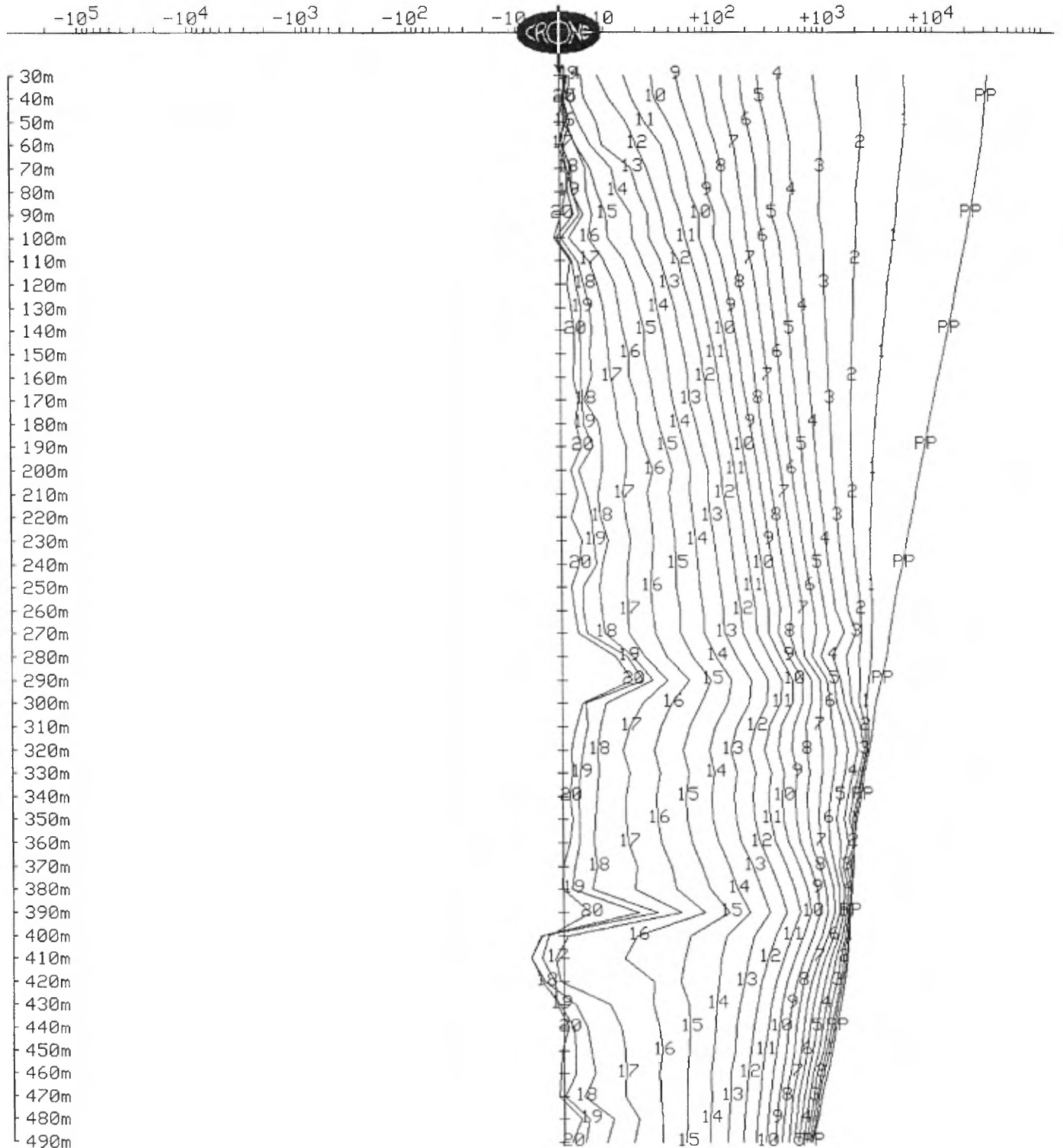


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 13, 2003

Hole : 718-1778
Tx Loop : 1778
File name : 1778Z.PEM

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



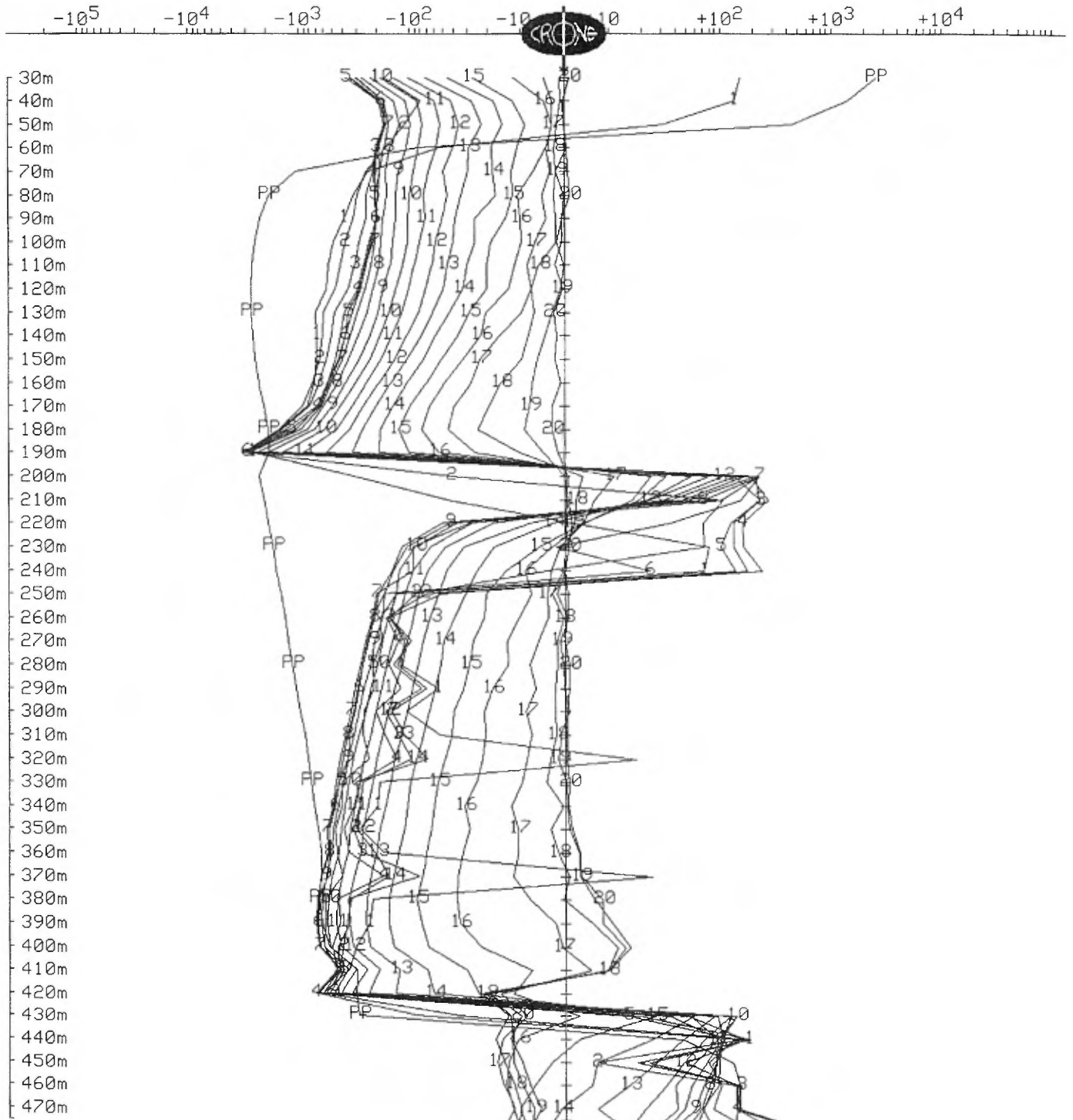
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 19, 2003

Hole : 718-1779
Tx Loop : 1779
File name : 1779XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

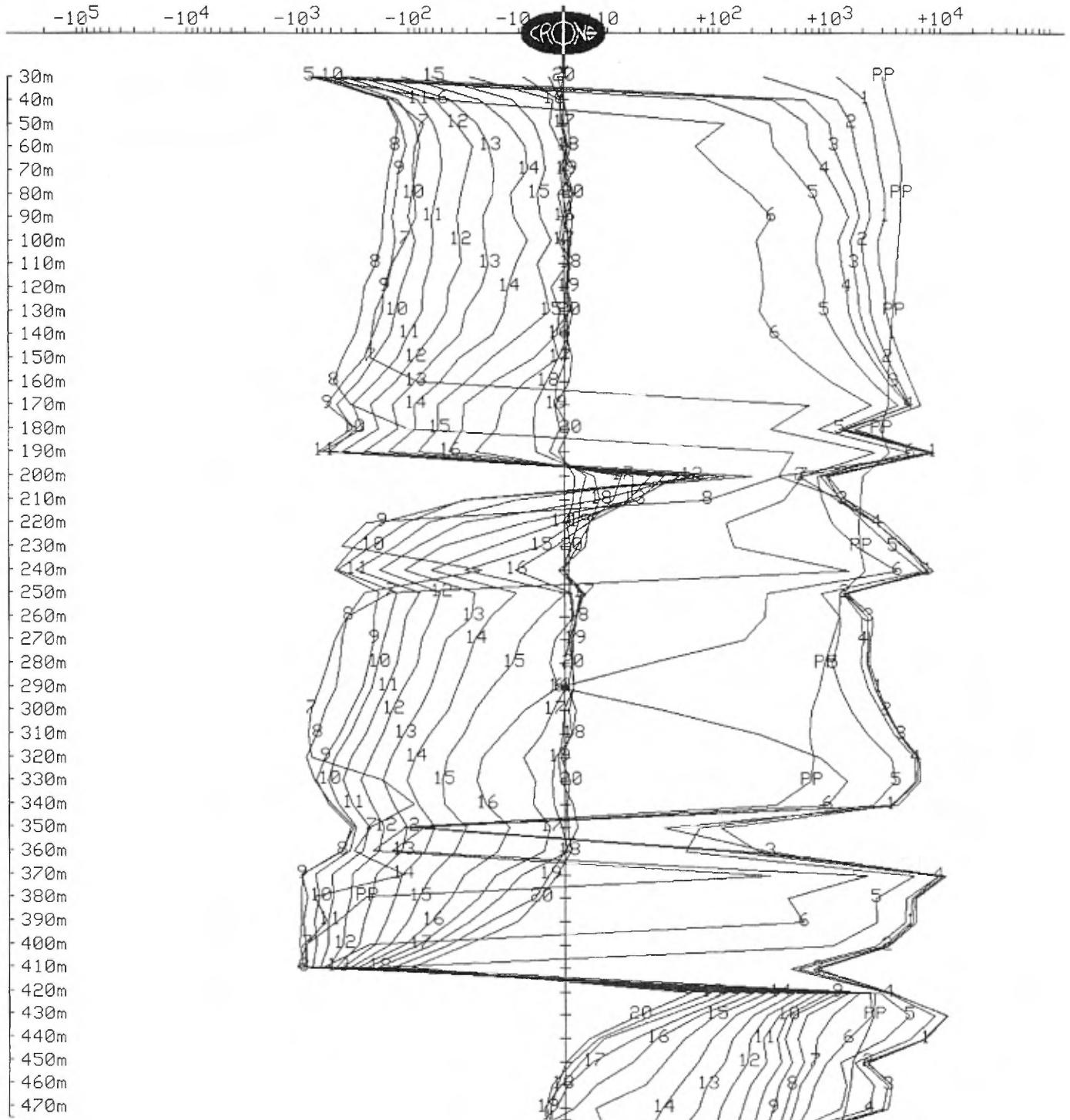


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 19, 2003

Hole : 718-1779
Tx Loop : 1779
File name : 1779XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

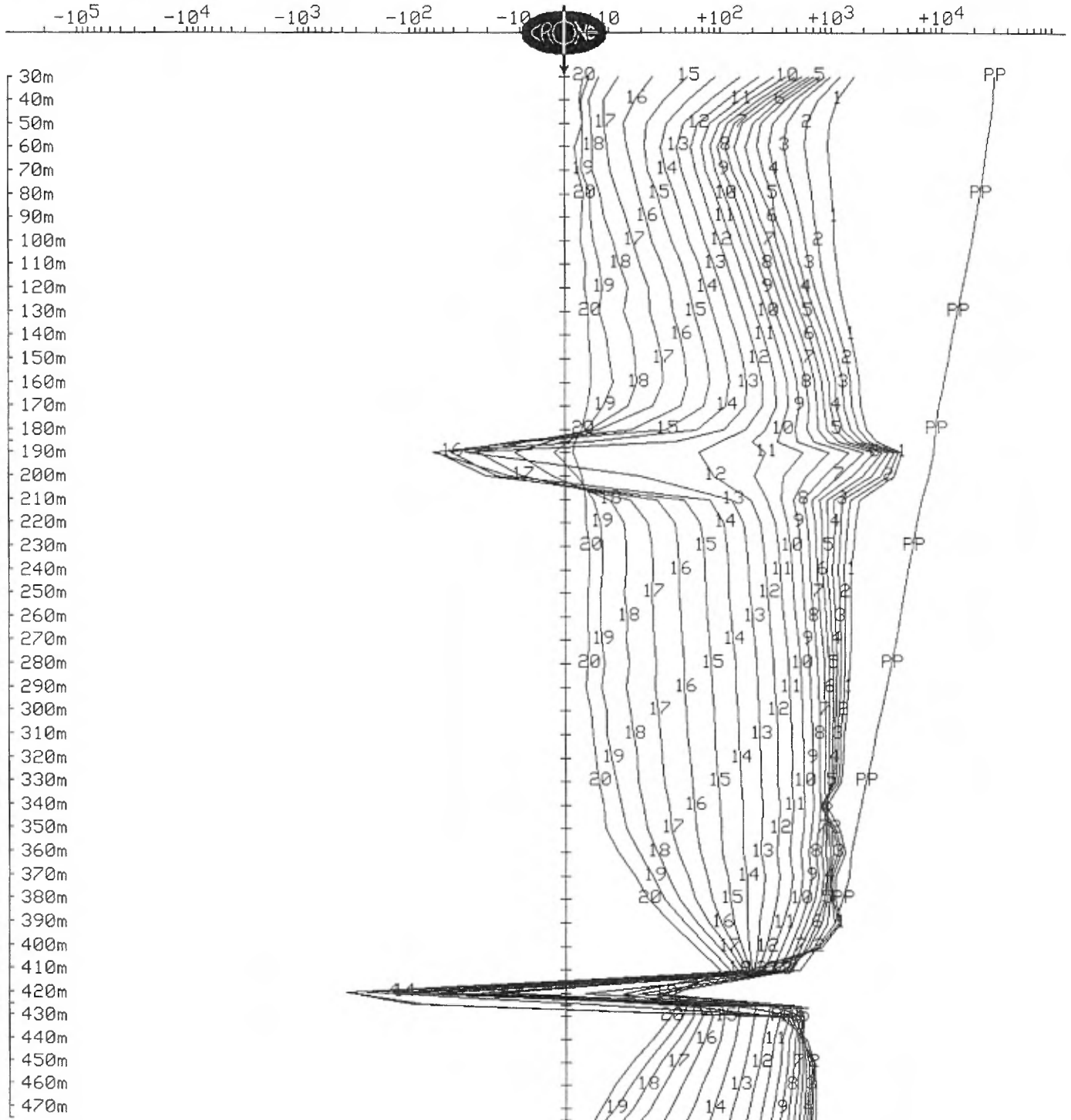


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 19, 2003

Hole : 718-1779
Tx Loop : 1779
File name : 1779Z.PEM

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

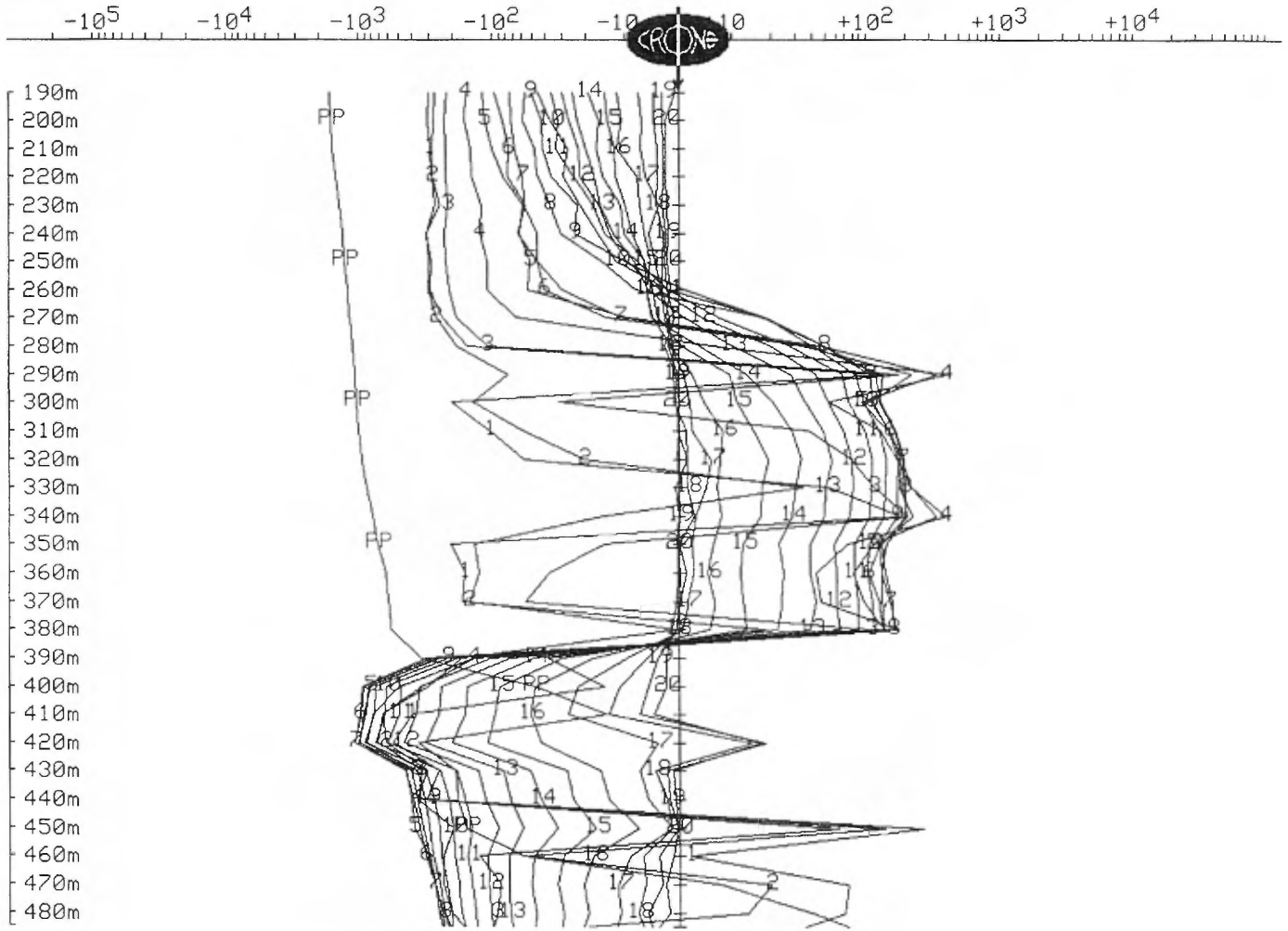


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 26, 2003

Hole : 718-1780
Tx Loop : 1780
File name : 1780XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

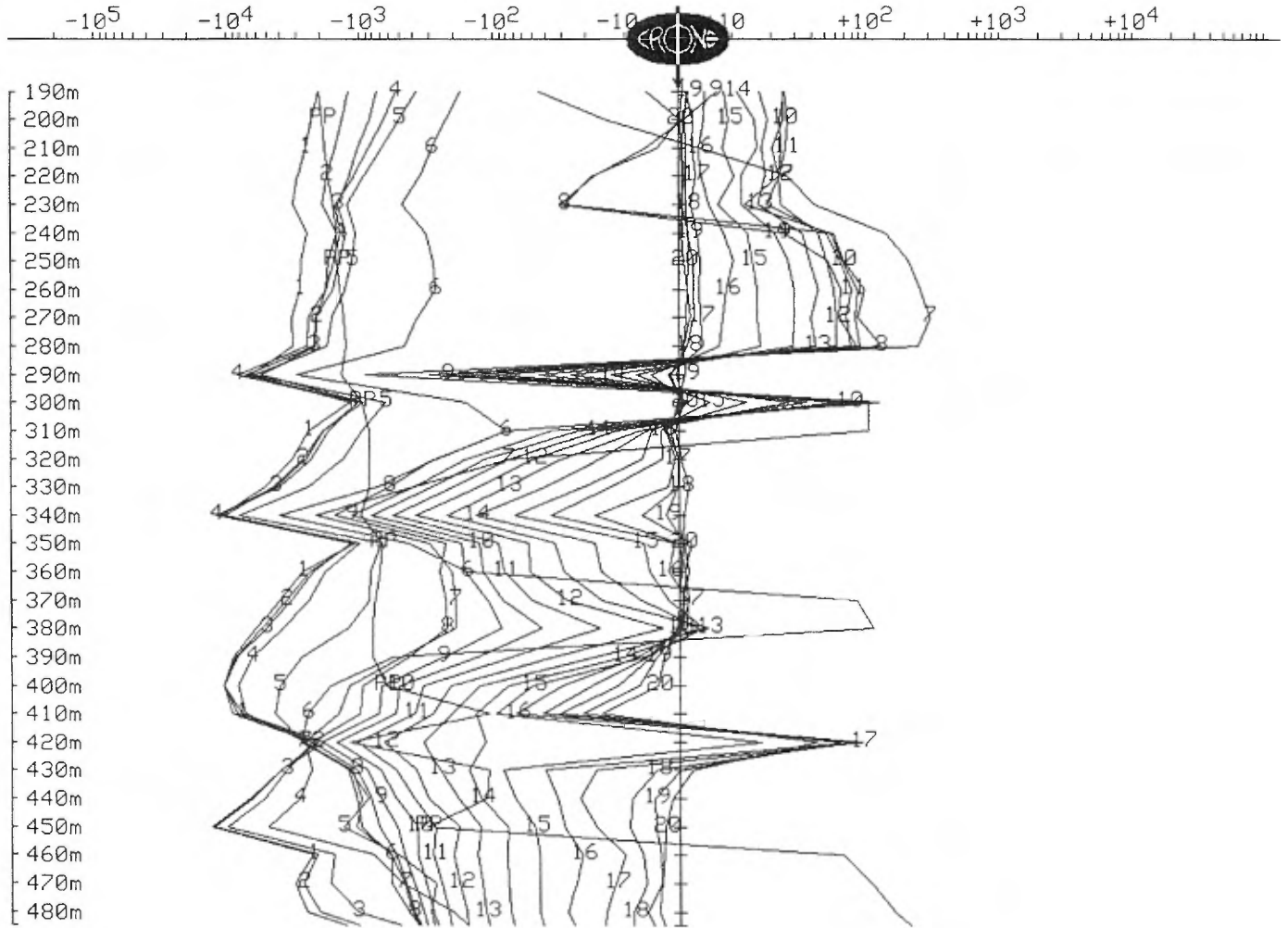


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 26, 2003

Hole : 718-1780
Tx Loop : 1780
File name : 1780XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500



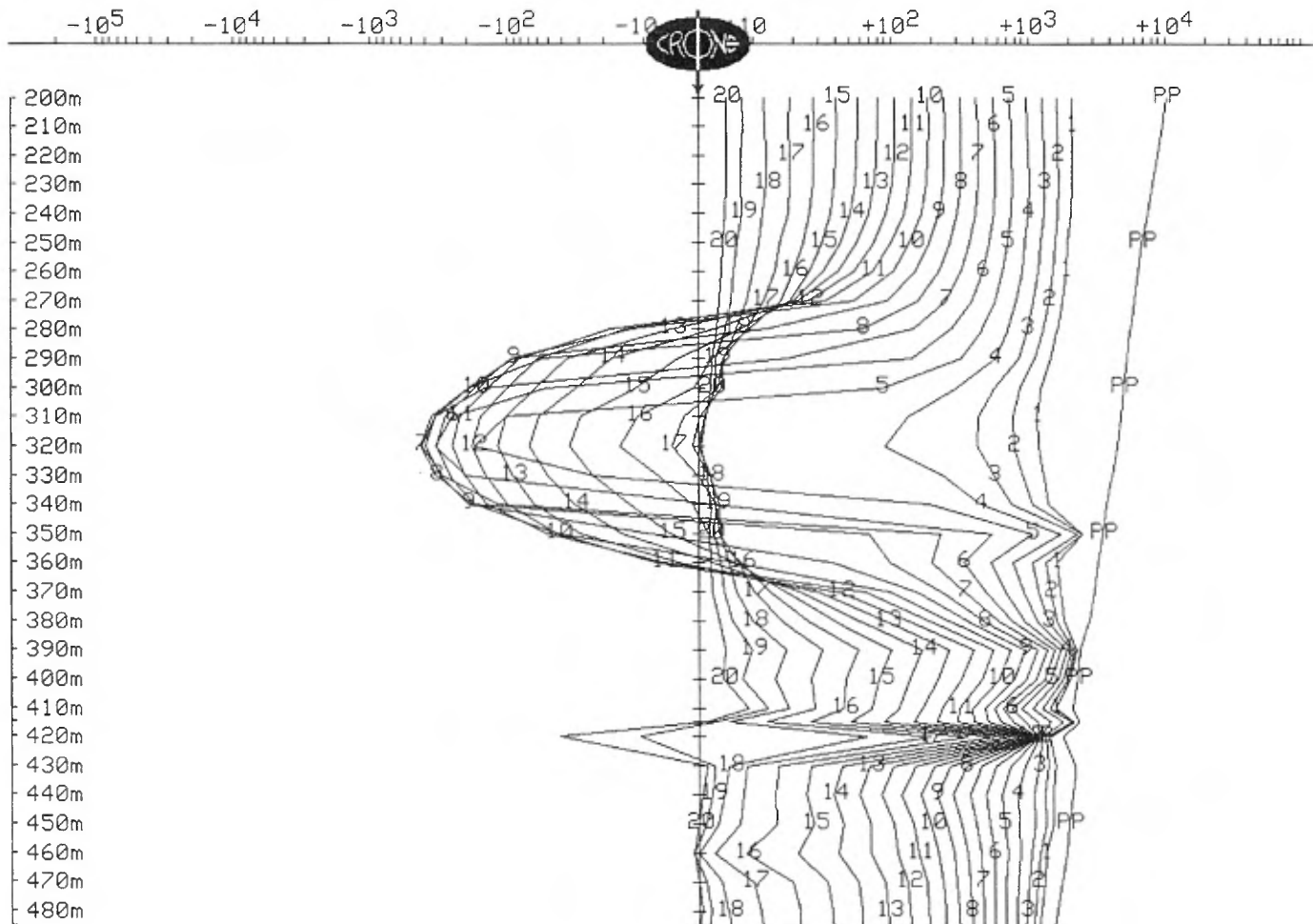
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 26, 2003

Hole : 718-1780
Tx Loop : 1780
File name : 1280Z.PEM

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



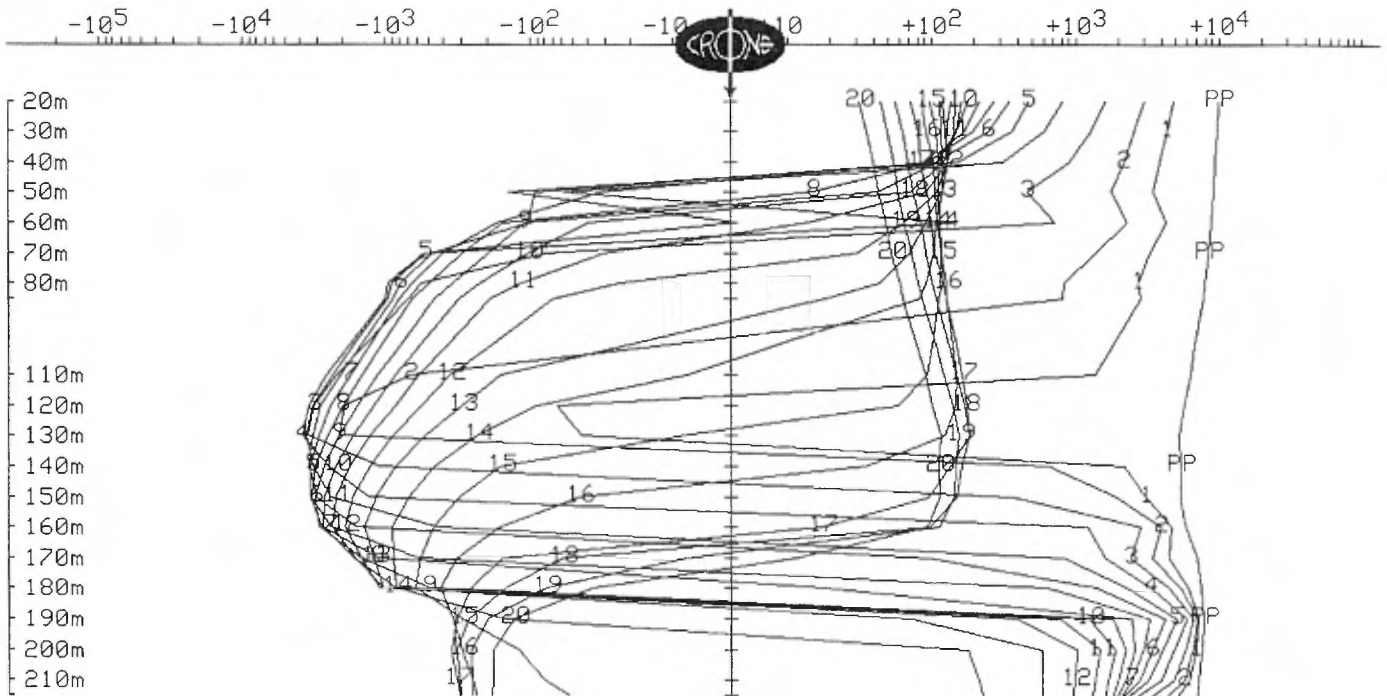
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 5, 2003

Hole : 718-1791
Tx Loop : 1791
File name : 1791XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

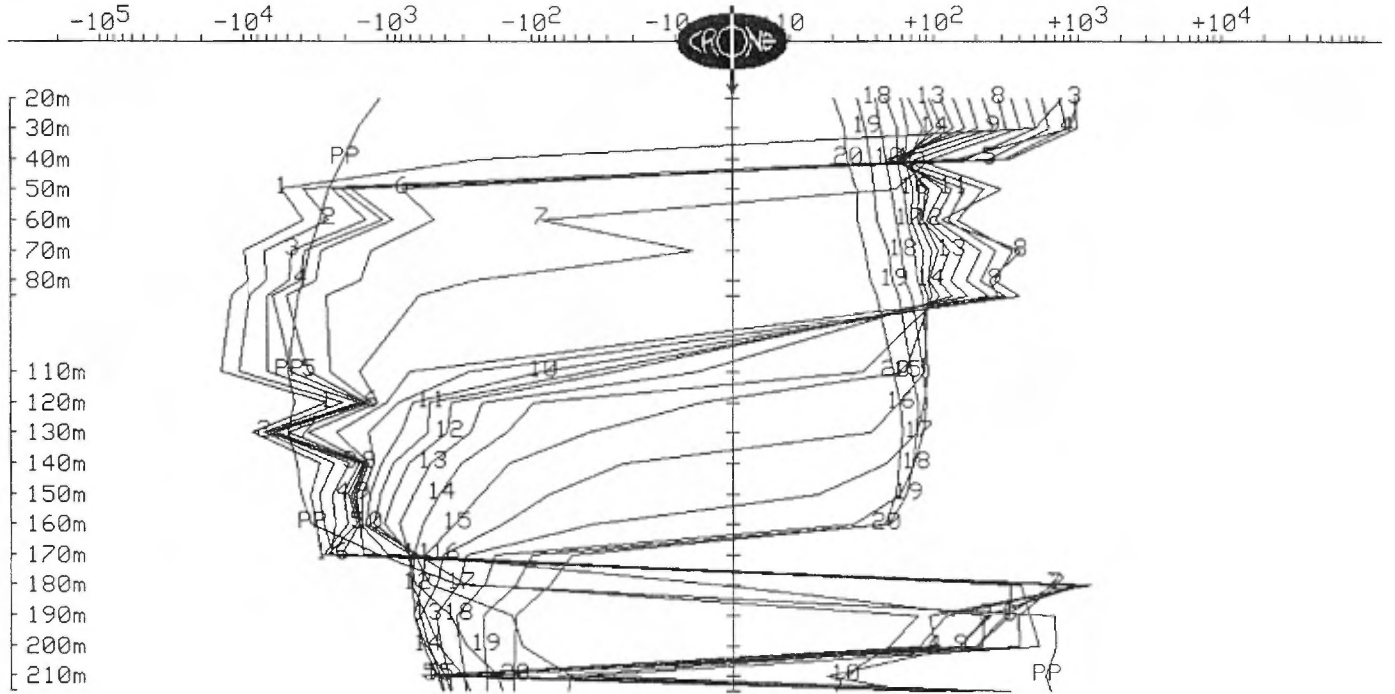


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 5, 2003

Hole : 718-1791
Tx Loop : 1791
File name : 1791XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

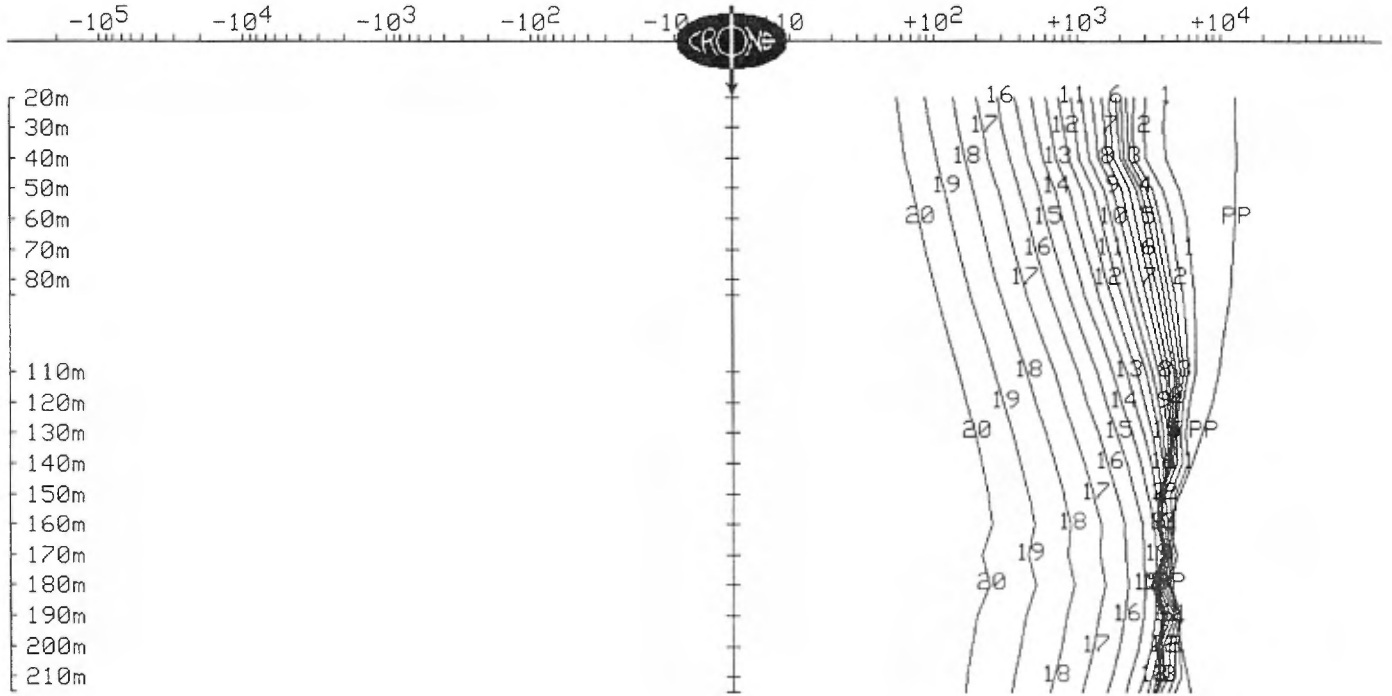


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 5, 2003

Hole : 718-1791
Tx Loop : 1791
File name : 1791Z.PEM

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



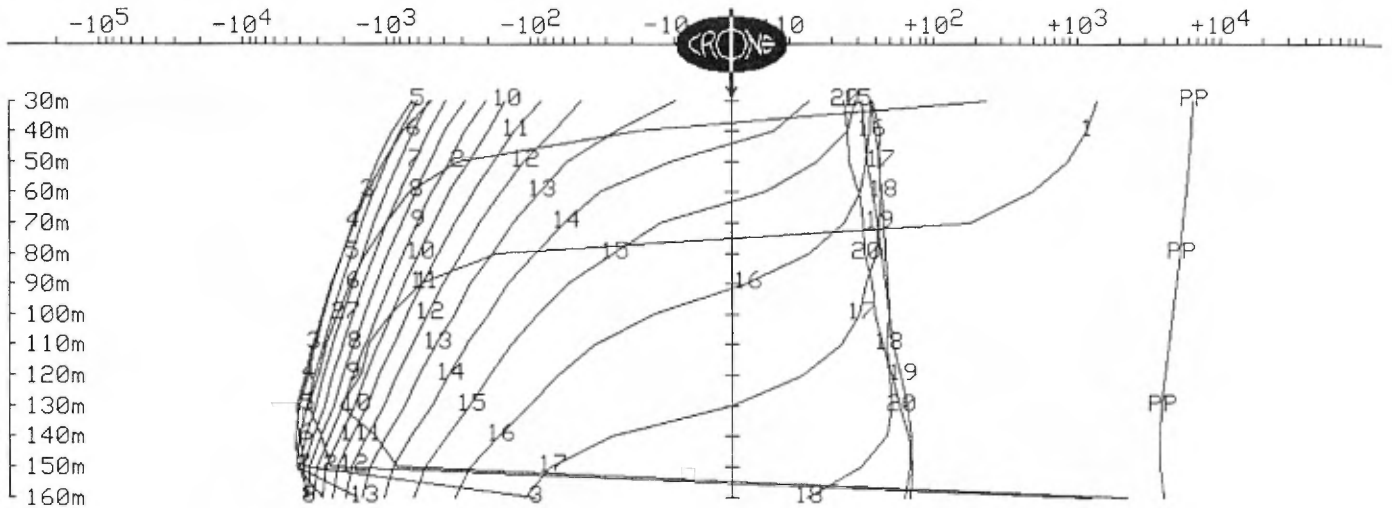
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 7, 2003

Hole : 718-1792XY
Tx Loop : 1792
File name : 1792XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

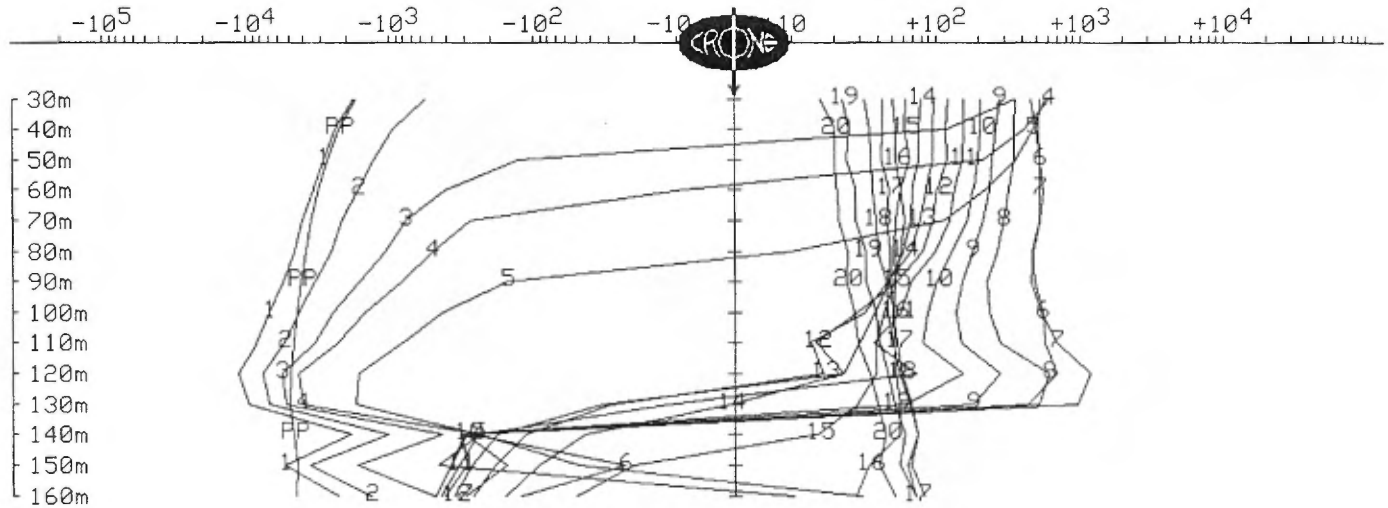


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 7, 2003

Hole : 718-1792XY
Tx Loop : 1792
File name : 1792XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500



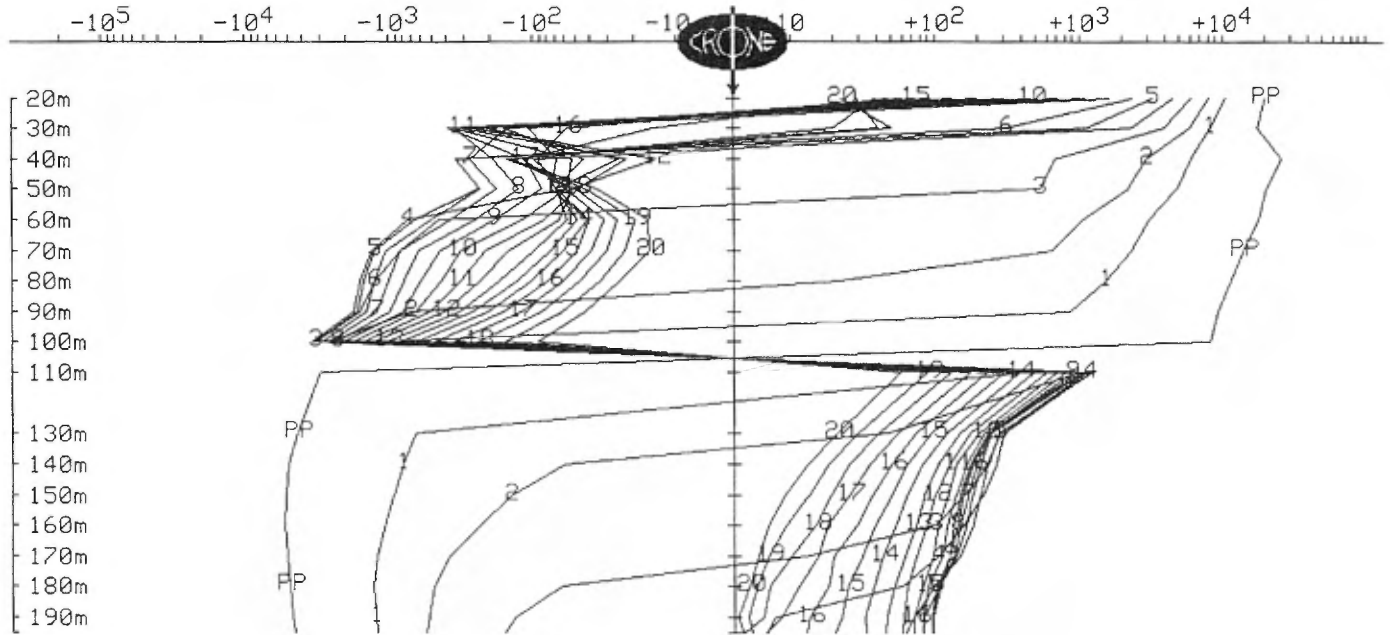
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 9, 2003

Hole : 718-1793
Tx Loop : 1793
File name : 1793XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

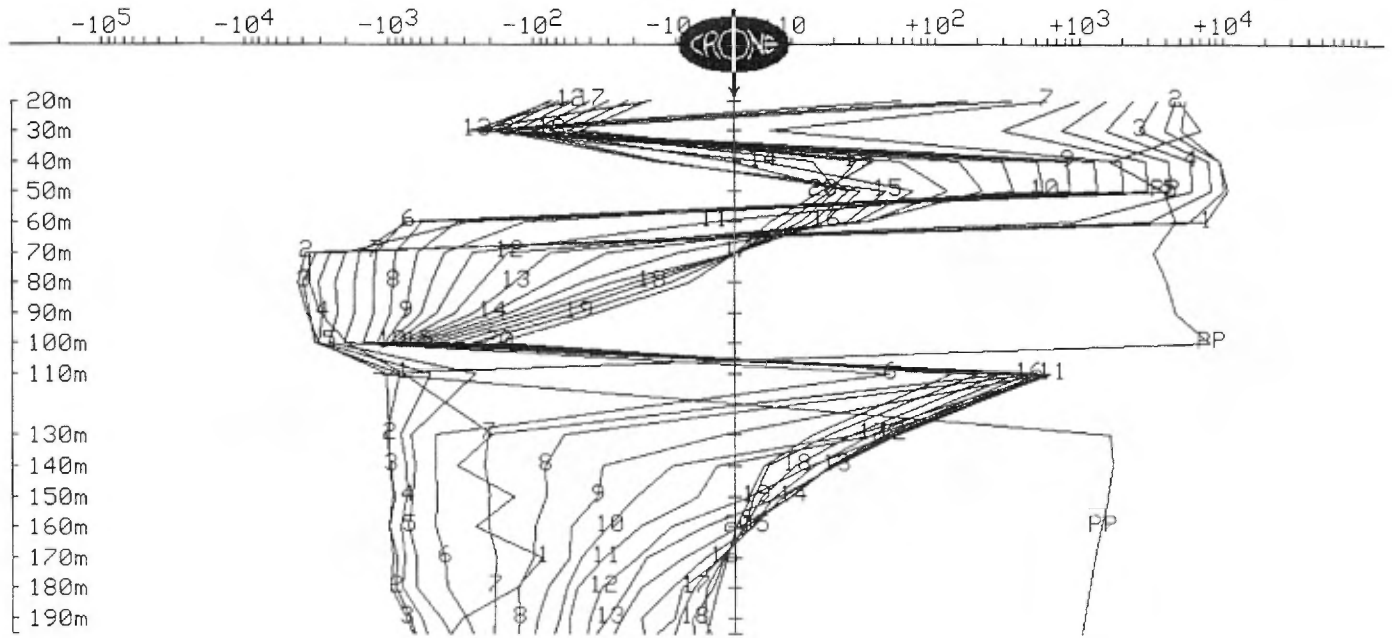


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 9, 2003

Hole : 718-1793
Tx Loop : 1793
File name : 1793XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

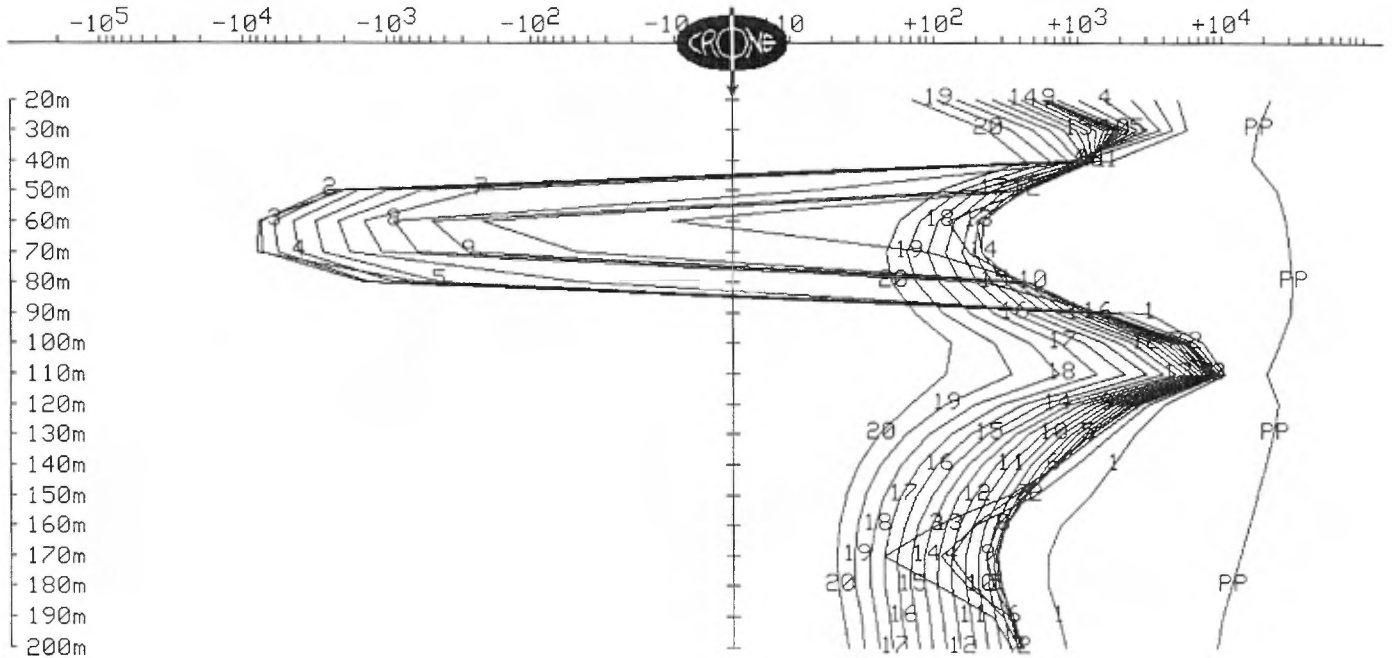


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE 2
Date : Jul 9, 2003

Hole : 718-1793
Tx Loop : 1793
File name : 1793Z.PEM

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



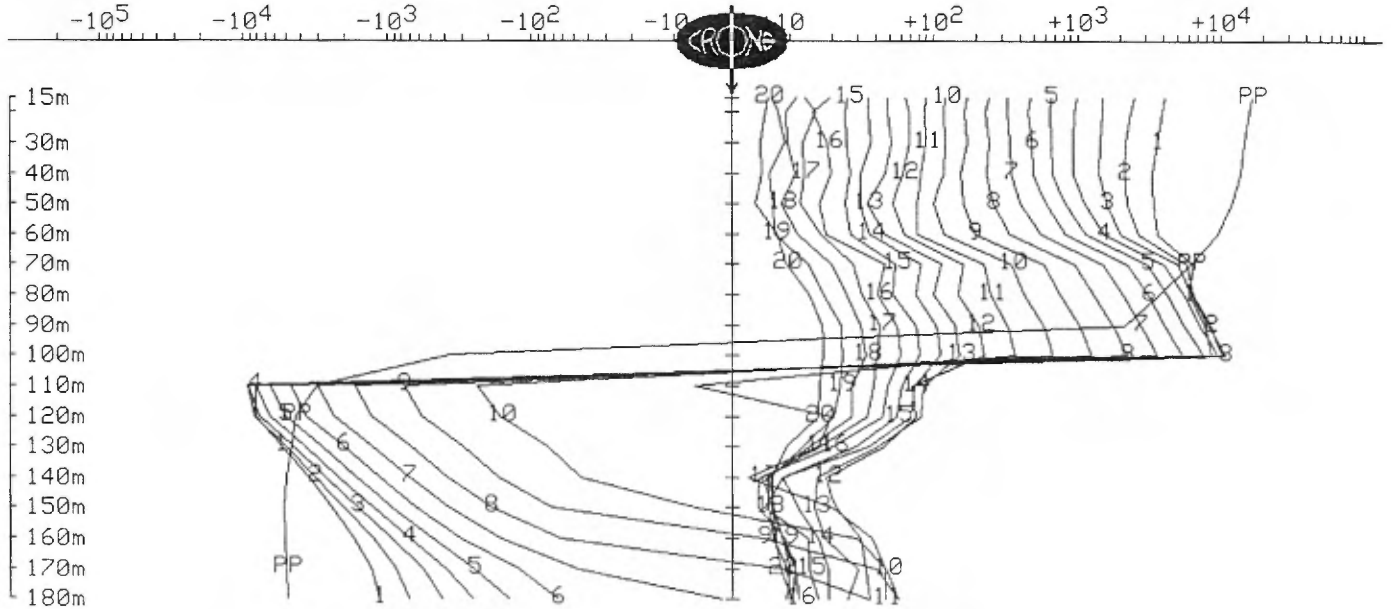
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 9, 2003

Hole : 718-1836
Tx Loop : 1836
File name : 1836XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

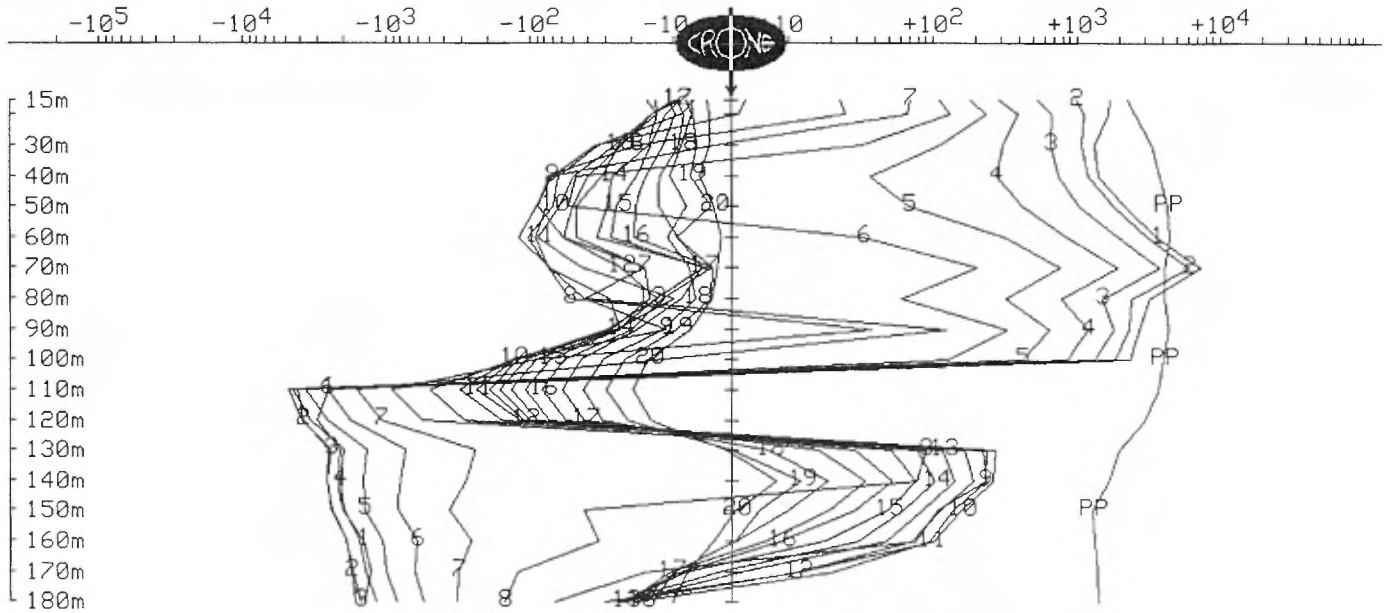


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 9, 2003

Hole : 718-1836
Tx Loop : 1836
File name : 1836XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

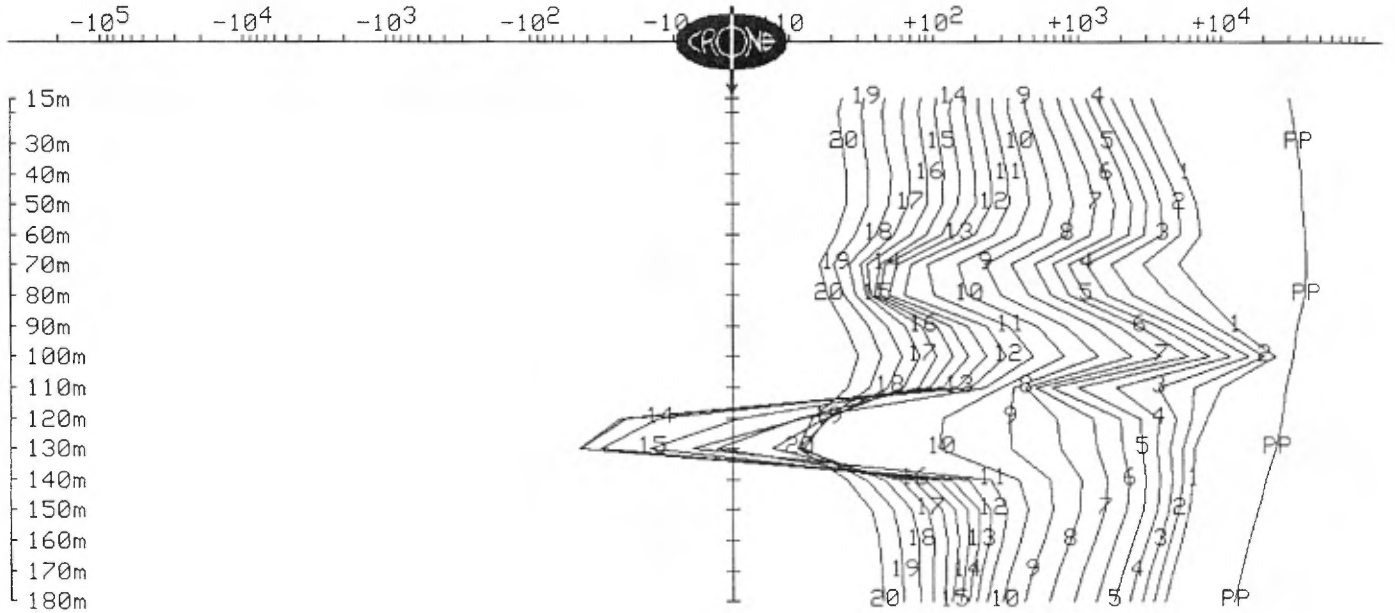


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 9, 2003

Hole : 718-1836
Tx Loop : 1836
File name : 1836Z.PEM

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



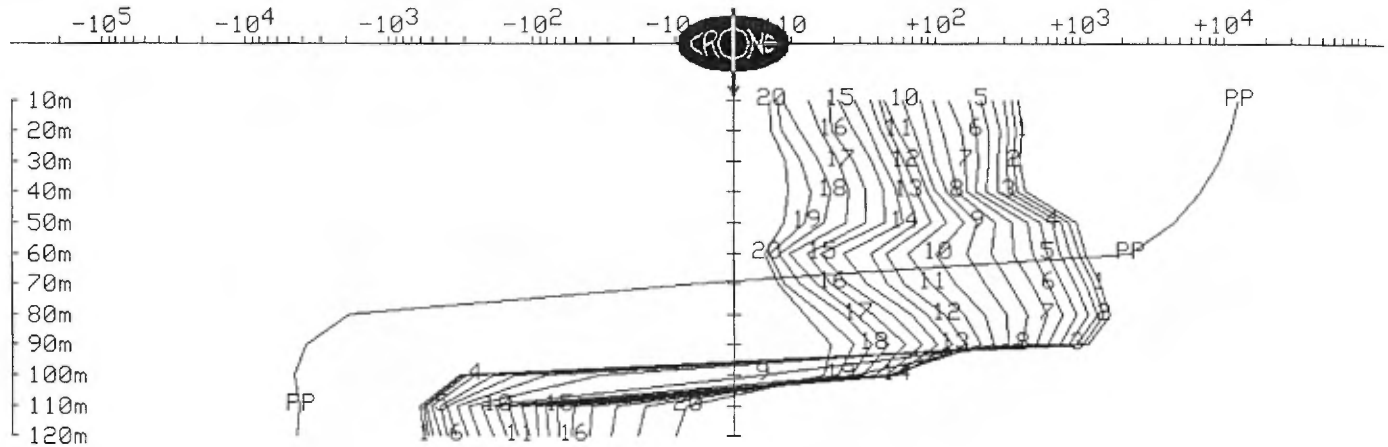
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 11, 2003

Hole : 718-1837
Tx Loop : 1836
File name : 1837XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

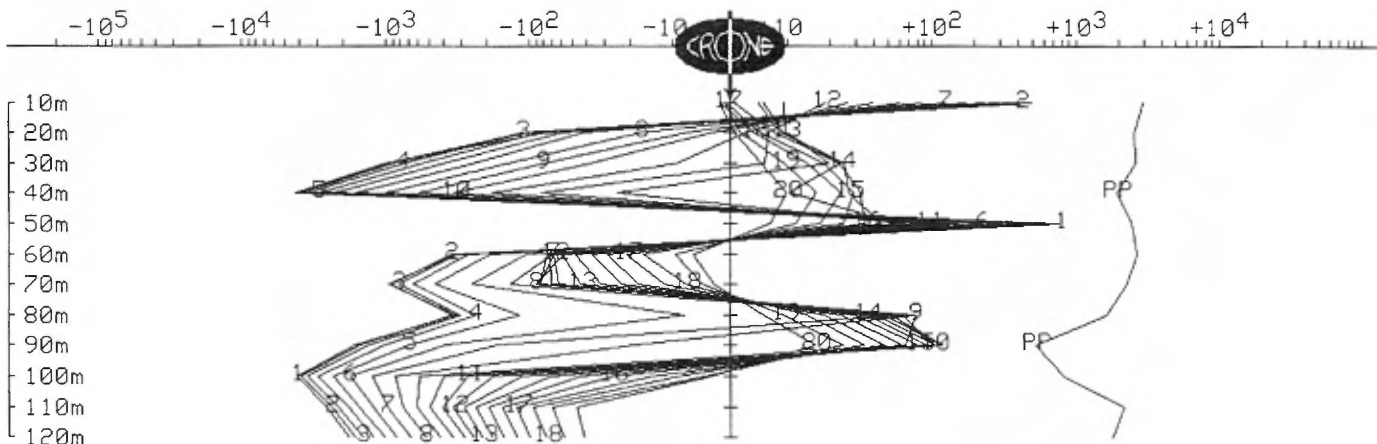


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 11, 2003

Hole : 718-1837
Tx Loop : 1836
File name : 1837XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

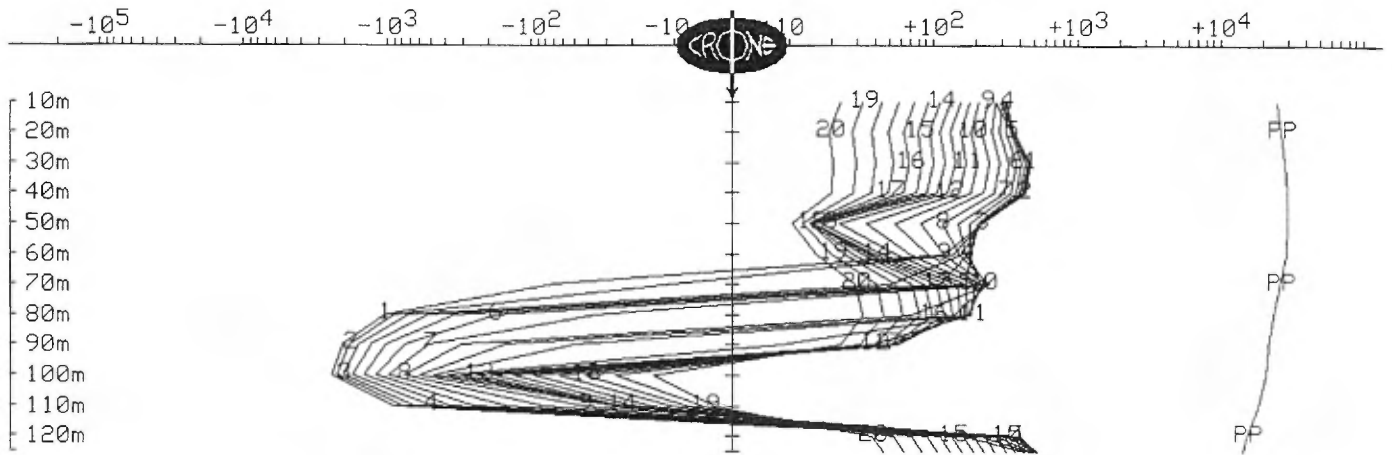


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 11, 2003

Hole : 718-1837
Tx Loop : 1836
File name : 1837Z.PEM

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



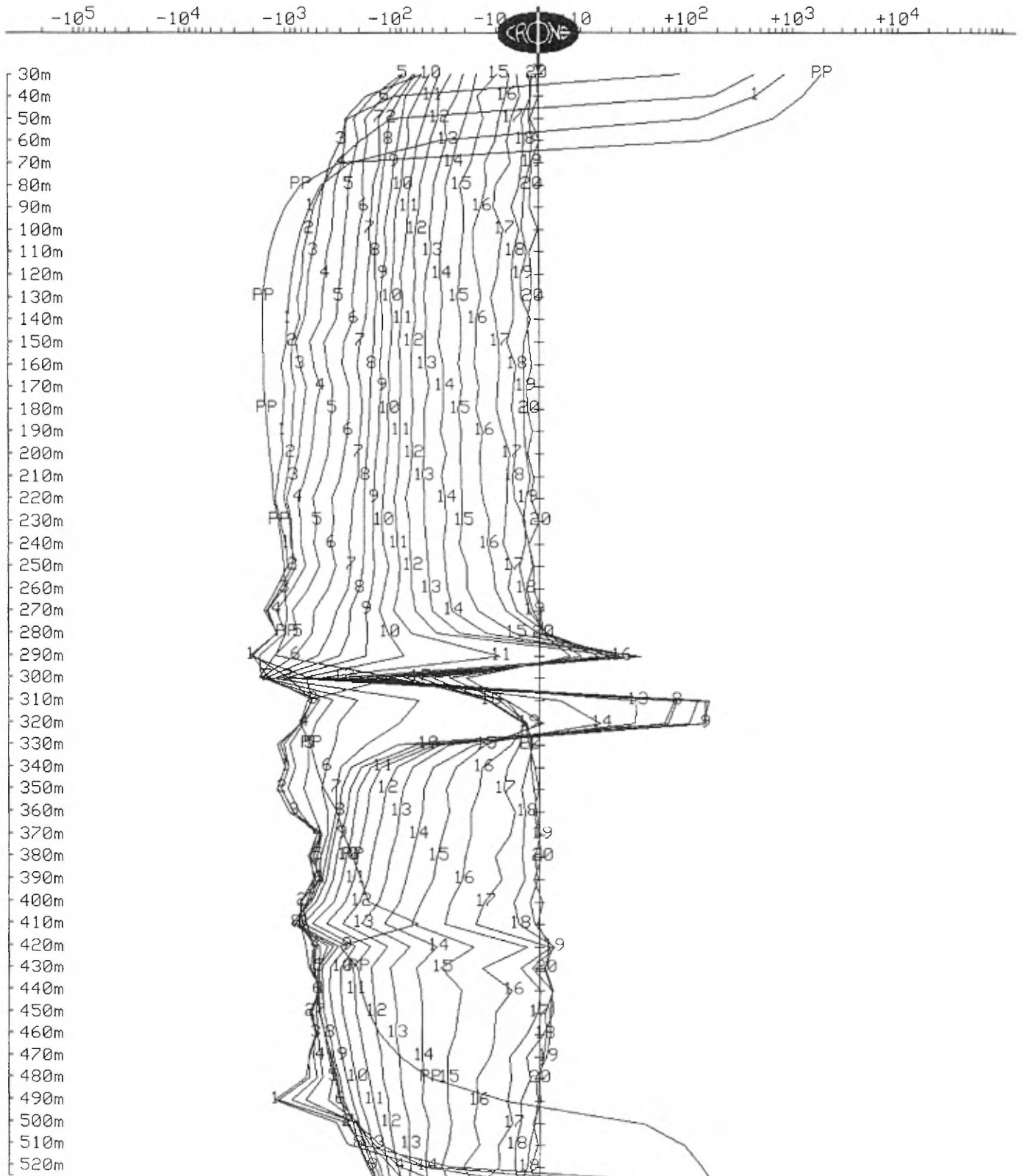
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 20, 2003

Hole : 718-1838
Tx Loop : 1838
File name : 1838XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

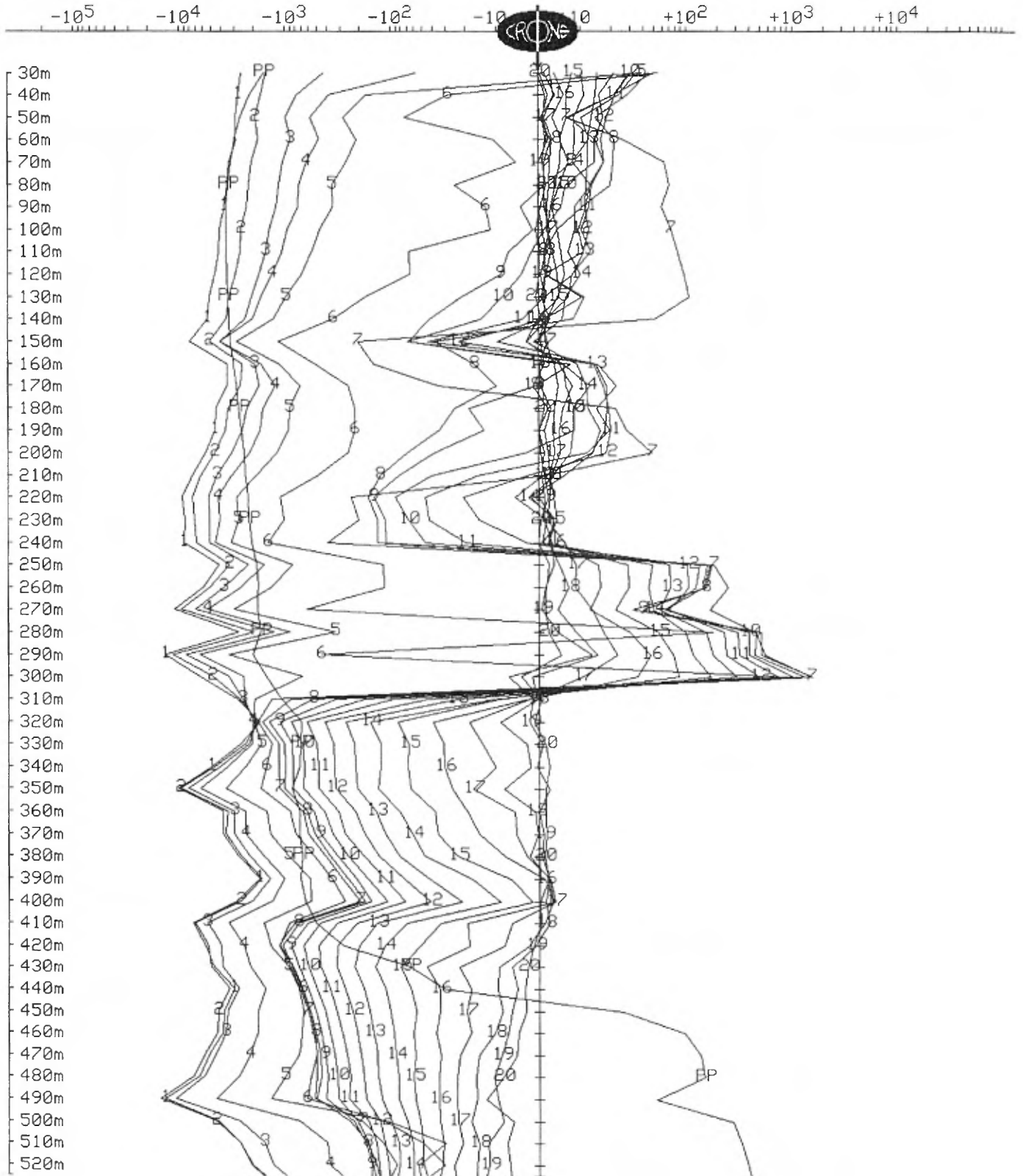


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 20, 2003

Hole : 718-1838
Tx Loop : 1838
File name : 1838XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

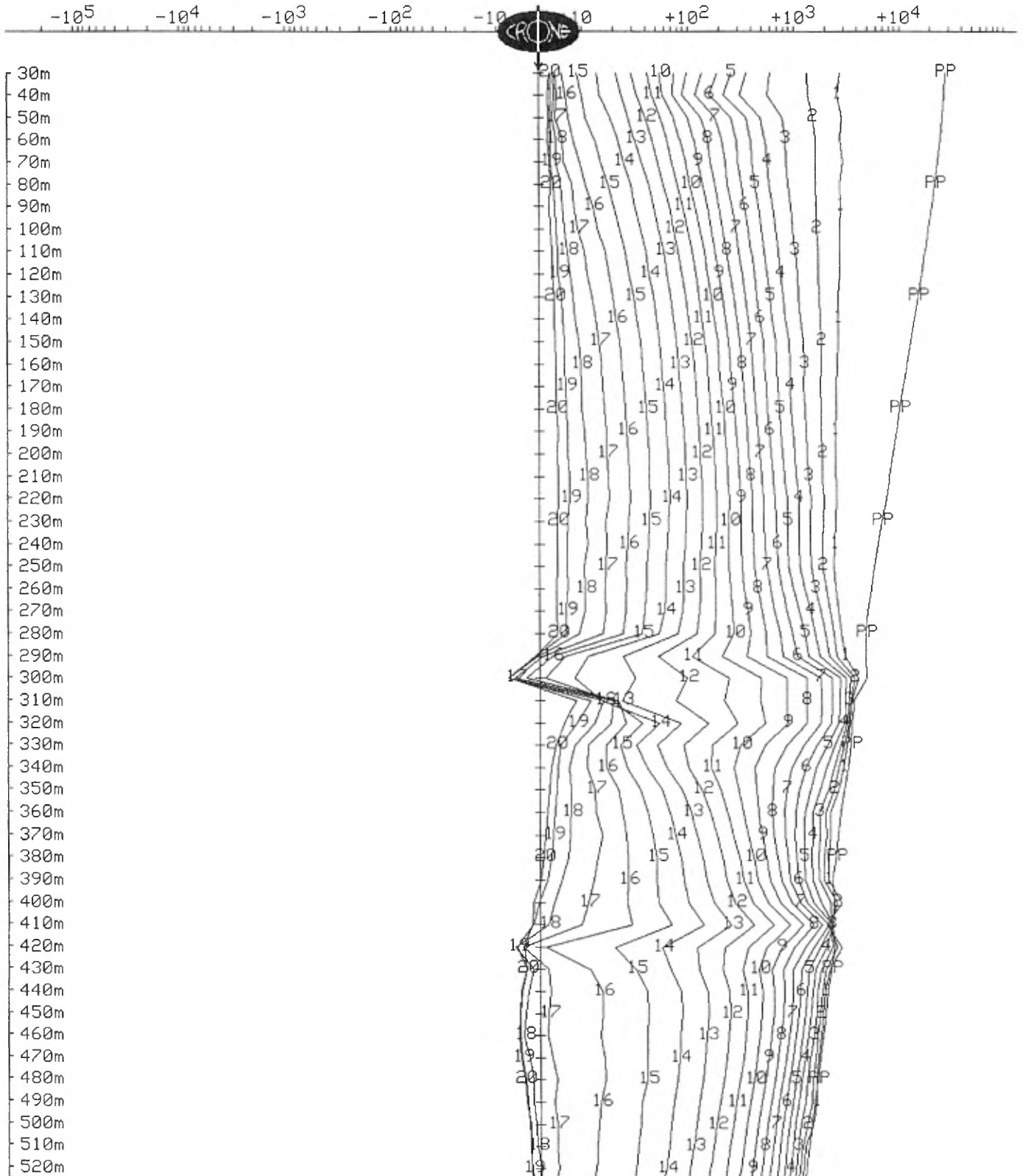


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 20, 2003

Hole : 718-1838
Tx Loop : 1838
File name : 1838Z.PEM

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



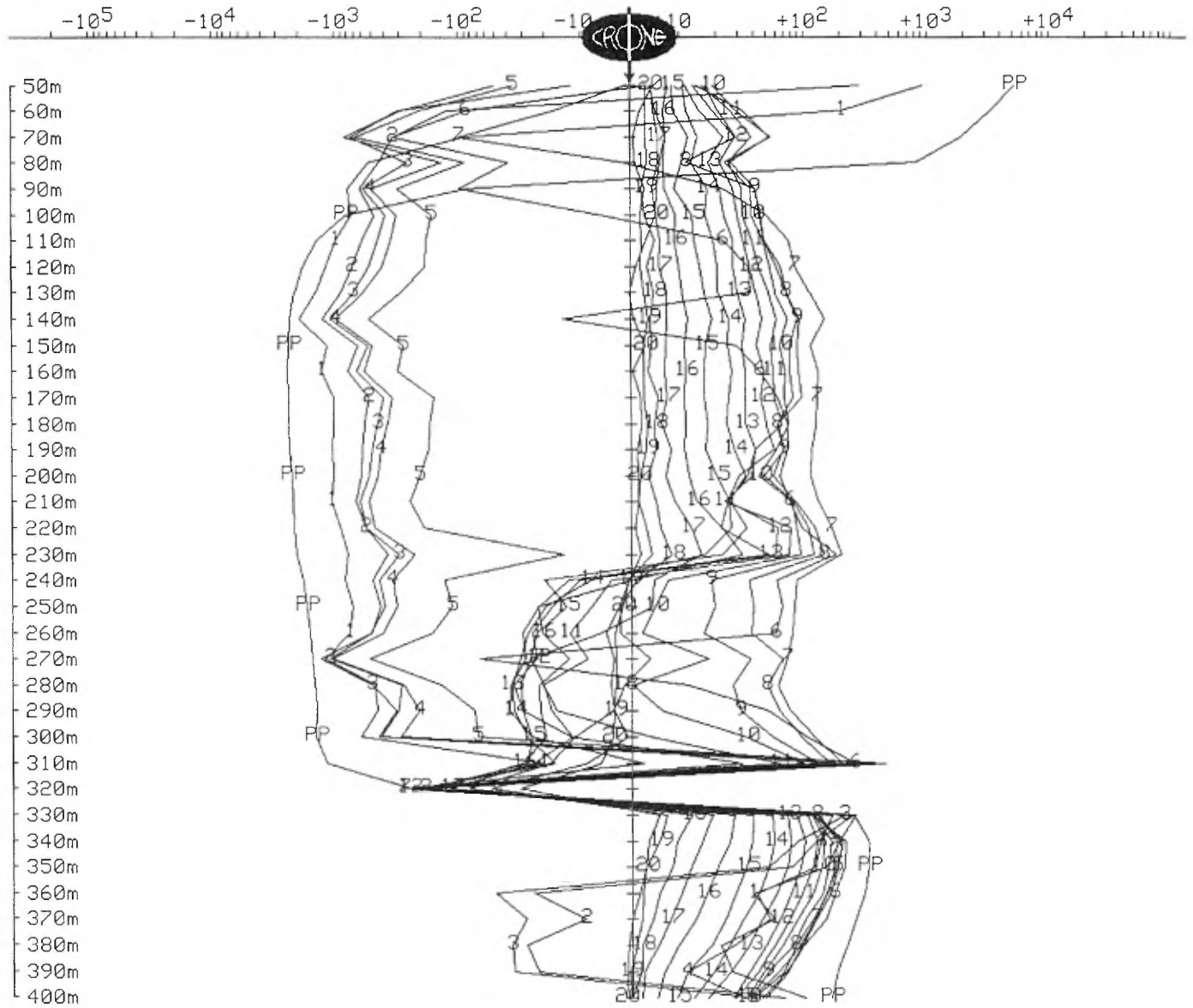
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 26, 2003

Hole : 718-1839
Tx Loop : 1839
File name : 1839XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

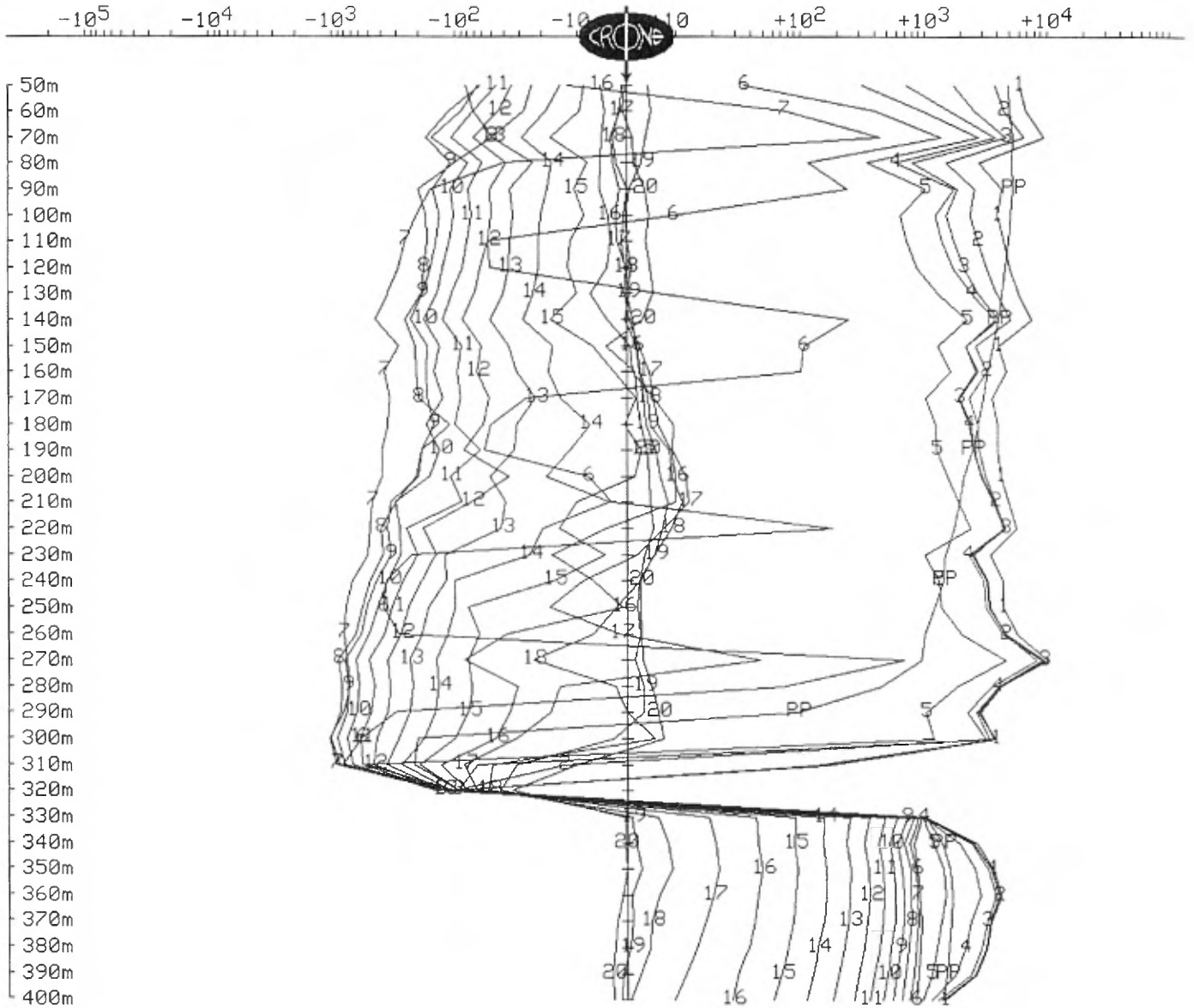


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 26, 2003

Hole : 718-1839
Tx Loop : 1839
File name : 1839XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

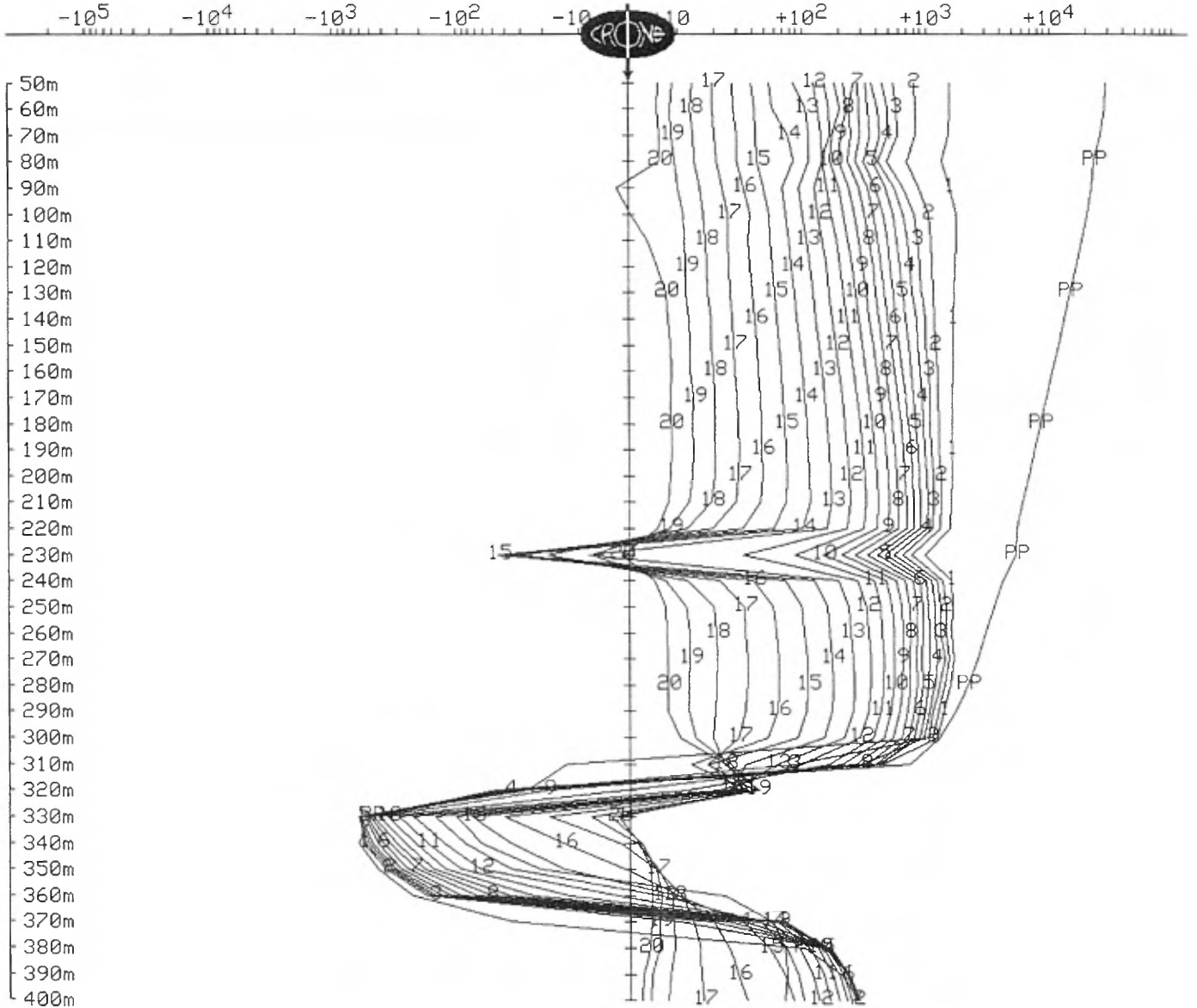


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 26, 2003

Hole : 718-1839
Tx Loop : 1839
File name : 1839Z.PEM

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



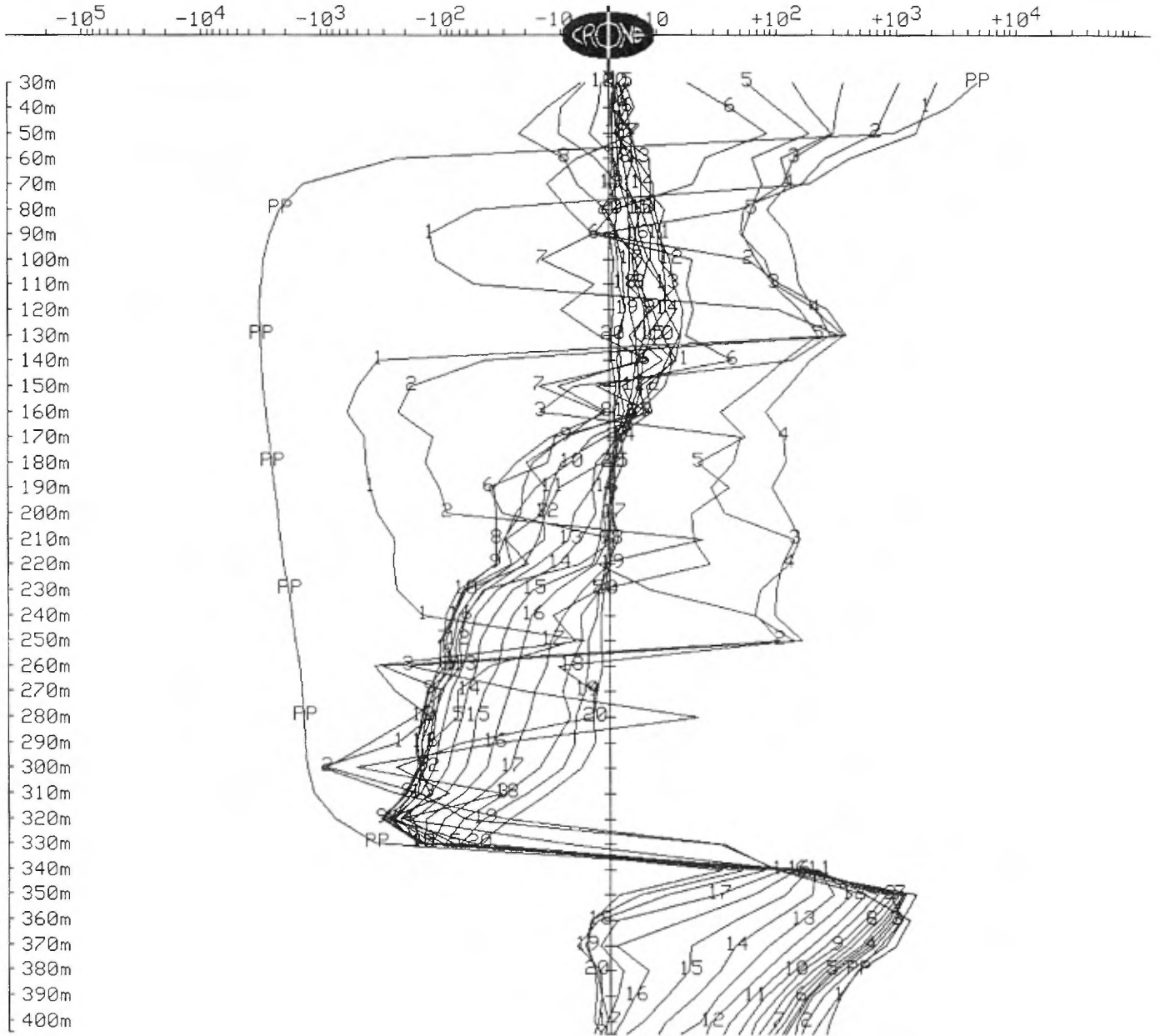
(s10H

CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE-2
Date : Jul 31, 2003

Hole : 718-1841
Tx Loop : 1841
File name : 1841XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

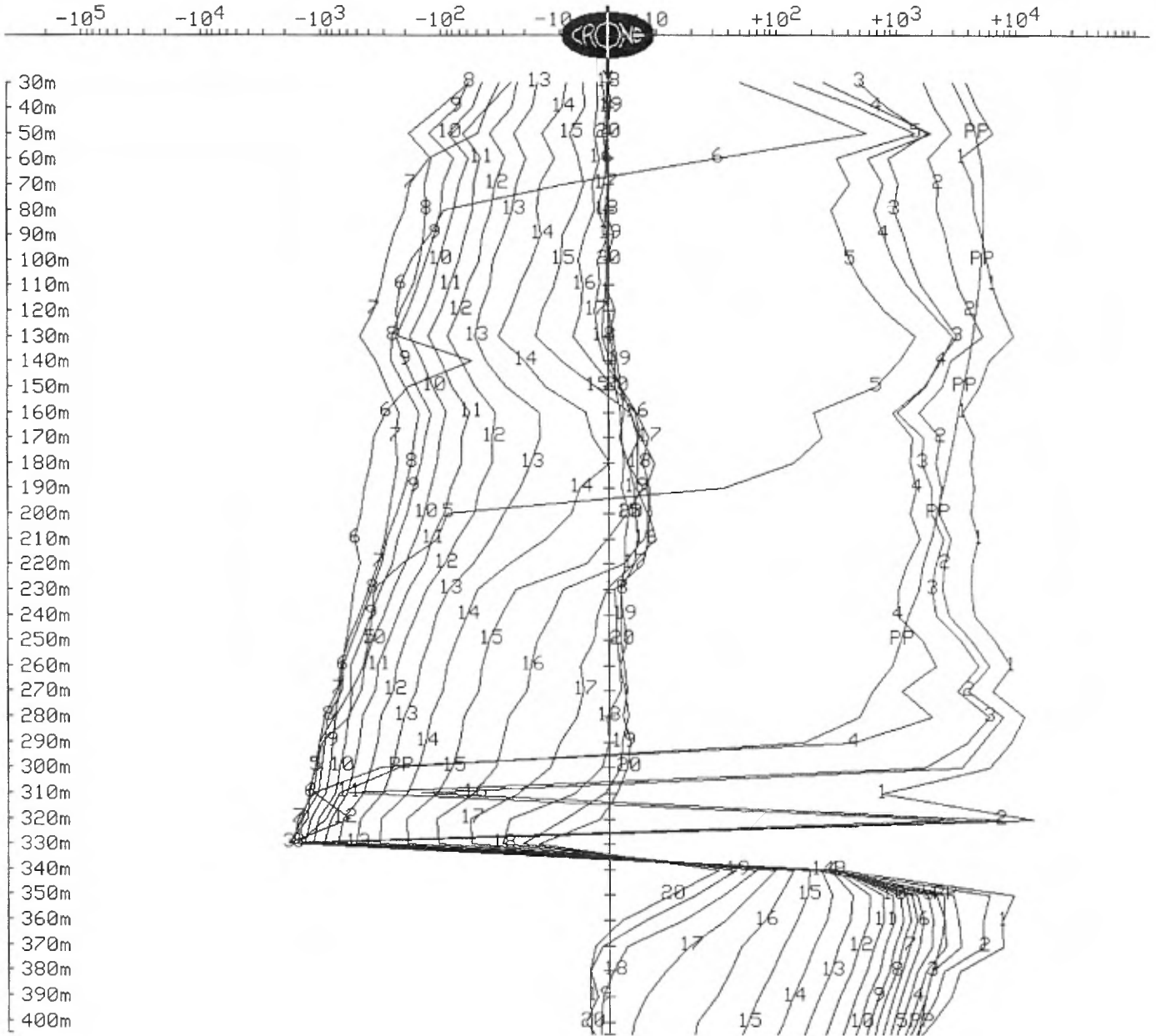


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE-2
Date : Jul 31, 2003

Hole : 718-1841
Tx Loop : 1841
File name : 1841XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #23
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:2500

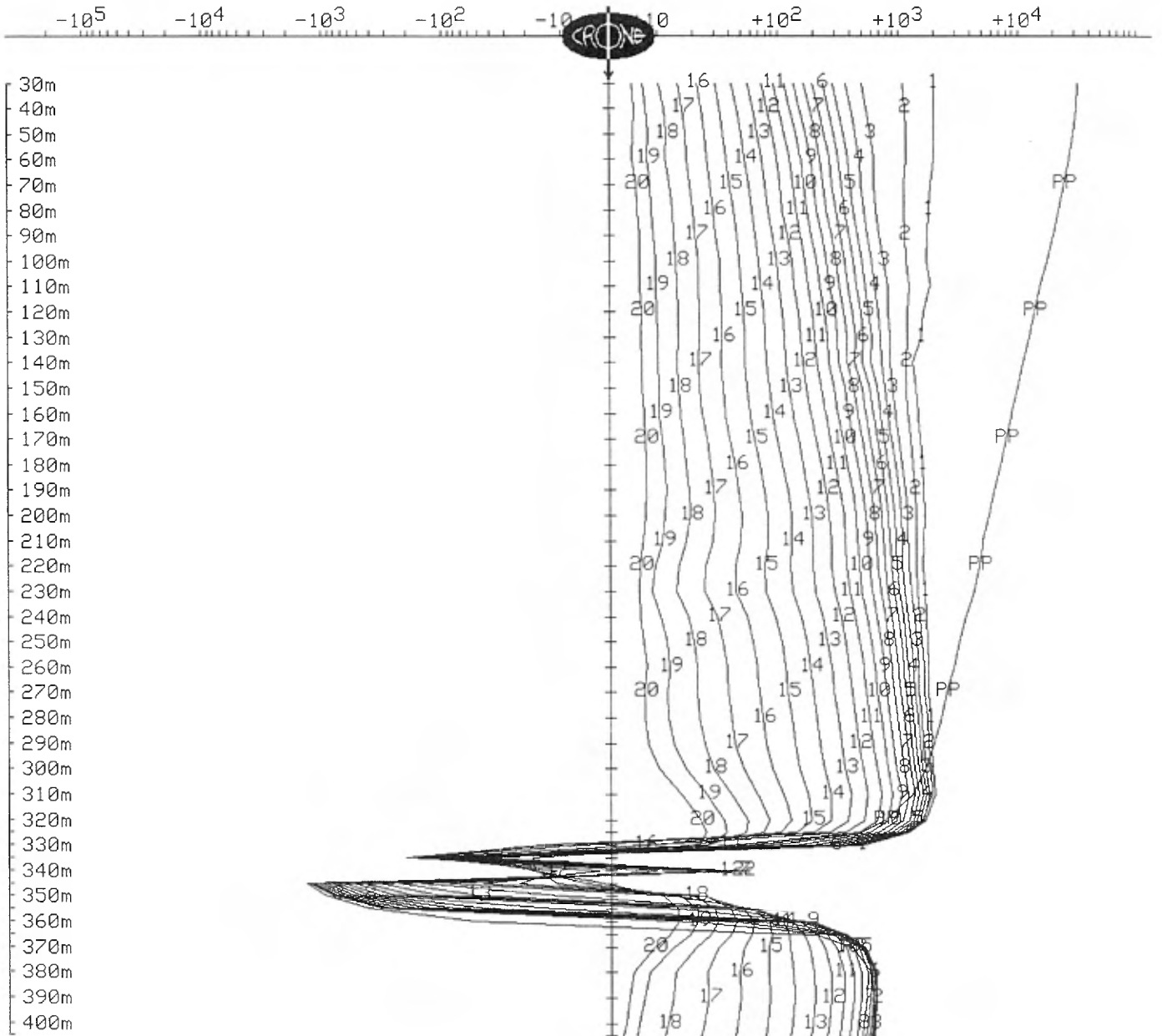


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : FALCONBRIDGE LTD.
Grid : ZONE-2
Date : Jul 31, 2003

Hole : 718-1841
Tx Loop : 1841
File name : 1841Z.PEM

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



(s10H

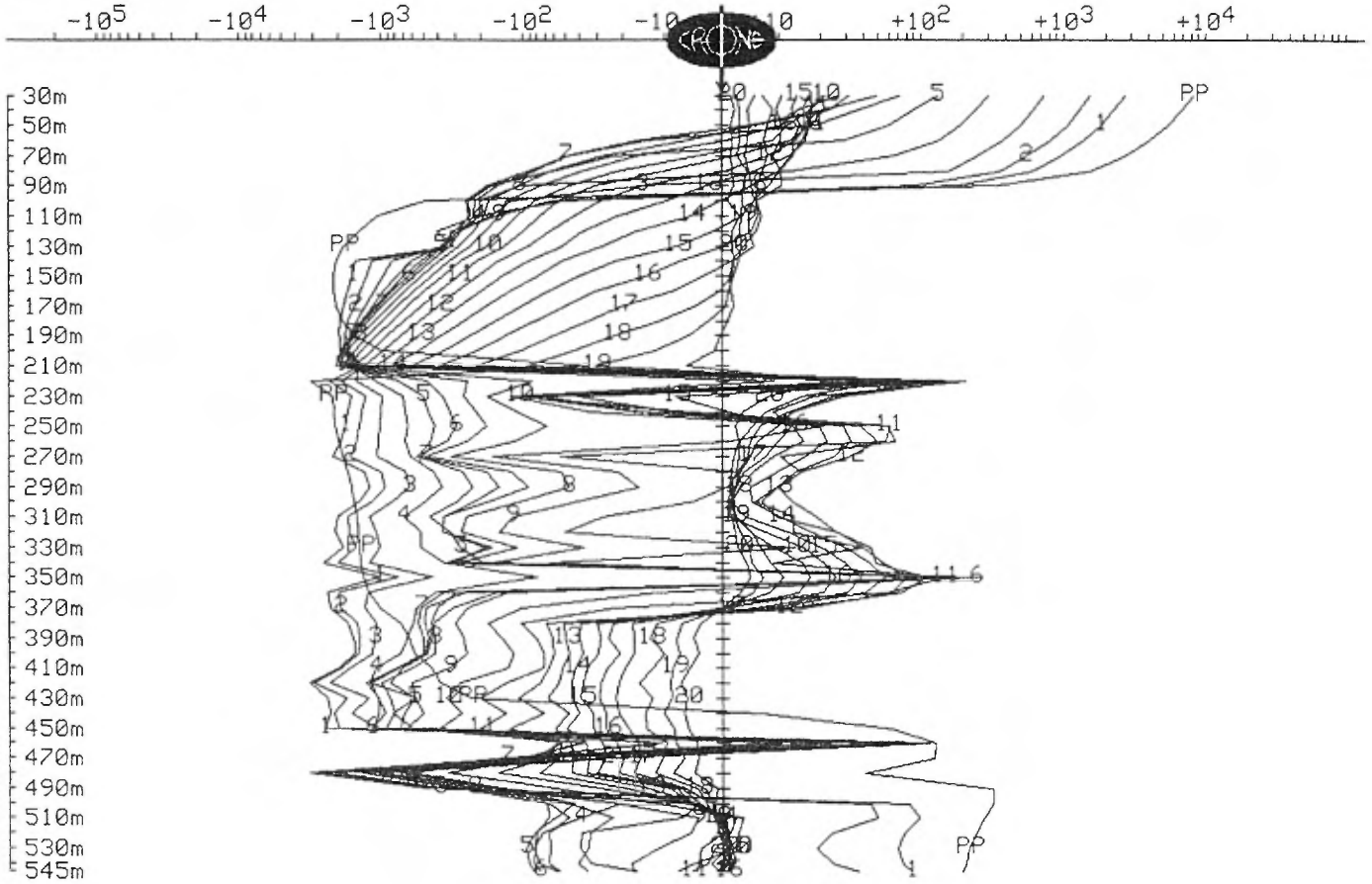
CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 7, 2003

Hole : 718-1842
Tx Loop : 1842
File name : 1842XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
X COMPONENT dBx/dt nanoTesla/sec - 20 of 20 channels and PP

Scale: 1:5000

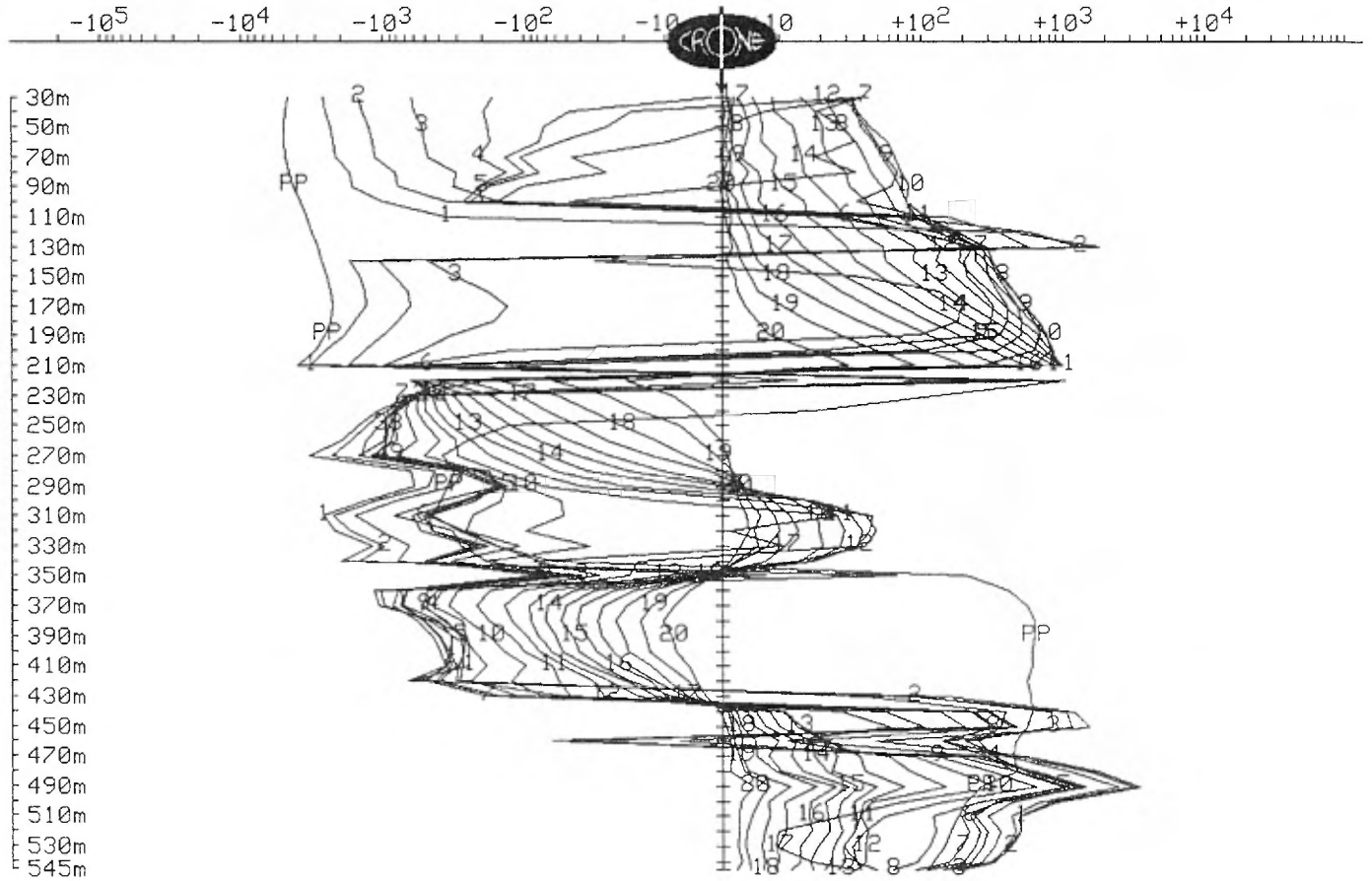


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 7, 2003

Hole : 718-1842
Tx Loop : 1842
File name : 1842XYT.PEM

Data Corrected for Probe Rotation using Orientation Tool #12
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000

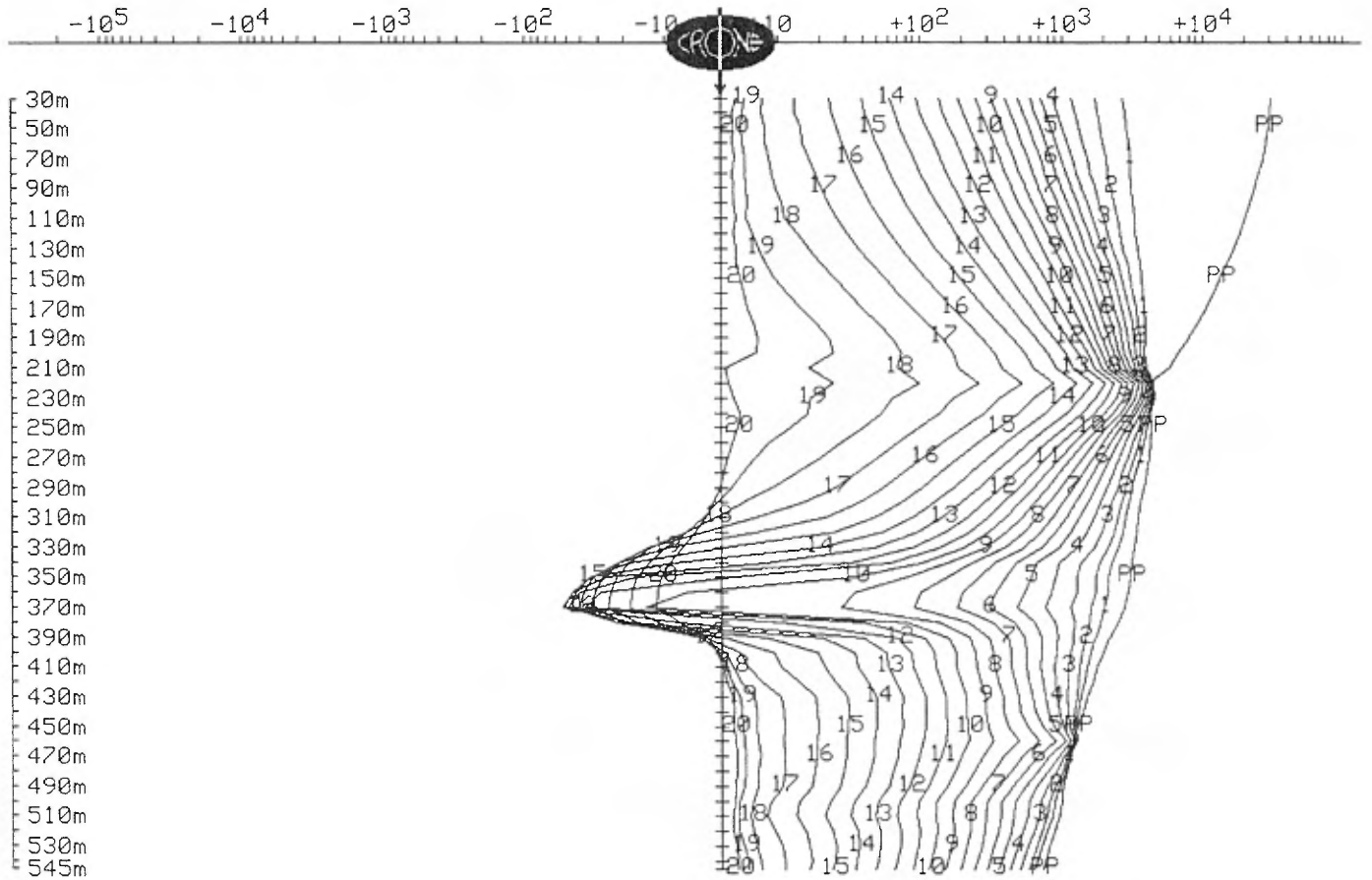


CRONE GEOPHYSICS & EXPLORATION LTD
Borehole Pulse EM Survey

Client : Falconbridge Ltd.
Grid : Zone 2
Date : Aug 7, 2003

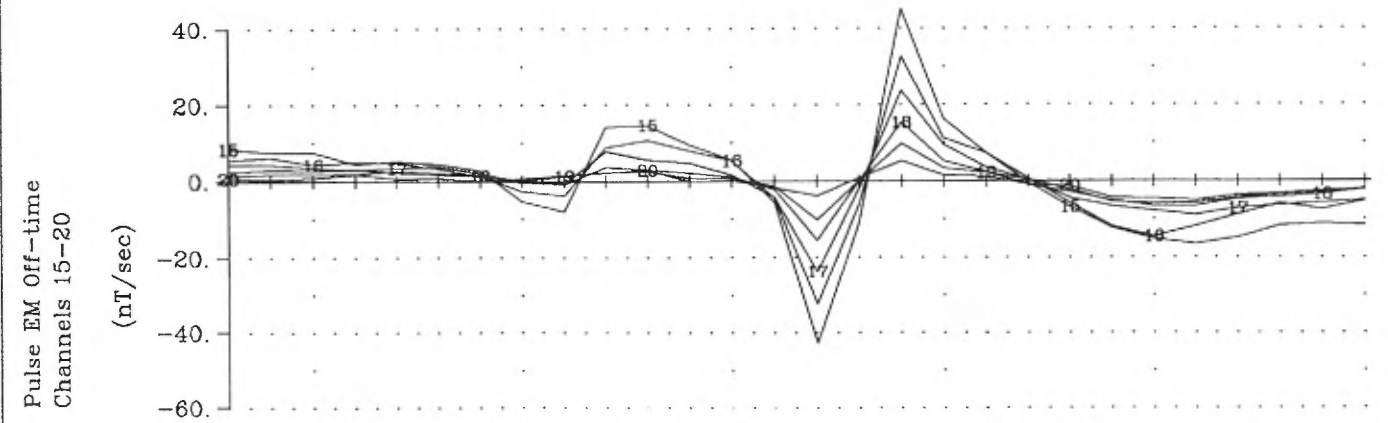
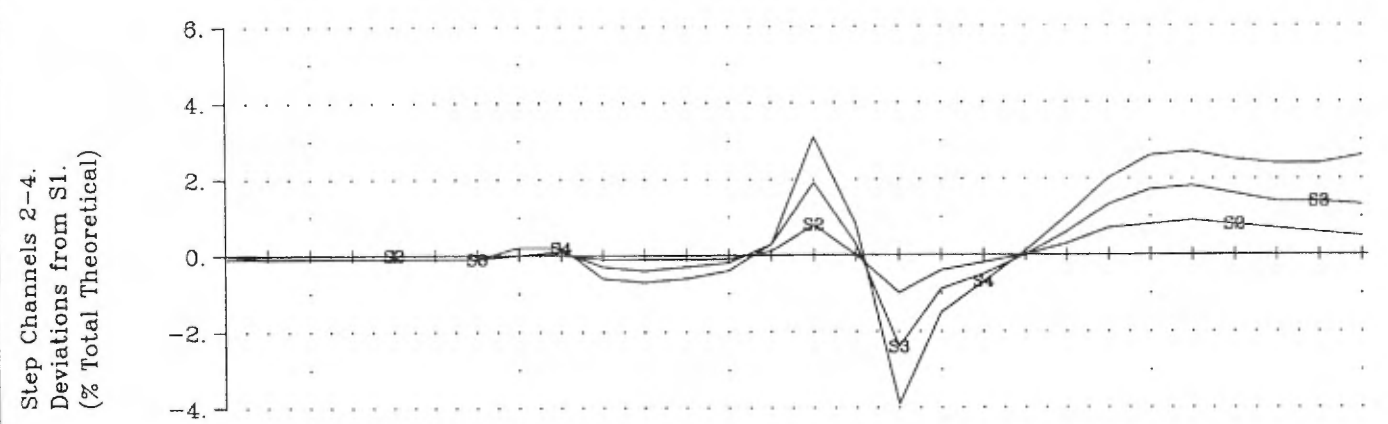
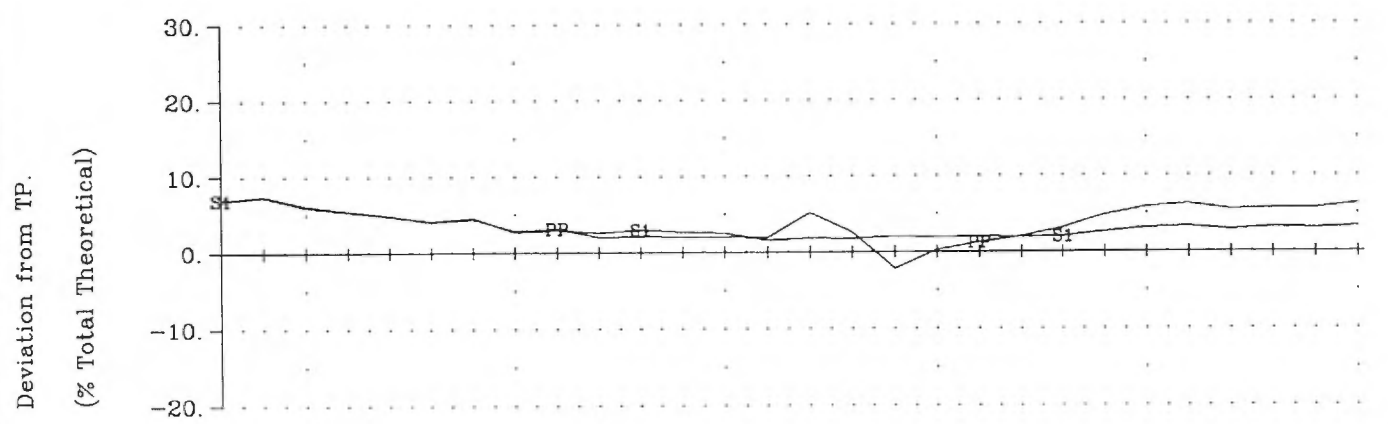
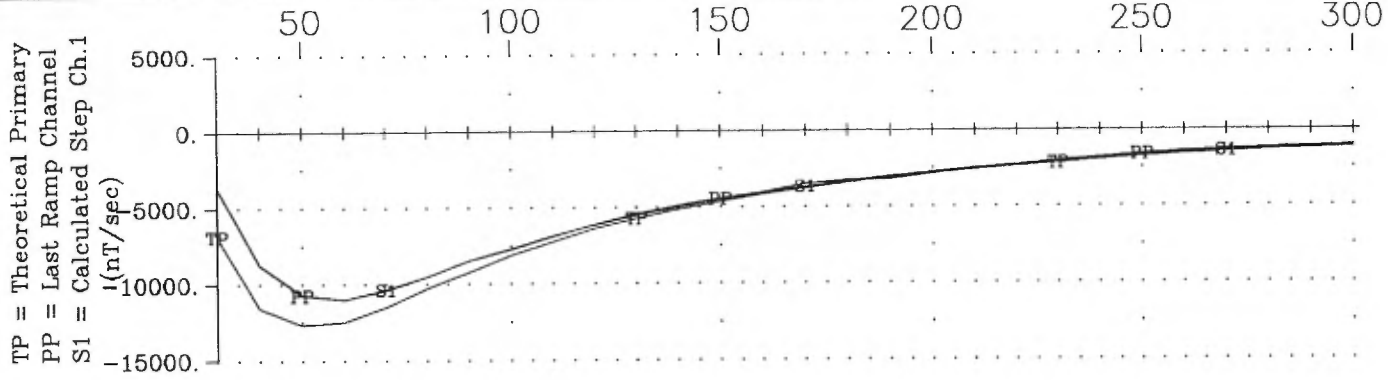
Hole : 718-1842
Tx Loop : 1842
File name : 1842Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 20 channels and PP
Scale: 1:5000



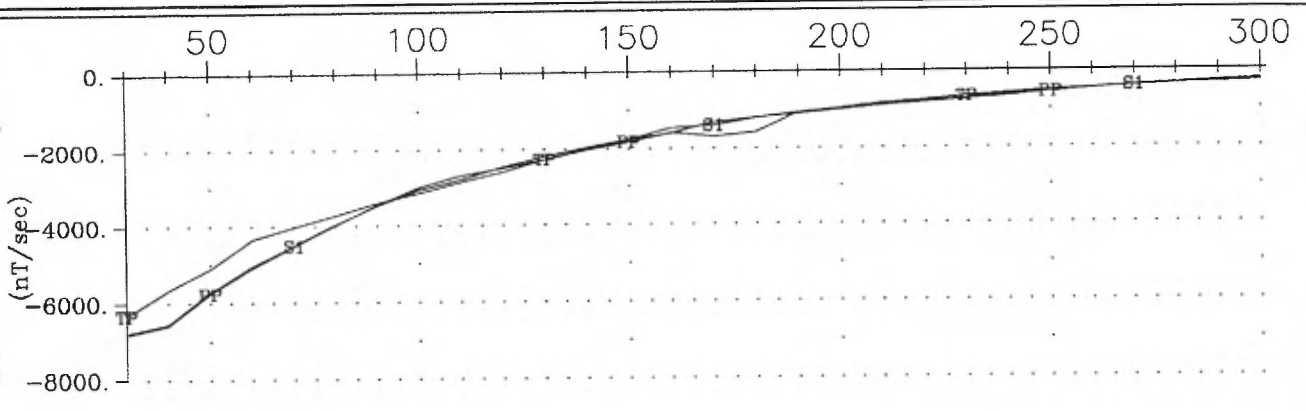
Appendix D
Step Response Data Profiles



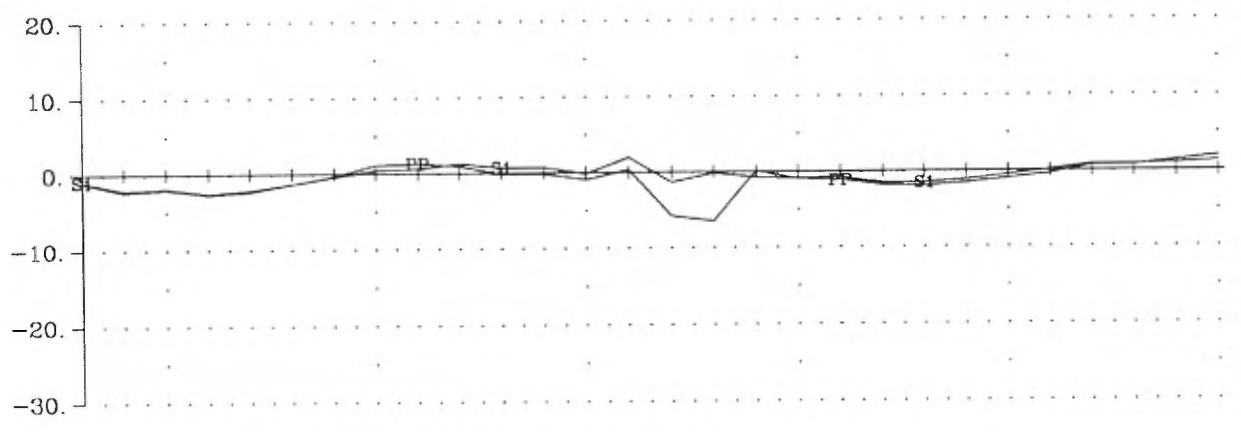


Falconbridge Ltd. ZONE 2
 Hole 718-1761 X Component
 Crone Geophysics & Exploration Ltd.

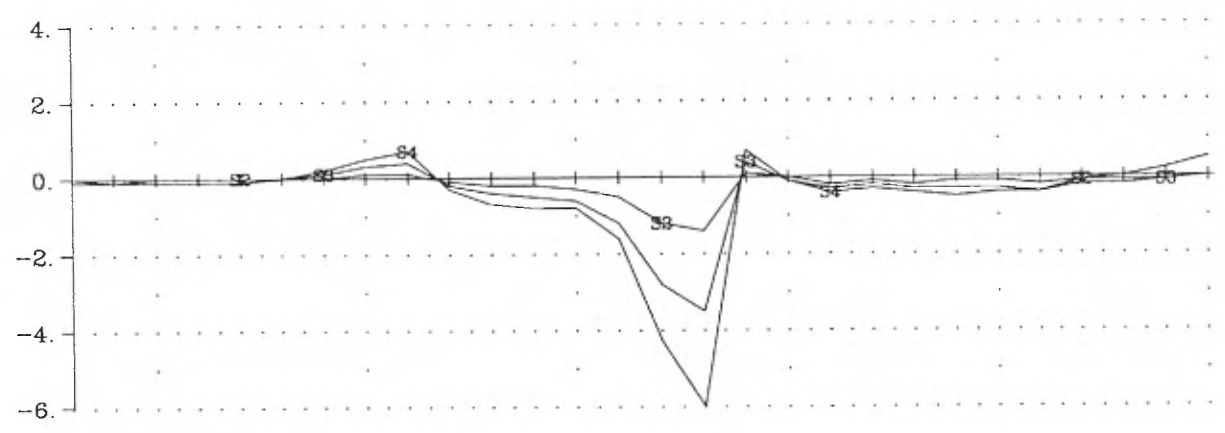
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



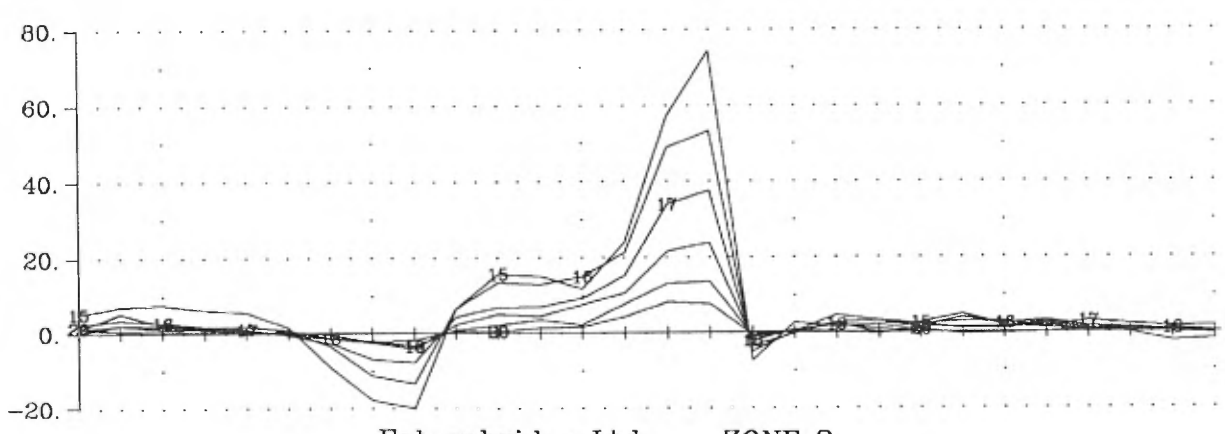
Deviation from TP.
 (% Total Theoretical)



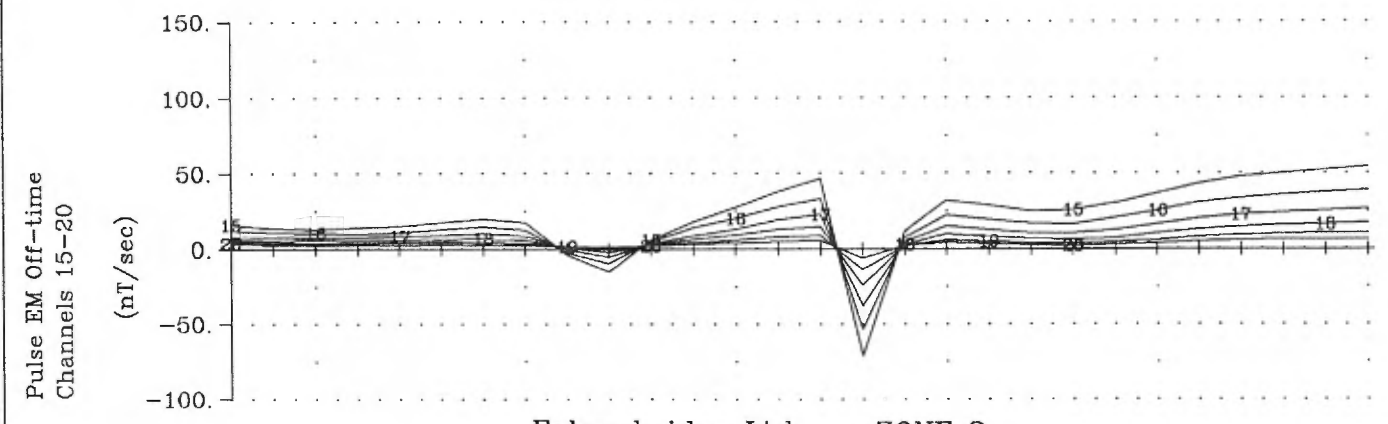
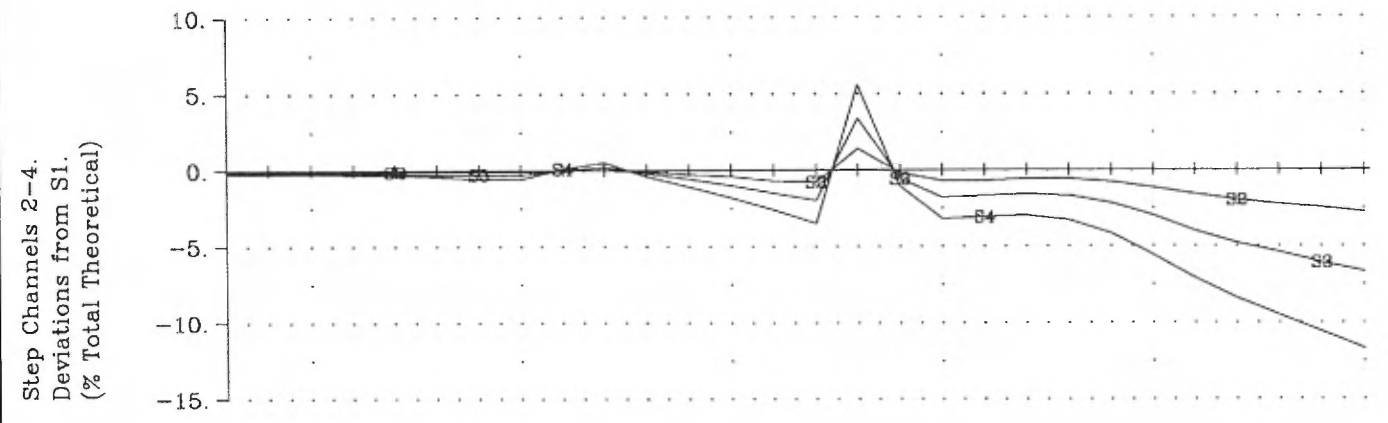
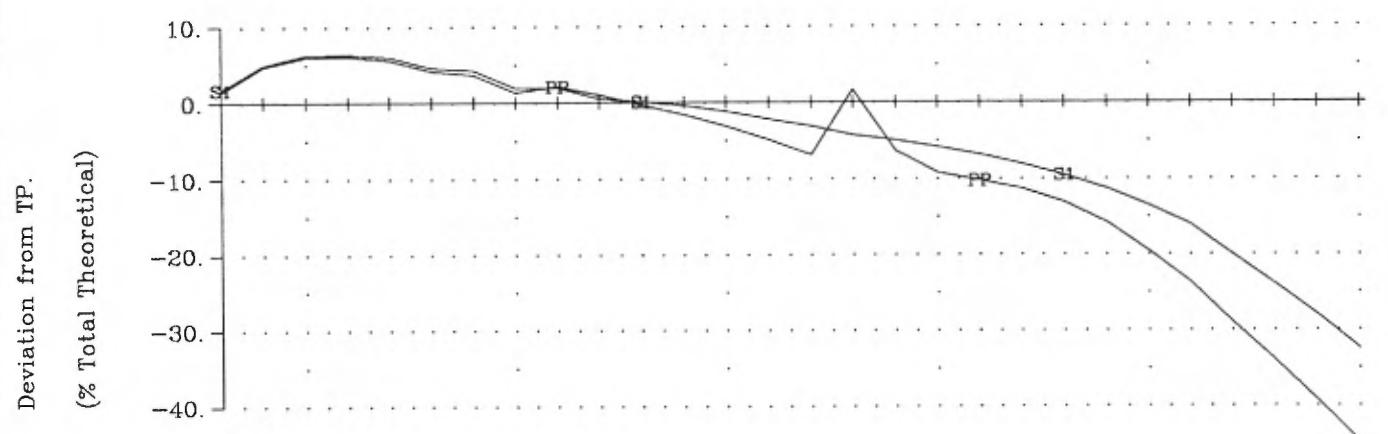
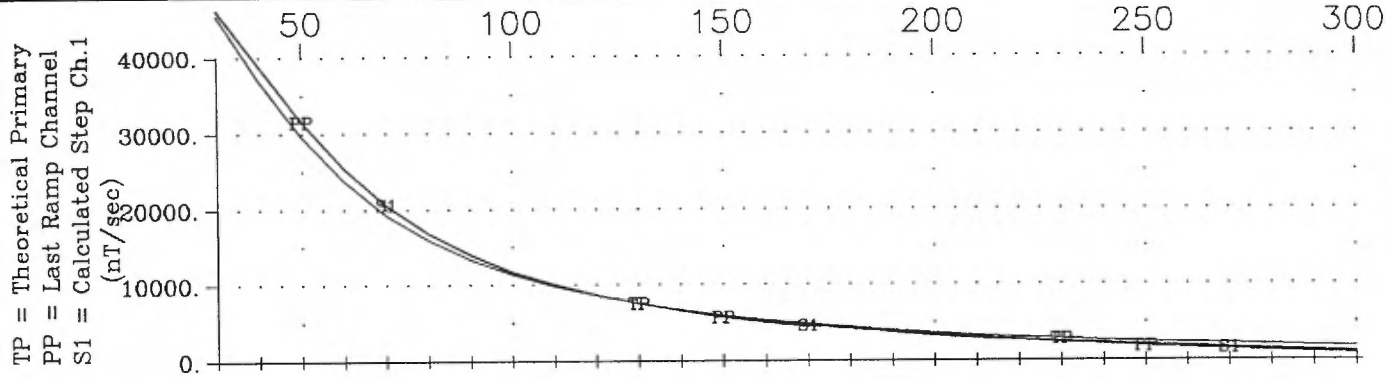
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



Pulse EM Off-time
 Channels 15-20
 (nT/sec)

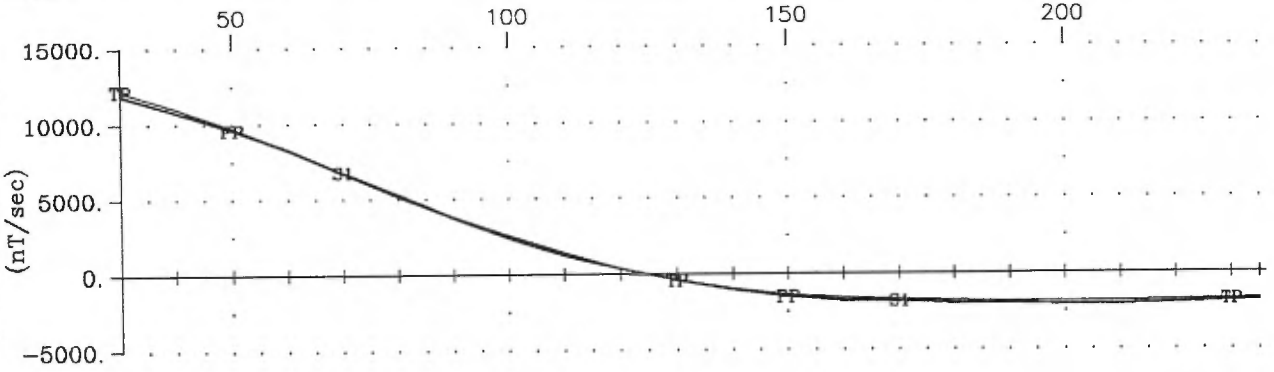


Falconbridge Ltd. ZONE 2
 Hole 718-1761 Y Component
 Crone Geophysics & Exploration Ltd.



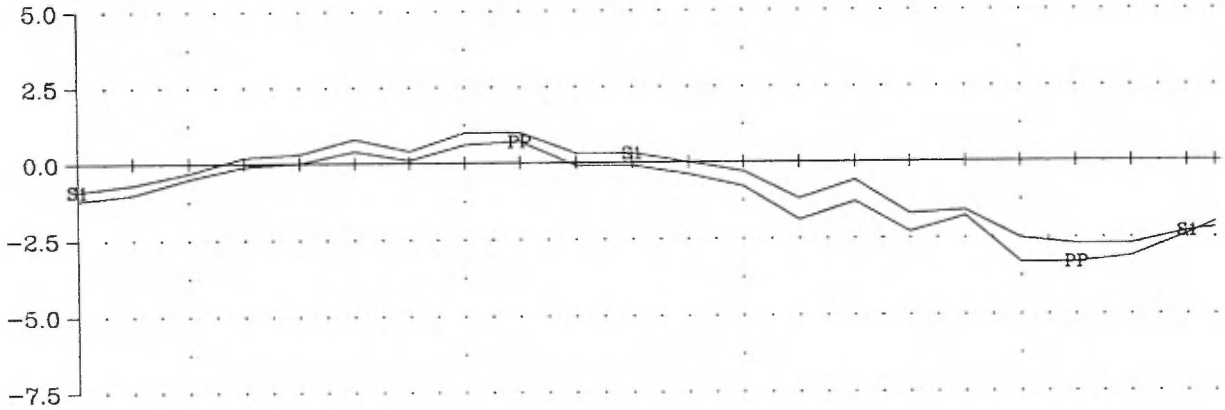
Falconbridge Ltd. ZONE 2
 Hole 718-1761 Z Component
 Crone Geophysics & Exploration Ltd.

TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



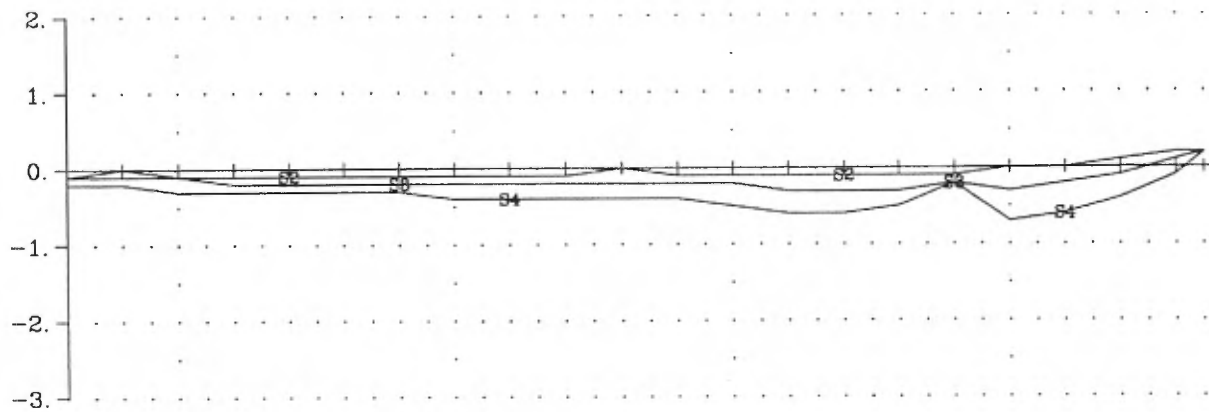
Deviation from TP.

(% Total Theoretical)



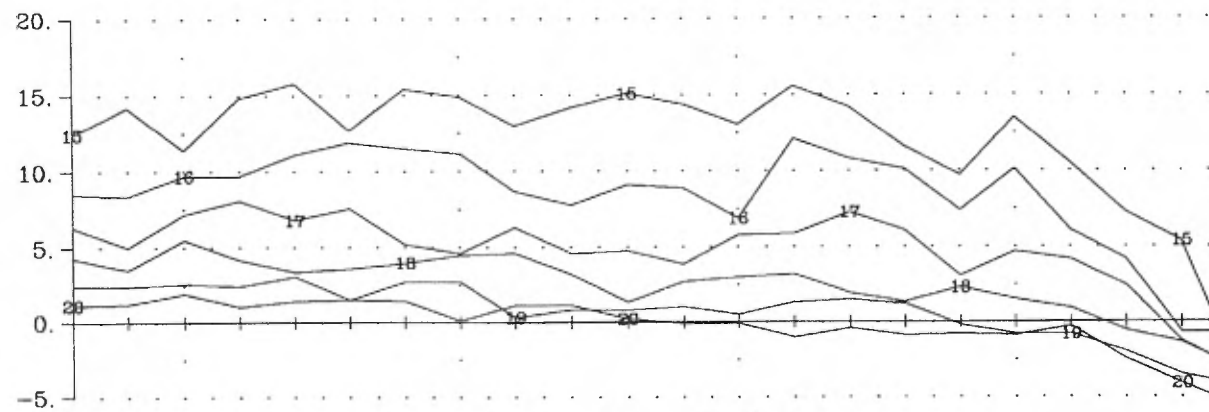
Step Channels 2-4.

Deviations from S1.
 (% Total Theoretical)



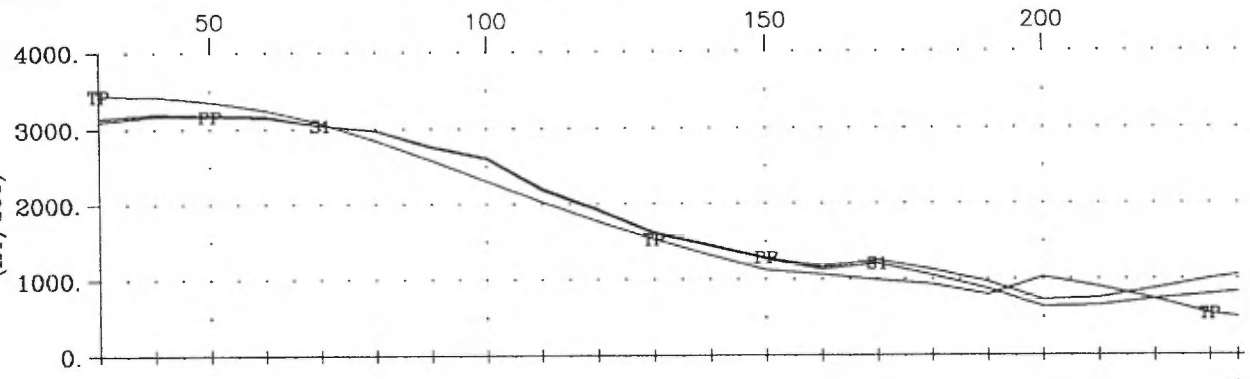
Pulse EM Off-time
 Channels 15-20.

(nT/sec)

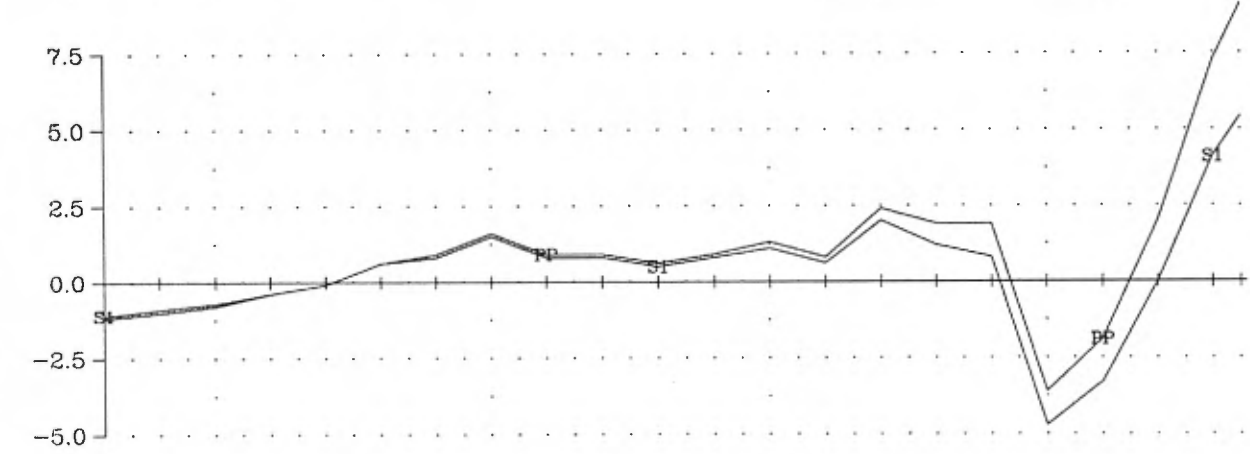


Falconbridge Ltd. ZONE 2
 Hole 718-1782 X Component
 Crone Geophysics & Exploration Ltd.

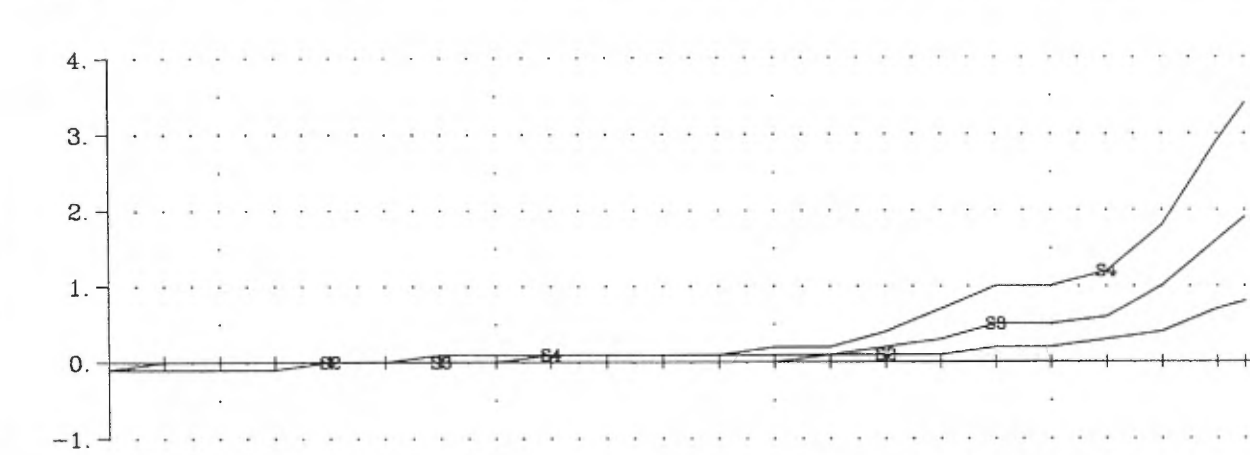
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



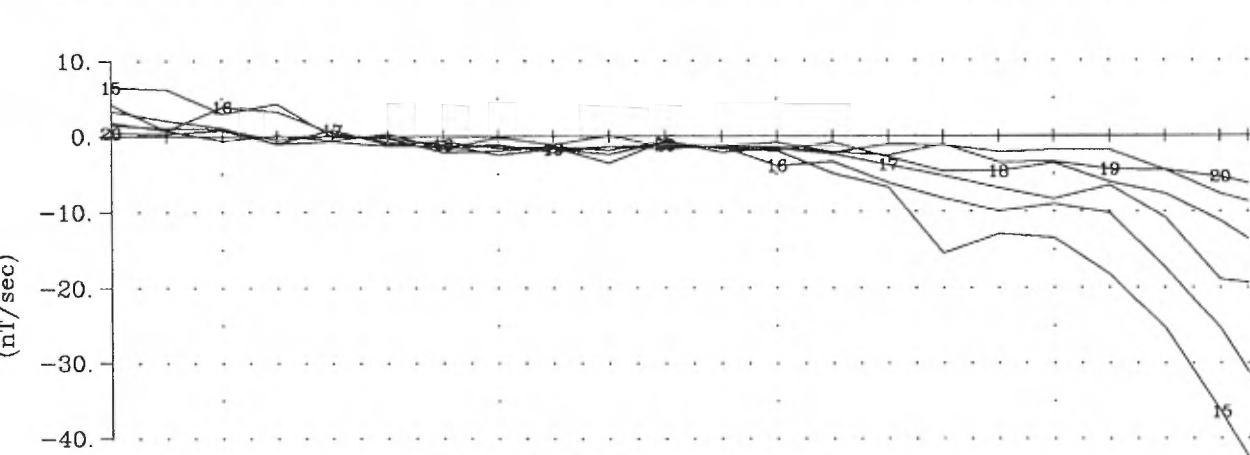
Deviation from TP.
 (% Total Theoretical)



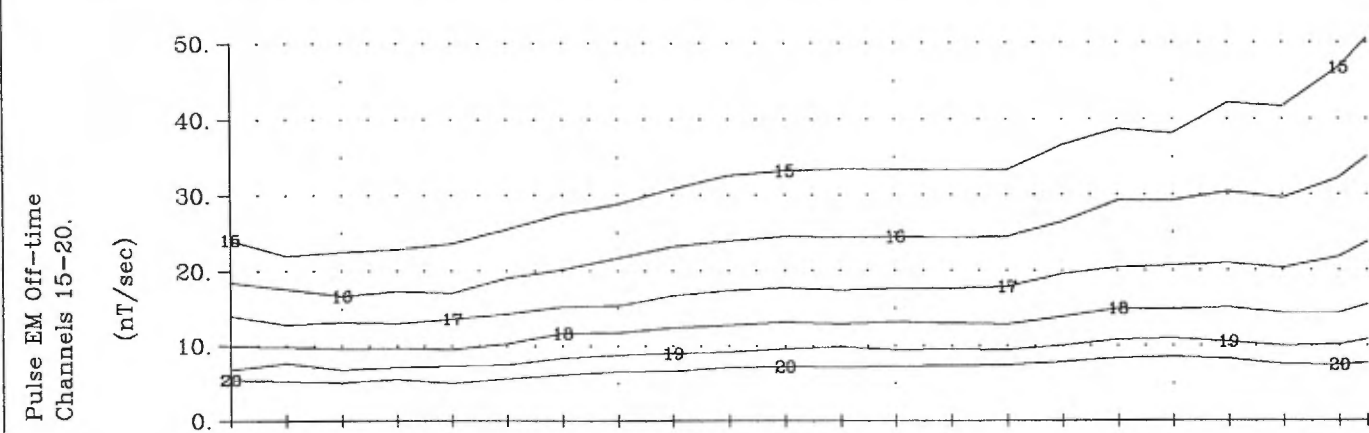
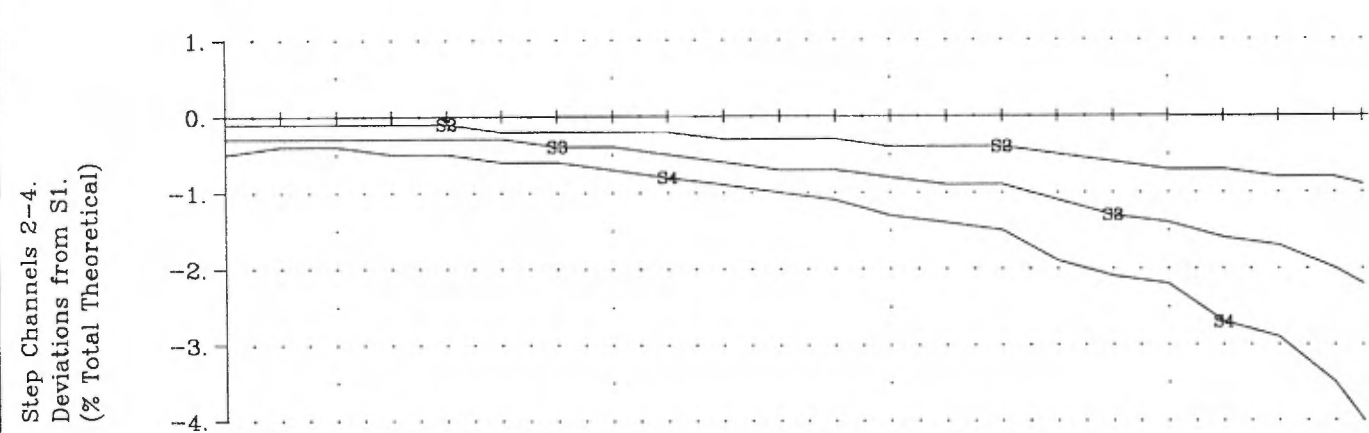
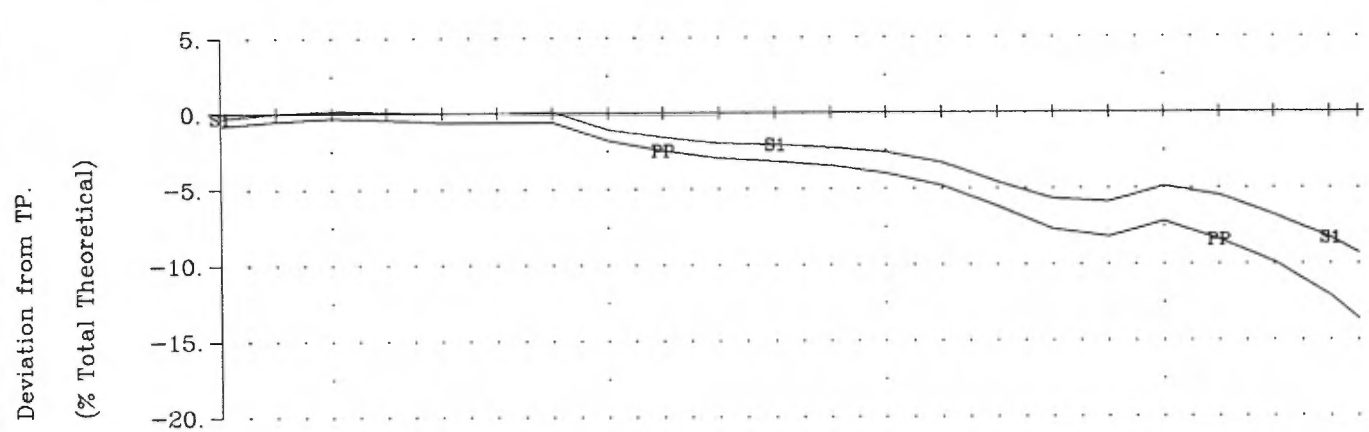
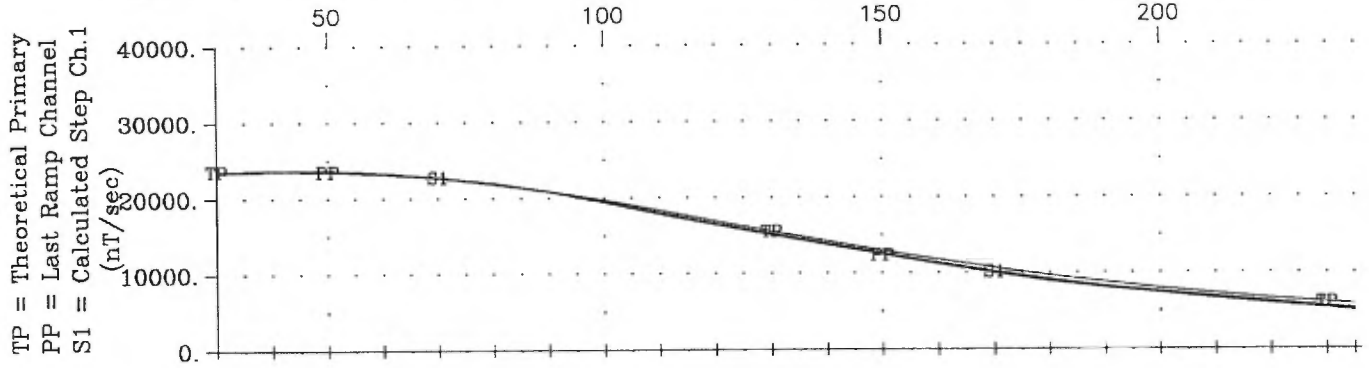
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



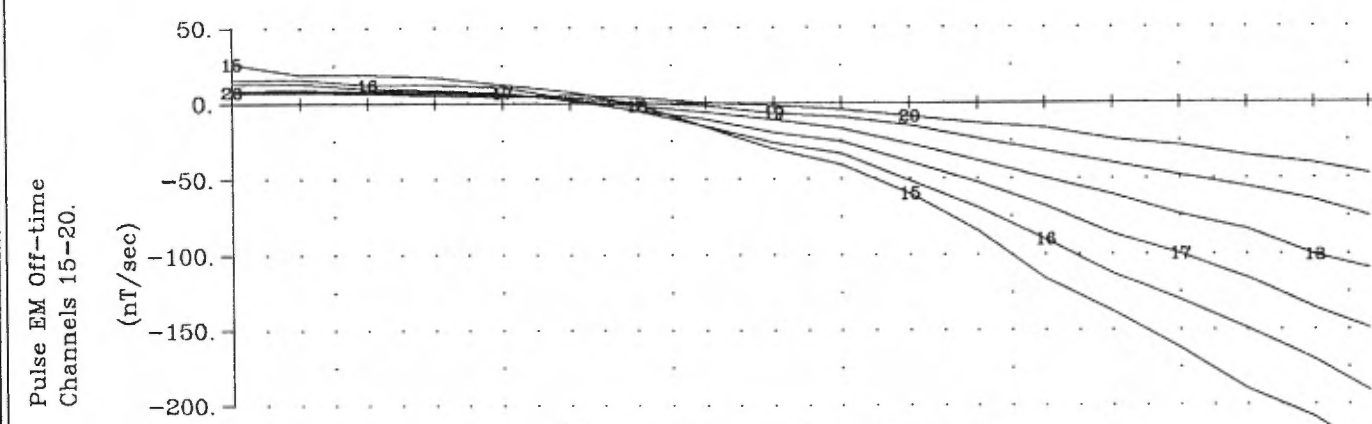
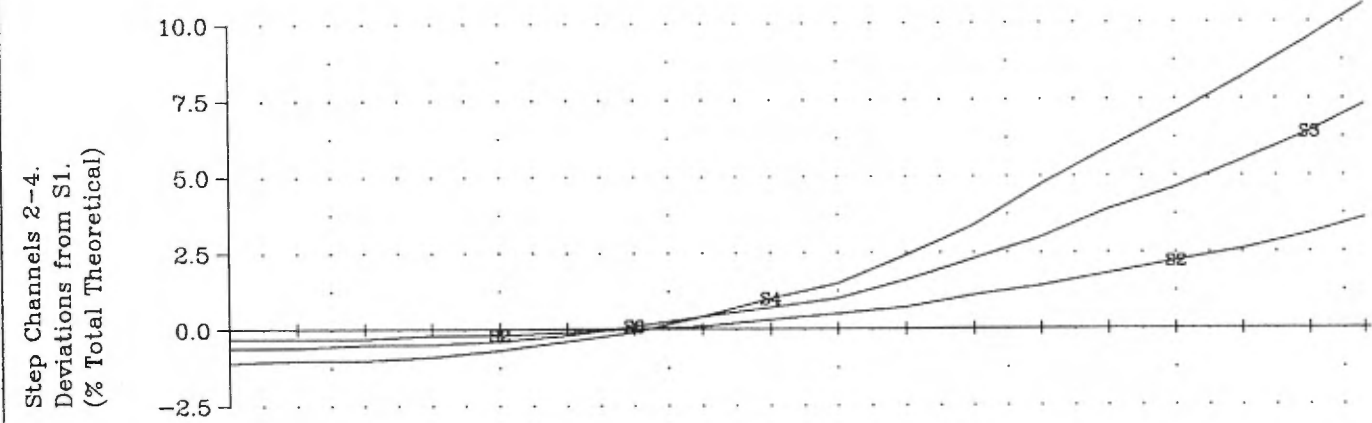
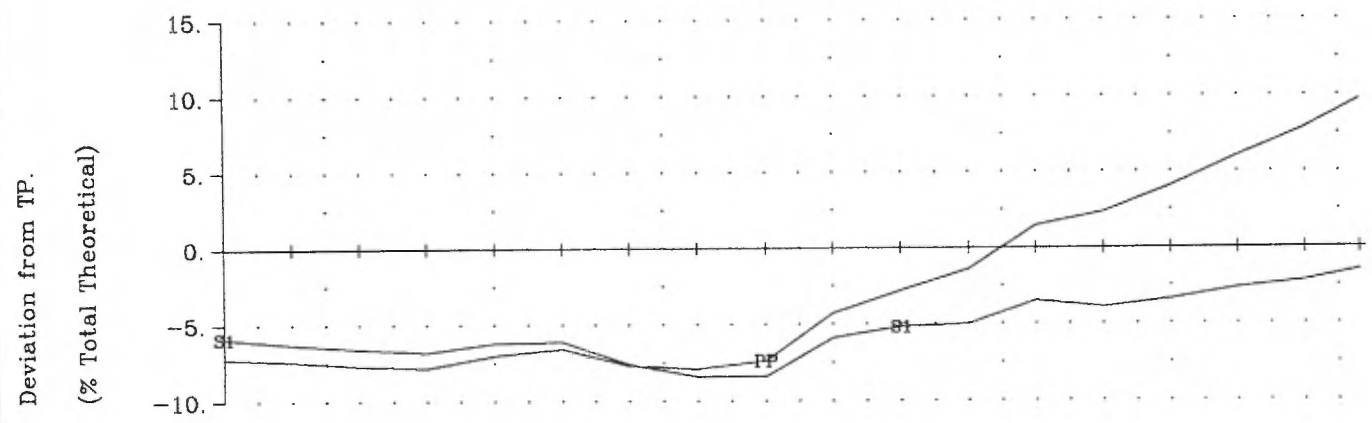
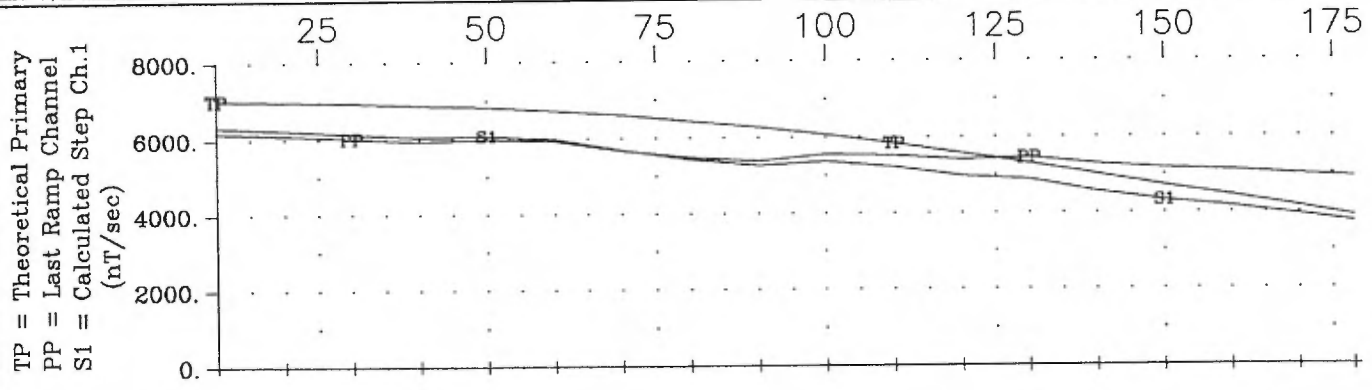
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



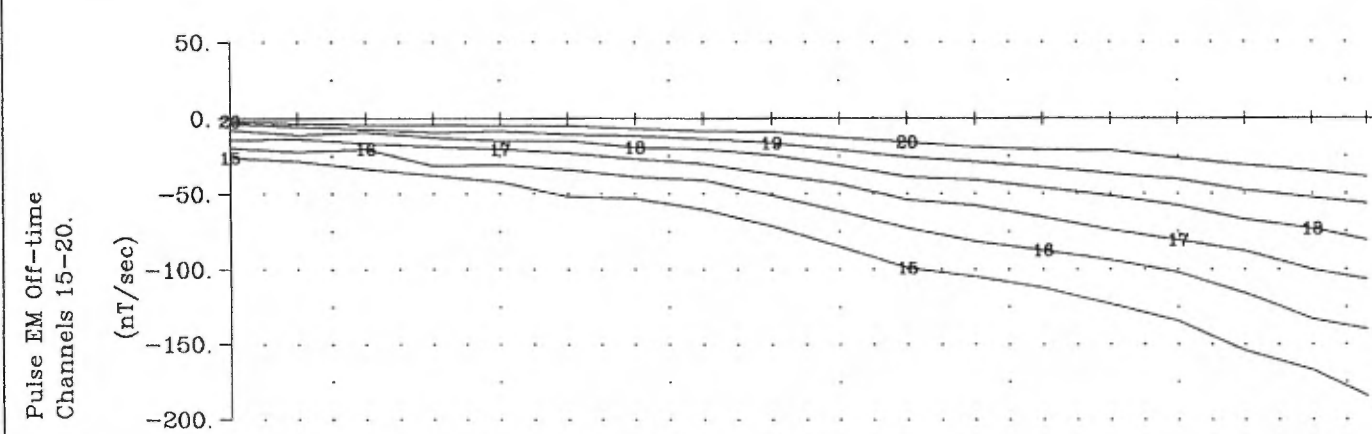
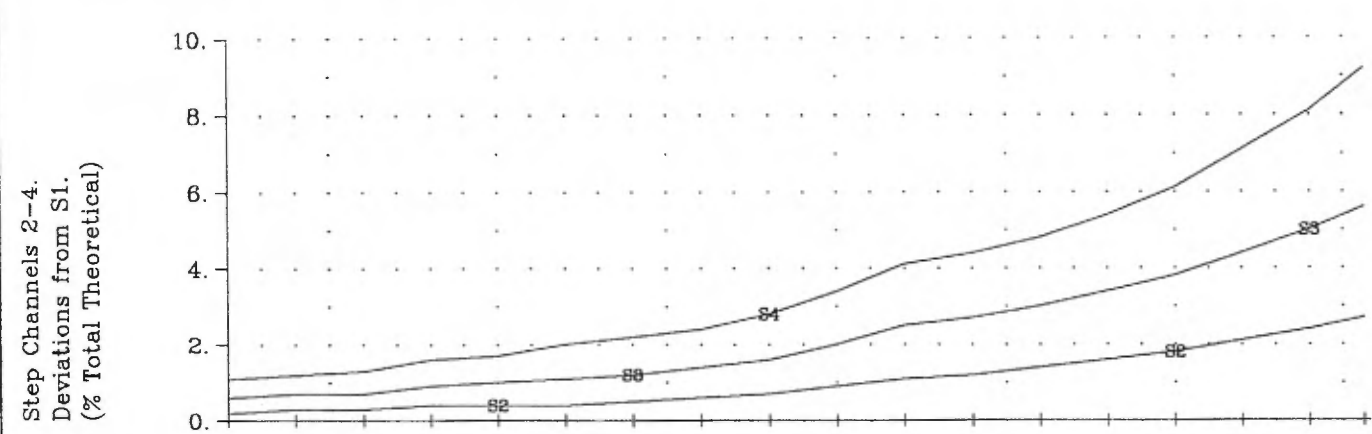
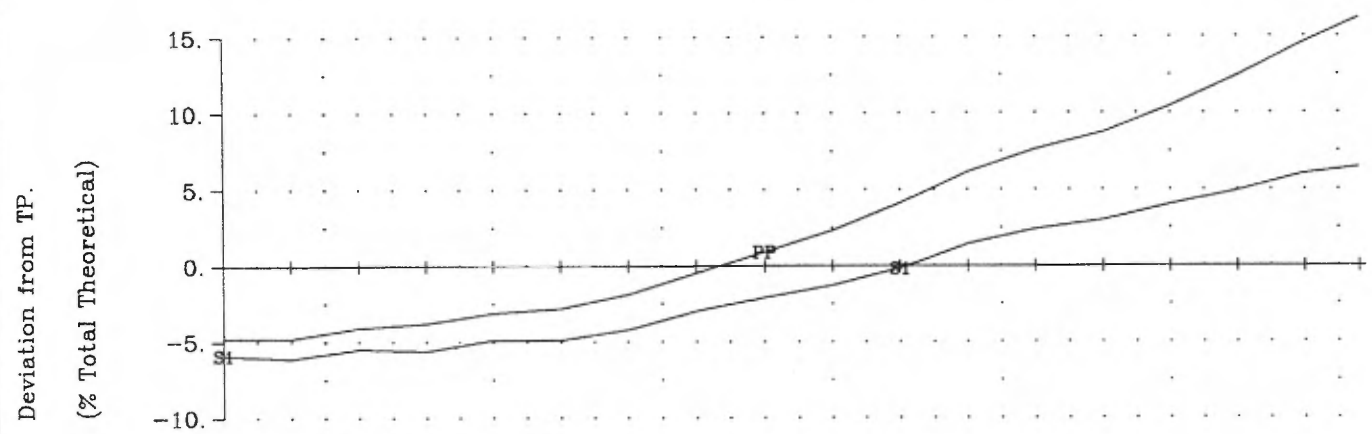
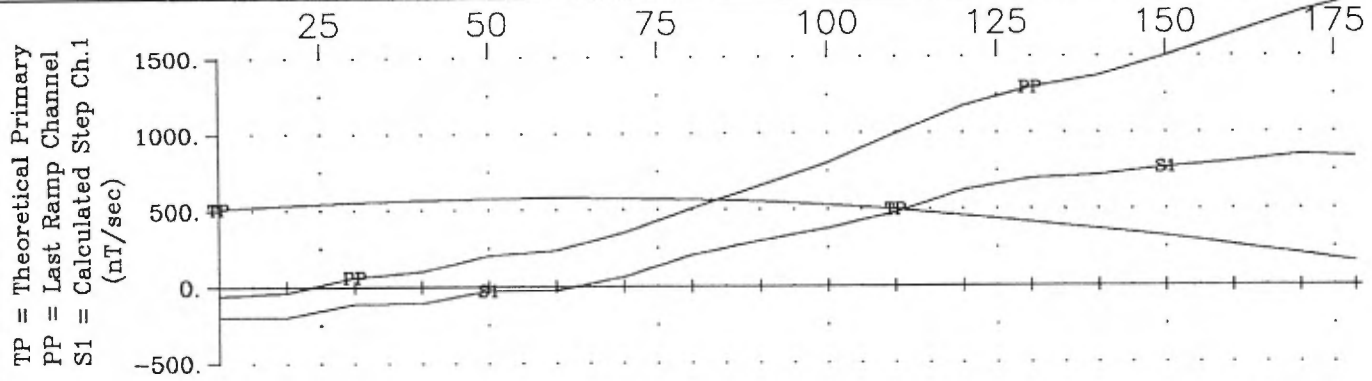
Falconbridge Ltd. ZONE 2
 Hole 718-1762 Y Component
 Crone Geophysics & Exploration Ltd.



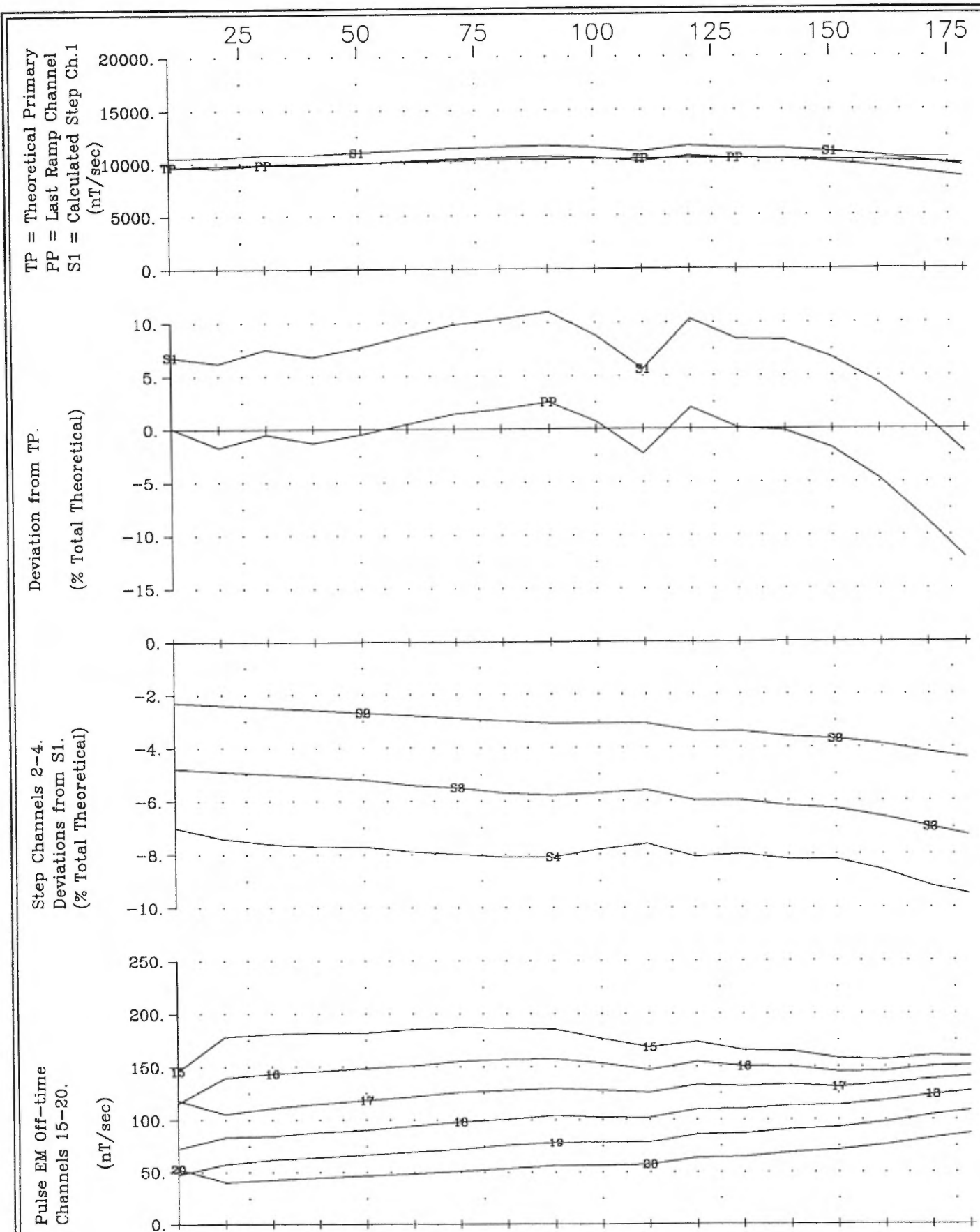
Falconbridge Ltd. ZONE 2
 Hole 718-1762 Z Component
 Crone Geophysics & Exploration Ltd.



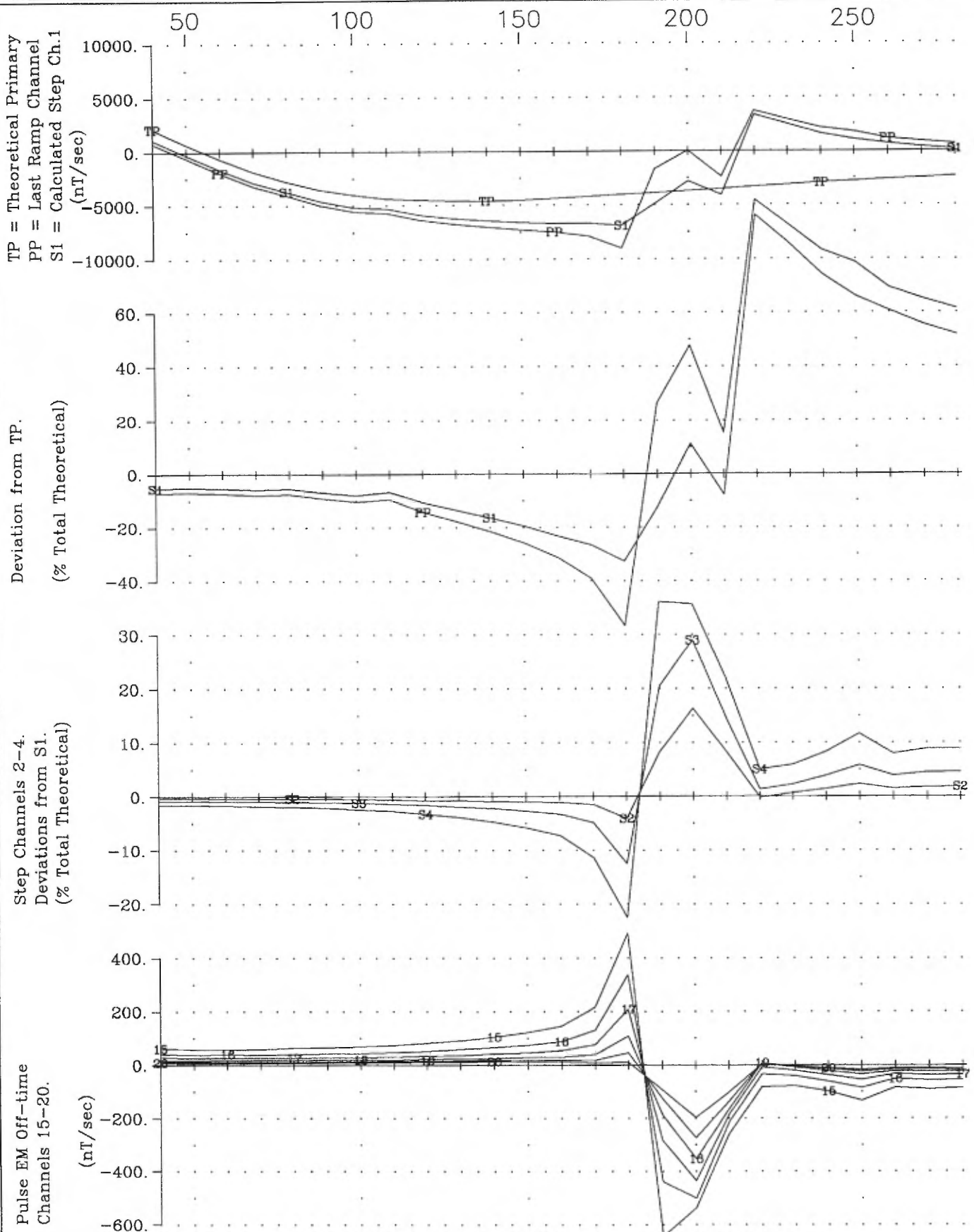
Falconbridge Ltd. ZONE 2
 Hole 718-1766 X Component
 Crone Geophysics & Exploration Ltd.



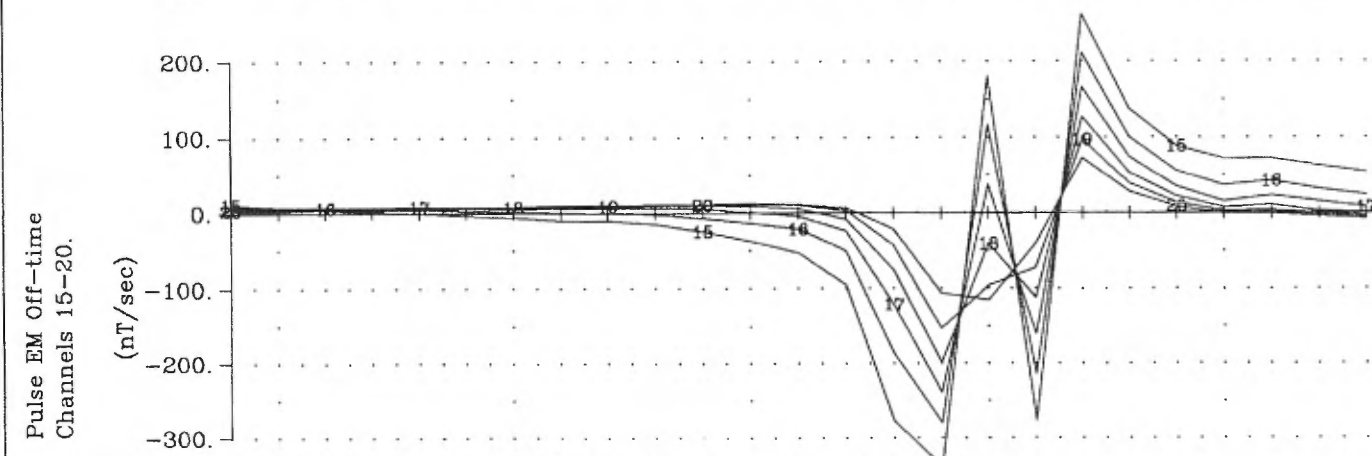
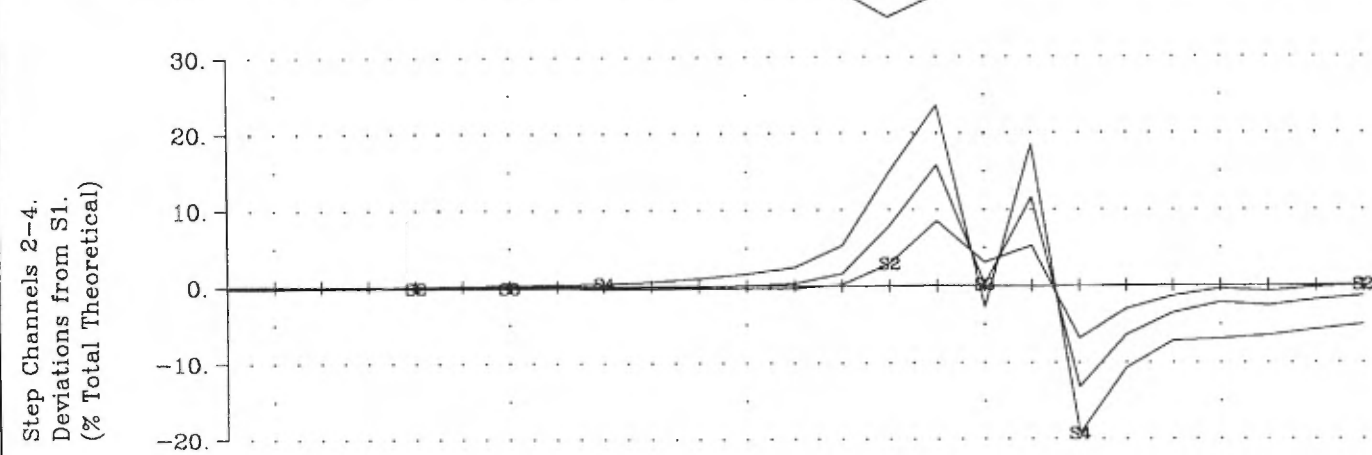
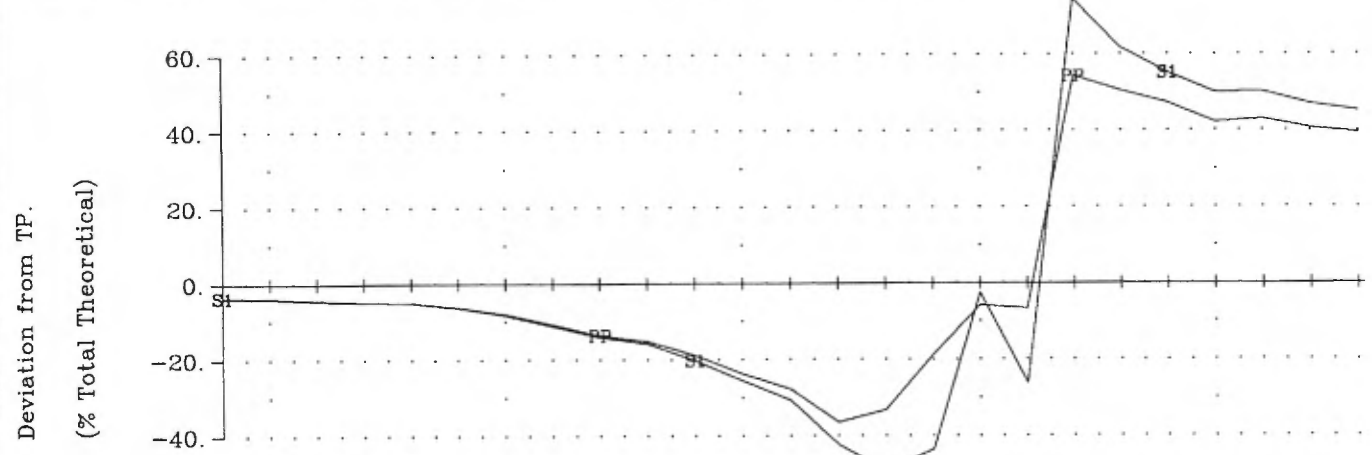
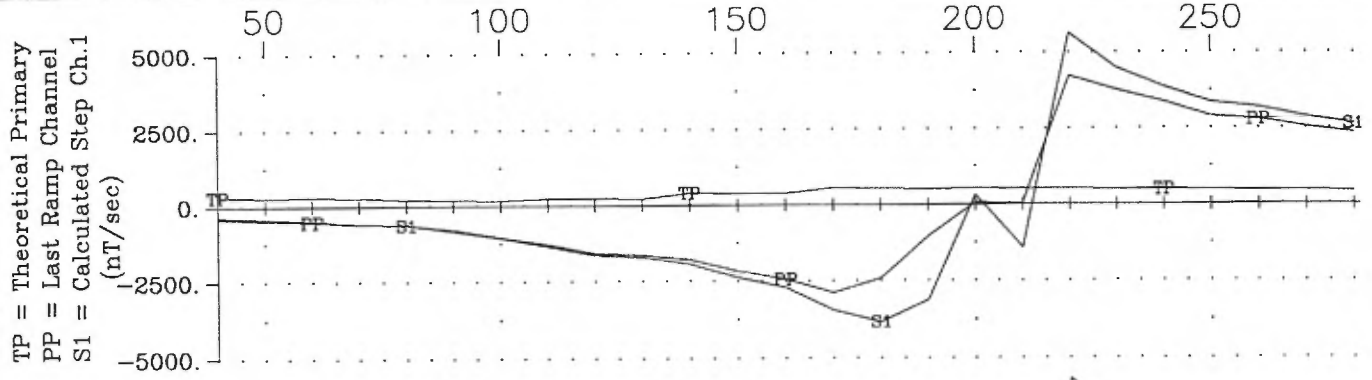
Falconbridge Ltd. ZONE 2
 Hole 718-1766 Y Component
 Crone Geophysics & Exploration Ltd.



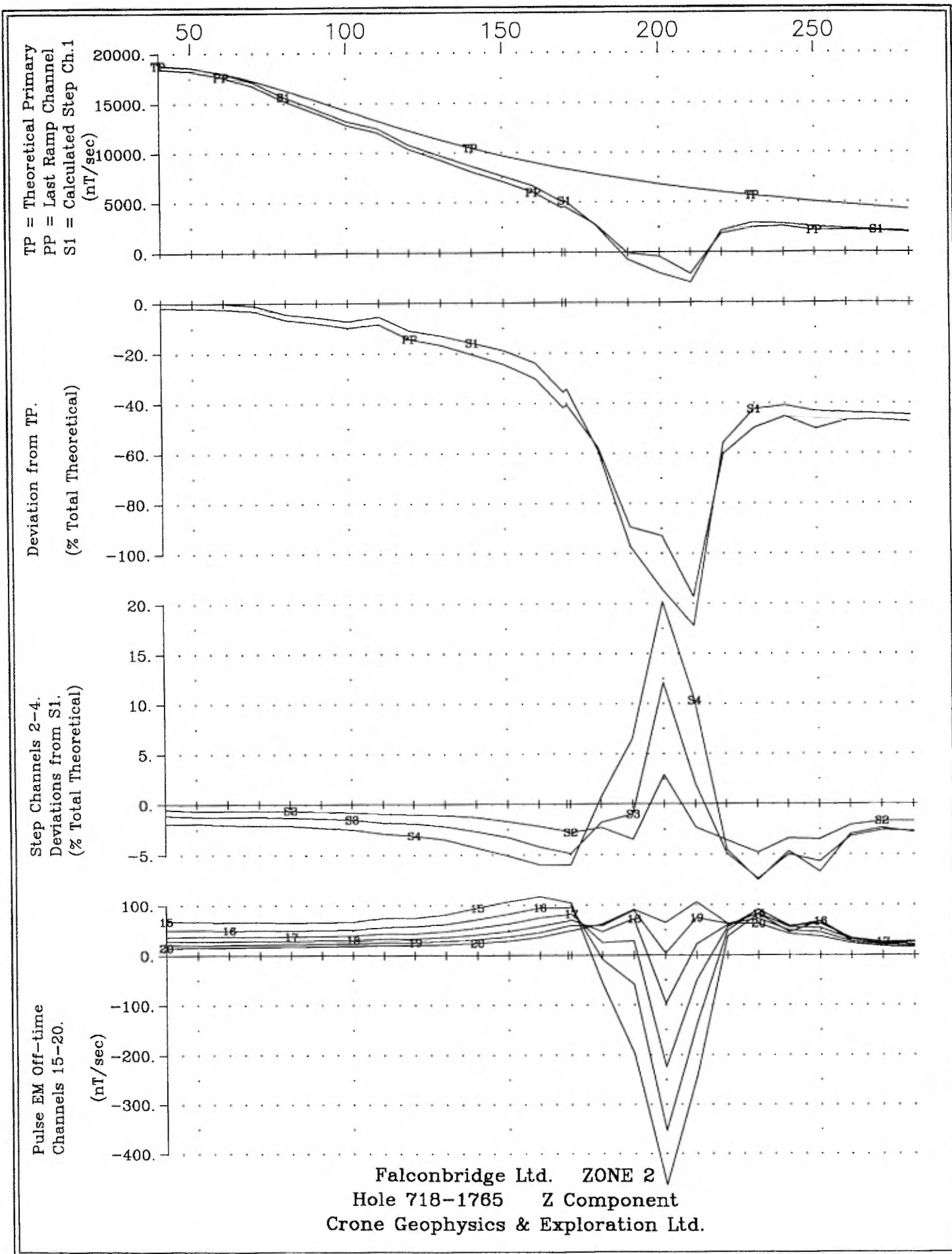
Falconbridge Ltd. ZONE 2
 Hole 718-1766 Z Component
 Crone Geophysics & Exploration Ltd.



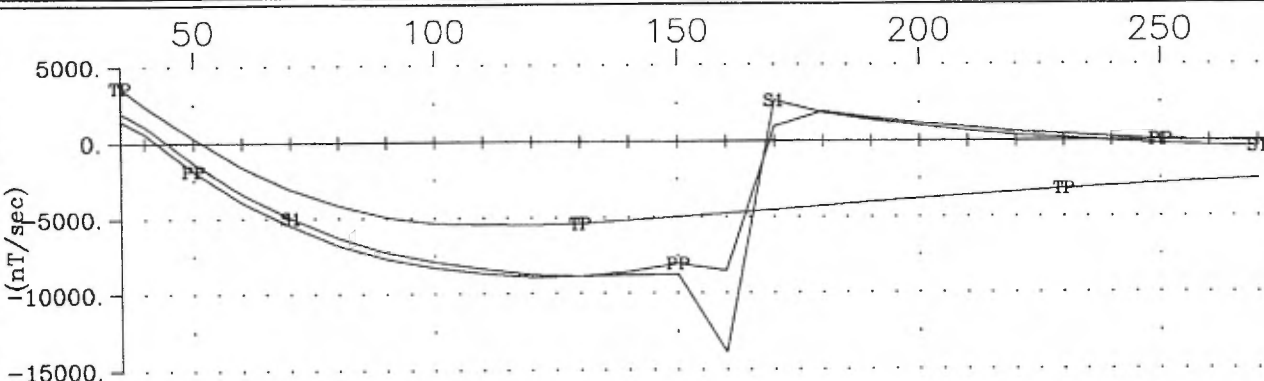
Falconbridge Ltd. ZONE 2
 Hole 718-1765 X Component
 Crone Geophysics & Exploration Ltd.



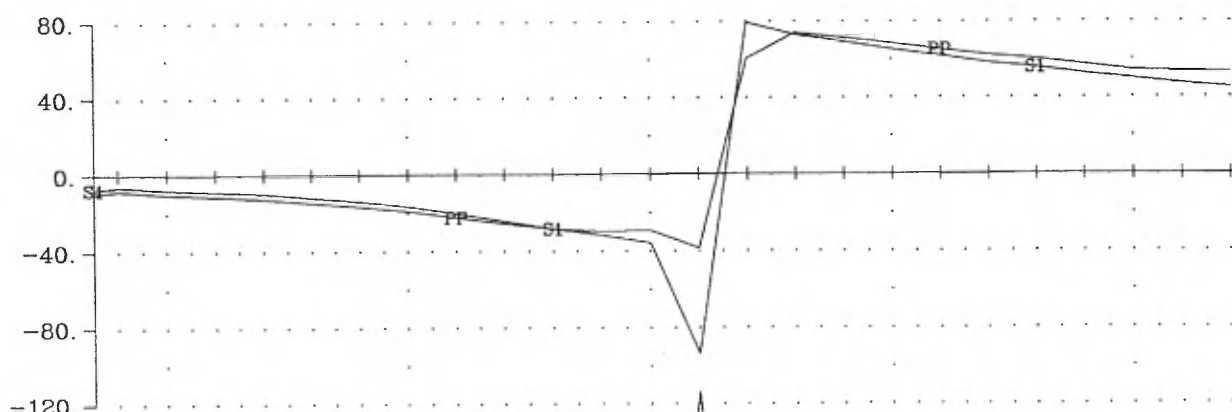
Falconbridge Ltd. ZONE 2
 Hole 718-1765 Y Component
 Crone Geophysics & Exploration Ltd.



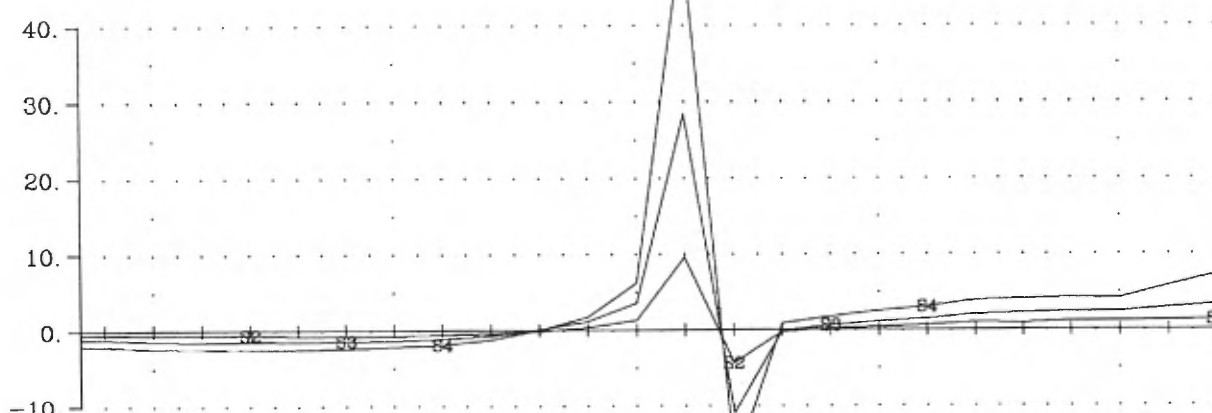
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



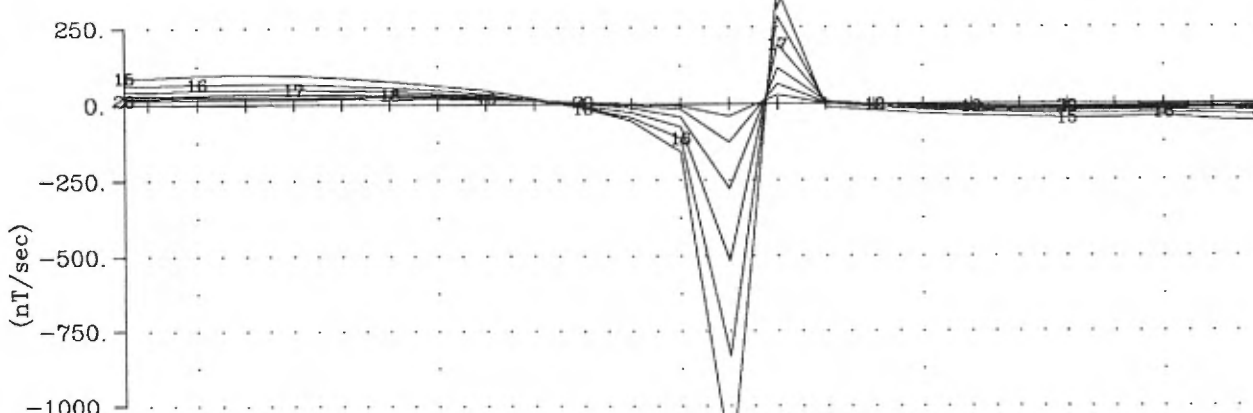
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

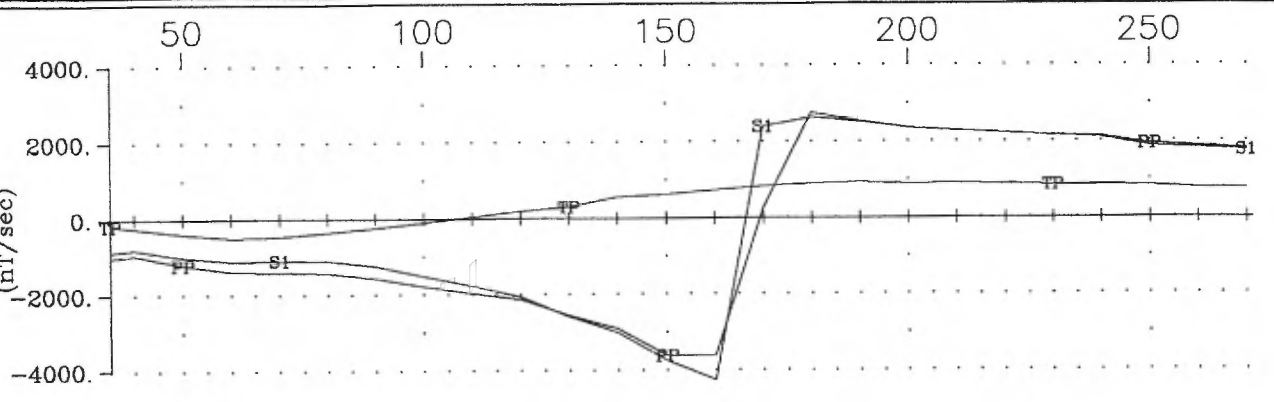


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

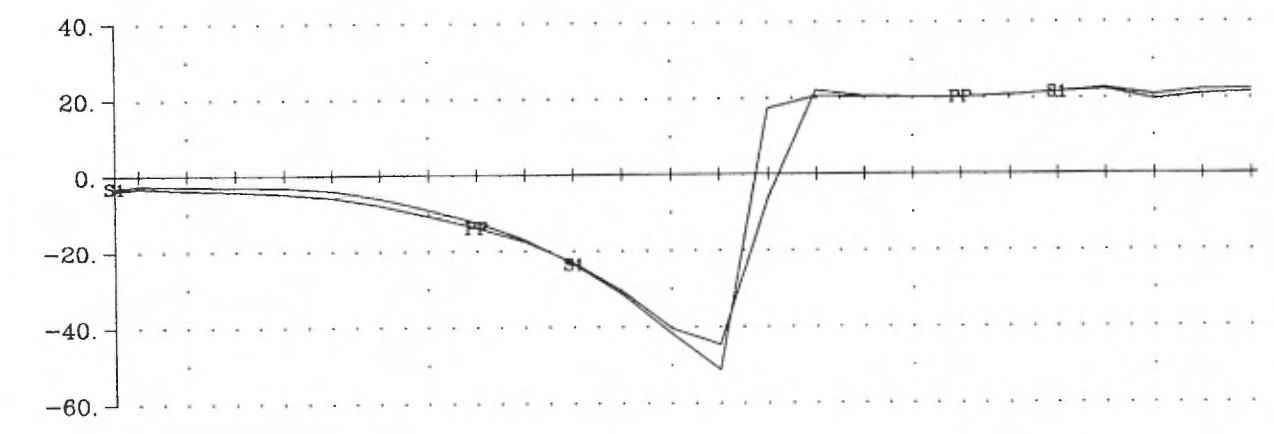


Falconbridge Ltd. ZONE 2
 Hole 718-1764 X Component
 Crone Geophysics & Exploration Ltd.

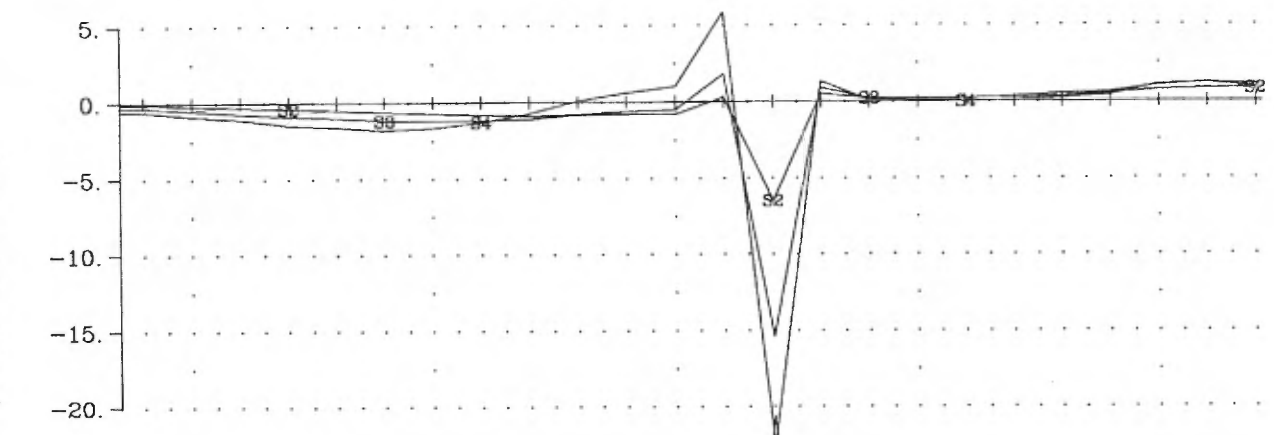
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



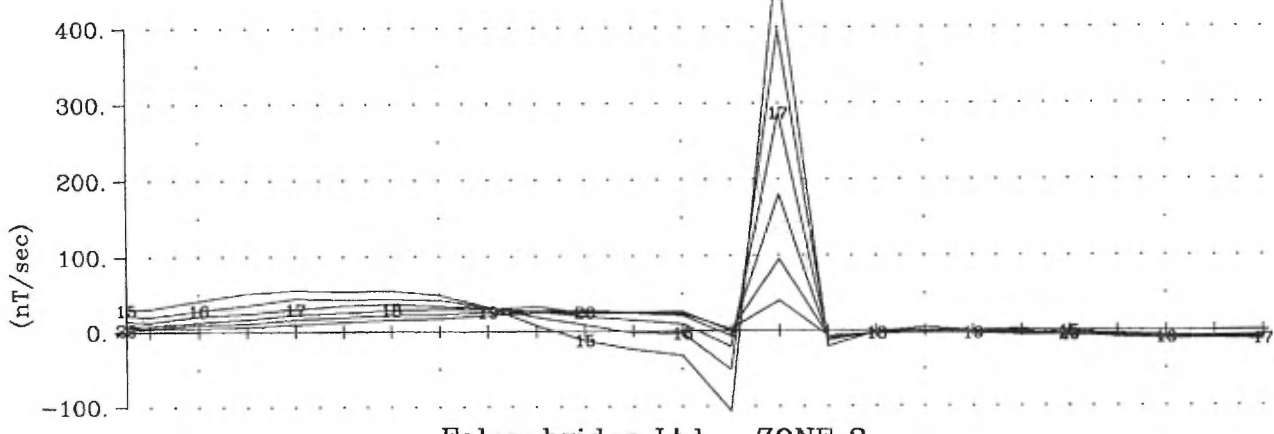
Deviation from TP.
 (% Total Theoretical)



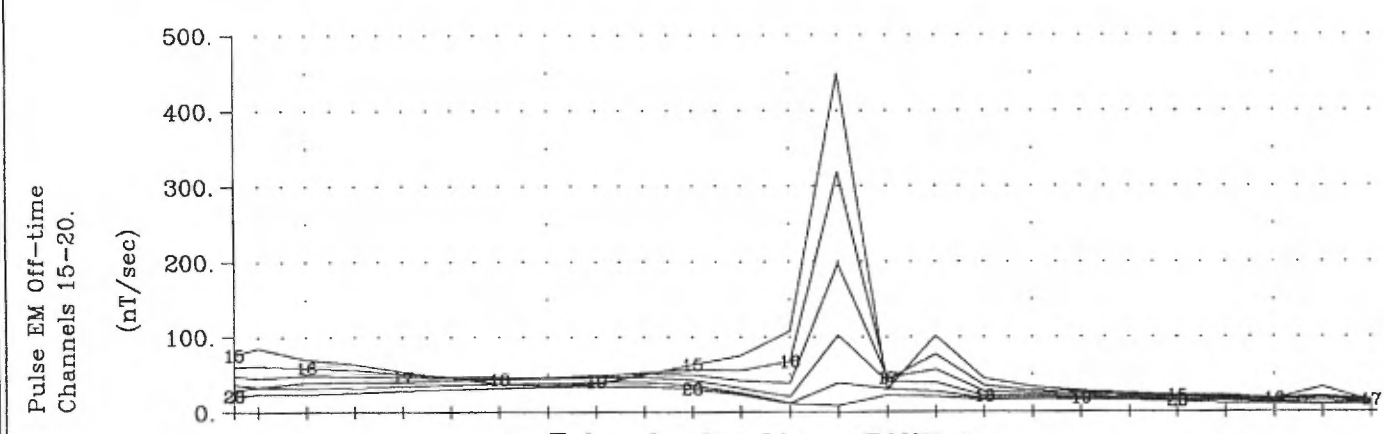
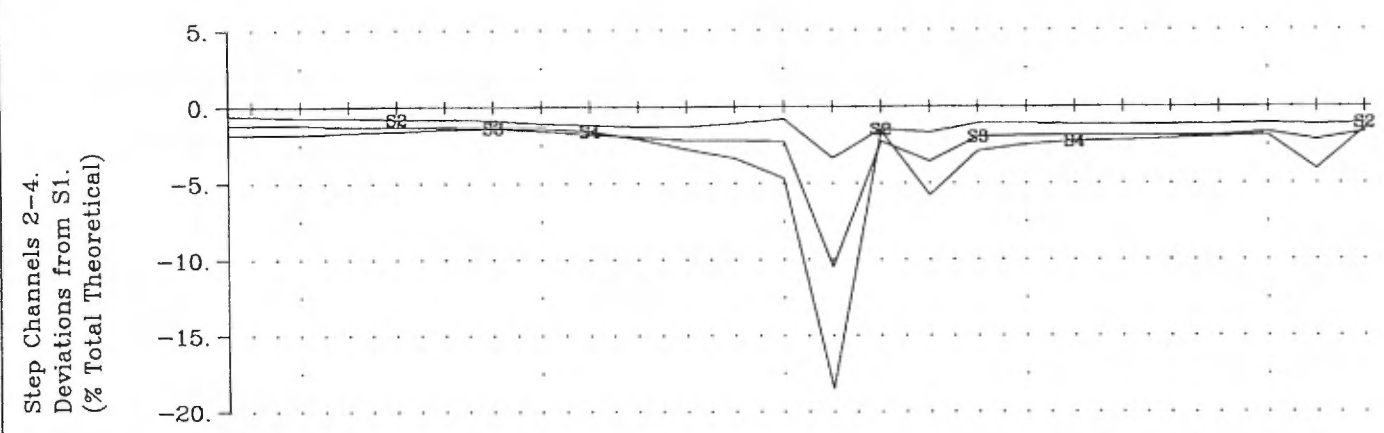
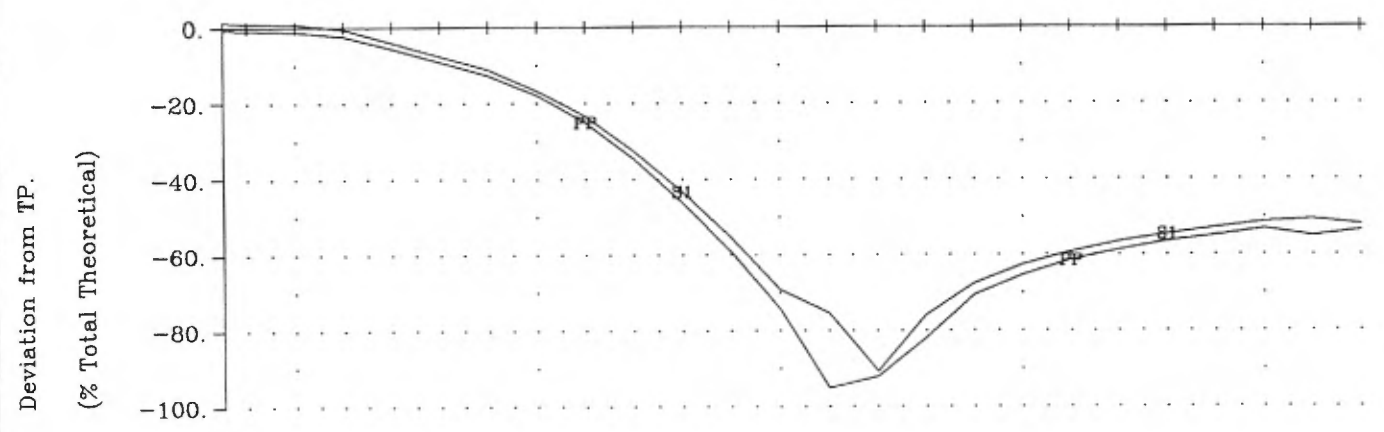
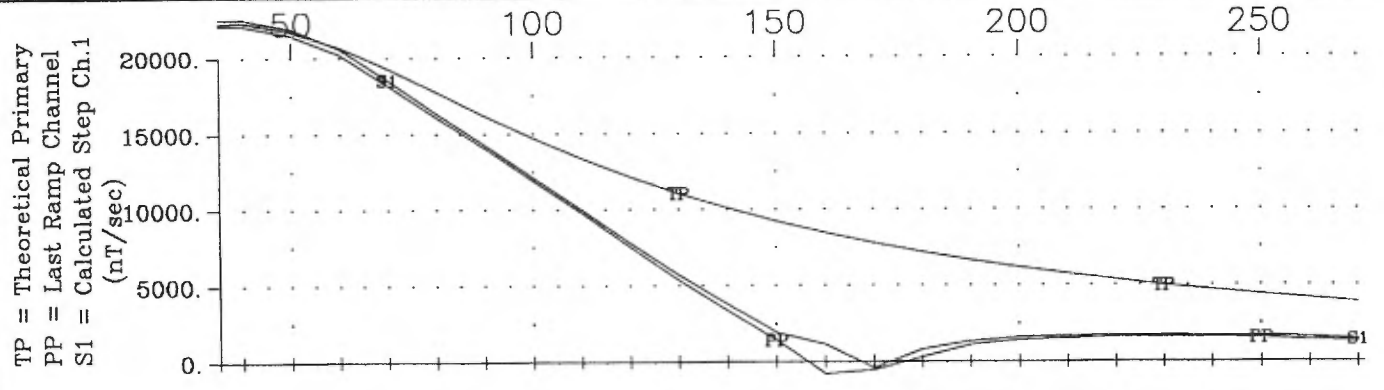
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



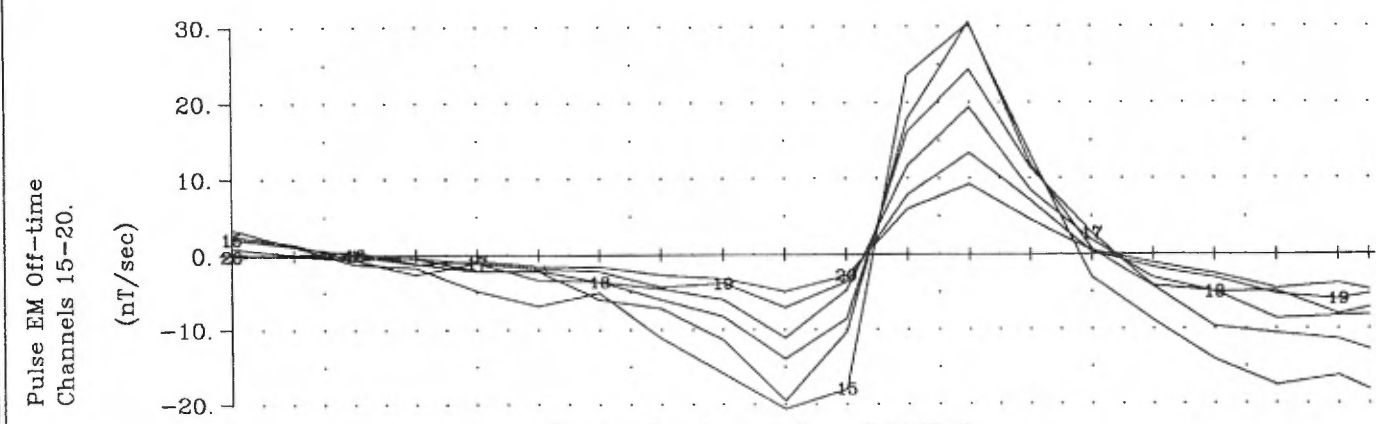
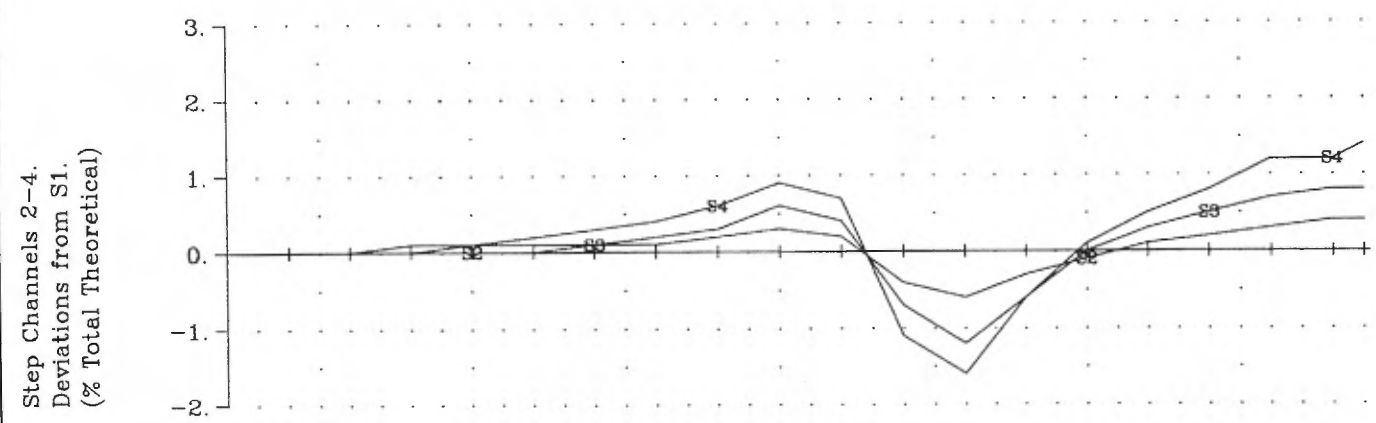
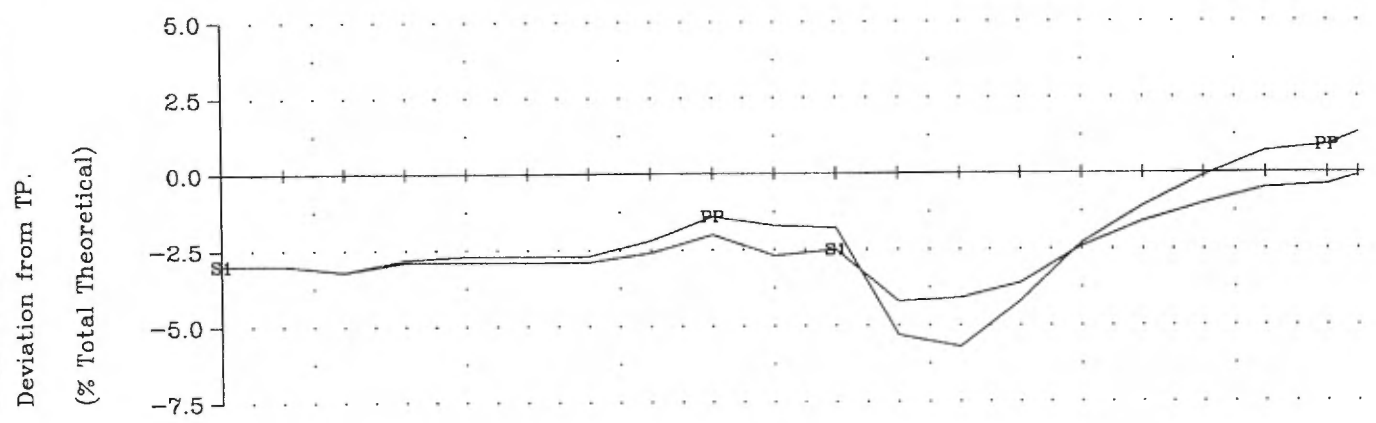
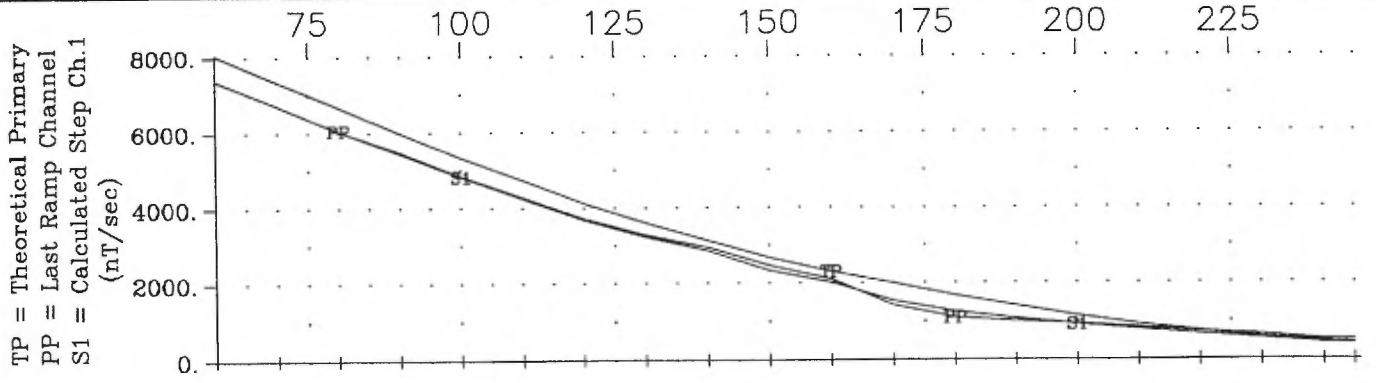
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



Falconbridge Ltd. ZONE 2
 Hole 718-1764 Y Component
 Crone Geophysics & Exploration Ltd.

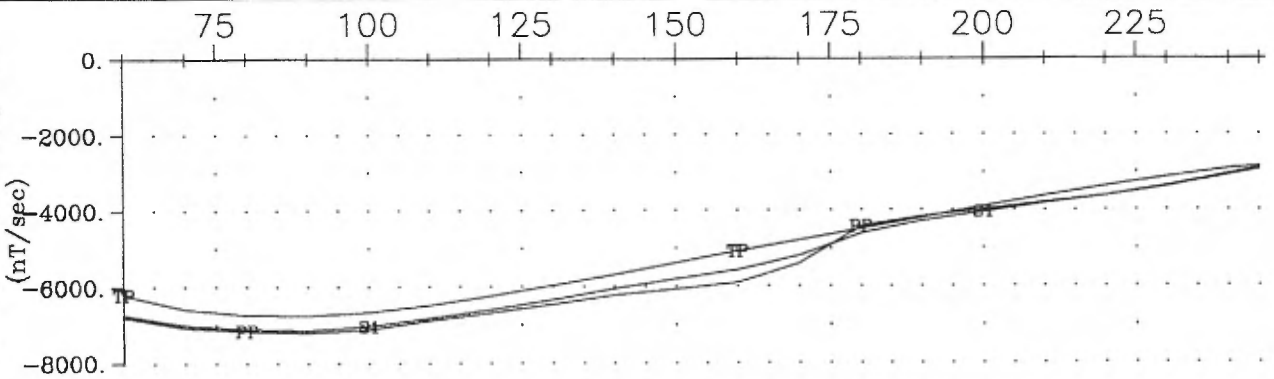


Falconbridge Ltd. ZONE 2
 Hole 718-1764 Z Component
 Crone Geophysics & Exploration Ltd.

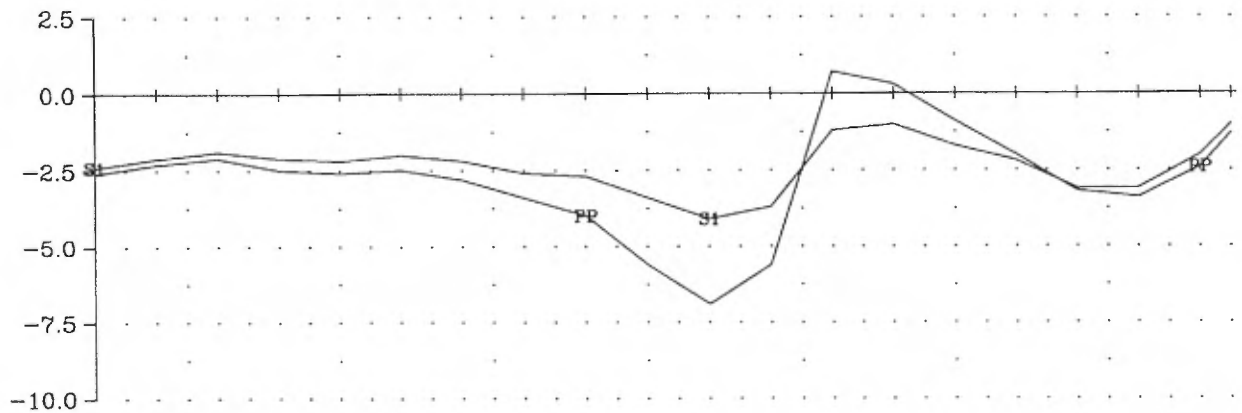


Falconbridge Ltd. ZONE 2
 Hole 718-1763 X Component
 Crone Geophysics & Exploration Ltd.

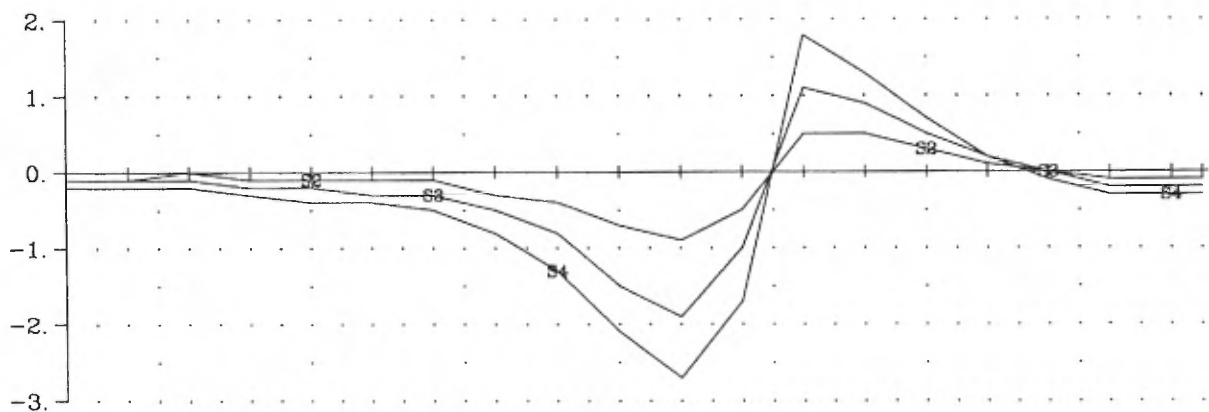
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



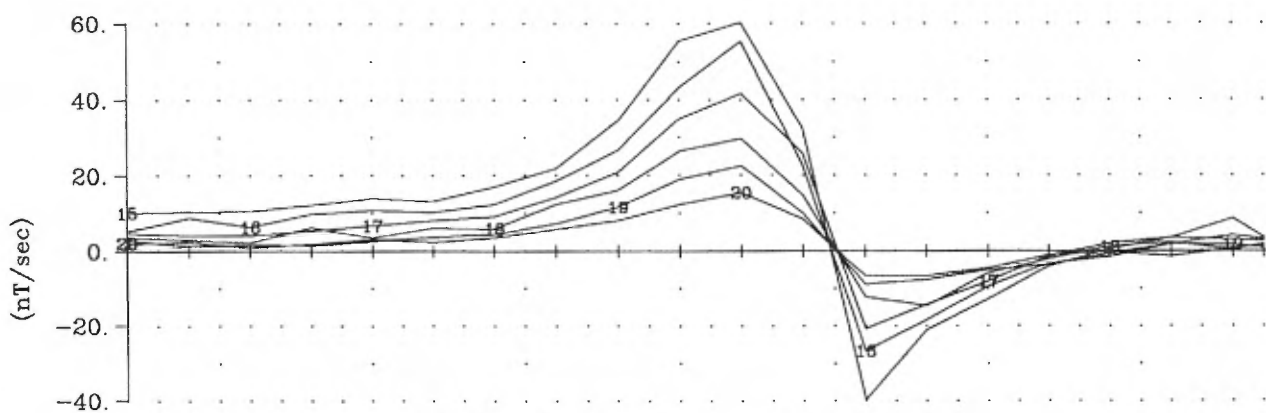
Deviation from TP.
 (% Total Theoretical)



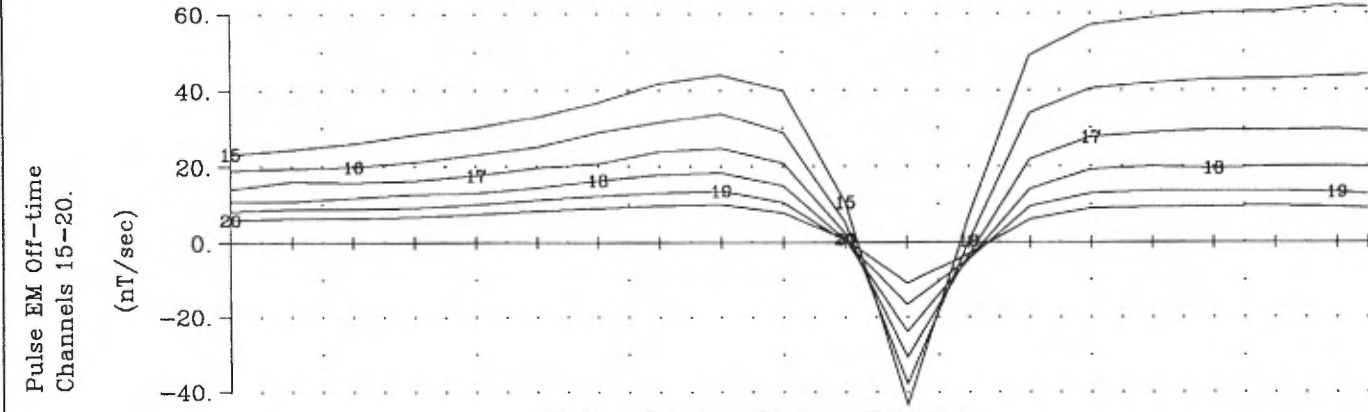
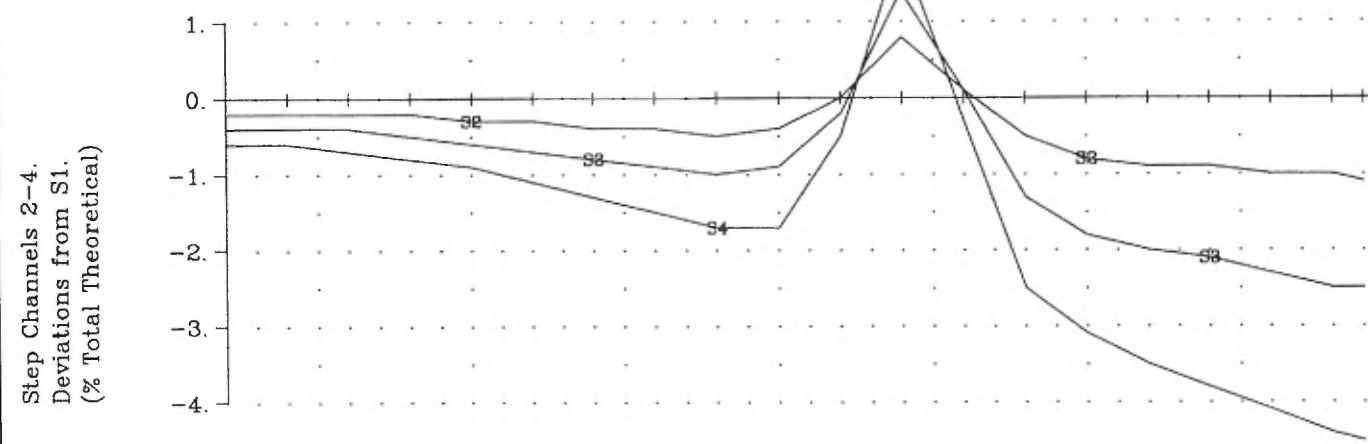
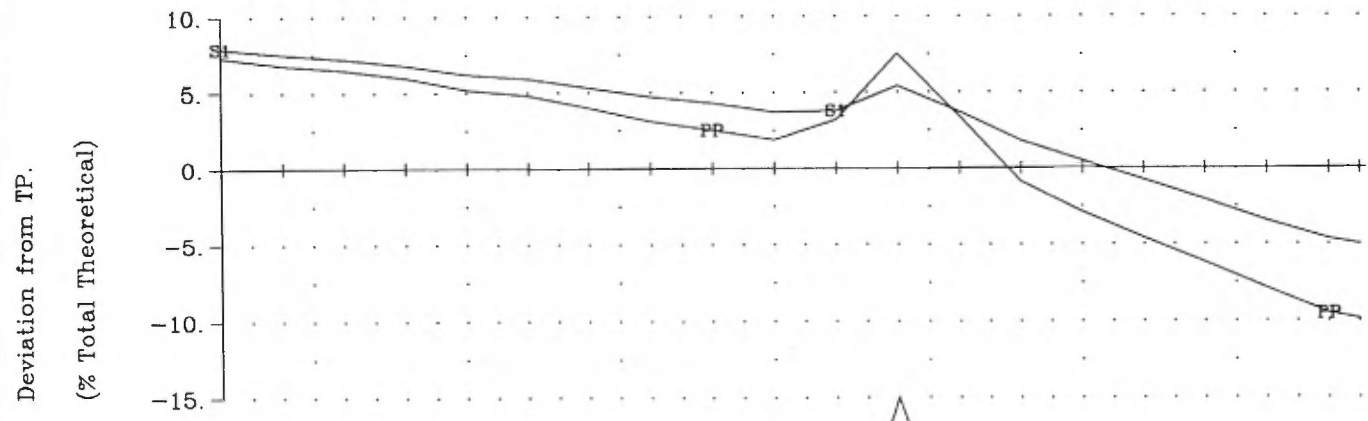
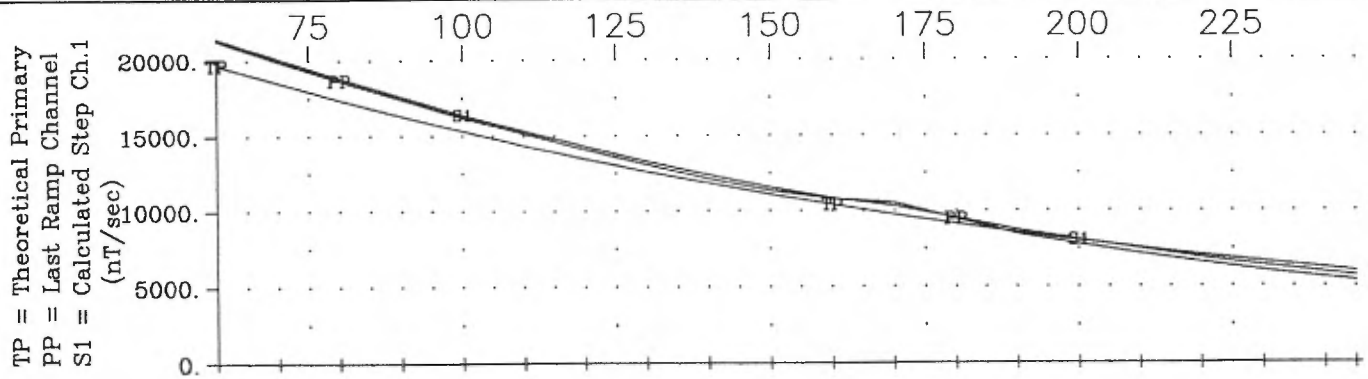
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



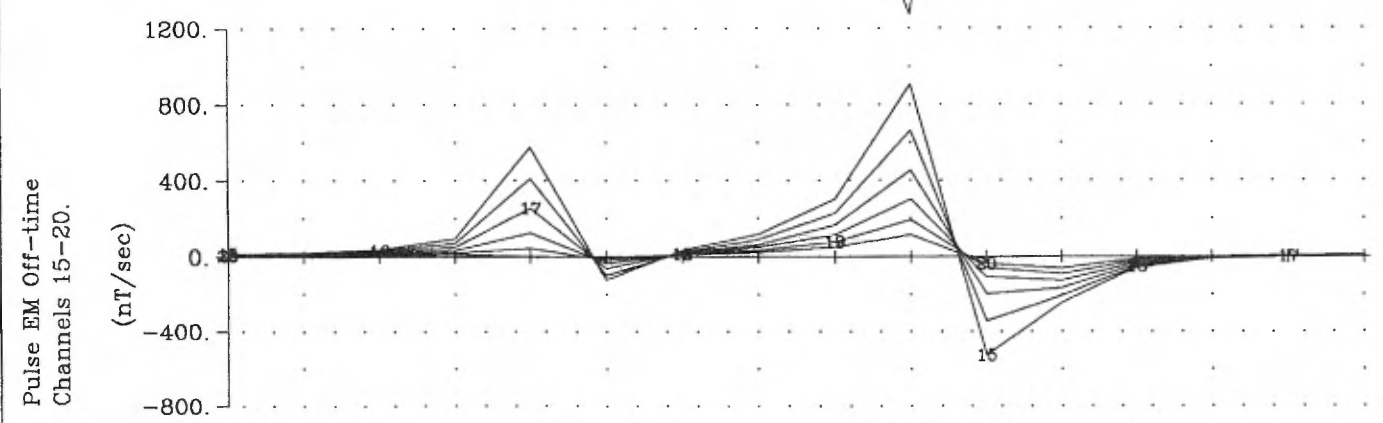
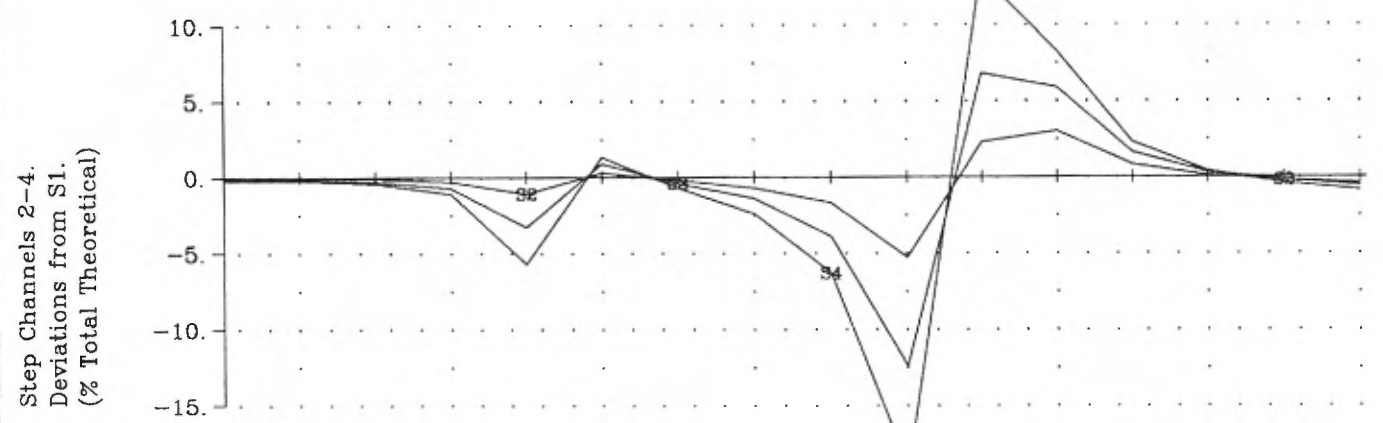
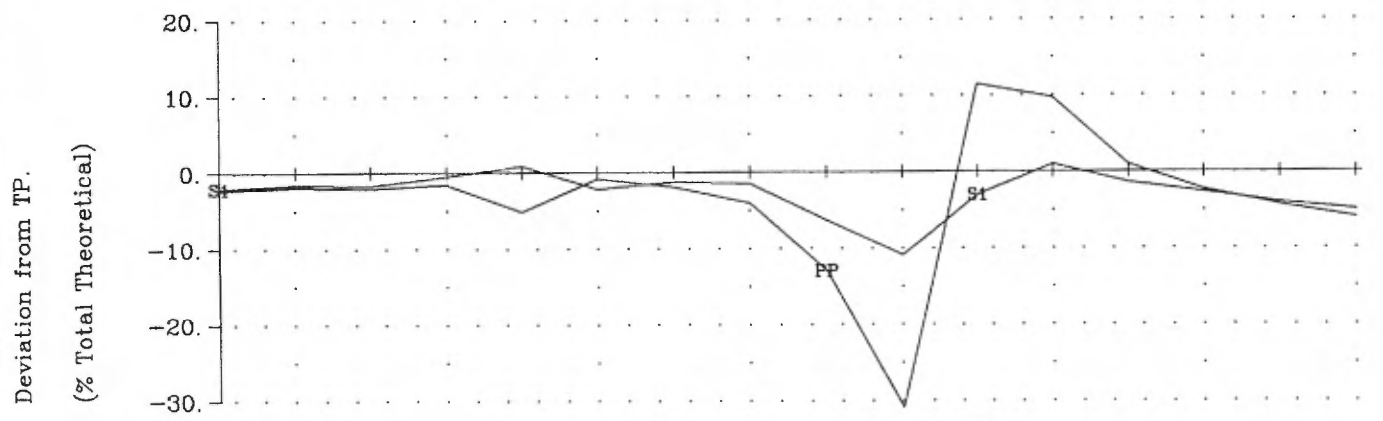
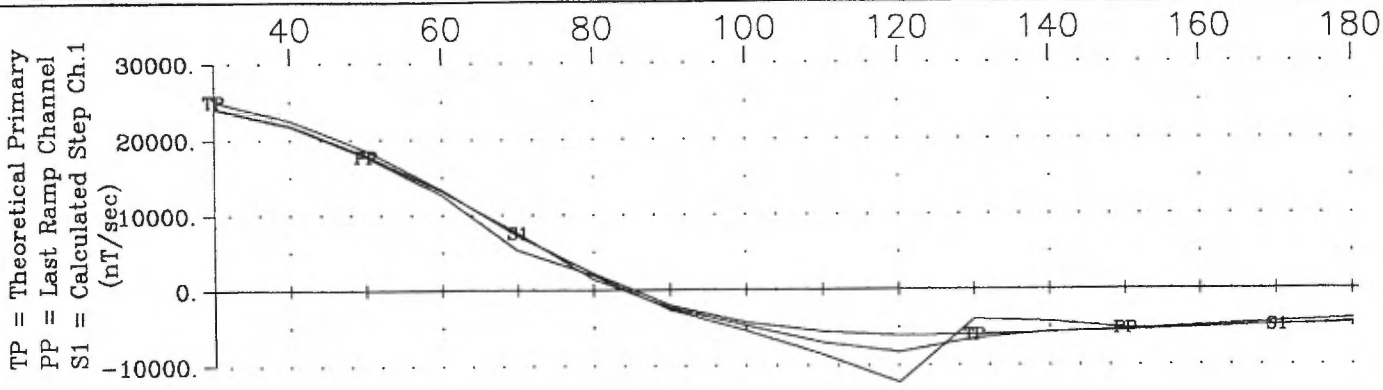
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



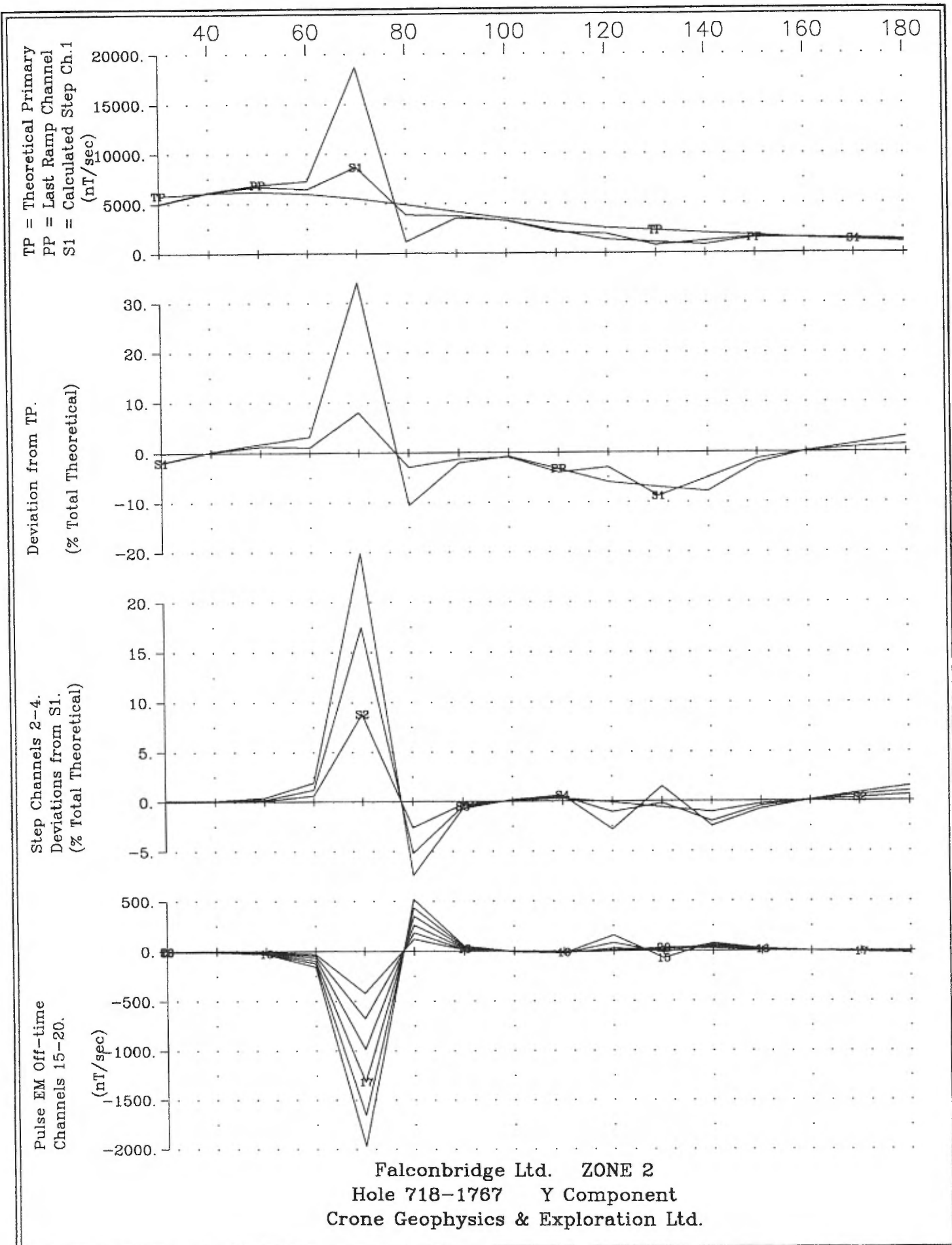
Falconbridge Ltd. ZONE 2
 Hole 718-1763 Y Component
 Crone Geophysics & Exploration Ltd.

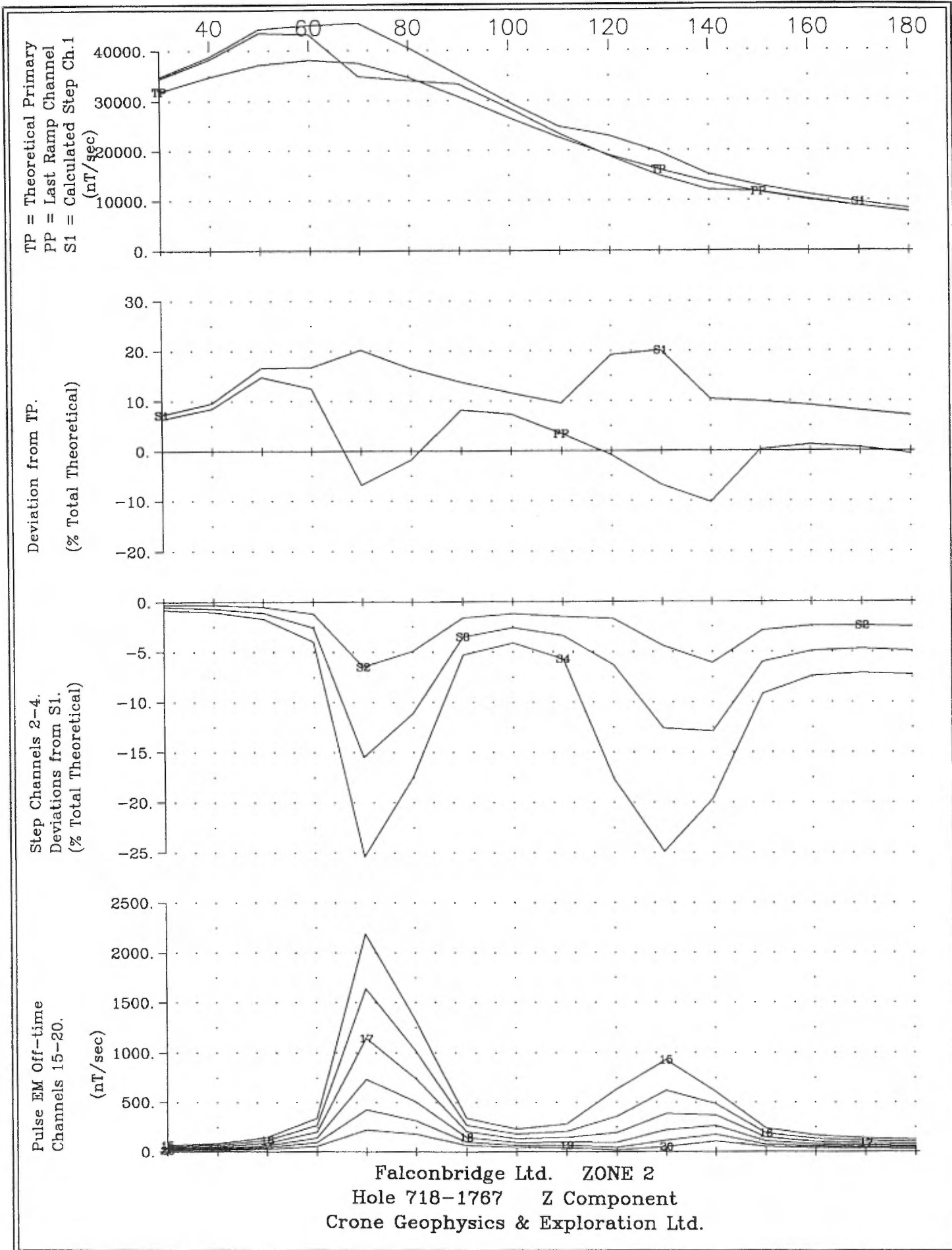


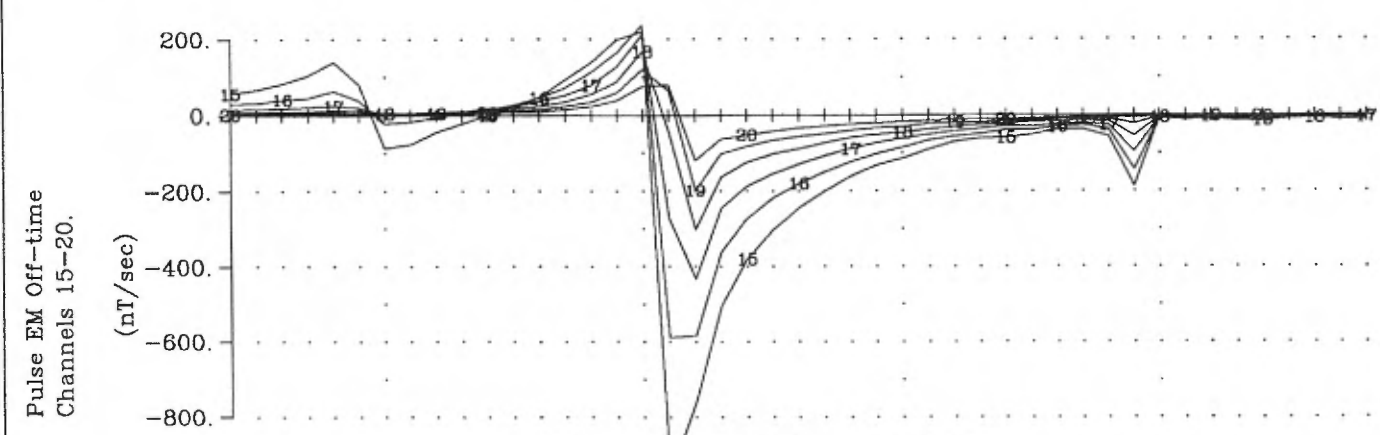
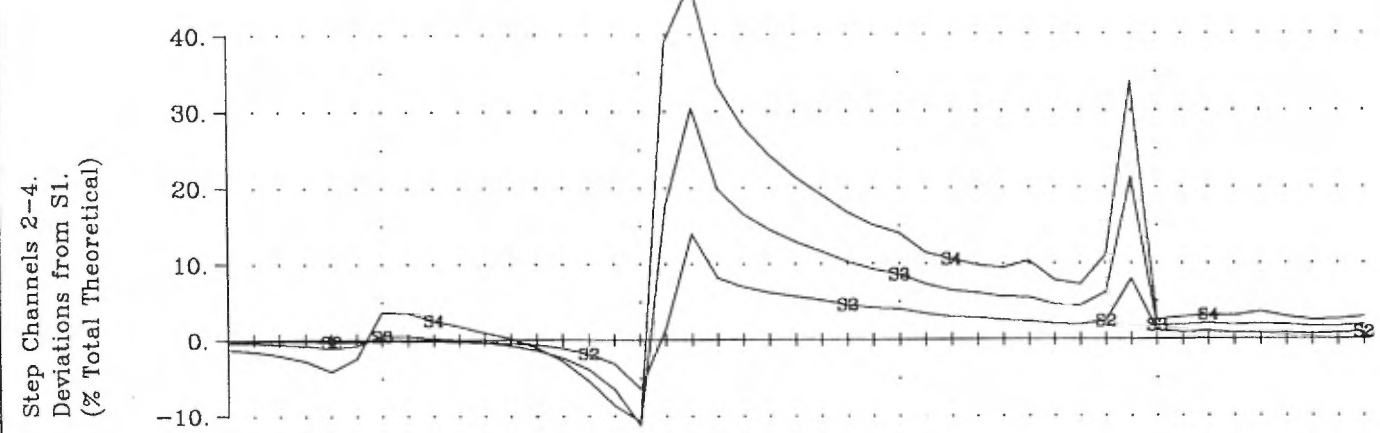
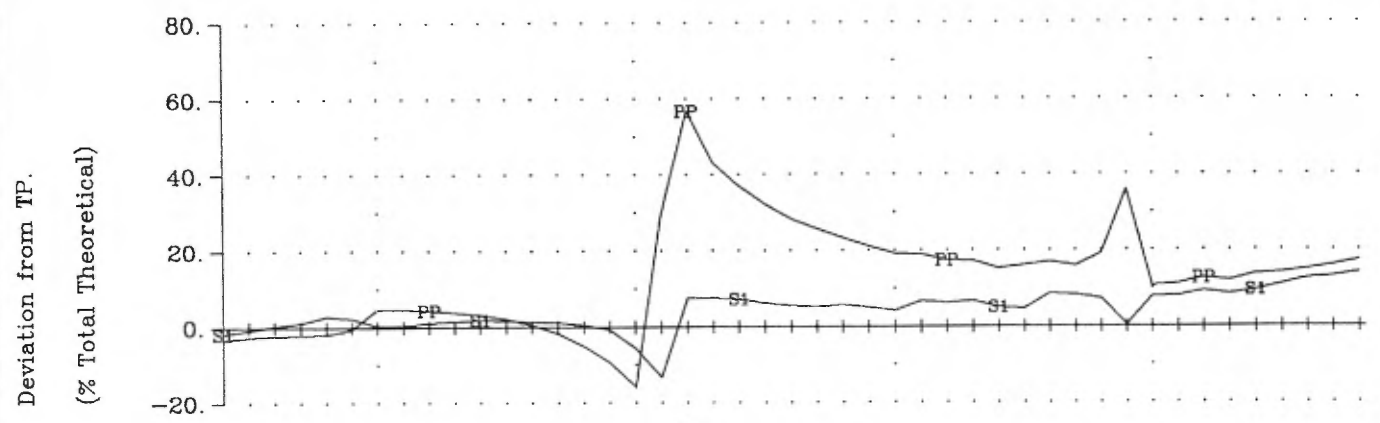
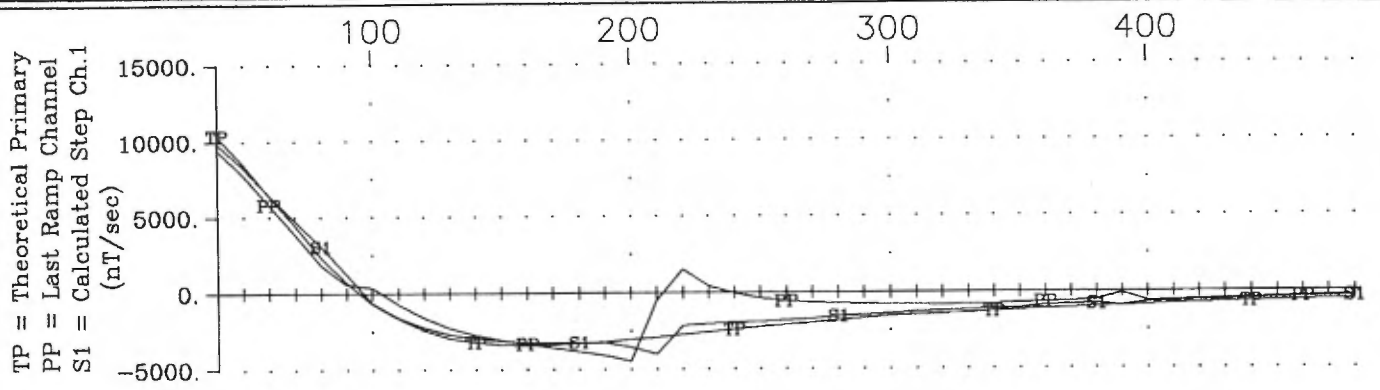
Falconbridge Ltd. ZONE 2
 Hole 718-1763 Z Component
 Crone Geophysics & Exploration Ltd.



Falconbridge Ltd. ZONE 2
 Hole 718-1767 X Component
 Crone Geophysics & Exploration Ltd.

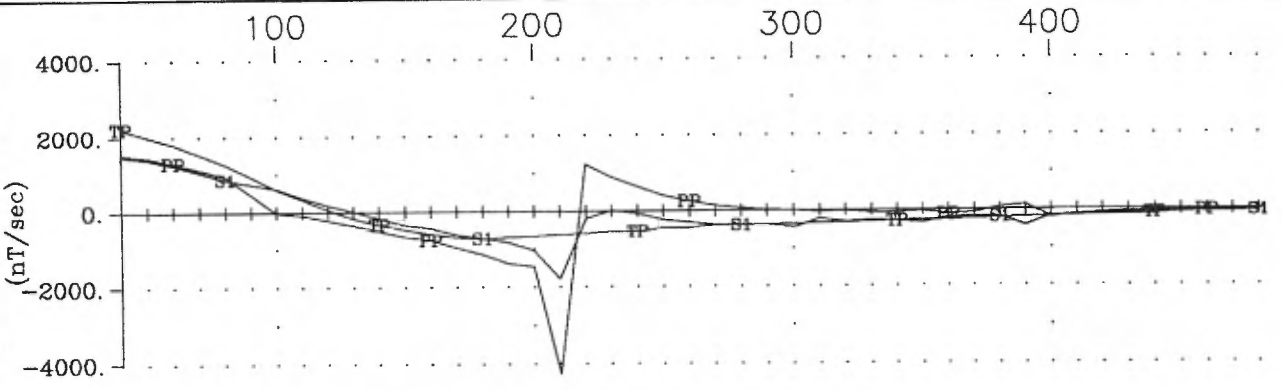






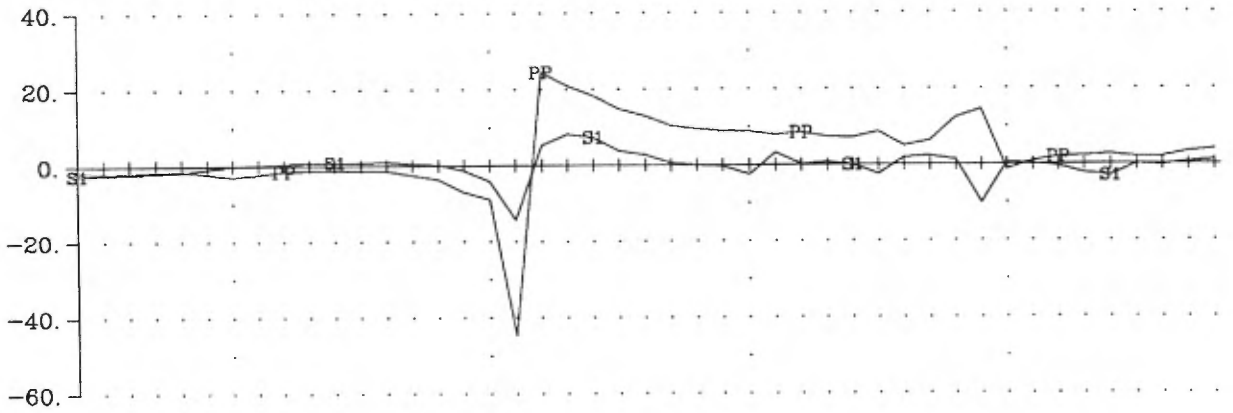
Falconbridge Ltd. ZONE 2
 Hole 718-1768 X Component
 Crone Geophysics & Exploration Ltd.

TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



Deviation from TP.

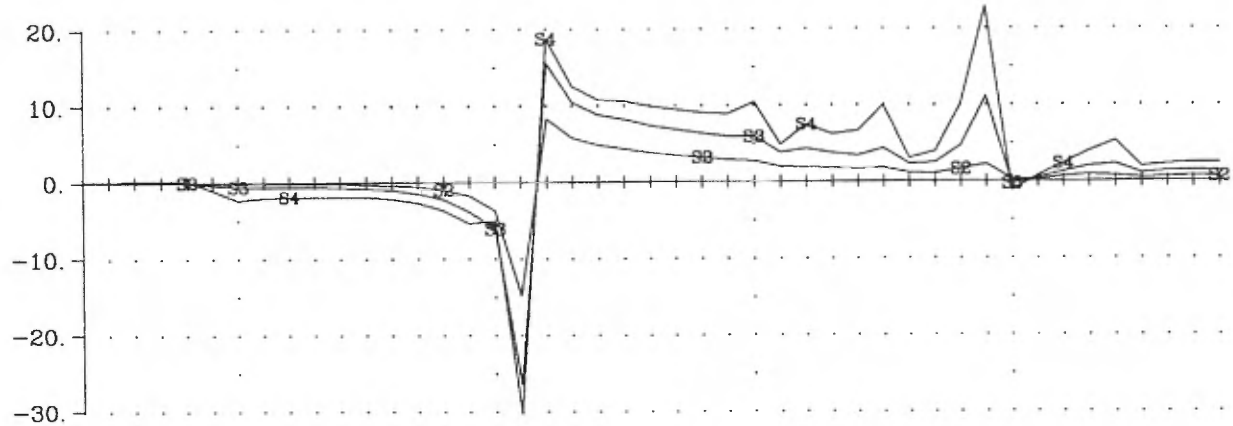
(% Total Theoretical)



Step Channels 2-4.

Deviations from S1.

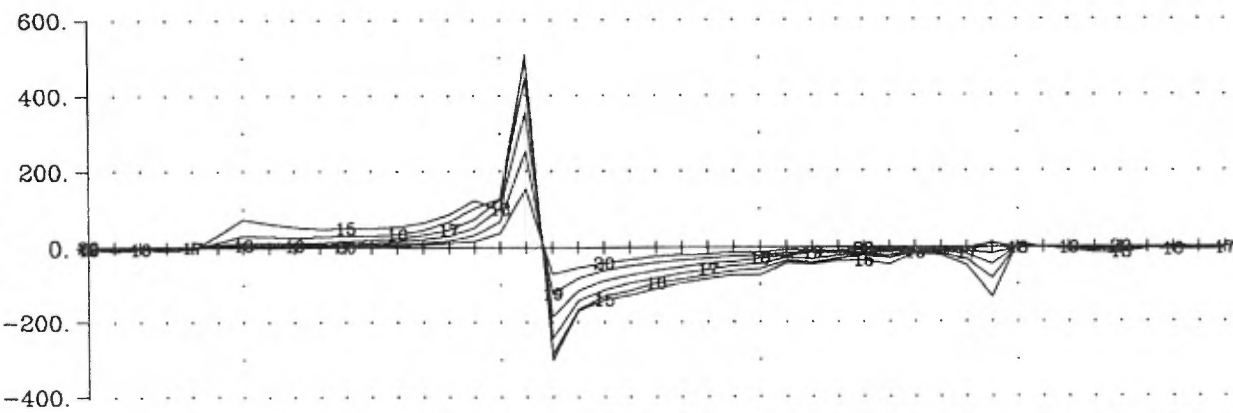
(% Total Theoretical)



Pulse EM Off-time

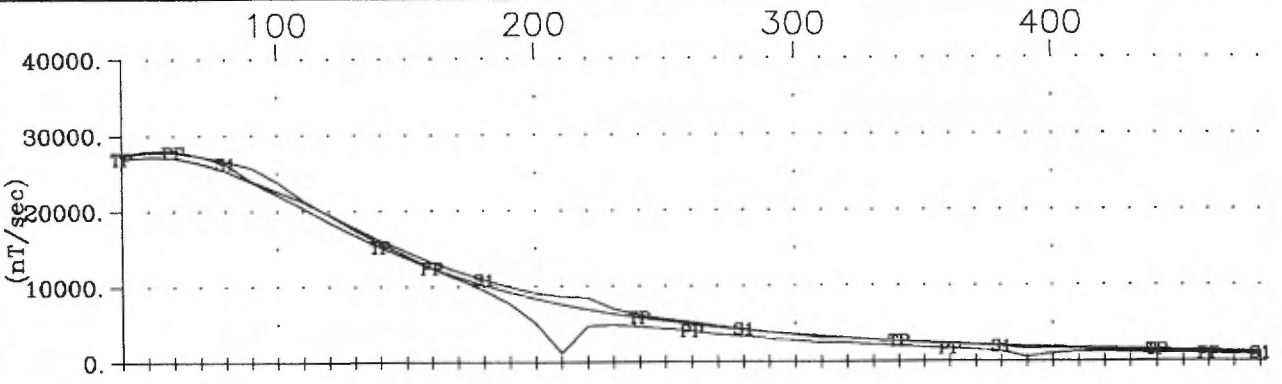
Channels 15-20.

(nT/sec)

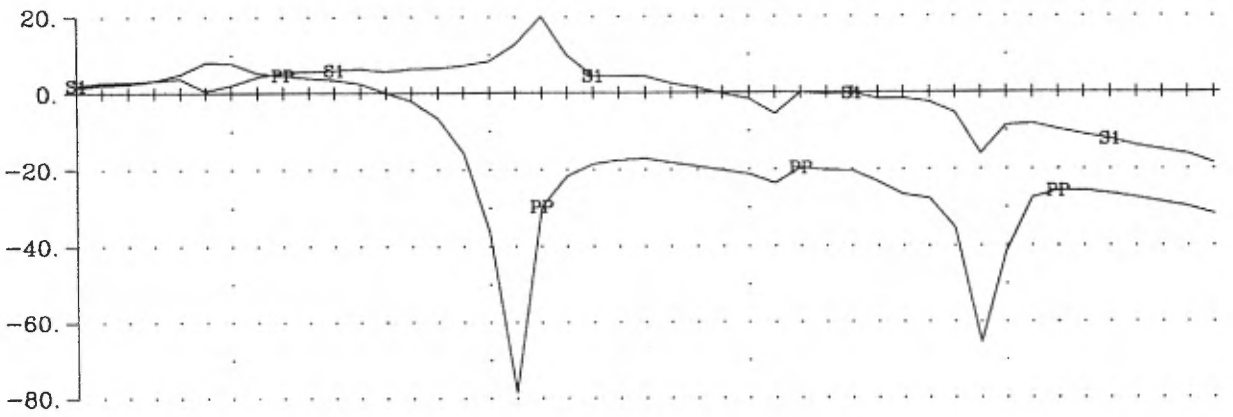


Falconbridge Ltd. ZONE 2
 Hole 718-1768 Y Component
 Crone Geophysics & Exploration Ltd.

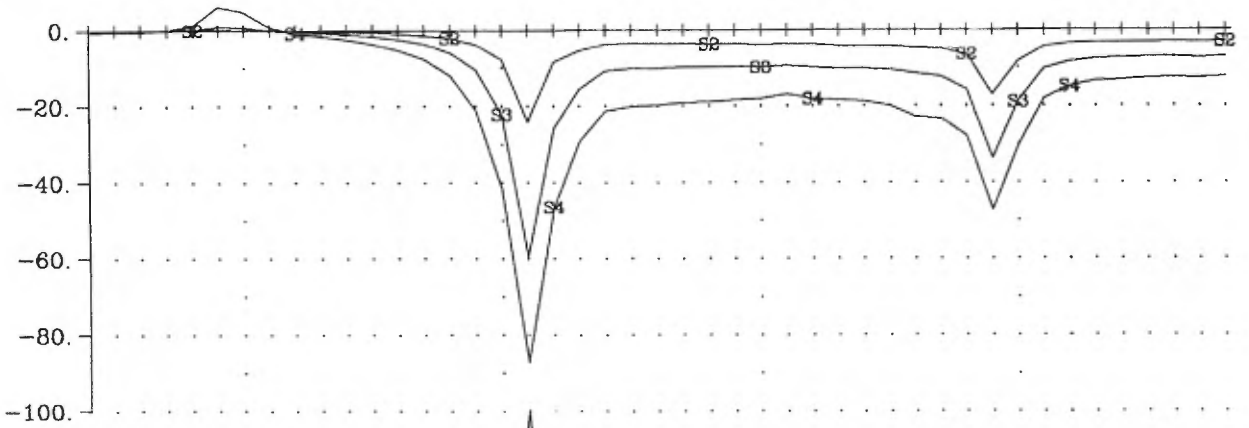
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



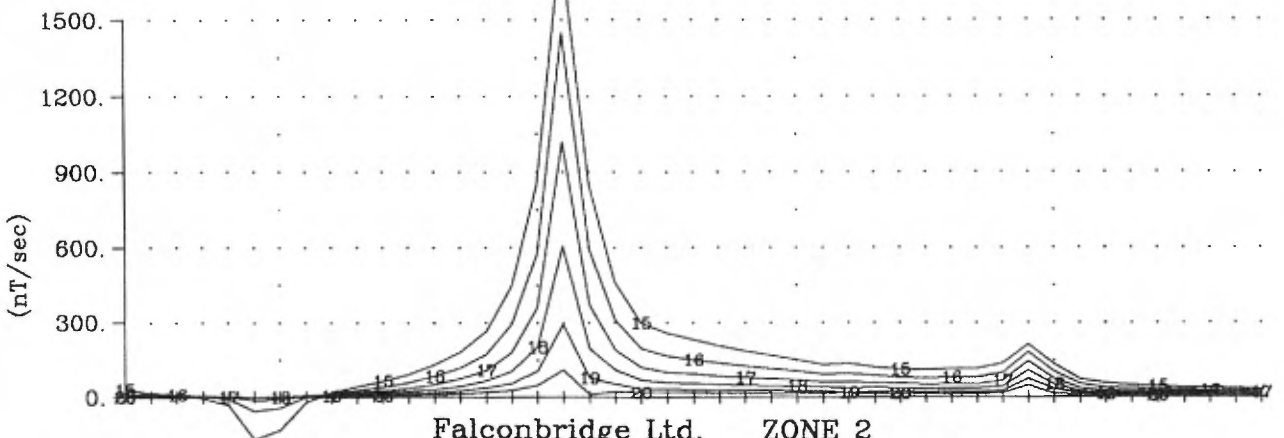
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

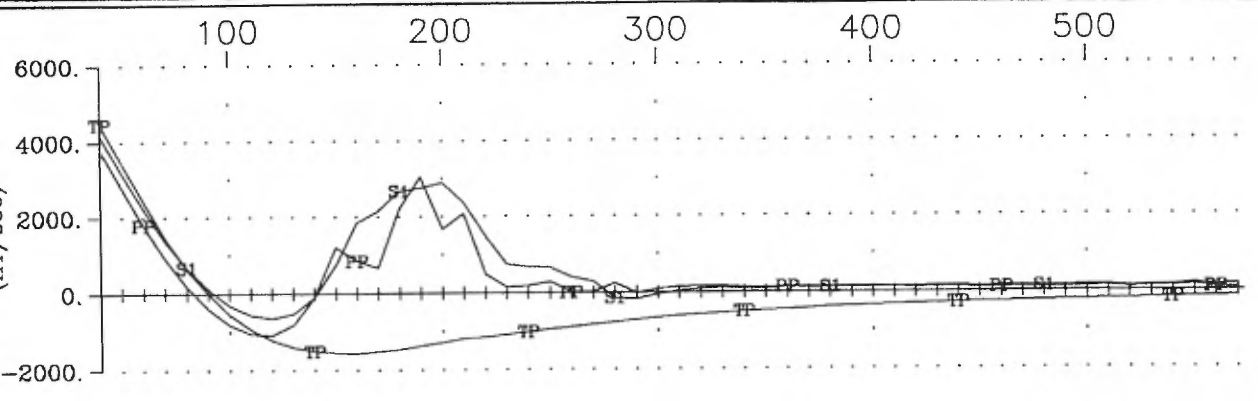


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

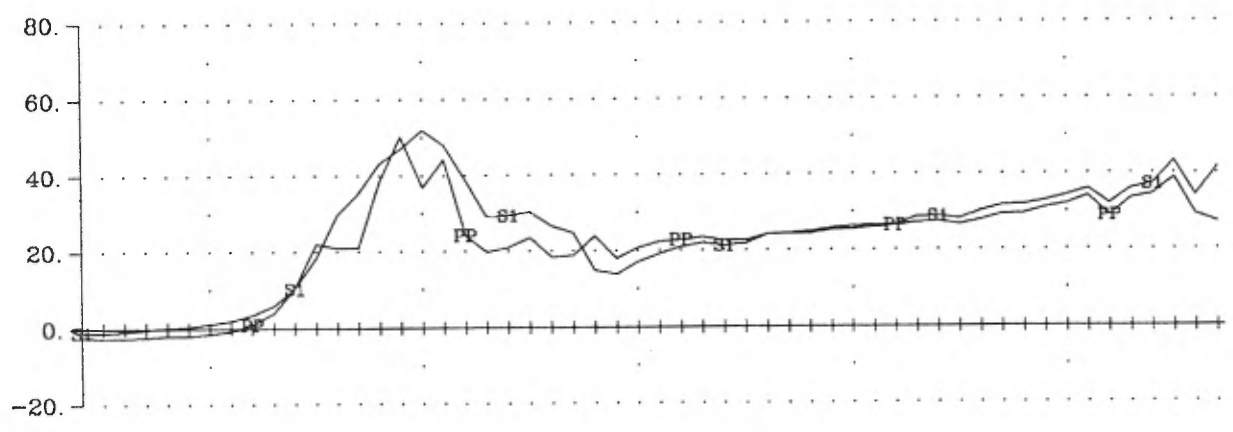


Falconbridge Ltd. ZONE 2
 Hole 718-1768 Z Component
 Crone Geophysics & Exploration Ltd.

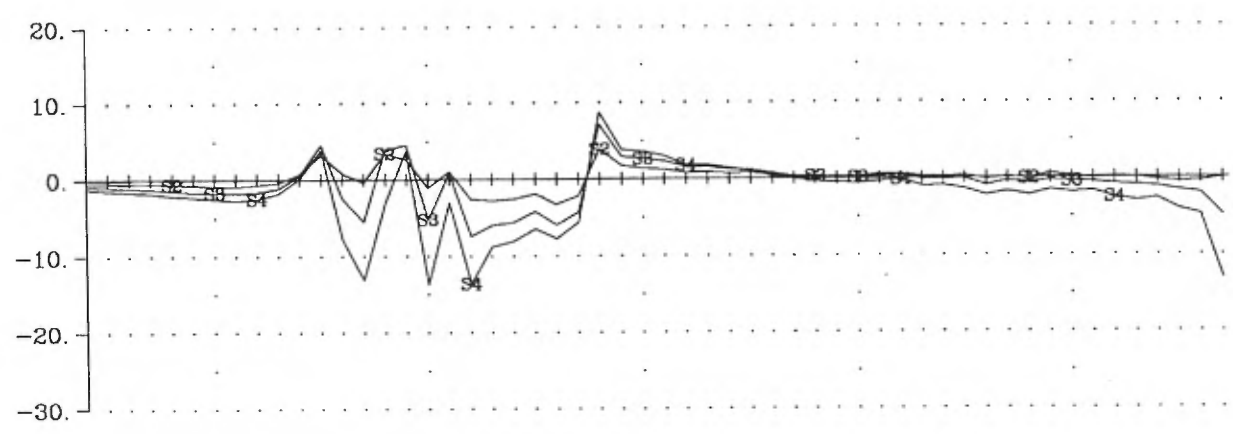
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



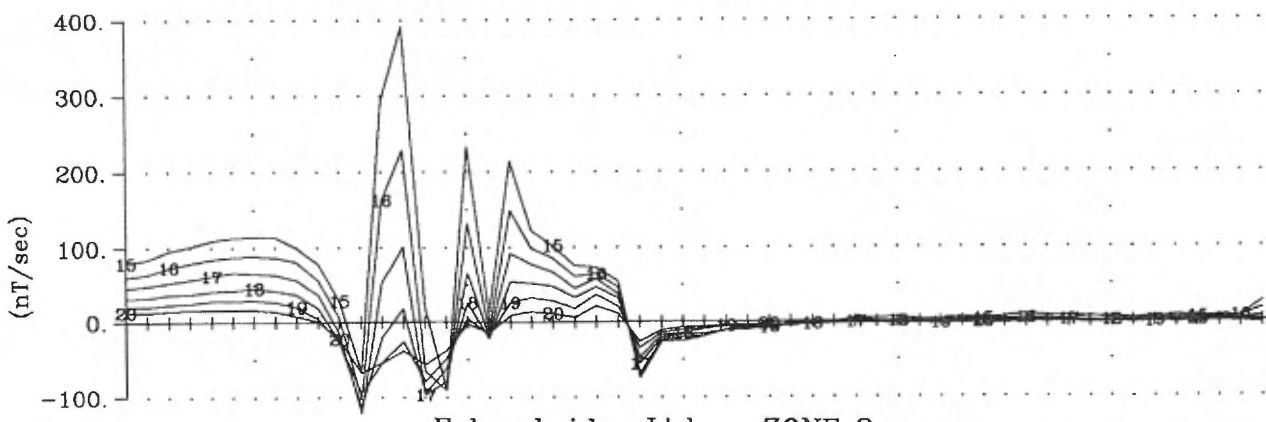
Deviation from TP.
 (% Total Theoretical)



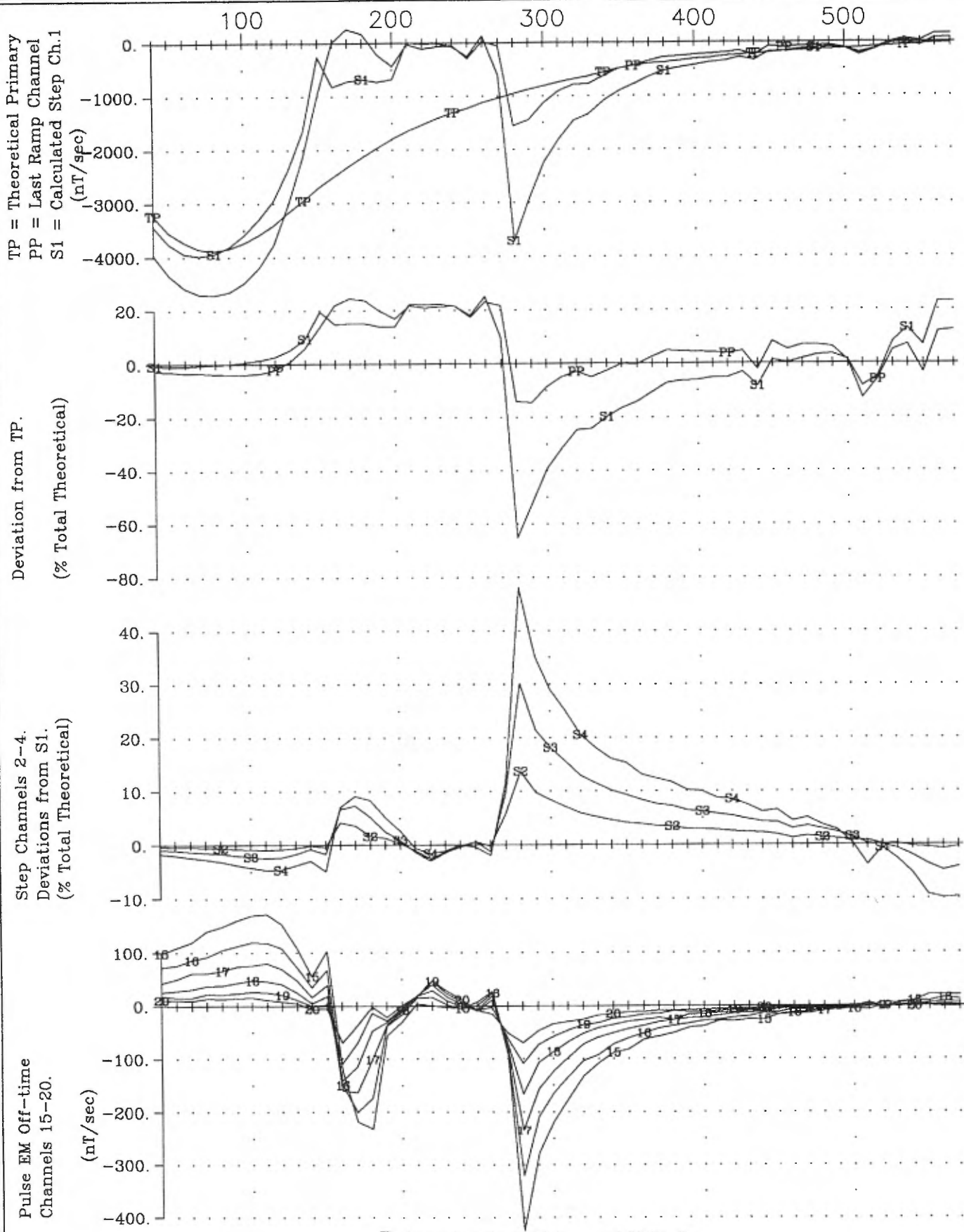
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



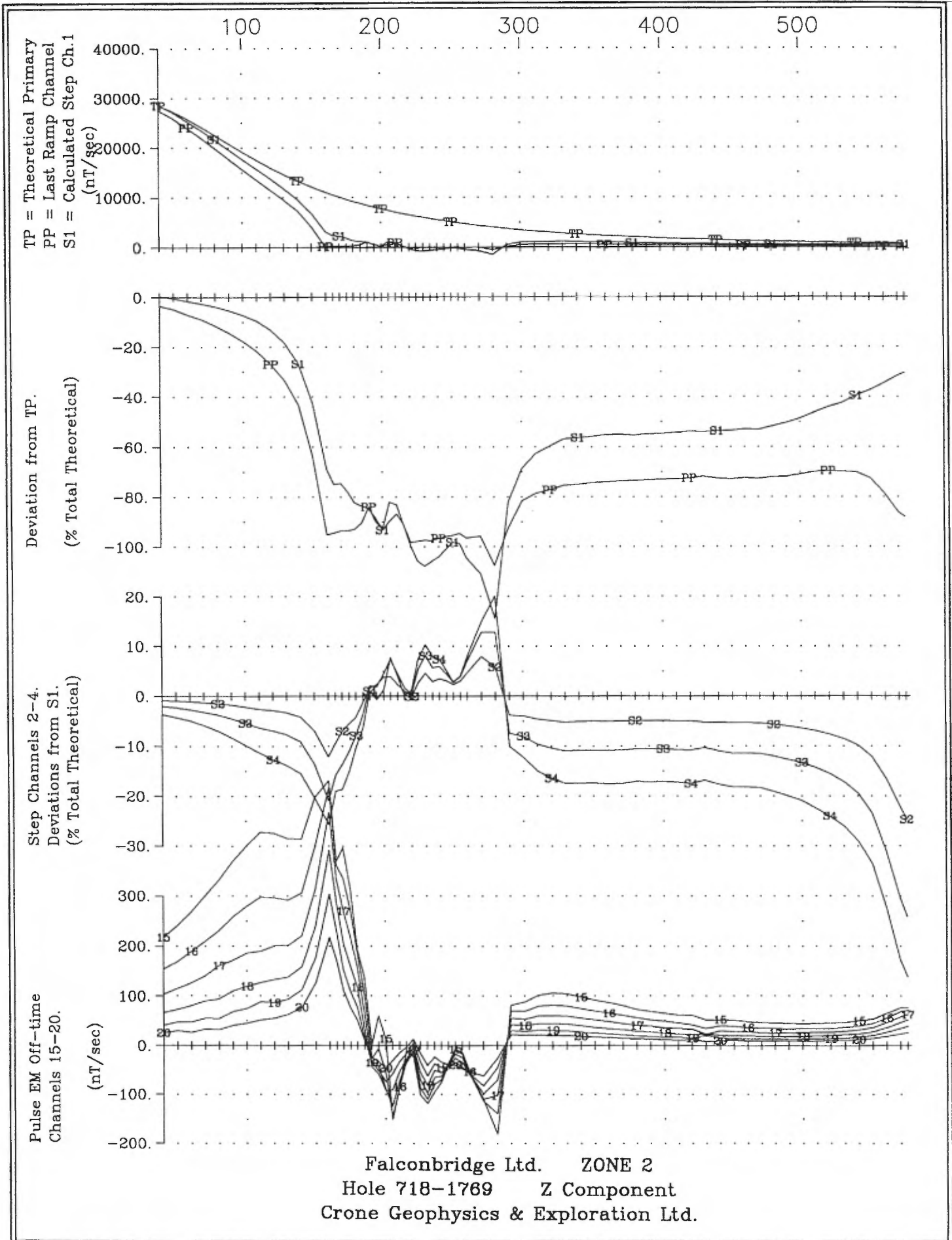
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



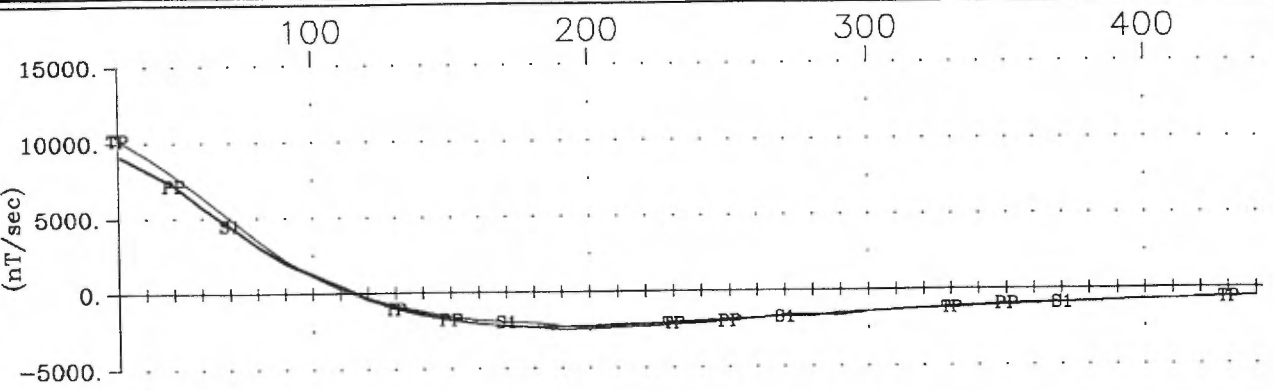
Falconbridge Ltd. ZONE 2
 Hole 718-1769 X Component
 Crone Geophysics & Exploration Ltd.



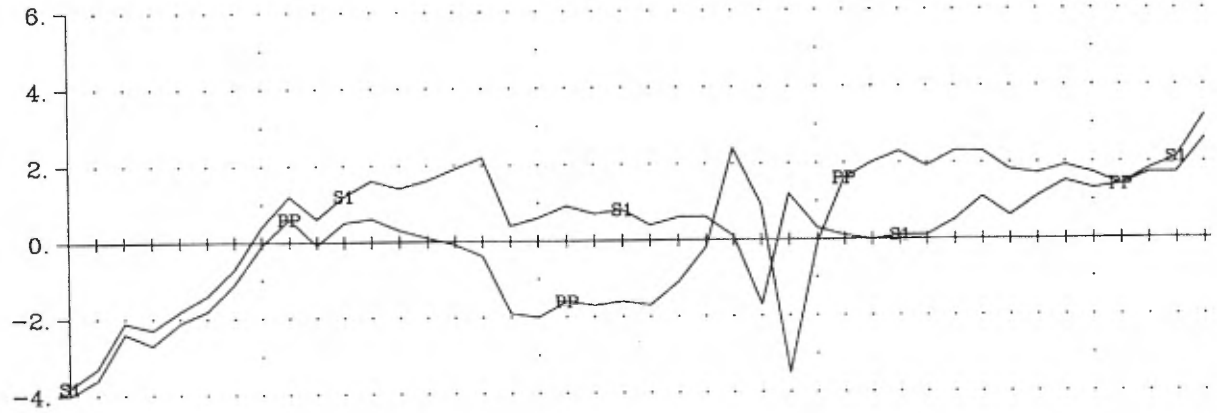
Falconbridge Ltd. ZONE 2
 Hole 718-1769 Y Component
 Crone Geophysics & Exploration Ltd.



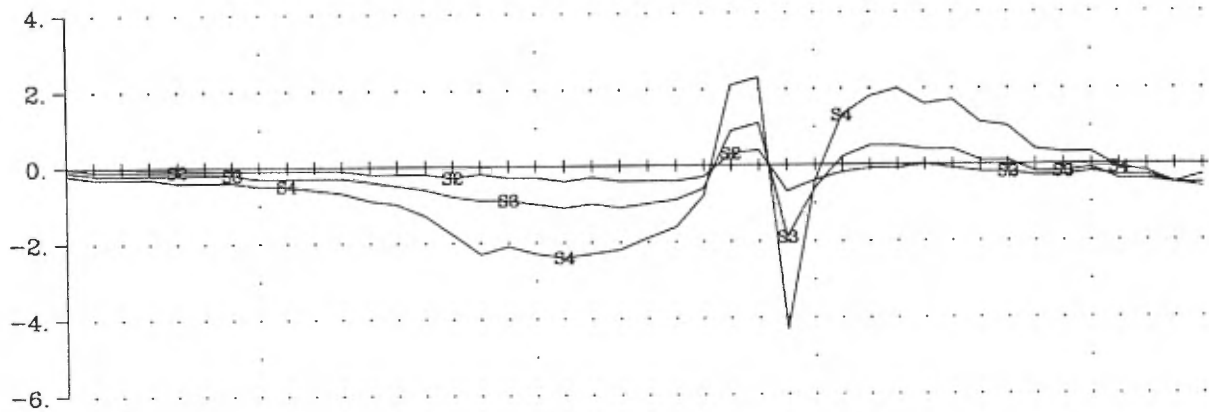
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



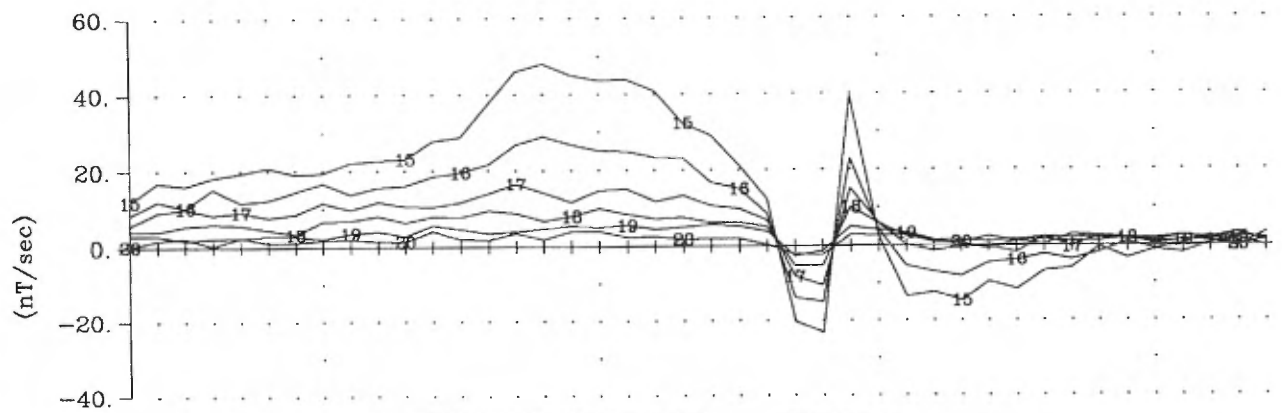
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

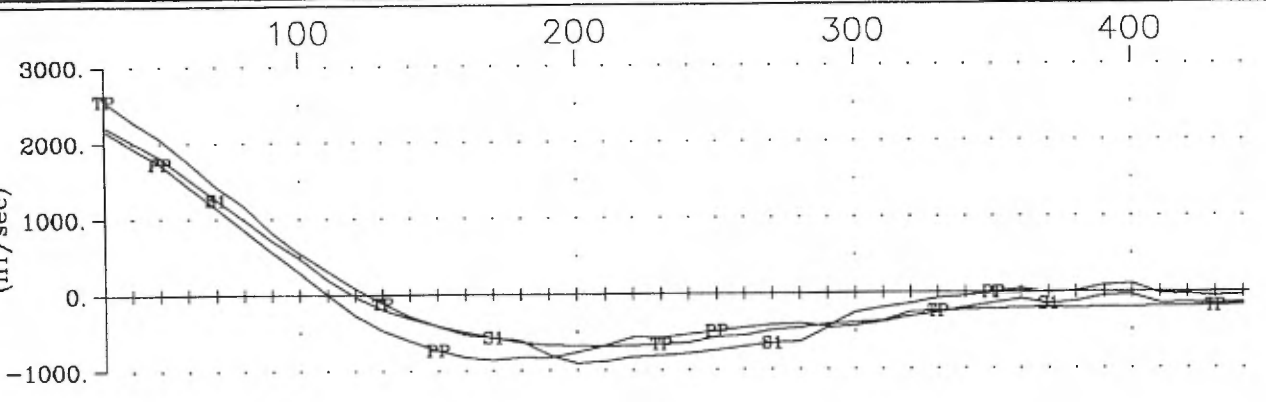


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

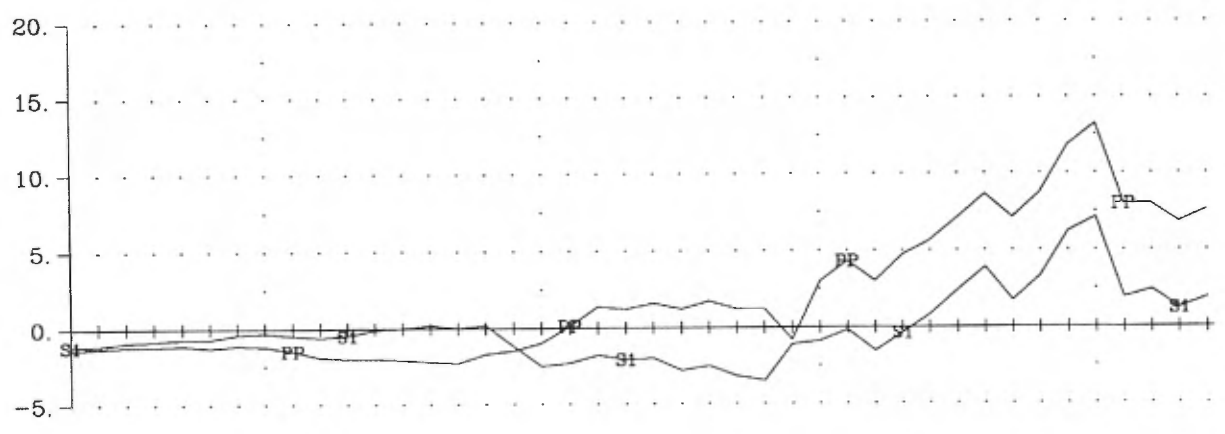


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1770 X Component
 Crone Geophysics & Exploration Ltd.

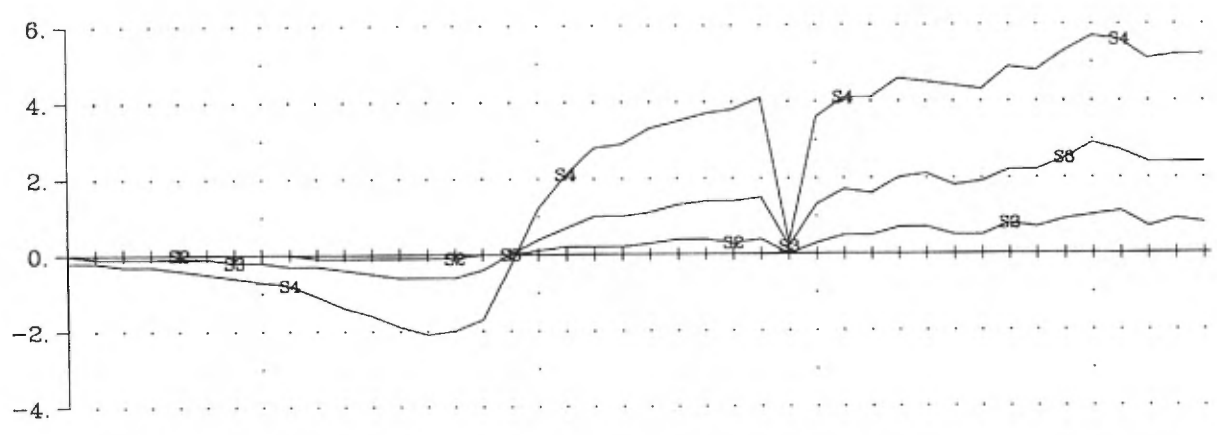
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



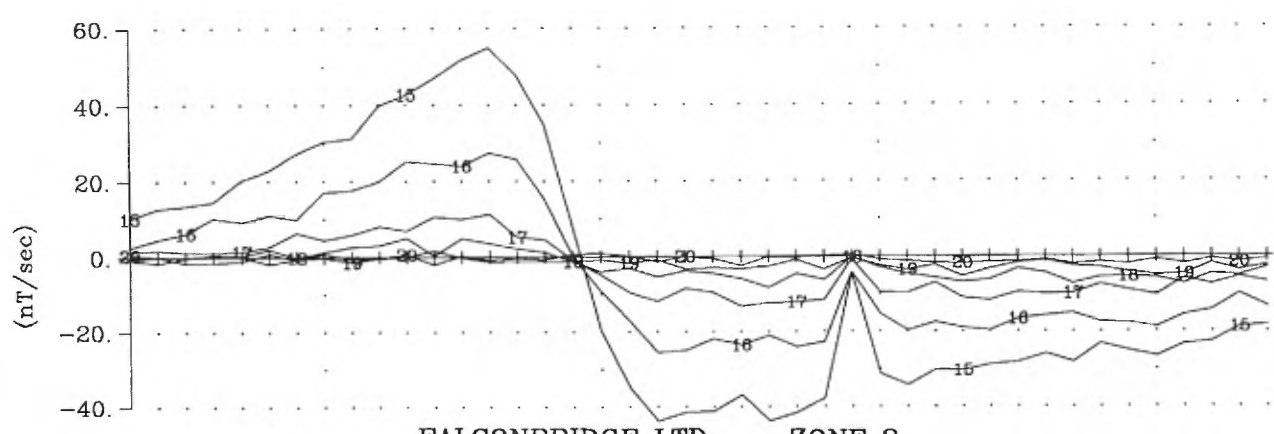
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

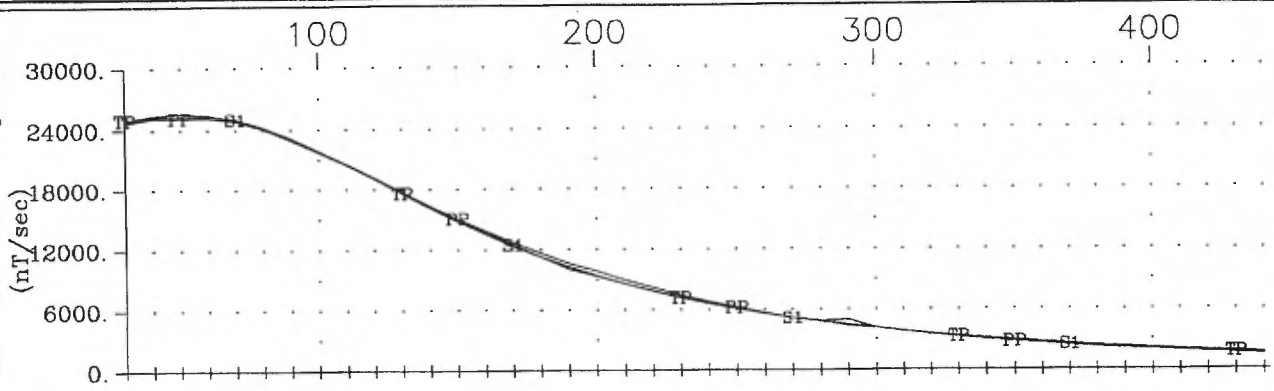


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

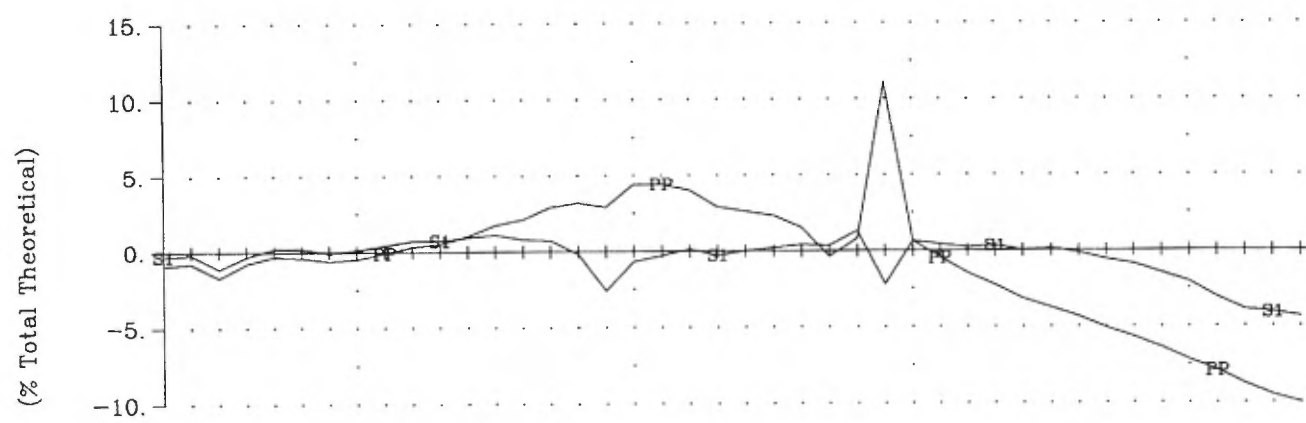


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1770 Y Component
 Crone Geophysics & Exploration Ltd.

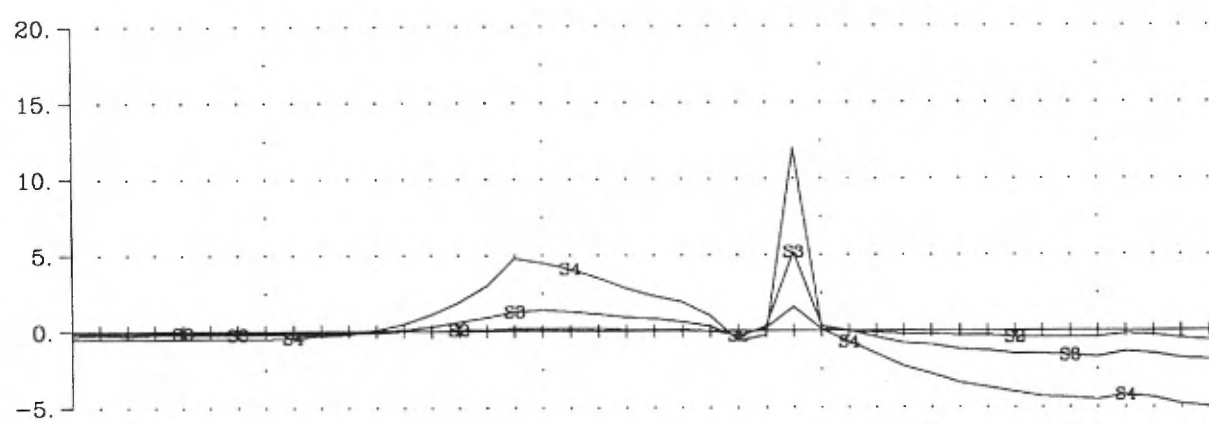
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



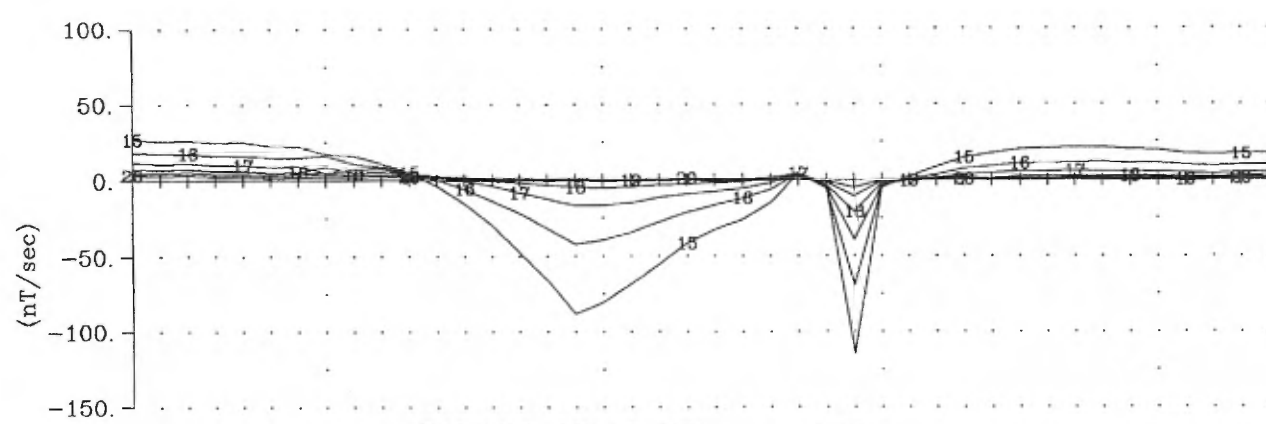
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

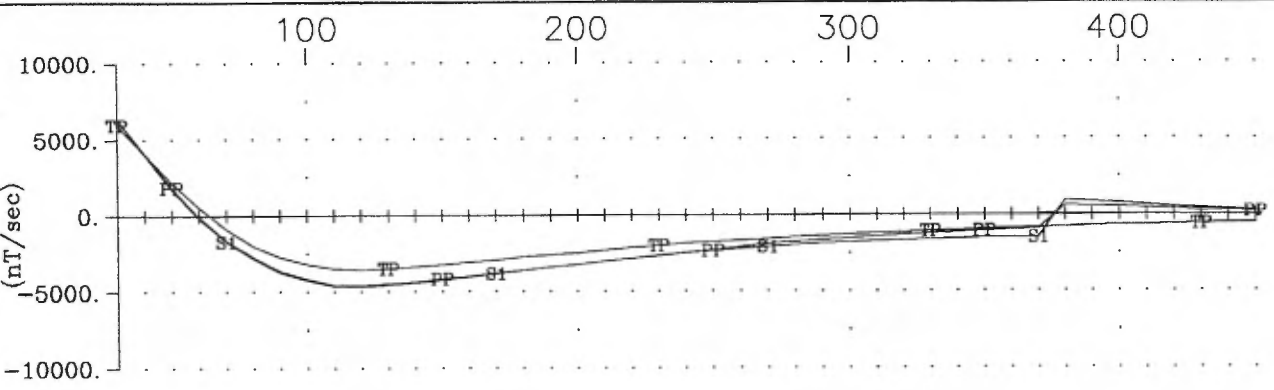


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

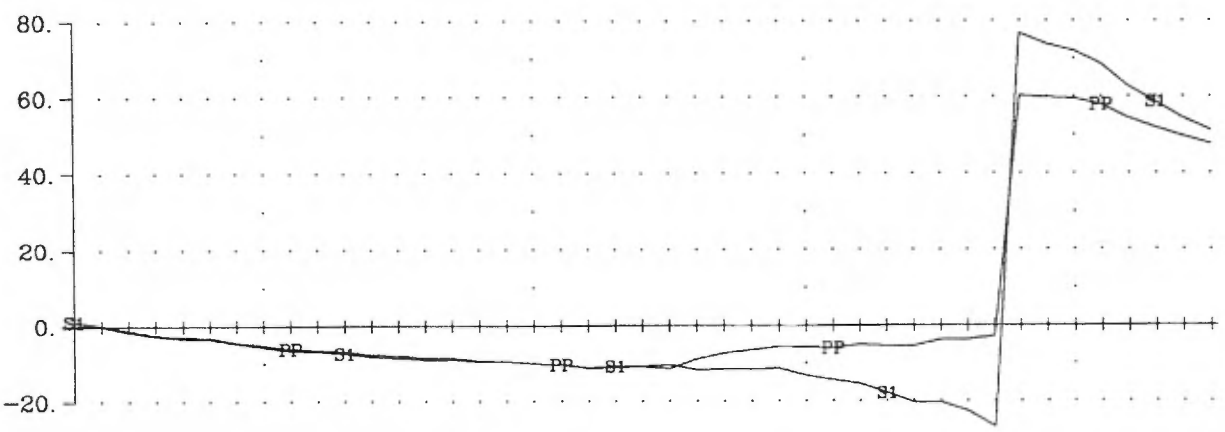


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1770 Z Component
 Crone Geophysics & Exploration Ltd.

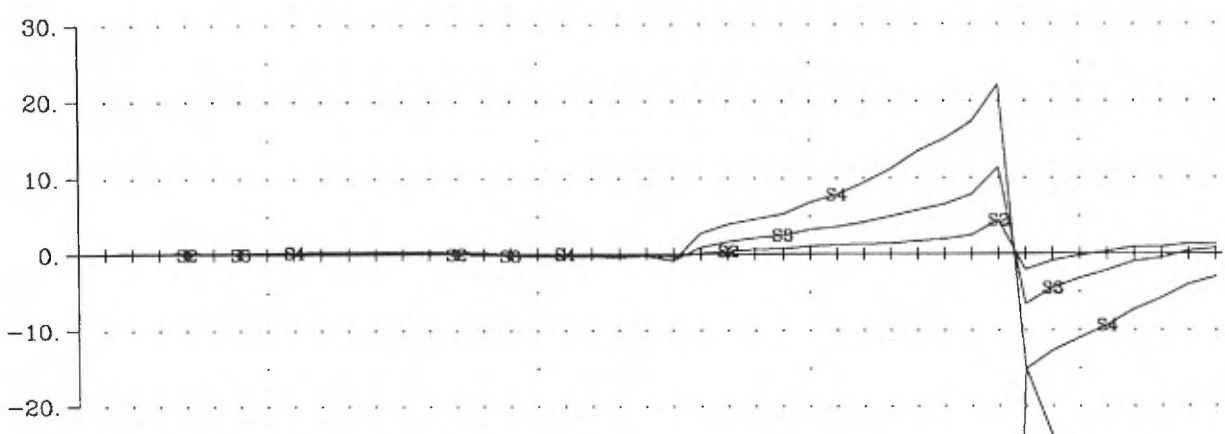
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



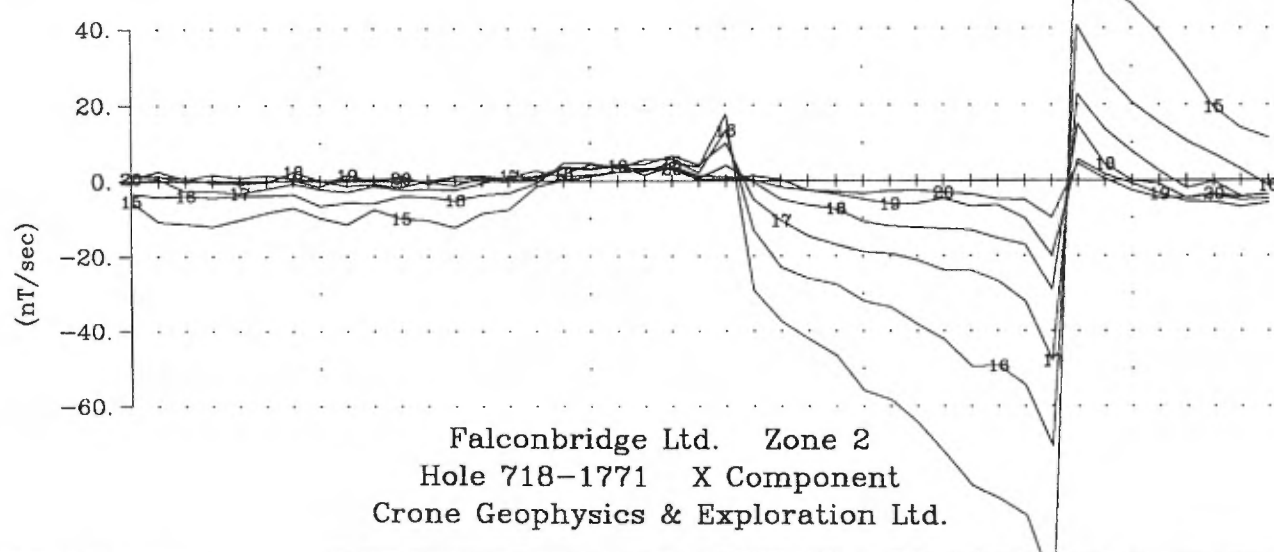
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

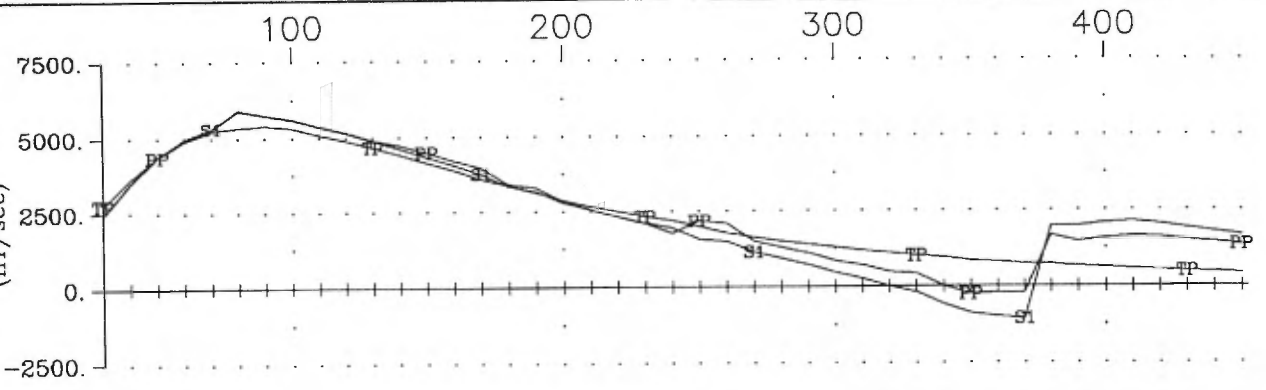


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

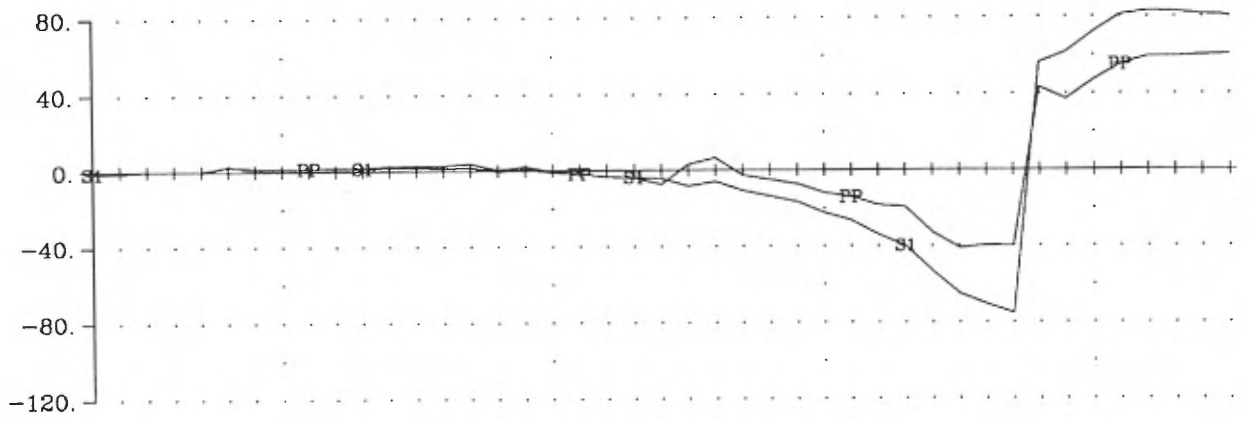


Falconbridge Ltd. Zone 2
 Hole 718-1771 X Component
 Crone Geophysics & Exploration Ltd.

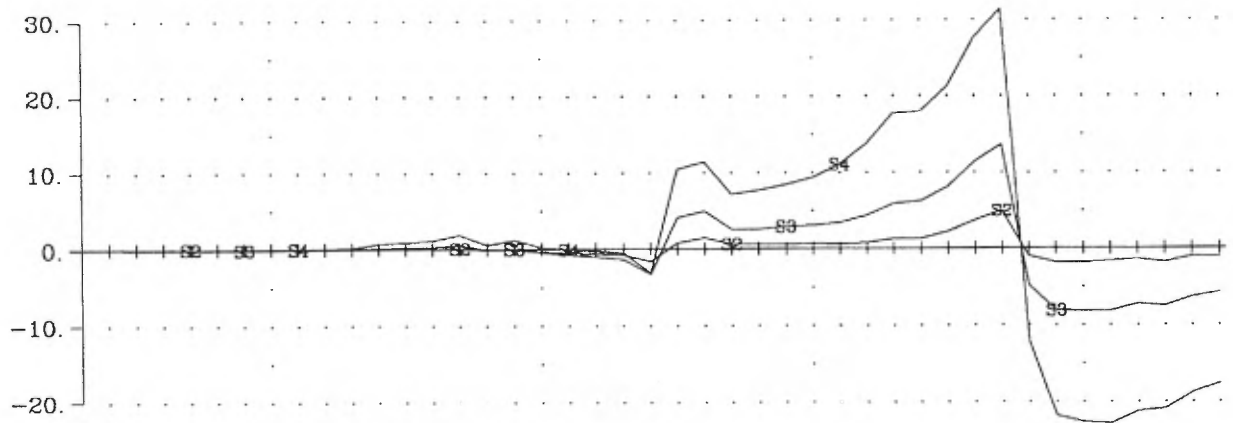
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



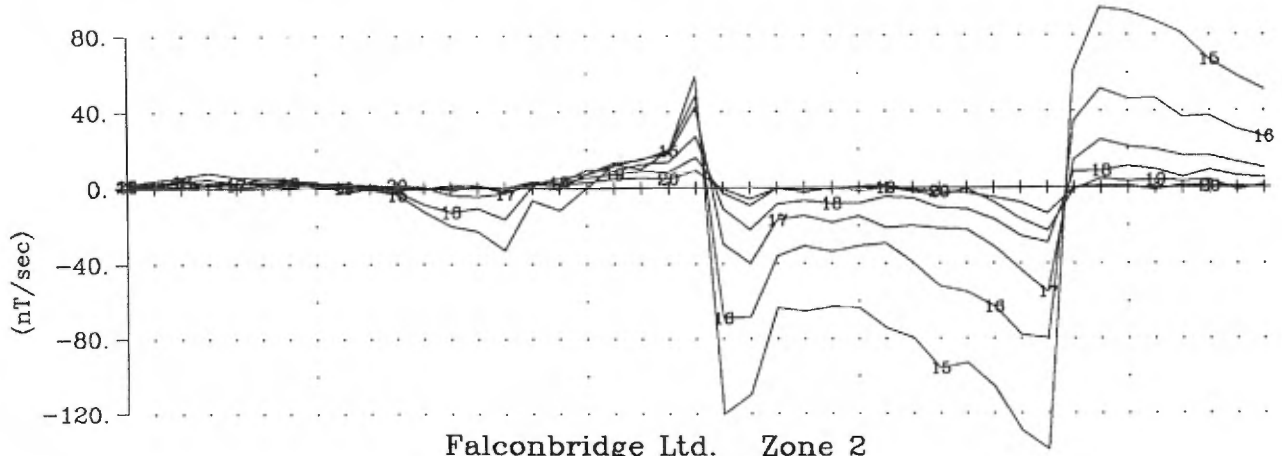
Deviation from TP.
 (% Total Theoretical)



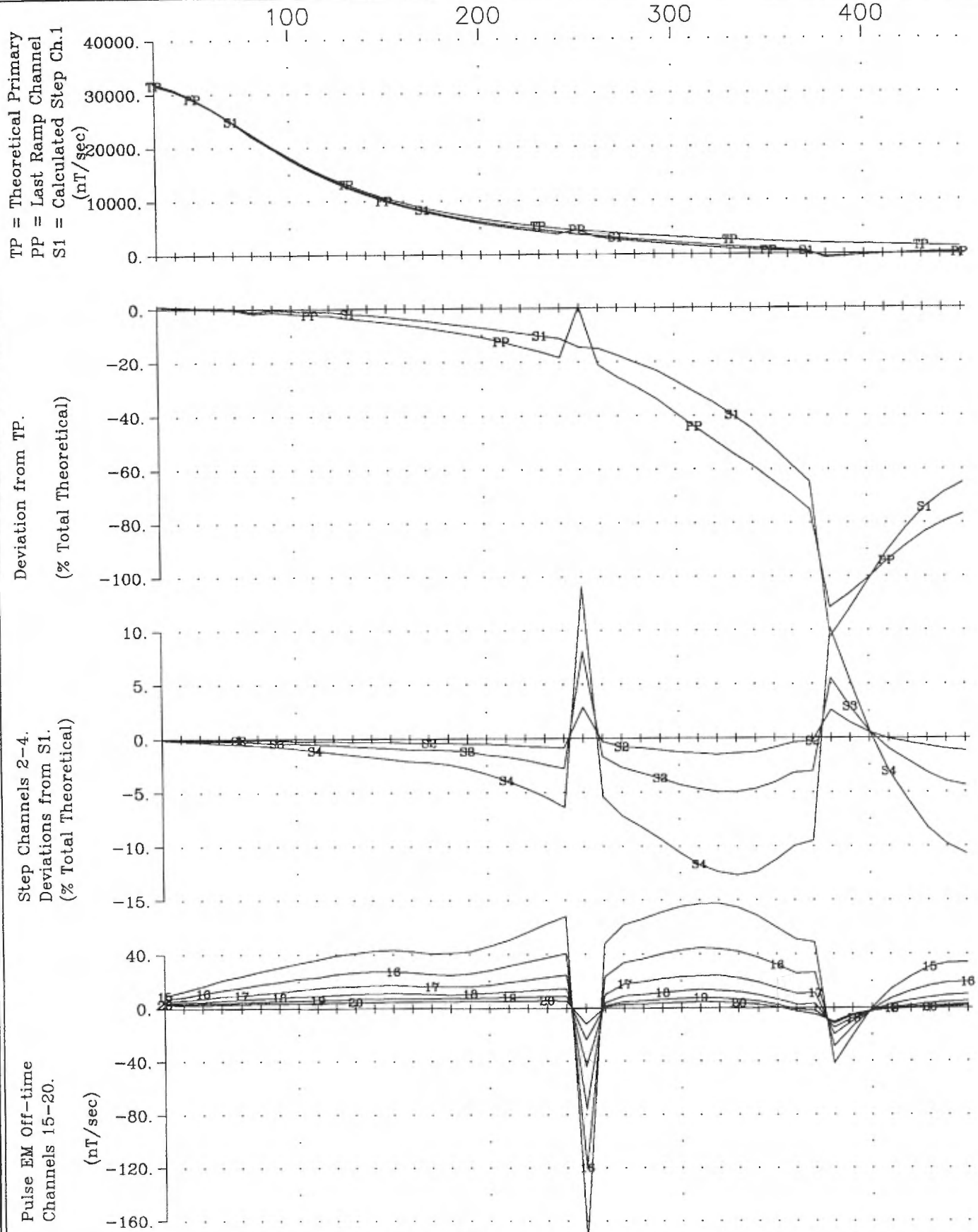
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



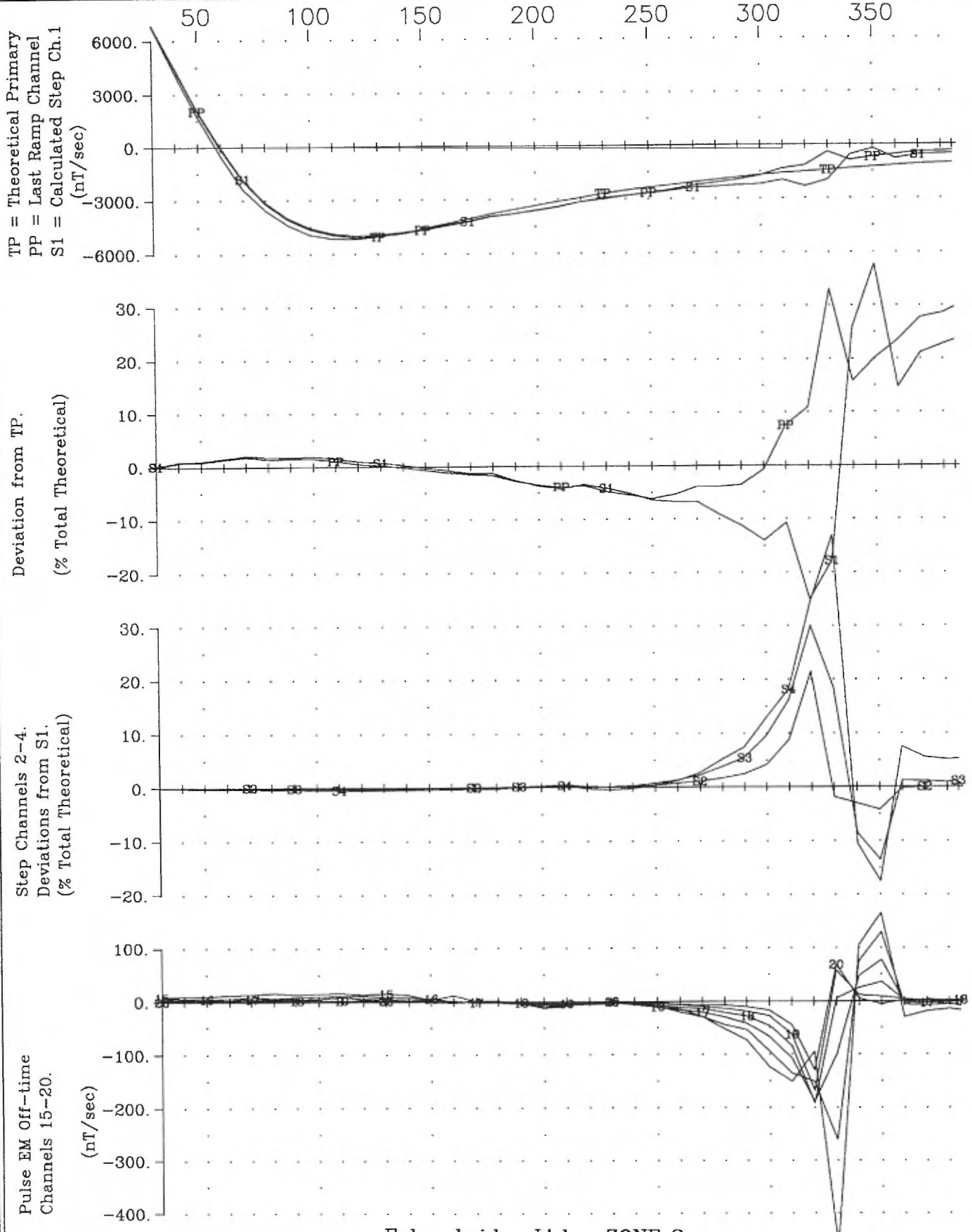
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



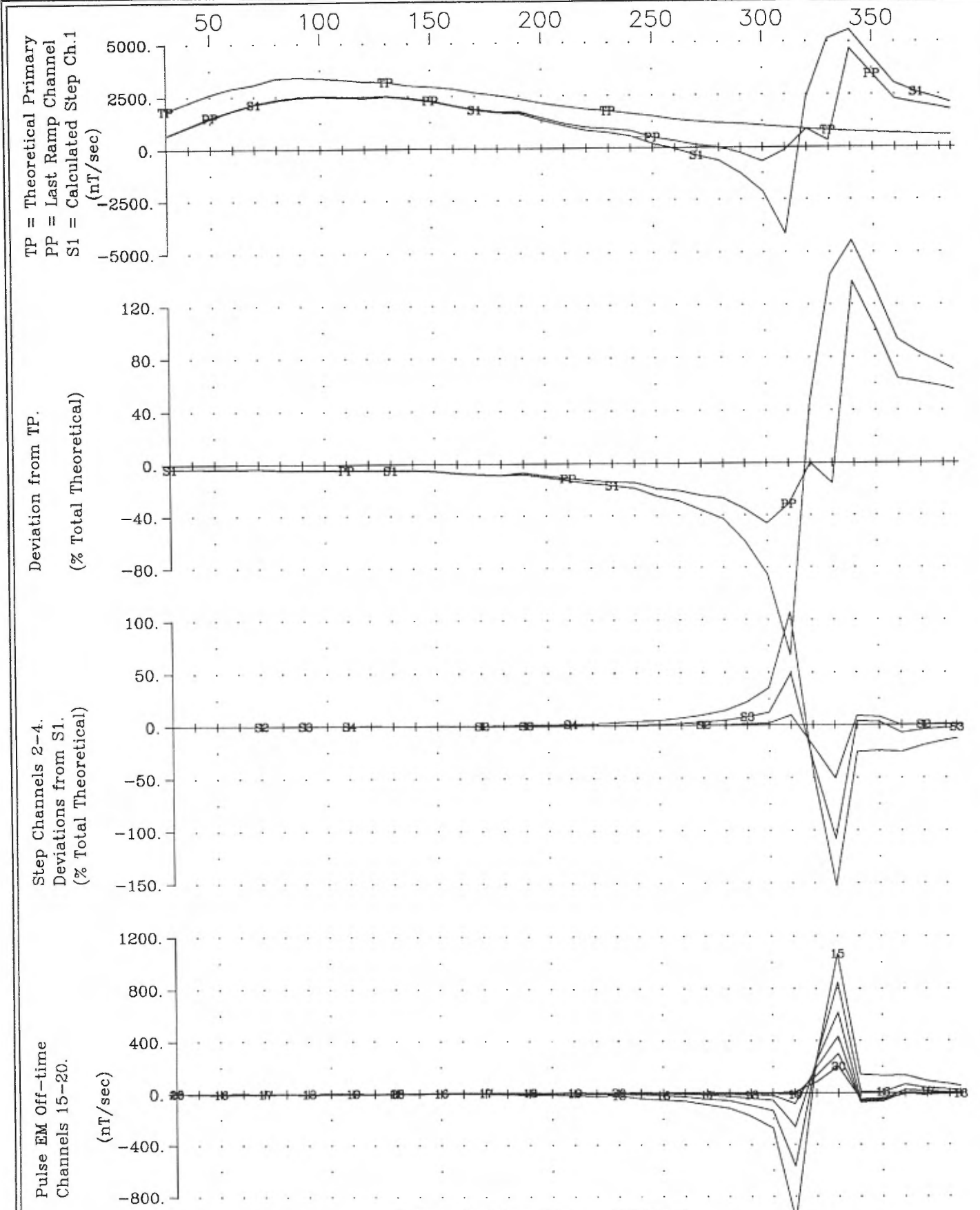
Falconbridge Ltd. Zone 2
 Hole 718-1771 Y Component
 Crone Geophysics & Exploration Ltd.



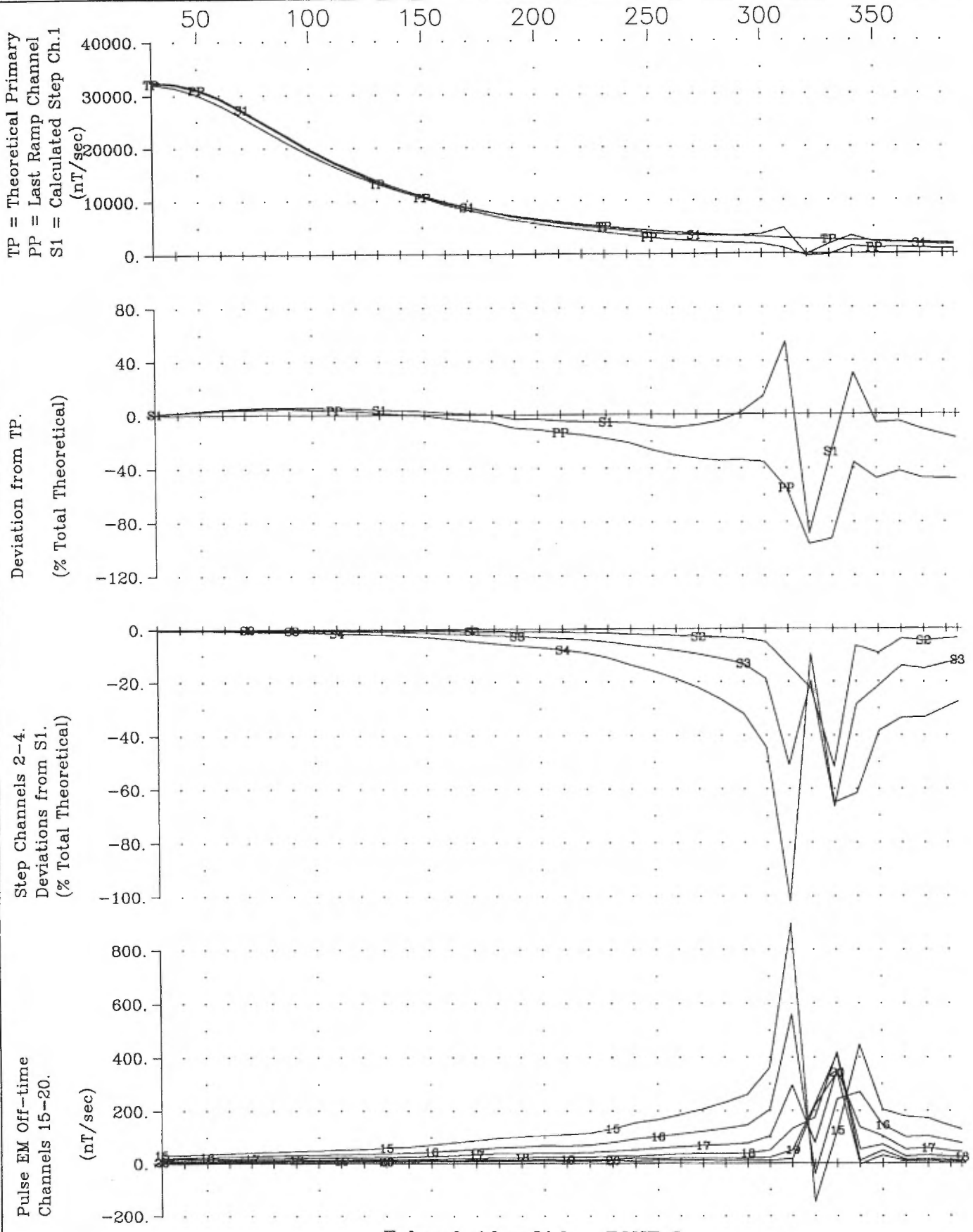
Falconbridge Ltd. Zone 2
 Hole 718-1771 Z Component
 Crone Geophysics & Exploration Ltd.



Falconbridge Ltd. ZONE 2
 Hole 718-1772 X Component
 Crone Geophysics & Exploration Ltd.

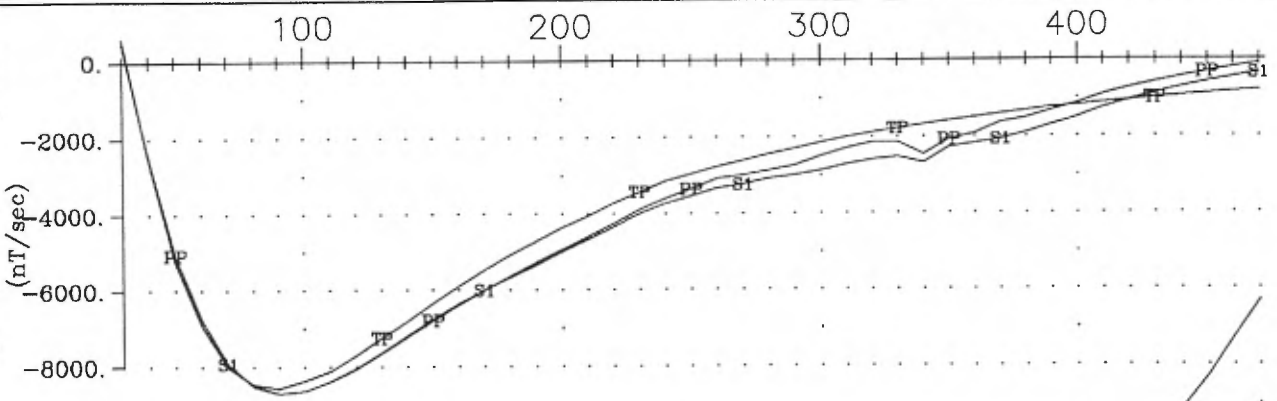


Falconbridge Ltd. ZONE 2
 Hole 718-1772 Y Component
 Crone Geophysics & Exploration Ltd.

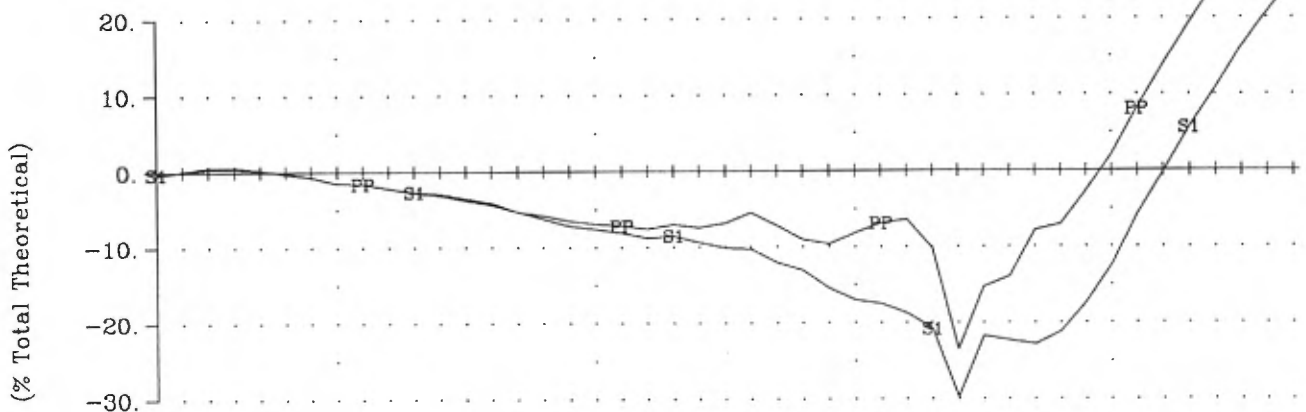


Falconbridge Ltd. ZONE 2
 Hole 718-1772 Z Component
 Crone Geophysics & Exploration Ltd.

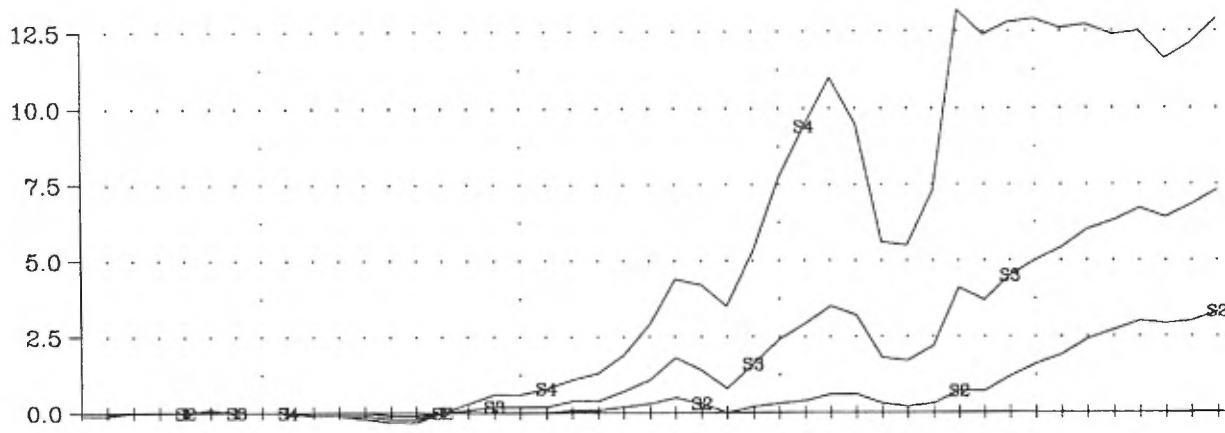
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



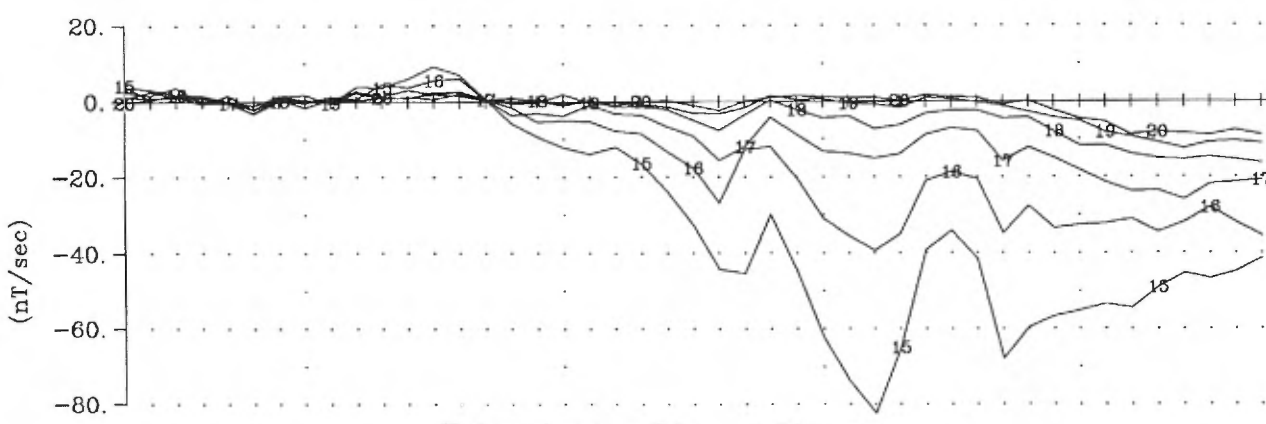
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

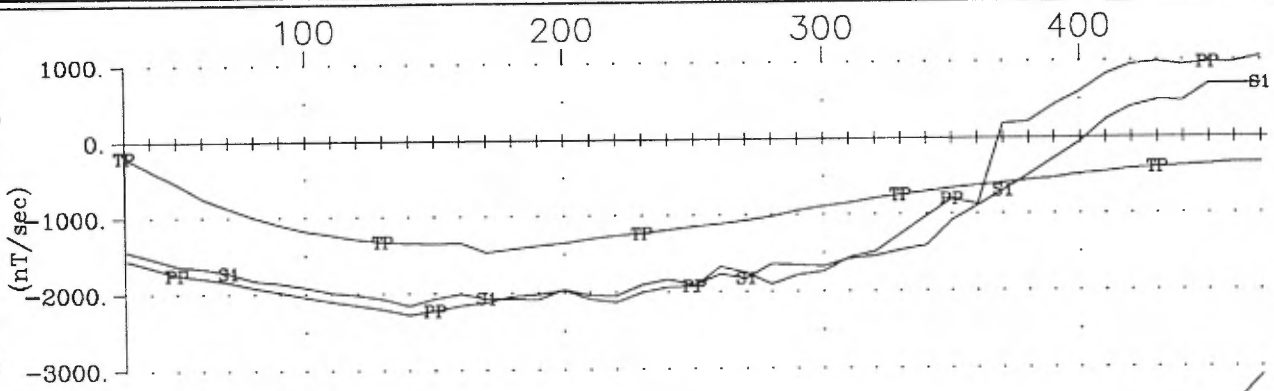


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

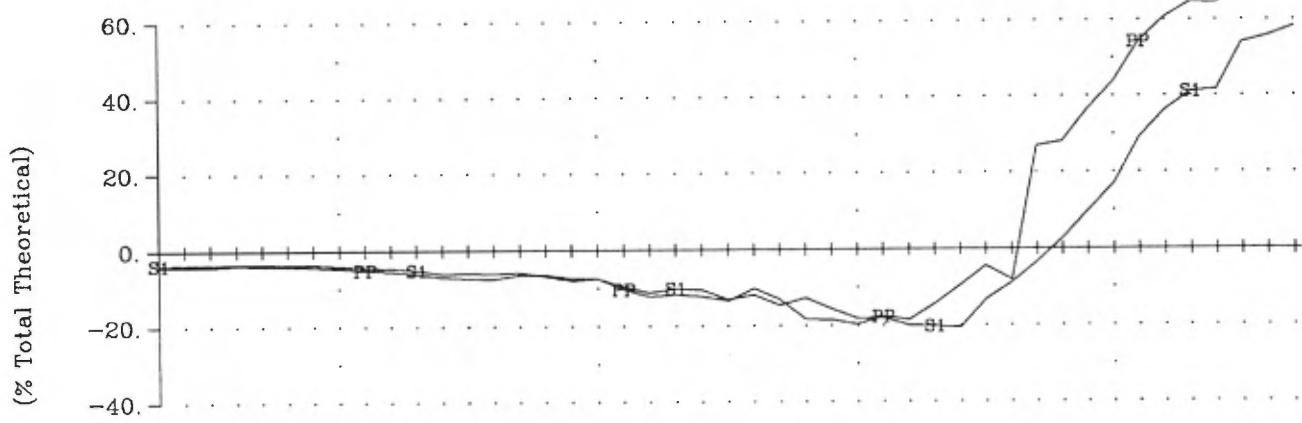


Falconbridge Ltd. ZONE 2
 Hole 718-1773 X Component
 Crone Geophysics & Exploration Ltd.

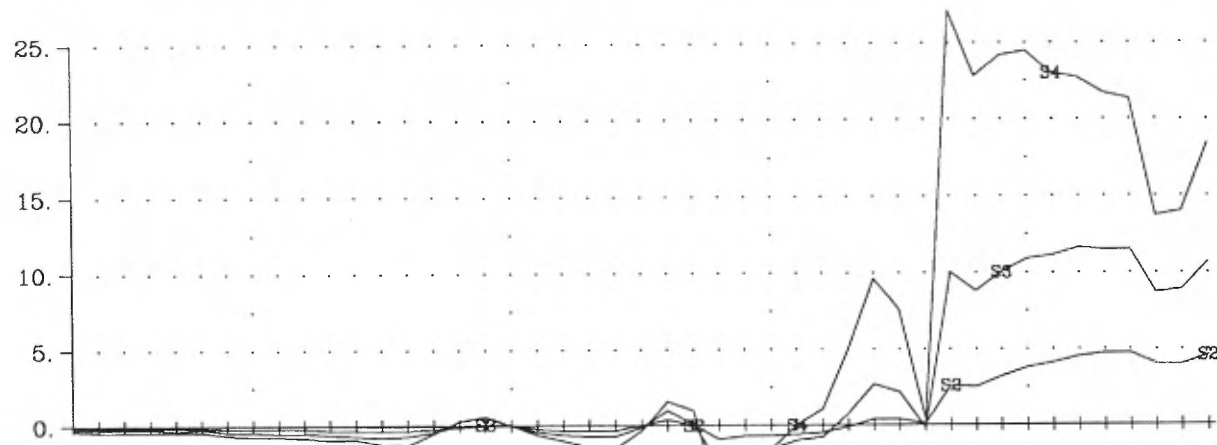
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



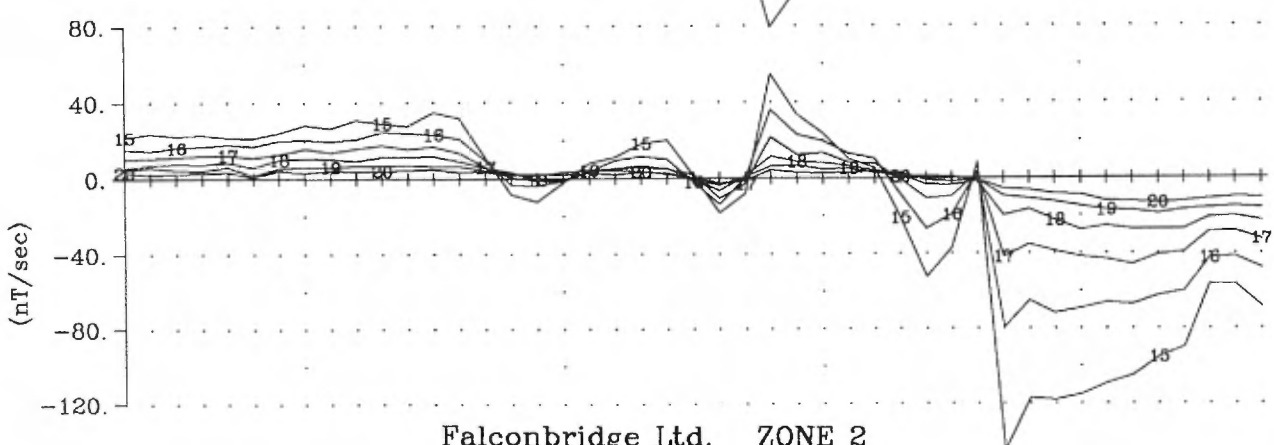
Deviation from TP.
 (% Total Theoretical)



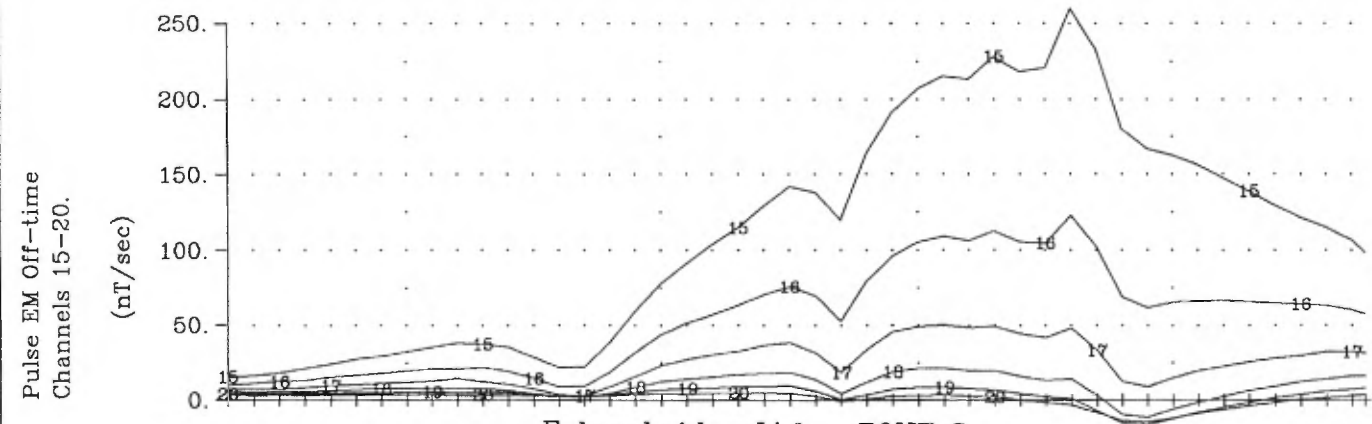
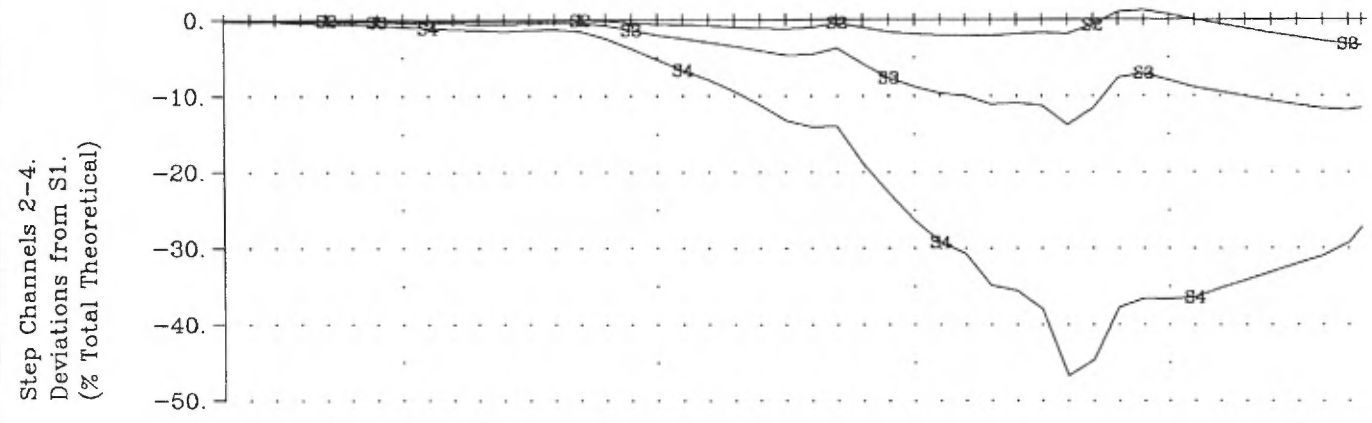
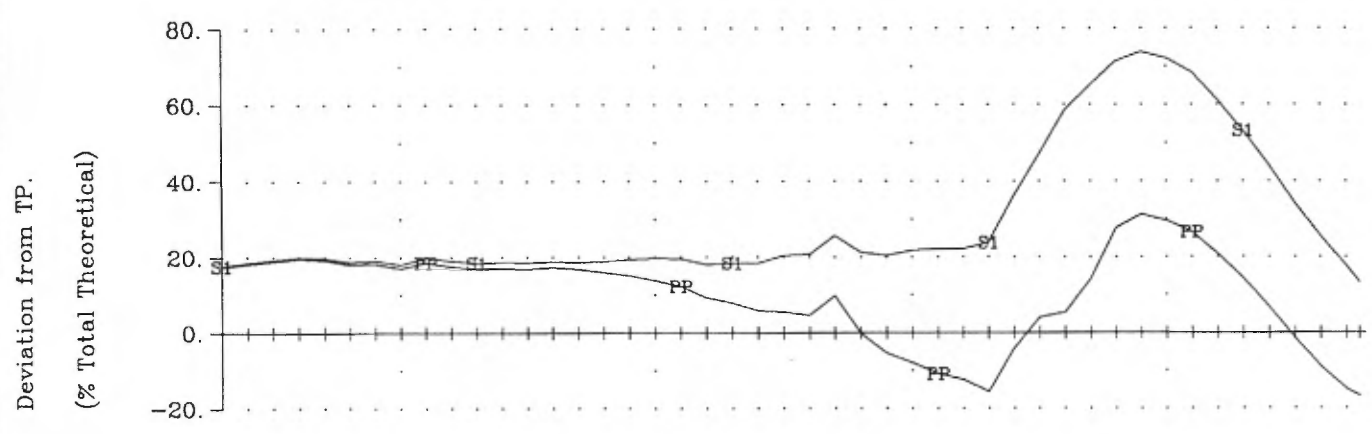
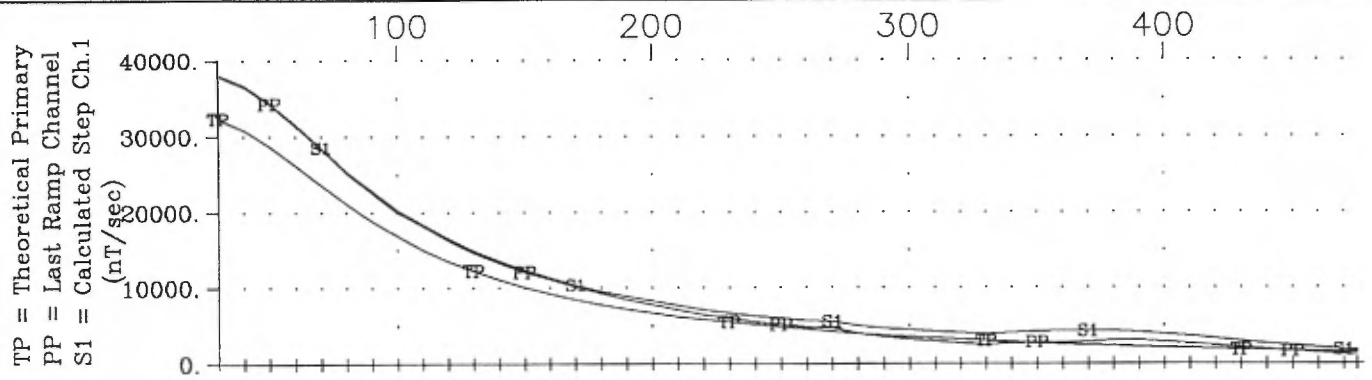
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



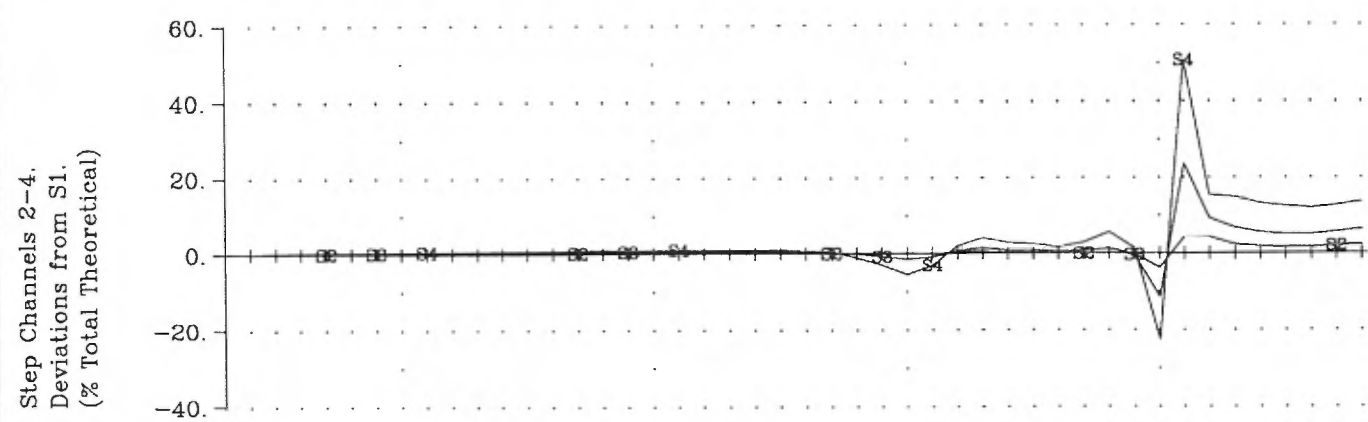
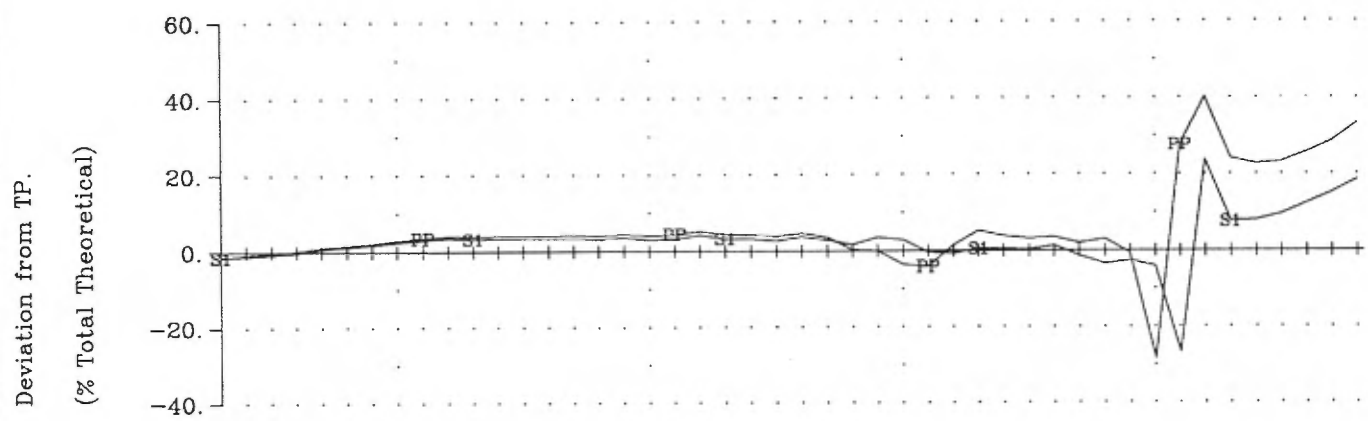
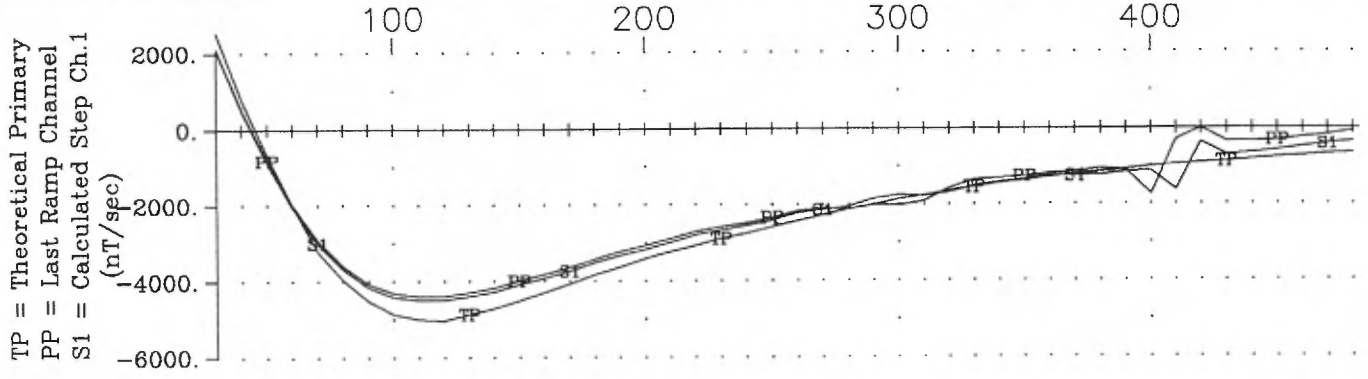
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



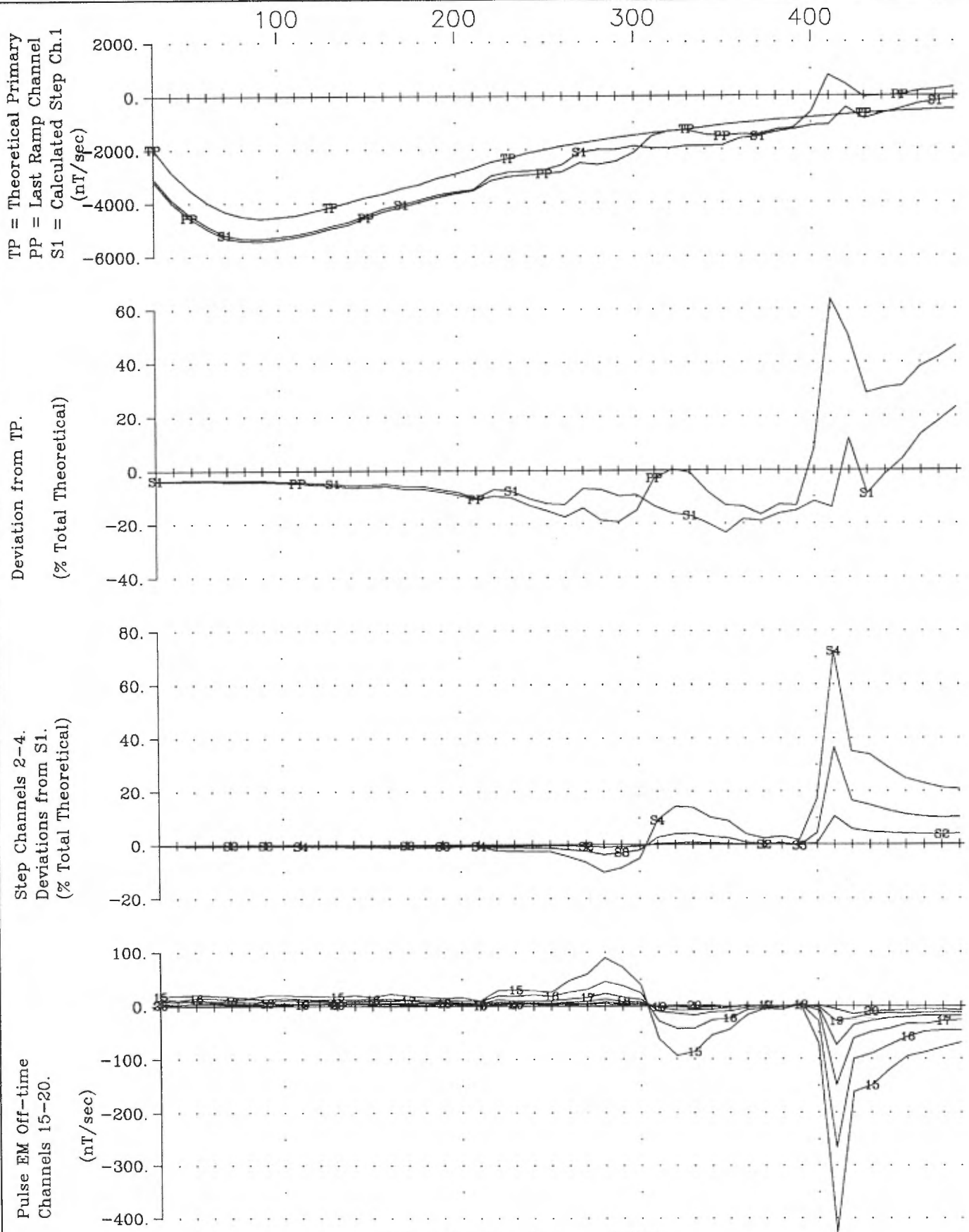
Falconbridge Ltd. ZONE 2
 Hole 718-1773 Y Component
 Crone Geophysics & Exploration Ltd.



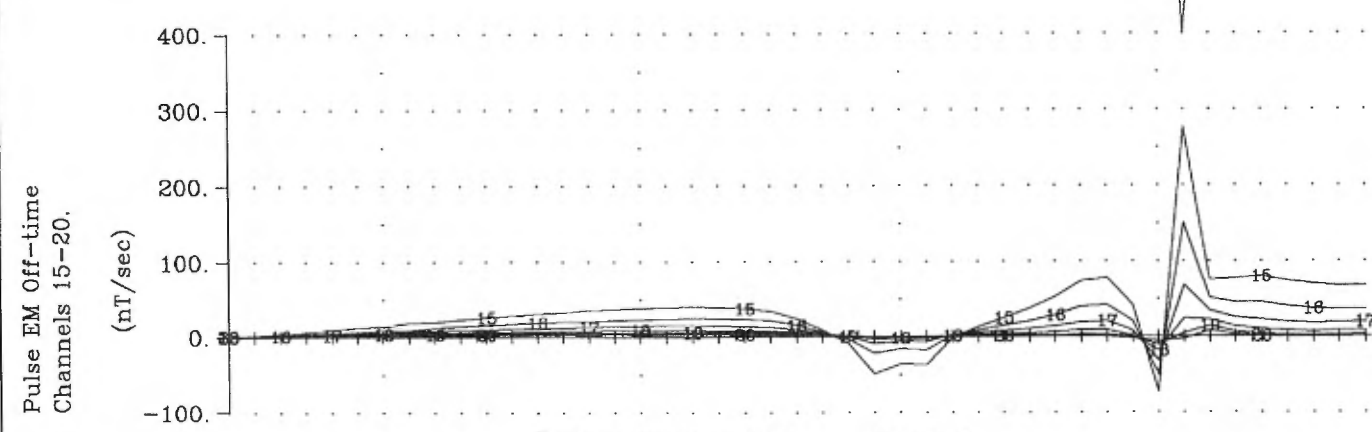
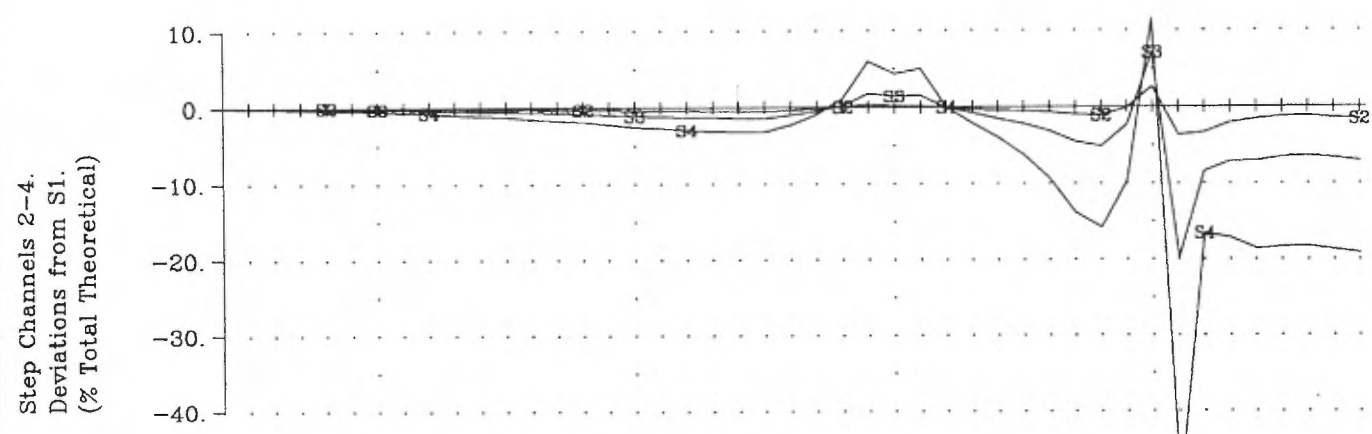
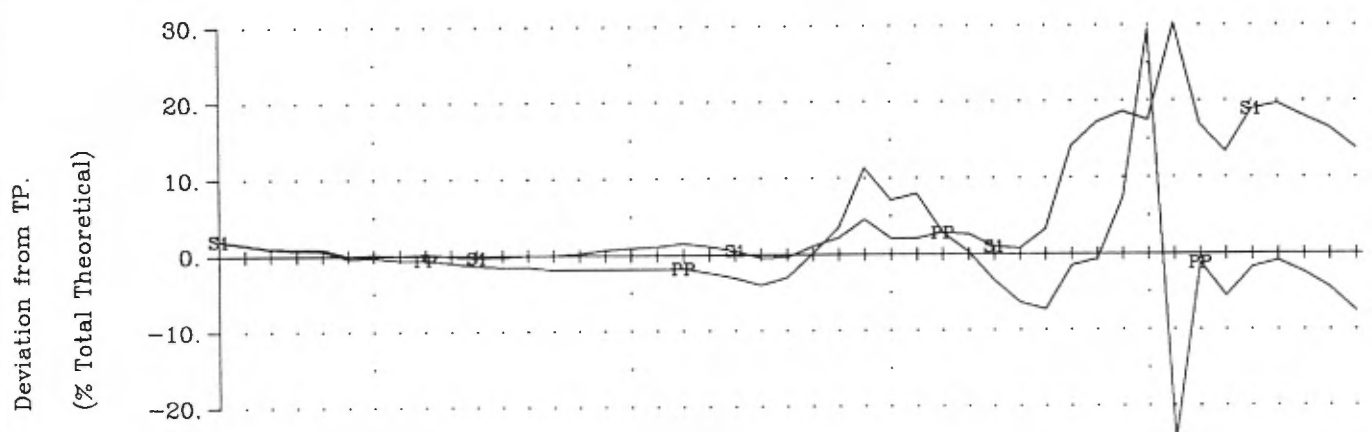
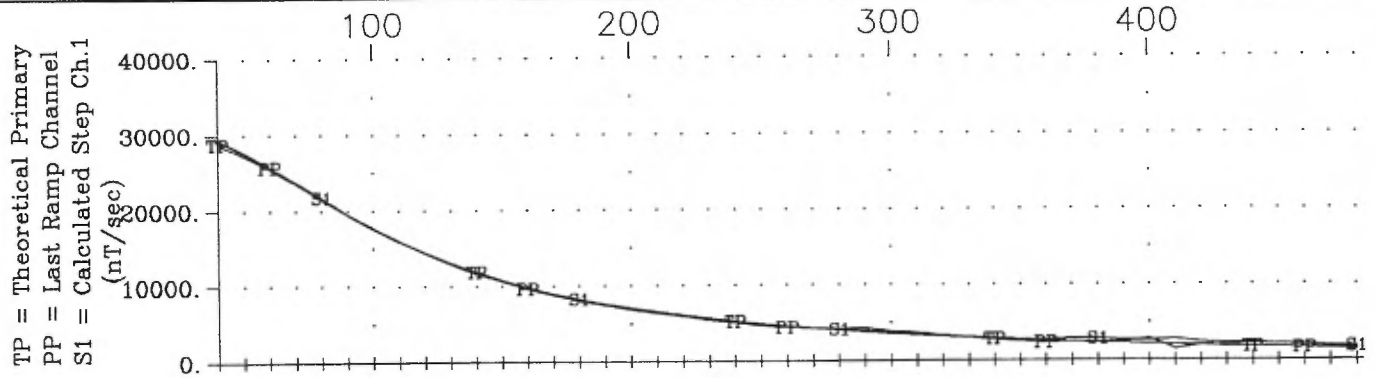
Falconbridge Ltd. ZONE 2
 Hole 718-1773 Z Component
 Crone Geophysics & Exploration Ltd.



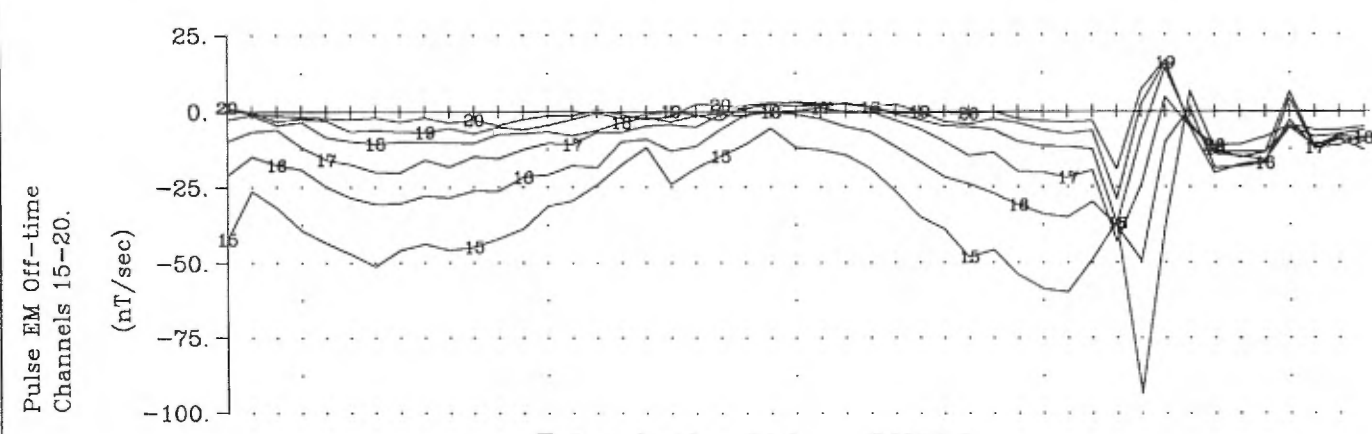
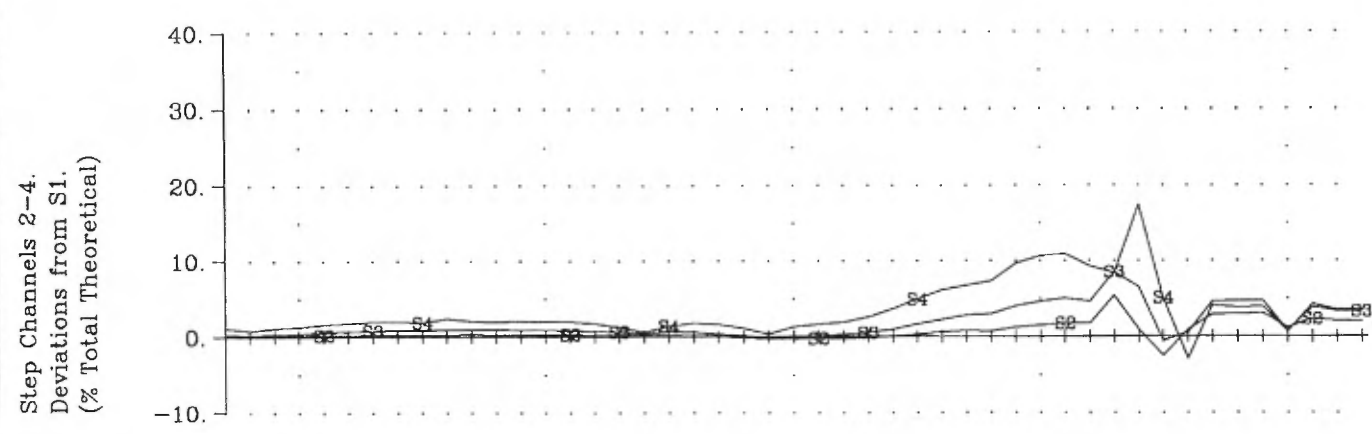
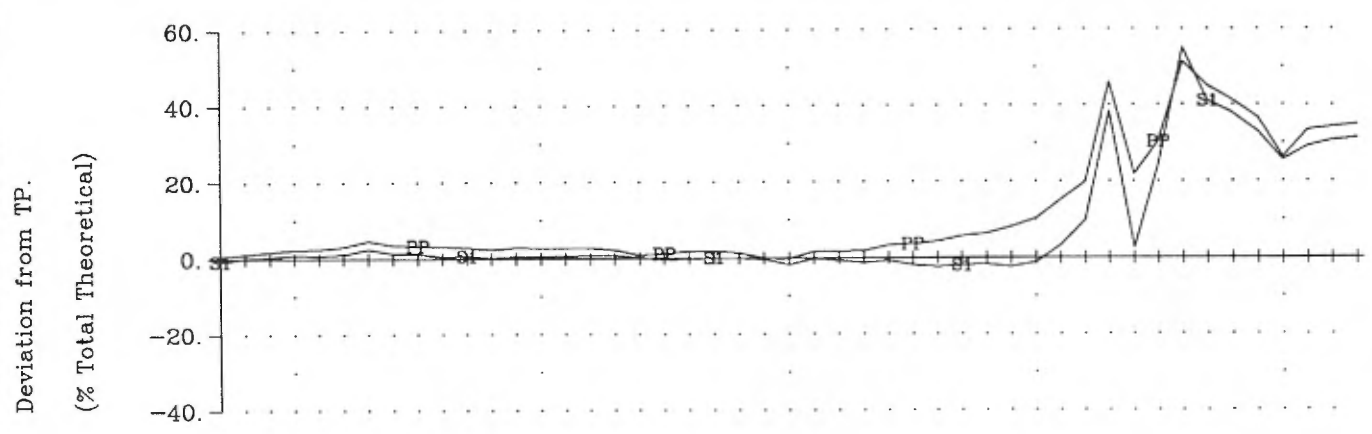
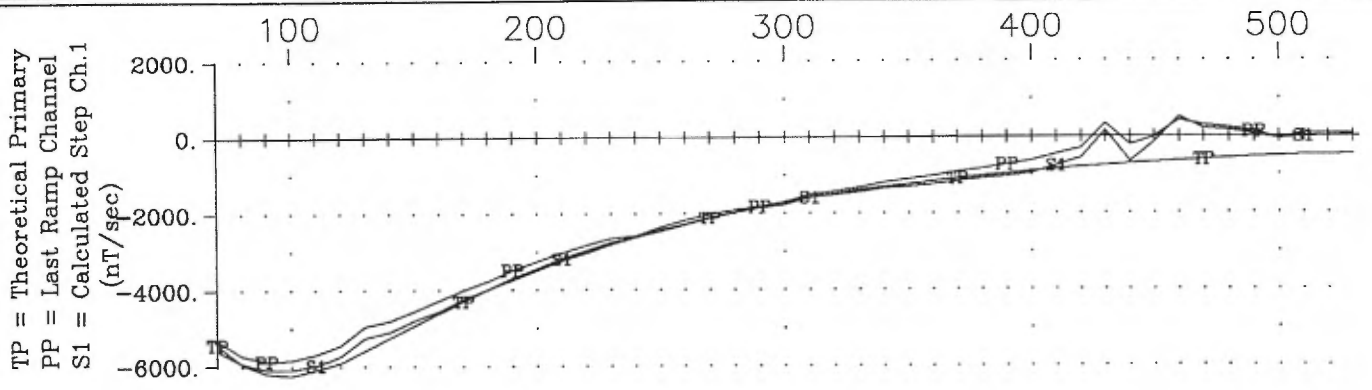
Falconbridge Ltd. ZONE 2
 Hole 718-1774 X Component
 Crone Geophysics & Exploration Ltd.



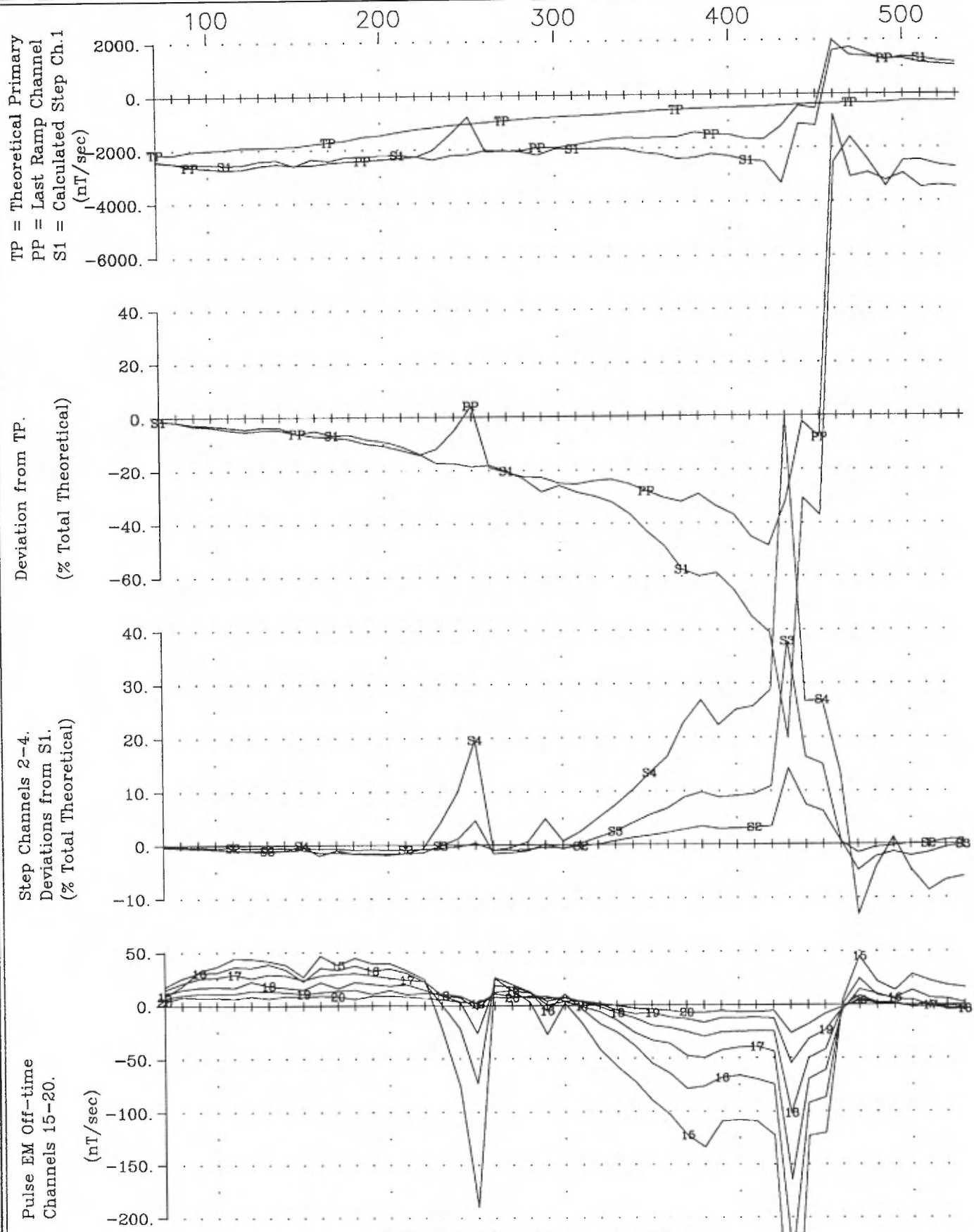
Falconbridge Ltd. ZONE 2
 Hole 718-1774 Y Component
 Crone Geophysics & Exploration Ltd.



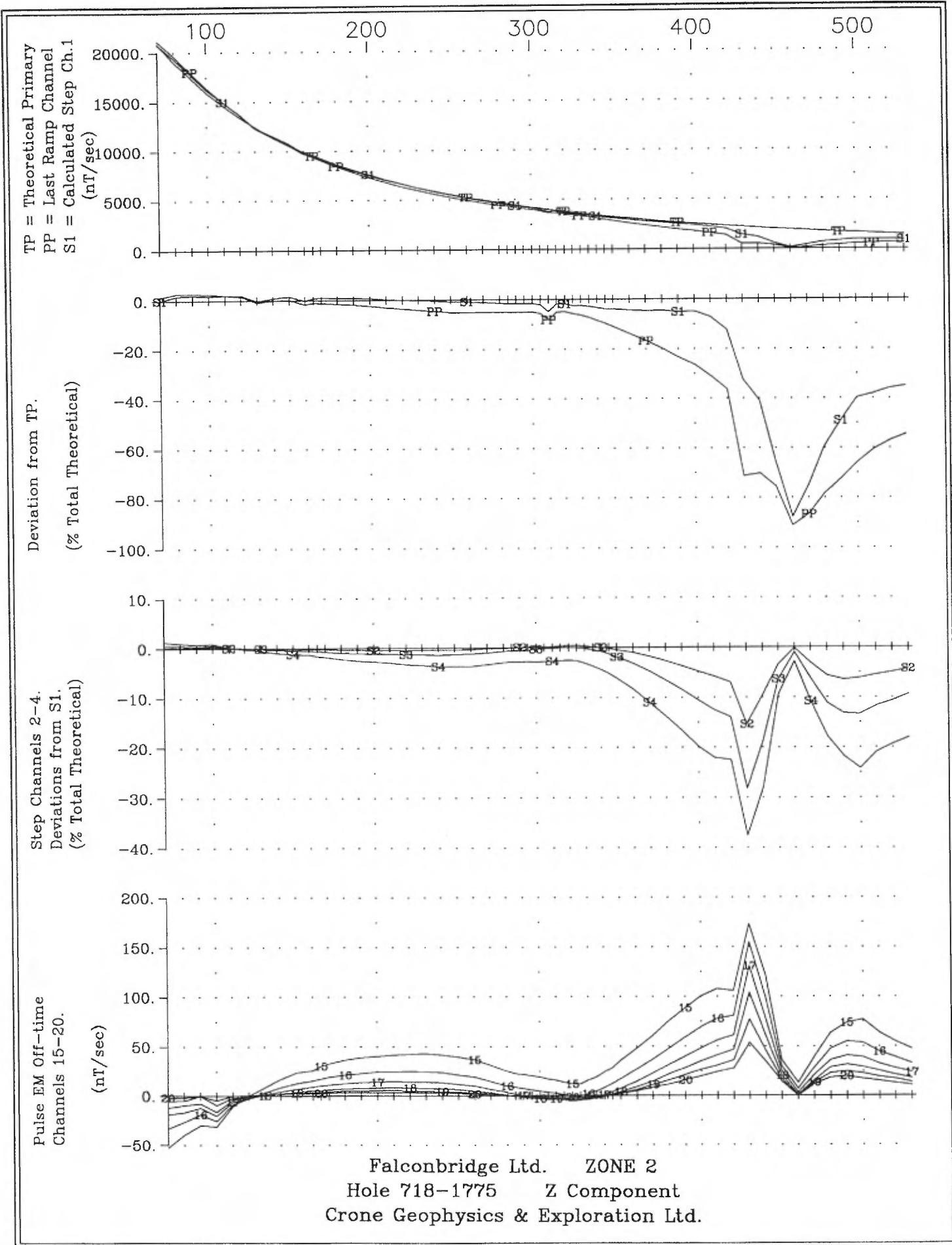
Falconbridge Ltd. ZONE 2
 Hole 718-1774 Z Component
 Crone Geophysics & Exploration Ltd.

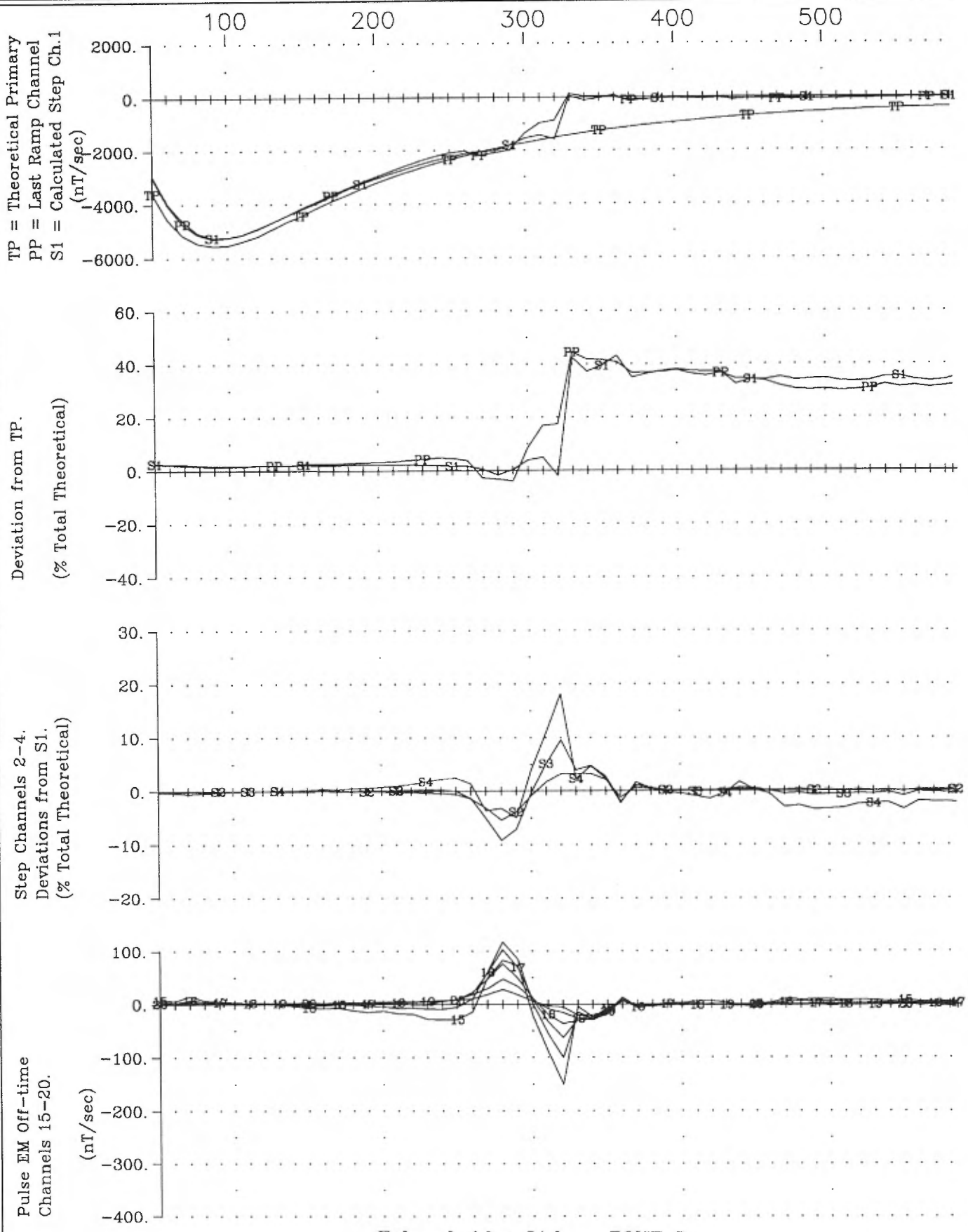


Falconbridge Ltd. ZONE 2
 Hole 718-1775 X Component
 Crone Geophysics & Exploration Ltd.

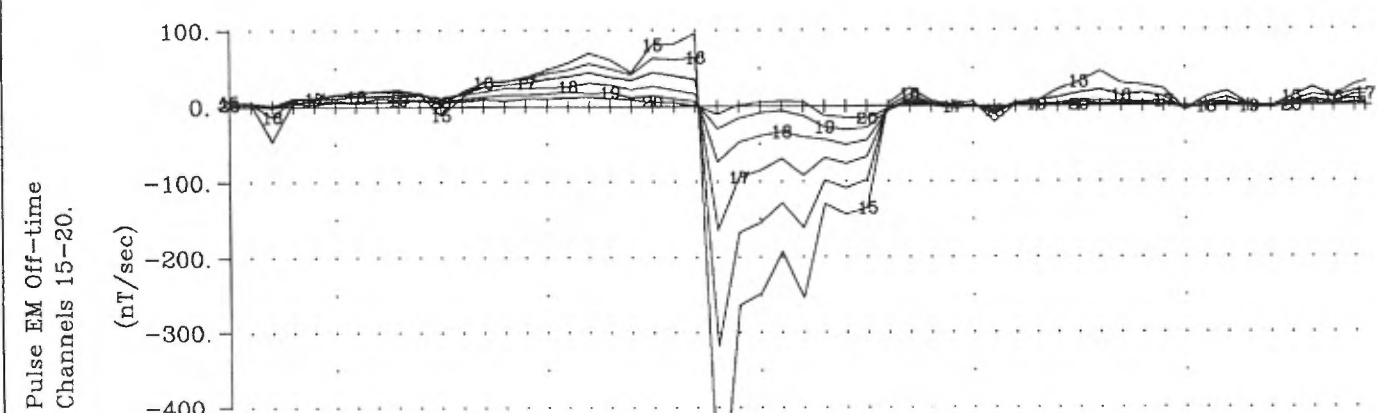
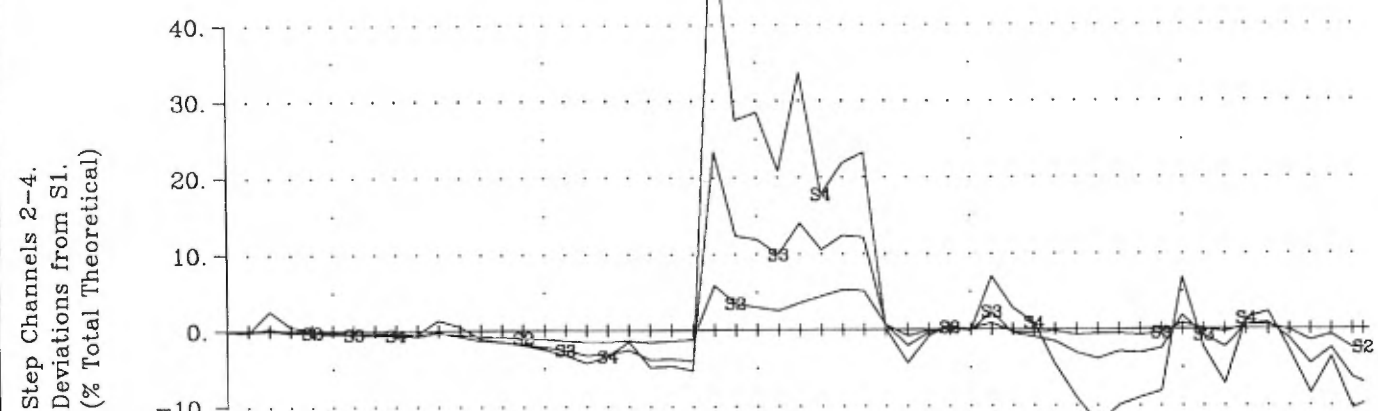
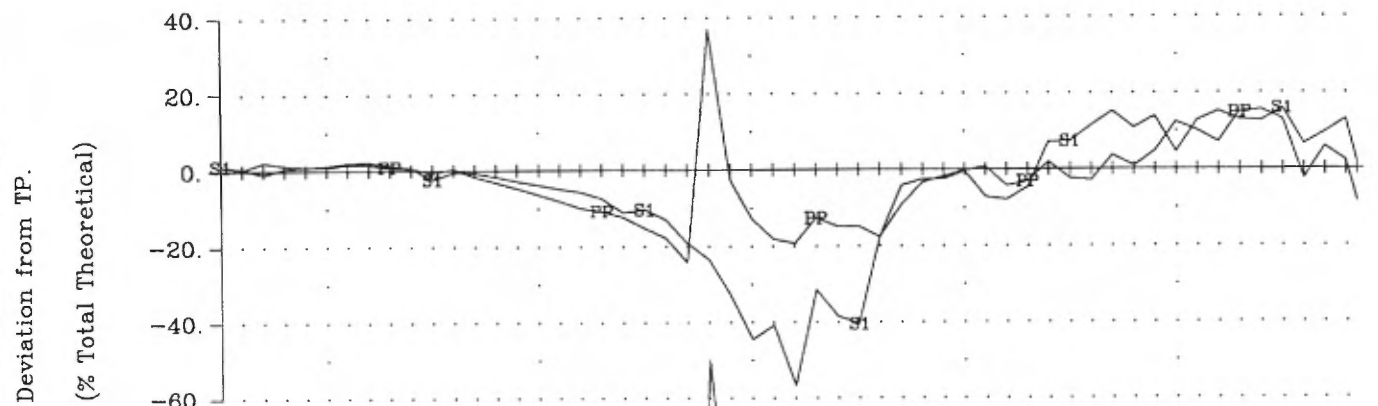
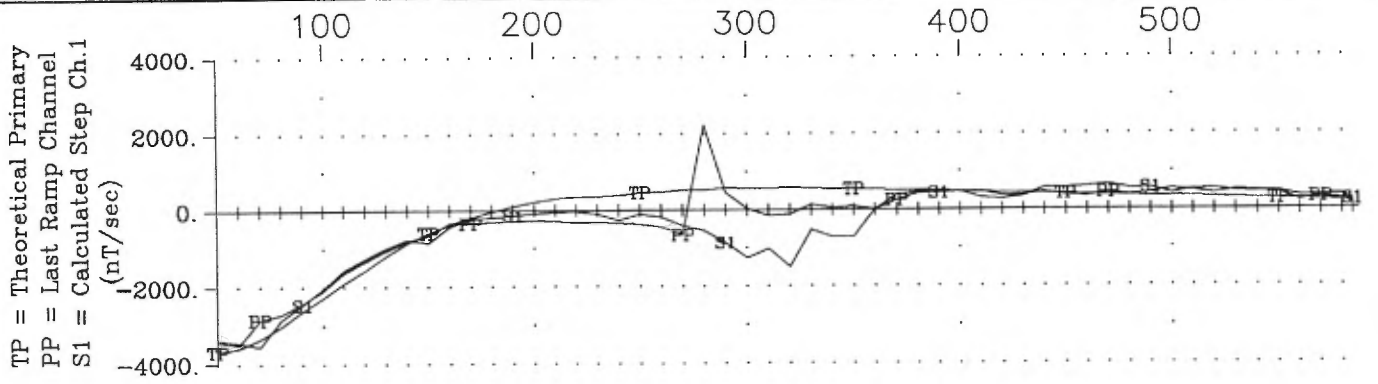


Falconbridge Ltd. ZONE 2
 Hole 718-1775 Y Component
 Crone Geophysics & Exploration Ltd.



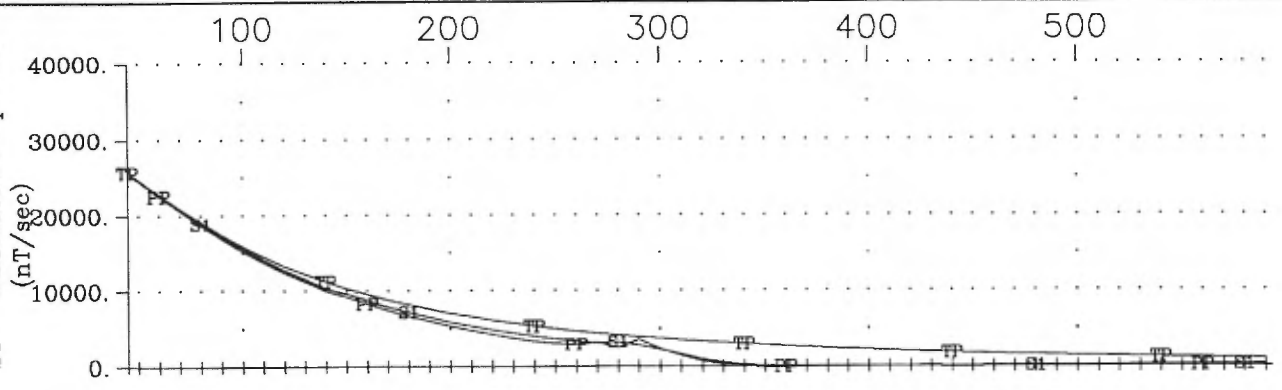


Falconbridge Ltd. ZONE 2
 Hole 718-1776 X Component
 Crone Geophysics & Exploration Ltd.

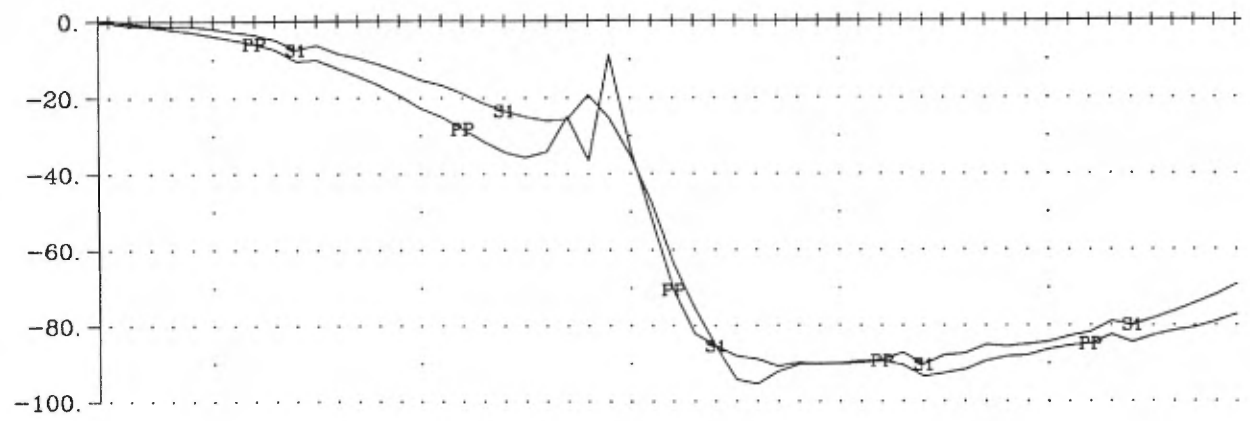


Falconbridge Ltd. ZONE 2
 Hole 718-1776 Y Component
 Crone Geophysics & Exploration Ltd.

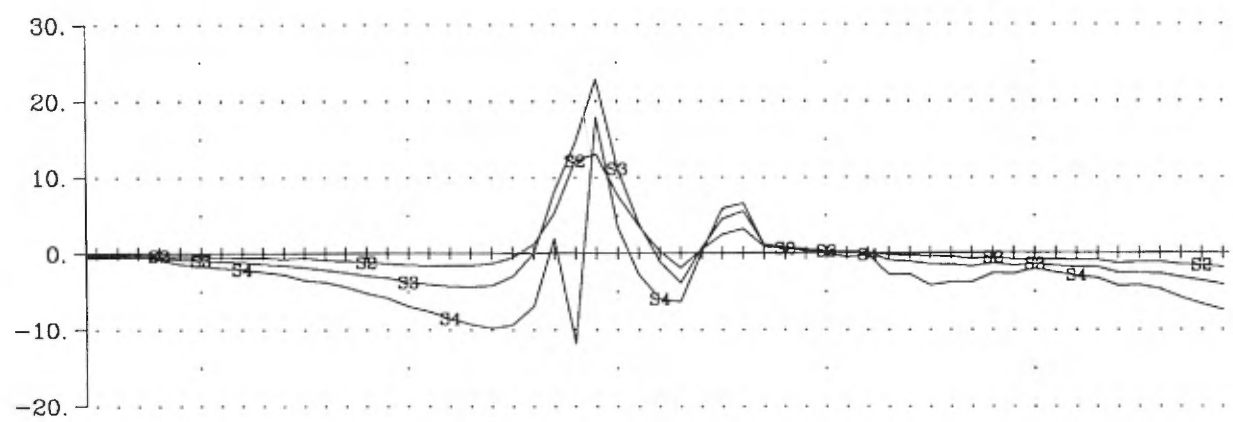
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



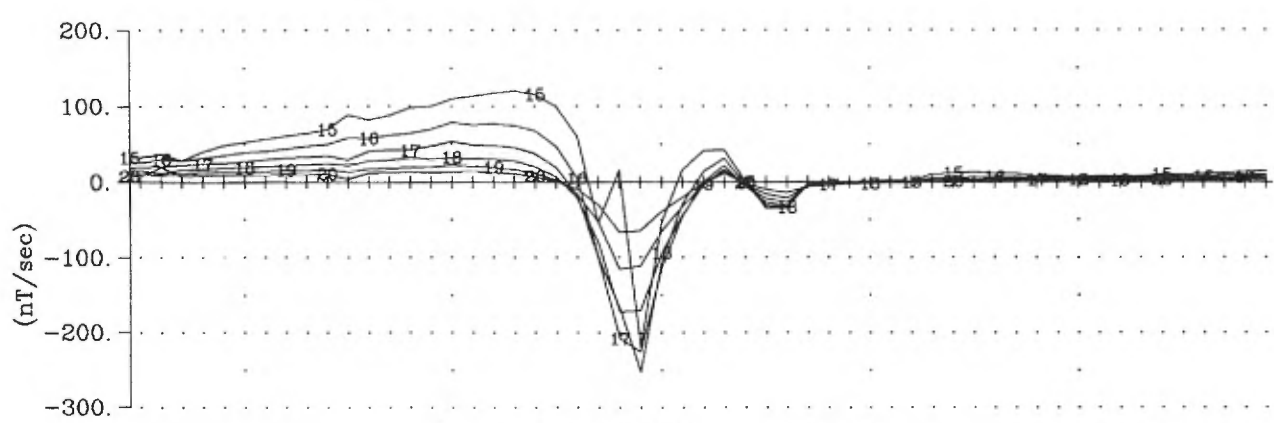
Deviation from TP.
 (% Total Theoretical)



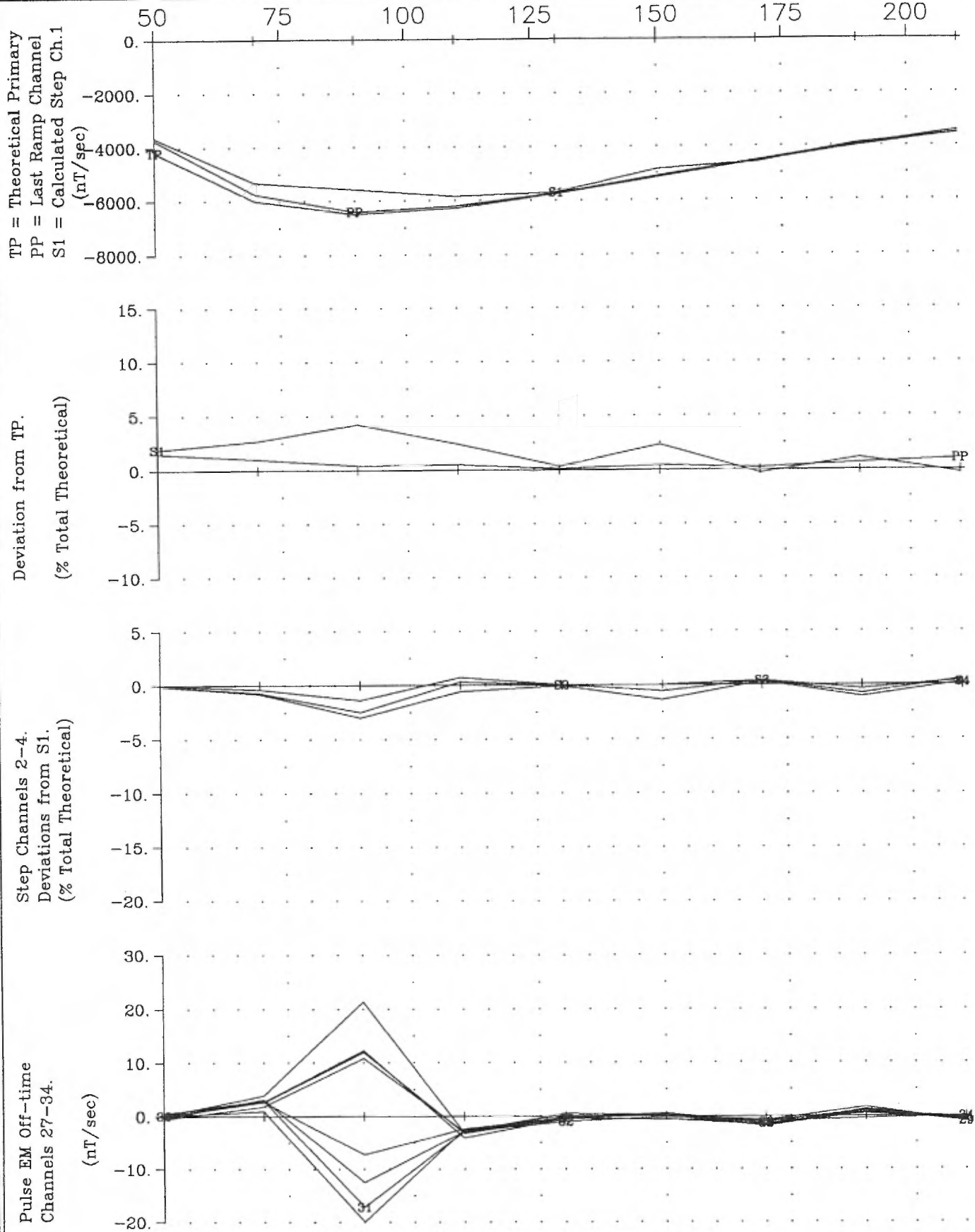
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



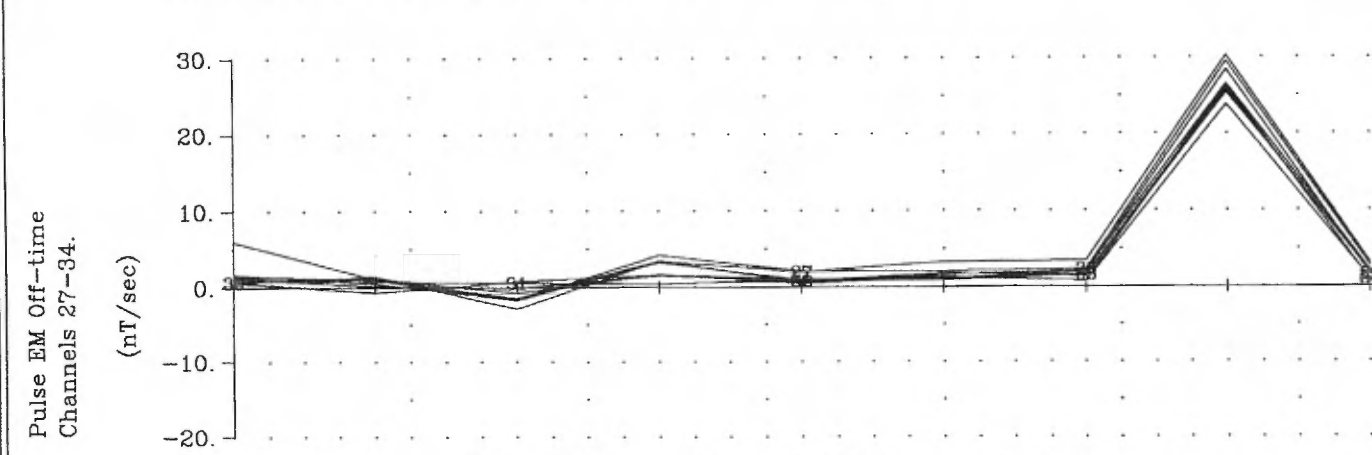
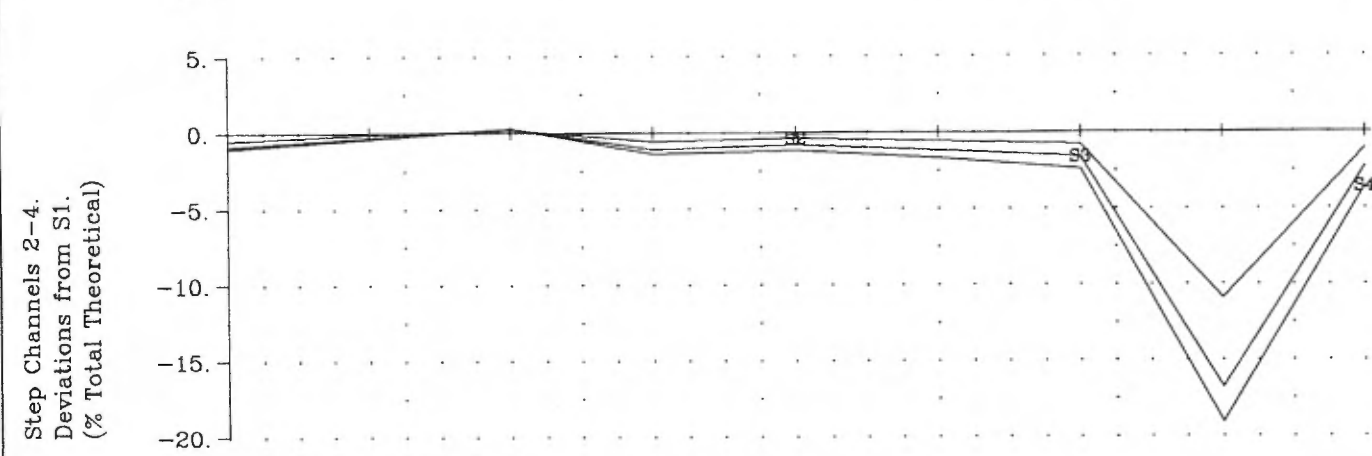
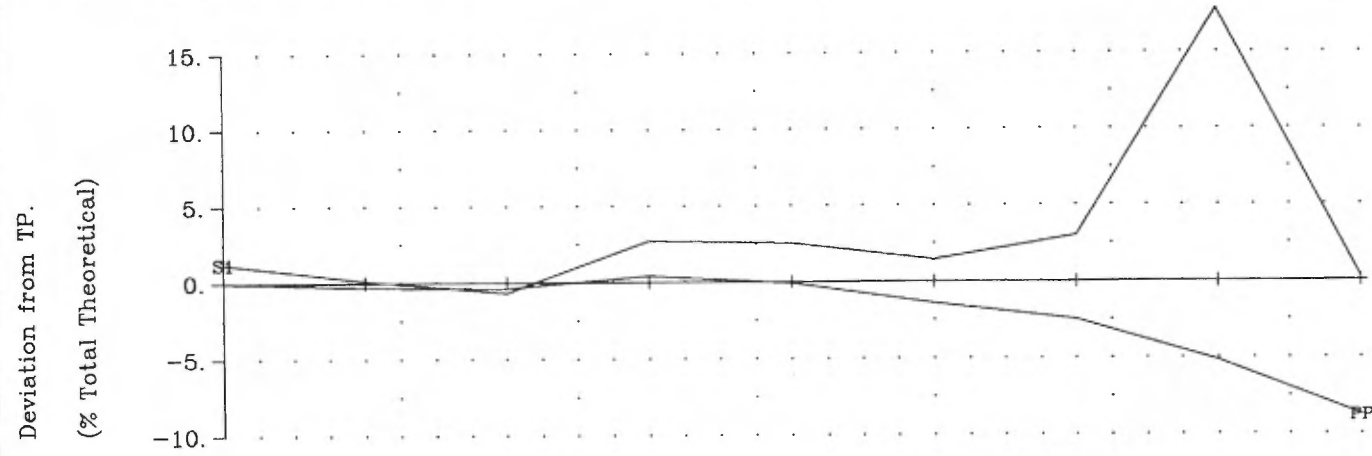
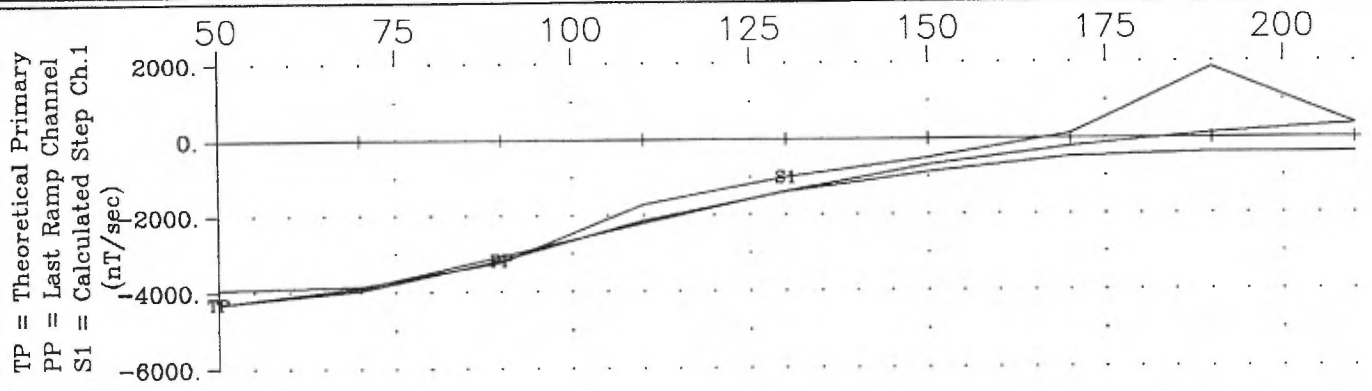
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



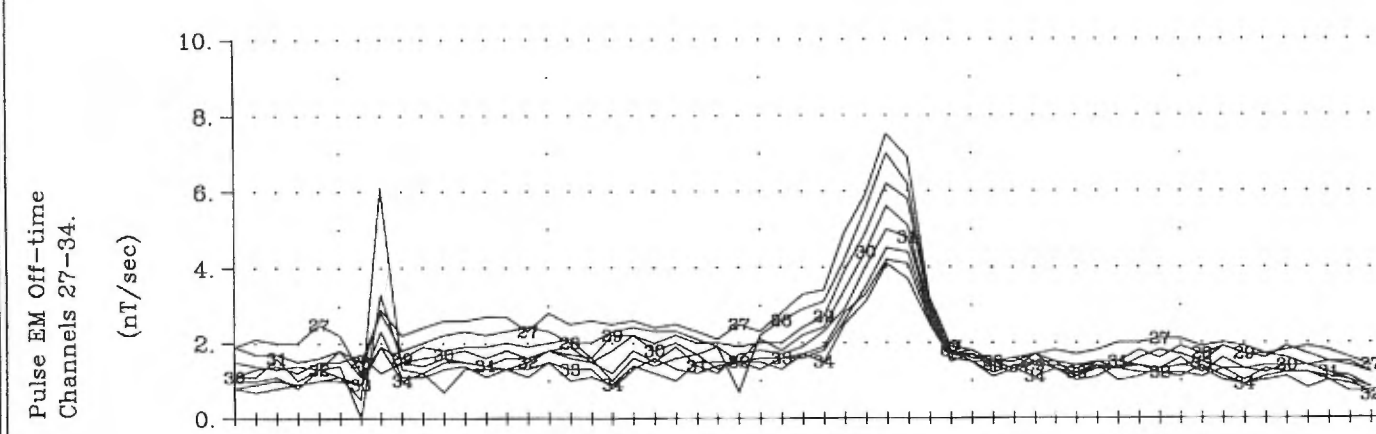
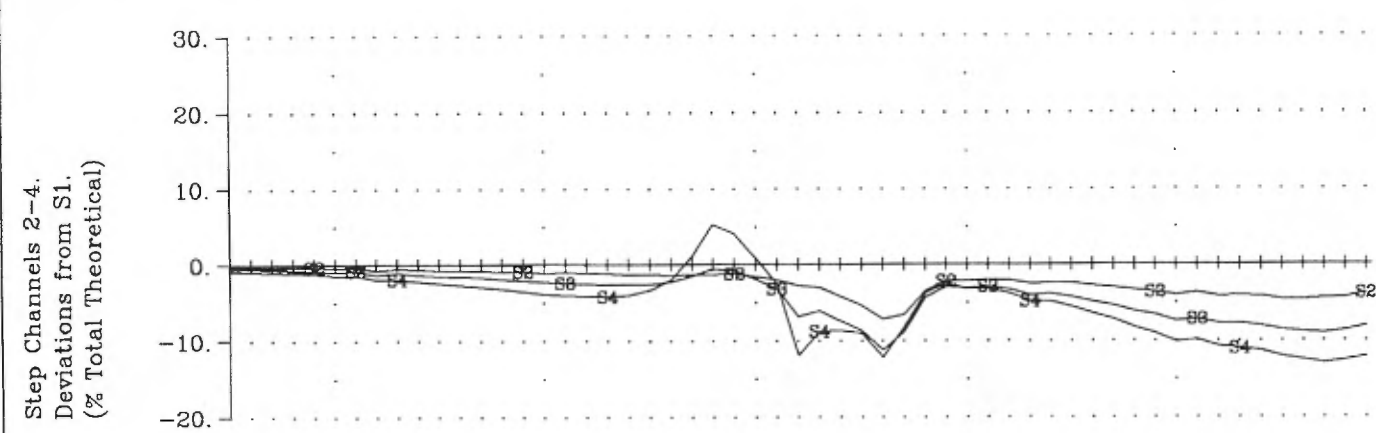
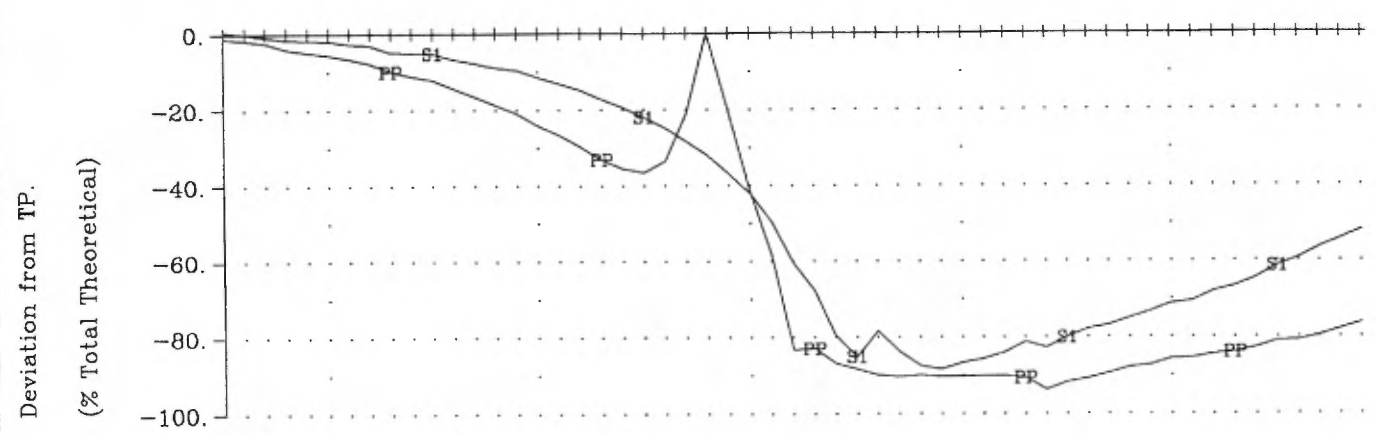
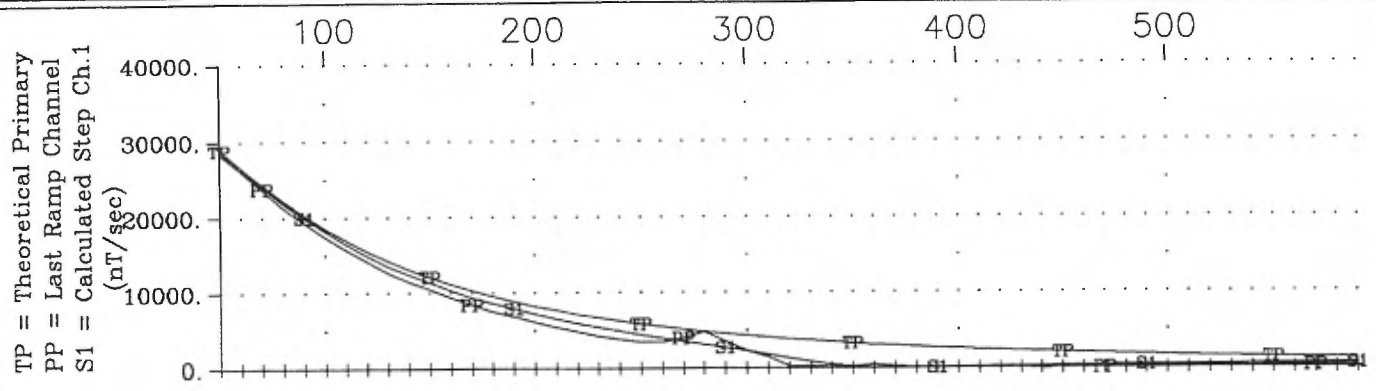
Falconbridge Ltd. ZONE 2
 Hole 718-1776 Z Component
 Crone Geophysics & Exploration Ltd.



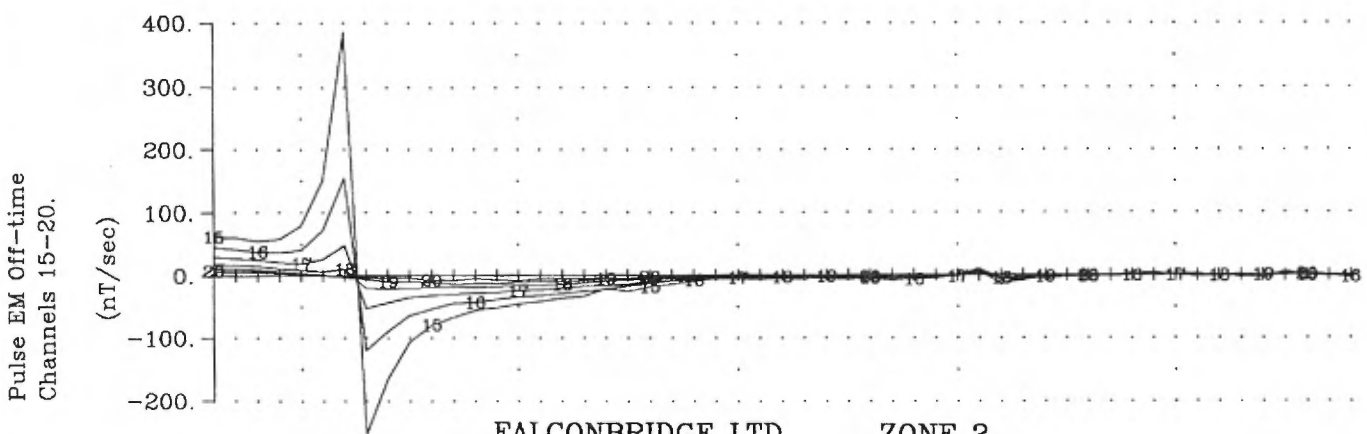
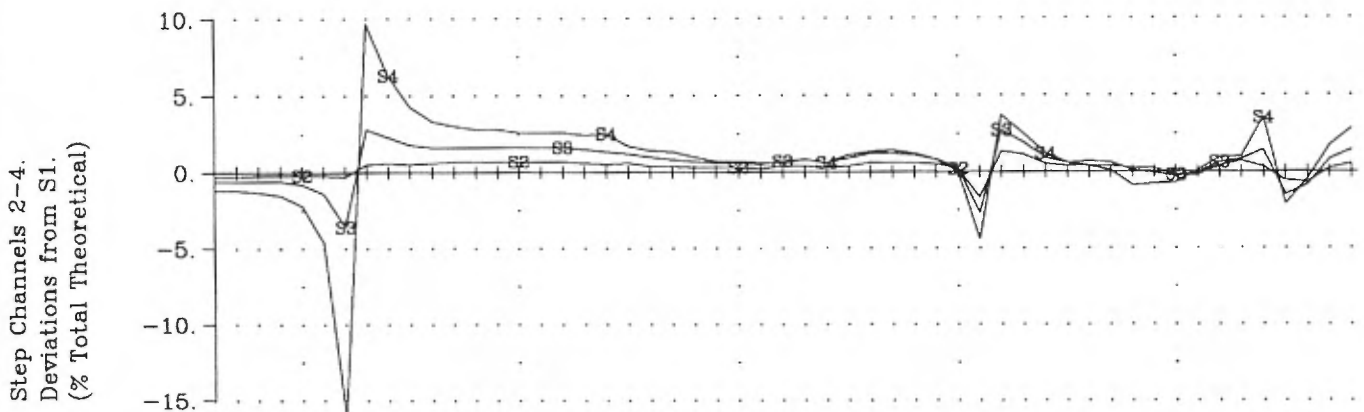
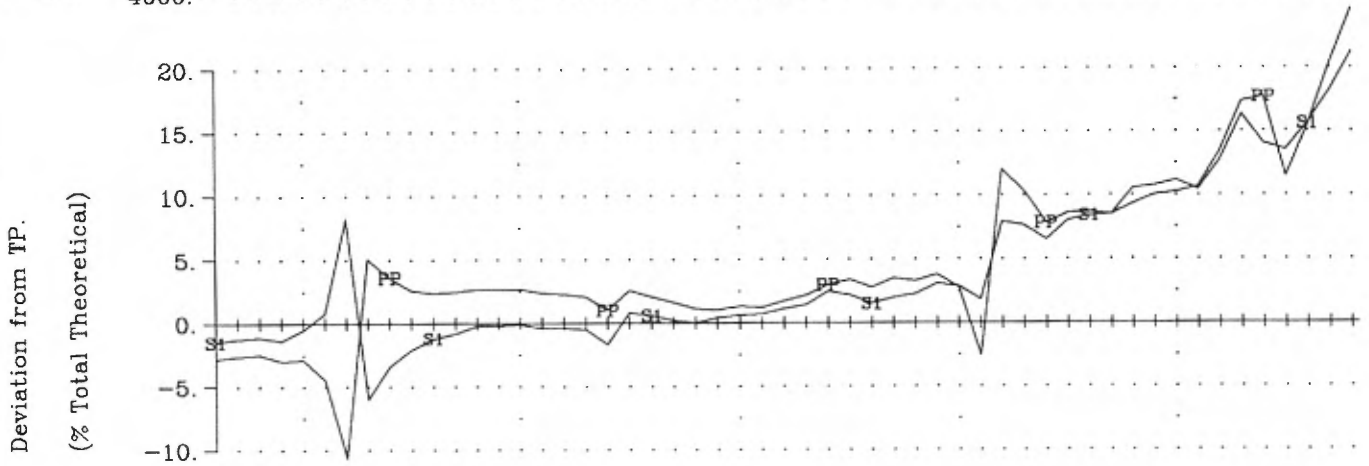
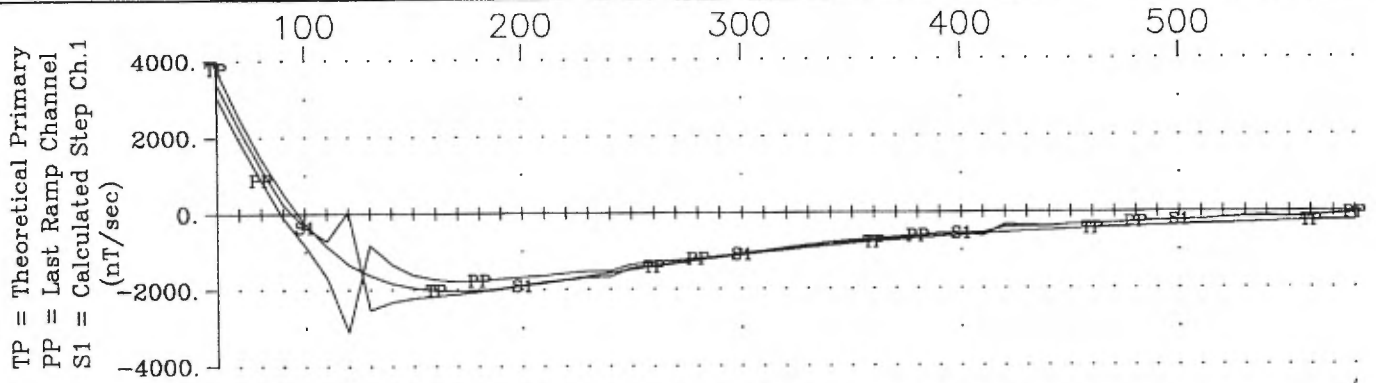
Falconbridge Ltd. ZONE 2 150ms
 Hole 718-1776 X Component
 Crone Geophysics & Exploration Ltd.



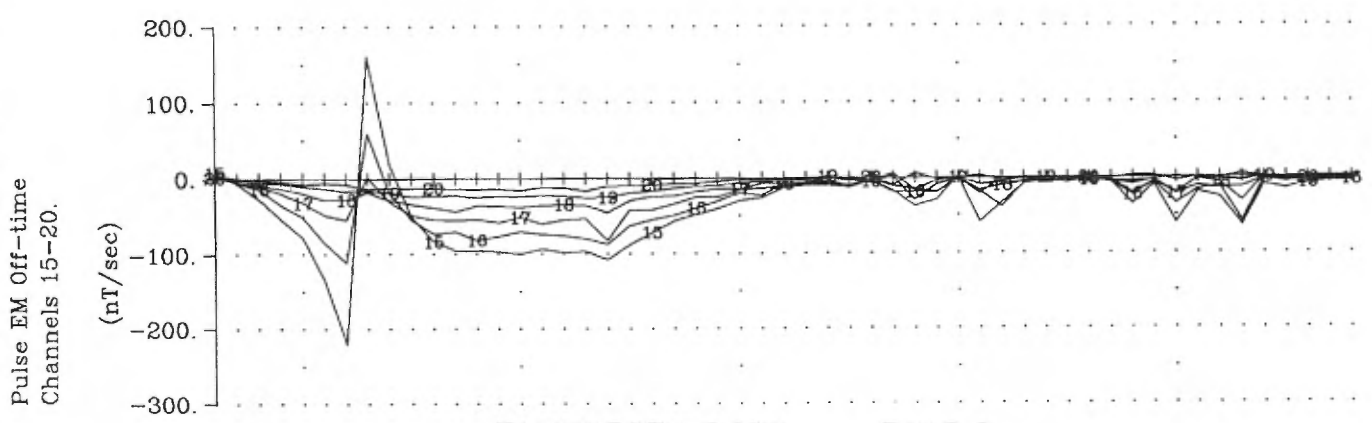
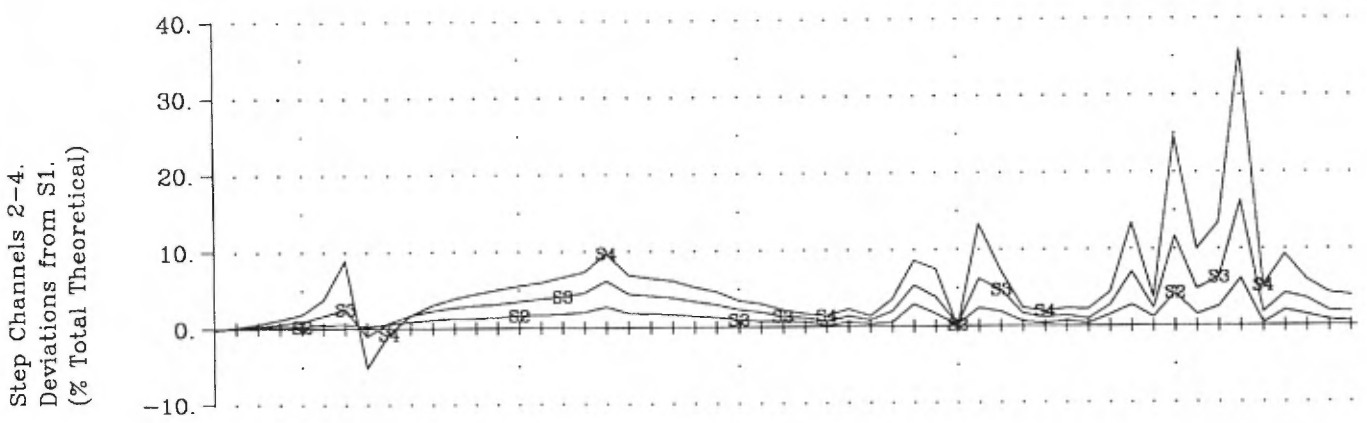
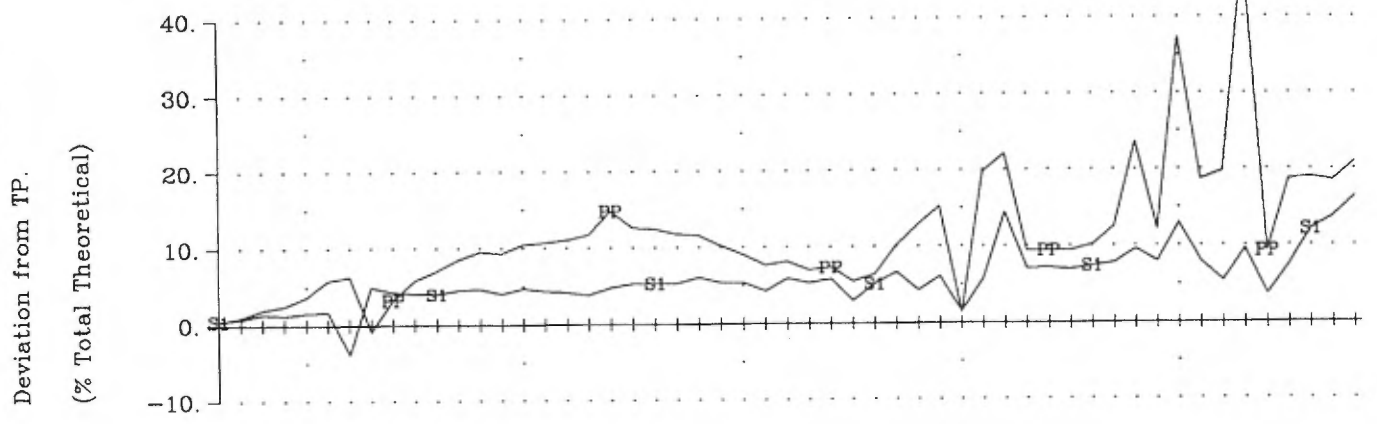
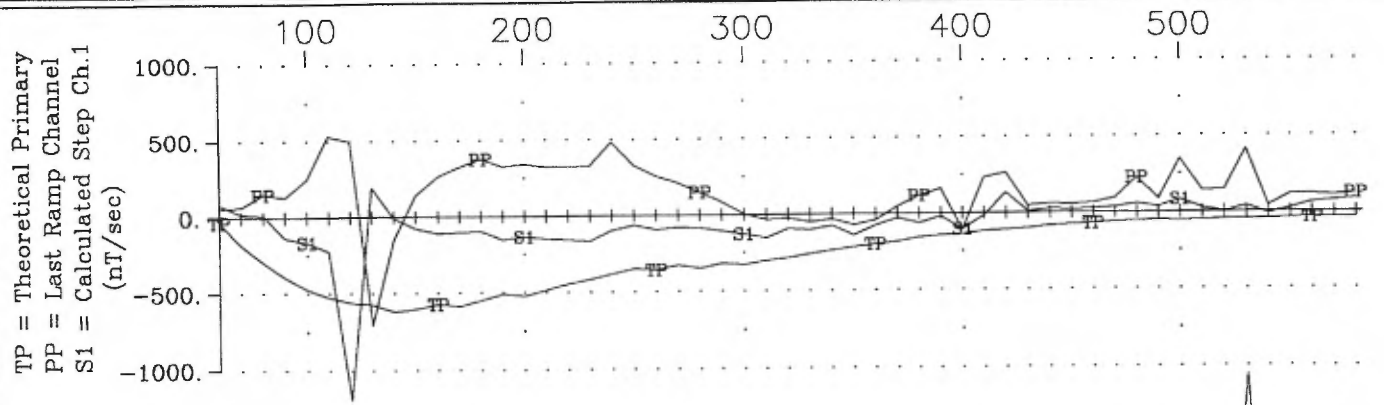
Falconbridge Ltd. ZONE 2 150ms
 Hole 718-1776 Y Component
 Crone Geophysics & Exploration Ltd.



Falconbridge Ltd. ZONE 2 150ms
 Hole 718-1776 Z Component
 Crone Geophysics & Exploration Ltd.

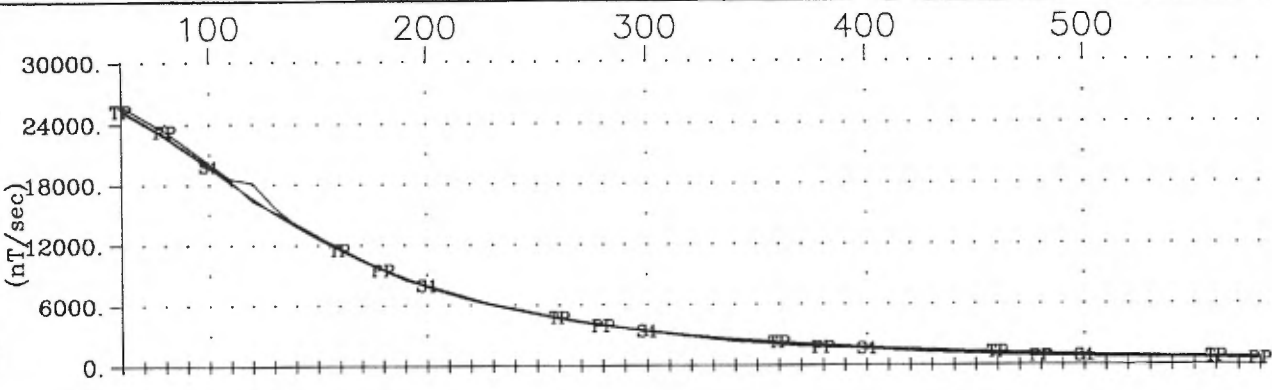


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1777 X Component
 Crone Geophysics & Exploration Ltd.

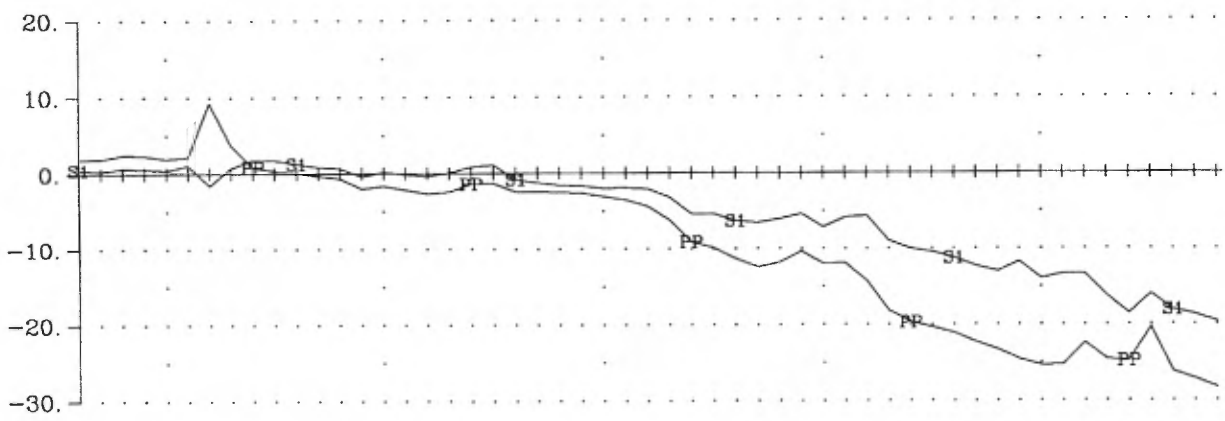


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1777 Y Component
 Crone Geophysics & Exploration Ltd.

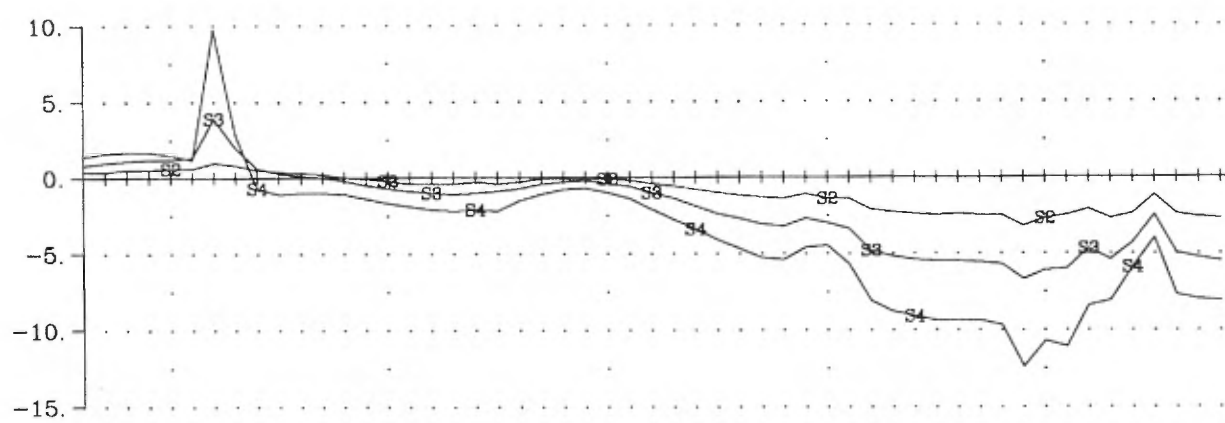
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



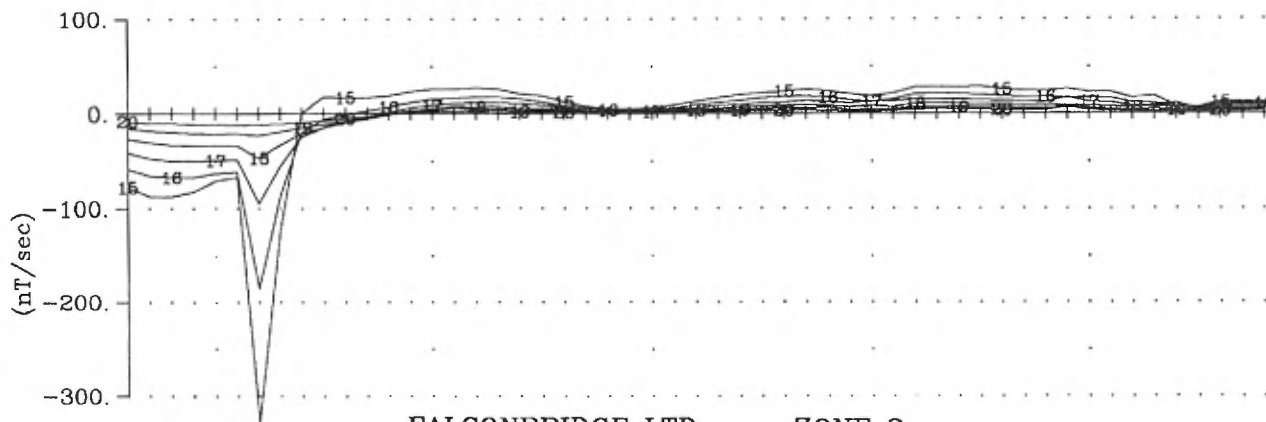
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

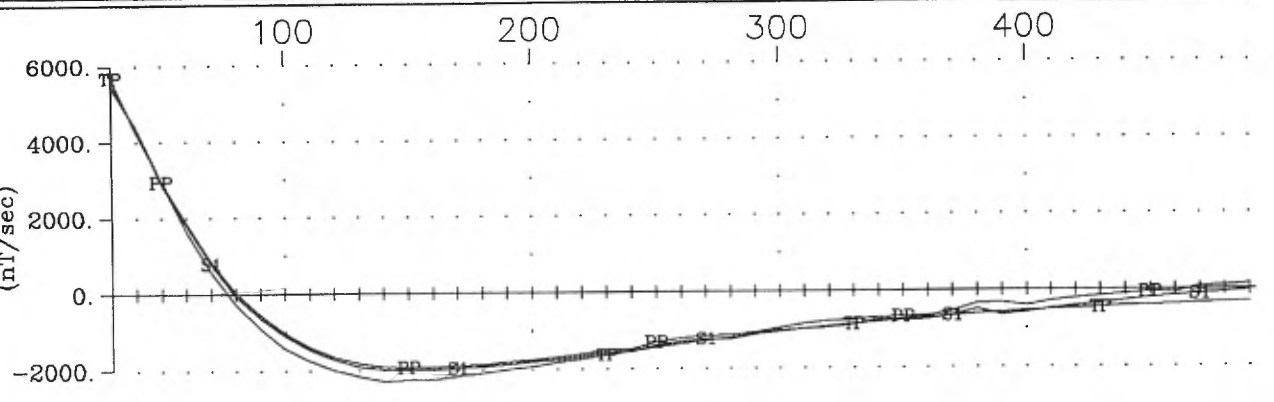


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

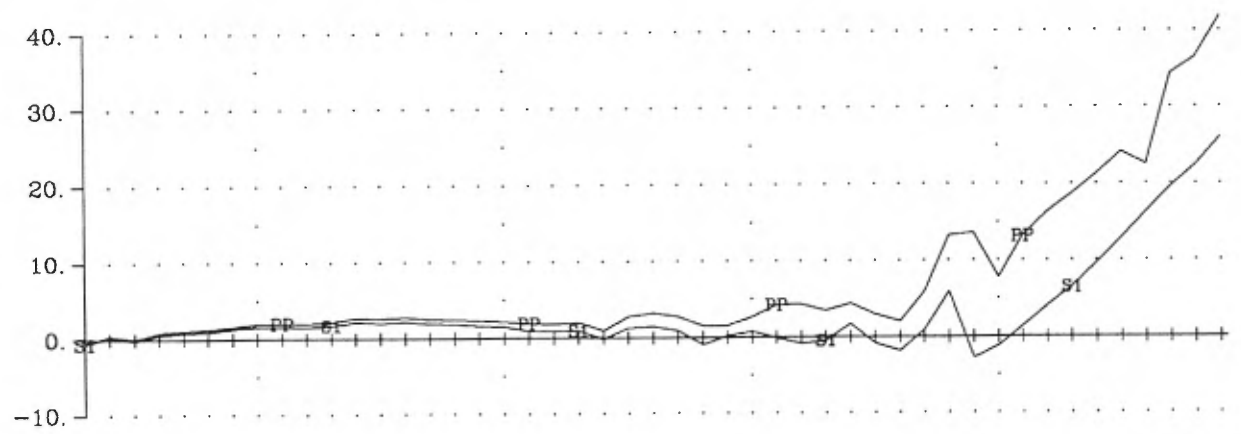


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1777 Z Component
 Crone Geophysics & Exploration Ltd.

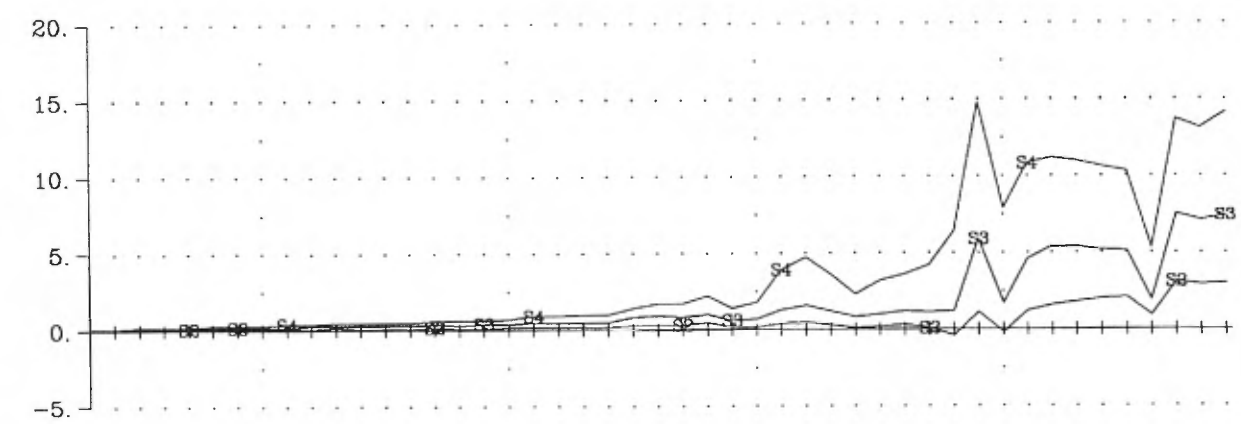
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



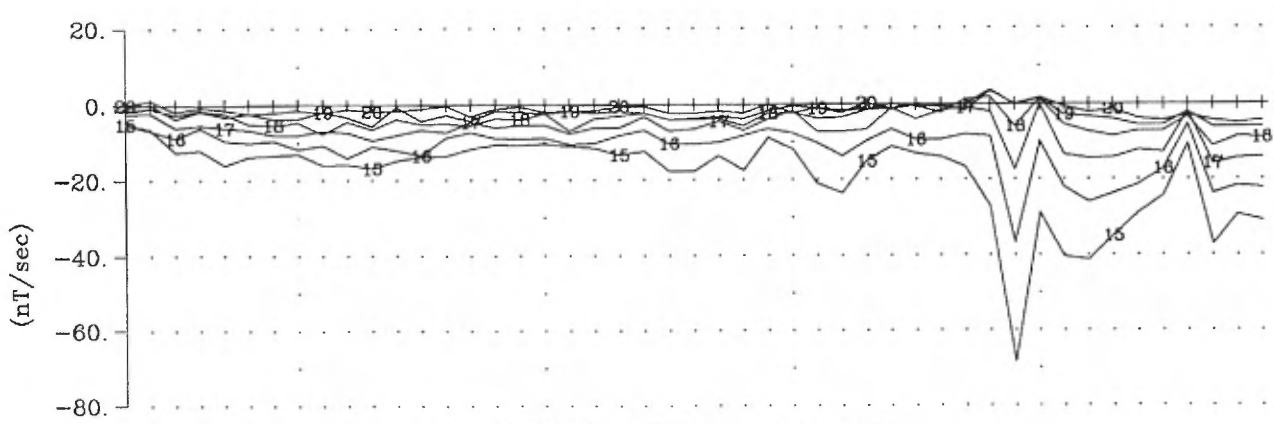
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

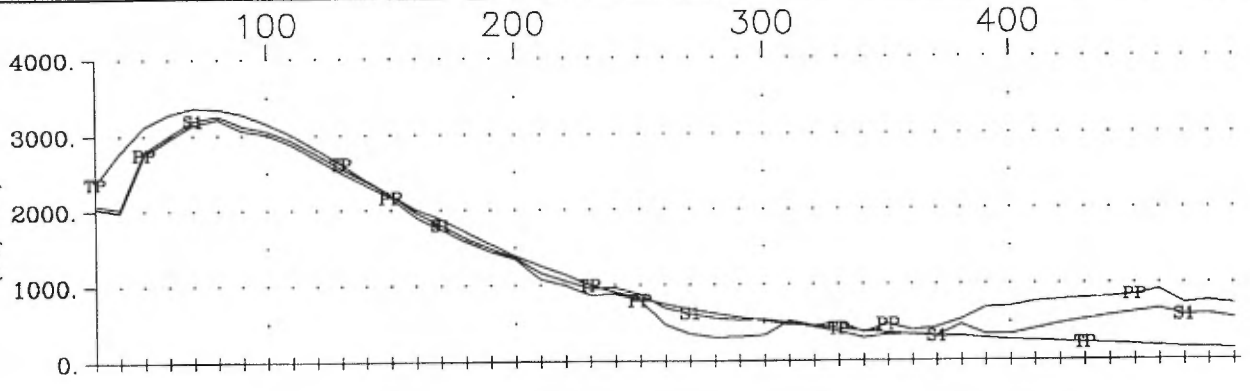


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

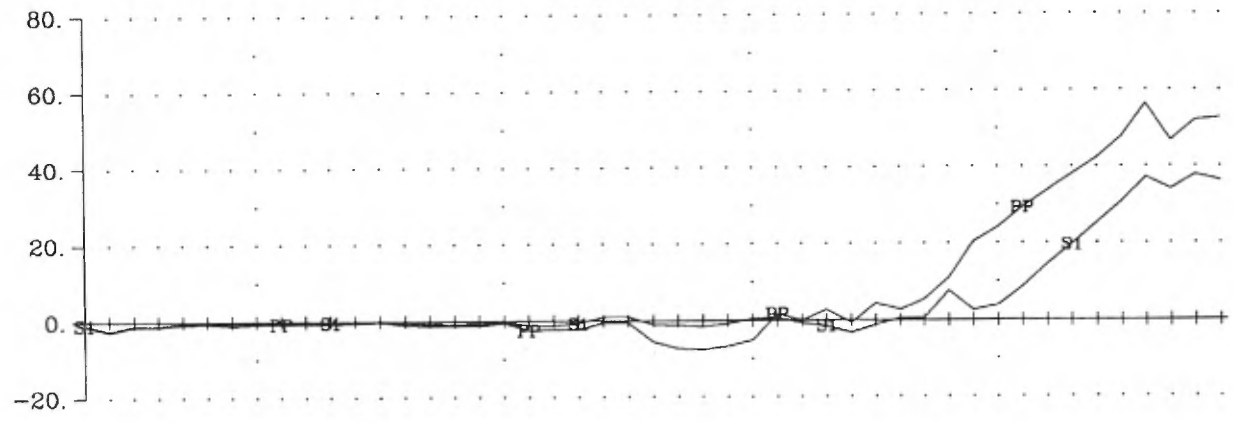


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1778 X Component
 Crone Geophysics & Exploration Ltd.

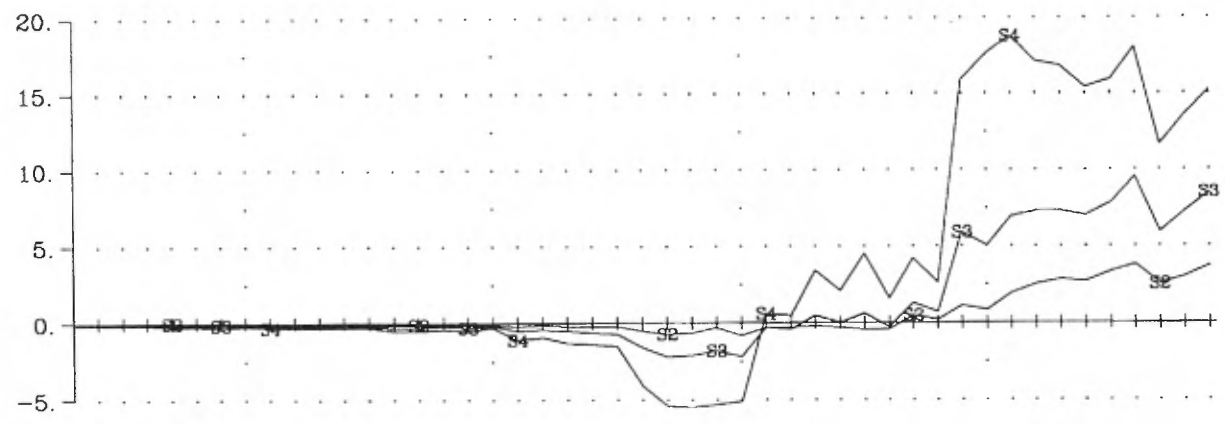
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch. 1
 (nT/sec)



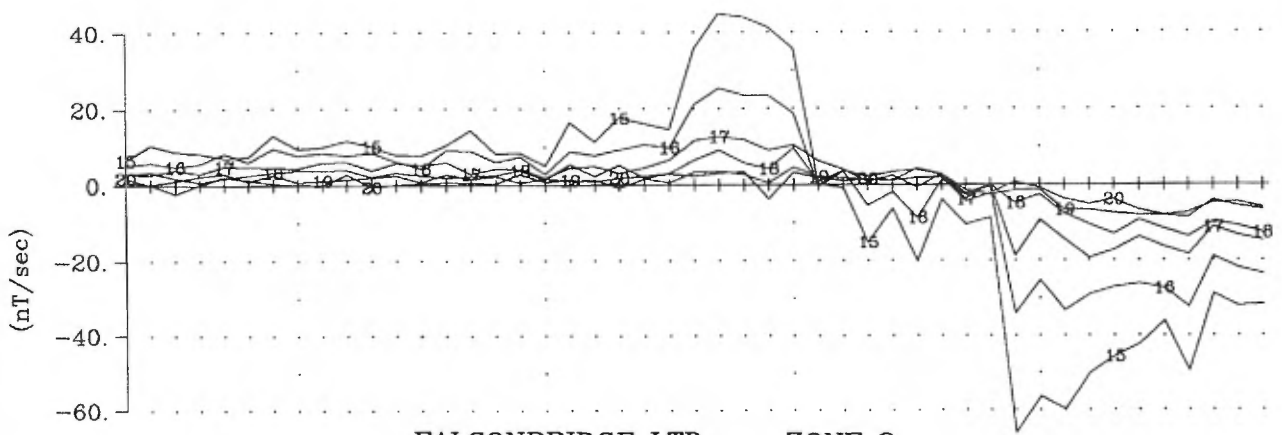
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

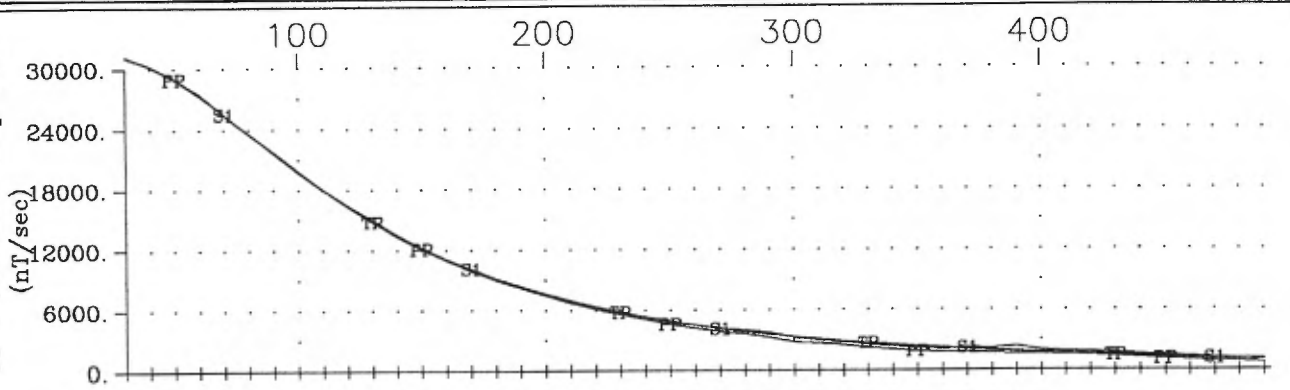


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

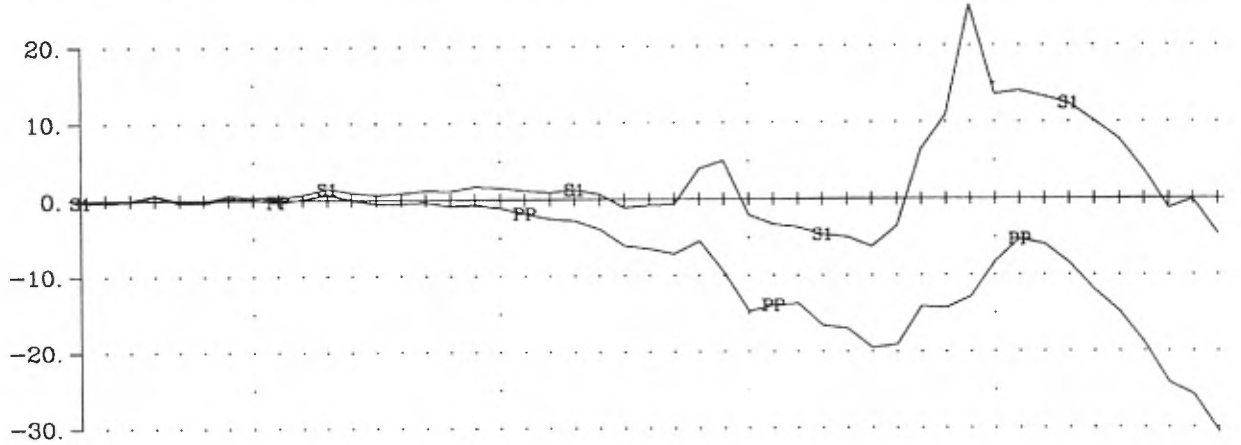


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1778 Y Component
 Crone Geophysics & Exploration Ltd.

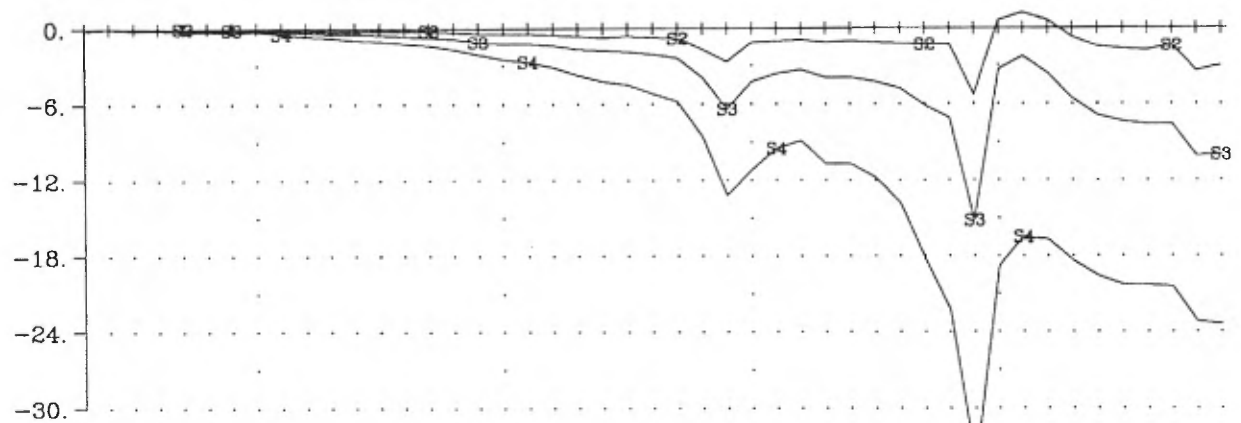
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



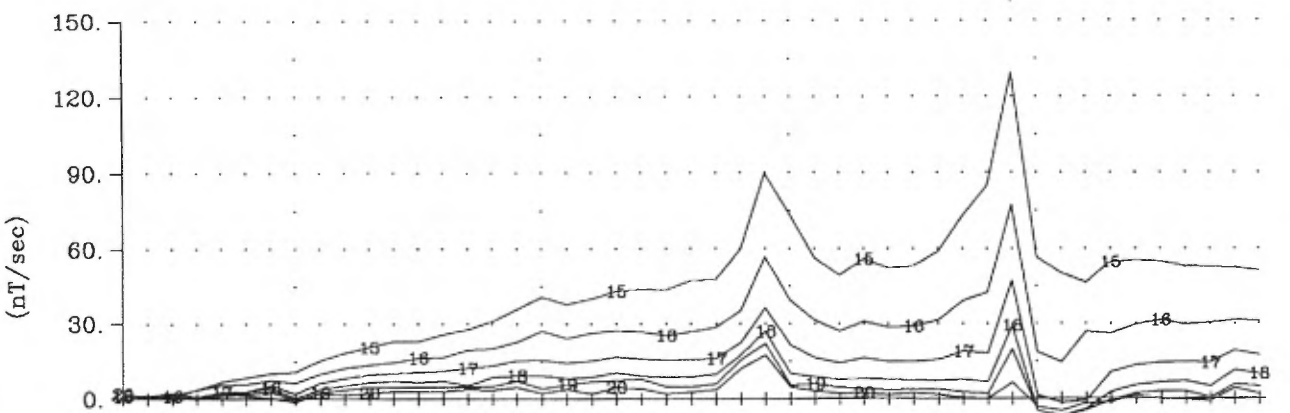
Deviation from TP.
 (% Total Theoretical)



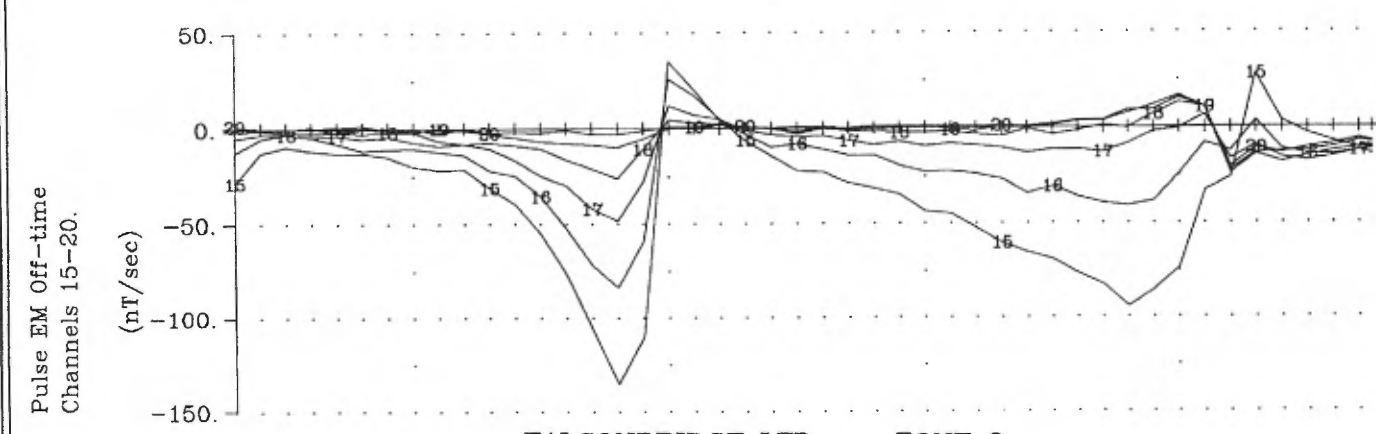
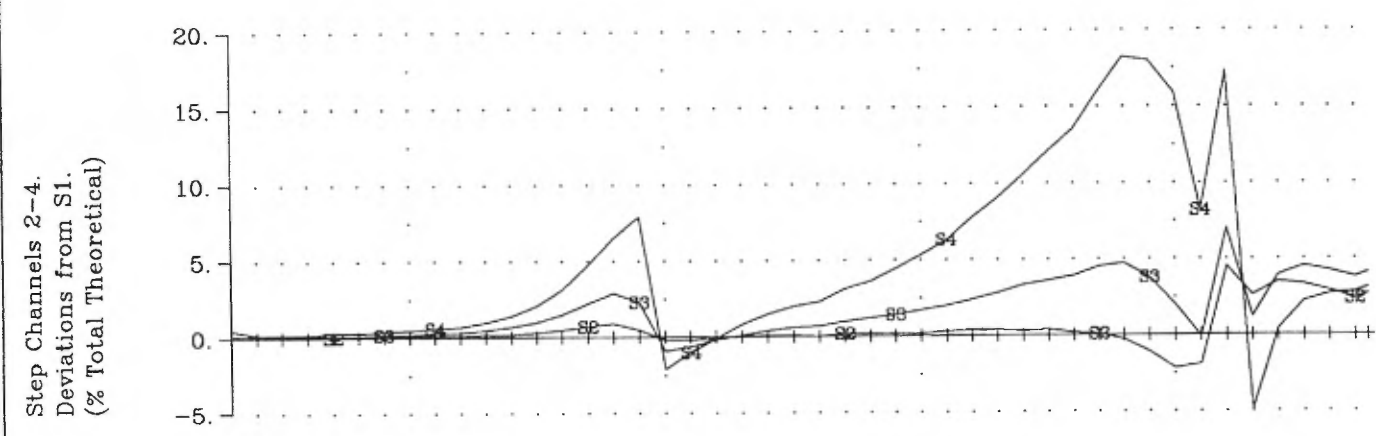
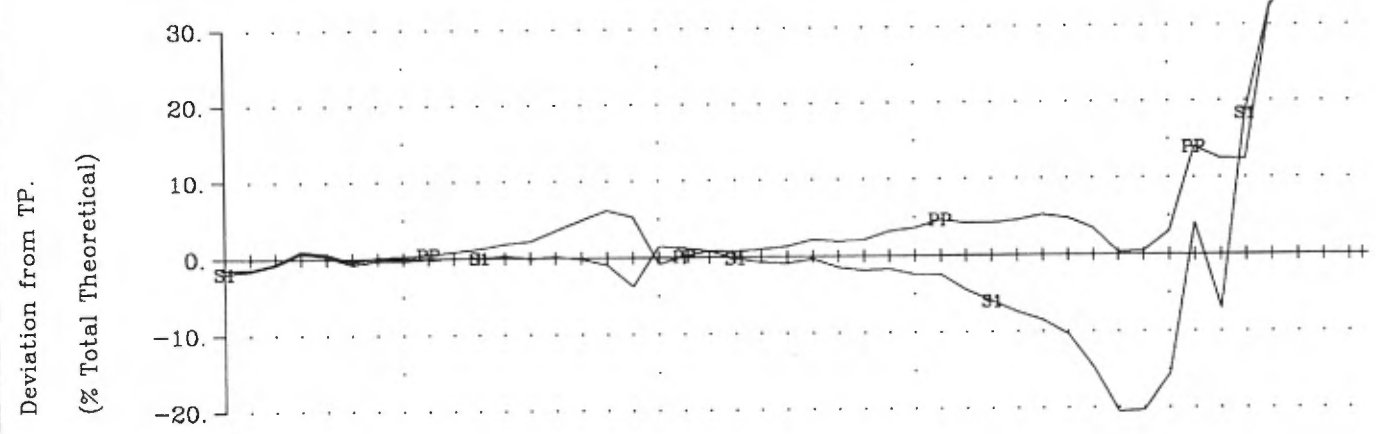
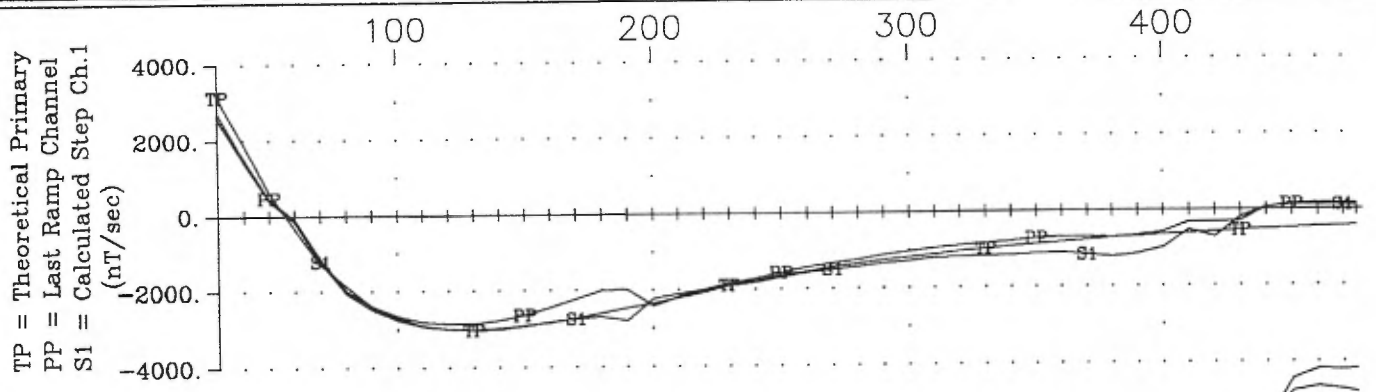
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

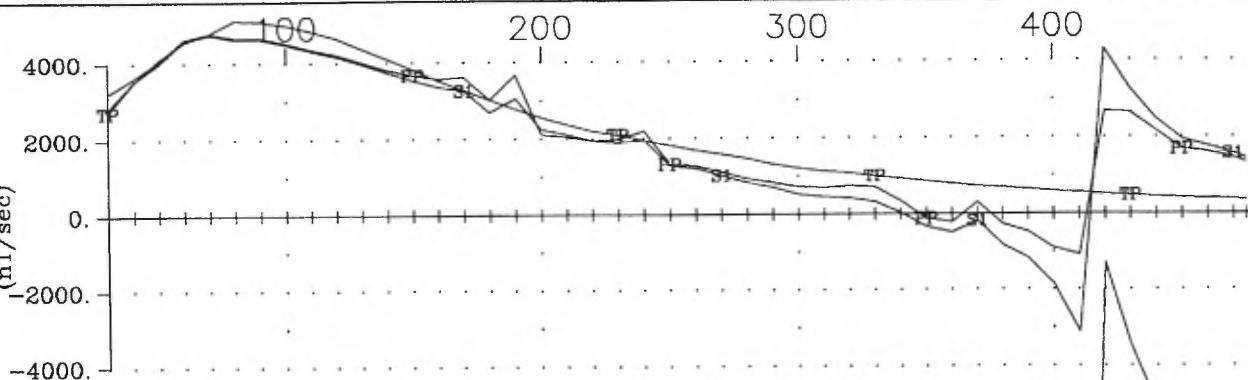


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1778 Z Component
 Crone Geophysics & Exploration Ltd.



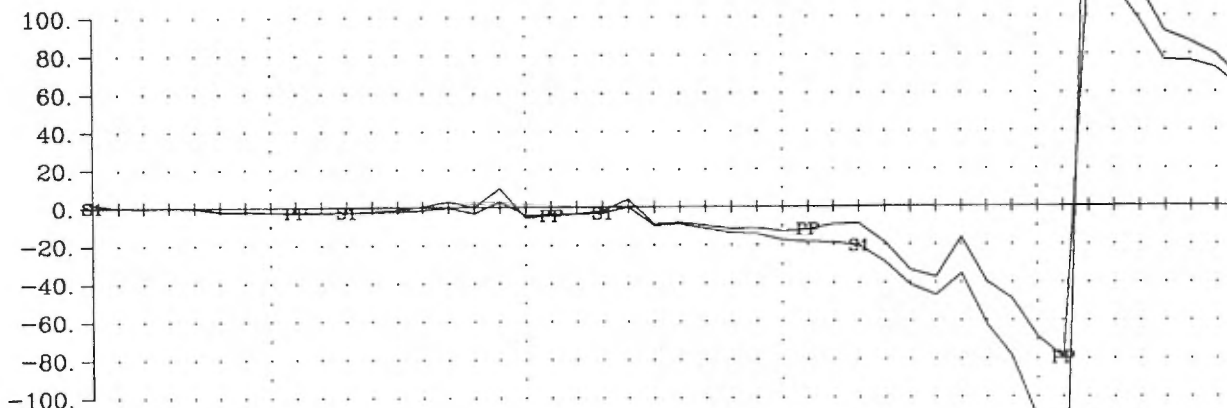
FALCONBRIDGE LTD. ZONE 2
 Hole 718-1779 X Component
 Crone Geophysics & Exploration Ltd.

TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



Deviation from TP.

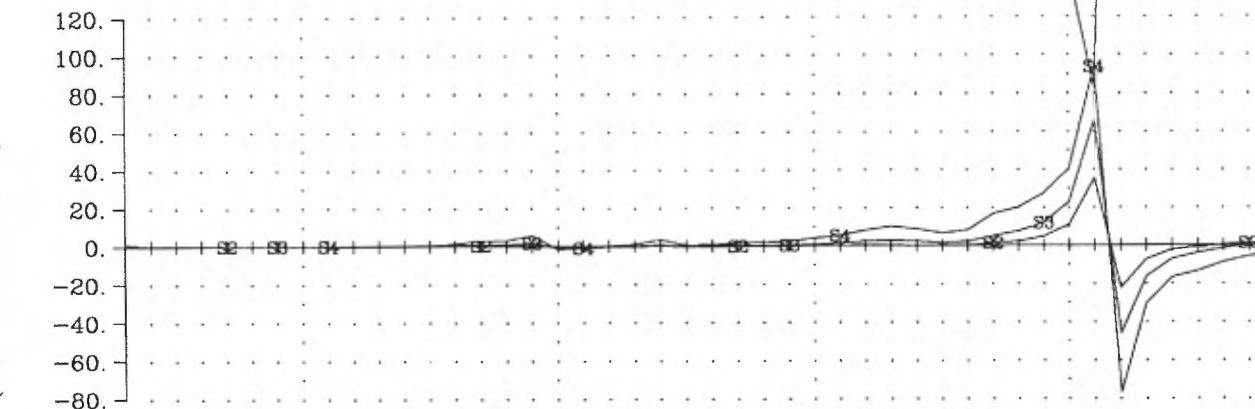
(% Total Theoretical)



Step Channels 2-4.

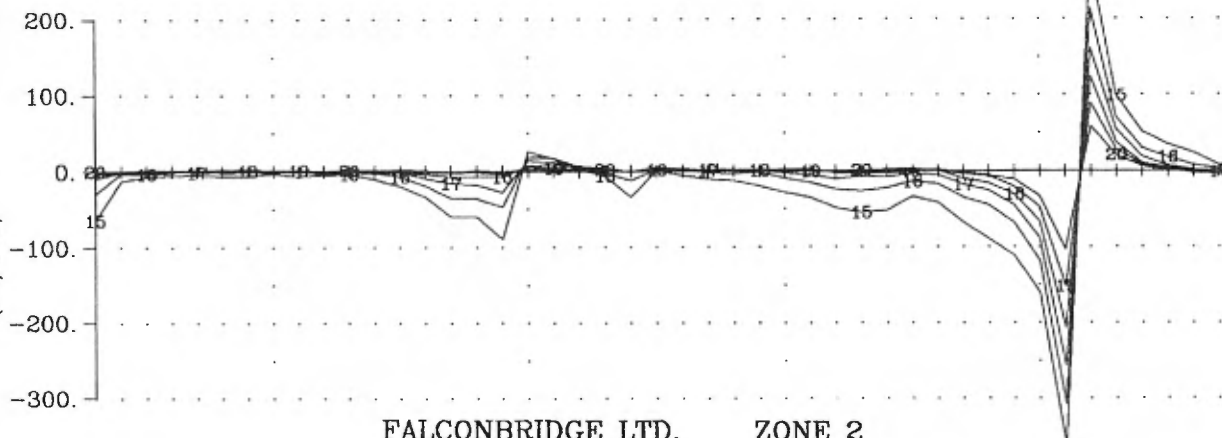
Deviations from S1.

(% Total Theoretical)



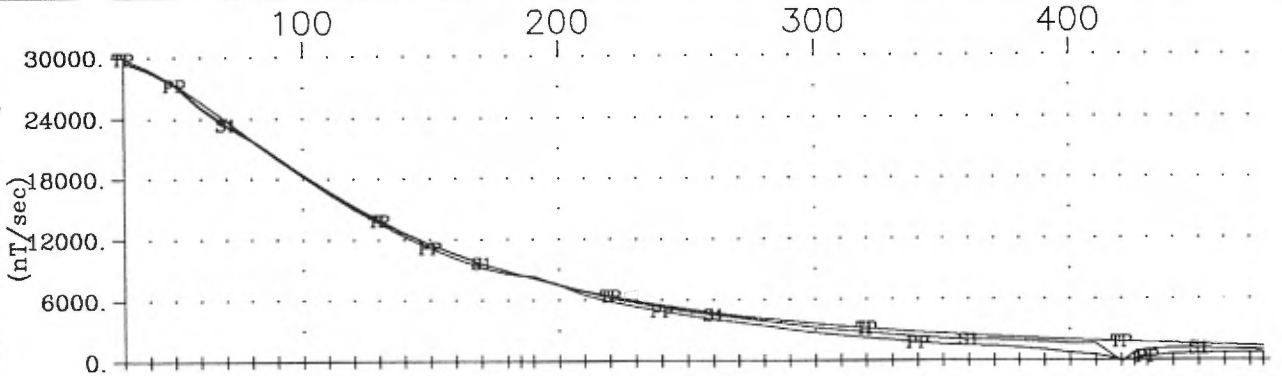
Pulse EM Off-time
 Channels 15-20.

(nT/sec)



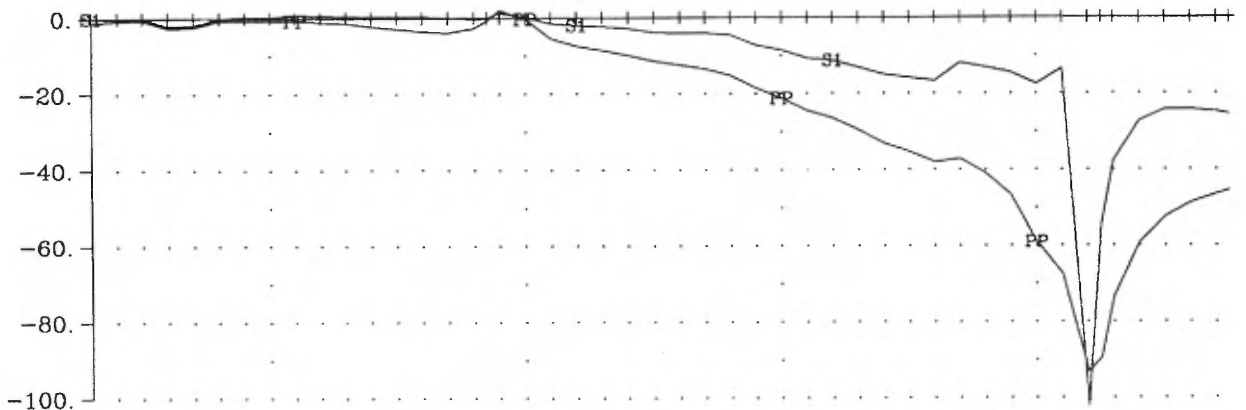
FALCONBRIDGE LTD. ZONE 2
 Hole 718-1779 Y Component
 Crone Geophysics & Exploration Ltd.

TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



Deviation from TP.

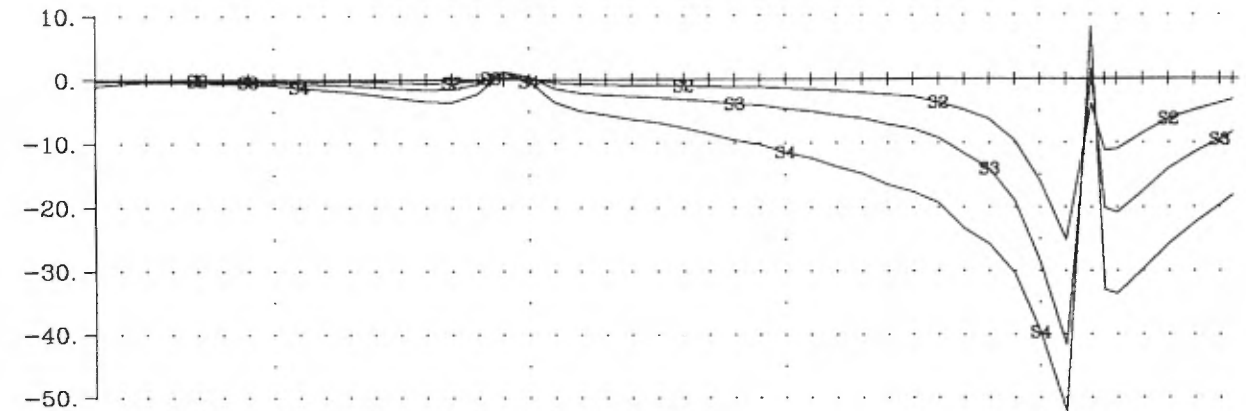
(% Total Theoretical)



Step Channels 2-4.

Deviations from S1.

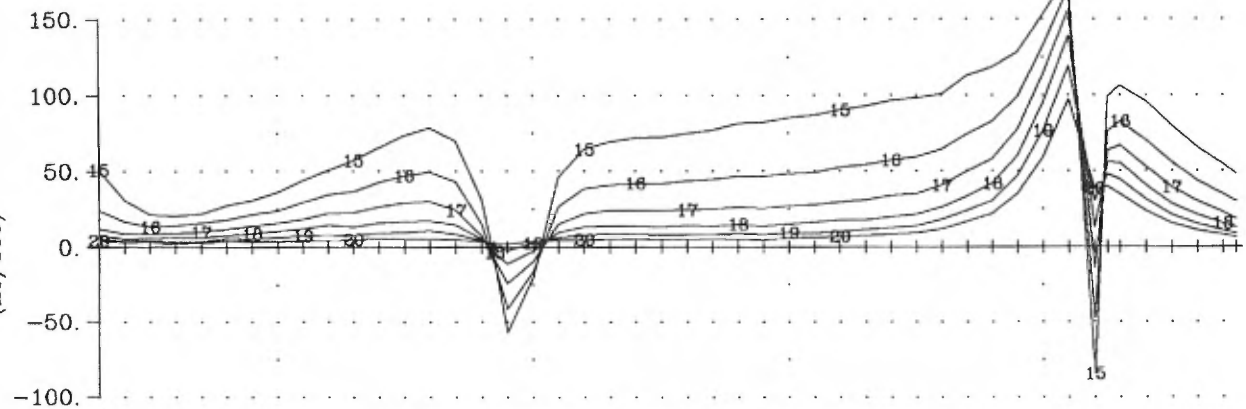
(% Total Theoretical)



Pulse EM Off-time

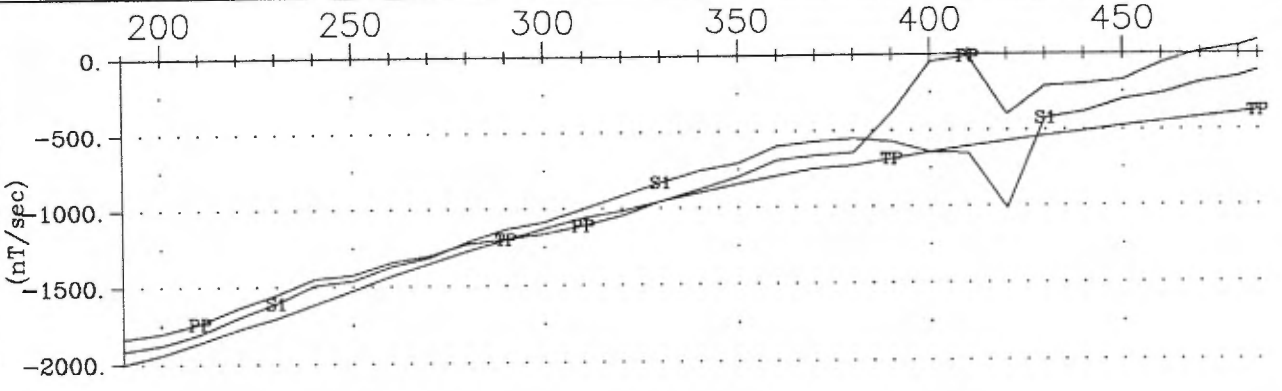
Channels 15-20.

(nT/sec)

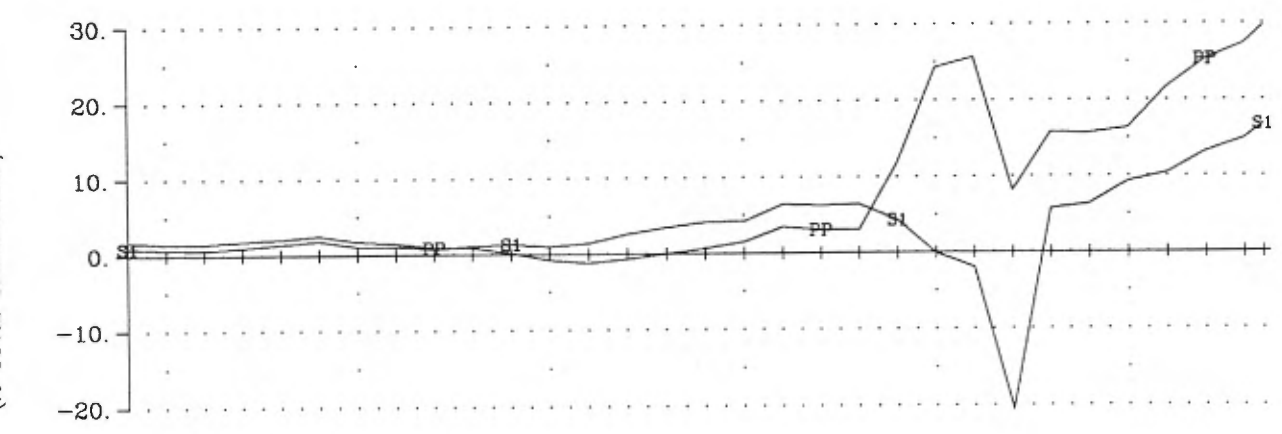


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1779 Z Component
 Crone Geophysics & Exploration Ltd.

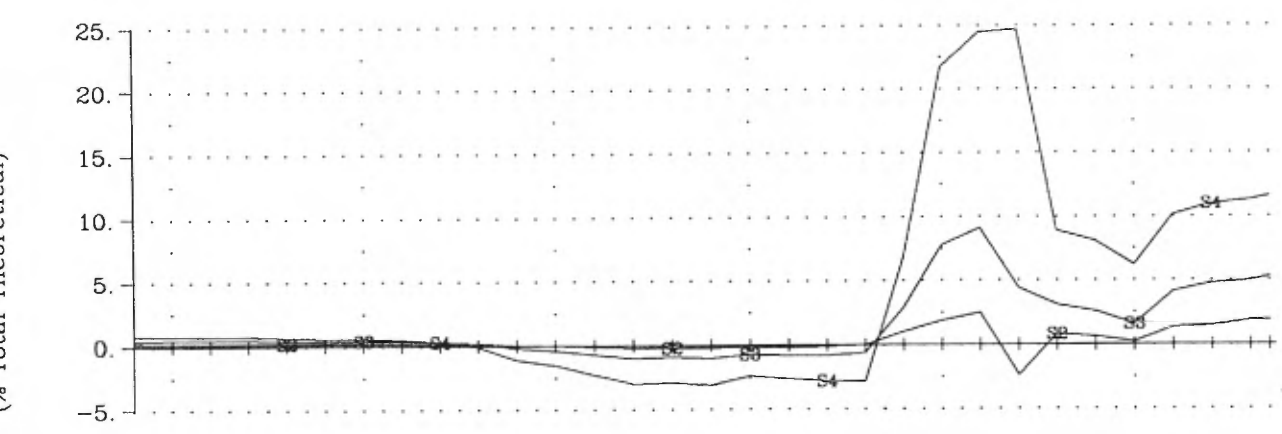
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



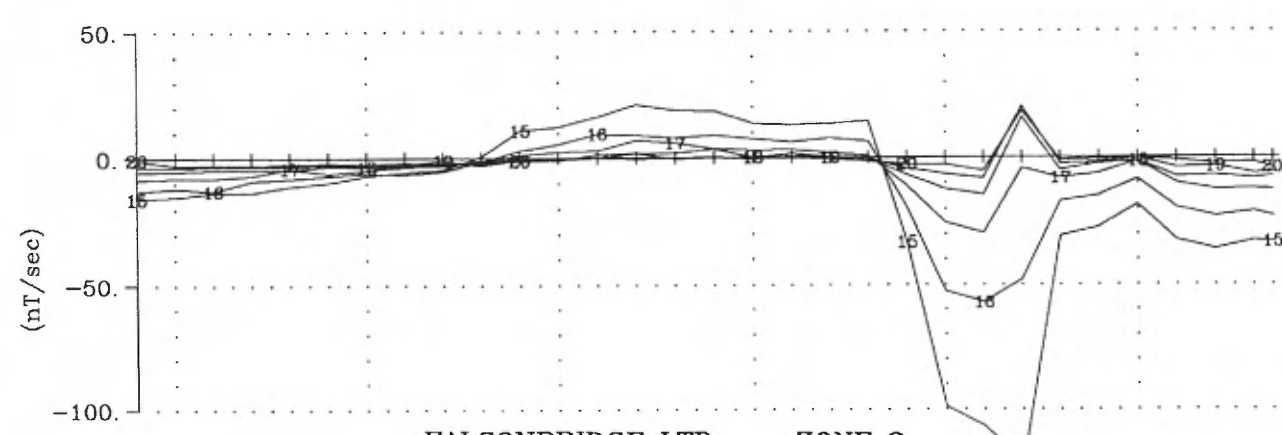
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

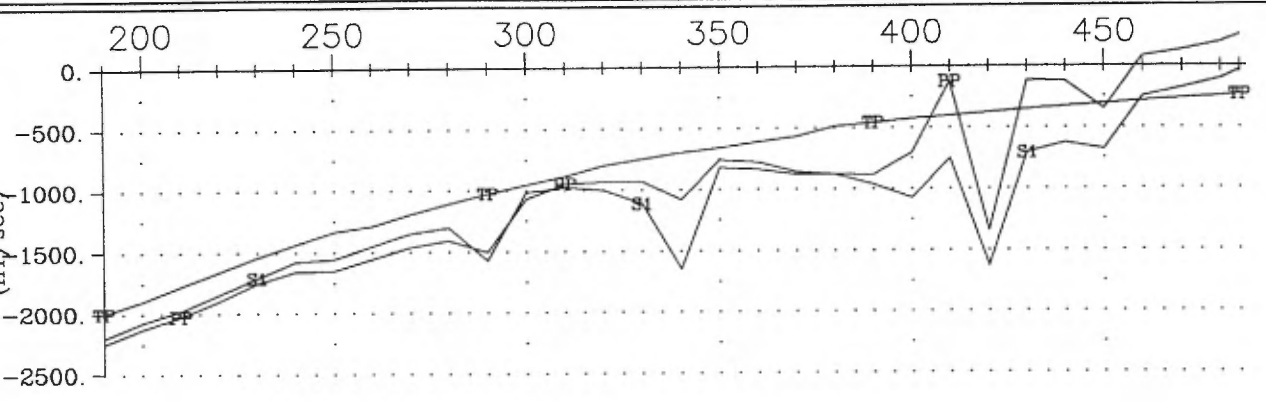


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

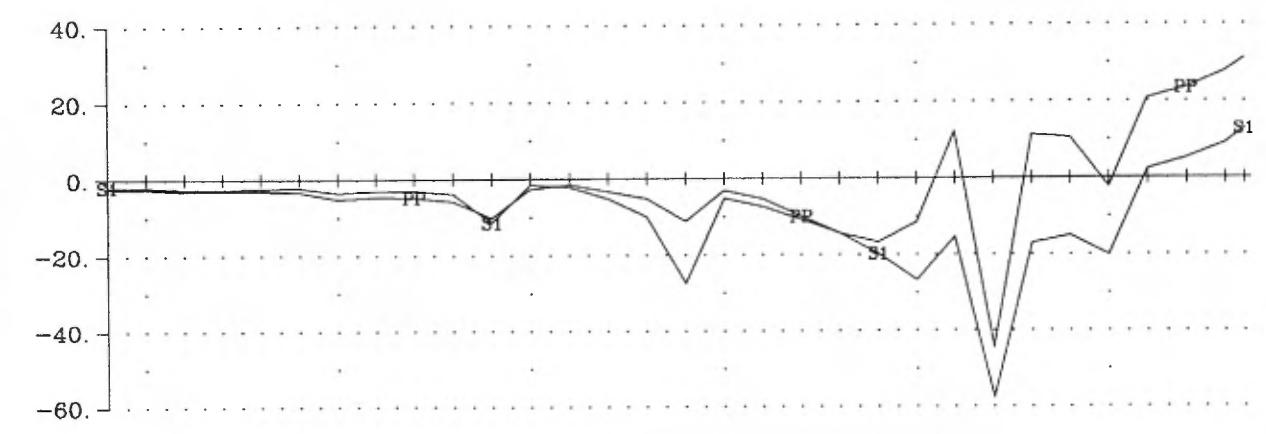


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1780 X Component
 Crone Geophysics & Exploration Ltd.

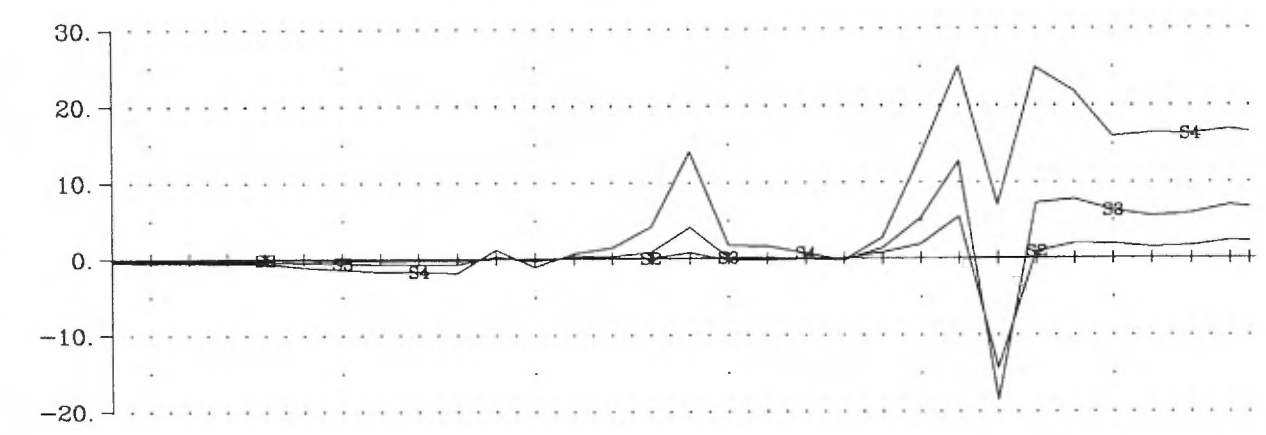
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



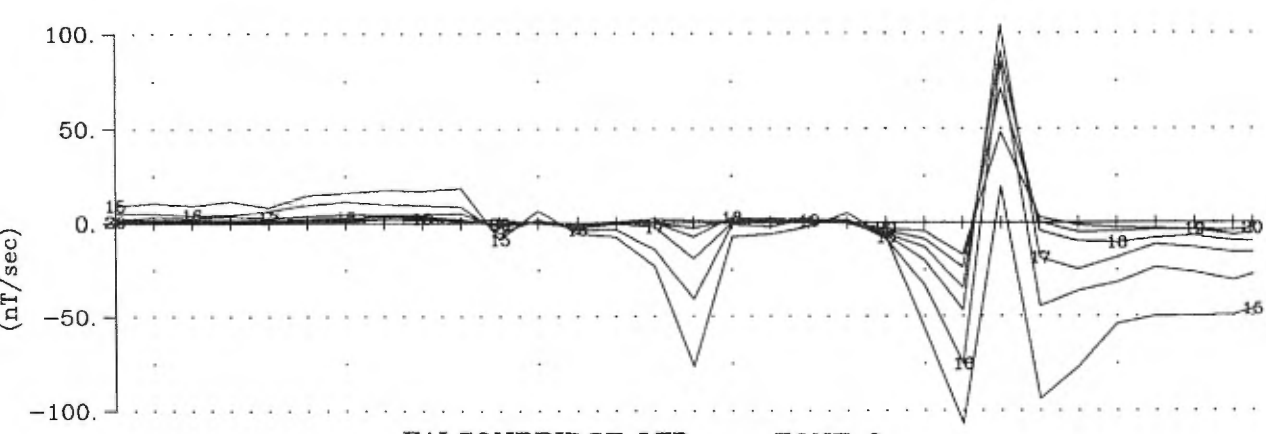
Deviation from TP.
 (% Total Theoretical)



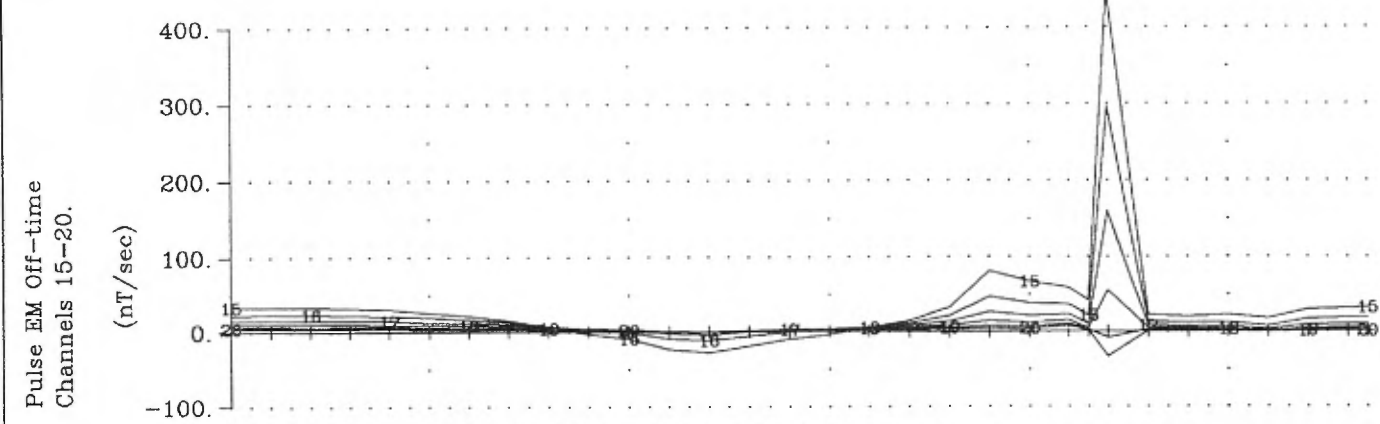
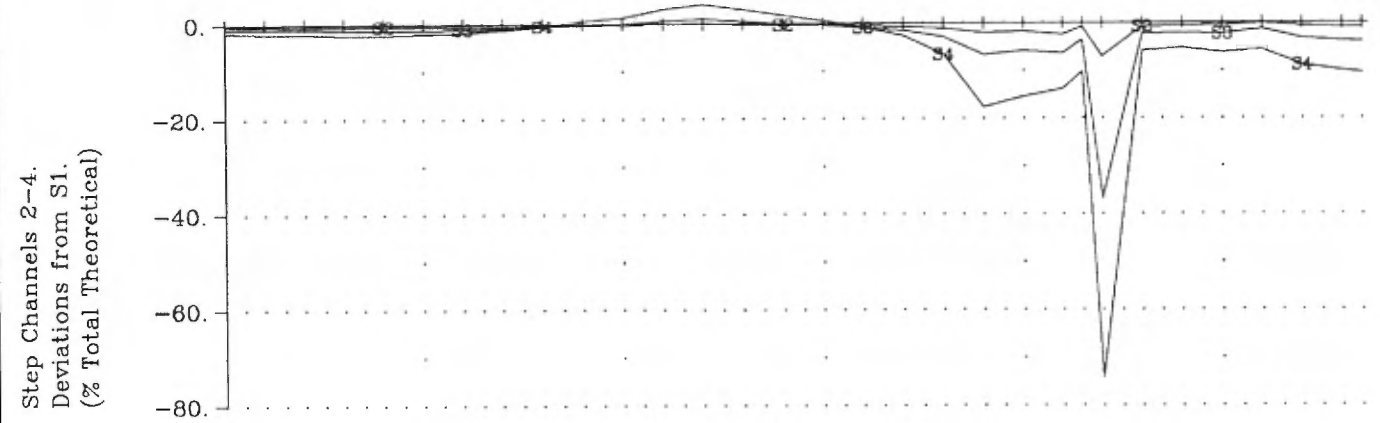
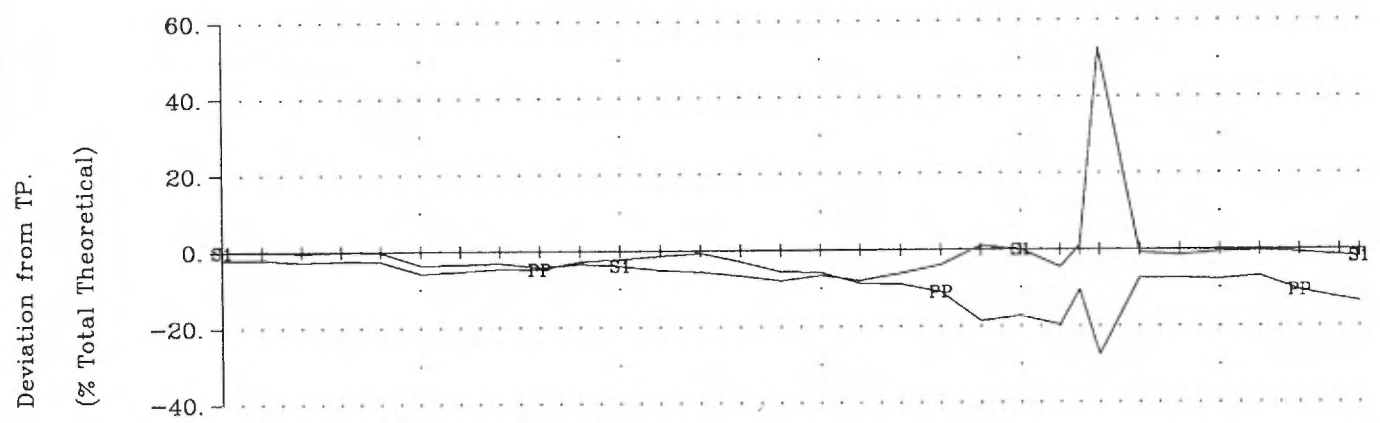
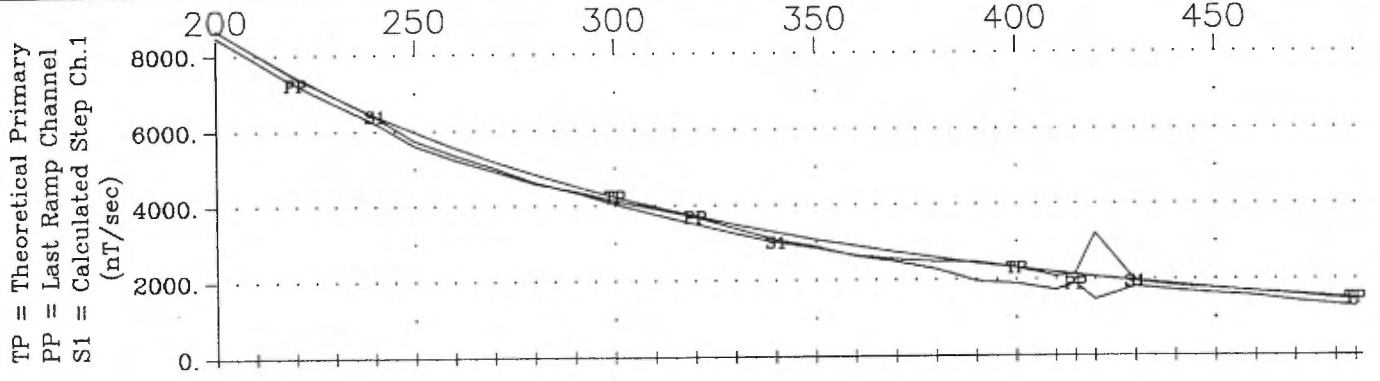
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



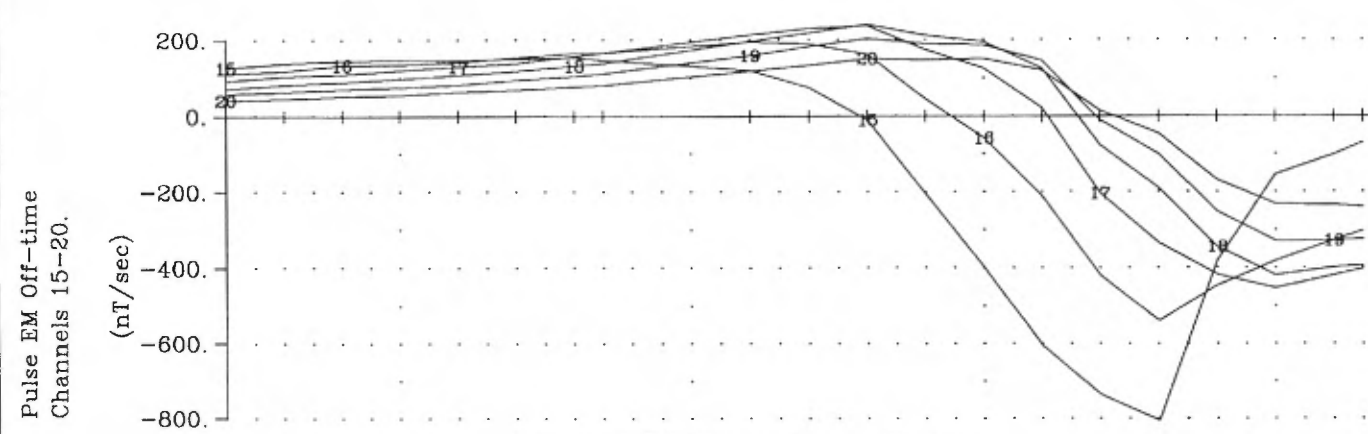
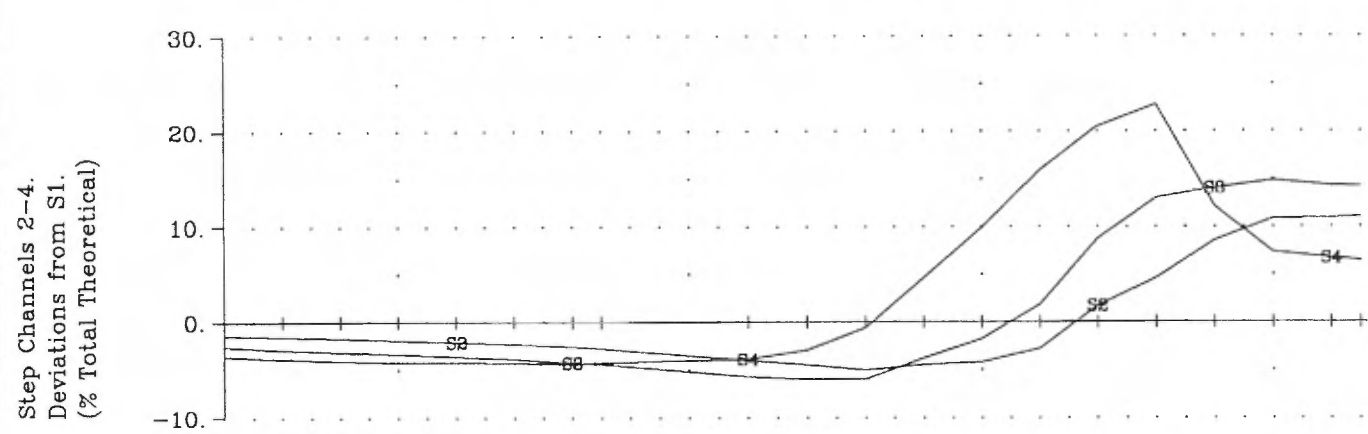
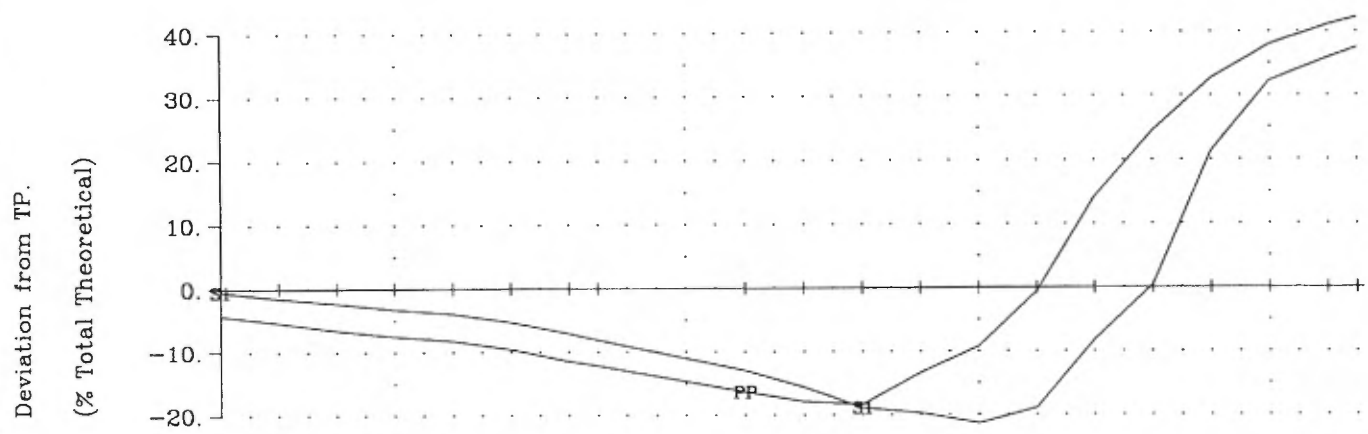
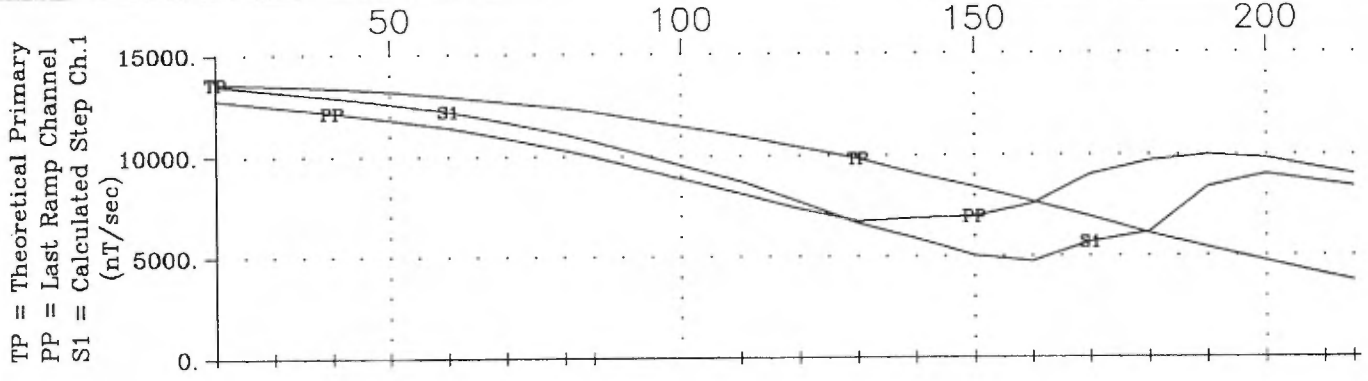
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



FALCONBRIDGE LTD. ZONE 2
 Hole 718-1780 Y Component
 Crone Geophysics & Exploration Ltd.

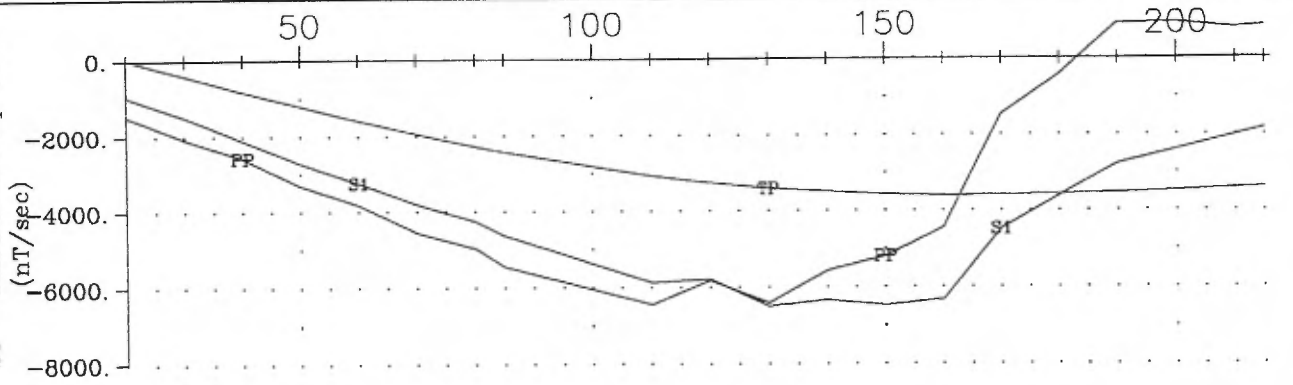


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1780 Z Component
 Crone Geophysics & Exploration Ltd.

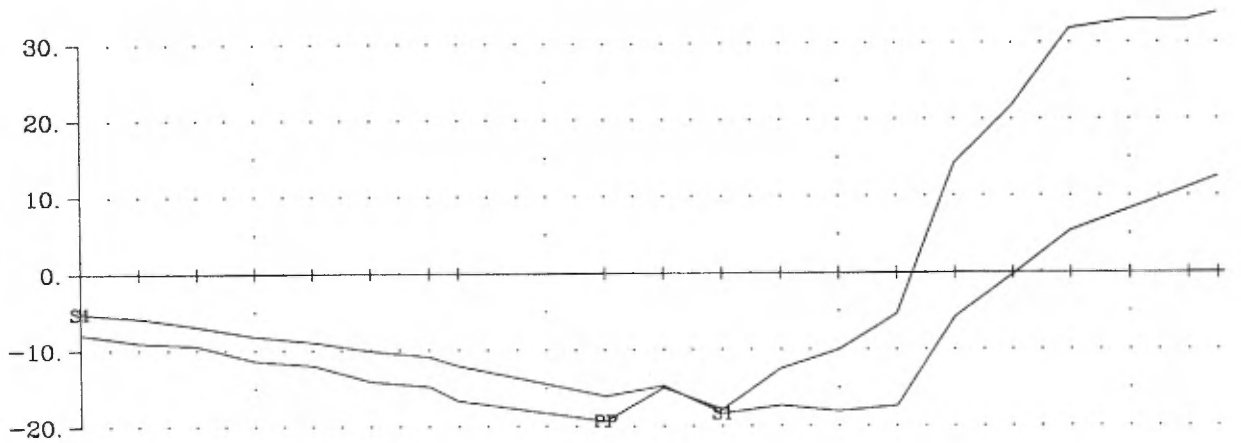


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1791 X Component
 Crone Geophysics & Exploration Ltd.

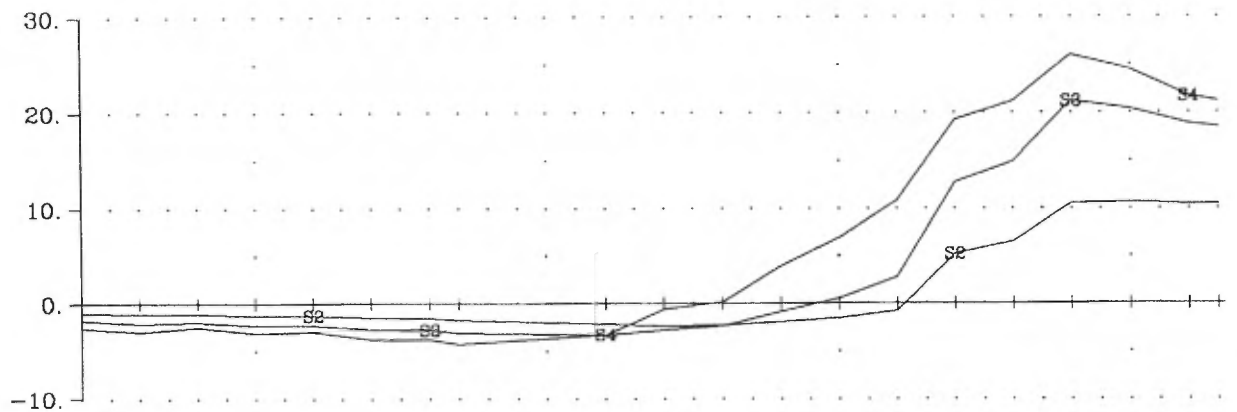
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



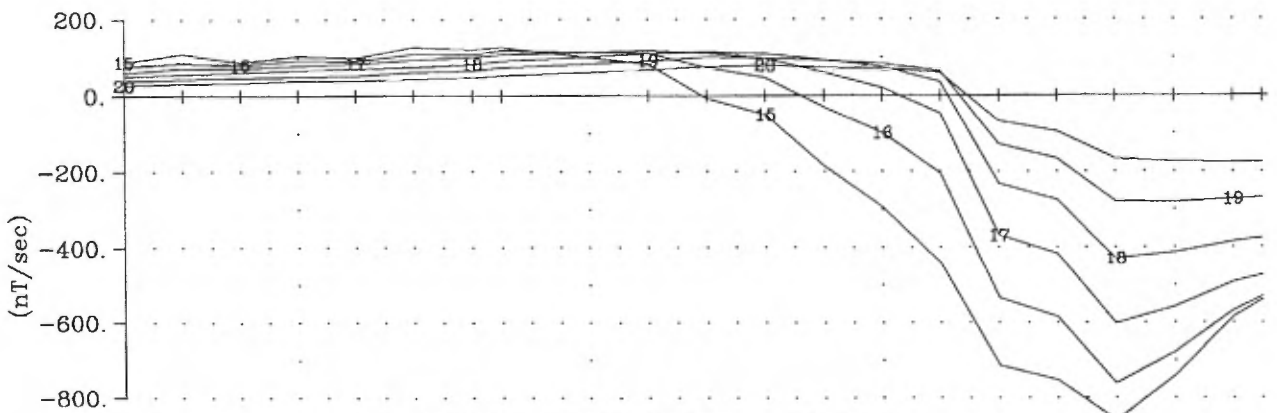
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

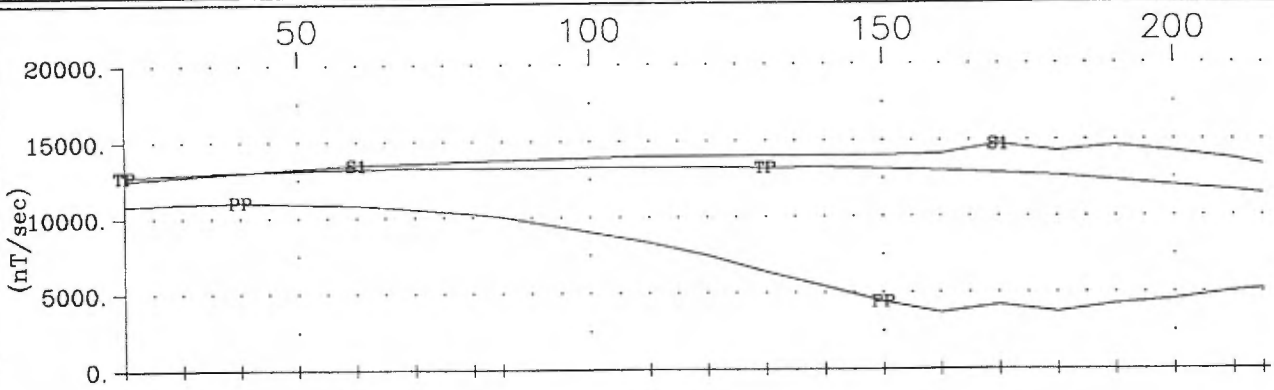


Pulse EM Off-time
 Channels 15-20.

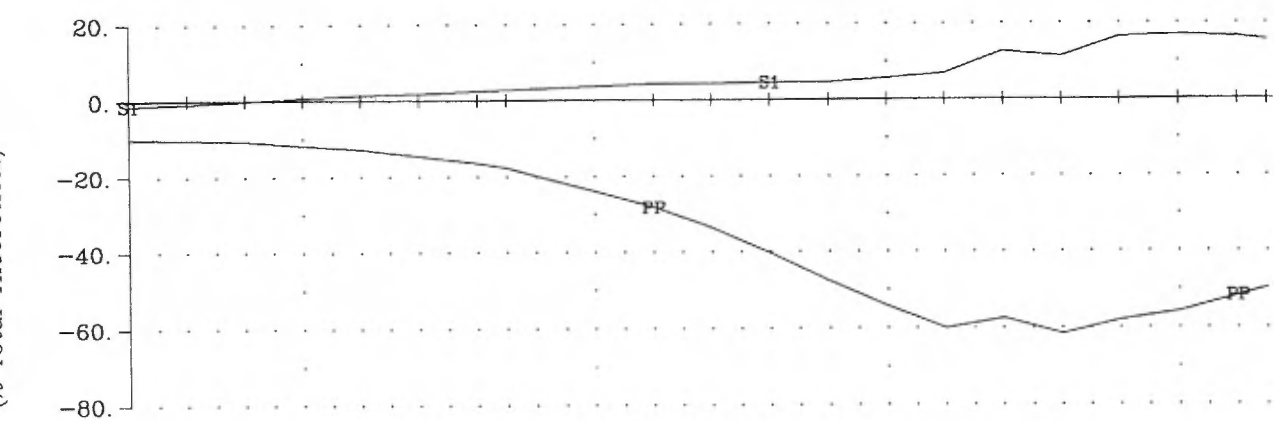


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1791 Y Component
 Crone Geophysics & Exploration Ltd.

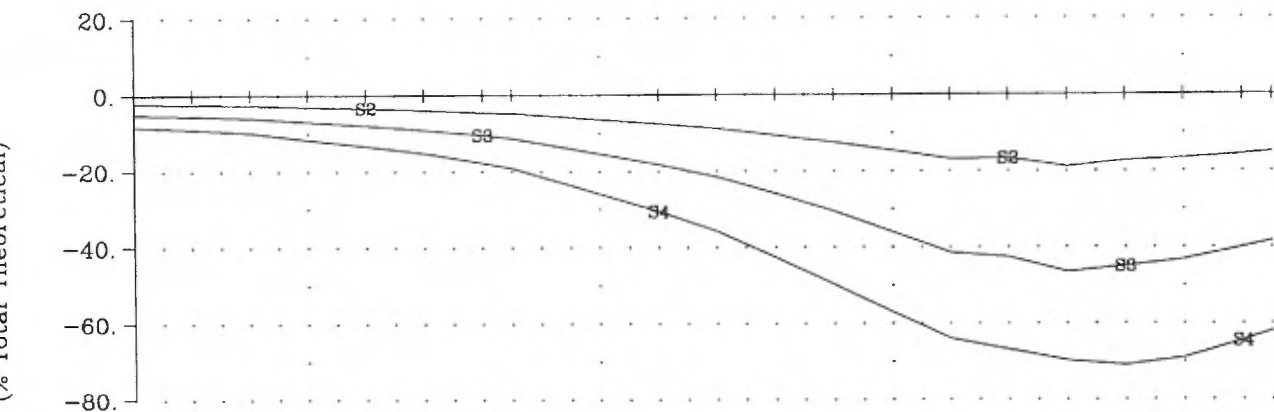
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



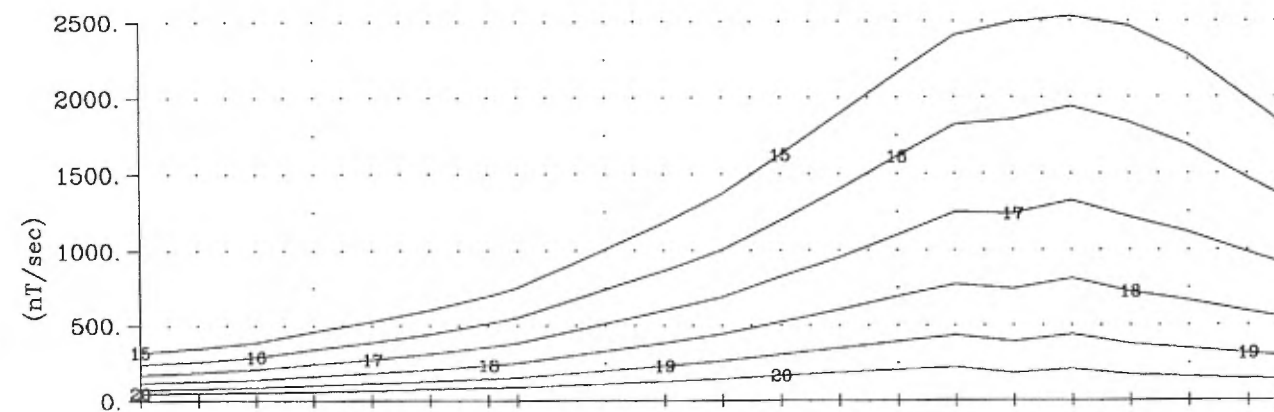
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

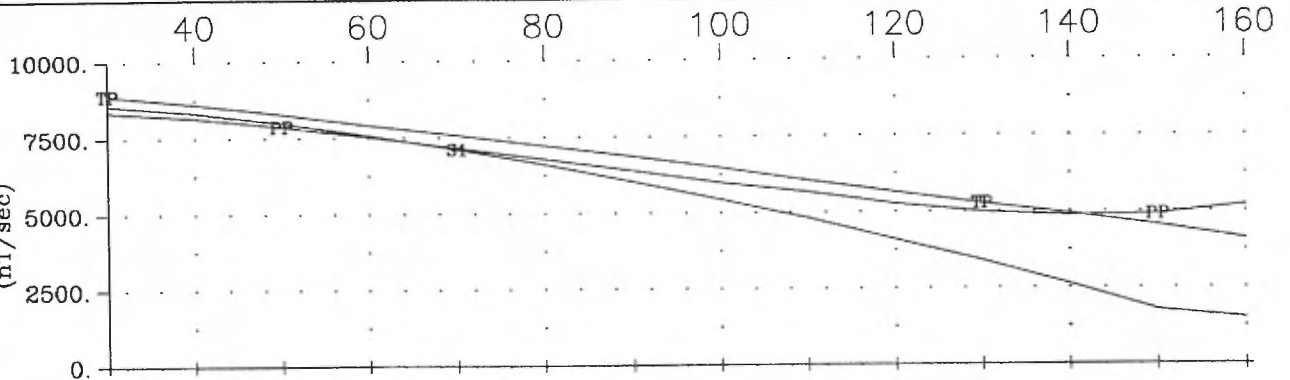


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

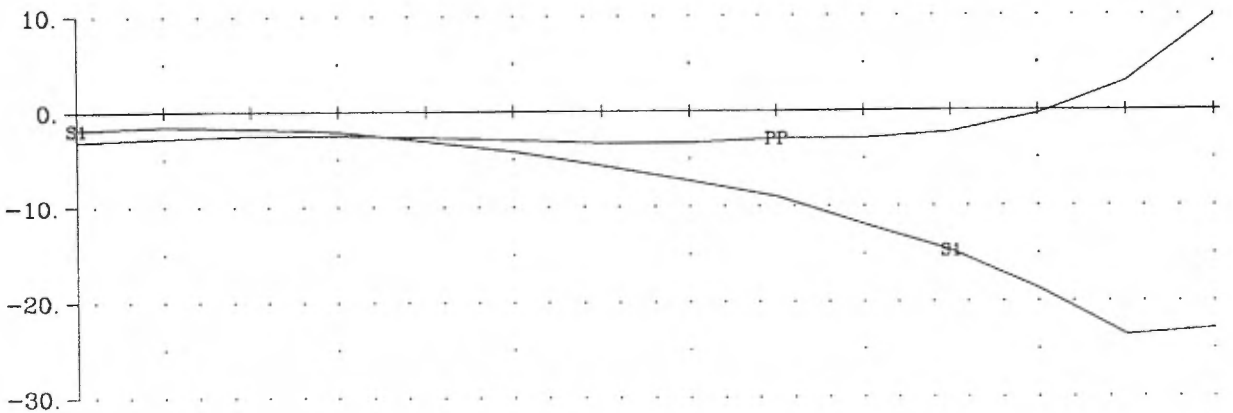


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1791 Z Component
 Crone Geophysics & Exploration Ltd.

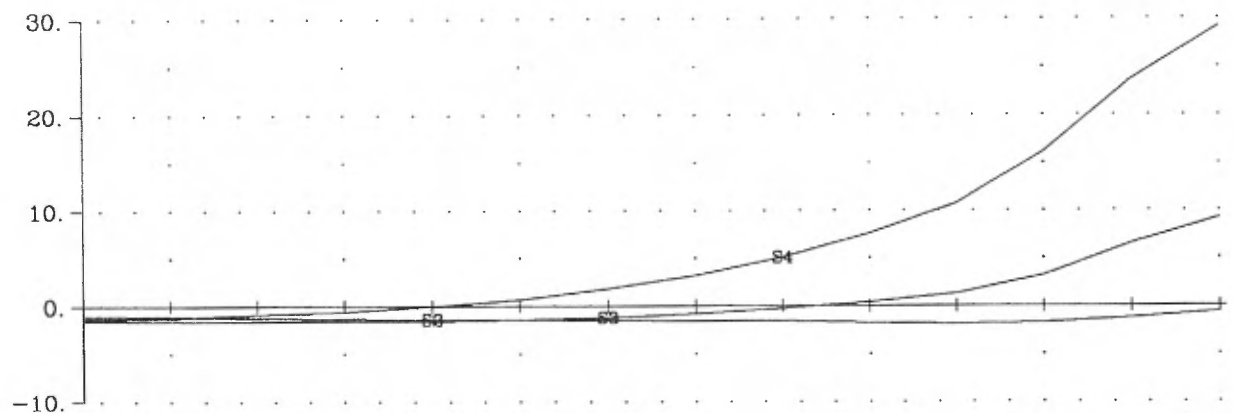
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



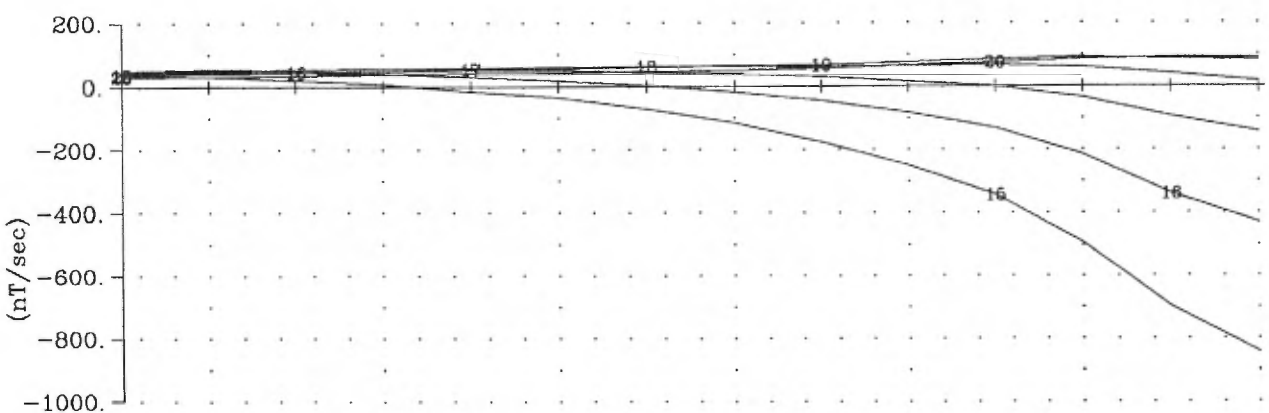
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

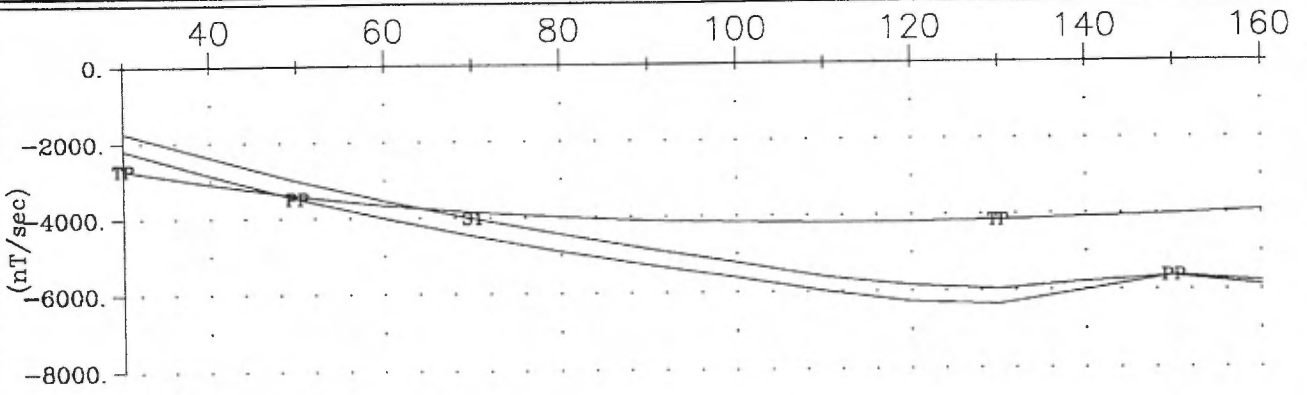


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

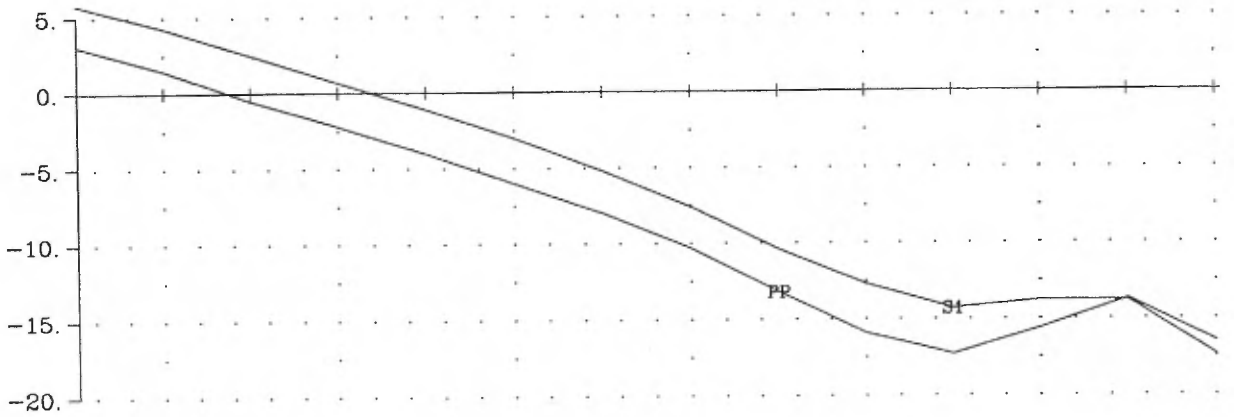


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1792 X Component
 Crone Geophysics & Exploration Ltd.

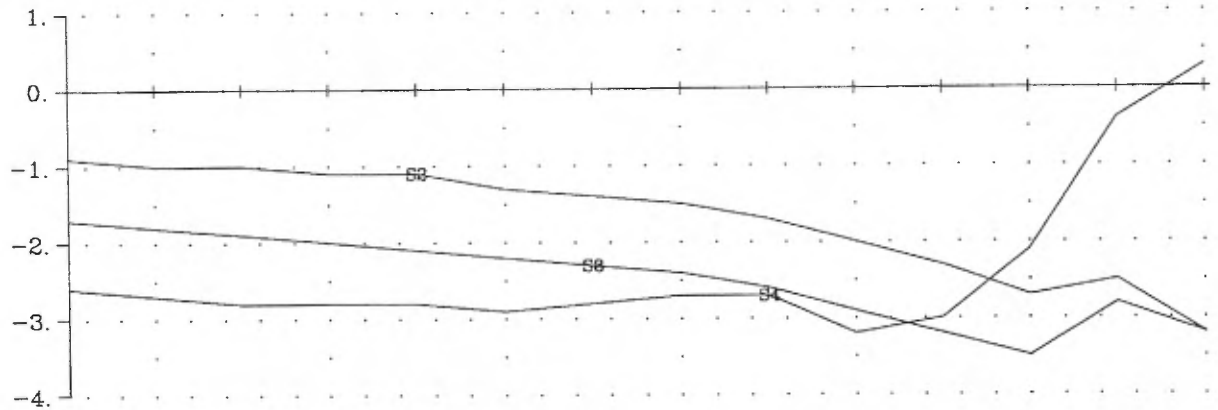
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



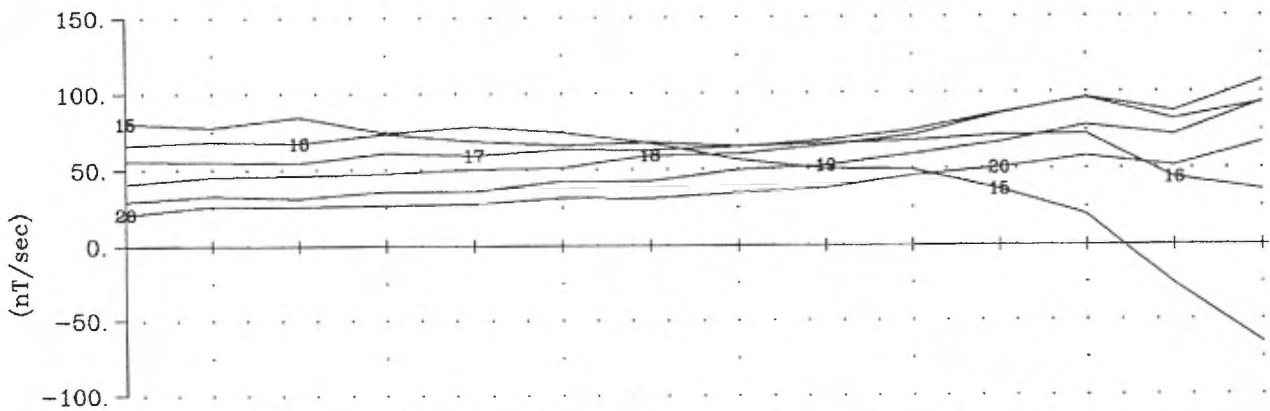
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

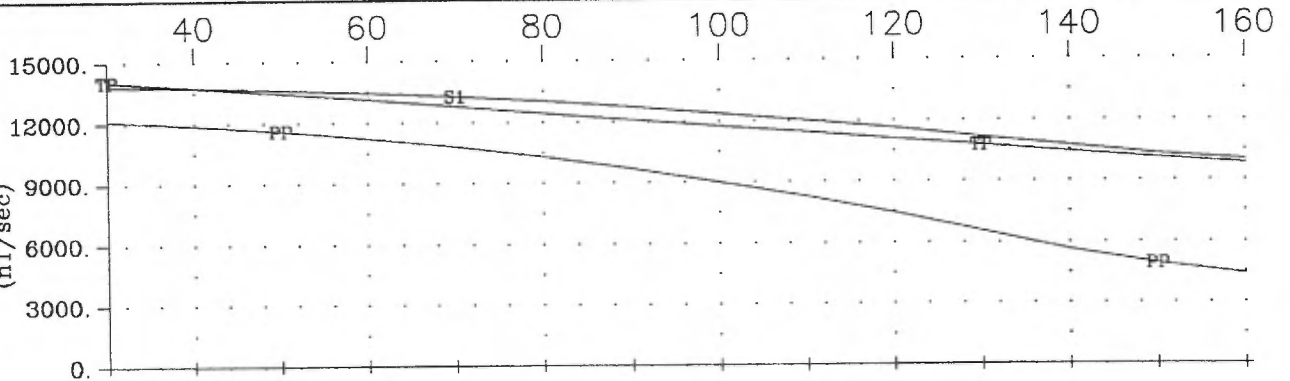


Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

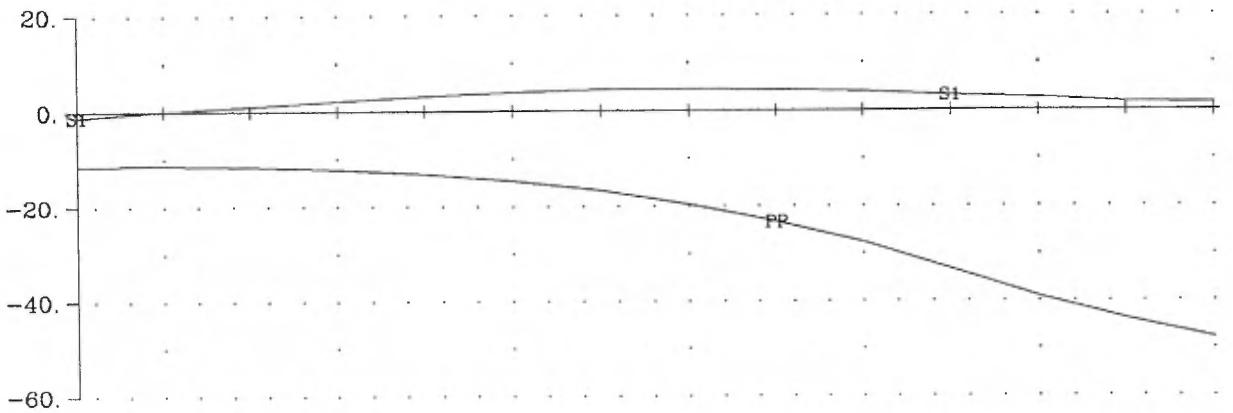


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1792 Y Component
 Crone Geophysics & Exploration Ltd.

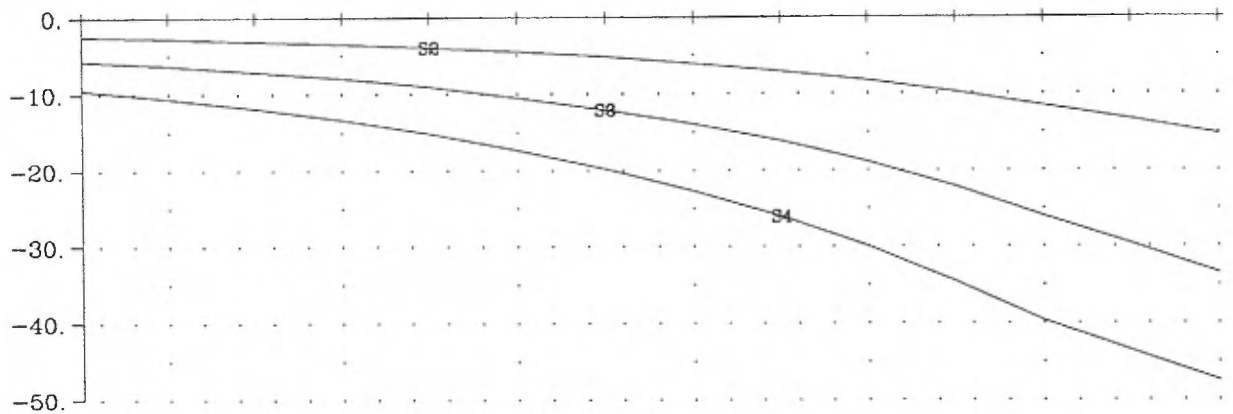
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1
 (nT/sec)



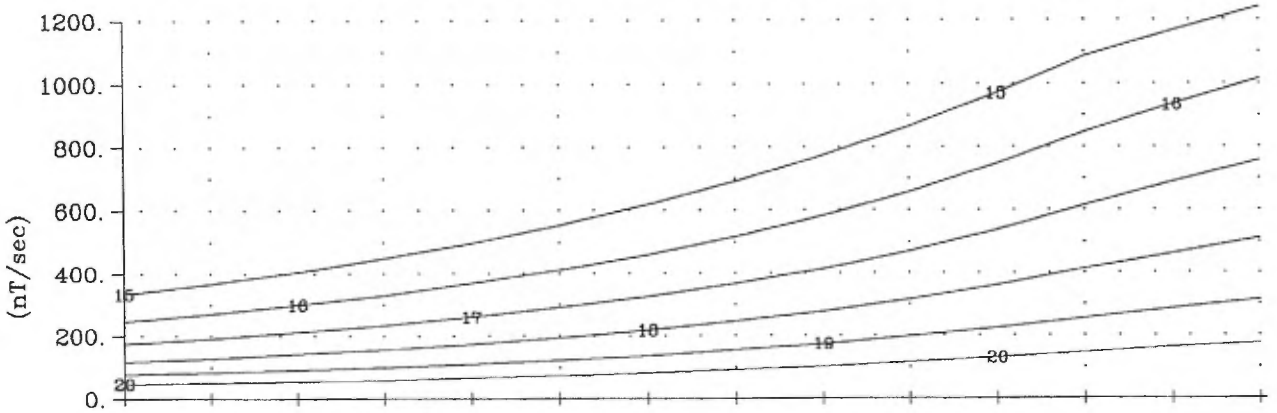
Deviation from TP.
 (% Total Theoretical)



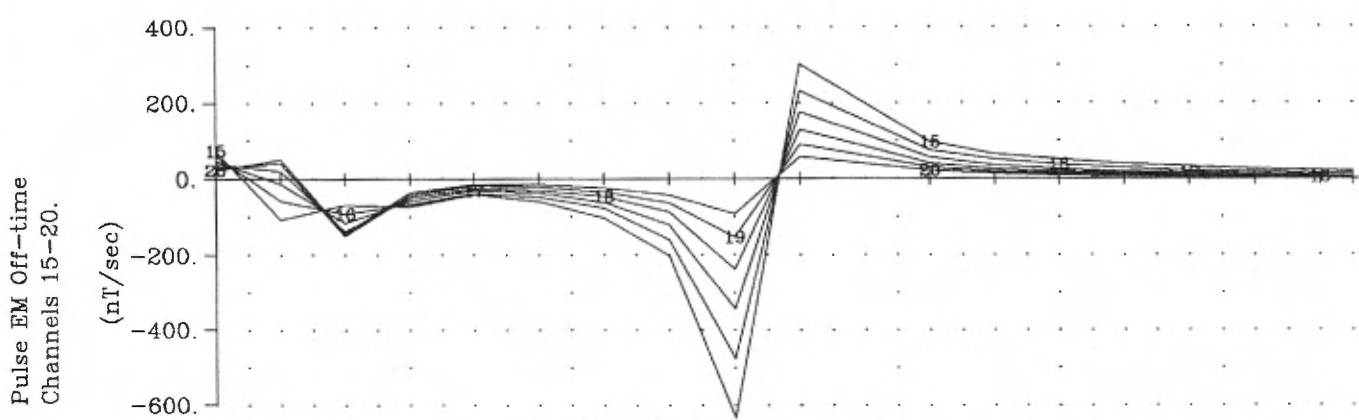
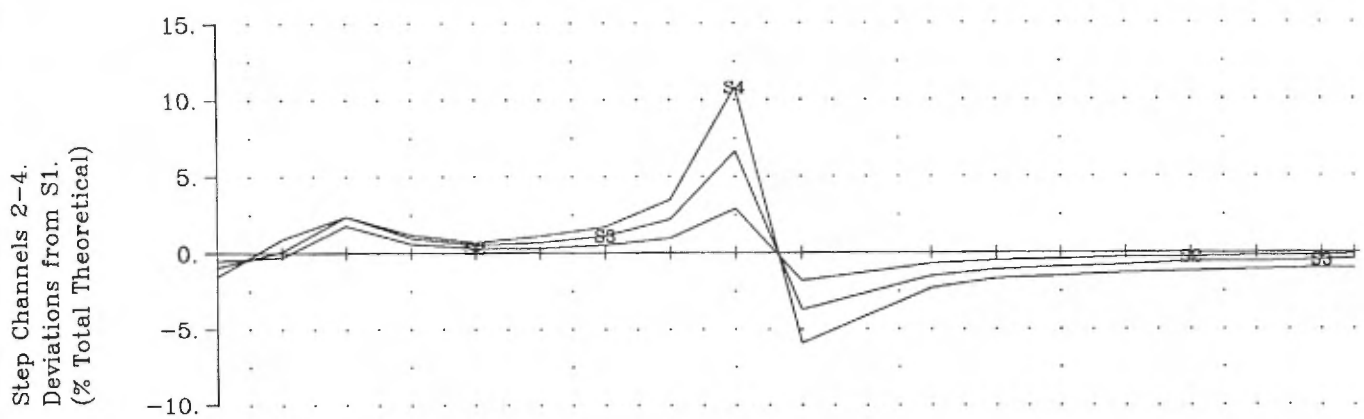
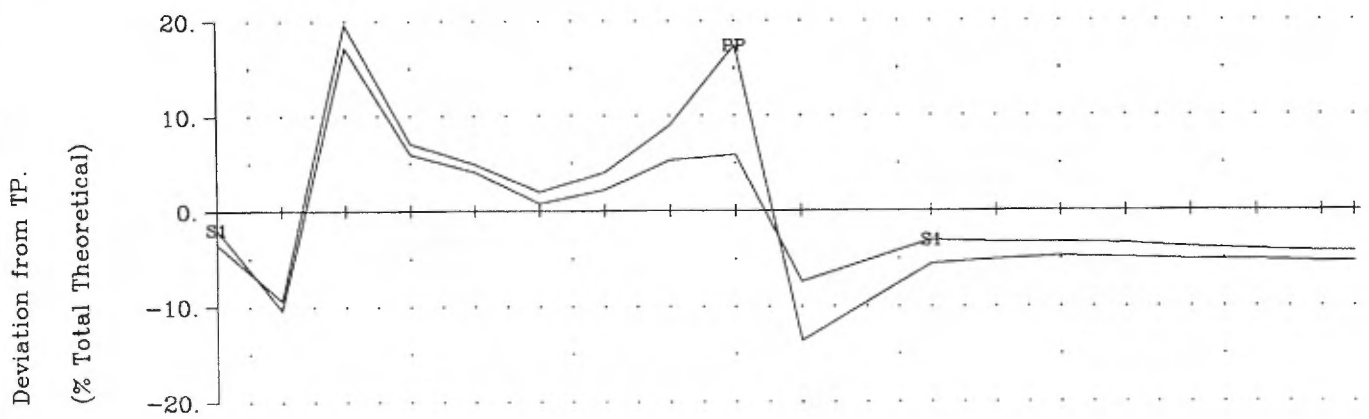
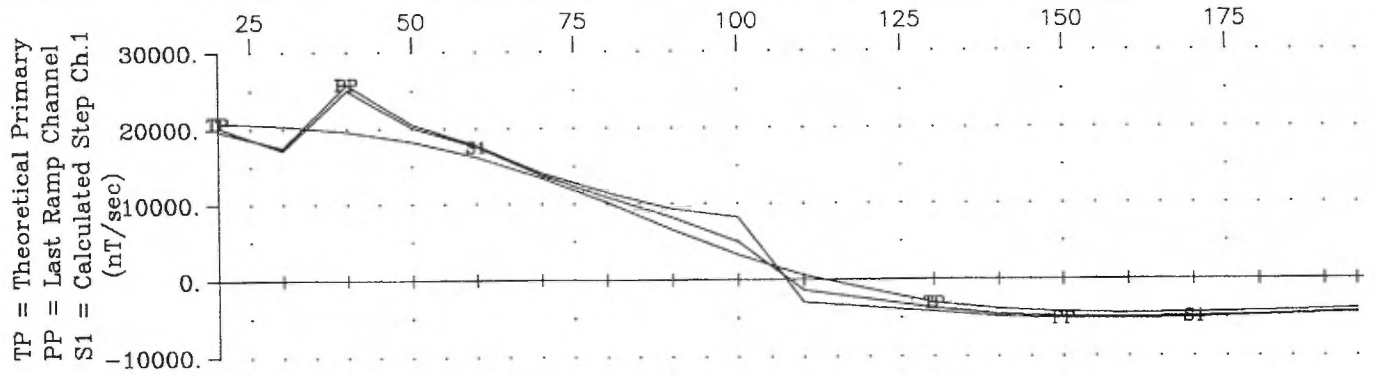
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



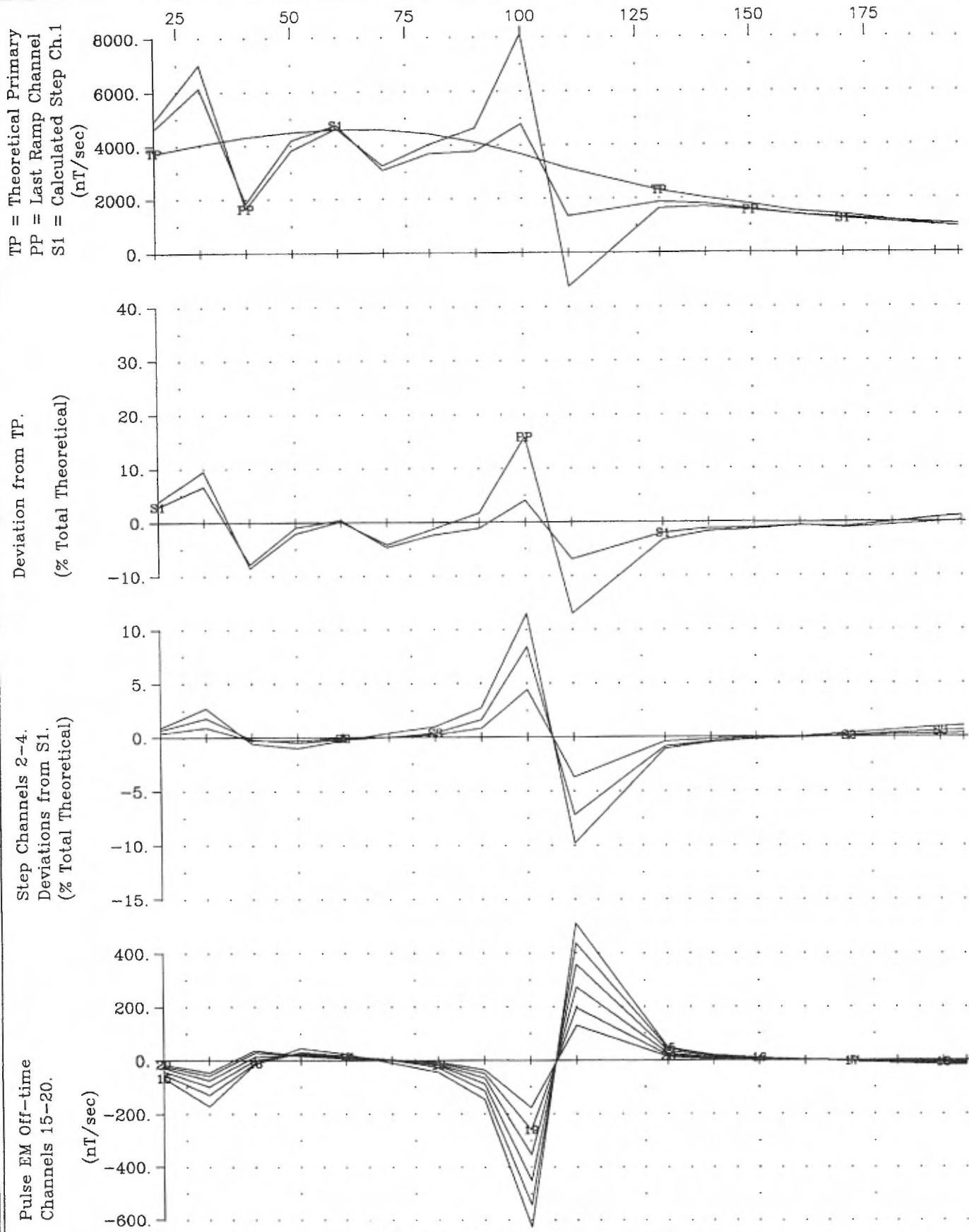
Pulse EM Off-time
 Channels 15-20.
 (nT/sec)



FALCONBRIDGE LTD. ZONE 2
 Hole 718-1792 Z Component
 Crone Geophysics & Exploration Ltd.

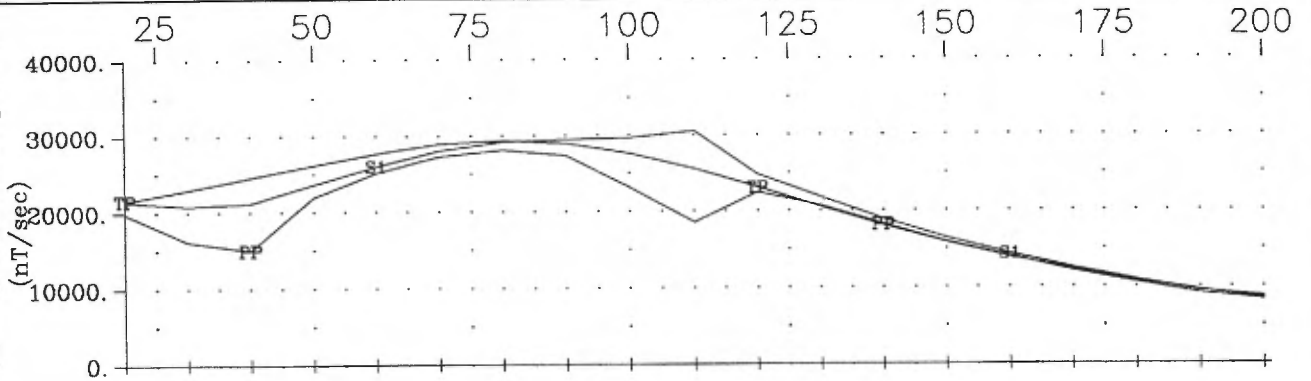


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1793 X Component
 Crone Geophysics & Exploration Ltd.

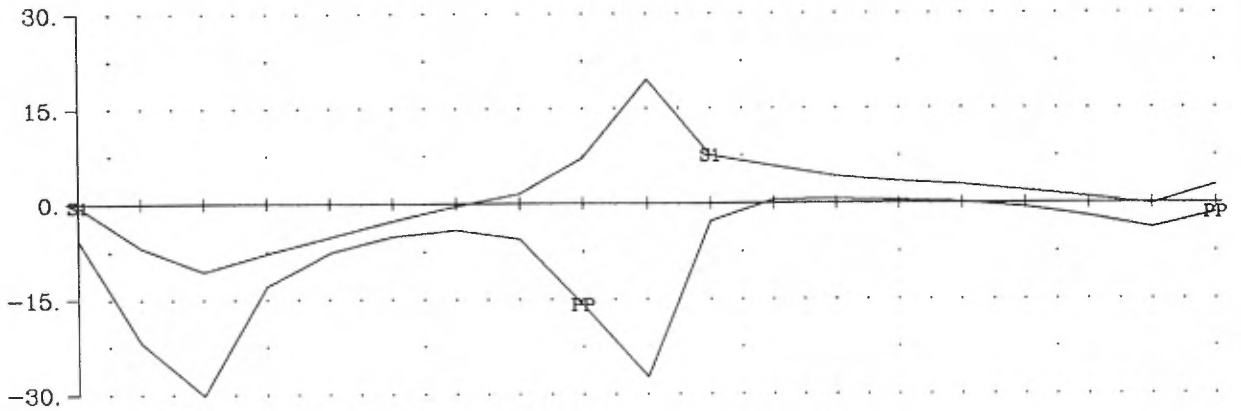


FALCONBRIDGE LTD. ZONE 2
 Hole 718-1793 Y Component
 Crone Geophysics & Exploration Ltd.

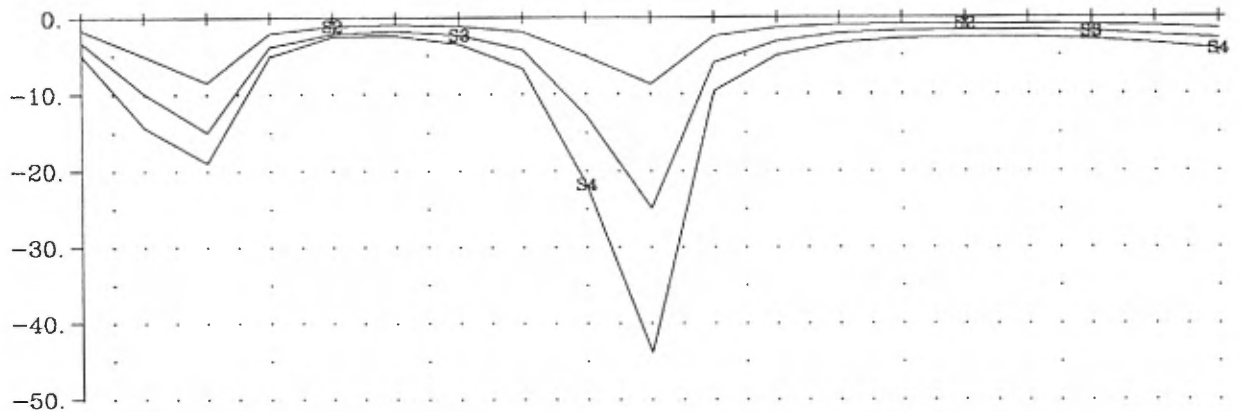
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



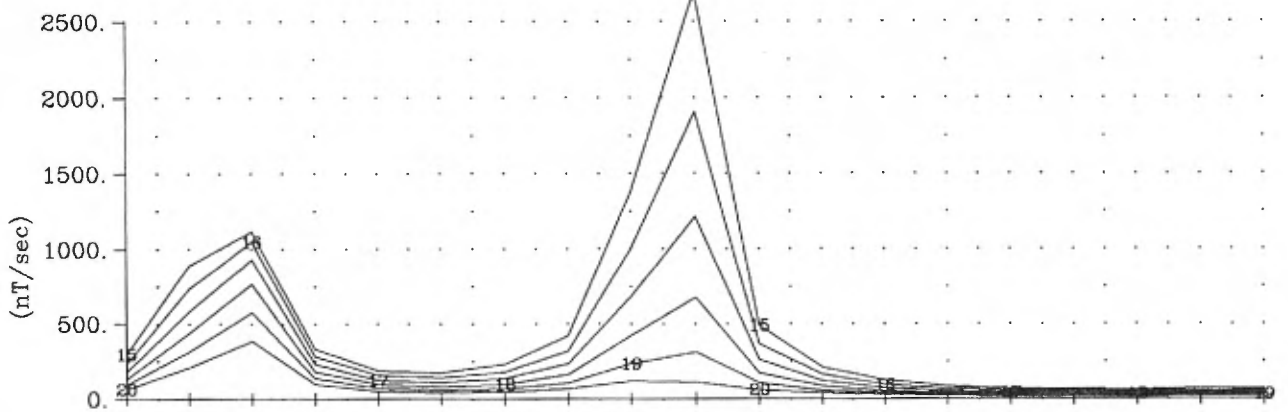
Deviation from TP.
 (% Total Theoretical)



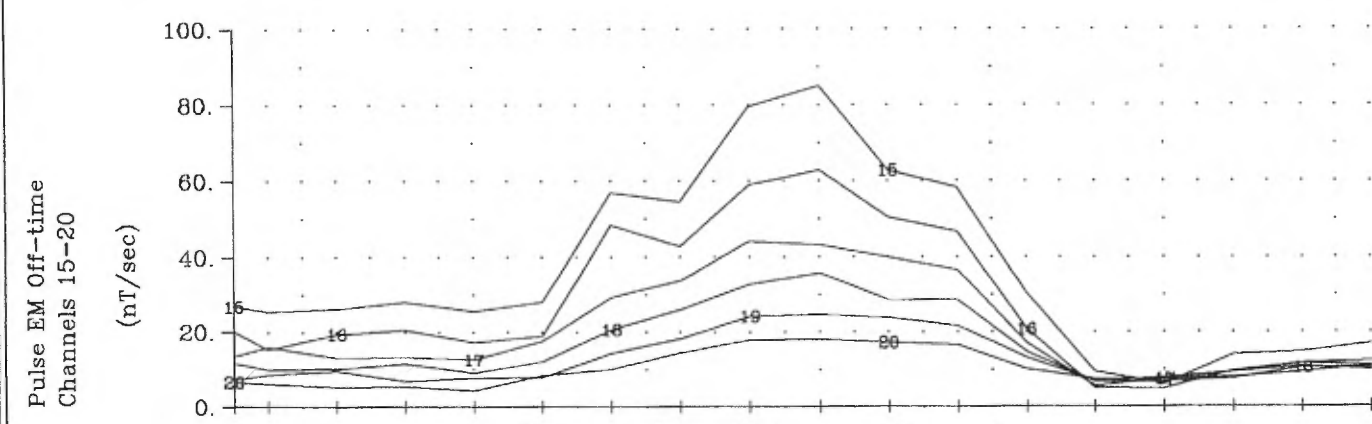
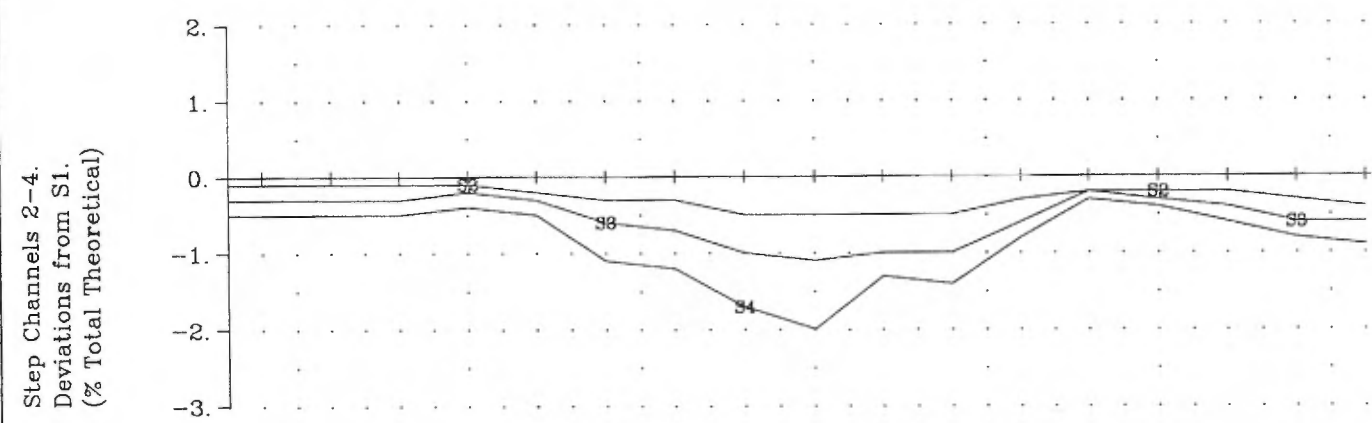
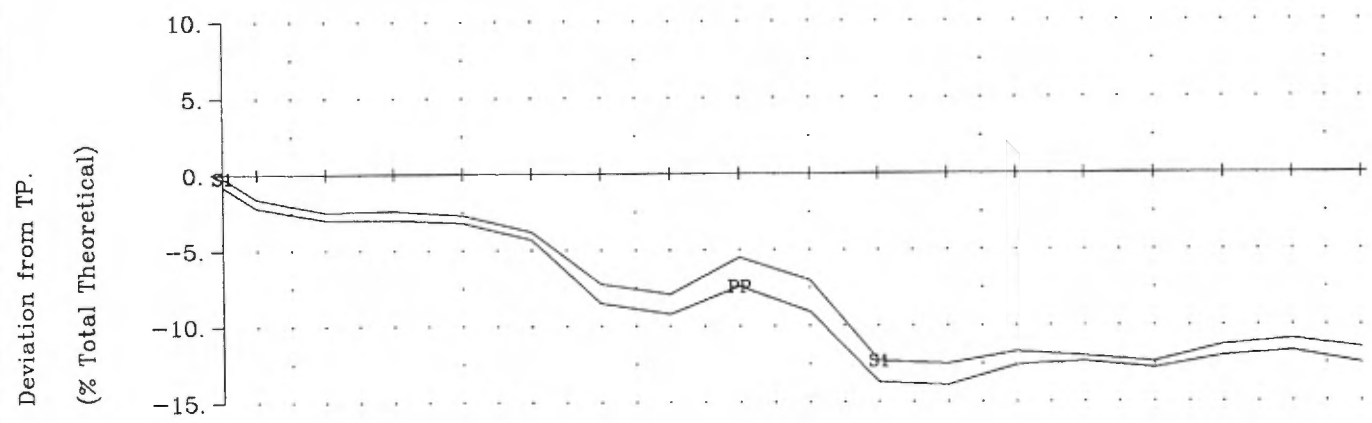
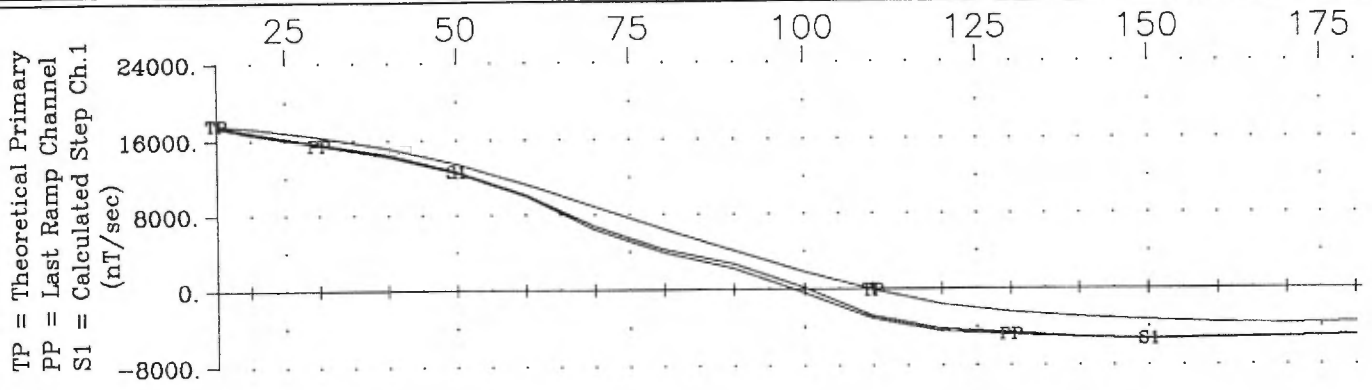
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



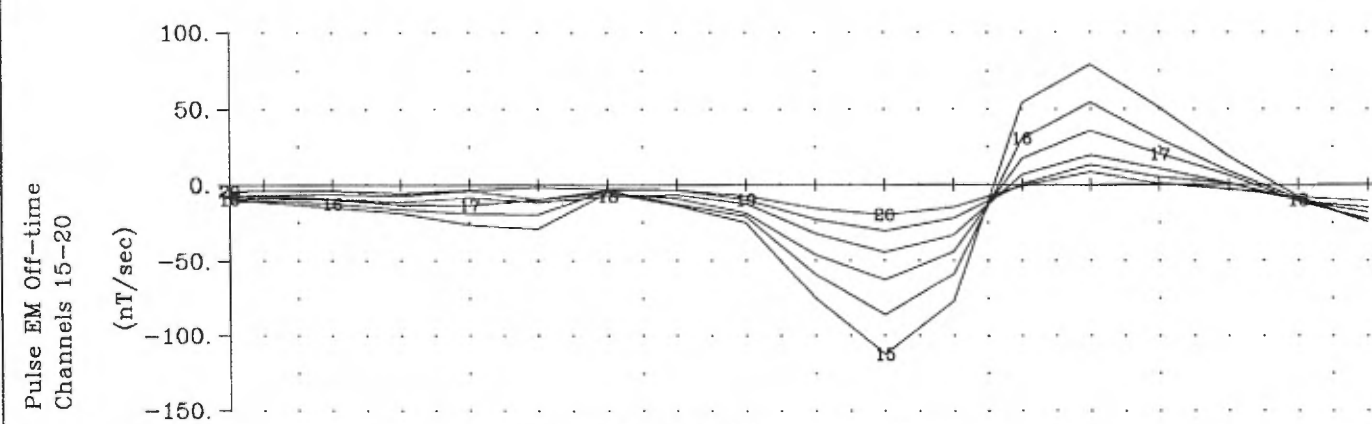
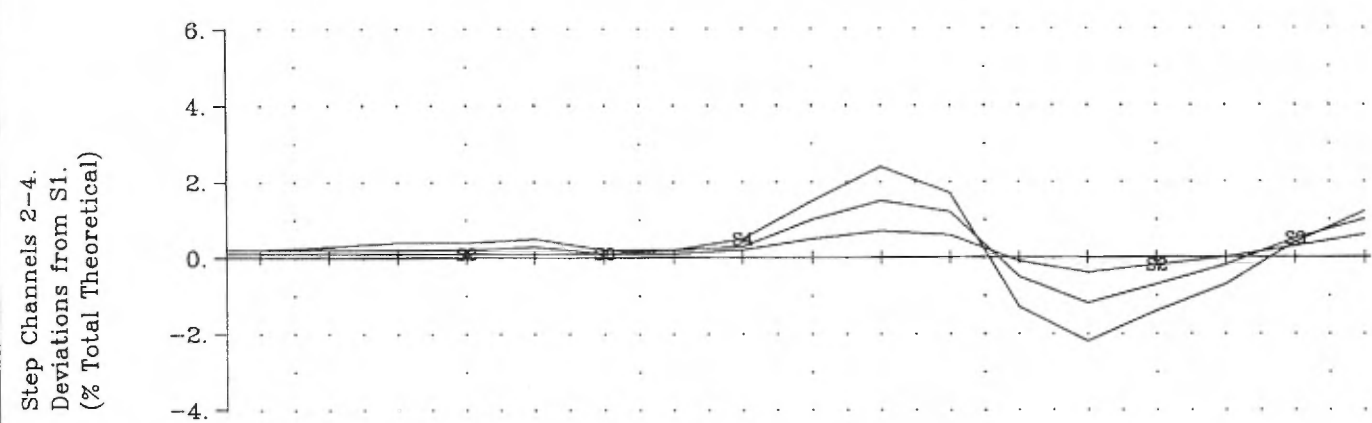
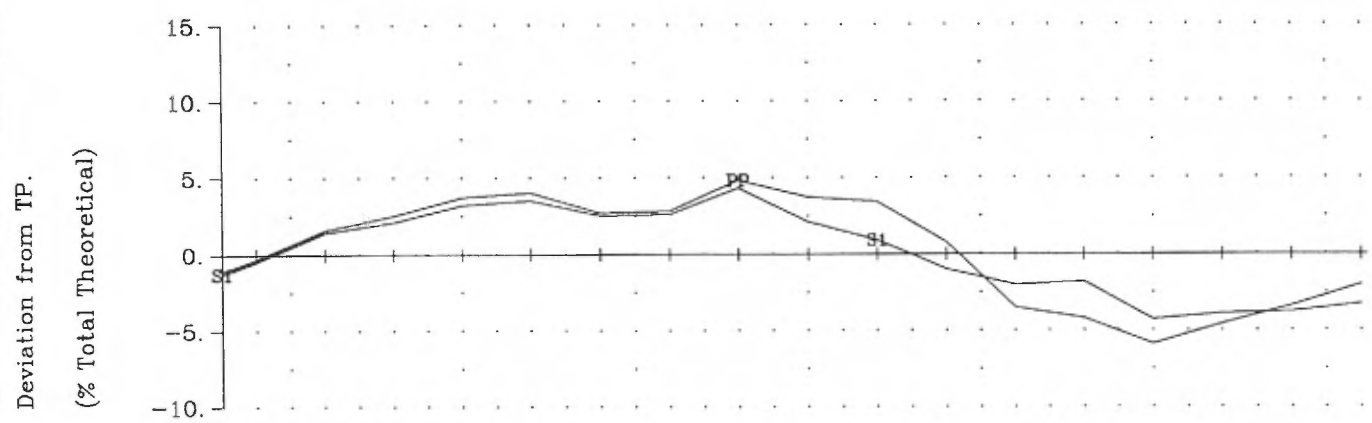
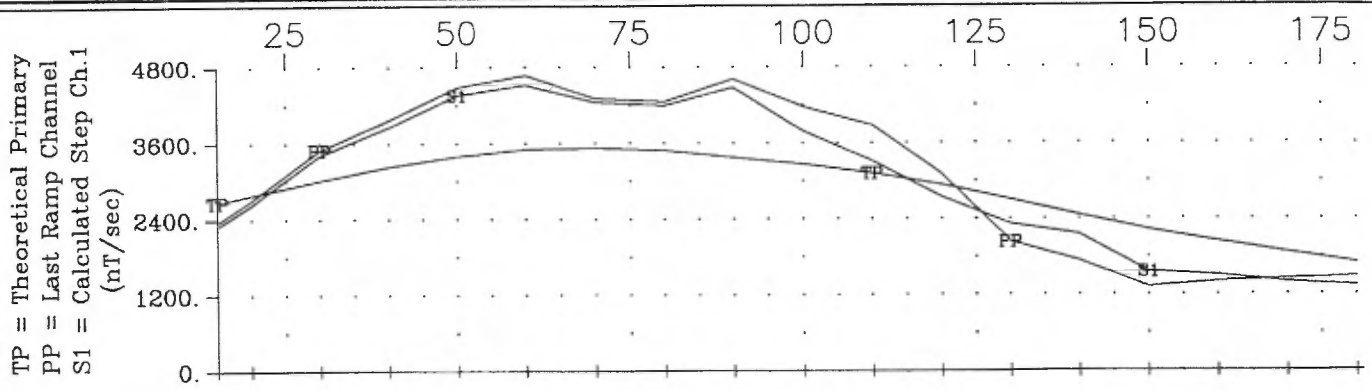
Pulse EM Off-time
 Channels 15-20.



FALCONBRIDGE LTD. ZONE 2
 Hole 718-1793 Z Component
 Crone Geophysics & Exploration Ltd.

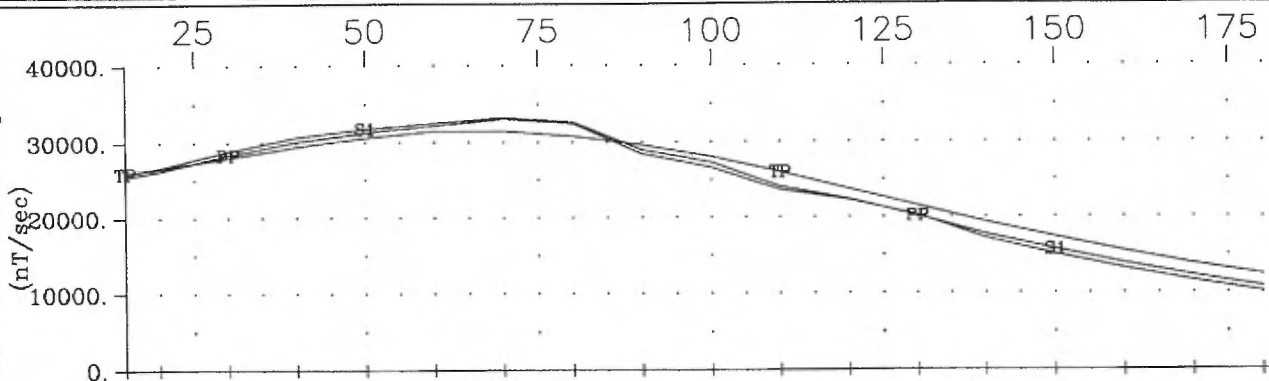


Falconbridge Ltd. Zone 2
 Hole 718-1836 X Component
 Crone Geophysics & Exploration Ltd.

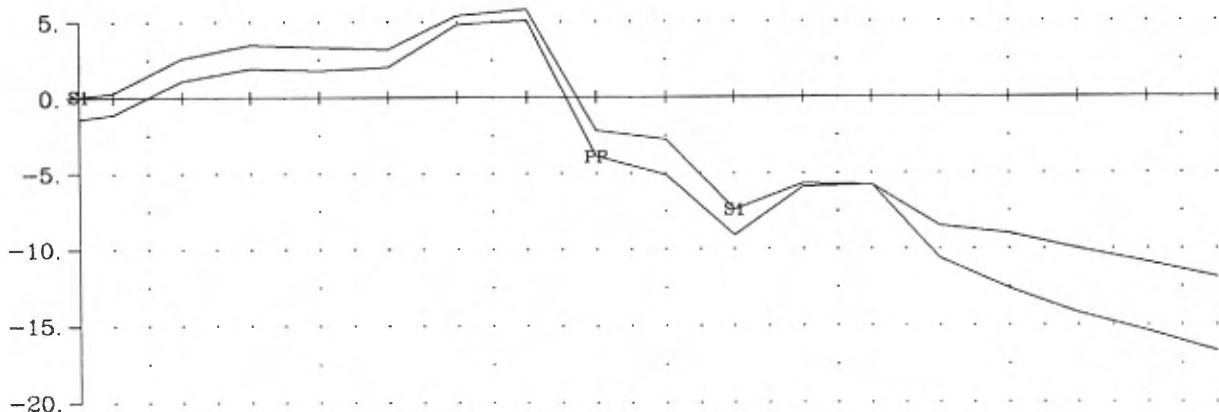


Falconbridge Ltd. Zone 2
 Hole 718-1836 Y Component
 Crone Geophysics & Exploration Ltd.

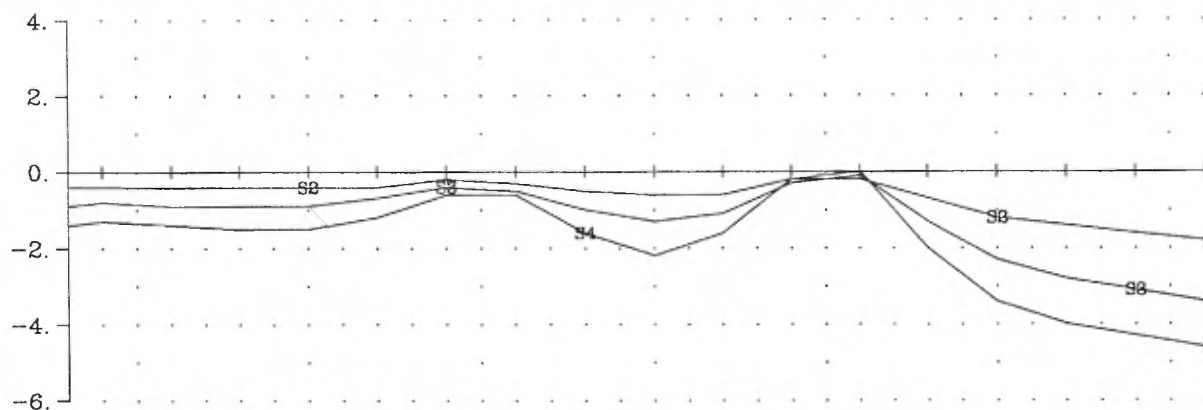
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



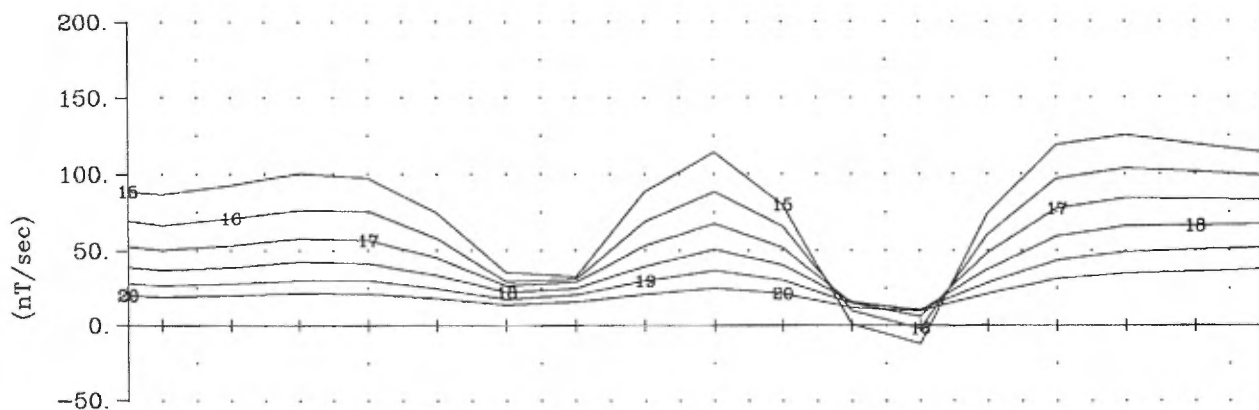
Deviation from TP.
 (% Total Theoretical)



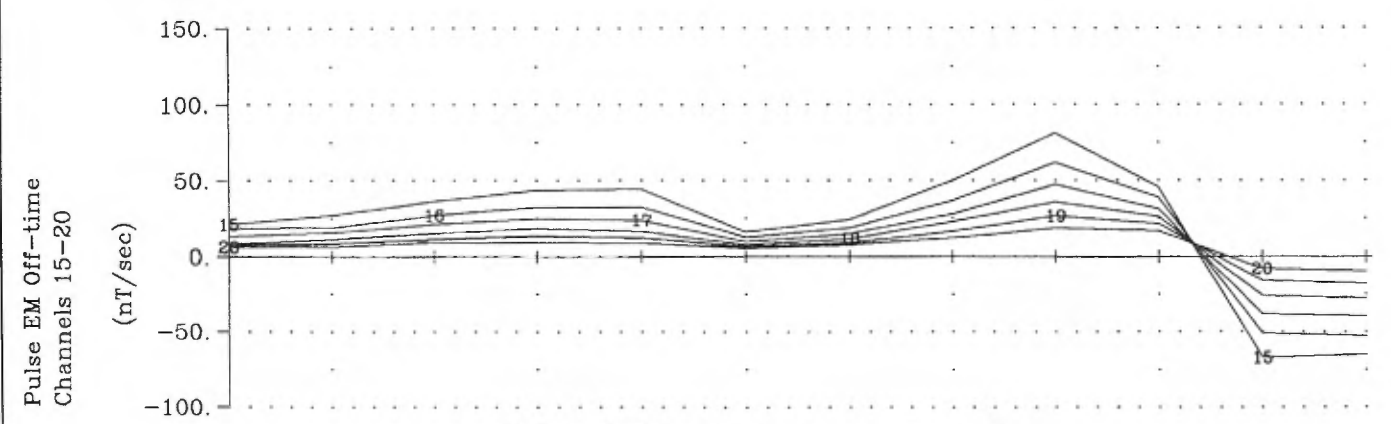
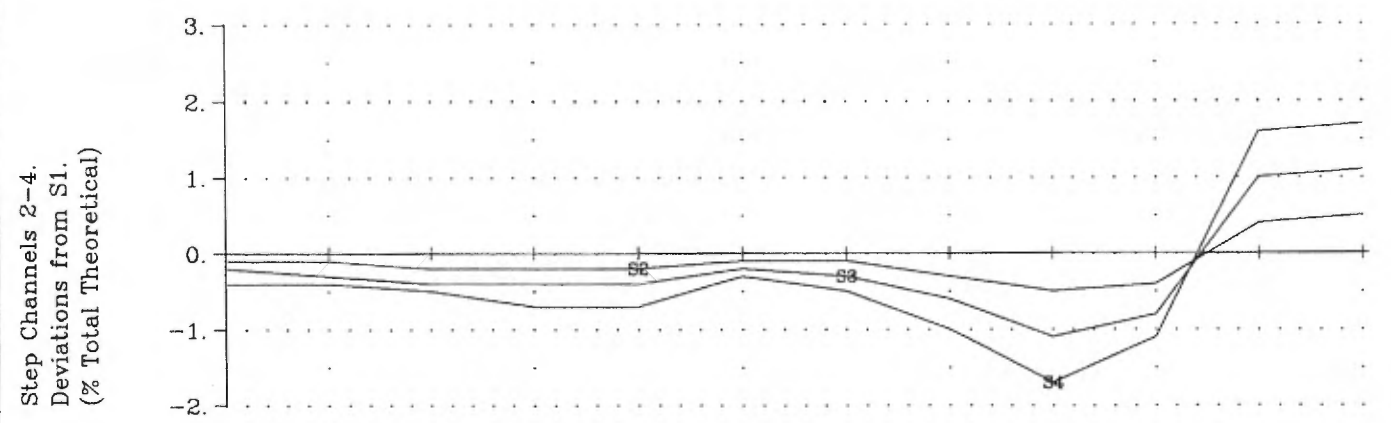
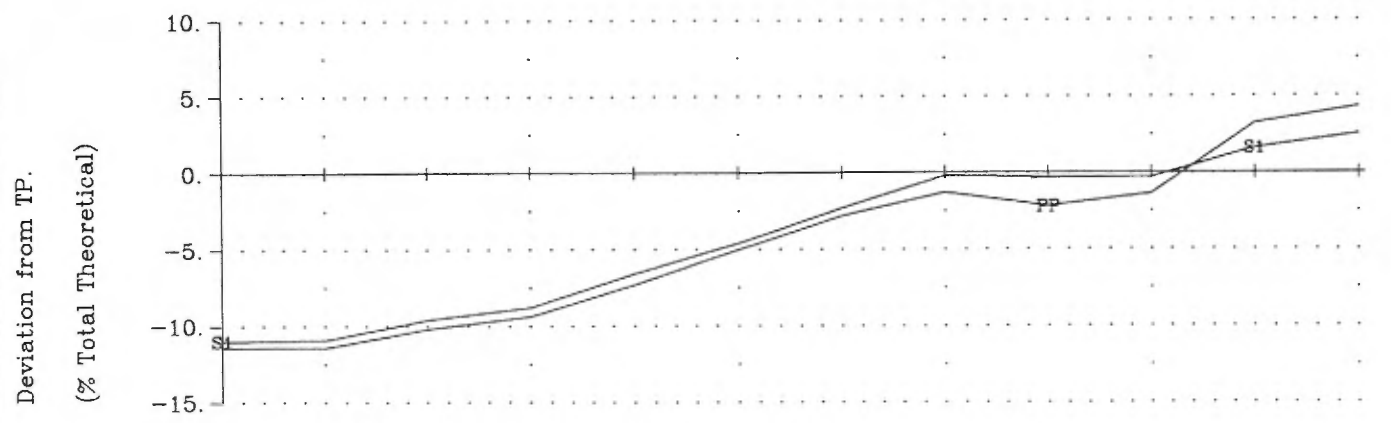
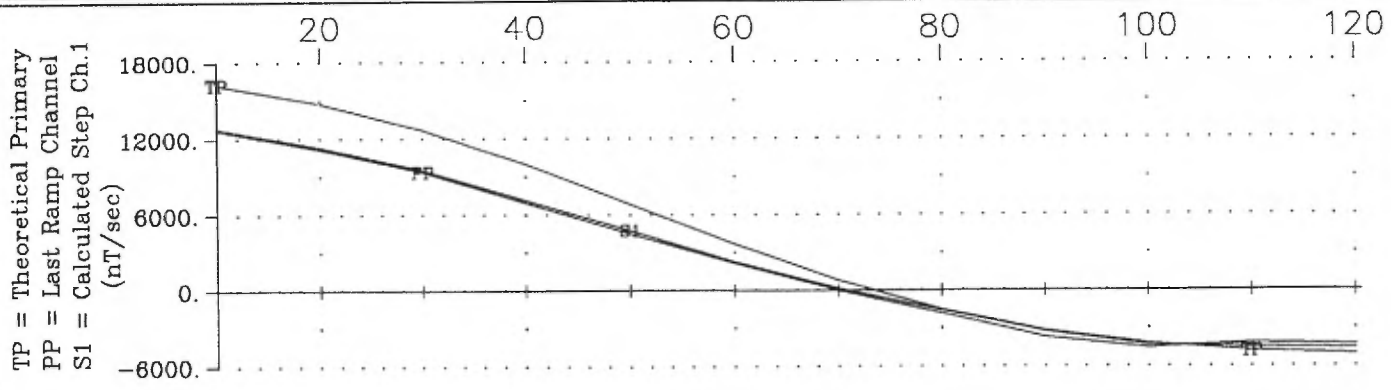
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



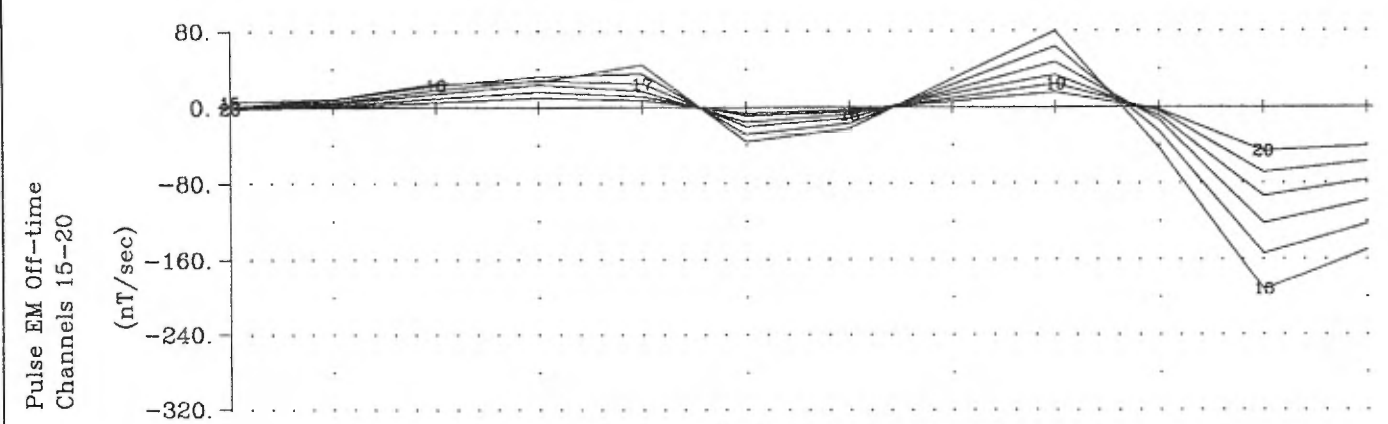
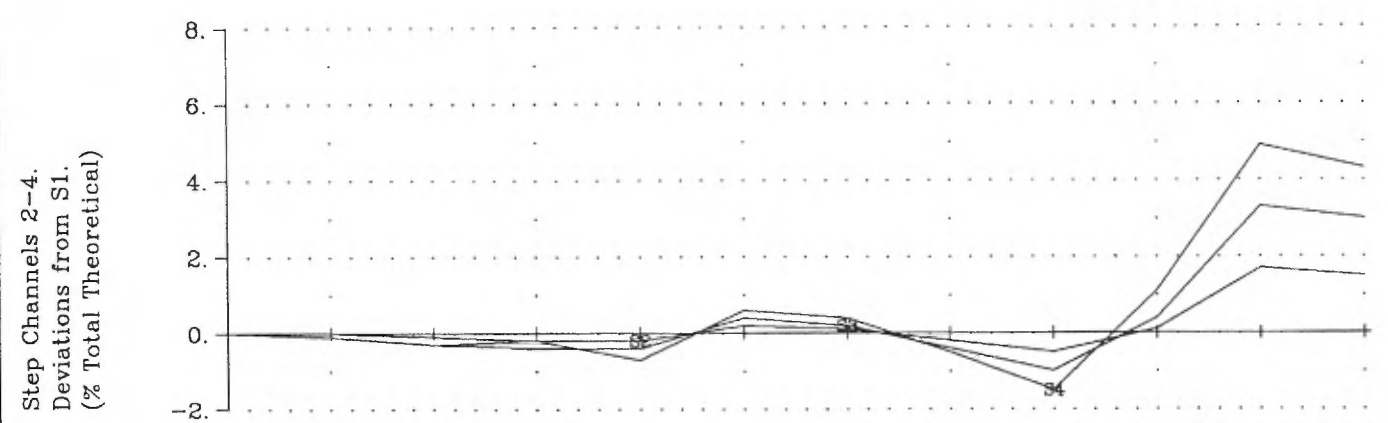
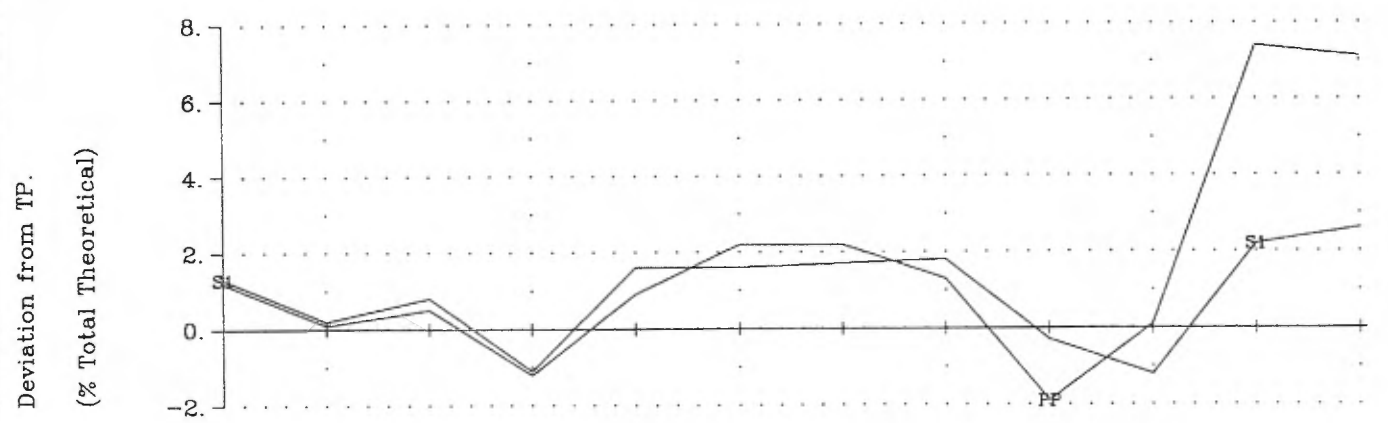
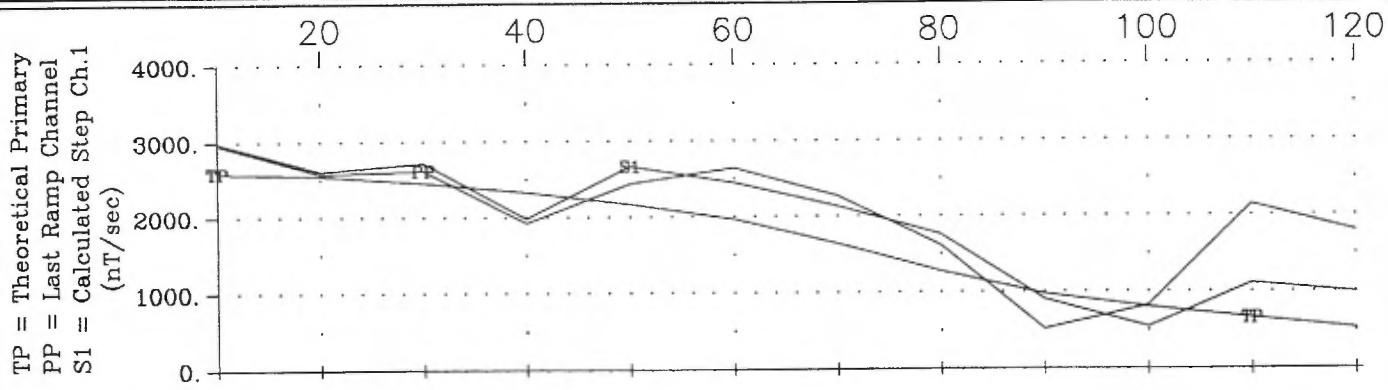
Pulse EM Off-time
 Channels 15-20
 (nT/sec)



Falconbridge Ltd. Zone 2
 Hole 718-1836 Z Component
 Crone Geophysics & Exploration Ltd.

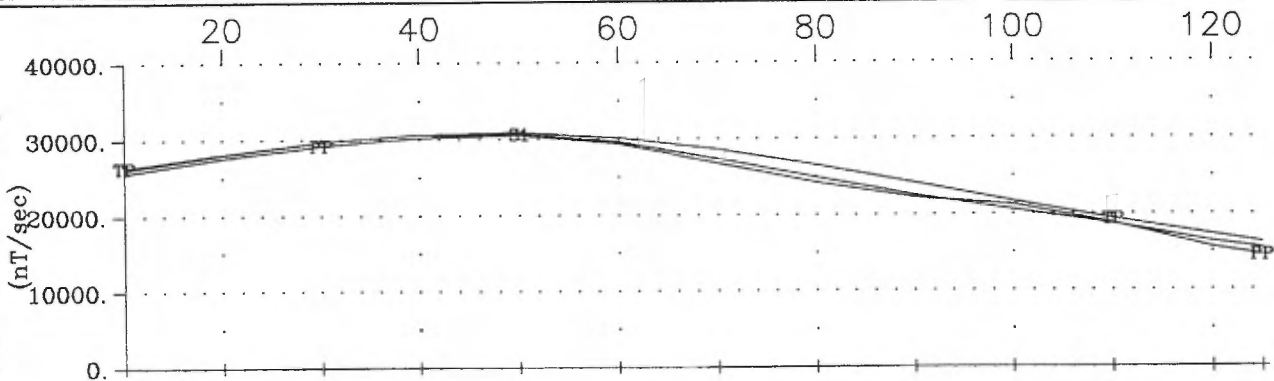


Falconbridge Ltd. Zone 2
 Hole 718-1837 X Component
 Crone Geophysics & Exploration Ltd.



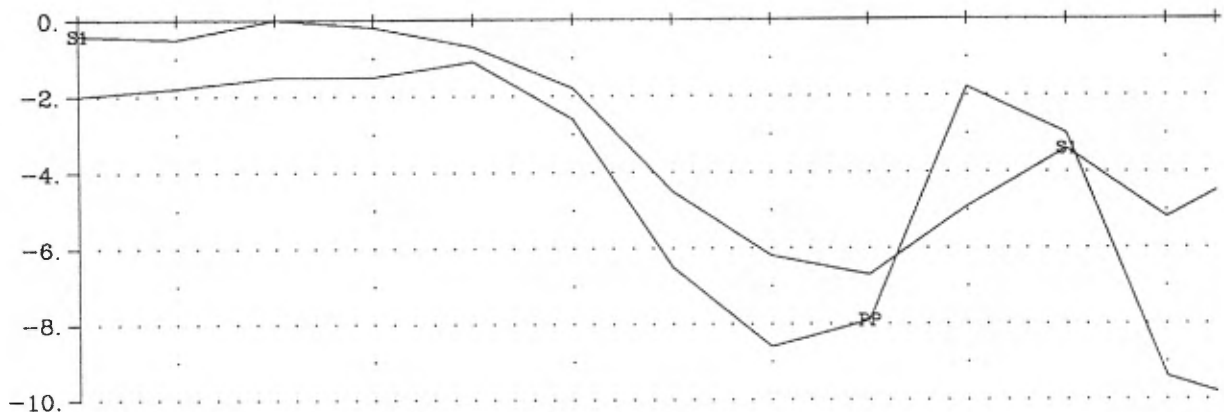
Falconbridge Ltd. Zone 2
 Hole 718-1837 Y Component
 Crone Geophysics & Exploration Ltd.

TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



Deviation from TP.

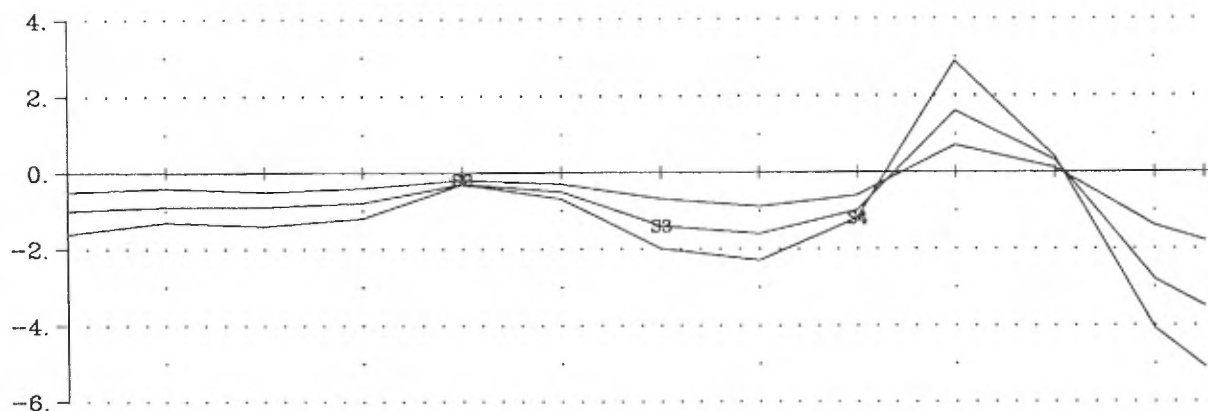
(% Total Theoretical)



Step Channels 2-4.

Deviations from S1.

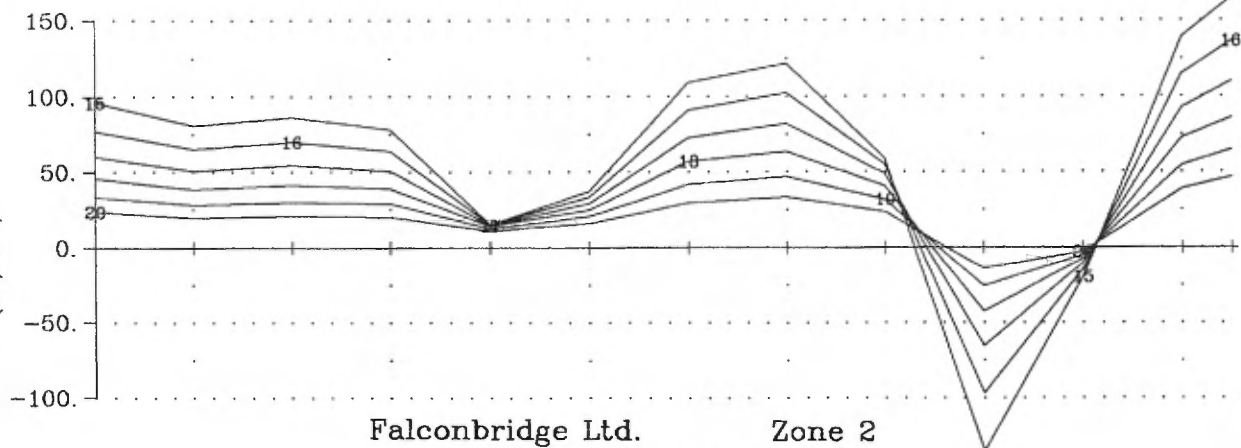
(% Total Theoretical)



Pulse EM Off-time

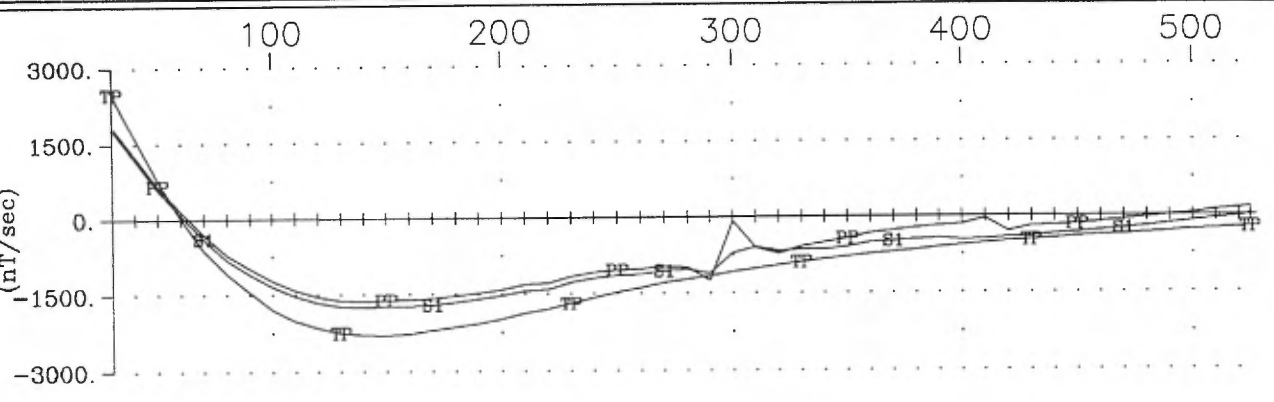
Channels 15-20

(nT/sec)

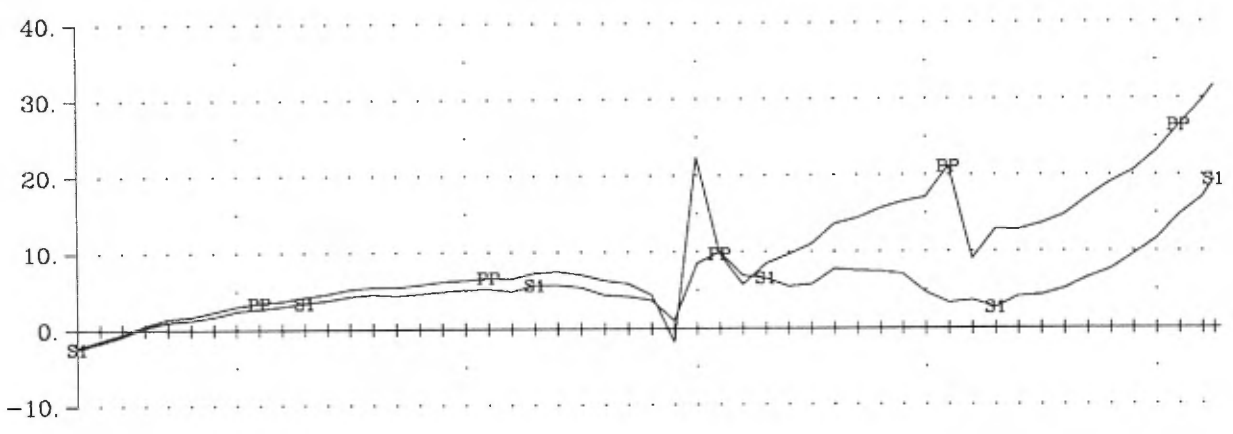


Falconbridge Ltd. Zone 2
 Hole 718-1837 Z Component
 Crone Geophysics & Exploration Ltd.

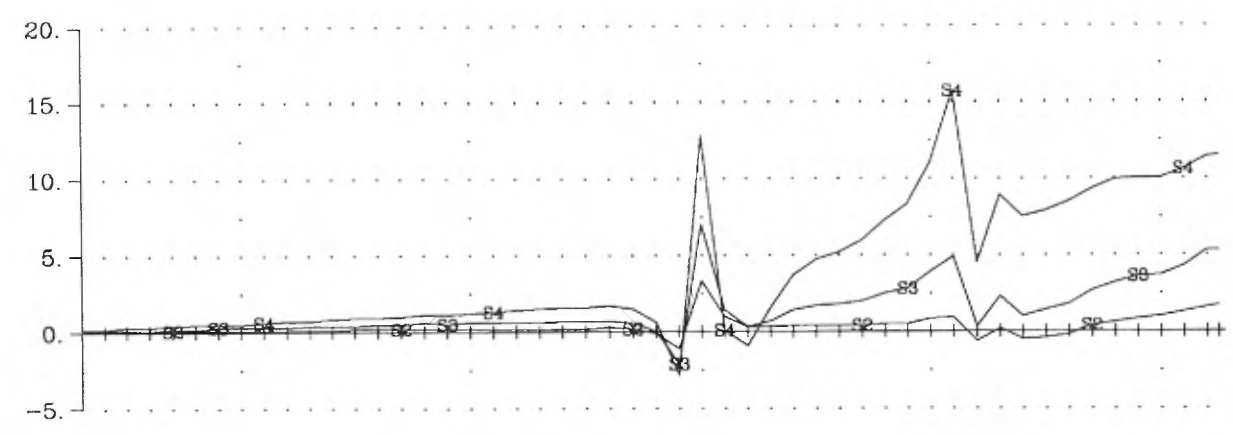
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



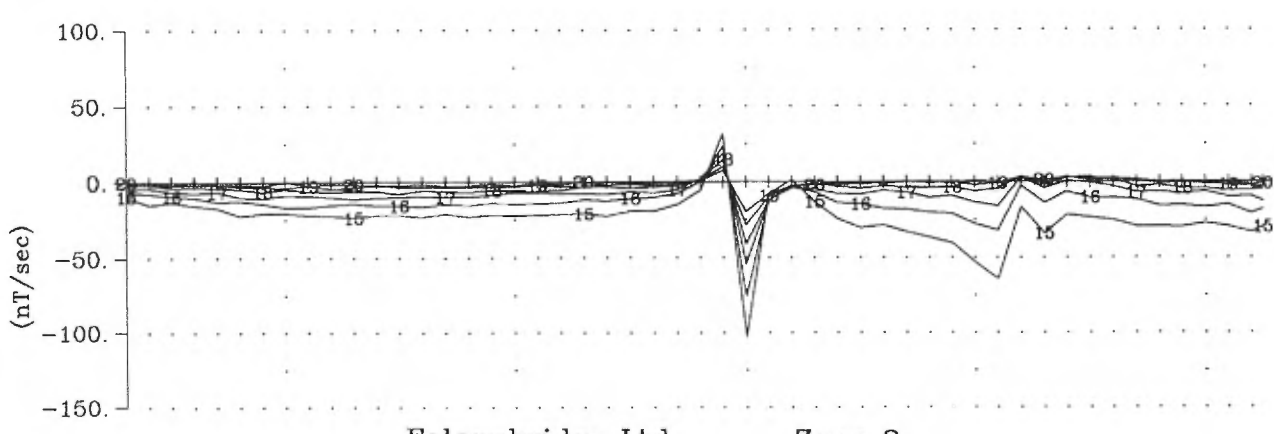
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)

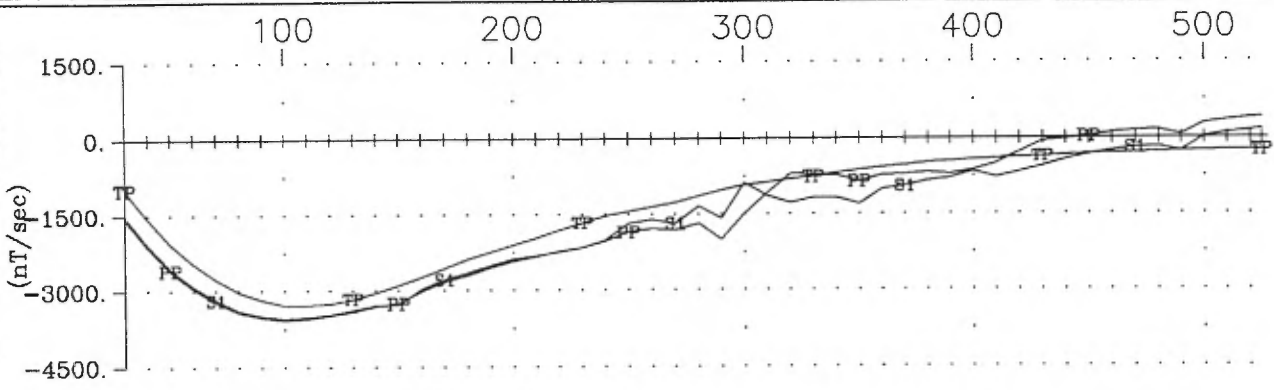


Pulse EM Off-time
 Channels 15-20
 (nT/sec)

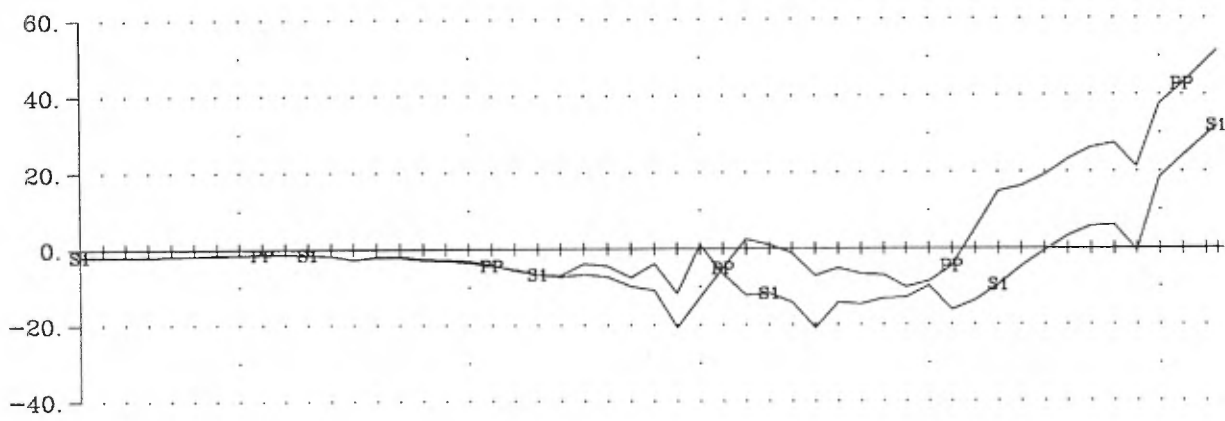


Falconbridge Ltd. Zone 2
 Hole 718-1838 X Component
 Crone Geophysics & Exploration Ltd.

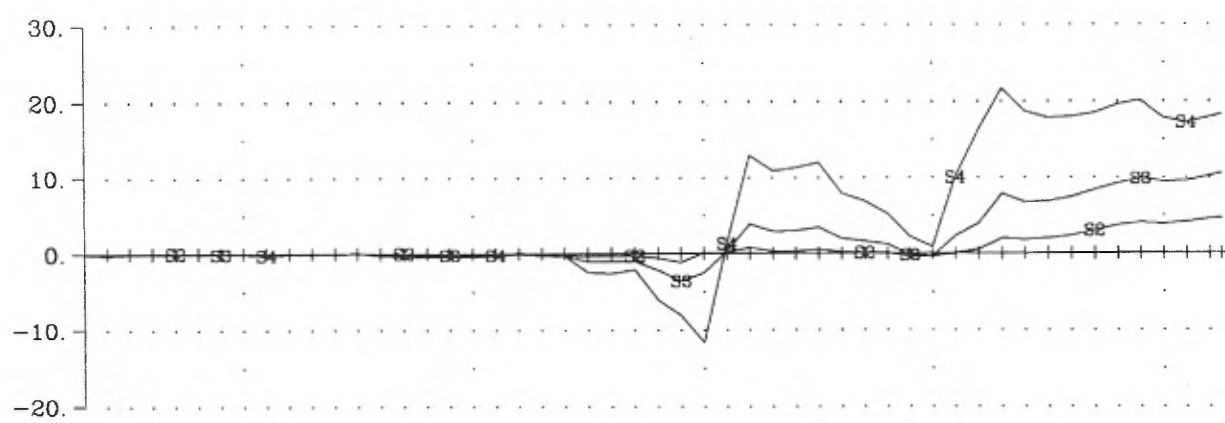
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



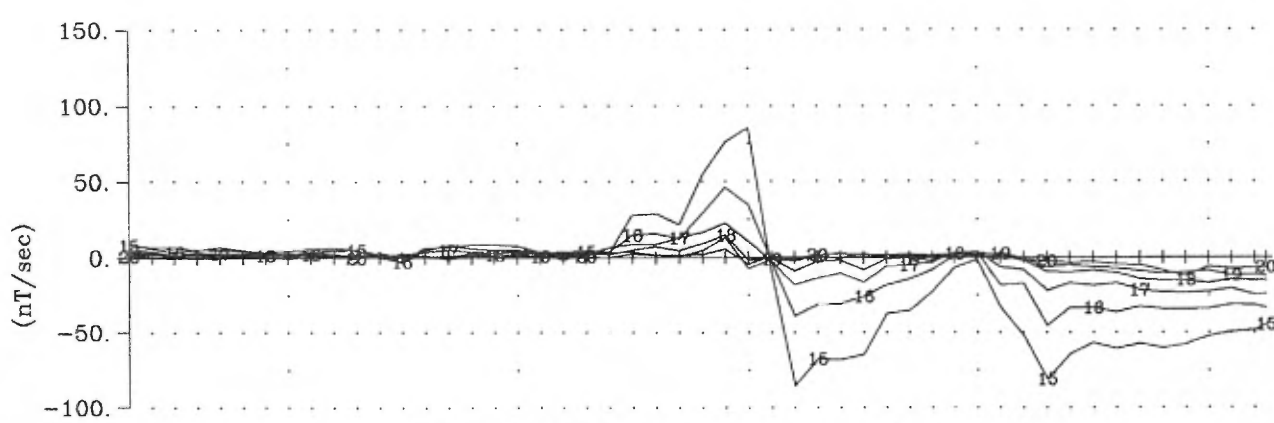
Deviation from TP.
 (% Total Theoretical)



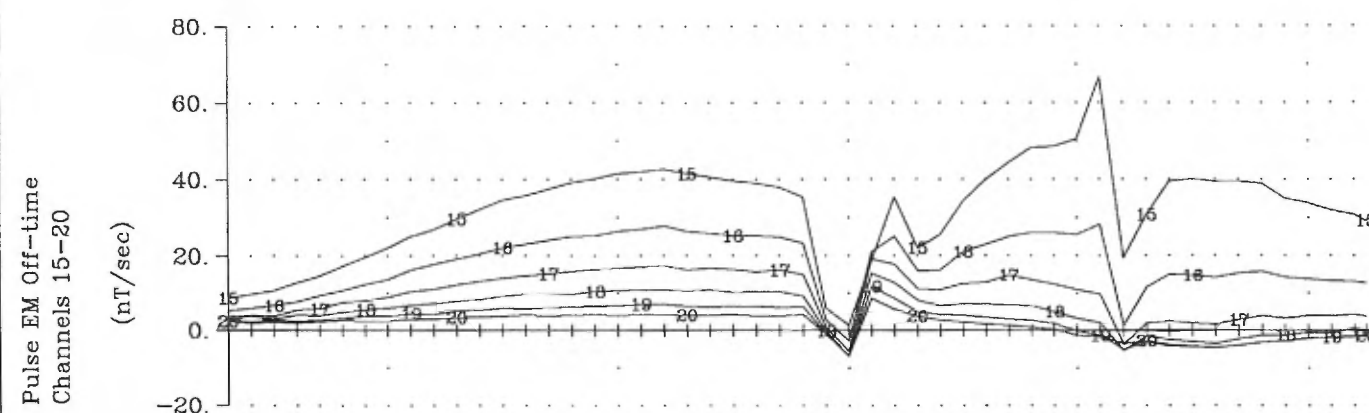
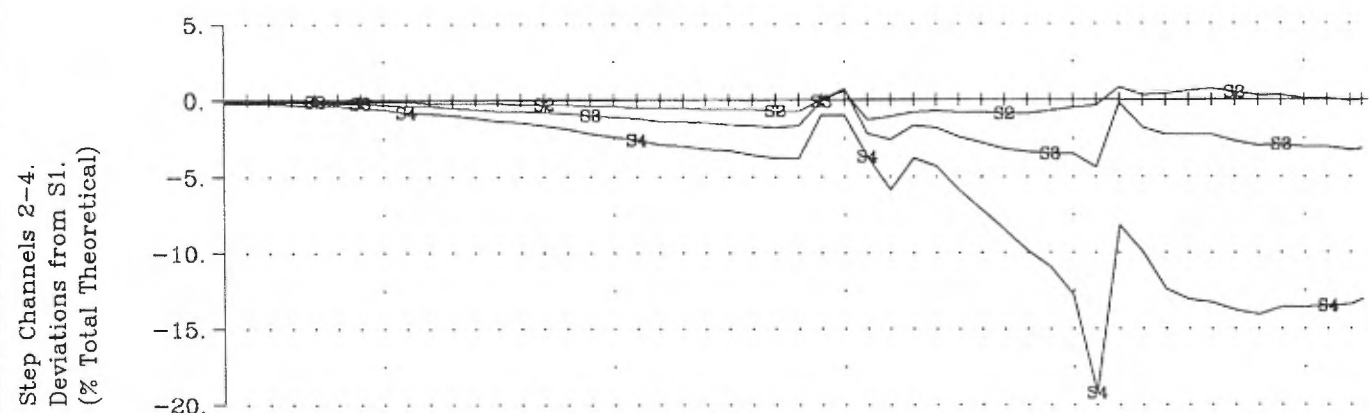
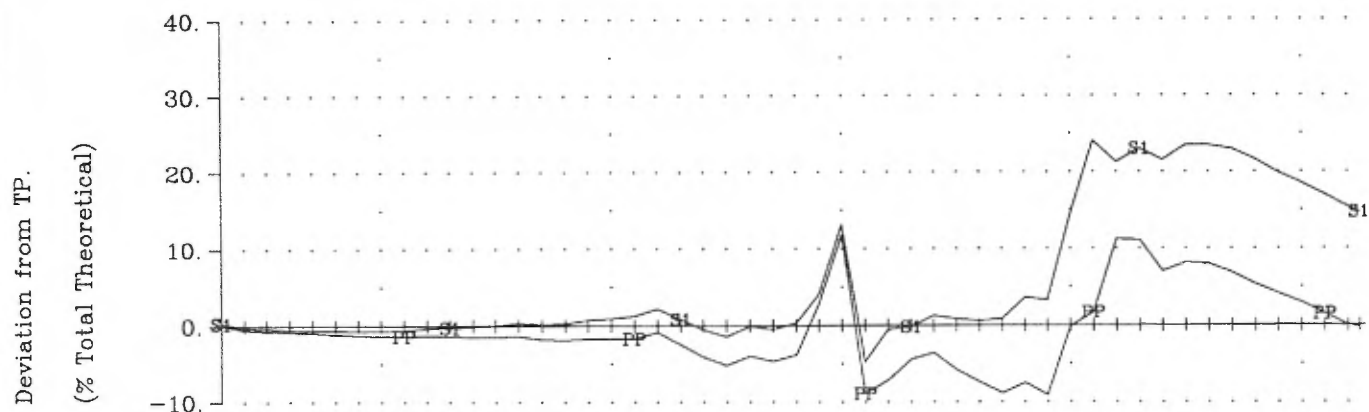
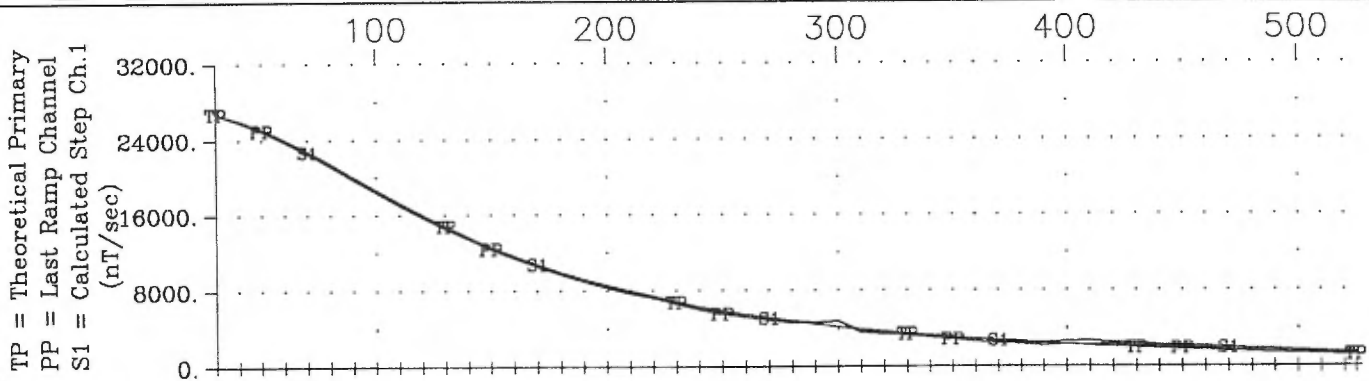
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



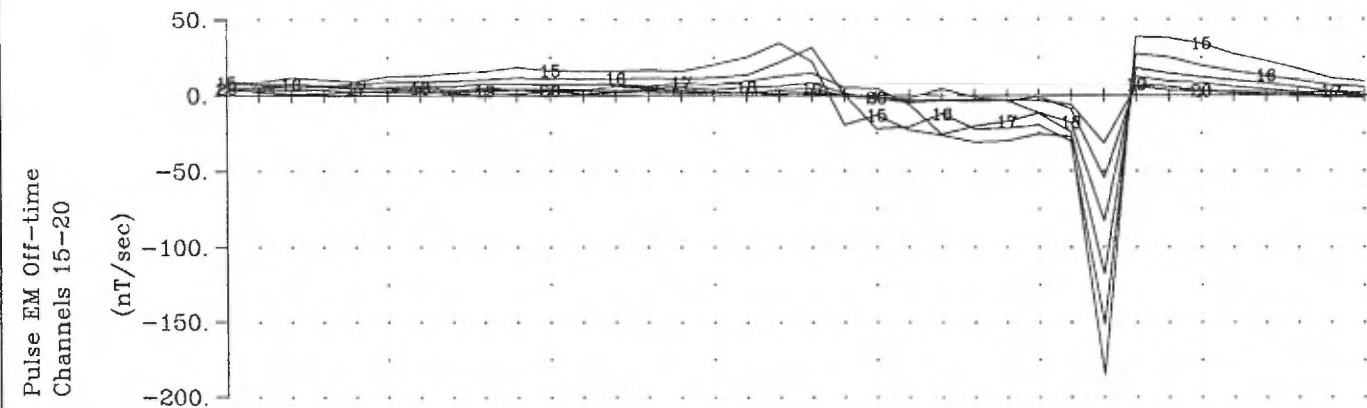
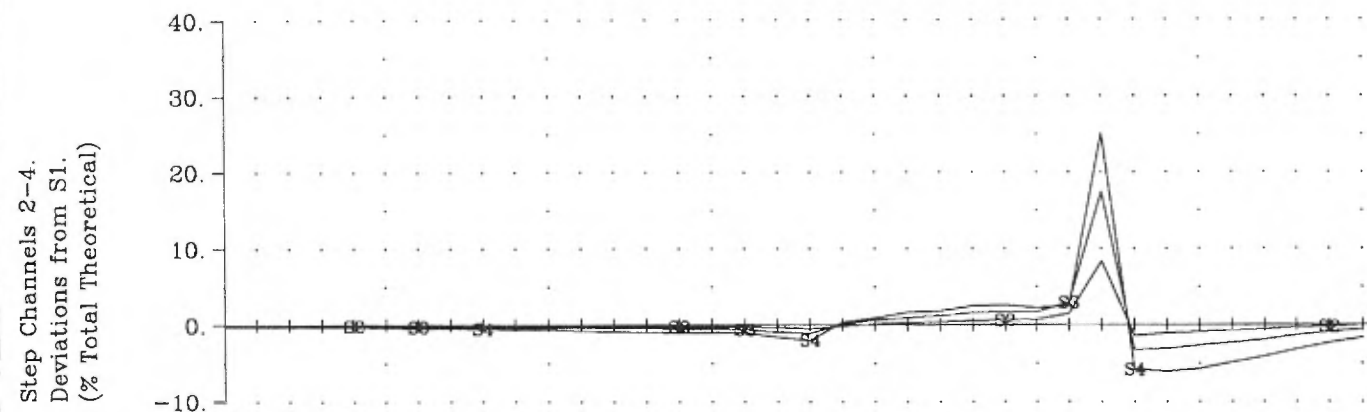
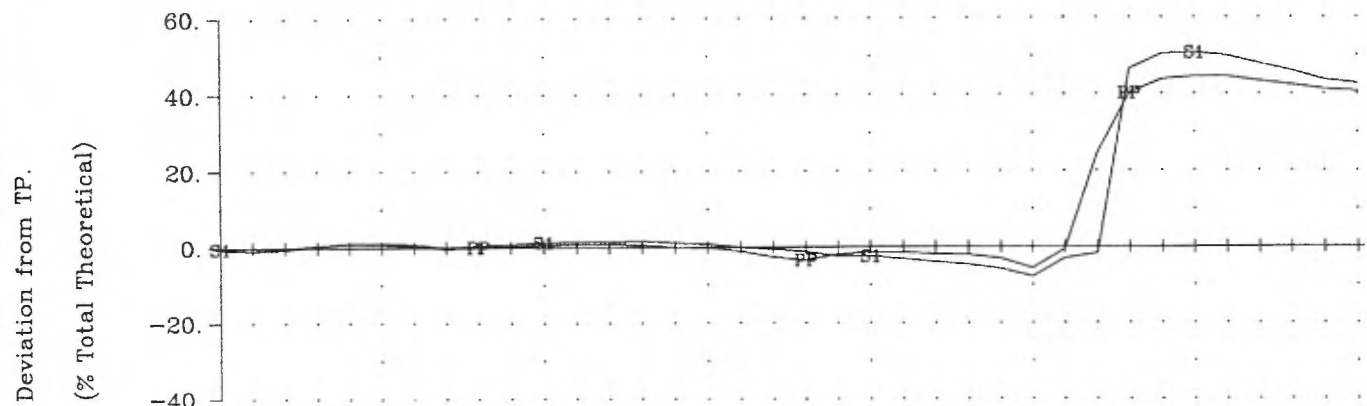
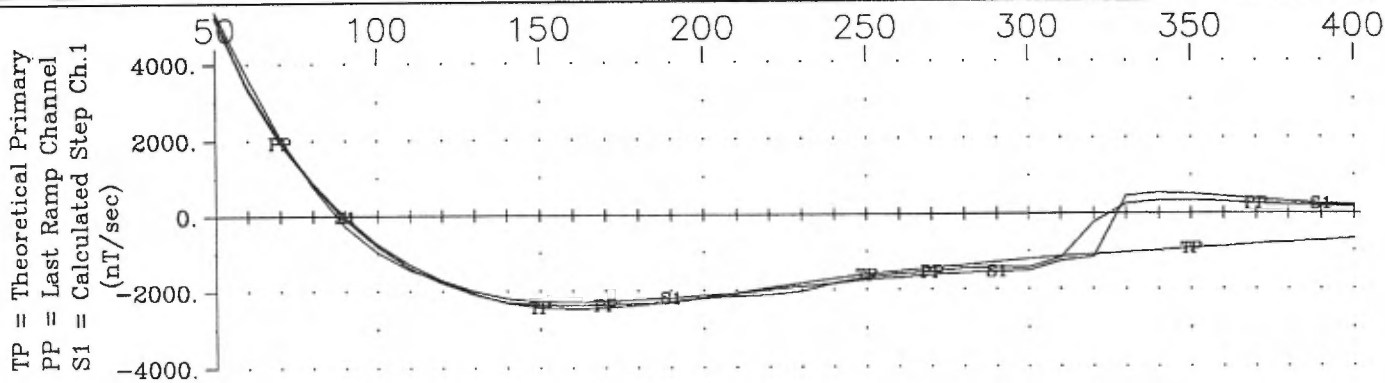
Pulse EM Off-time
 Channels 15-20
 (nT/sec)



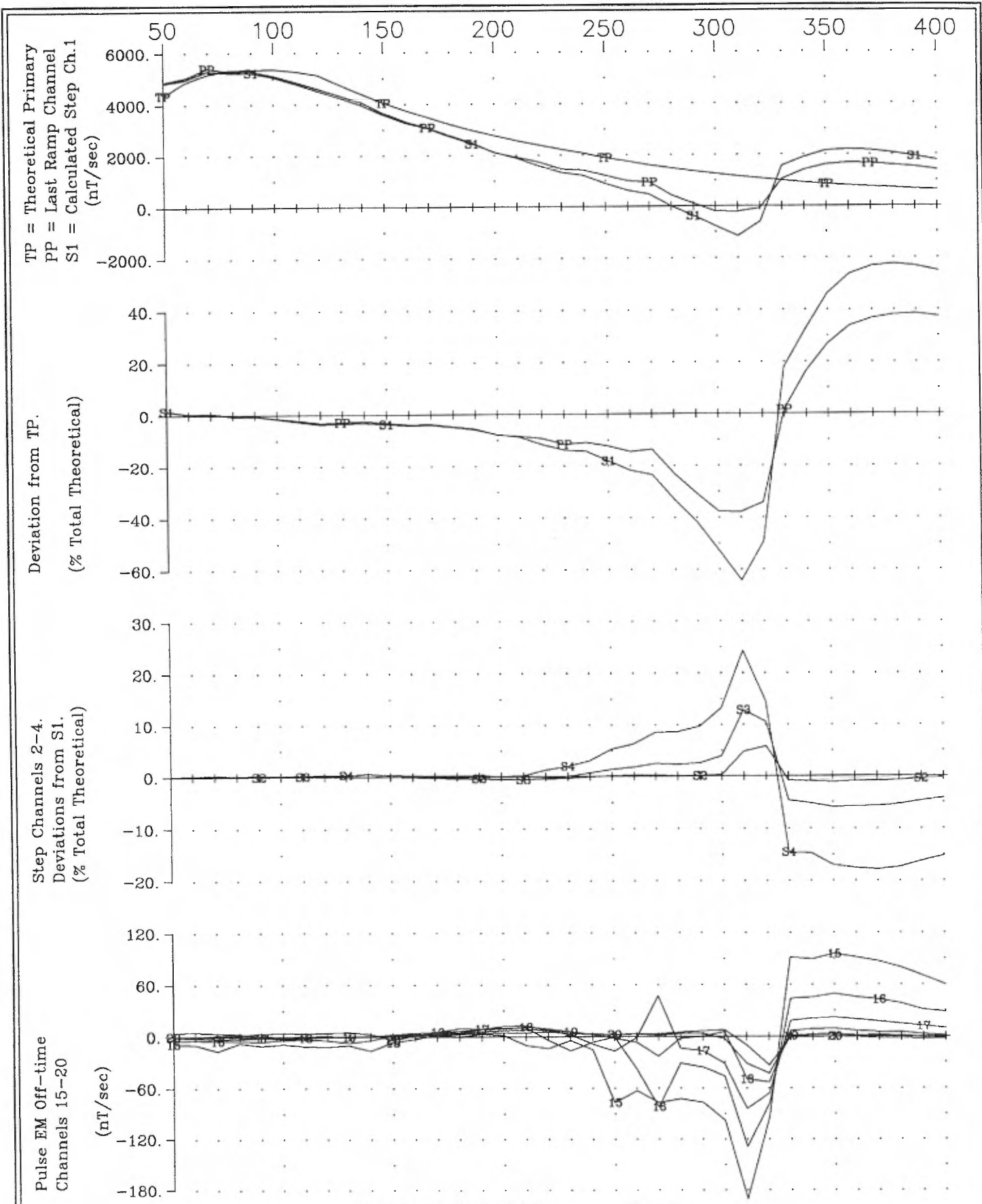
Falconbridge Ltd. Zone 2
 Hole 718-1838 Y Component
 Crone Geophysics & Exploration Ltd.



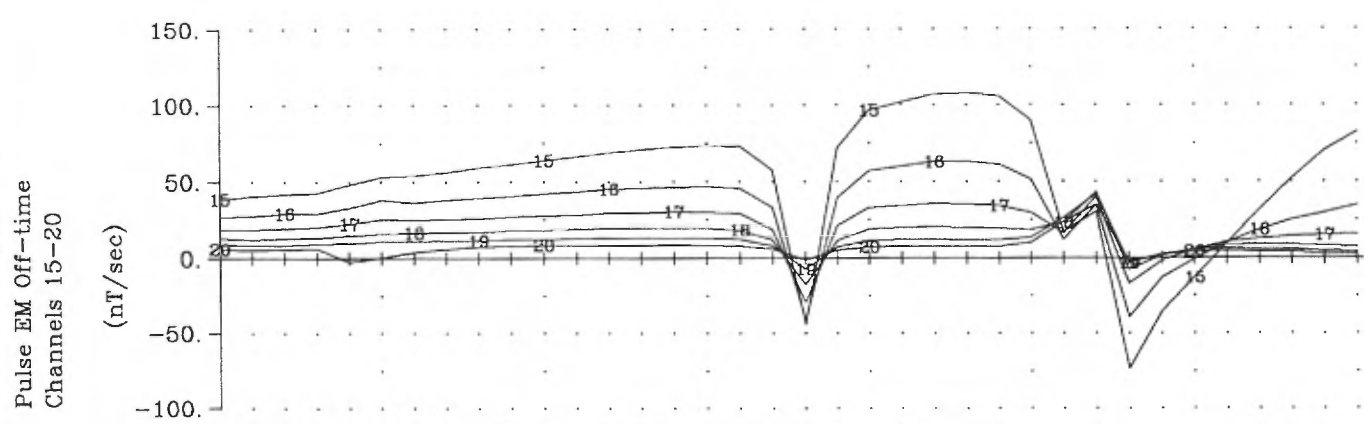
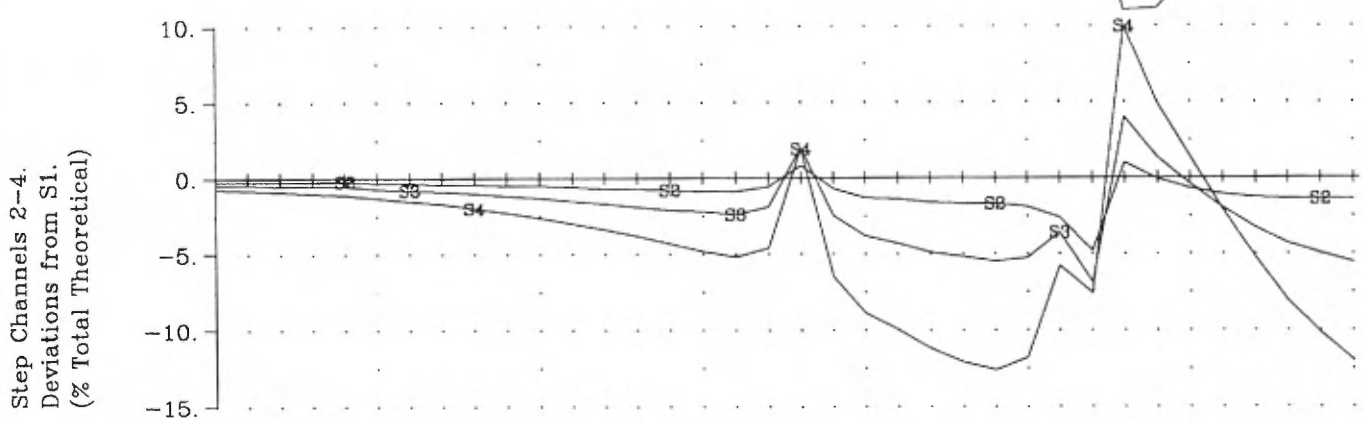
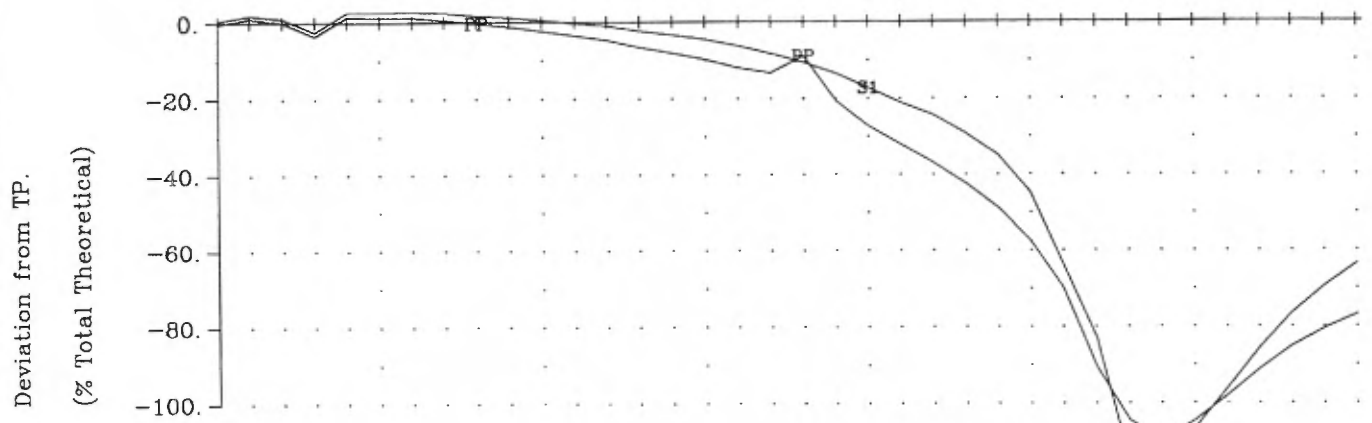
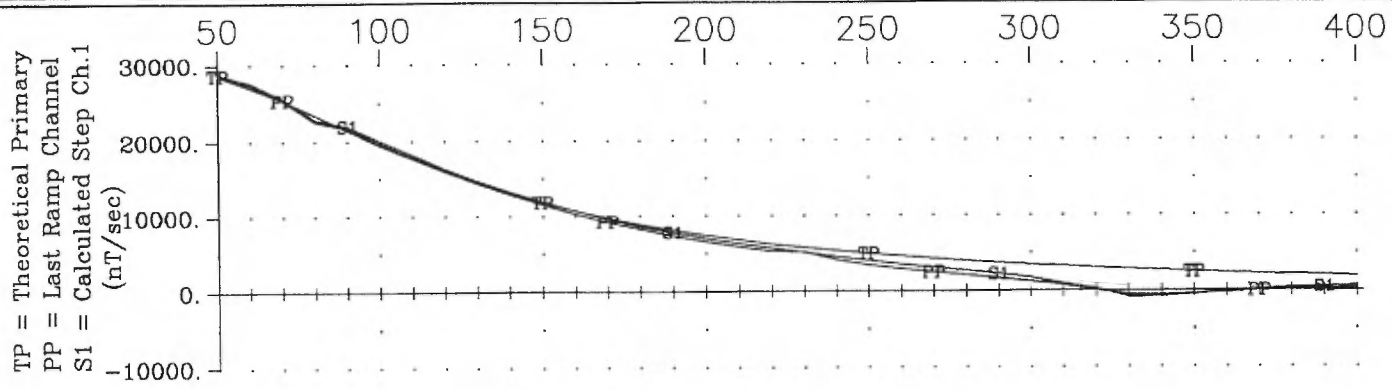
Falconbridge Ltd. Zone 2
 Hole 718-1838 Z Component
 Crone Geophysics & Exploration Ltd.



Falconbridge Ltd. Zone 2
 Hole 718-1839 X Component
 Crone Geophysics & Exploration Ltd.

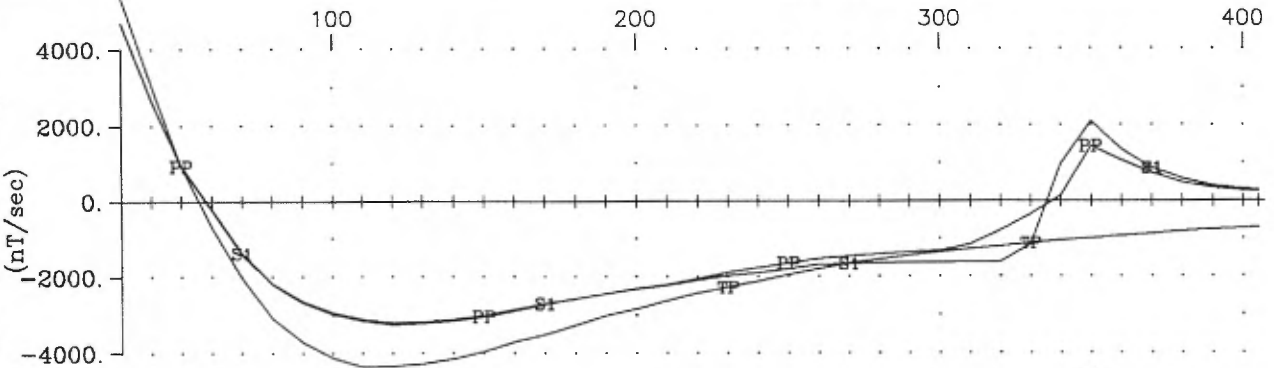


Falconbridge Ltd. Zone 2
 Hole 718-1839 Y Component
 Crone Geophysics & Exploration Ltd.

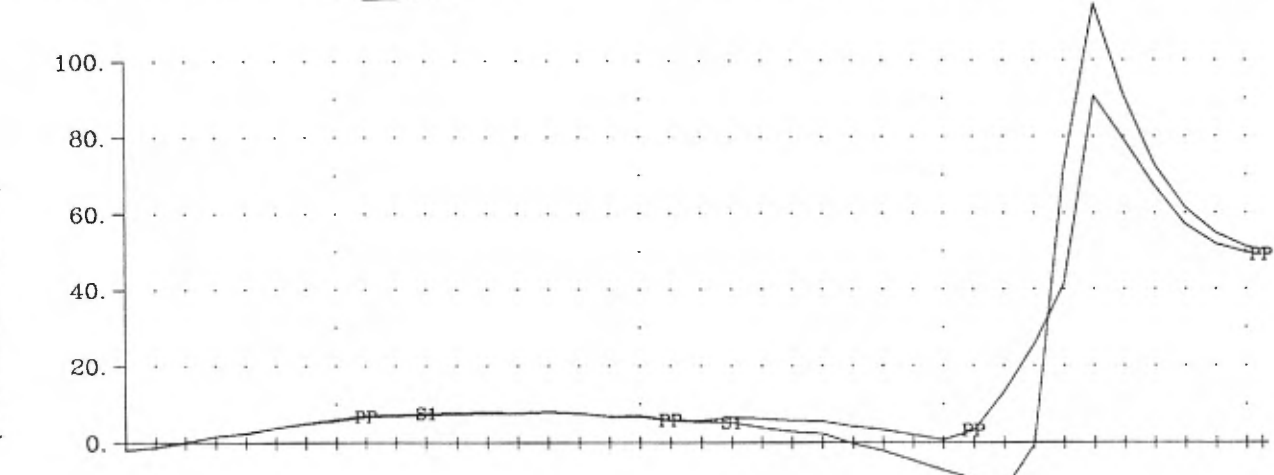


Falconbridge Ltd. Zone 2
 Hole 718-1839 Z Component
 Crone Geophysics & Exploration Ltd.

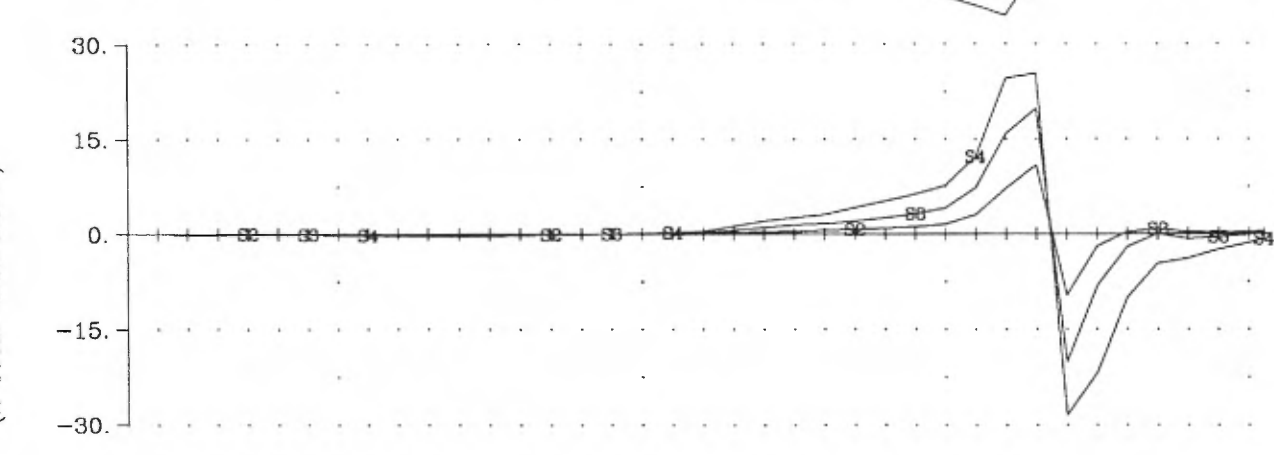
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



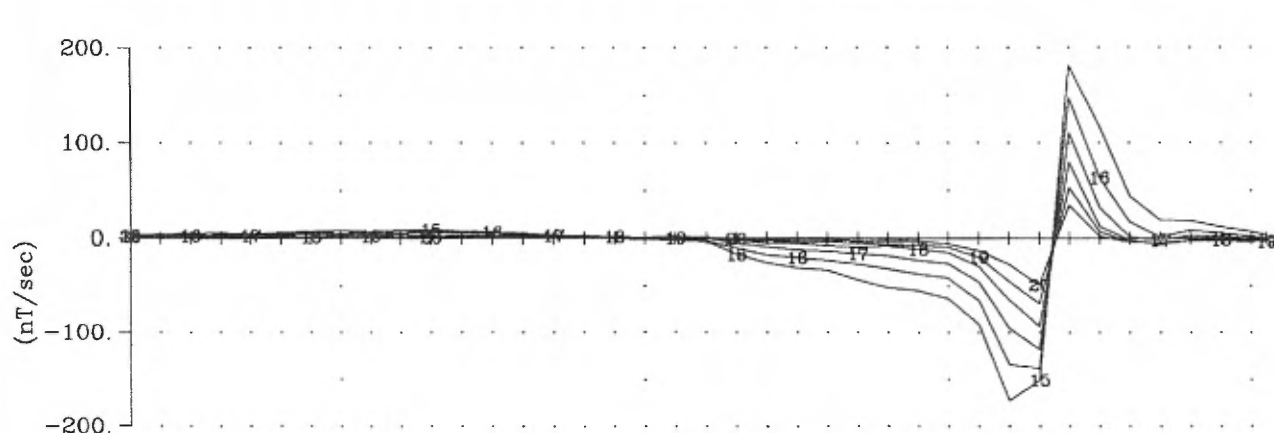
Deviation from TP.
 (% Total Theoretical)



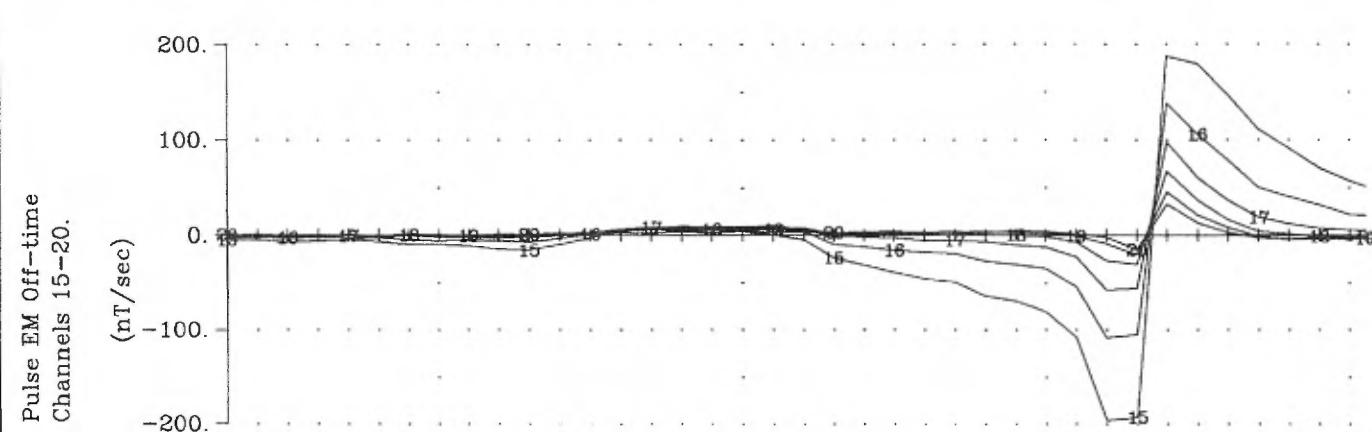
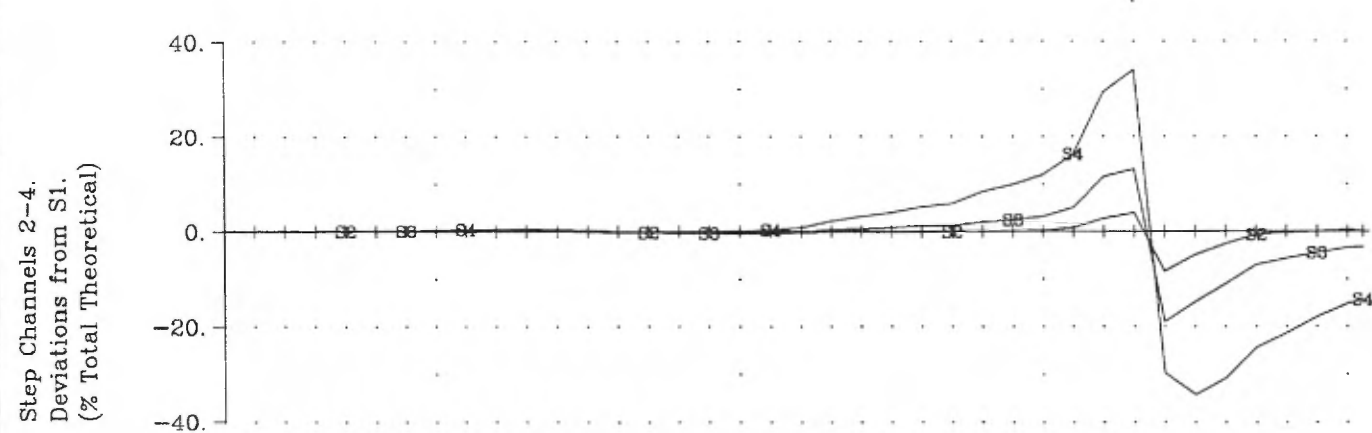
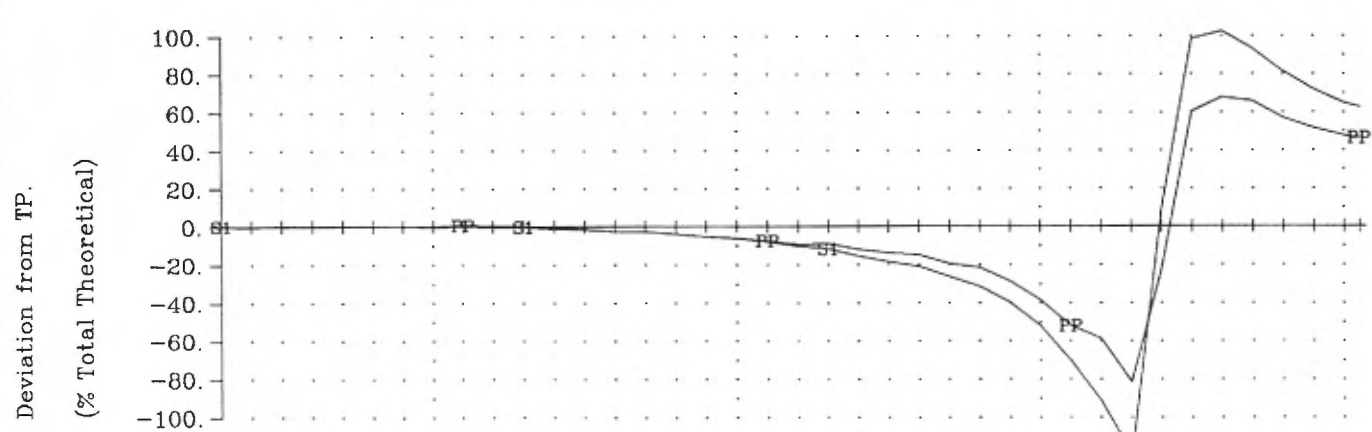
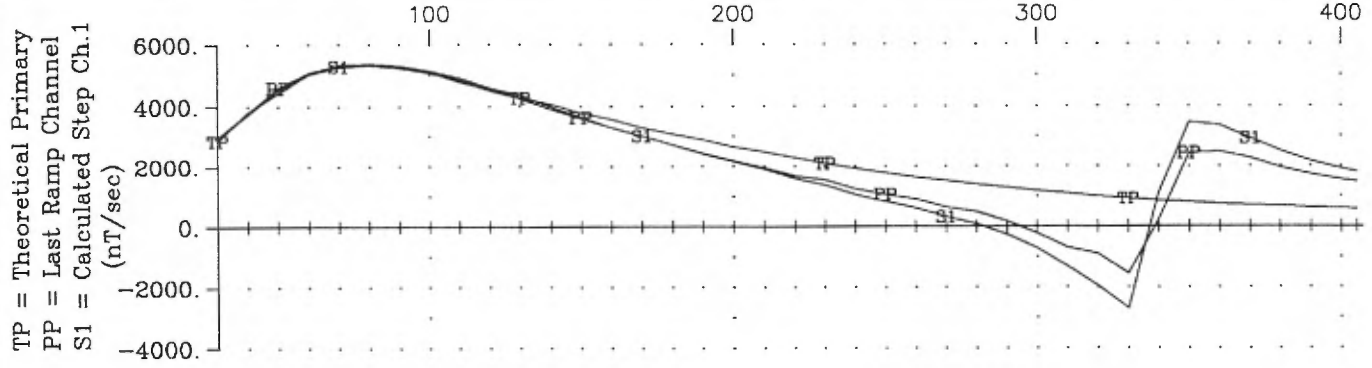
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



Pulse EM Off-time
 Channels 15-20.
 (nT/sec)

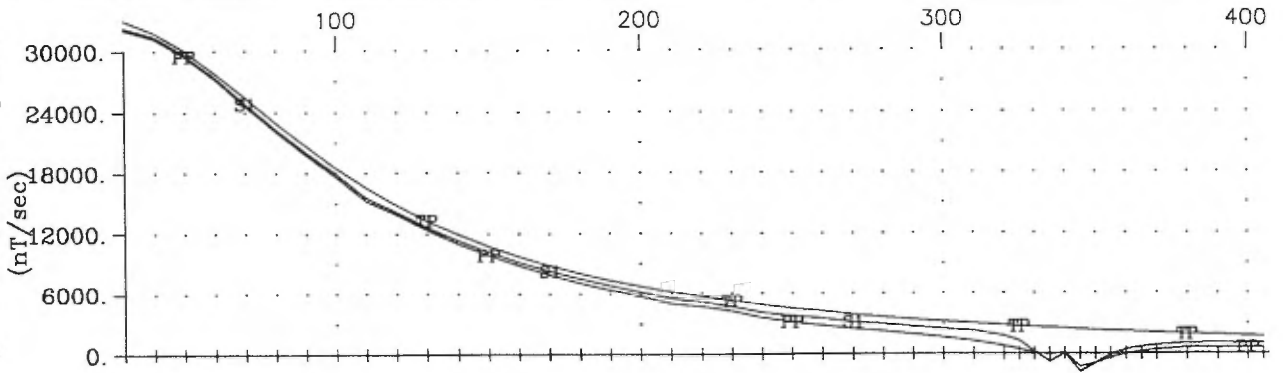


FALCONBRIDGE LTD. ZONE-2
 Hole 718-1841 X Component
 Crone Geophysics & Exploration Ltd.



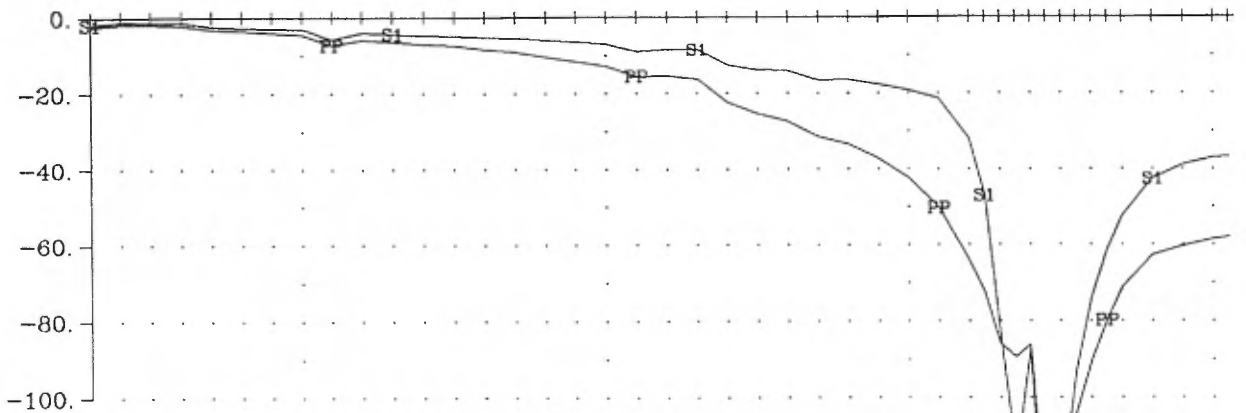
FALCONBRIDGE LTD. ZONE-2
 Hole 718-1841 Y Component
 Crone Geophysics & Exploration Ltd.

TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



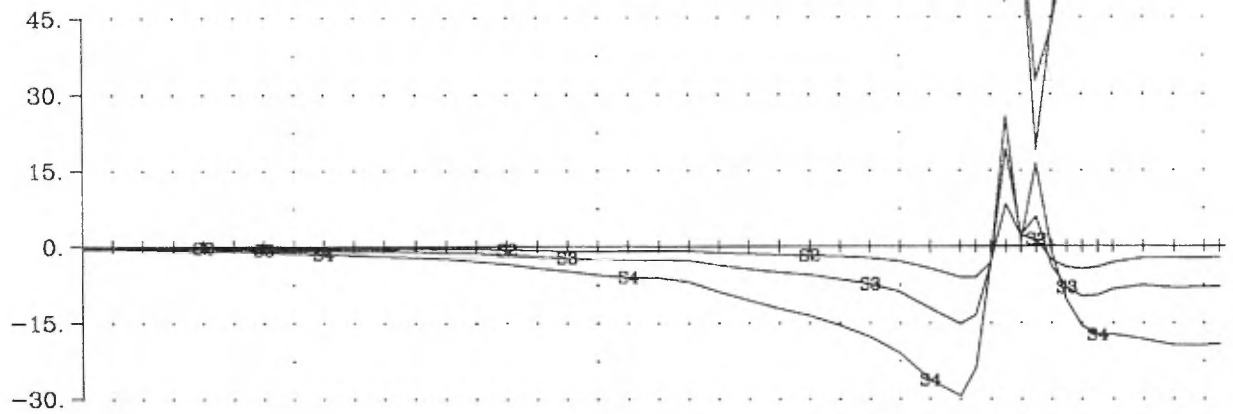
Deviation from TP.

(% Total Theoretical)



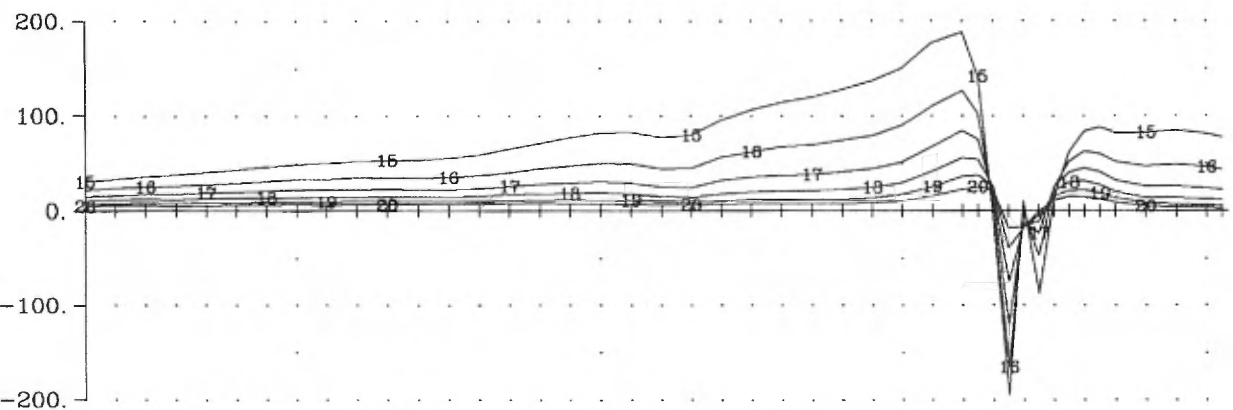
Step Channels 2-4.

Deviations from S1.
 (% Total Theoretical)



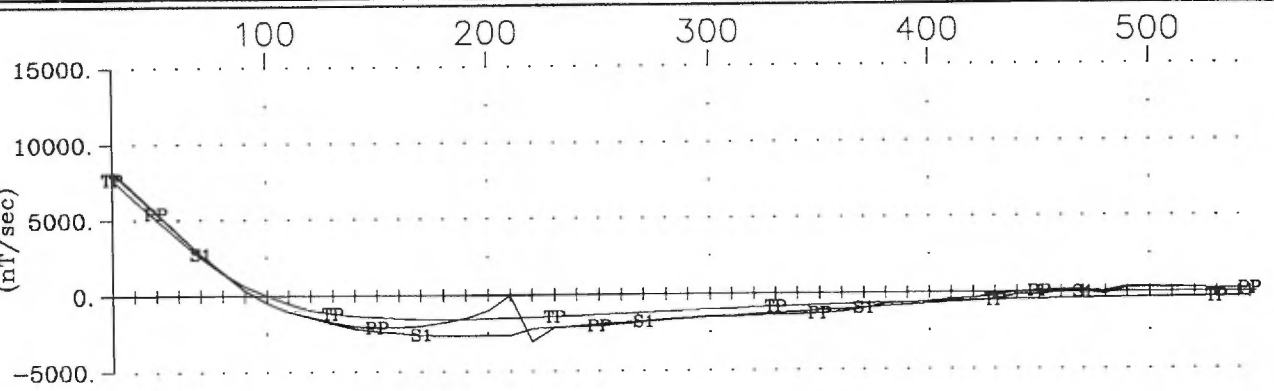
Pulse EM Off-time
 Channels 15-20.

(nT/sec)

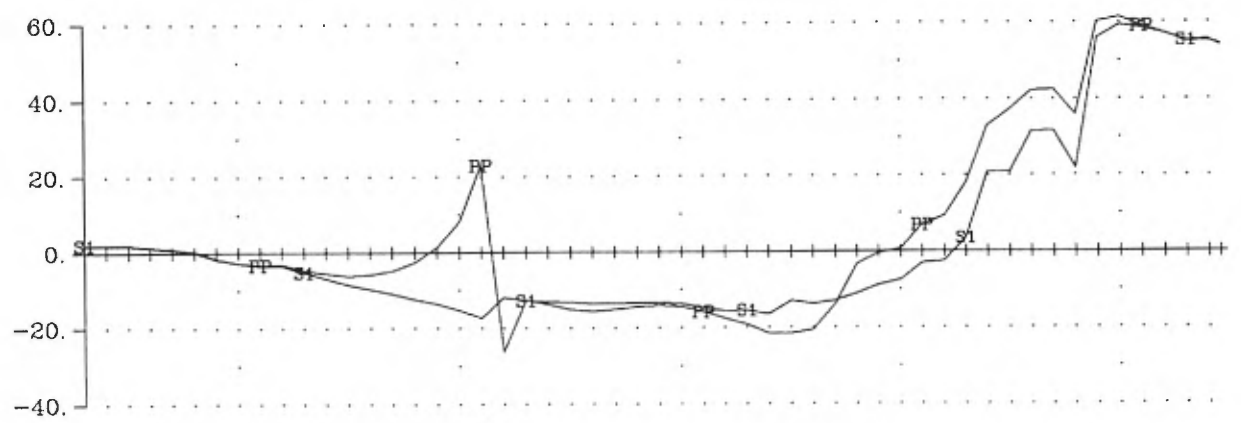


FALCONBRIDGE LTD. ZONE-2
 Hole 718-1841 Z Component
 Crone Geophysics & Exploration Ltd.

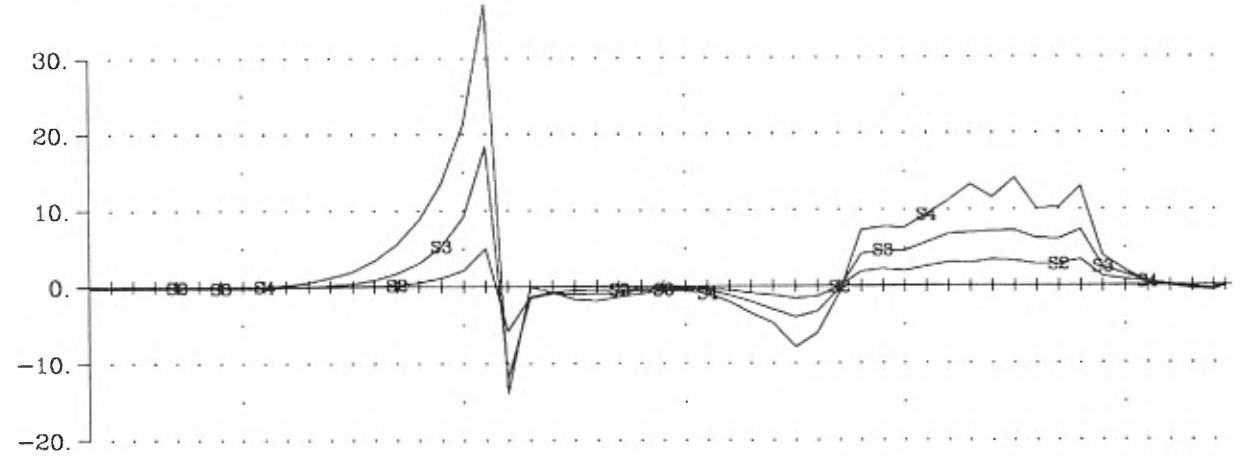
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



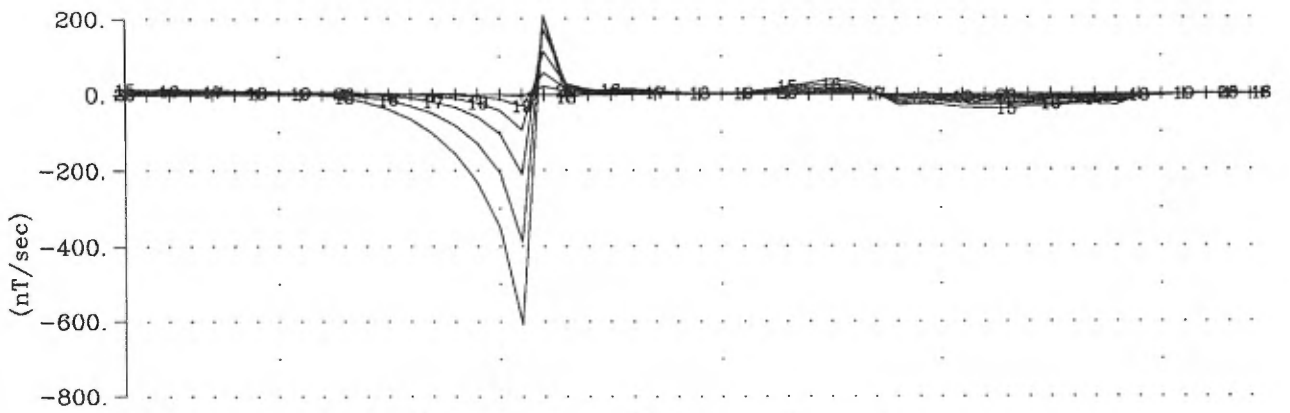
Deviation from TP.
 (% Total Theoretical)



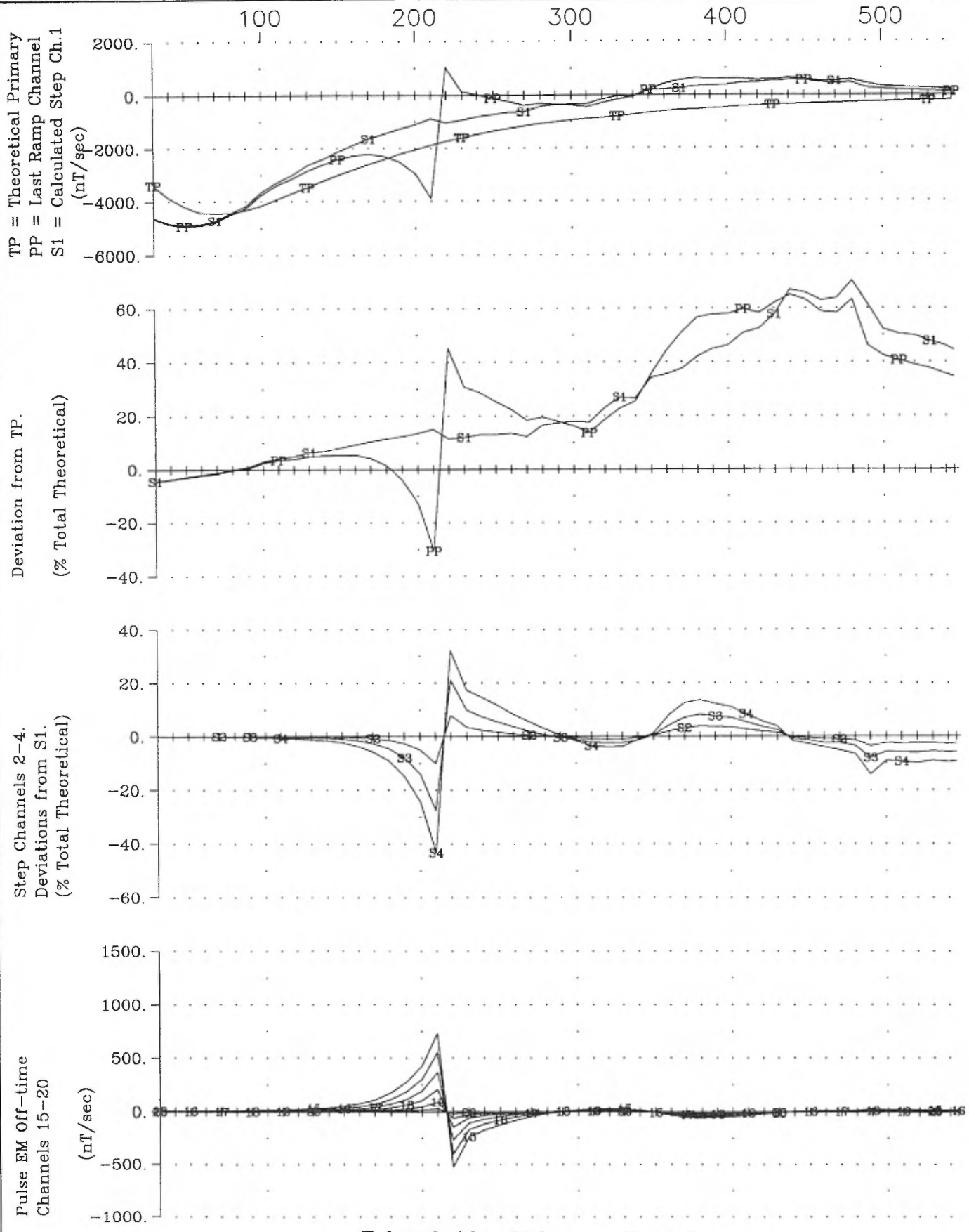
Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



Pulse EM Off-time
 Channels 15-20
 (nT/sec)

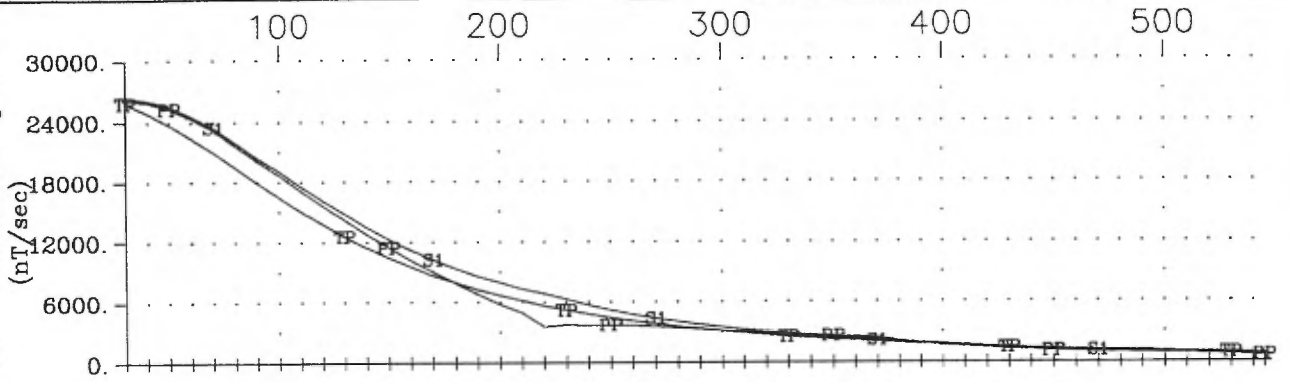


Falconbridge Ltd. Zone 2
 Hole 718-1842 X Component
 Crone Geophysics & Exploration Ltd.

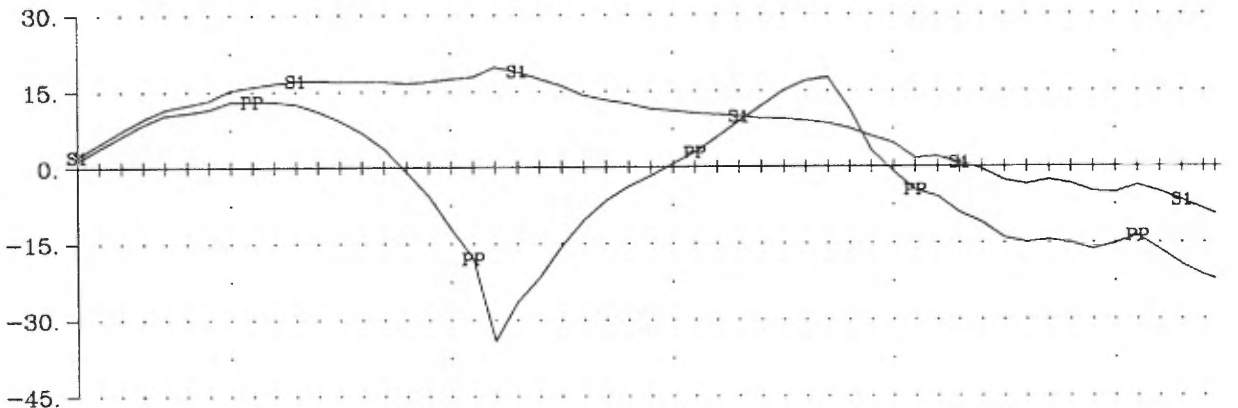


Falconbridge Ltd. Zone 2
 Hole 718-1842 Y Component
 Crone Geophysics & Exploration Ltd.

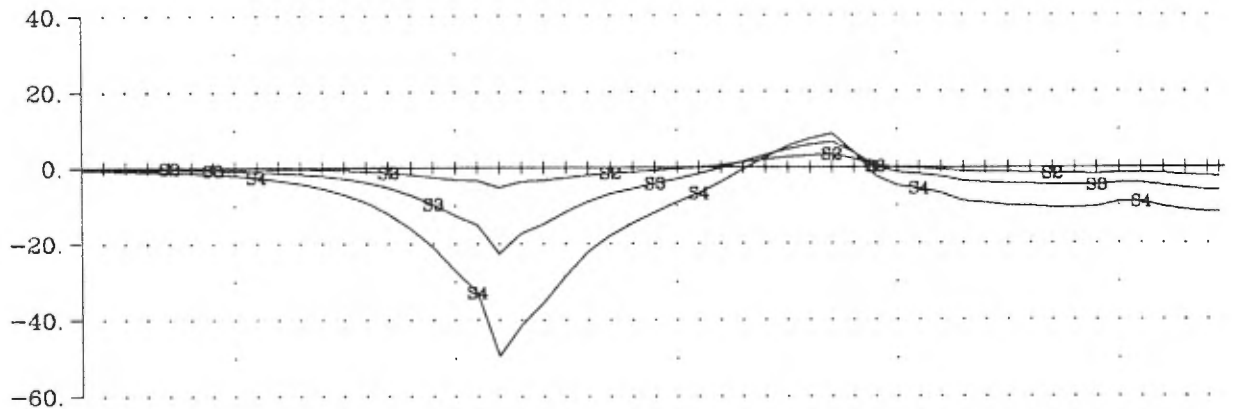
TP = Theoretical Primary
 PP = Last Ramp Channel
 S1 = Calculated Step Ch.1



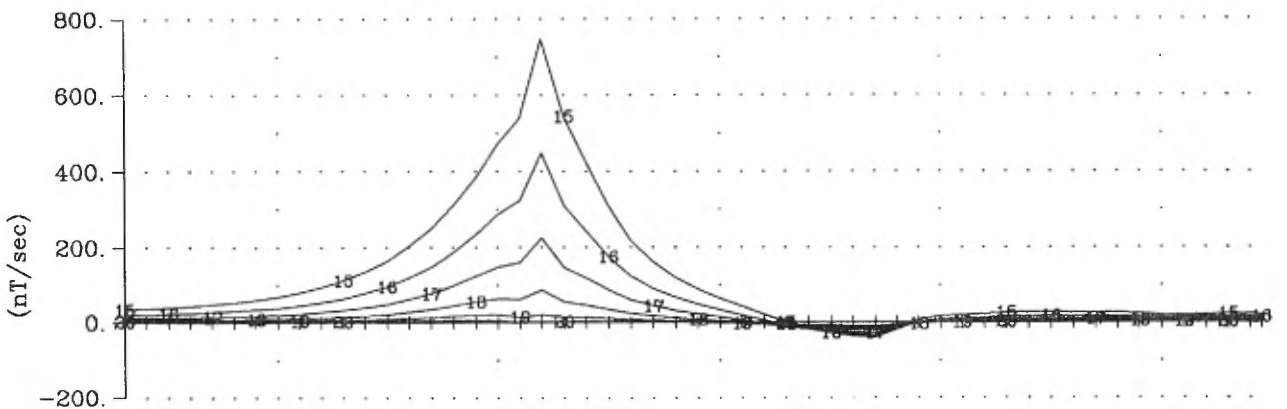
Deviation from TP.
 (% Total Theoretical)



Step Channels 2-4.
 Deviations from S1.
 (% Total Theoretical)



Pulse EM Off-time
 Channels 15-20
 (nT/sec)



Falconbridge Ltd. Zone 2
 Hole 718-1842 Z Component
 Crone Geophysics & Exploration Ltd.

Appendix E
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, 8.33ms, 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 the 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.

