Geophysical Survey Report

covering

Borehole and Surface Pulse EM Surveys

over the

Sheraton Township Project

for

Golden Knight Resources Inc.

during

February-September, 1998

RECEIVED
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by

CRONE GEOPHYSICS & EXPLORATION LTD.

Survey Area:	**Grid 330, Sheraton Township** **Timmins, Ontario**
Survey Type:	**Surface PEM Survey** **3D Borehole PEM Survey**
Holes Surveyed:	**SK9709, SK9710, SK9716,** **SK9719, SK9720, SK9824**
Lines Surveyed (Surface):	**6100W, 6200W, 6300W, 6400W** **6500W, 6600W, 6700W, 3800W** **3900W, 4000W, 4100W, 4200W**
Survey Operator:	**Wayne Pearson, Ray Miekel** **Crone Geophysics & Exploration Ltd.**
Survey Period:	**February - September, 1998**
Report by:	**Henry Odwar, M.Sc., Geophysicist.**
Report Date:	**October 1998**
Submitted To:	**Golden Knight Resources Inc.**

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PULSE ELECTROMAGNETIC SURVEY

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1.0 INTRODUCTION

This geophysical survey report outlines the survey parameters for the 3D Borehole and Surface PEM survey carried out for Golden Knight Resources Inc. on the Sheraton Township (Nighthawk) 330 grid near Timmins, Northern Ontario by Crone Geophysics & Exploration Ltd. This report contains survey logistics, specification of the equipment and surveyed parameters. Included also are all the profiles of the three component borehole surveys along with sections and plans for each hole and profiles of the two component surface PEM surveys. There is an interpretation of the survey data in this report.

Pervious work for Golden Knight Resources Inc. was done in February - March, 1998. Since the property is jointly being explored with Cross Lake Minerals Ltd., an integrated interpretation is herein included that takes into account all the work done has been done to date.

2.0 PROPERTY LOCATION AND ACCESS

The survey area is located at Sheraton Township near Timmins, Ontario, Canada. The survey crew accessed the property on a daily basis by road from Timmins. The Gibson Lake Road cuts through the survey area which made moving equipment around much easier.

3.0 SURVEY PARAMETERS

3.1 Transmitter Loops

Loop	Size (sq. m)	Location	Ramp Time	Current	Time Base	Channels
L1	400, 400	4158W, 1631S 4171W, 2031S 3778W,2031S 3765 , 1631S	1.5 ms	18 A	16.66 ms	20
L6	900,900	5900W,700S 6800W,700S 6800W,1600S 5900W,1600S	1.5ms	10 A	16.66ms	20
L7	1000,800	4400W, 2200S 4400W, 3000S 5400W,3000S 5400W,2200S	1.5 ms	10 A	16.66ms	20
A	1000,1000	3200W,2800S 3200W,1800S 4200W,1800S 4200W,2800S	1.5ms 0.5ms	8 A	16.66ms	20

3.2 Boreholes

Hole	Survey Date	Loop	Location	Dip °	Azimuth °	Depth (m)	Length Read (m)	Components
SK9709	06/02/98	L1	4153W/ 1473S	41	331	326	60- 325	X, Y, Z
SK9710	13/09/98	A	3907W/1199S	49	330	440	40 - 440	X, Y, Z
SK9716	12/02/98	L1	3907W/1285S	53	153	297	65-294	X, Y, Z
SK9719	07/02/98	L1	4015W/1573S	51.8	328	326	80-~~700~~ 410	X, Y, Z
SK9720	28/08/98	A	3850W/1487S	50	330	320	70 - 320	X, Y, Z
SK9824	18/03/98	L1	4000W/1725S	50	330	540	150-560	X, Y, Z
SK9824	23/08/98	A	4000W/1725S	50	330	540	60 - 540	X, Y, Z

3.3 Surface Lines

Line	Survey date	Loop	Segment Read	Coverage (m)	Components
6100W	May 26	L6	000S - 700S	700	X, Z
6100W	May 28	L6	1600S - 3000S	1400	X, Z
6200W	May 26	L6	000S - 700S	700	X, Z
6200W	June 2	L6	1600S - 3000S	1400	X, Z
6300W	May 26	L6	000S - 700S	700	X, Z
6300W	May 29	L6	1600S - 3000S	1400	X, Z
6400W	May 26	L6	000S - 700S	700	X, Z
6400W	May 31	L6	1200S - 2600S	1400	X, Z
6500W	May 28	L6	1600S - 3000S	1400	X, Z
6600W	May 31	L6	1900S - 2600S	700	X, Z
6600W	June 1	L6	1300S - 1900S	600	X, Z
6700W	May 29	L6	1600S - 3000S	1400	X, Z
6700W	June 1	L6	1400S - 1600S	200	X, Z
3800W	September 9	A	600S - 2000S	1400	X, Z
3900W	September 10	A	600S - 2000S	1400	X, Z
4000W	September 10	A	600S - 2000S	1400	X, Z
4100W	September 6	A	600S - 2000S	1400	X, Z
4200W	September 6	A	600S - 2000S	1400	X, Z

4.0 PERSONNEL

The personnel involved in data acquisition, processing and interpretation included:

Mario Ruel	Helper	Timmins, Ontario
Ray Miekel	Operator	Timmins, Ontario
Wayne Pearson	Operator	Timmins, Ontario
Henry Odwar	Presentation/Interpretation	Toronto, Ontario

5. 0 SURVEY METHODS

5.1 Survey Equipment

The Crone Pulse EM system is a time domain electromagnetic method 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 **120VDC, 4.5hp Motor Generator** powers the **PEM 2.4 kW 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 ("Ramp Time") , and finally, zero current for a selected length of time in milliseconds ("Time Base"). 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 receiver apparatus. These readings are across fixed time windows or "Channels" and are recorded with the **PEM Digital Receiver**. Synchronization between the receiver and transmitter is maintained by a direct cable, radio link, or **Crystal Clock.**

In surface line profiling methods, a **Receive Coil,** mounted on a tripod is used to measure the induced secondary field. The coil can be orientated to measure the vertical (dBz/dt), in-line horizontal (dBx/dt), and cross-line horizontal (dBy/dt) components.

The 3D borehole equipment uses a winch and cable to lower an **Axial Component (Z) Probe** and a **Cross Component (XY) Probe** down the hole to measure the three components of the induced secondary field. The depth is monitored with a manual wire counter mounted on the casing of the hole. The XY probe will rotate within the hole. This rotation can be measured by an **Orientation Tool** attachment which uses dipmeters to calculate the rotation and dip of the probe at every survey point.

Specifications for the equipment can be found in the Appendix.

5.2 Survey Procedure

3-D PEM Borehole. A single square transmit loop is normally used for the 3-D PEM survey. The width of the loop is at least half the depth of the hole. All holes are dummy probed first and then two passes are made. The first with the "Z" probe detects any in-hole or off-hole anomalies and gives information on size, conductivity and distance to edge of conductor. The second pass with the "XY" probe measures two orthogonal components of the EM field in a plane orientated at right angles to the borehole. These results give directional information to the center of the conductive body.

The correction for the rotation of the XY probe can be determined in two ways. One is to compare the measurement of the "PP" channel to theoretical values and then calculate the amount of probe rotation. The second uses the Orientation Tool which directly measures the rotation and is accurate in holes up to 0.5 degrees from vertical.

DEEPEM. The DEEPEM method of surveying reads grid lines outside and perpendicular to the long side of a stationary transmit loop. The length of the line surveyed can be 1.5 to 2 times the width of the transmit loop, however since the effective penetration depth is drastically reduced at large distances from the transmit loop we strongly recommend not reading any further than 1 kilometer from the loop edge. The survey reads the vertical (dBz/dt) and the in-line horizontal (dBx/dt) components of the secondary EM field.

5.3 Project Logistics

Work for Golden Knight Resources Inc. started on May 25th, 1998 and completed on September 10, 1998. The work itself was part of the overall project that included surveys in the property owned by Cross Lake Minerals Ltd. Access to the field area was quick and the vehicle used for survey was driven to the holes. This made it easier for the crew to complete the assigned tasks in a timely manner.

5.4 Production Summary Table

Date	Notes
Jan 28	Mobilization from Toronto to Timmins
Feb 06	Surveyed hole CLS9707, acquired Z component for SK9709
Feb 07	Completed surveying SK9709; Surveyed SK9719; laid loop L3
Feb 12	Surveyed hole SK9816; Demobilized
Mar 17	Acquired X and Y components for Sk9824
Mar 18	Acquired Z component for SK9824 (and CLS9846); pulled out L1 and L4
May 25	Wayne Pearson laid loop L6.
May 26	Surveyed lines 6100W, 6200W, 6300W and 6400W from 0S to 650s.
May 27	Moved antenna for the next survey after which bad weather set in.
May 28	Surveyed lines 6100W and 6500W from 1600S to 3000S.
May 29	Surveyed lines 6700W and 6300W from 1500S to 3000S.
May 31	Surveyed lines 6400W and 6600W from 1200S to 2600S.
June 01	Lines 6500W and 6700W were survey from 1250S to 1600S; and surveyed lines 6600W and 6300W from 1300S to 1900S.

June 02	Re-surveyed lines 6500W and 6300W from 1500S to 2100S. Line 6200W was surveyed from 1600W to 3000W. Part of the survey loop was then picked up.
June 03	Picked up all the survey loop.
Aug. 22	Moved equipment to hole SK9824 and dummy probed it.
Aug. 23	Surveyed hole SK9824 then moved equipment to hole SK9720, which was dummy probed.
Aug. 28	Surveyed hole SK9720.
Aug. 29	Moved equipment from hole SK9720. The ATV got stuck and its axle got broken.
Sept. 02	Surveyed part of line 3800W and crew could not continue because of heavy rain.
Sept. 03	Part of line 3900W was surveyed and again work was interrupted by heavy rain.
Sept. 04	Surveyed lines 4000W and 4100W.
Sept. 06	Surveyed parts of lines 4000W and 4100W.
Sept. 07	Completed line 3800W and started on a line which is on Cross Lake Minerals Ltd. property.
Sept. 10	Completed parts of lines 3900W and 4000W.

6. 0 INTERPRETATION

This section discusses the results from the PEM data acquired for Golden Knight Resources Inc. at its Sheraton property near Timmins during February - September, 1998. The section is separated into two parts; borehole and surface surveys.

Borehole Survey

Each of the holes are discussed briefly below.

SK9709 There is a weak 6 channel in-hole anomaly at 100 meters depth in the hole which probably coincides with a pyrite zone which was intersected at this depth. The X and Y components indicate this conductive zone extends down dip and along strike both east and west of the hole.

SK9710 An anomaly is observed at between 330m and 340m depth down the hole. Since the loop is reverse coupled to any conductive body in the hole, the observed 12 channel response is an in-hole. The X and Y component indicate that the conductive body is centered below and to the west of the hole (see appendix A, interpreted conductor E). The response is similar to some of those encountered in the area. The causative body is likely to be a weak conductor, probably an intersected disseminated sulphide zone.

SK9716 Since this hole was drilled grid south and surveyed with a transmit loop located well south of the hole, a reversed coupling is observed here. The weak negative anomaly in the Z component profile therefore is actually an in-hole response and is probably due to the pyrite zone which was intersected at this depth. This zone is interpreted to extend down-dip and continues both (grid) east and west of the hole.

SK9719 A very weak 5 channel off-hole response occurs at 220 meters indicating a poor conductor is located below and east of the hole at this point.

SK9720 The observed response in this hole is a subtle 9 channel anomaly at 160 meter depth down the hole. The attached diagram shows the loop has a poor coupling to any steeply dipping bodies. The loop is also reversed coupled to such a body. The positive rather broad peak in the Z component therefore indicates the anomaly is an off-hole. The X and Y components show that the conductive body is located west of and centered above the hole(see appendix A, interpreted conductor G).

Since the coupling is poor for this hole, it is difficult to comment on the importance of the relative strengths, as the responses may appear much stronger from a well coupled loop. It is recommended that a different loop configuration that would couple well with the conductive body be used.

SK9824 This hole was originally surveyed in March of 1998 and then later re-surveyed in August with a different transmit loop configuration. This later survey confirms that the anomalous response is the same one identified in March. The response is a weak 10 channel off-hole response observed at about 360m depth. The anomaly is most likely due to a weakly conductive body. This weak conductor can still be a very attractive target in some environments such as those rich in zinc or gold mineralization. The X and Y components responses indicate the conductor is located below and to the east of the hole(see appendix A, interpreted conductor D).

SURFACE

Four separate surface PEM surveys were carried out on the Sheraton property during the time interval of February - September, 1998. Loop L6 was used to survey lines 6100W to 6700W for Golden Knight Resources Ltd. while loops A and L7 were for the property shared by Golden Knight Resources Inc. and Cross Lake Minerals Ltd. The surface PEM data for all loops are presented as contours of channel six and in addition to this an anomaly map has been produced.

For the surface work done using loop L6, there is an anomalous zone between 1600S and 2100S on line 6700 W that appears to trends south-east to between 2000S and 2400S on line 6500 W. This trend is highlighted on the colour contour plots of the horizontal component for channel 6 (following the 60 nT/s contour). On line 6500 W a pronounced peak is evident in the horizontal component at ~ 2175 S and a similar response is observed on line 6200 W at ~ 2100 S. These response patterns are highlighting a significant conducting zone which appears as a very promising target in this environment. The response only extends to 9 channels but this is a typical response for this area. The anomalous zone is interpreted as being due to a bedrock and probable deep source(s) with the responses on line 6500 W and 6200 W (see colour contour map) in particular appearing as good targets.

To the north of loop L6, the zone between 100S and 400S is also interesting as it is more anomalous, and should be investigated further if no drilling has been done.

For the surface work done in May-September (loop A), the zone between 1700S and 1900S has a subtle peak in the horizontal (X) component. Since the loop wire was situated in the middle of this zone, the observed subtle peak could be an effect due to the near proximity of the wire. In order to make certain that the effect is not due to the wire, it is necessary to survey this strip by using a loop located further south. Also for the surface work done using loop A, there is a build up in the early channels for the horizontal (X) component on lines 3800W through and including 4200W. This suggests that there is likely to be a conductive body further north and this possibility should be investigated. A 400m by 400m loop with its northern edge situated at about 800S should resolve whether there is an anomaly.

7. 0 SUMMARY

All the holes surveyed for Cross Lake Minerals Ltd. and Golden Knight Resources Inc. are plotted in one large map (see Borehole and Interpretation Location map, appendix A). Holes SK9709, SK9710, SK9716, SK9719, SK9720 and SK9824 belong to Golden Knight Resources Inc. SK9716, SK9719 and SK9824 were surveyed in March. They fall within the surface PEM anomalous zone defined by the 100 nT/s contour (see Surface Pulse EM Survey - In-line Horizontal (X) component map, May-September).

Holes SK9710, SK9716 and SK9720 seem to target the same horizon. Conductors B and G, therefore probably represent a continuous body along strike with conductor E probably representing the anomalous expression of this zone at depth. Likewise conductor C and D are interpreted as being due to one continuous zone. Conductor A is further away and from the borehole surveys alone it would be very difficult to correlate this anomaly with the other anomalies. However, the surface PEM results indicate this hole is testing the same zone and therefore all identified borehole anomalies are most likely due to the same anomalous source.

Based on the combination of borehole and surface PEM results for the Sheraton 330 grid, the conclusion is the observed EM response is due to a broad ,weak conductive zone. Several holes indicate the conductors are located/centered below the hole indicating the potential for this zone to have a significant depth extent and if the mineralization is favourable deeper holes may be warranted .

The broad surface PEM anomaly evident on the horizontal component on the Nighthawk 330 grid *appears* to be a continuation of the anomalous zone identified on the Sheraton 330 grid. On the Nighthawk grid the most promising area is defined by the well defined anomalies on line 6500 W at ~2175 S and station 2000S on line 6200 W. If these have anomalies have yet to be tested, they rank as high priority targets for future exploration efforts.

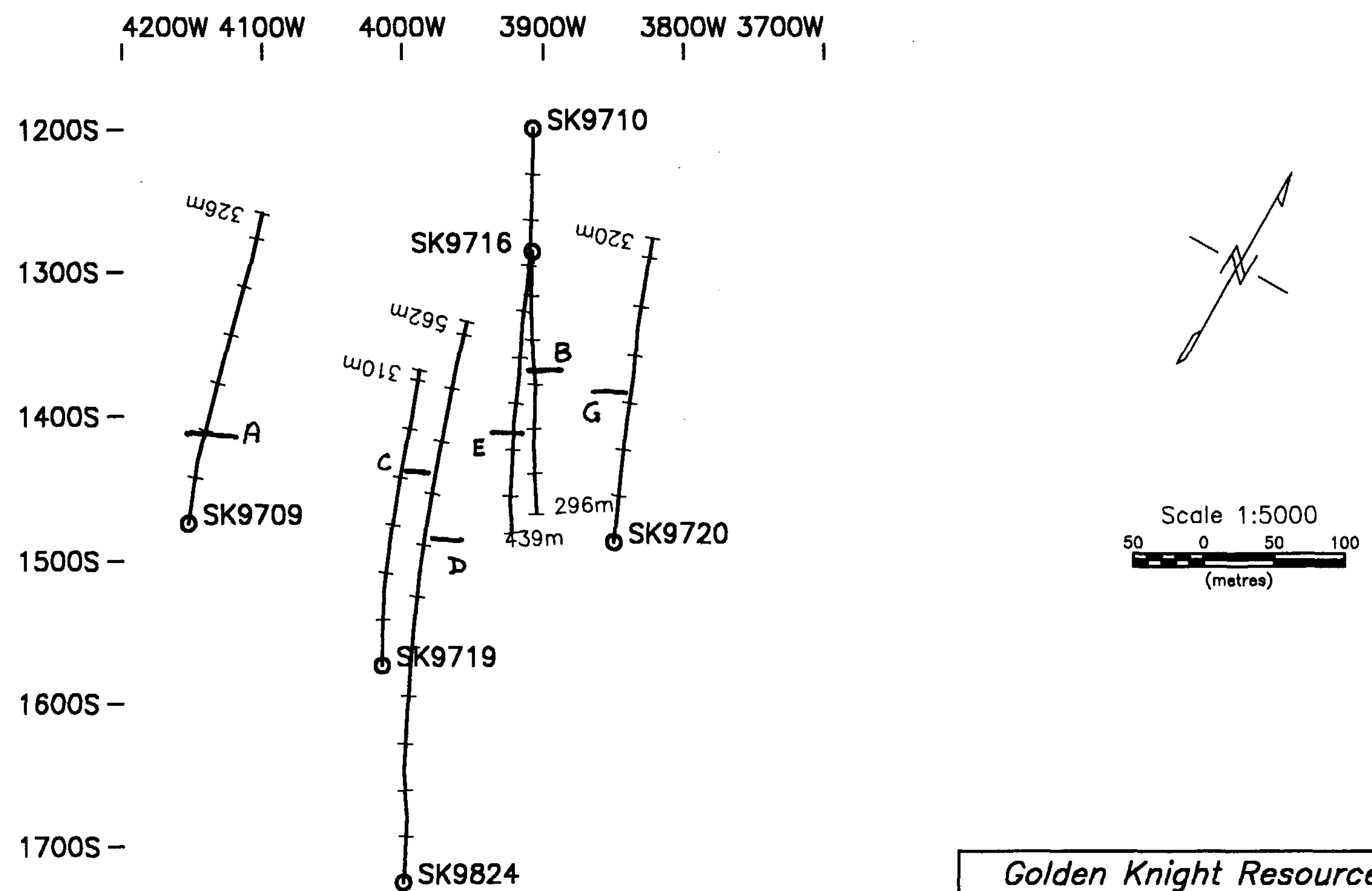
Additional isolated anomalies have been selected and plotted on the enclosed plan maps. In general these anomalies are sharp and exhibit low conductivity. The cause of these are likely to be near surface (and possible disseminated sulphide) sources. Overall though the response of most interest, and the one which should be concentrated on, is the broad positive peak in the X component which is well defined by the colour contour maps.

Respectfully Submitted

Henry Odwar, M.Sc.
Geophysicist
Crone Geophysics & Exploration Ltd.
October, 1998.

APPENDIX A

PLAN MAPS AND PRIMARY FIELD SECTIONS



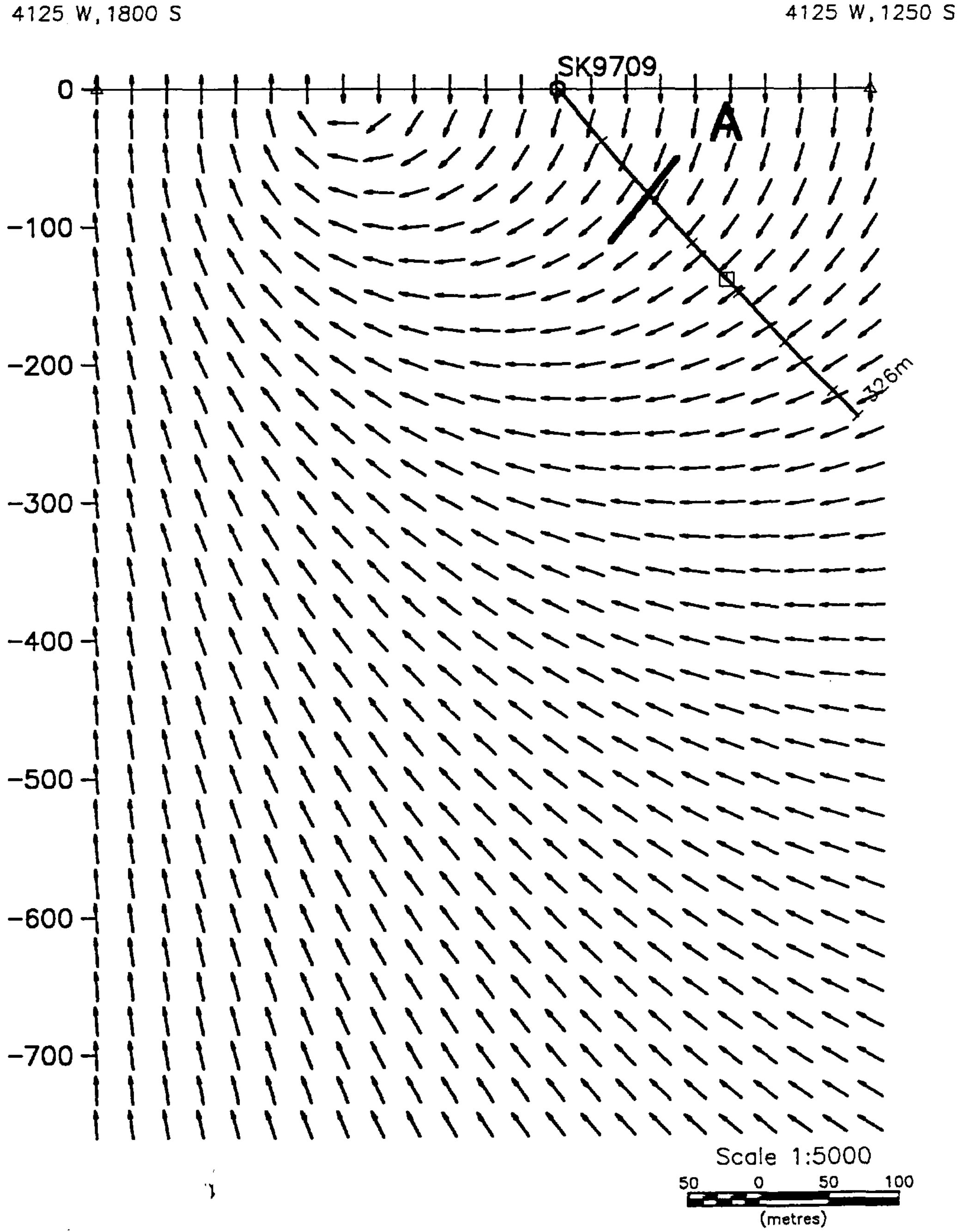
Golden Knight Resources Inc.
330 Grid

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

Hole: SK9709, SK9710, SK9716, SK9719, SK9720, SK9824

Survey Date: March - September, 1998.

Crone Geophysics & Exploration Ltd.



Interpreted Conductor:

— Conductor

SK9709: A, Poor conductor intersected at 100 meters in the hole.

Golden Knight Resources Inc
330

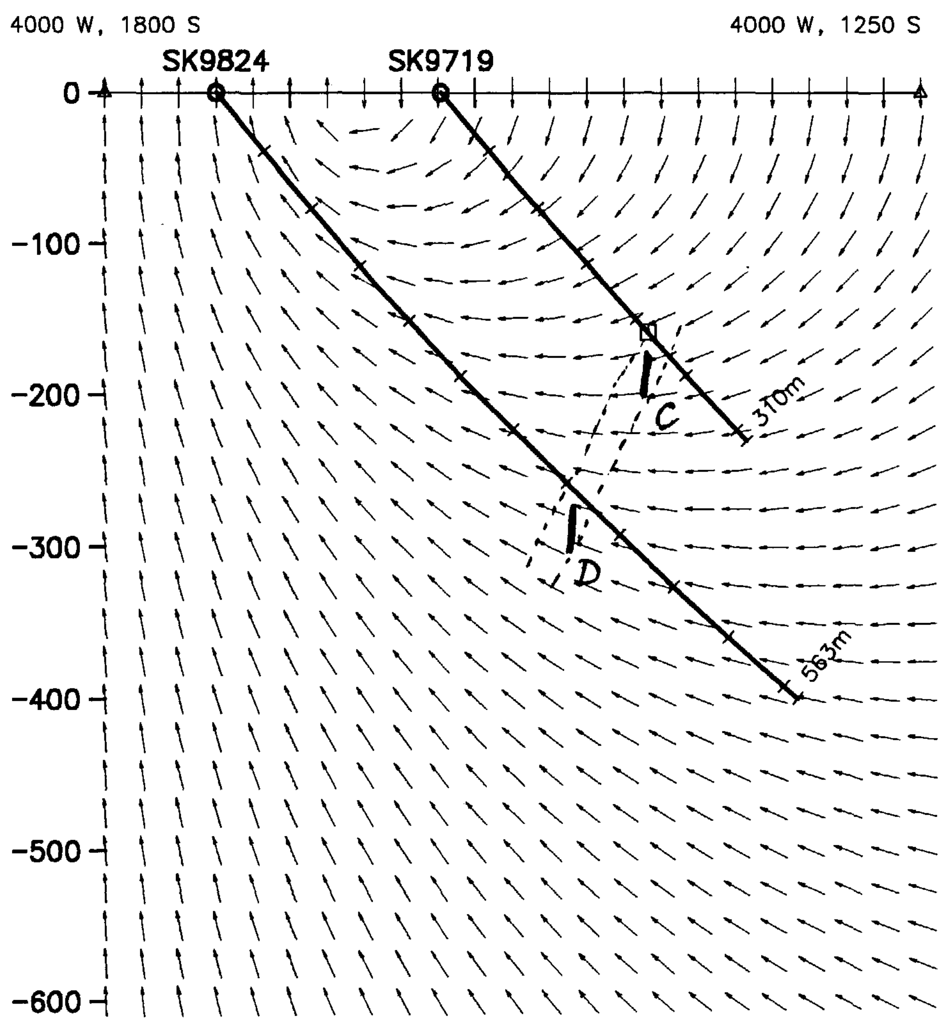
3-D Borehole Pulse EM Survey
Hole Section with Primary Field

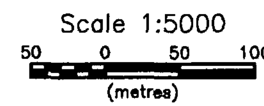
Hole: SK9709
Survey Date: Feb 6, 1998

Crone Geophysics & Exploration Ltd.

SK9719: C, Weak off-hole, below hole

SK9824: D, Weak off-hole, below hole



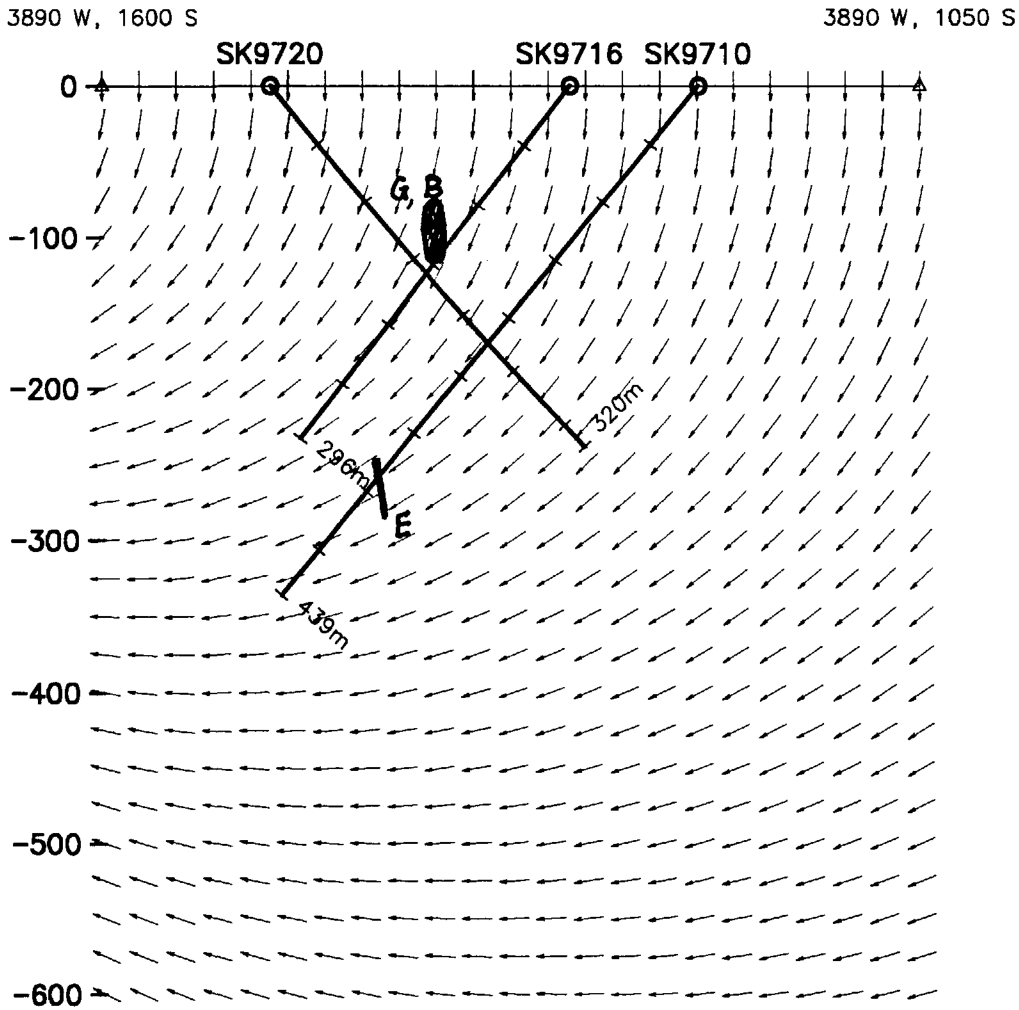


Golden Knight Resources Inc.
330 Grid

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

Holes: SK9719, SK9824
Survey Date: February - March, 1998

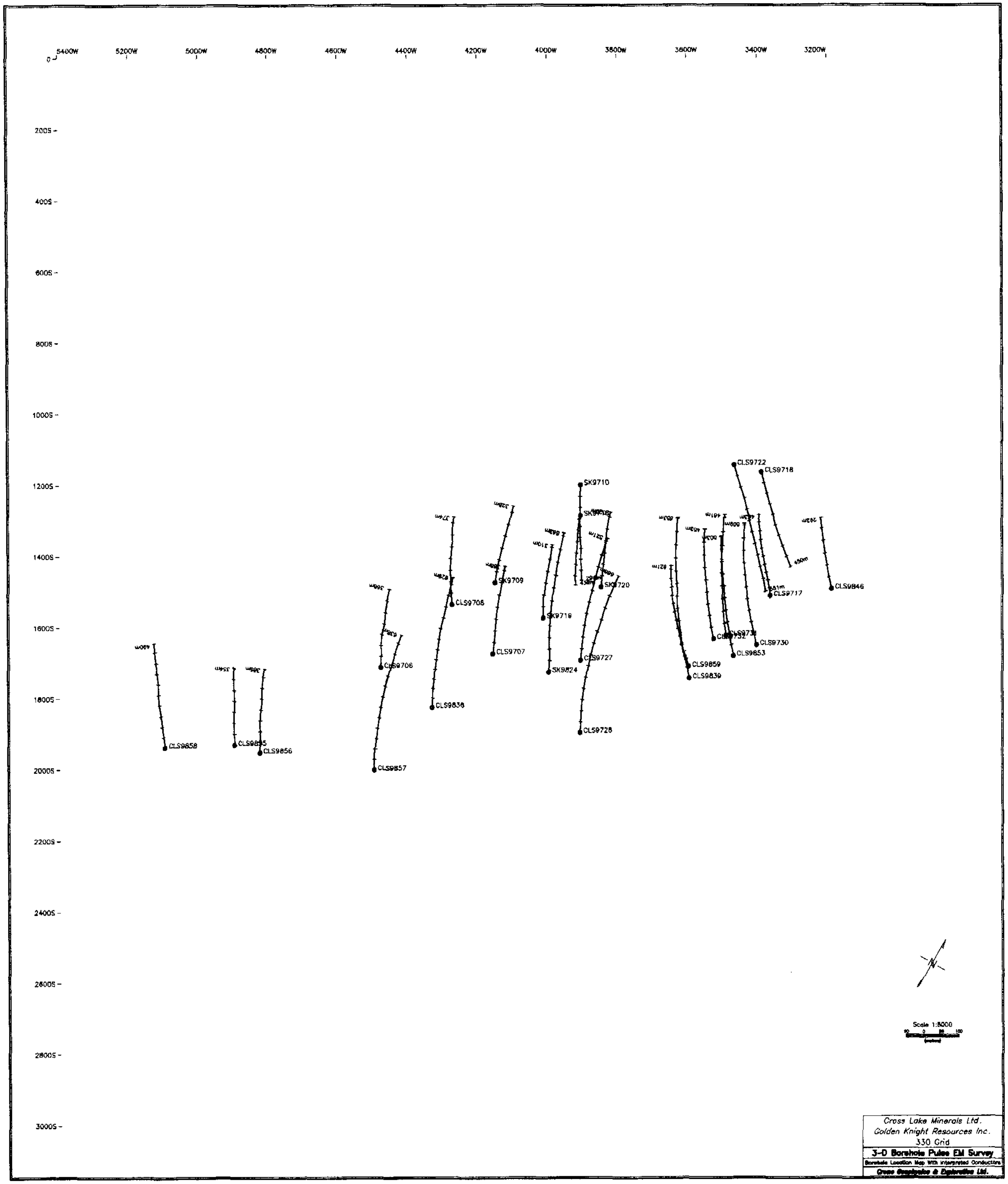
Crone Geophysics & Exploration Ltd.



SK9710: E, weak in-hole
SK9716: B. weak in-hole
SK9720: G, same body as B.

Scale 1:5000
50 0 50 100
(metres)

Golden Knight Resources Inc.   330 Grid
3-D Borehole Pulse EM Survey   Hole Section with Primary Field
Holes: SK9710, SK9716, SK9720   Survey Date: February- September, 1998
Crone Geophysics & Exploration Ltd.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4400W
4200W
4000W
3800W
3600W
3400W
3200W
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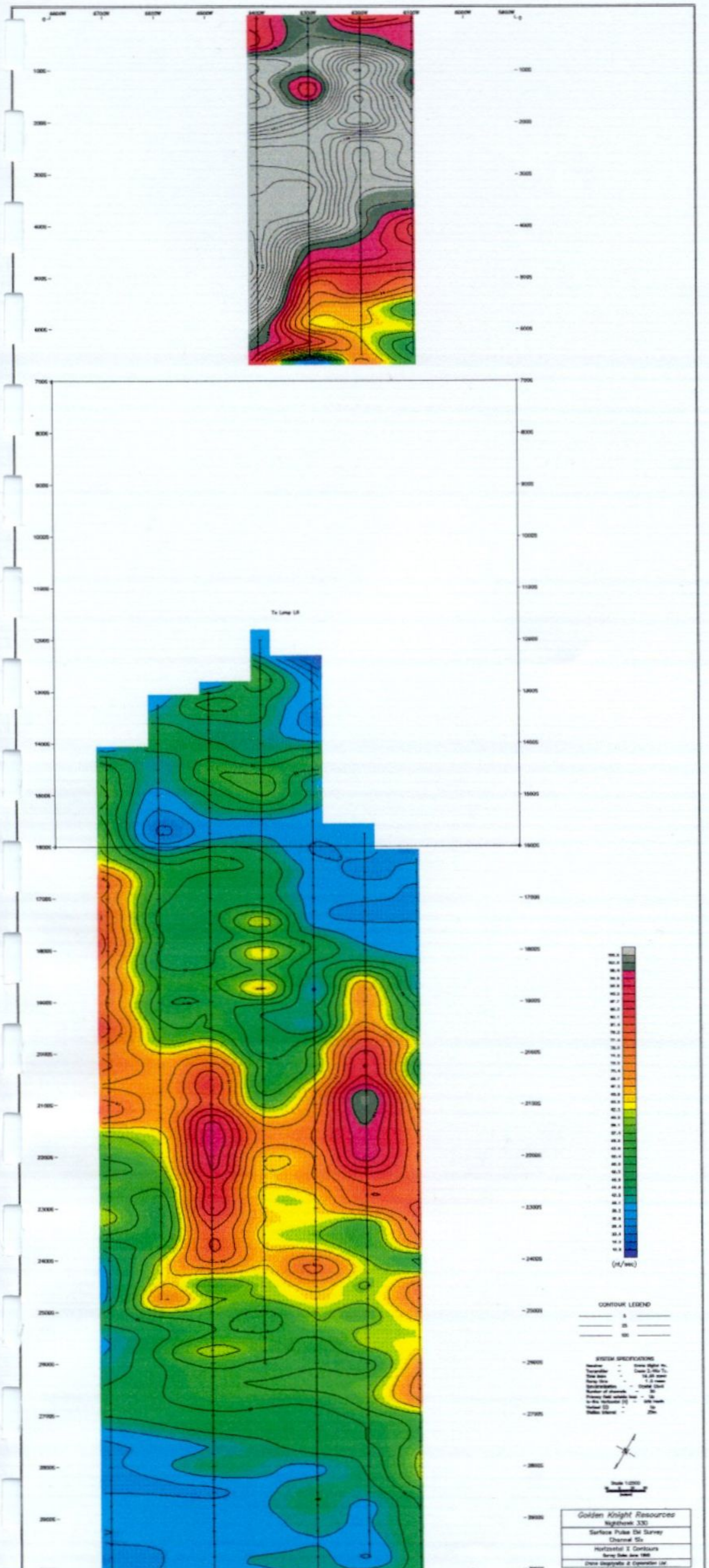
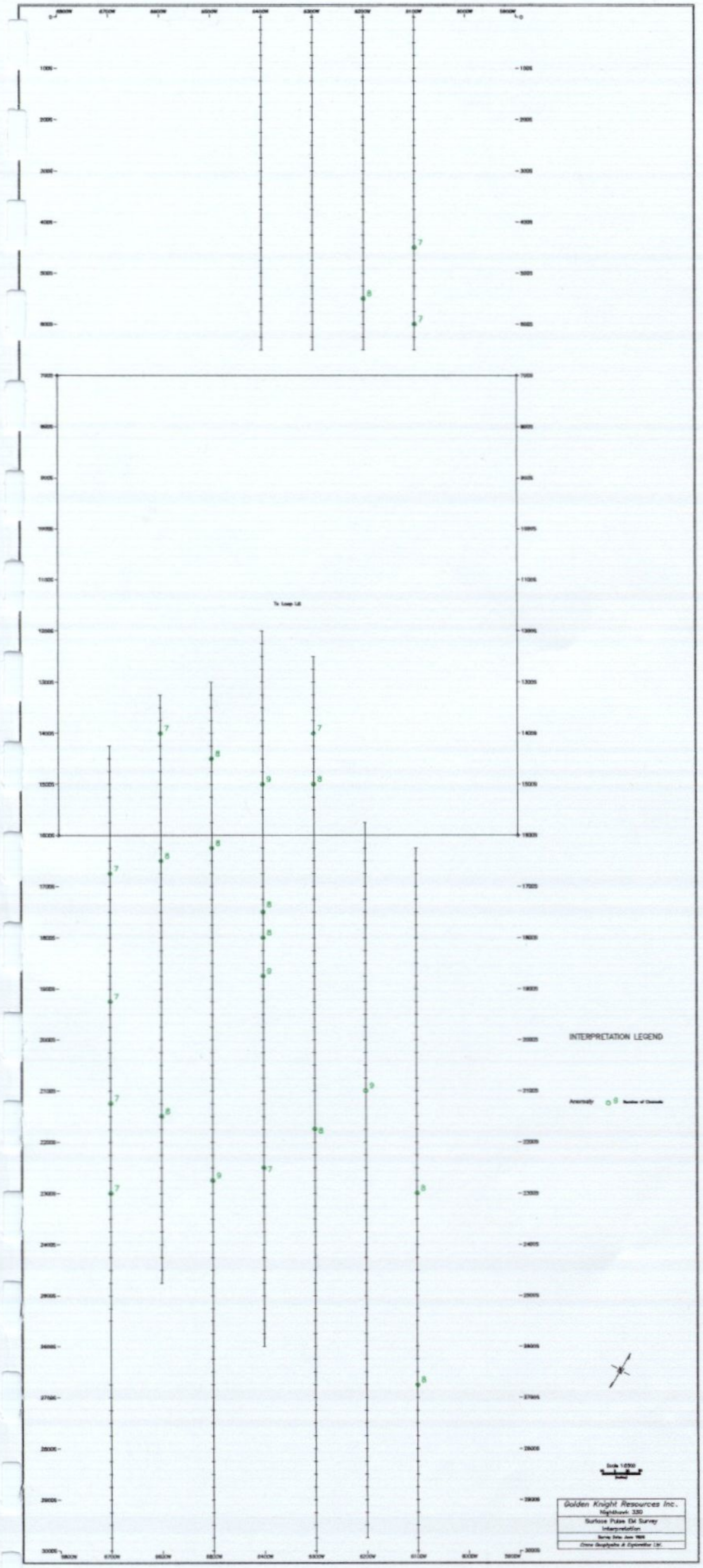
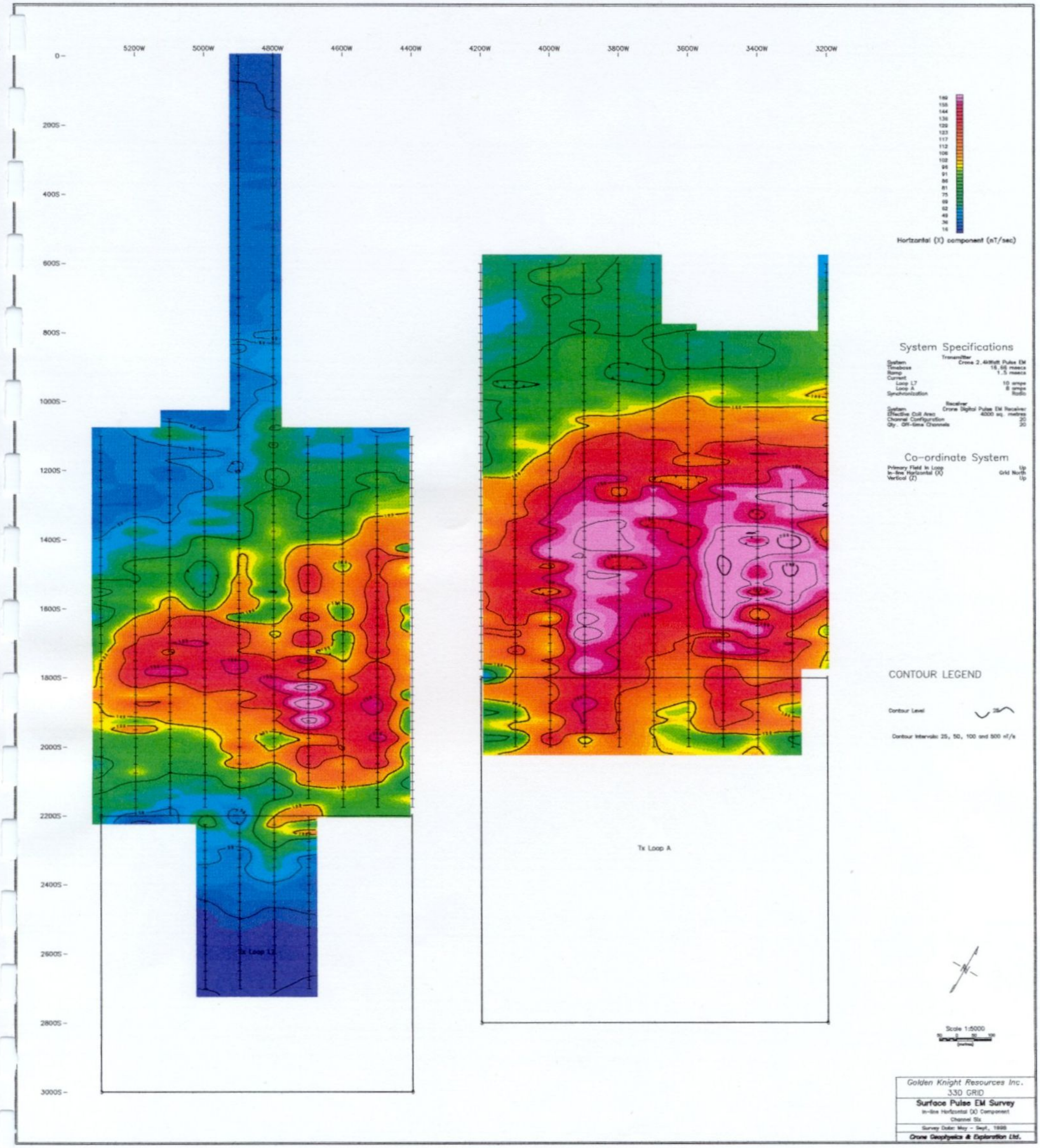
400S
600S
800S
1000S
1200S
1400S
1600S
1800S
2000S
2200S
2400S
2600S
2800S
3000S
CLS9722
CLS9718
SK9710
SK9709
CLS9708
SK9719
SK9720
CLS9717
CLS9846
CLS9707
CLS9727
SK9824
CLS9730
CLS9853
CLS9859
CLS9839
CLS9706
CLS9836
CLS9728
CLS9858
CLS9856
CLS9857
Scale 1:5000
Cross Lake Minerals Ltd.
Golden Knight Resources Inc.
330 Grid
3-D Borehole Pulse EM Survey
Borehole Location Map With Interpreted Conductors


Golden Knight Resources
Nighthawk 330
Surface Pulse EM Survey
Channel 5x
Horizontal X Contours
CONTOUR LEGEND
SYSTEM SPECIFICATIONS
(nT/sec)


INTERPRETATION LEGEND
Golden Knight Resources Inc.
Surface Pulse EM Survey
Interpretation


5200W
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4400W
4200W
4000W
3800W
3600W
3400W
3200W
0
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400S
600S
800S
1000S
1200S
1400S
1600S
1800S
2000S
2200S
2400S
2600S
2800S
3000S
169
155
144
136
129
123
117
112
106
102
96
91
86
81
75
69
62
49
36
16
Horizontal (X) component (nT/sec)
System Specifications
Transmitter
System Crone 2.4kWatt Pulse EM
Timebase 16.66 msecs
Ramp 1.5 msecs
Current
Loop L7 10 amps
Loop A 8 amps
Synchronization Radio
Receiver
System Crone Digital Pulse EM Receiver
Effective Coil Area 4000 sq. metres
Channel Configuration 20
Qty. Off-time Channels 20
Co-ordinate System
Primary Field In Loop Up
In-line Horizontal (X) Grid North
Vertical (Z) Up
CONTOUR LEGEND
Contour Level
Contour Intervals: 25, 50, 100 and 500 nT/s
Tx Loop A
Tx Loop L7
Scale 1:5000
Golden Knight Resources Inc.
330 GRID
Surface Pulse EM Survey
In-line Horizontal (X) Component
Channel Six
Crone Geophysics & Exploration Ltd.


5400W
5200W
5000W
4800W
4600W
4400W
4200W
4000W
3800W
3600W
3400W
3200W
0
200S
400S
600S
800S
1000S
1200S
1400S
1600S
1800S
2000S
2200S
2400S
2600S
2800S
3000S
Tx Loop L1
Tx Loop A
INTERPRETATION LEGEND
Anomaly
9 Number of Channels
Scale 1:5000
(metres)
Golden Knight Resources Inc.
330 GRID
Surface Pulse EM Survey
Interpretation
Survey Date: May - Sept, 1998
Crone Geophysics & Exploration Ltd.

APPENDIX B:

PULSE EM DATA PROFILES

CRONE GEOPHYSICS & EXPLORATION LTD

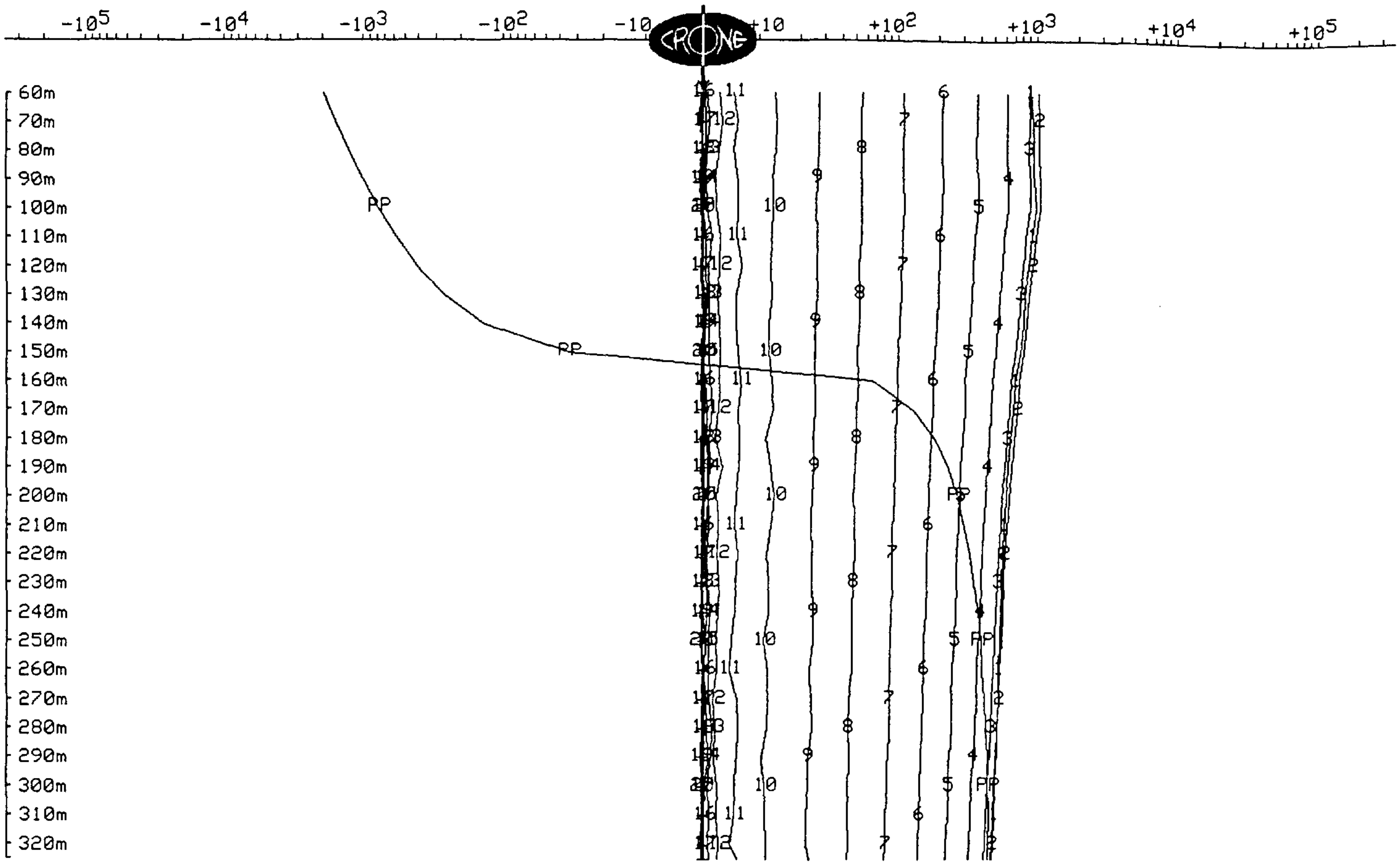
BOREHOLE PEM

Client : Golden Knight Resources Inc
Grid : 330
Date : Feb 6, 1998

Hole : SK9709
Tx Loop : L1
File name : SK09Z.PEM

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

Scale: 1:2500

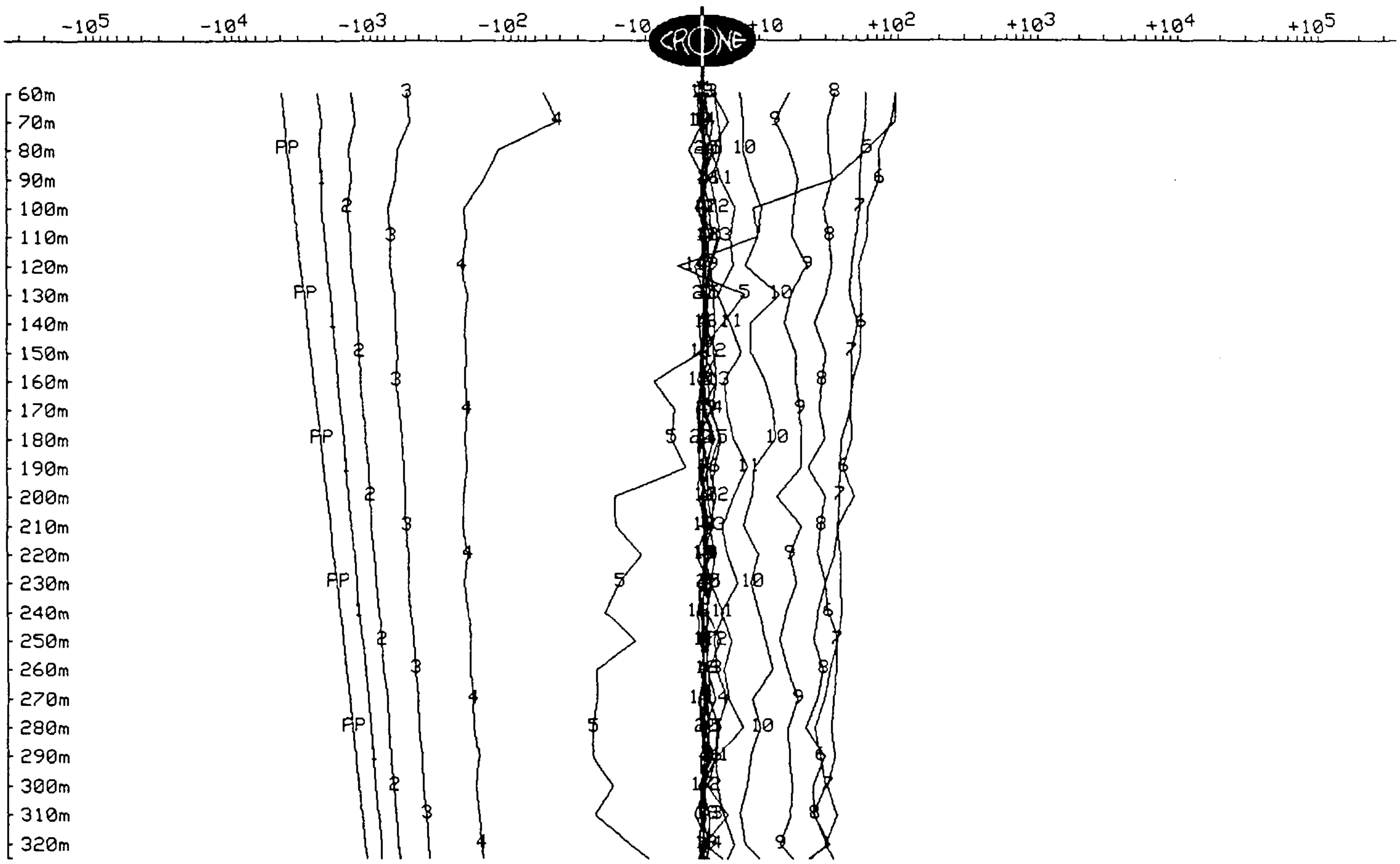


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	:	SK9709
Grid	: 330	Tx Loop	:	L1
Date	: Feb 7, 1998	File name	:	SK09XYT.PEM

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

Scale: 1:2500

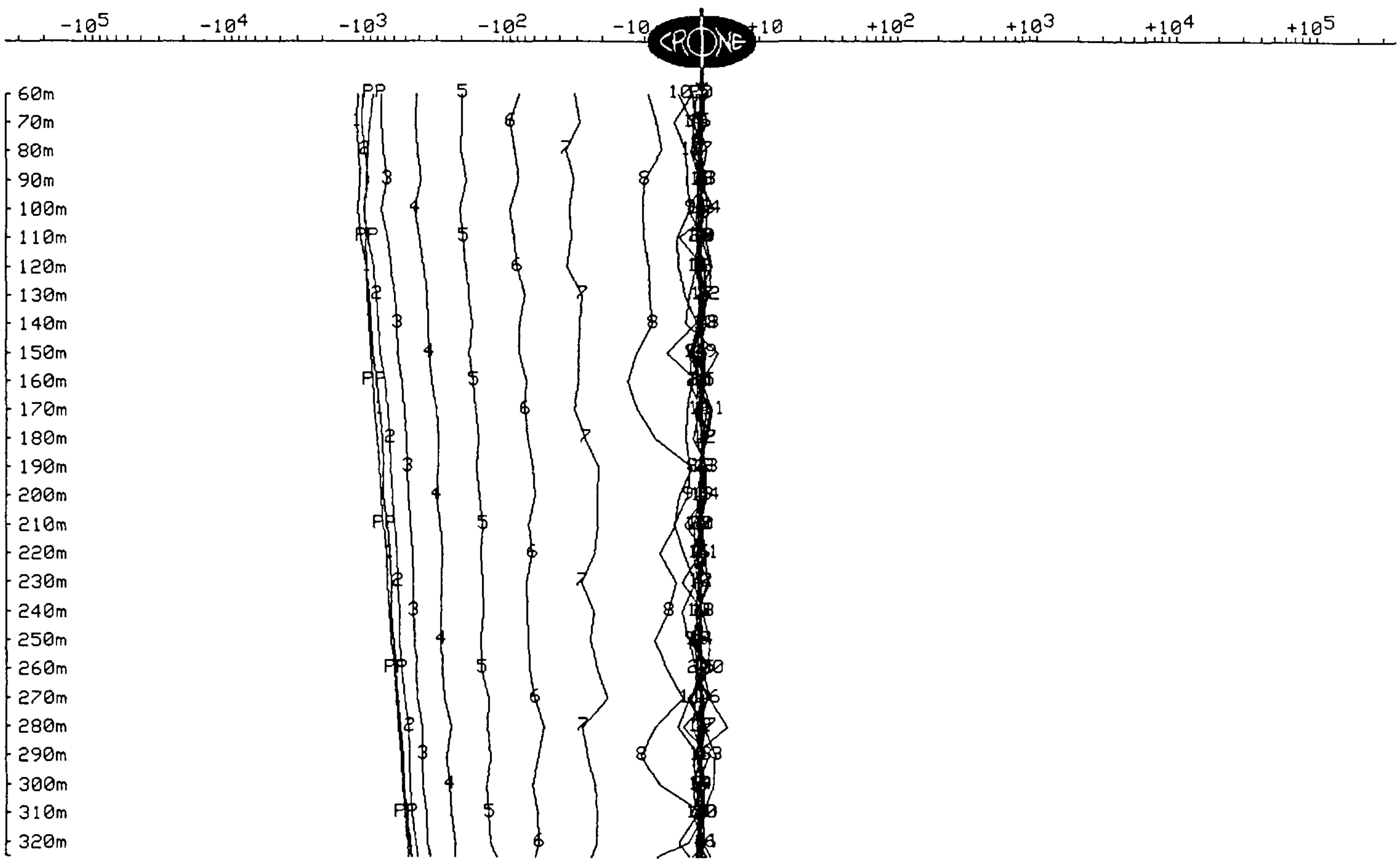


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client : Golden Knight Resources IncHole : SK9709
Grid : 330 Tx Loop : L1
Date : Feb 7, 1998 File name : SK09XYT.PEM

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

Scale: 1:2500

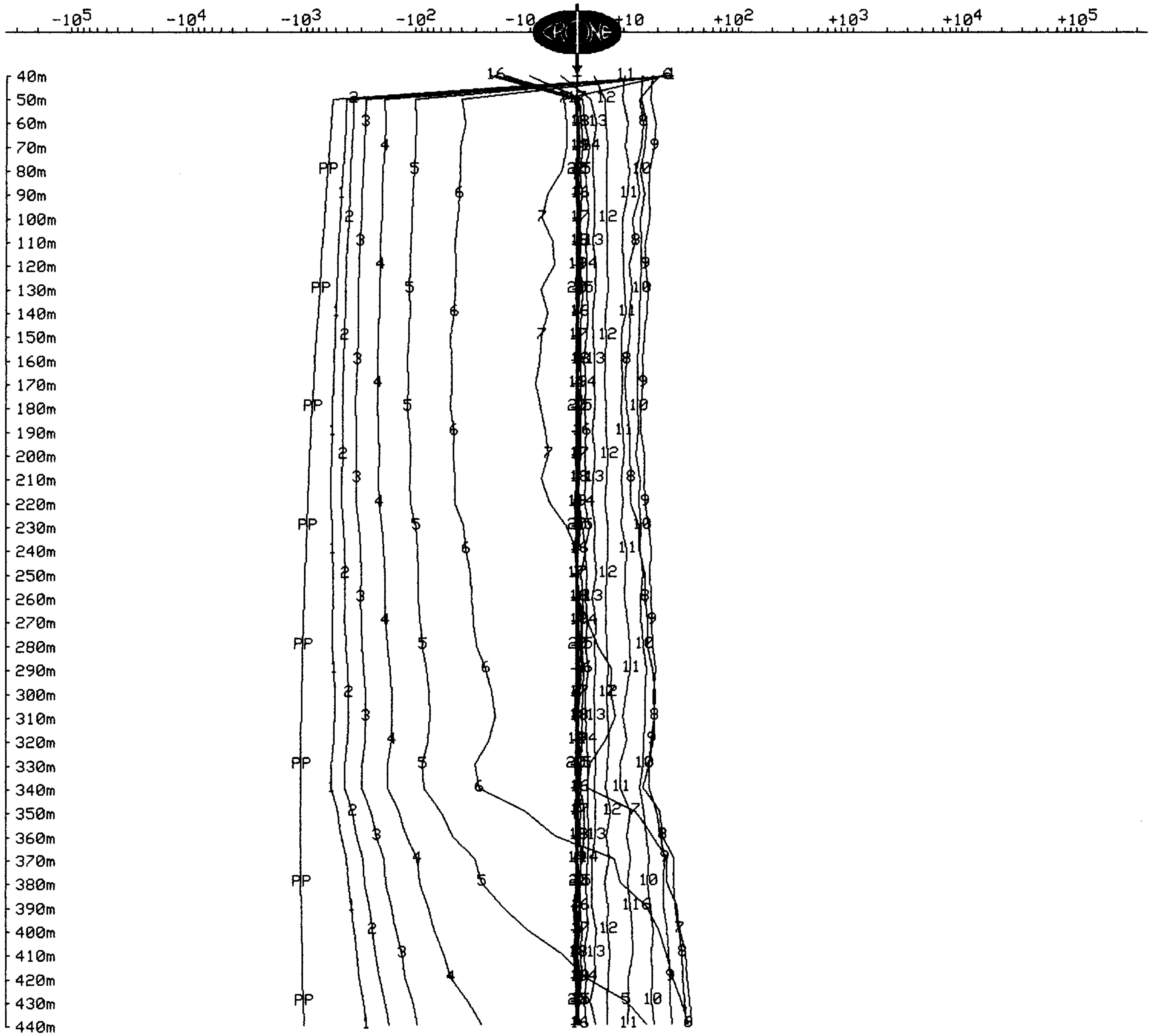


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9710
Grid	: 330 Grid	Tx Loop	: A
Date	: September 13, 1998	File name	: SK9710Z.PEM

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

Scale: 1:2500

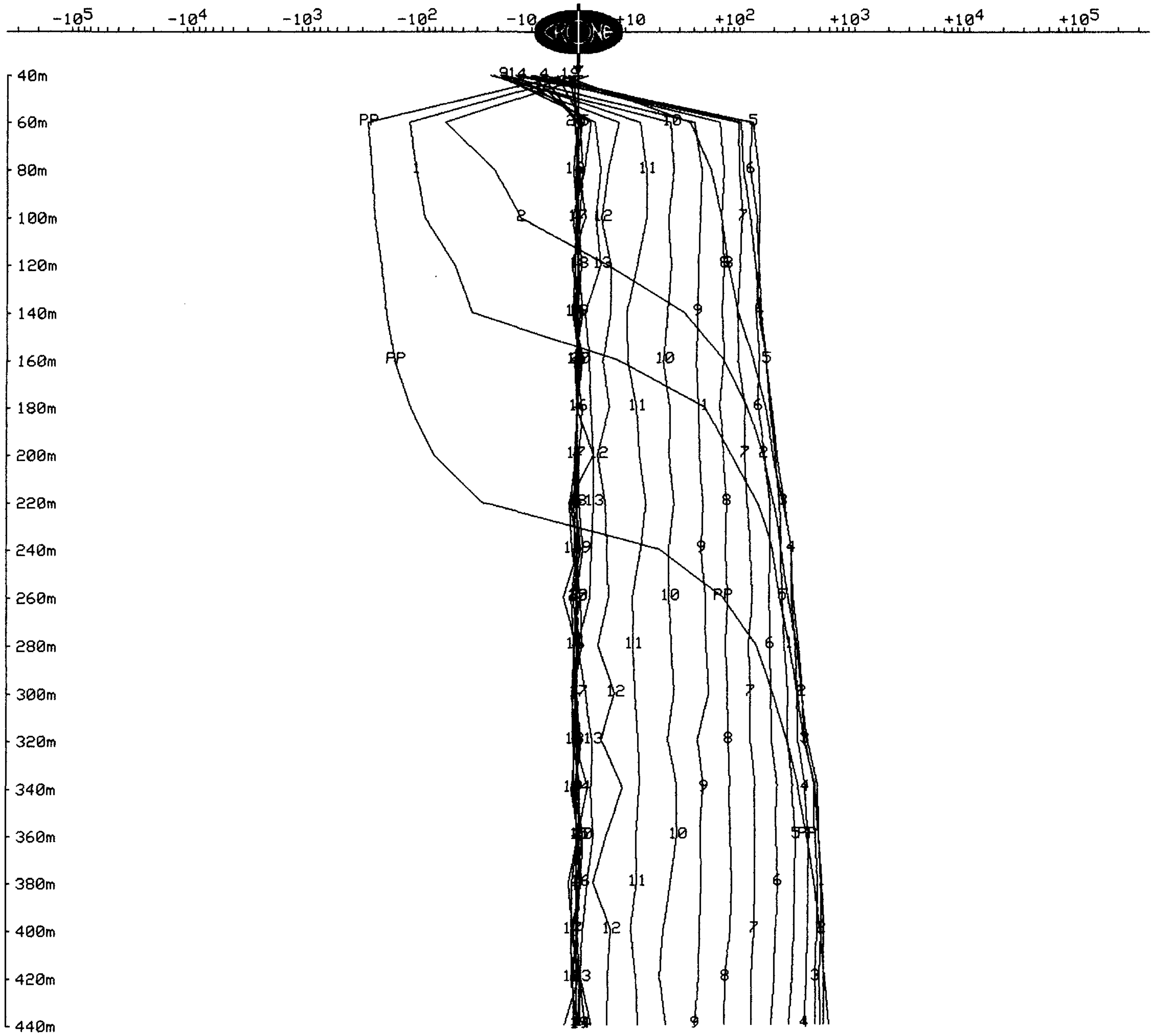


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resoources	InHole	:	SK9710
Grid	: 330 Grid	Tx Loop	:	A
Date	: September 13, 1998	File name	:	SK9710XT.PEM

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

Scale: 1:2500

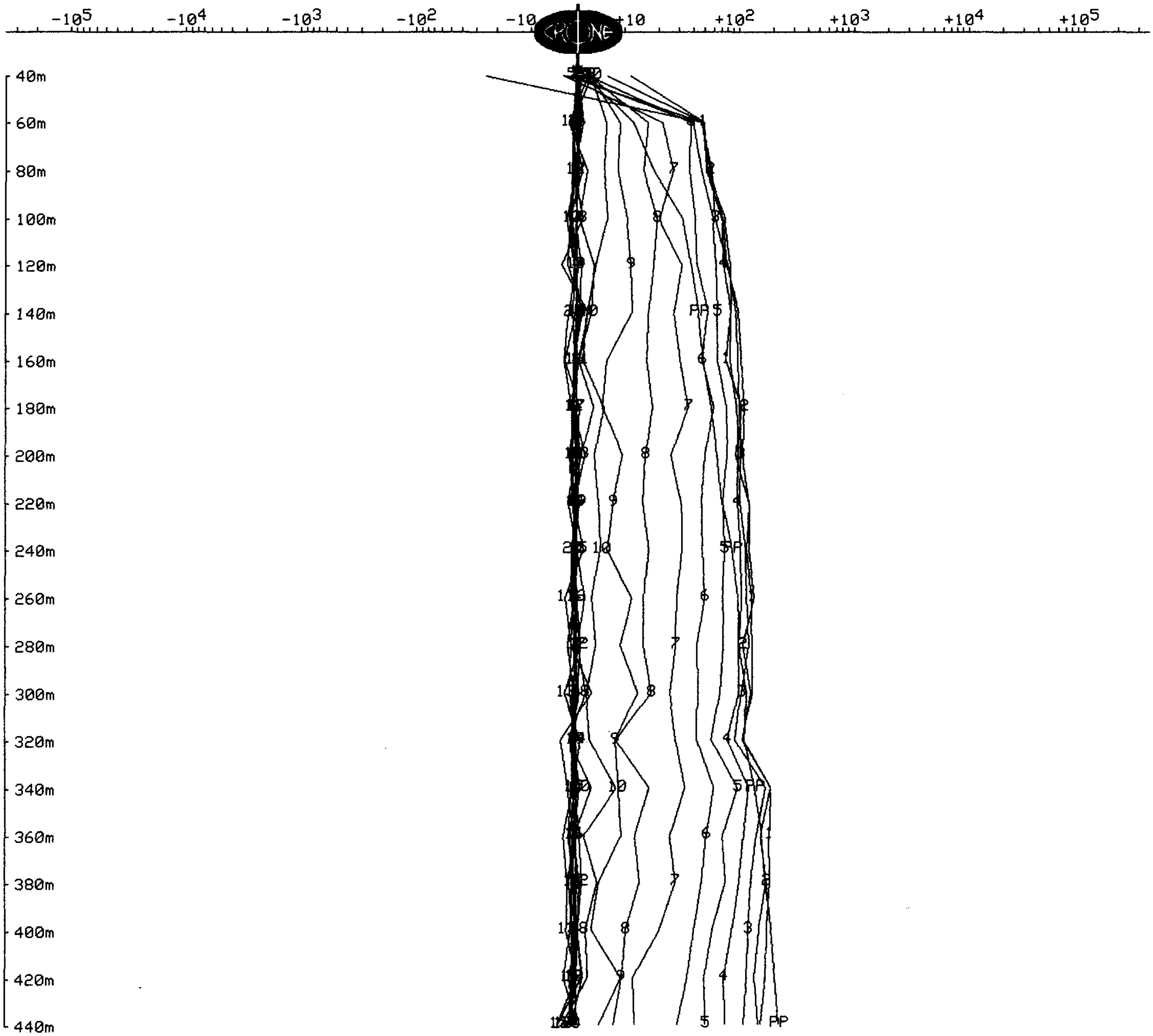


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resoources	InHole	: SK9710
Grid	: 330 Grid	Tx Loop	: A
Date	: September 13, 1998	File name	: SK9710XT.PEM

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

Scale: 1:2500



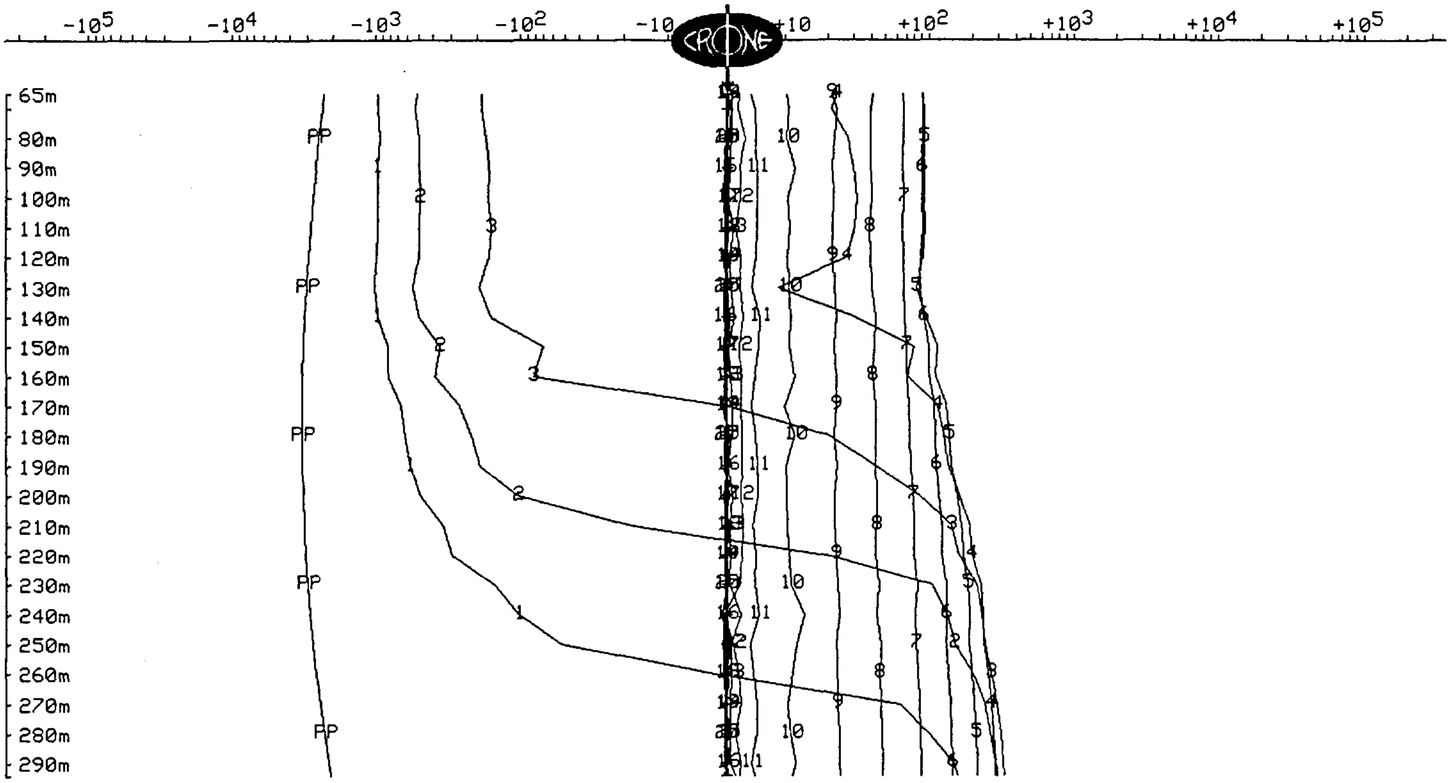
CRONE GEOPHYSICS & EXPLORATION LTD

BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9716
Grid	: 330	Tx Loop	: L1
Date	: Feb 12, 1998	File name	: SK16Z.PEM

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

Scale: 1:2500



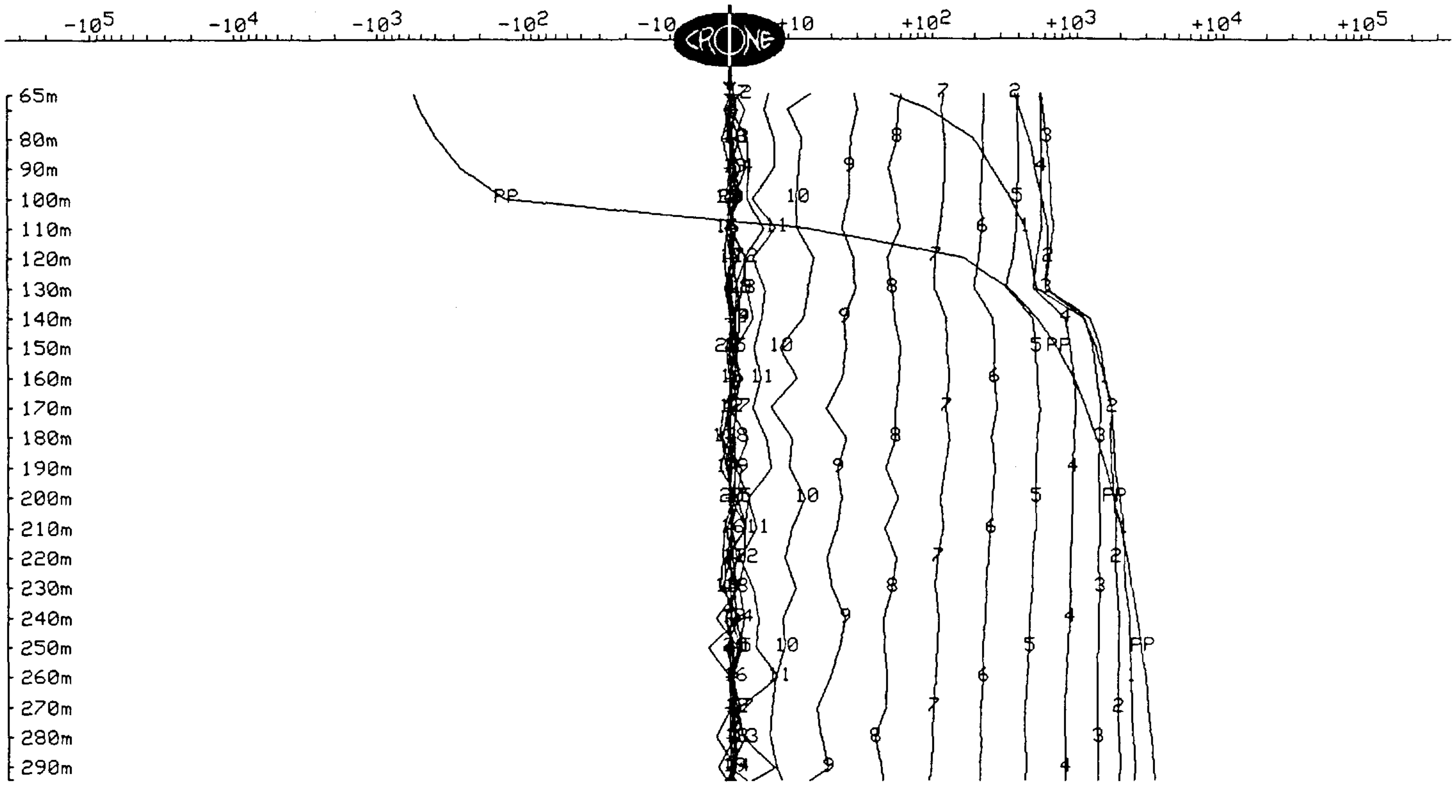
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client : Golden Knight Resources Inc
Grid : 330
Date : Feb 12, 1998

Hole : SK9716
Tx Loop : L1
File name : SK16XYT.PEM

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

Scale: 1:2500

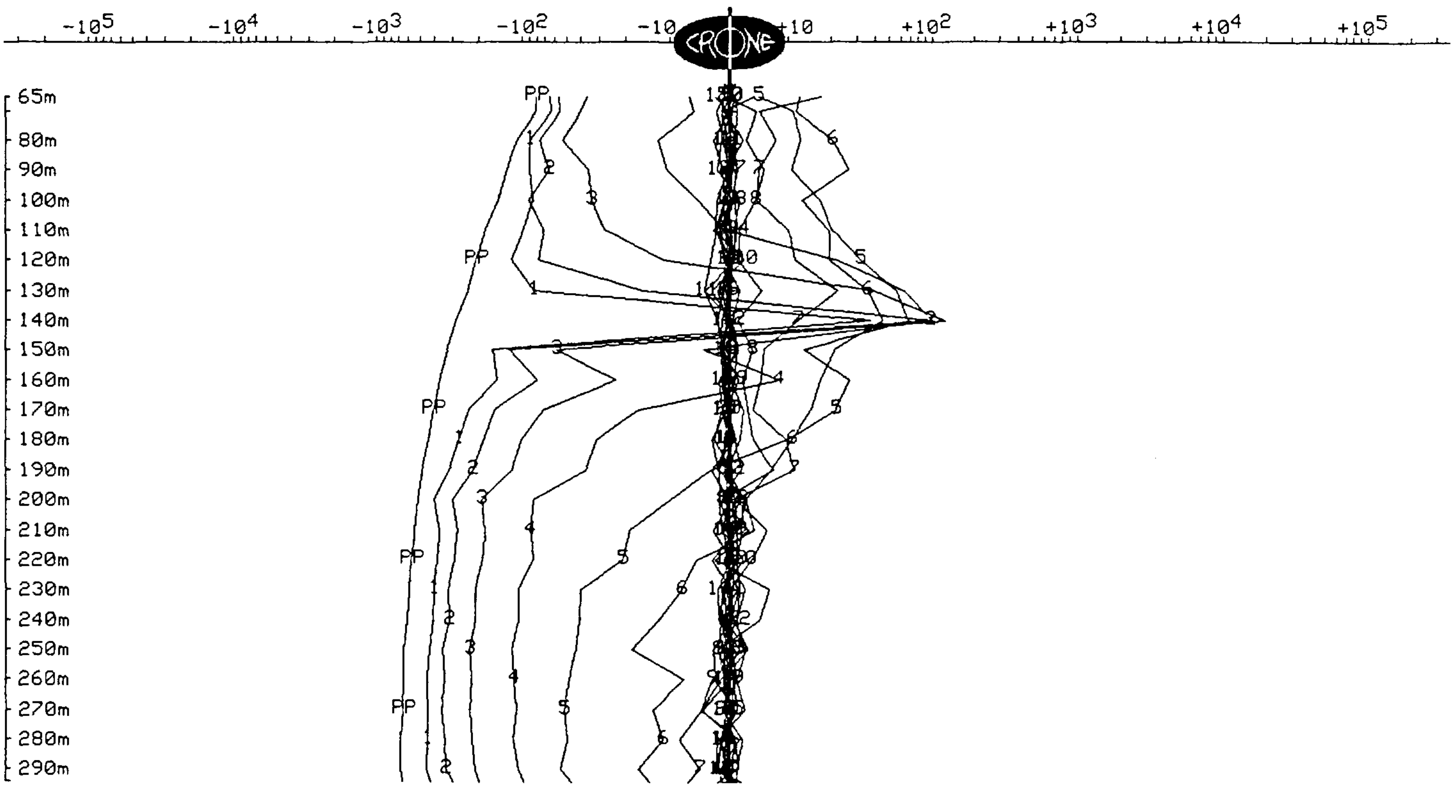


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9716
Grid	: 330	Tx Loop	: L1
Date	: Feb 12, 1998	File name	: SK16XYT.PEM

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

Scale: 1:2500

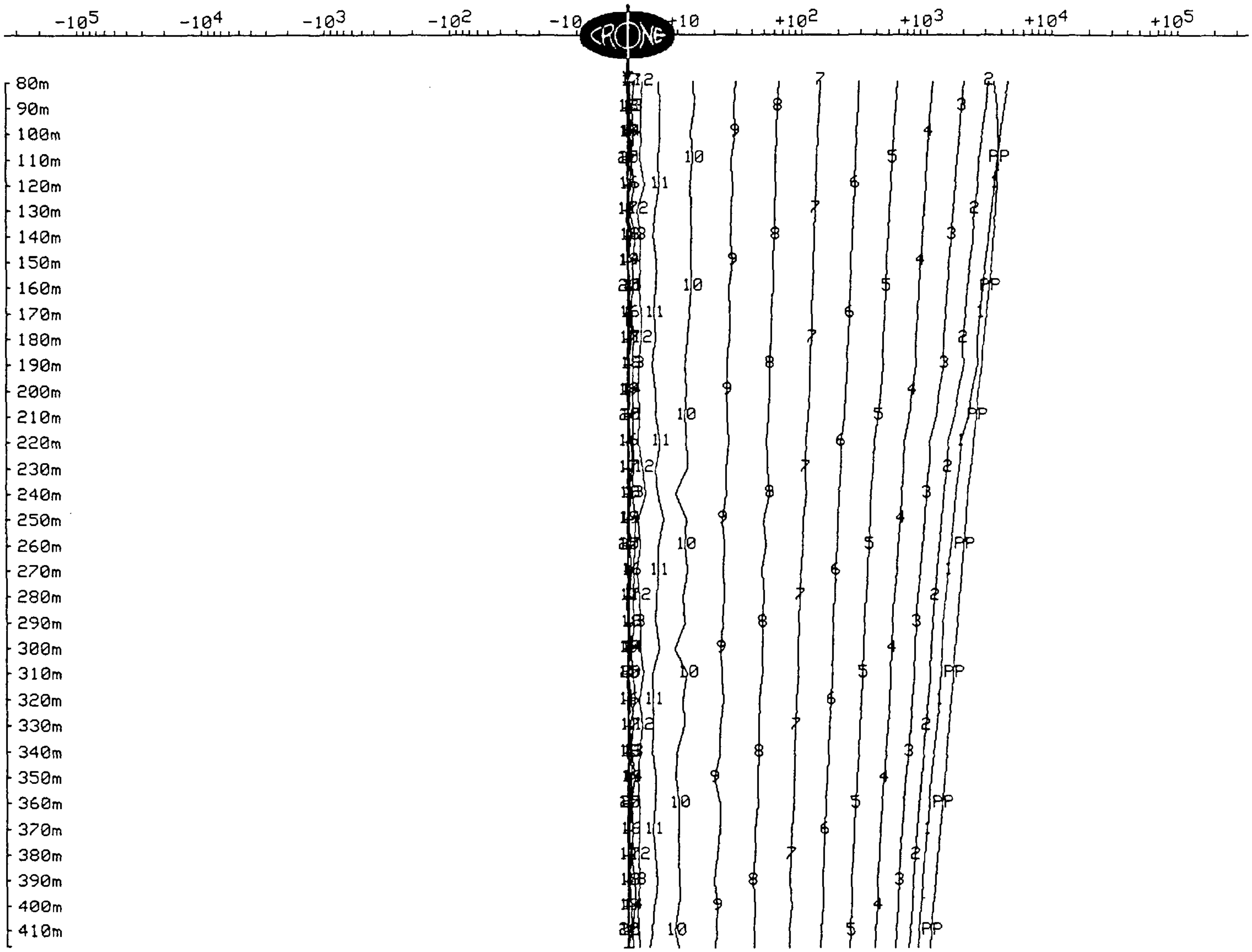


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9719
Grid	: 330	Tx Loop	: L1
Date	: Feb 7, 1998	File name	: SK19Z.PEM

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

Scale: 1:2500

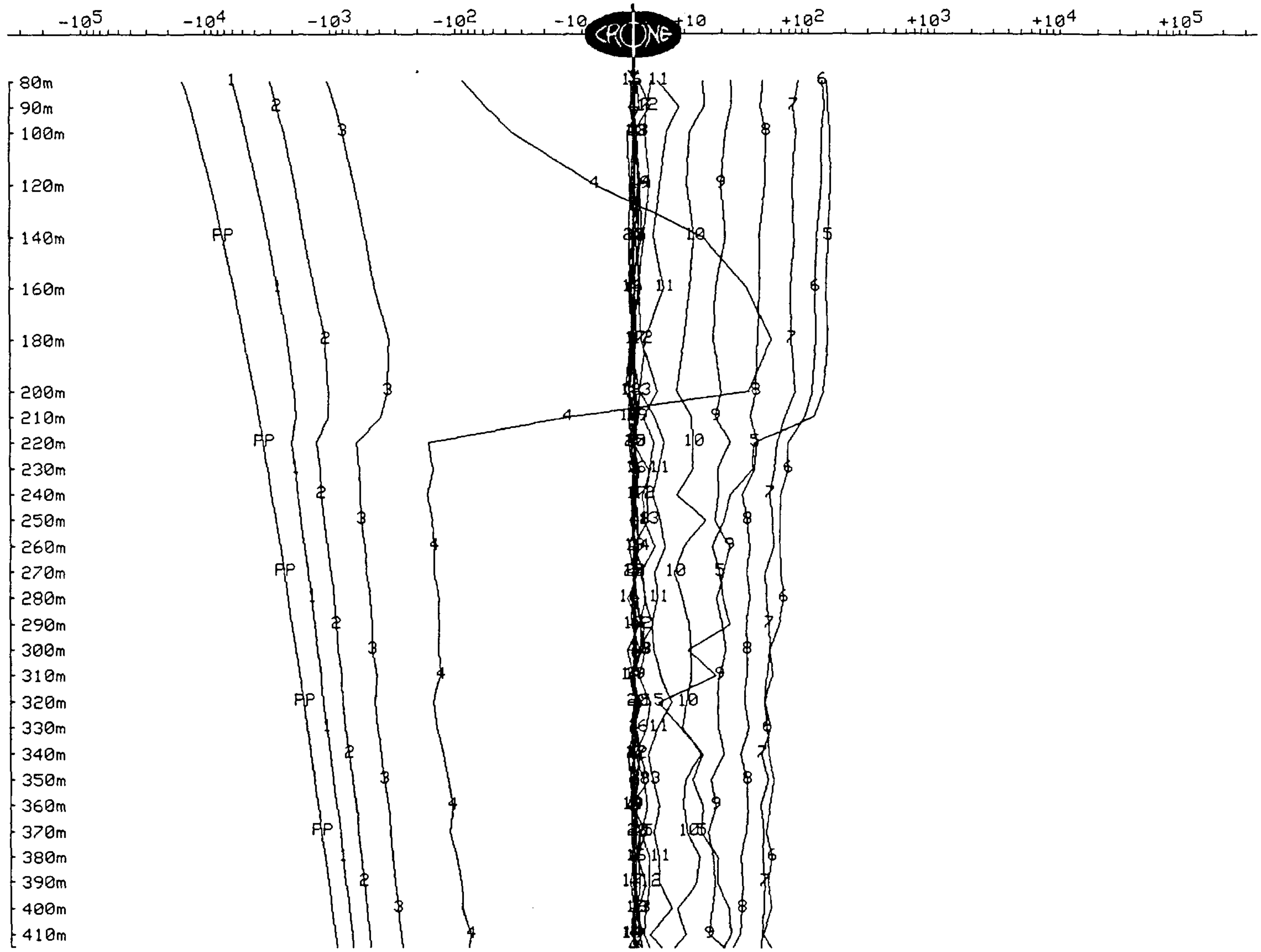


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9719
Grid	: 330	Tx Loop	: L1
Date	: Feb 6, 1998	File name	: SK19XYT.PEM

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

Scale: 1:2500



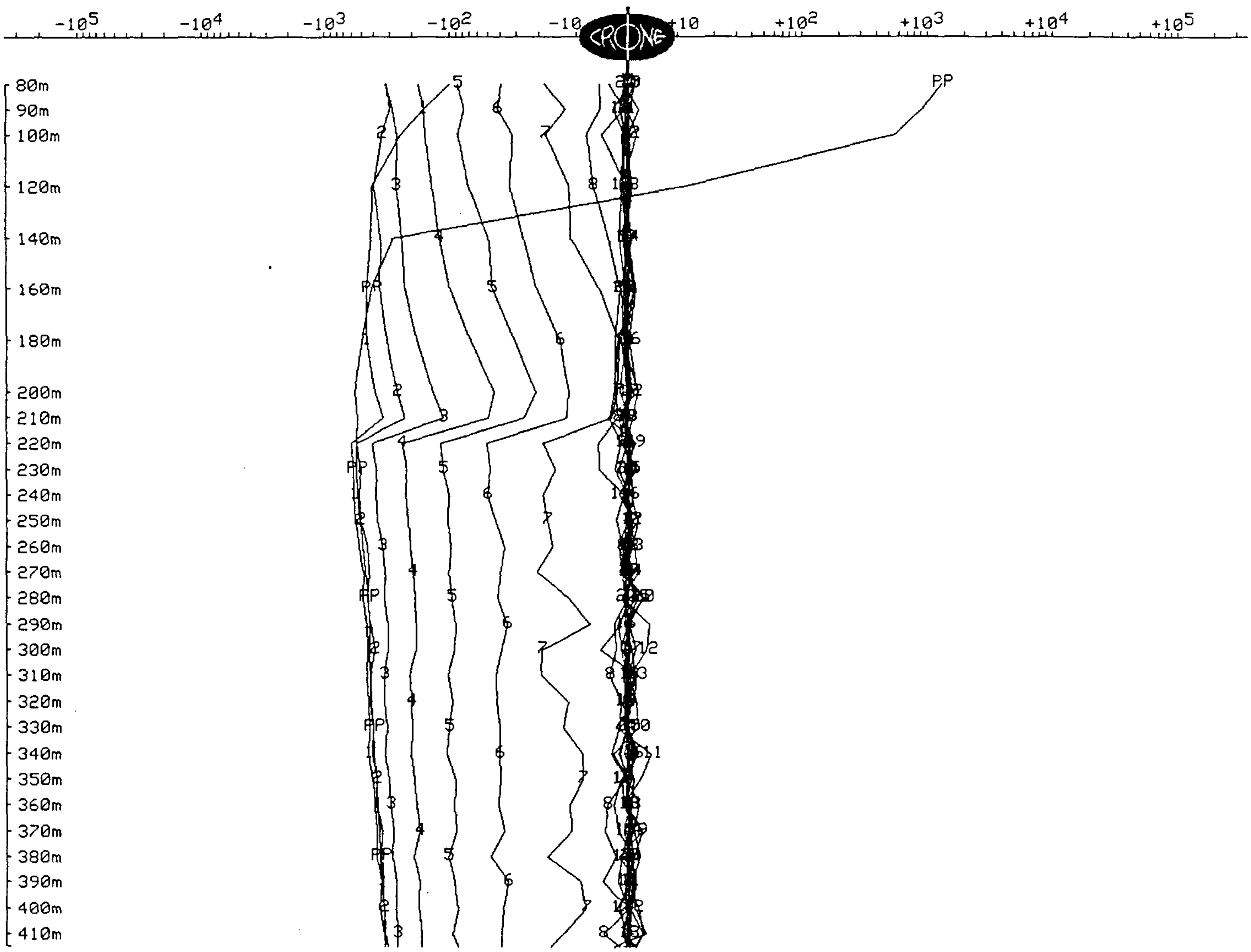
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client : Golden Knight Resources Inc
Grid : 330
Date : Feb 6, 1998

Hole : SK9719
Tx Loop : L1
File name : SK19XYT.PEM

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

Scale: 1:2500

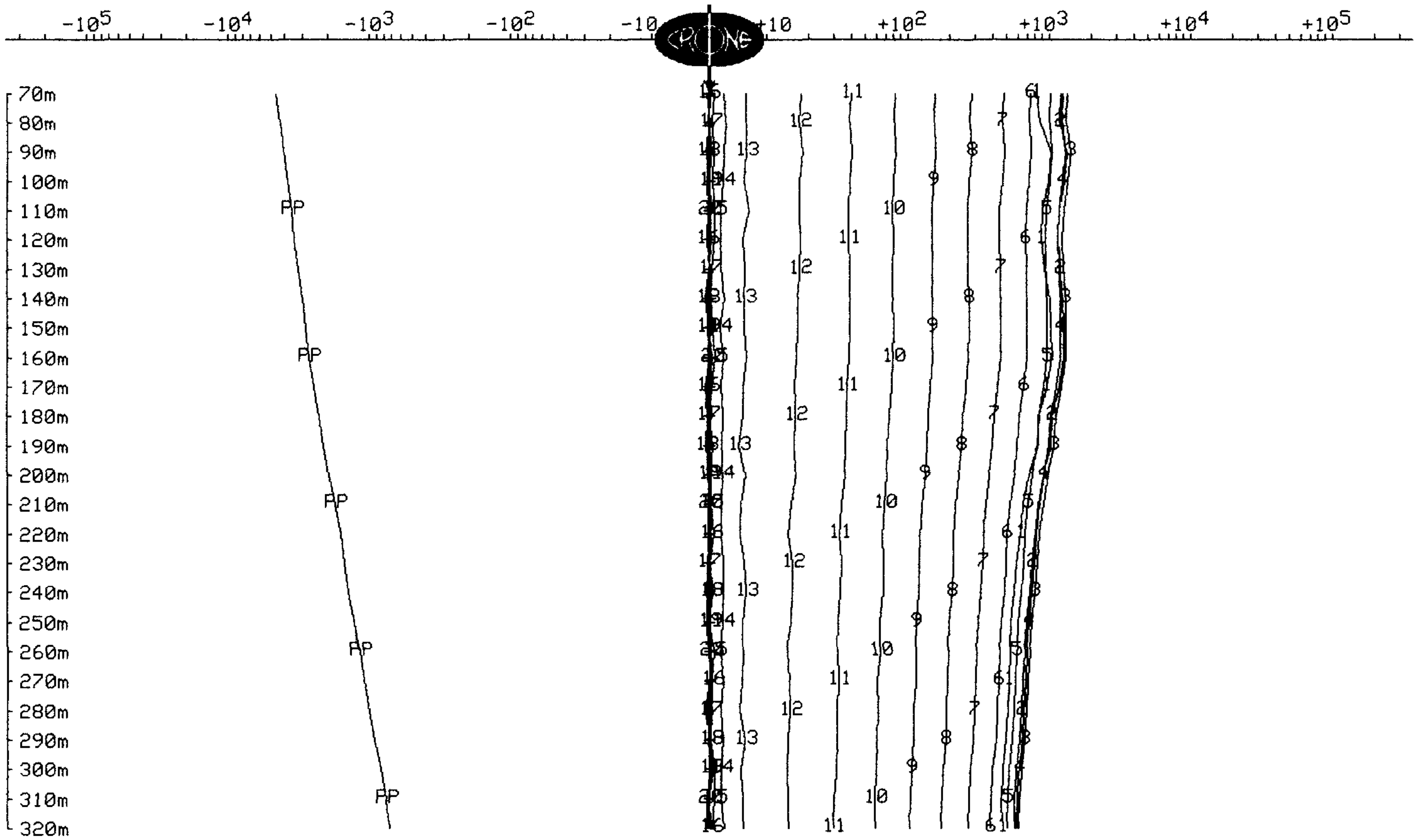


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Ltd	Hole	: SK9720
Grid	: 330 Grid	Tx Loop	: A
Date	: Aug 28, 1998	File name	: 9720Z.PEM

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

Scale: 1:2500



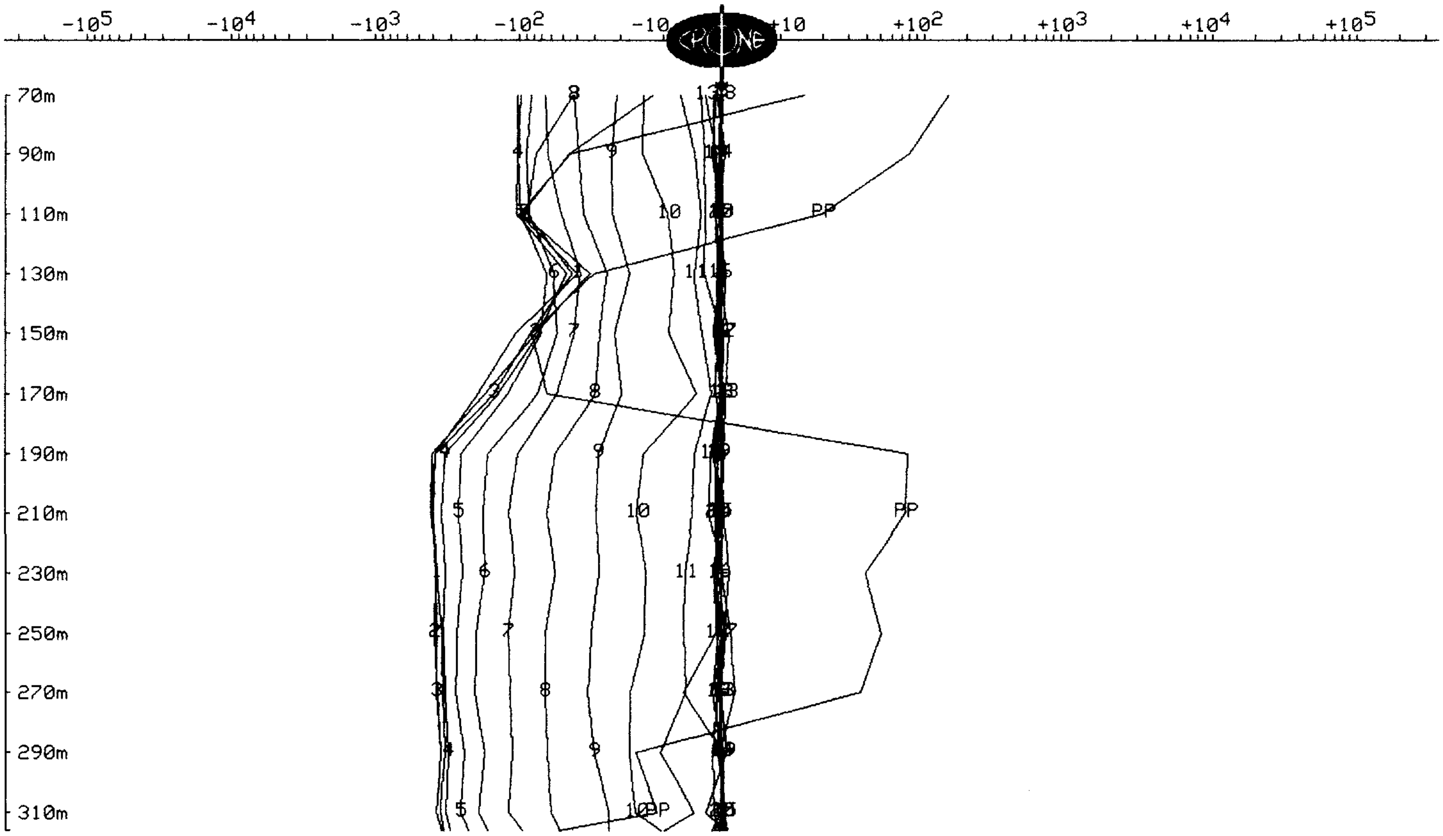
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client : Golden Knight Resources Ltd
Grid : 330 Grid
Date : Aug 28, 1998

Hole : SK9720
Tx Loop : A
File name : 9720XYT.PEM

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

Scale: 1:2500

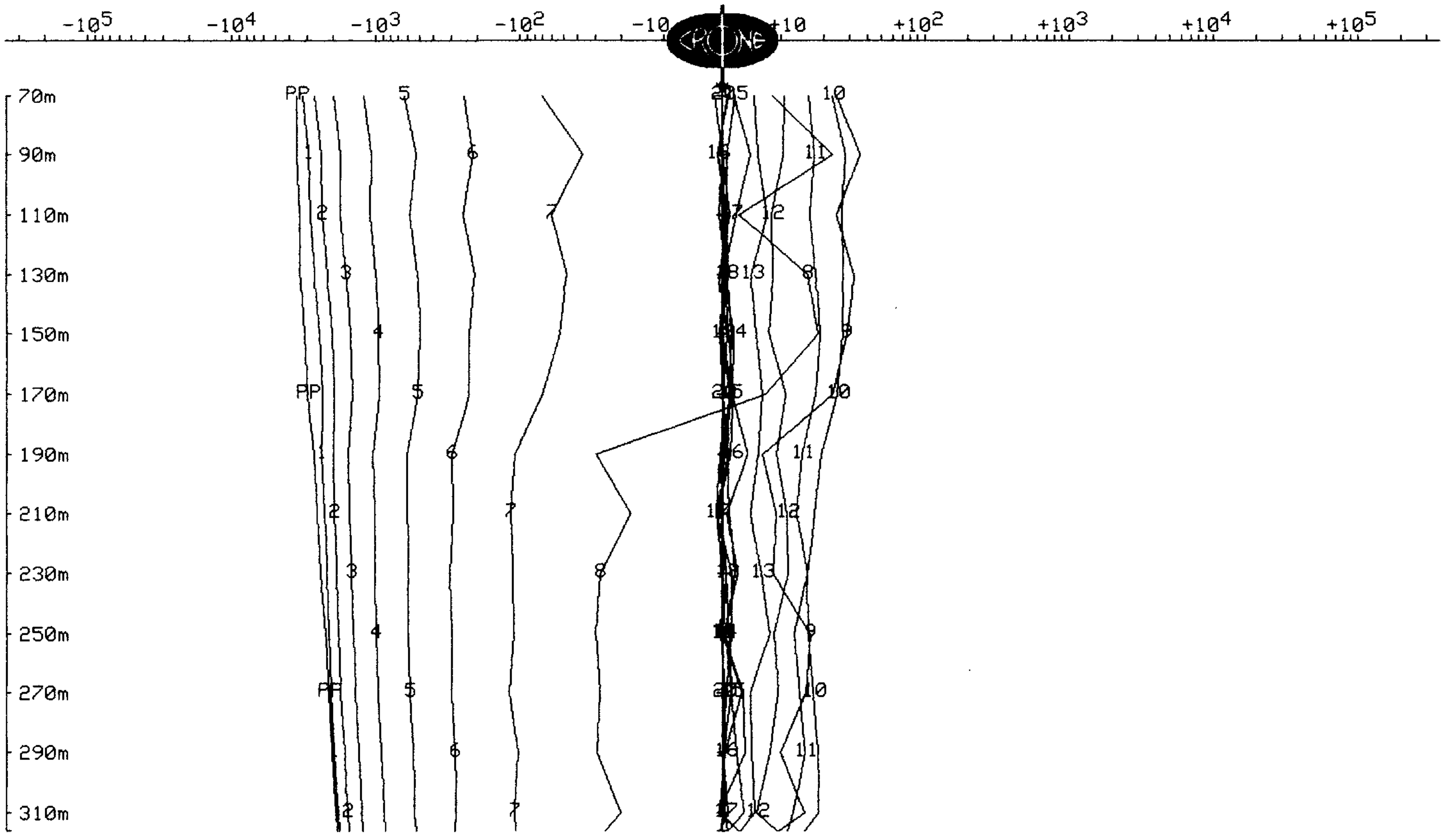


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Ltd	Hole	: SK9720
Grid	: 330 Grid	Tx Loop	: A
Date	: Aug 28, 1998	File name	: 9720XYT.PEM

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

Scale: 1:2500

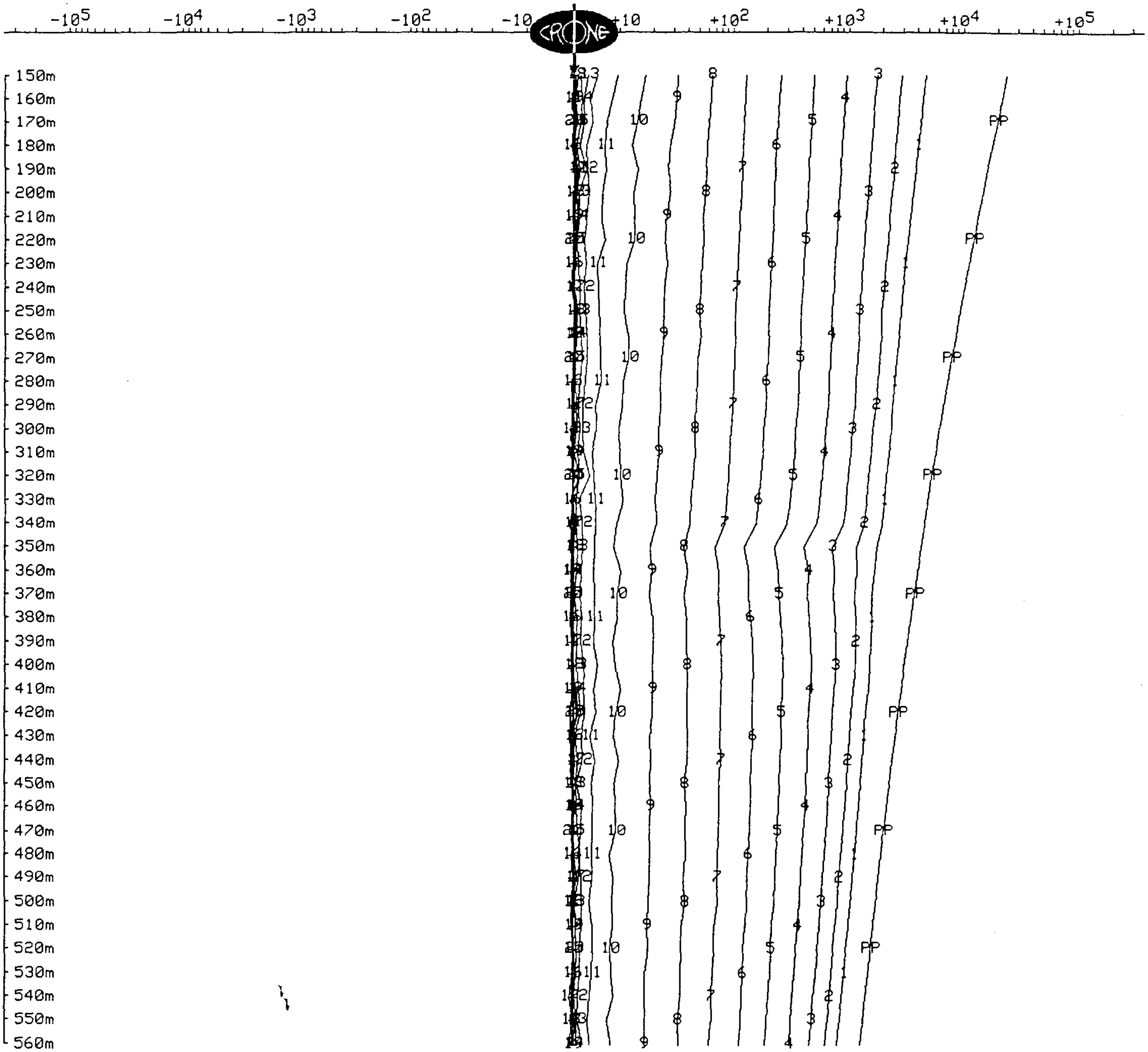


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9824
Grid	: 330	Tx Loop	: L1
Date	: Mar 18, 1998	File name	: SK9824Z.PEM

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

Scale: 1:2500

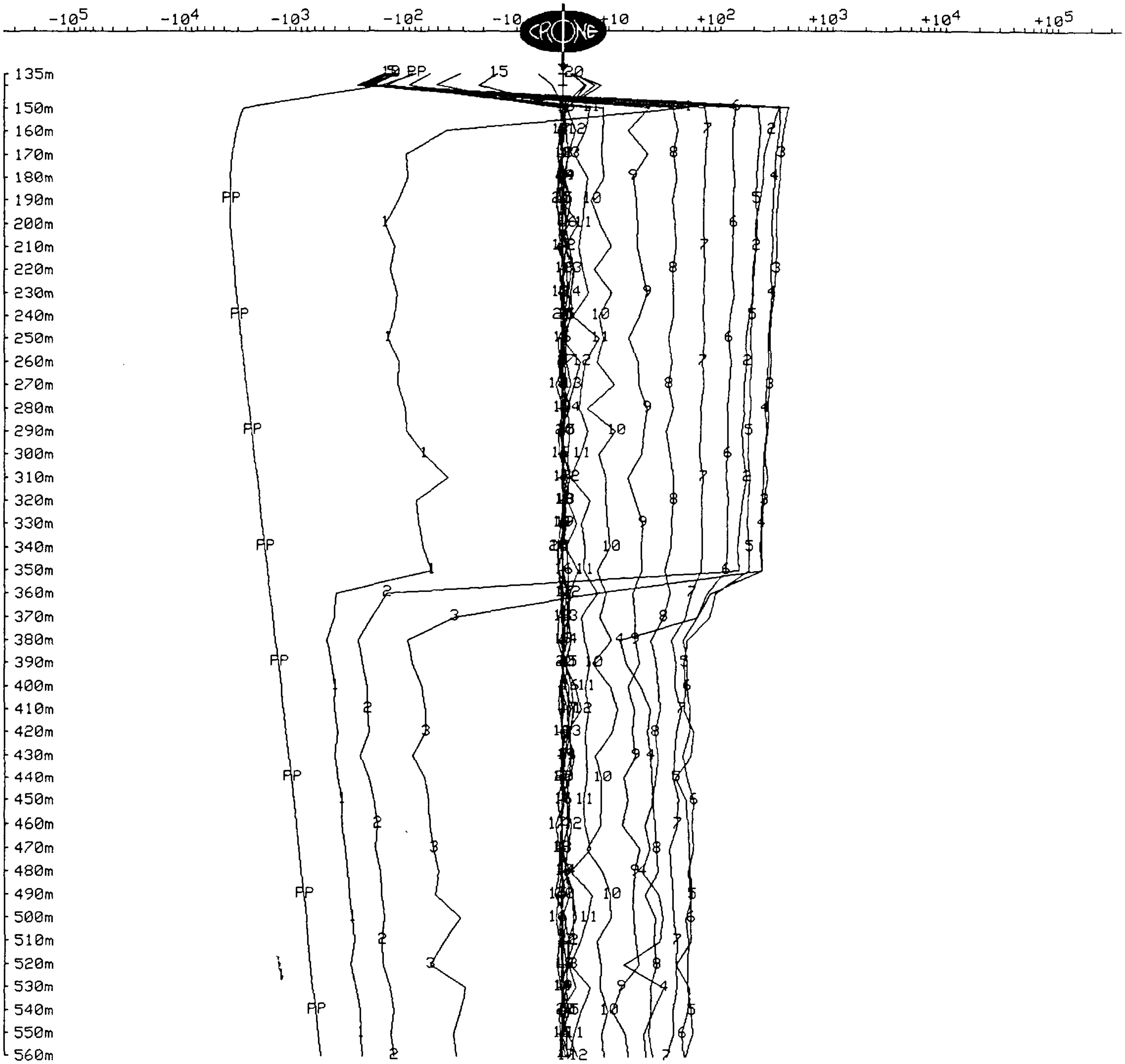


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9824
Grid	: 330	Tx Loop	: L1
Date	: Mar 17, 1998	File name	: SK24XYT.PEM

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

Scale: 1:2500

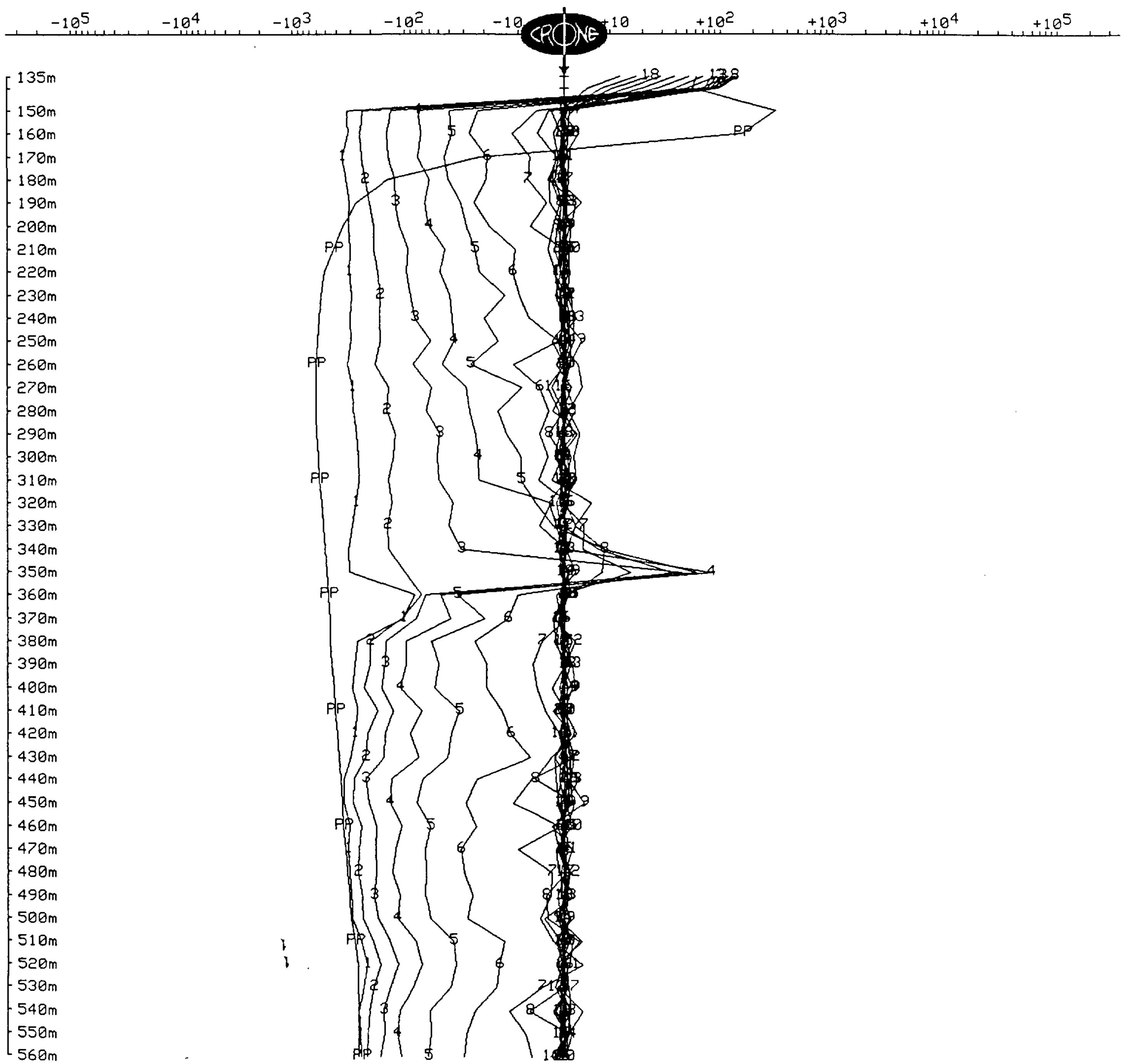


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client : Golden Knight Resources Inc
Grid : 330
Date : Mar 17, 1998
Hole : SK9824
Tx Loop : L1
File name : SK24XYT.PEM

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

Scale: 1:2500

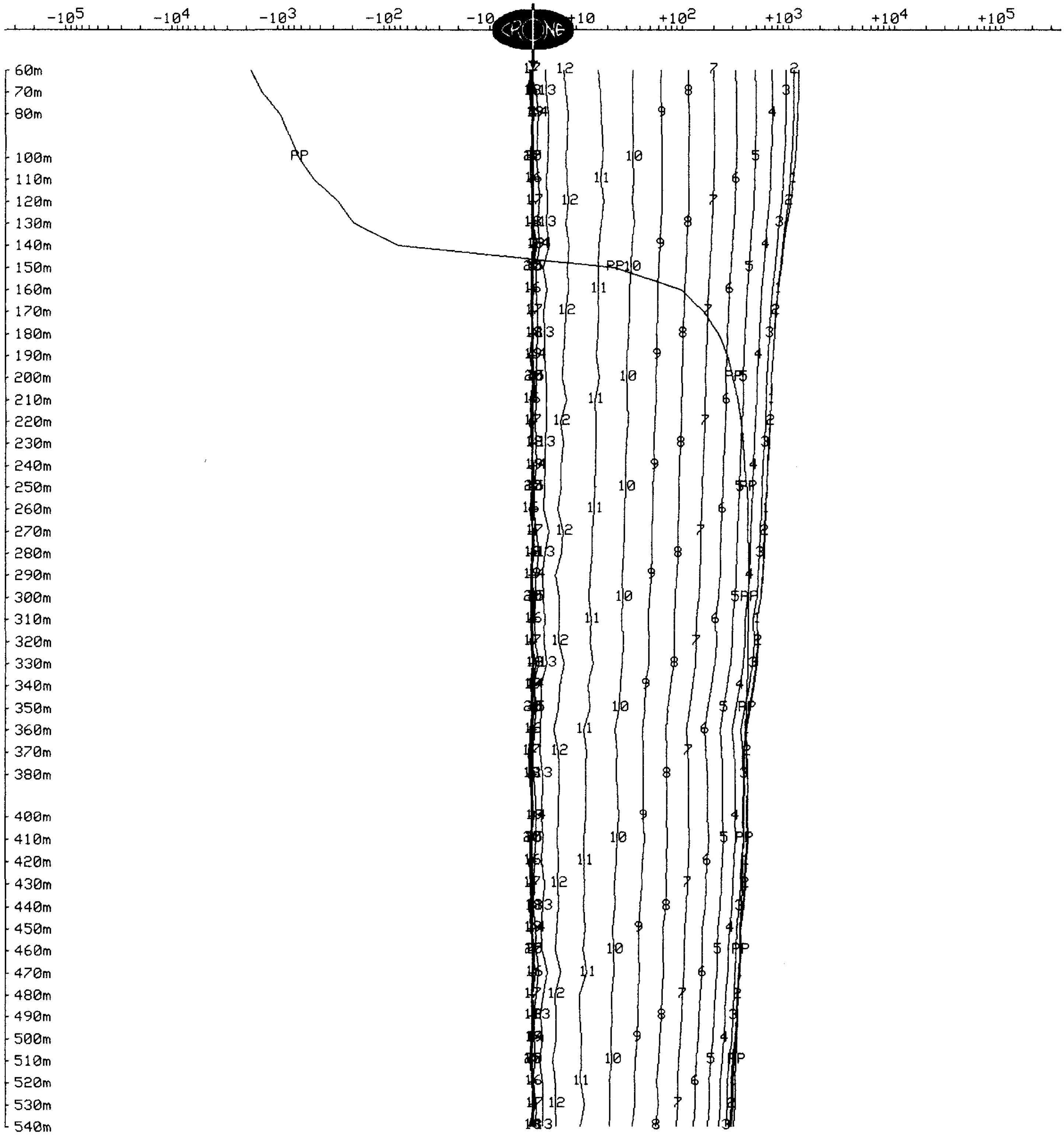


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9824
Grid	: 330 Grid	Tx Loop	: A
Date	: Aug 23, 1998	File name	: 9824Z.PEM

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

Scale: 1:2500

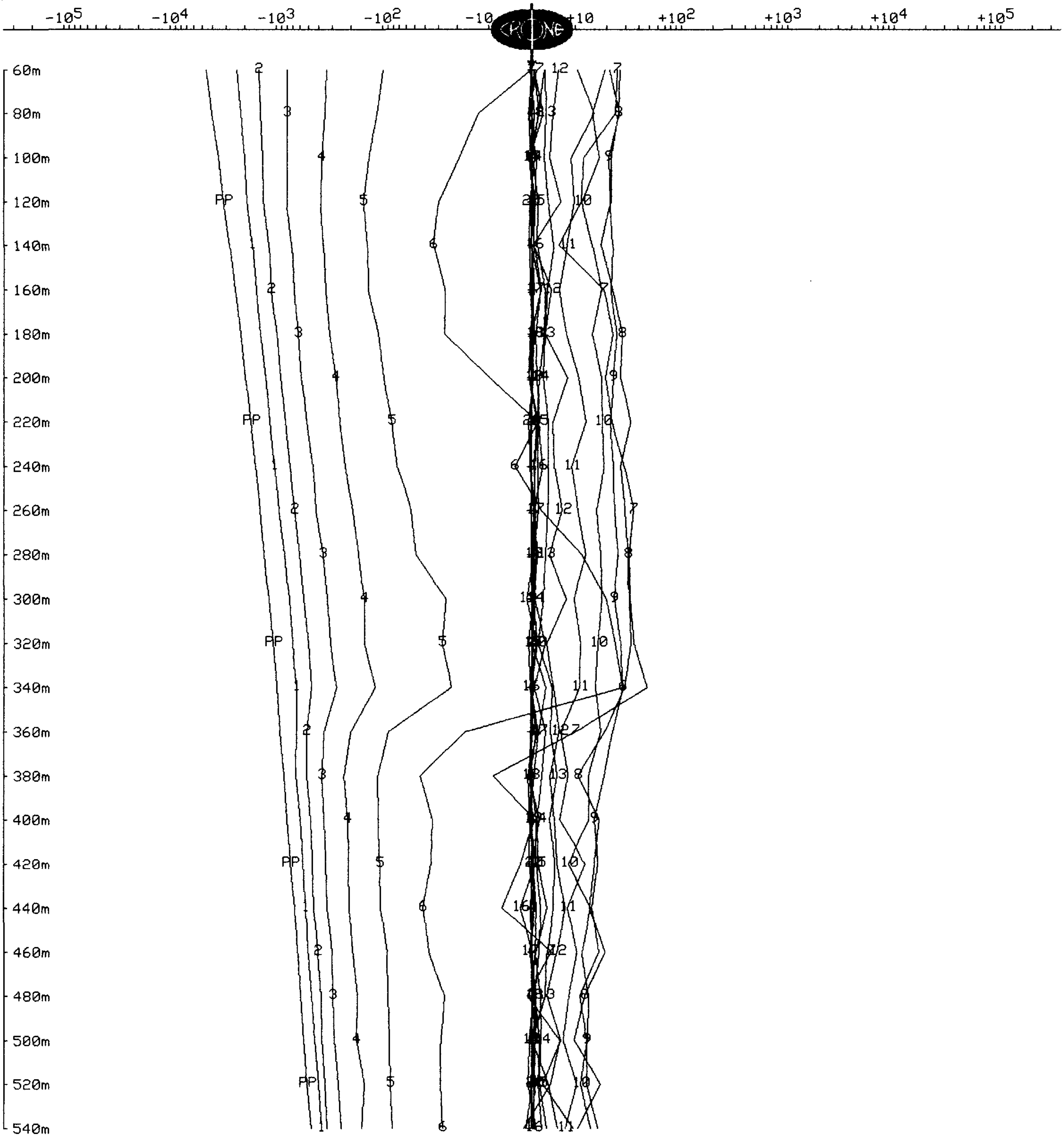


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Golden Knight Resources Inc	Hole	: SK9824
Grid	: 330 Grid	Tx Loop	: A
Date	: Aug 23, 1998	File name	: 9824XYT.PEM

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

Scale: 1:2500

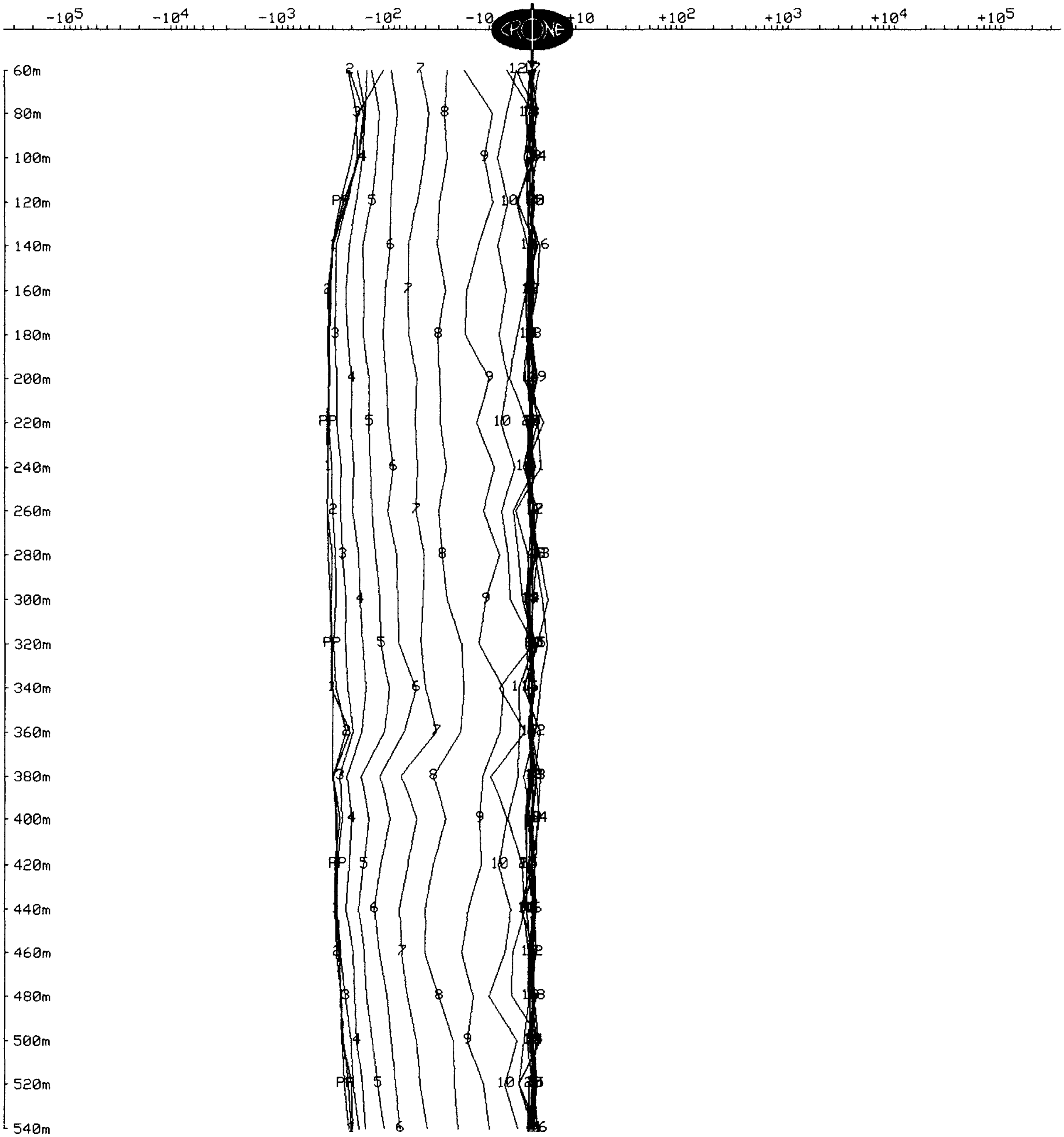


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	:	Golden Knight Resources Inc	Hole	:	SK9824
Grid	:	330 Grid	Tx Loop	:	A
Date	:	Aug 23, 1998	File name	:	9824XYT.PEM

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

Scale: 1:2500

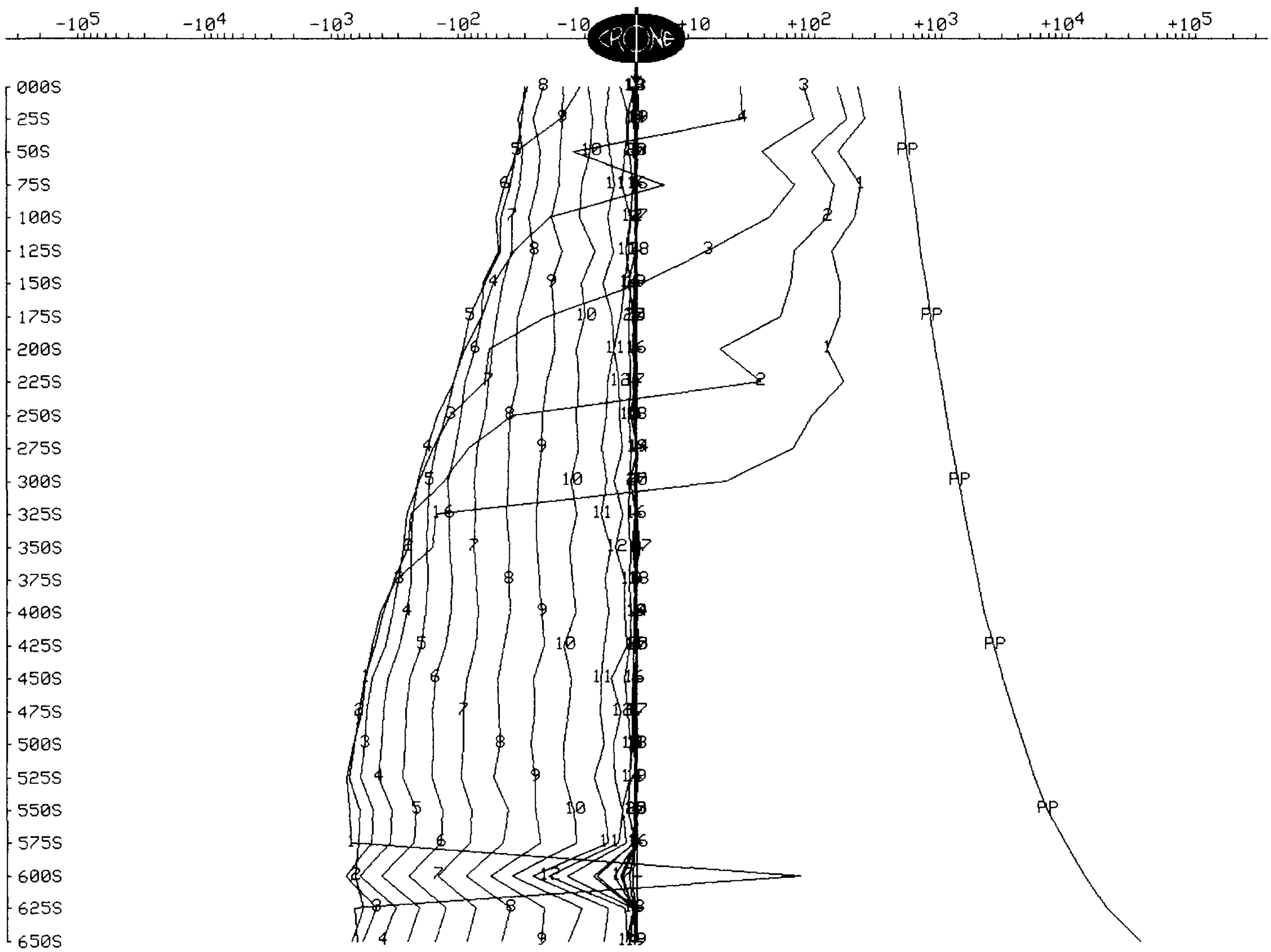


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: **Golden Knight Resources**	Line	: **L6100W**
Grid	: **Nighthawk 330**	Tx Loop	: **L6**
Date	: May 26, 1998	File name	: L6100WN.PEM

X Points South
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

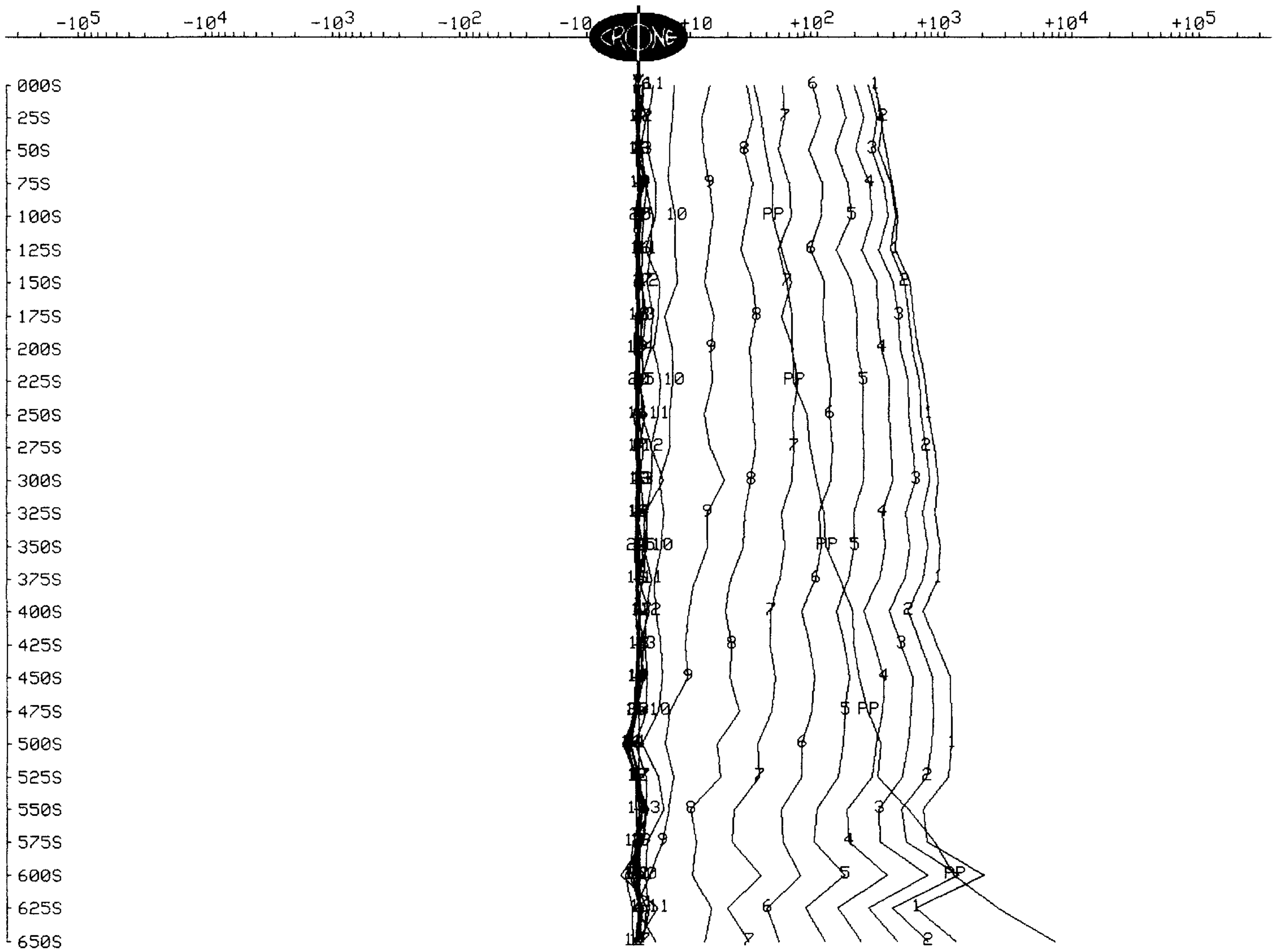
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6100W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 26, 1998	File name	: L6100WN.PEM

X Points South
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000



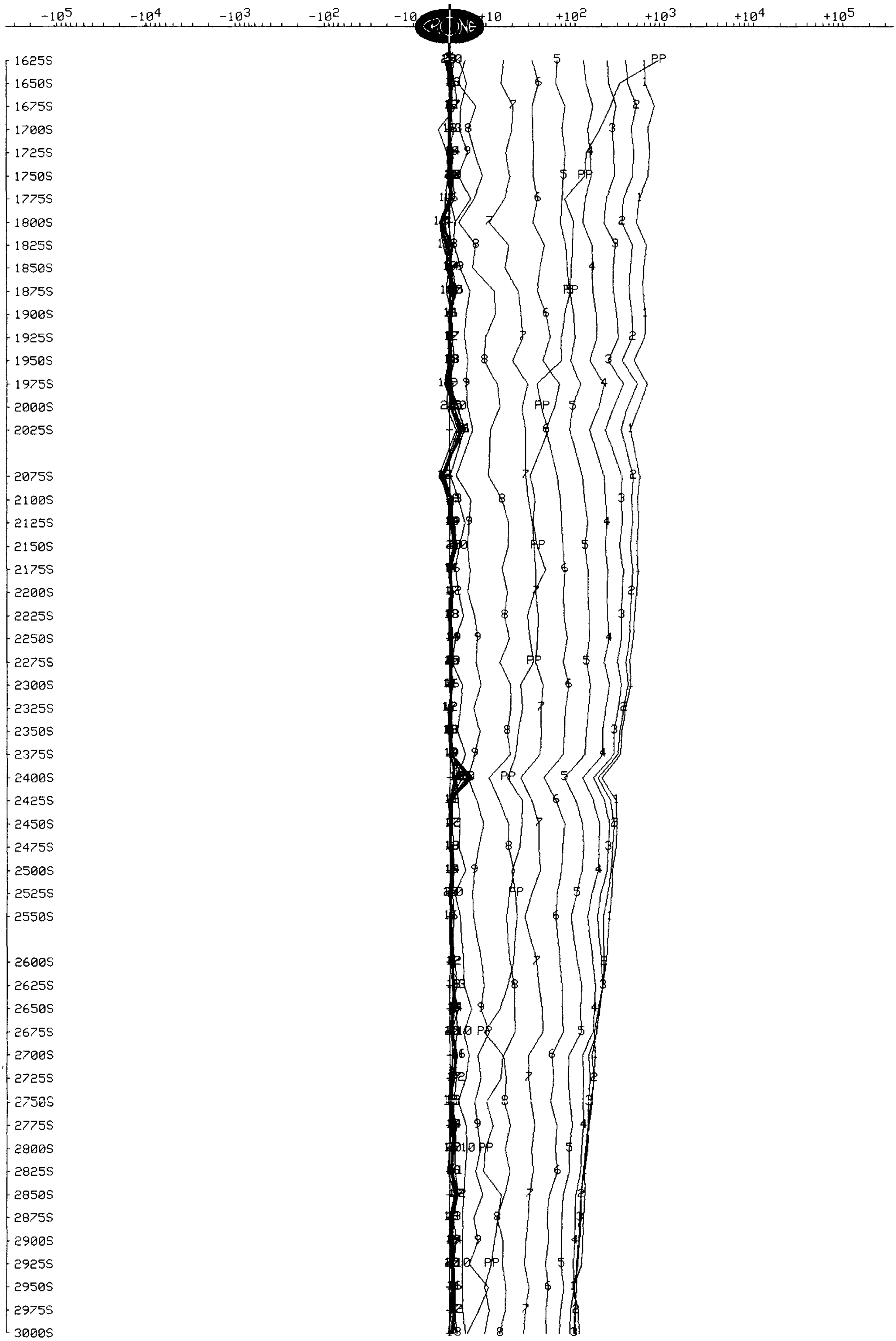
CRONE GEOPHYSICS & EXPLORATION LTD

SURFACE PEM

Client	: **Golden Knight Resources**	Line	: **L6100W**
Grid	: **Nighthawk 330**	Tx Loop	: **L6**
Date	: May 28, 1998	File name	: L6100WS.PEM

X Points North
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

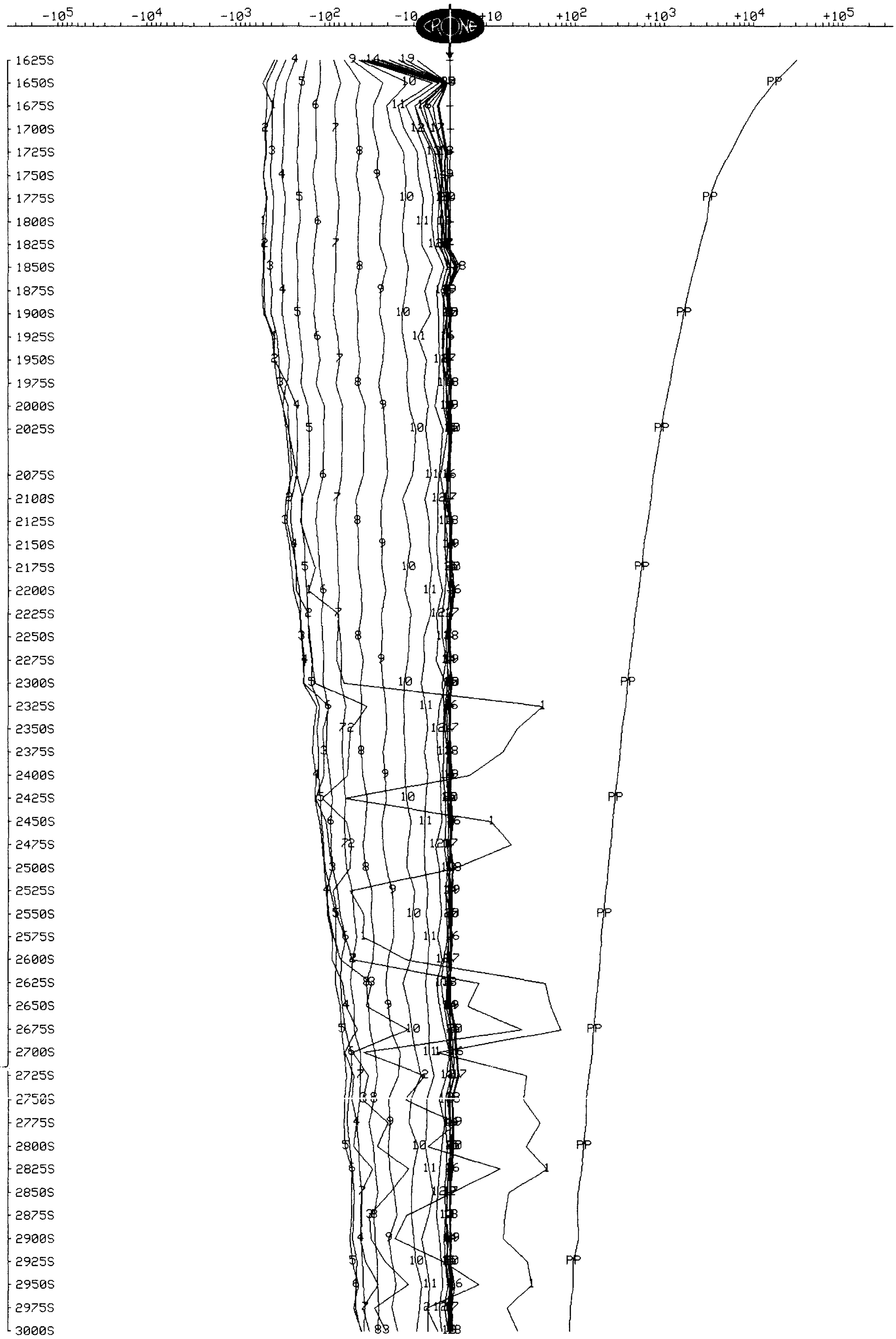


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6100W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 28, 1998	File name	: L6100WS.PEM

X Points North
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

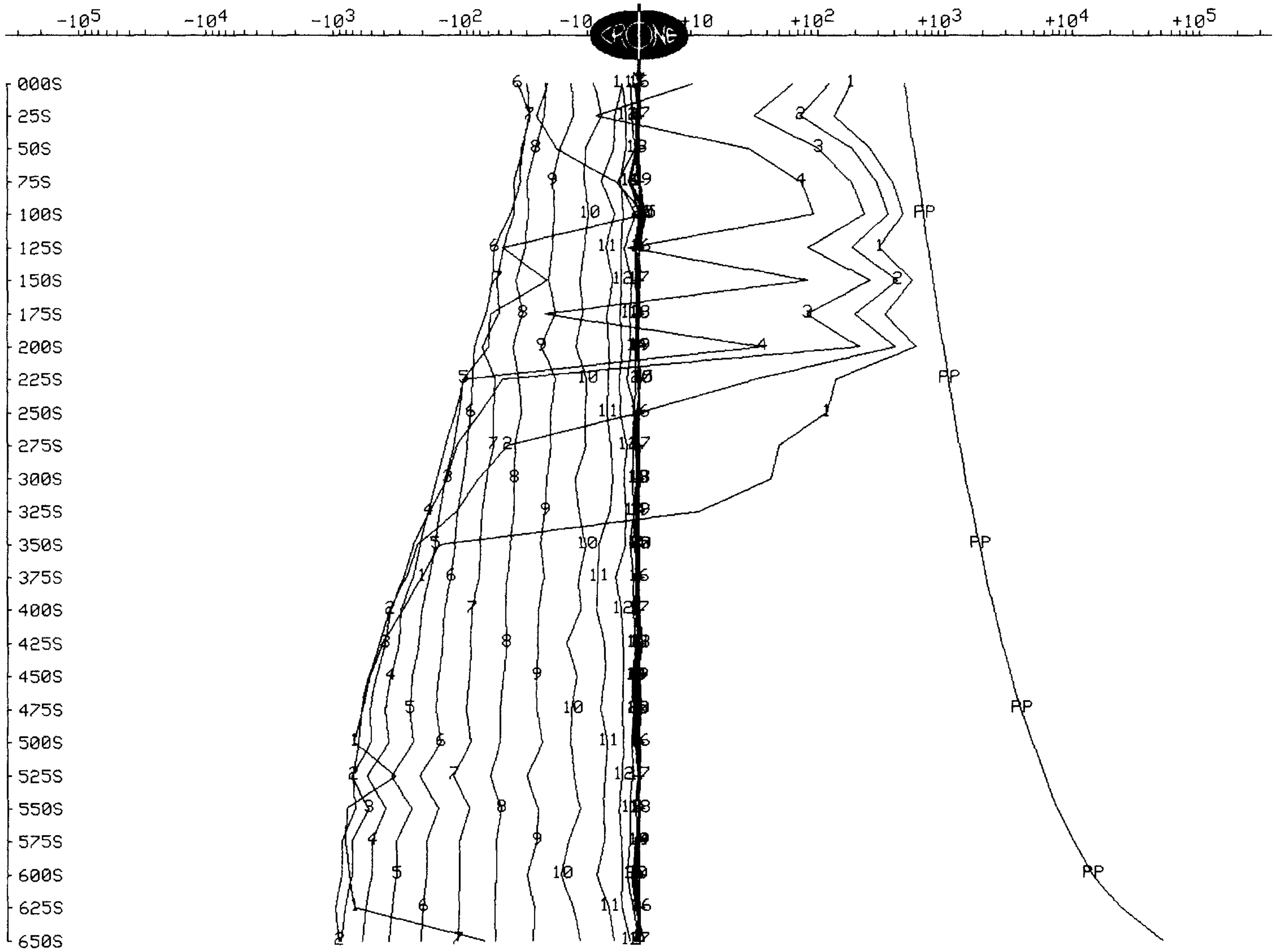


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: **Golden Knight Resources**	Line	: **L6200W**
Grid	: **Nighthawk 330**	Tx Loop	: **L6**
Date	: May 26, 1998	File name	: L6200WN.PEM

X Points South
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

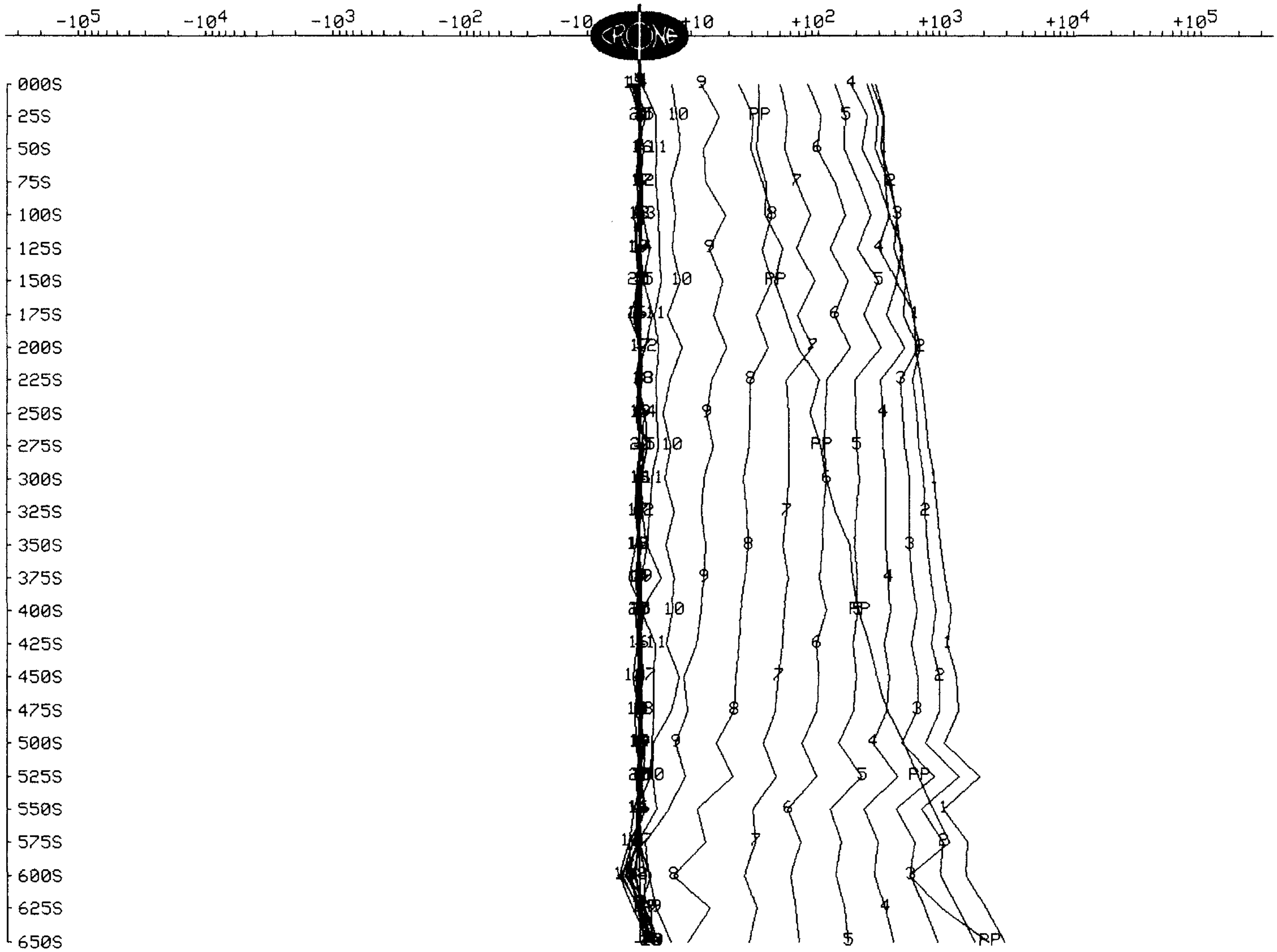
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	:	**Golden Knight Resources**	Line	:	**L6200W**
Grid	:	**Nighthawk 330**	Tx Loop	:	**L6**
Date	:	May 26, 1998	File name	:	L6200WN.PEM

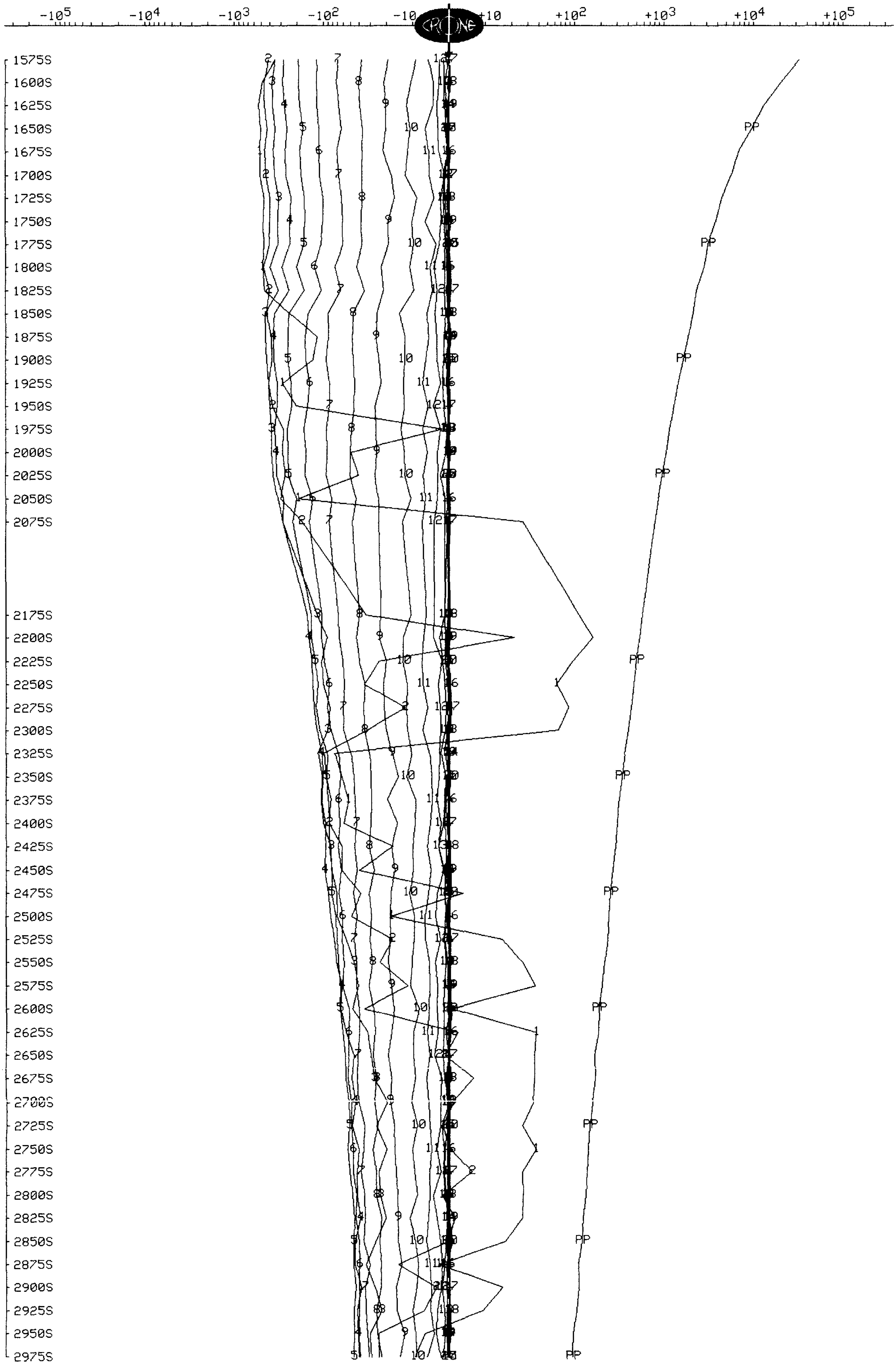
X Points South
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6200W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: June 2, 1998	File name	: L6200WS.PEM

X Points North
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000

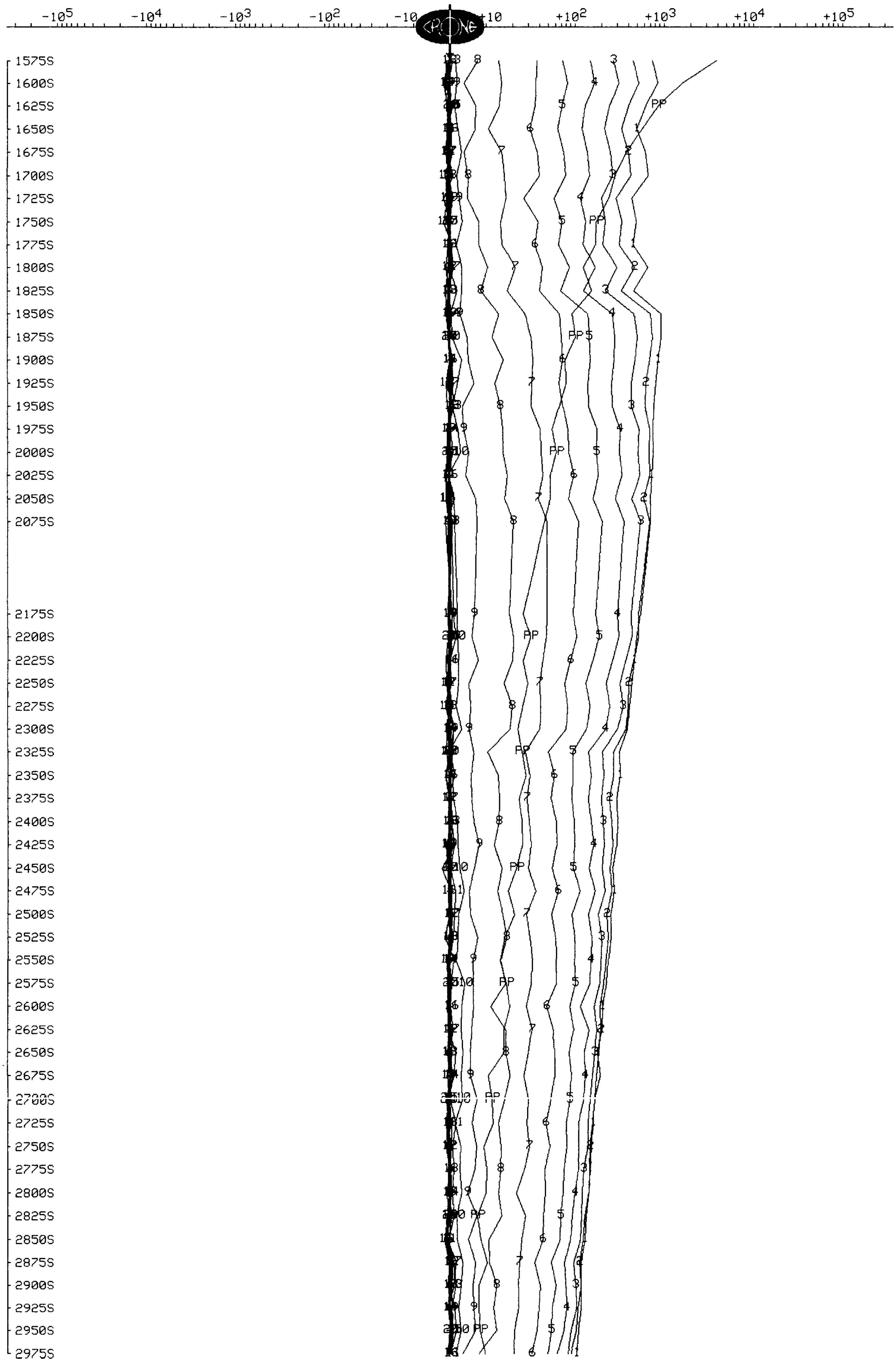


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6200W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: June 2, 1998	File name	: L6200WS.PEM

X Points North
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

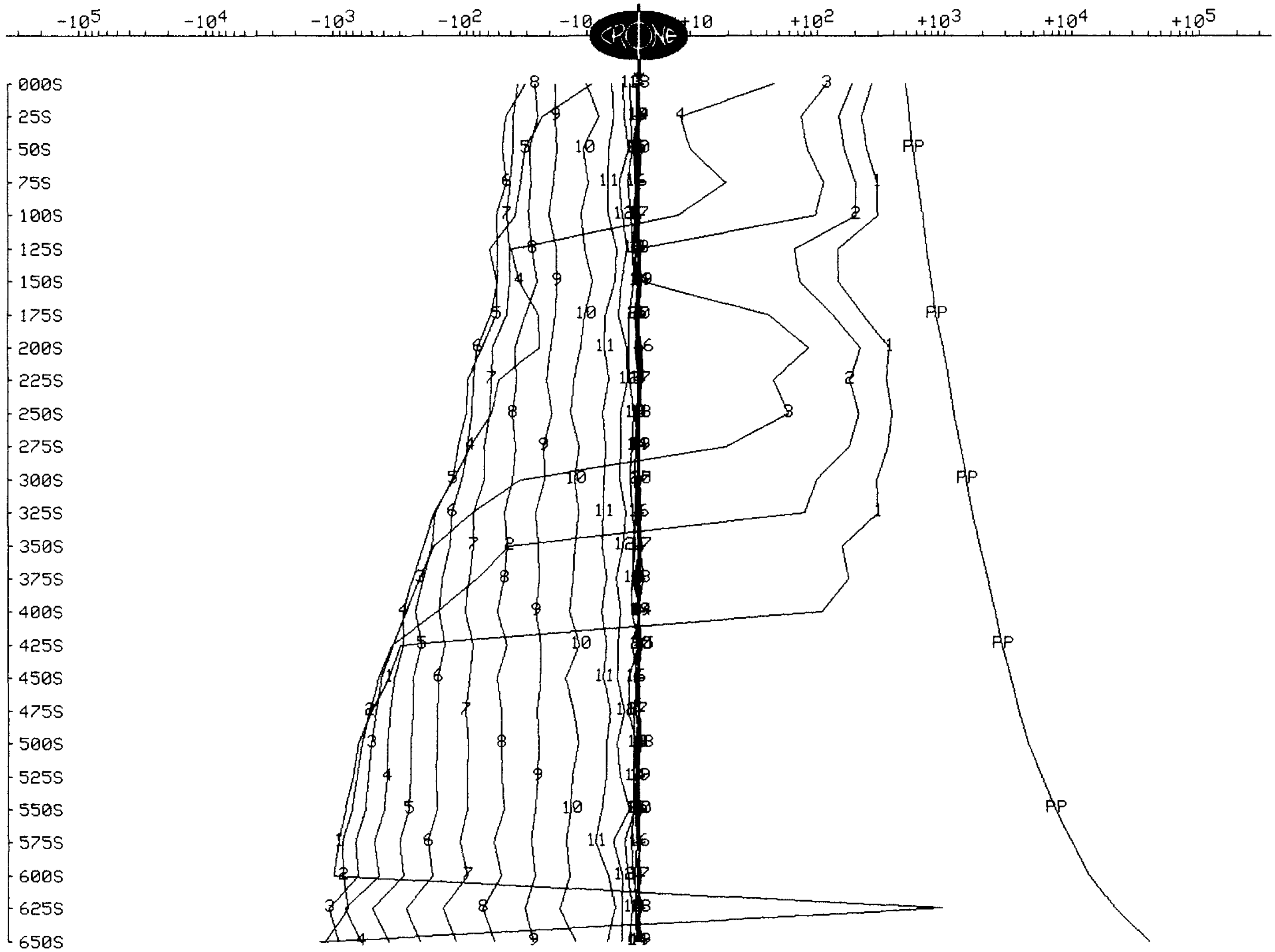


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6300W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 26, 1998	File name	: L6300WN.PEM

X Points South
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

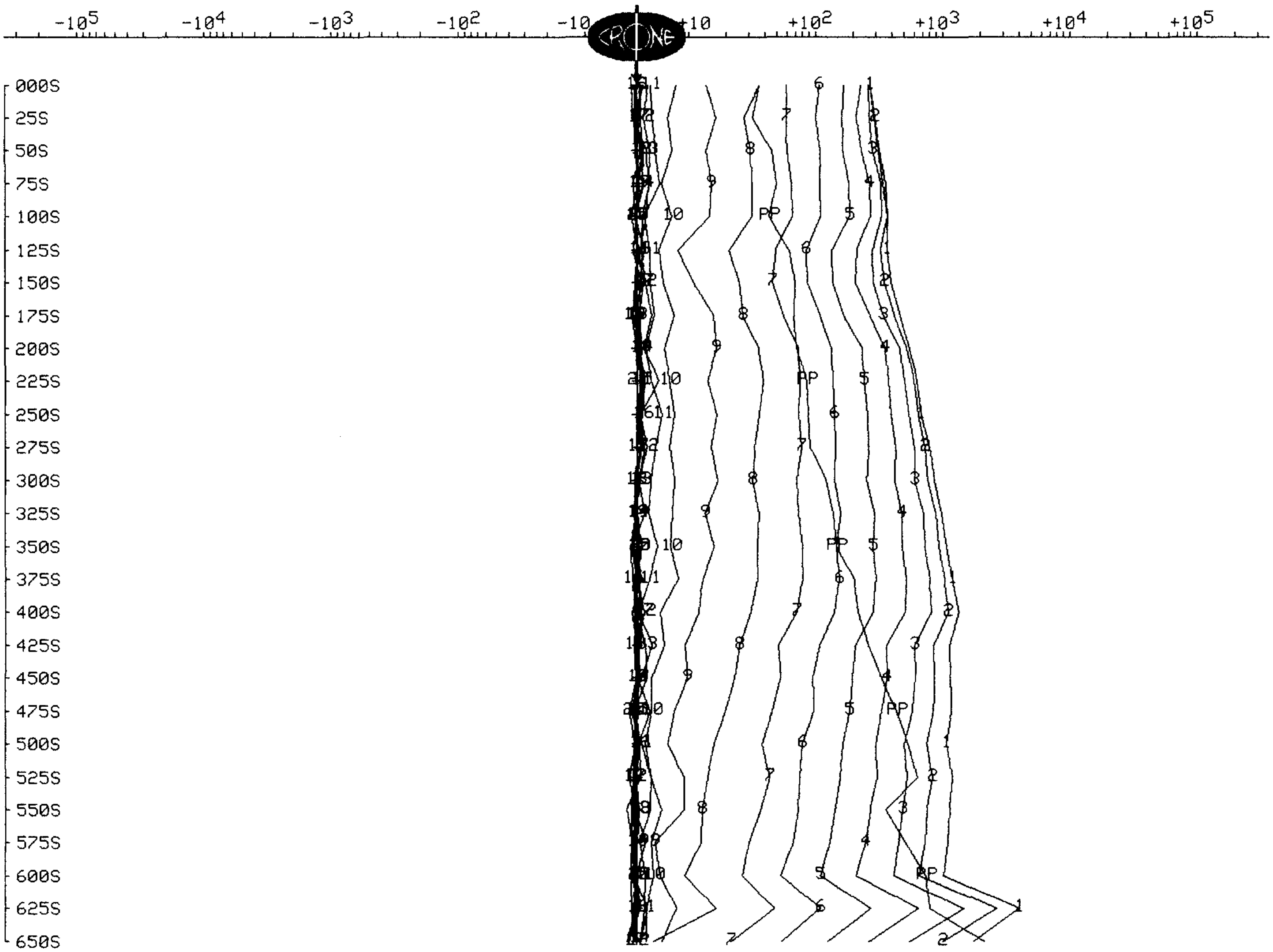
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6300W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 26, 1998	File name	: L6300WN.PEM

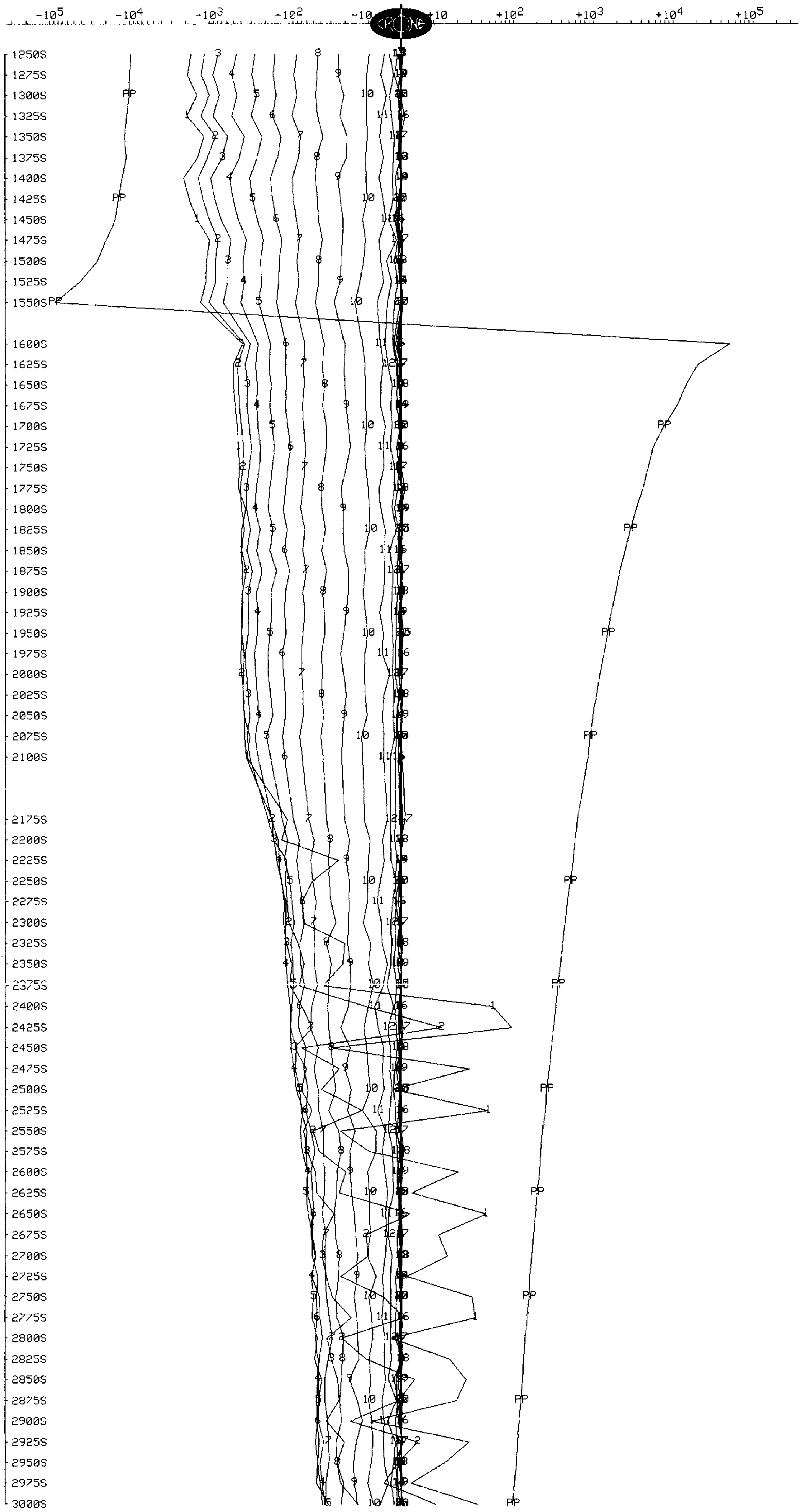
X Points South
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client : Golden Knight Resources
Grid : Nighthawk 330
Date : May 31, 1998
Line : L6300W
Tx Loop : L6
File name : L6300WS.PEM

X Points North
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000



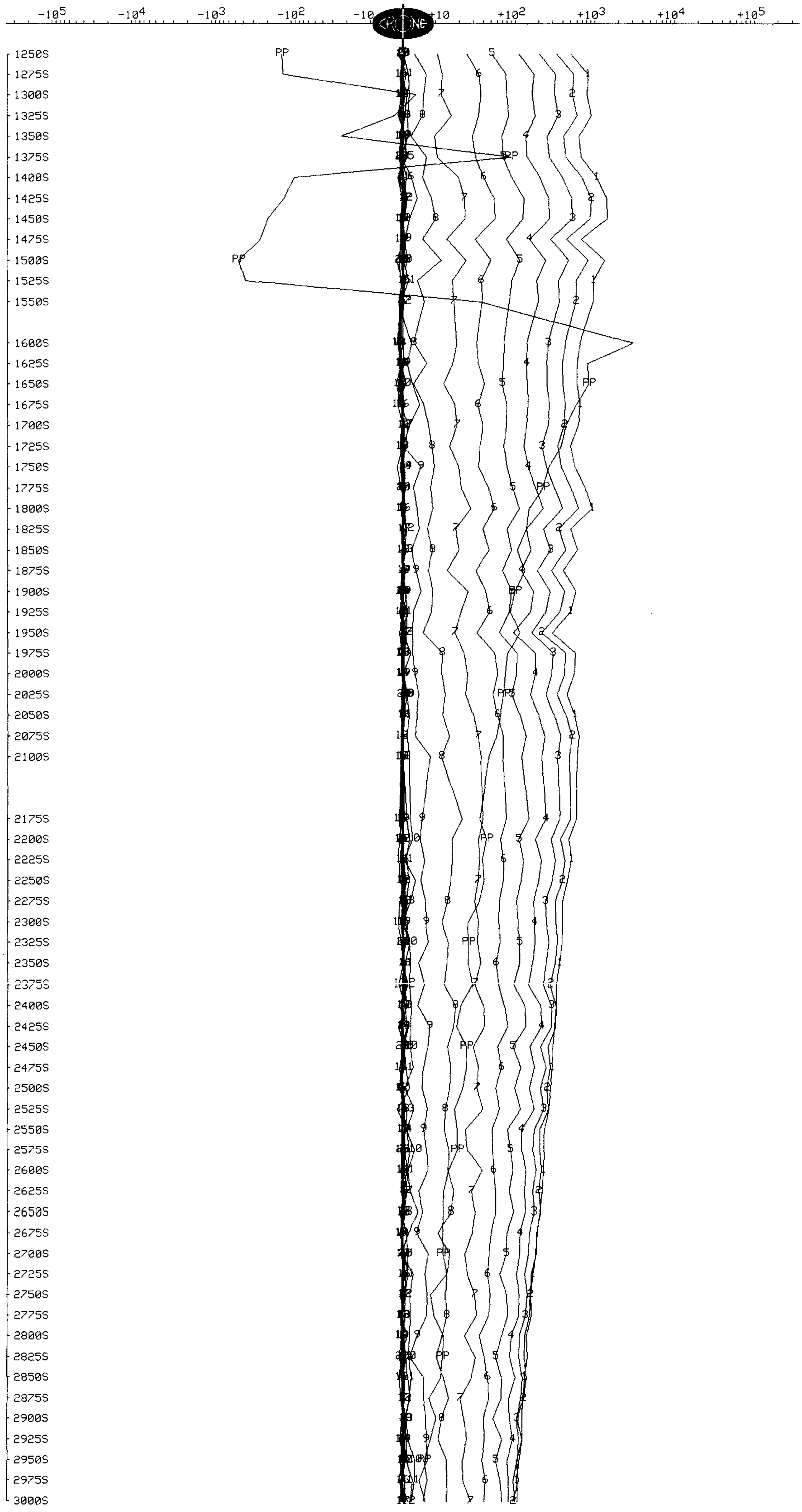
CRONE GEOPHYSICS & EXPLORATION LTD

SURFACE PEM

Client	: Golden Knight Resources	Line	: L6300W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 31, 1998	File name	: L6300WS.PEM

X Points North
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

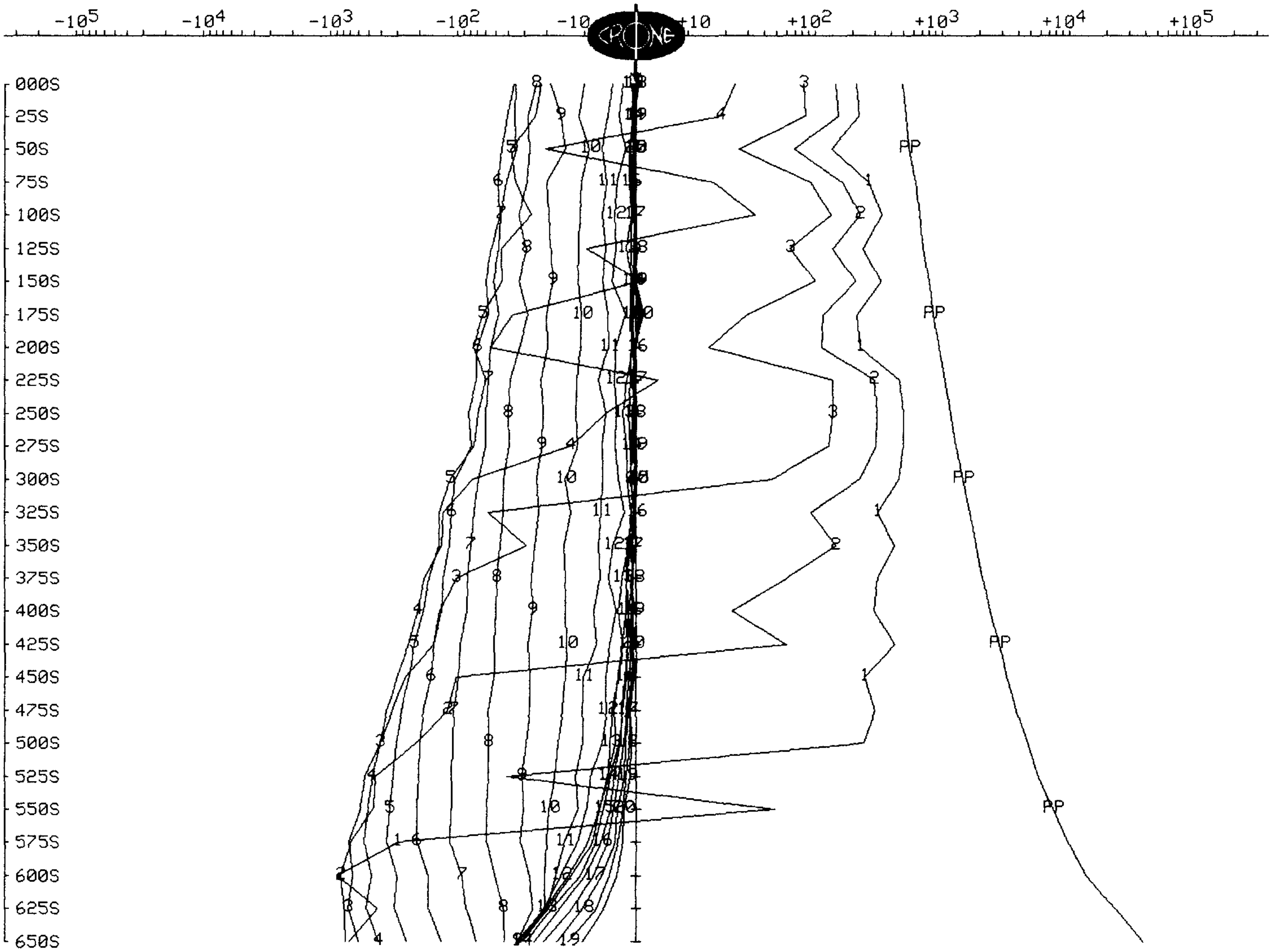


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6400W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 26, 1998	File name	: L6400WN.PEM

X Points South
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

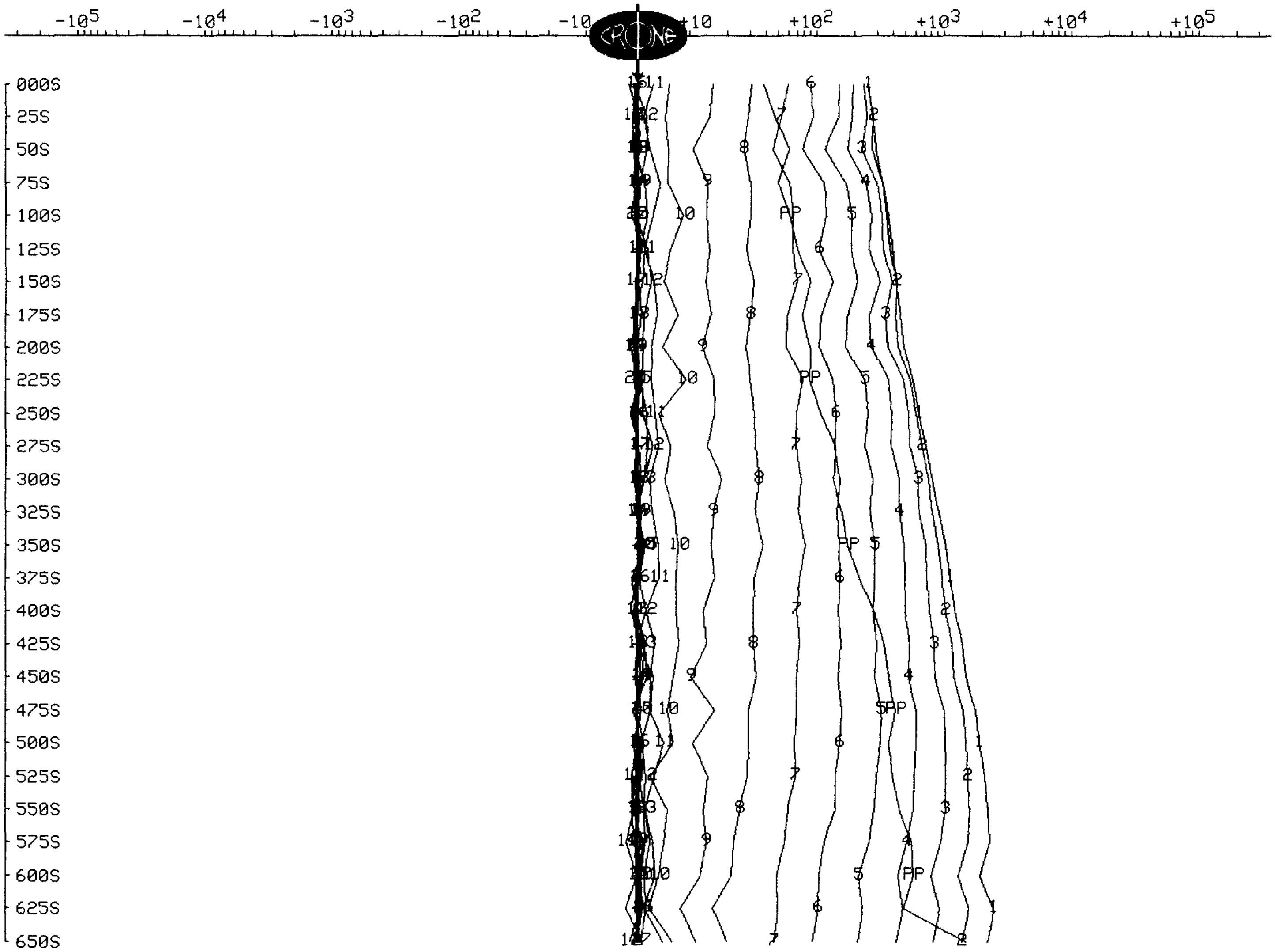
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6400W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 26, 1998	File name	: L6400WN.PEM

X Points South
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000

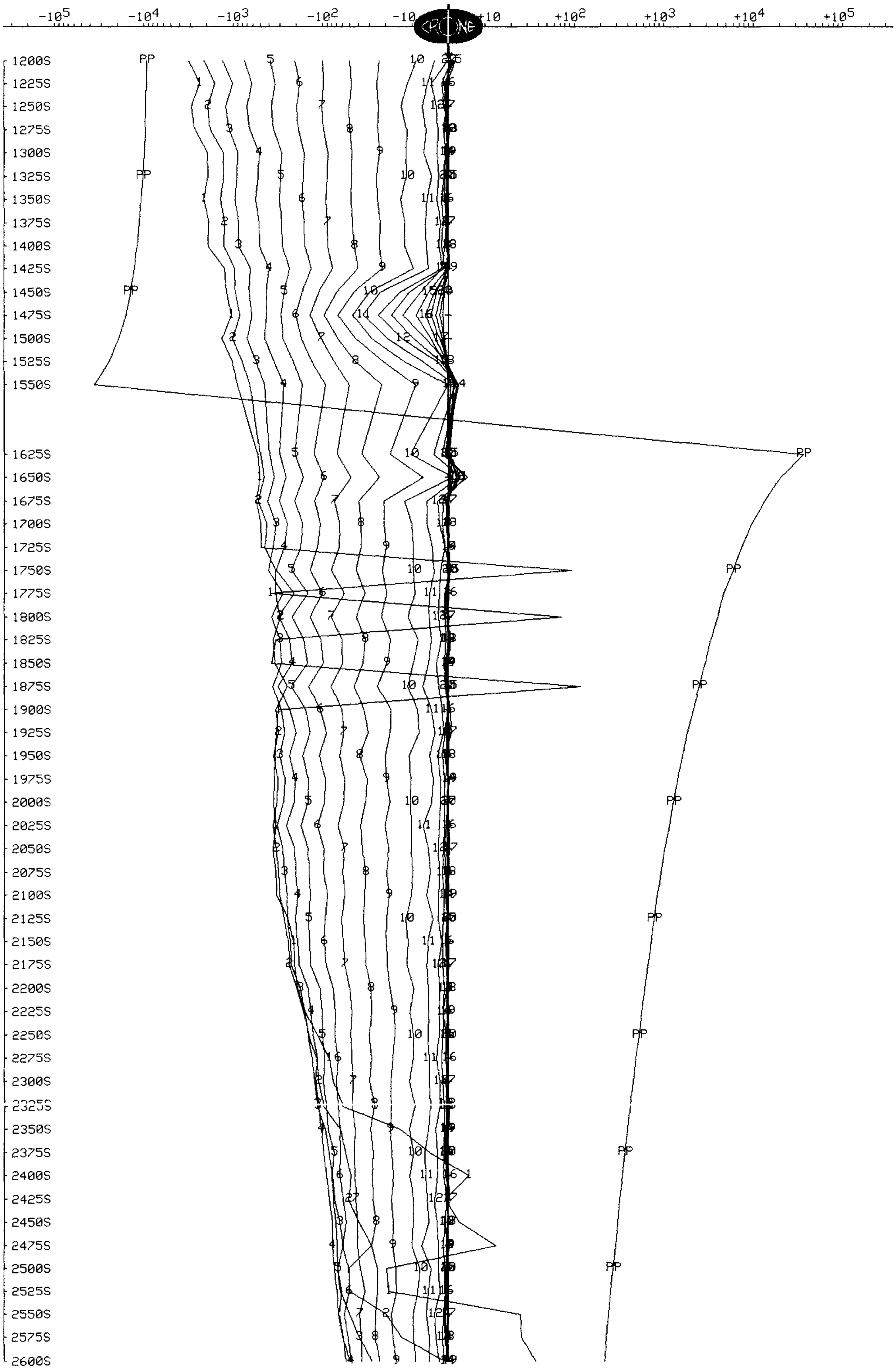


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6400W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 31, 1998	File name	: L6400WS.PEM

X Points North
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

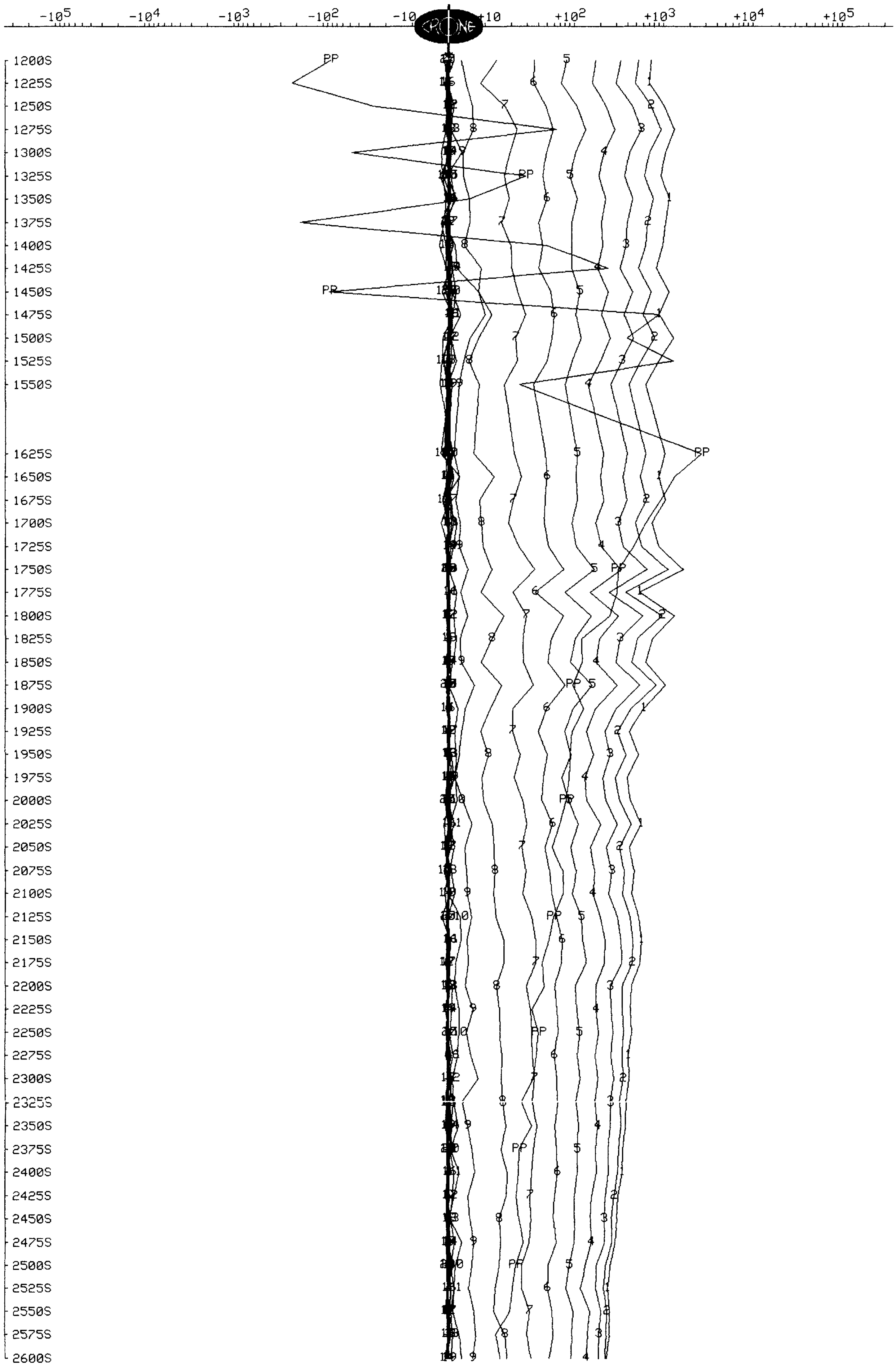
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: **Golden Knight Resources**	Line	: **L6400W**
Grid	: **Nighthawk 330**	Tx Loop	: **L6**
Date	: May 31, 1998	File name	: L6400WS.PEM

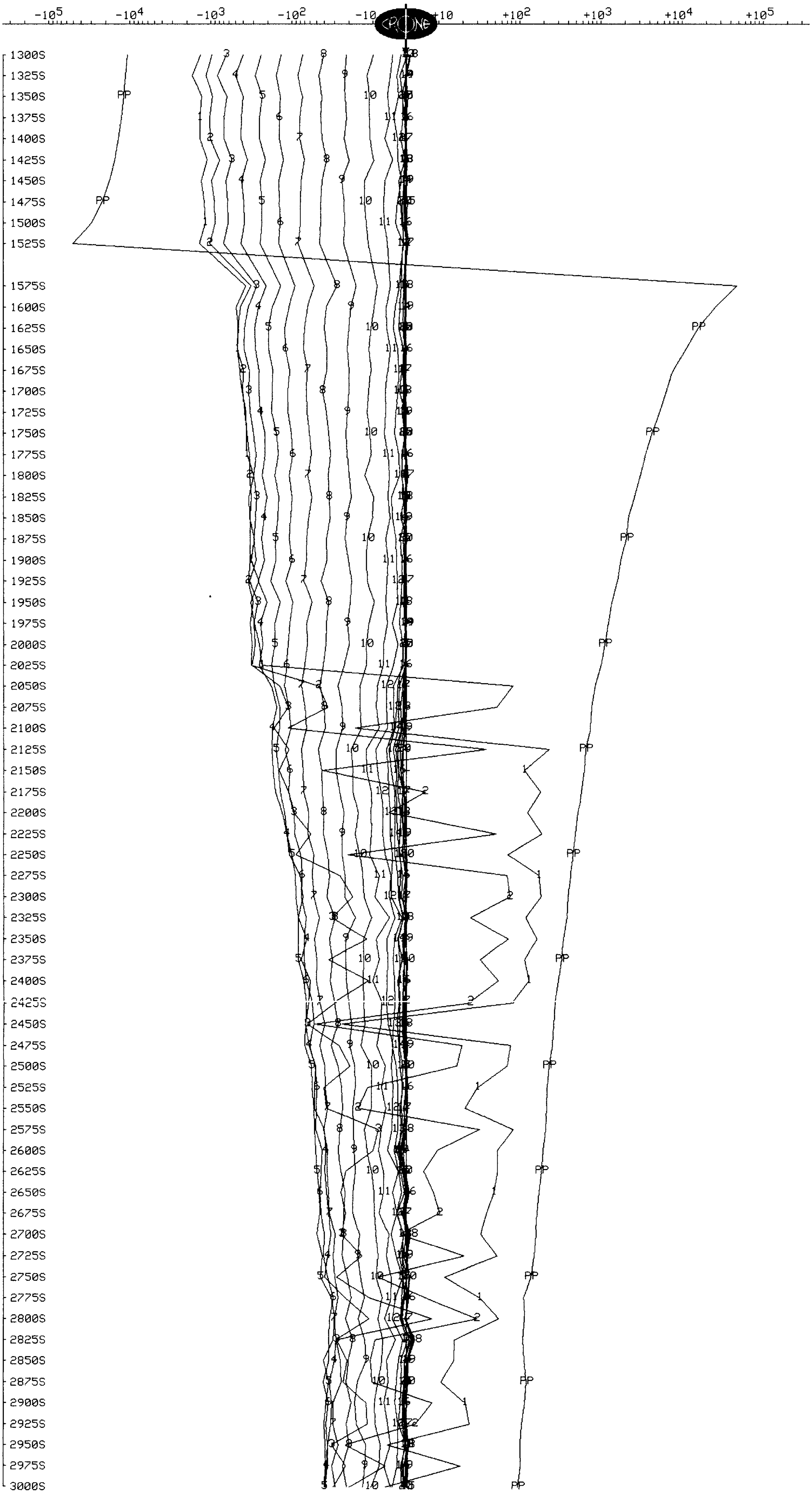
X Points North
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6500W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 31, 1998	File name	: L6500WS.PEM

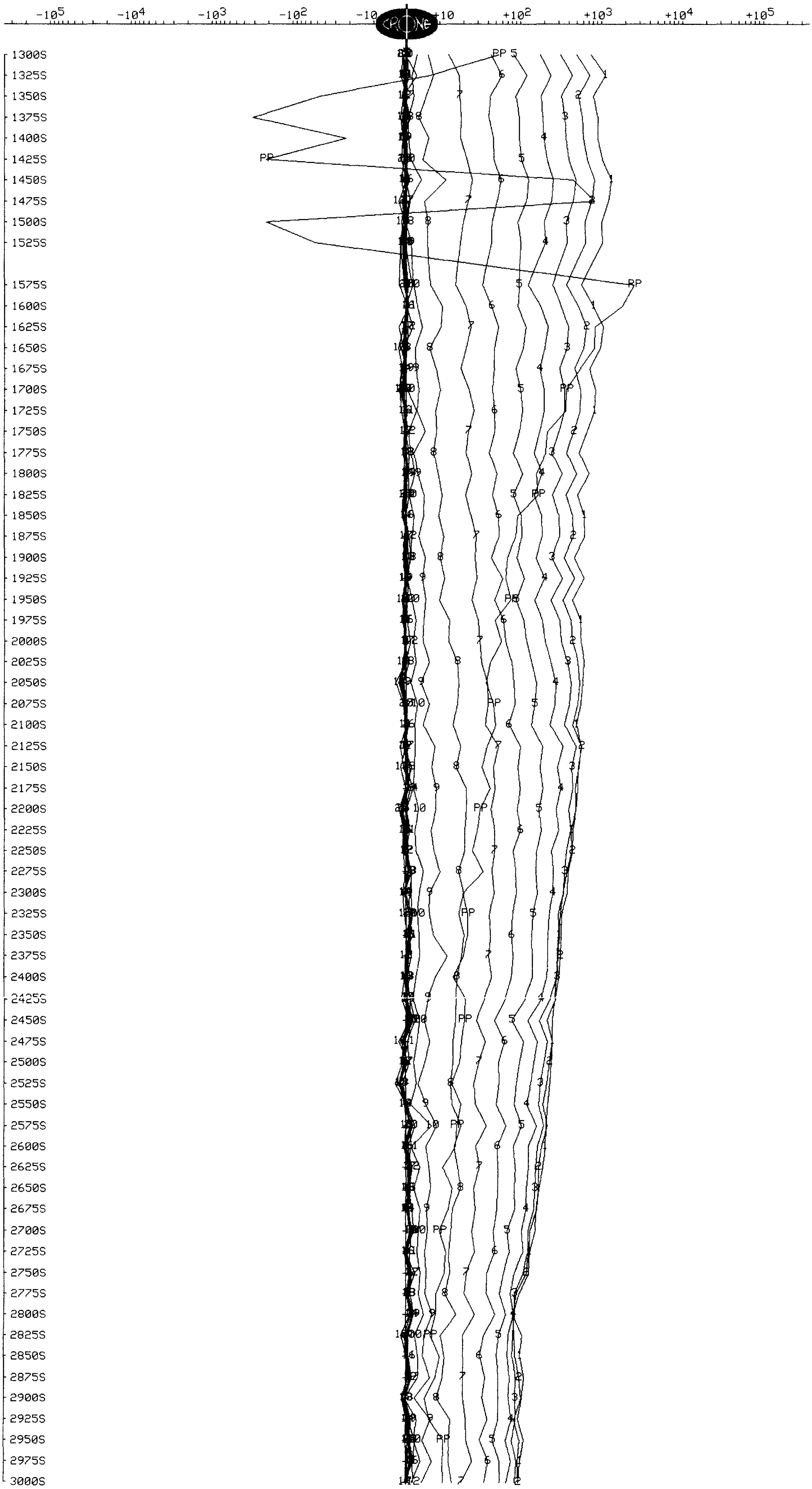
X Points North
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6500W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 31, 1998	File name	: L6500WS.PEM

X Points North
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000

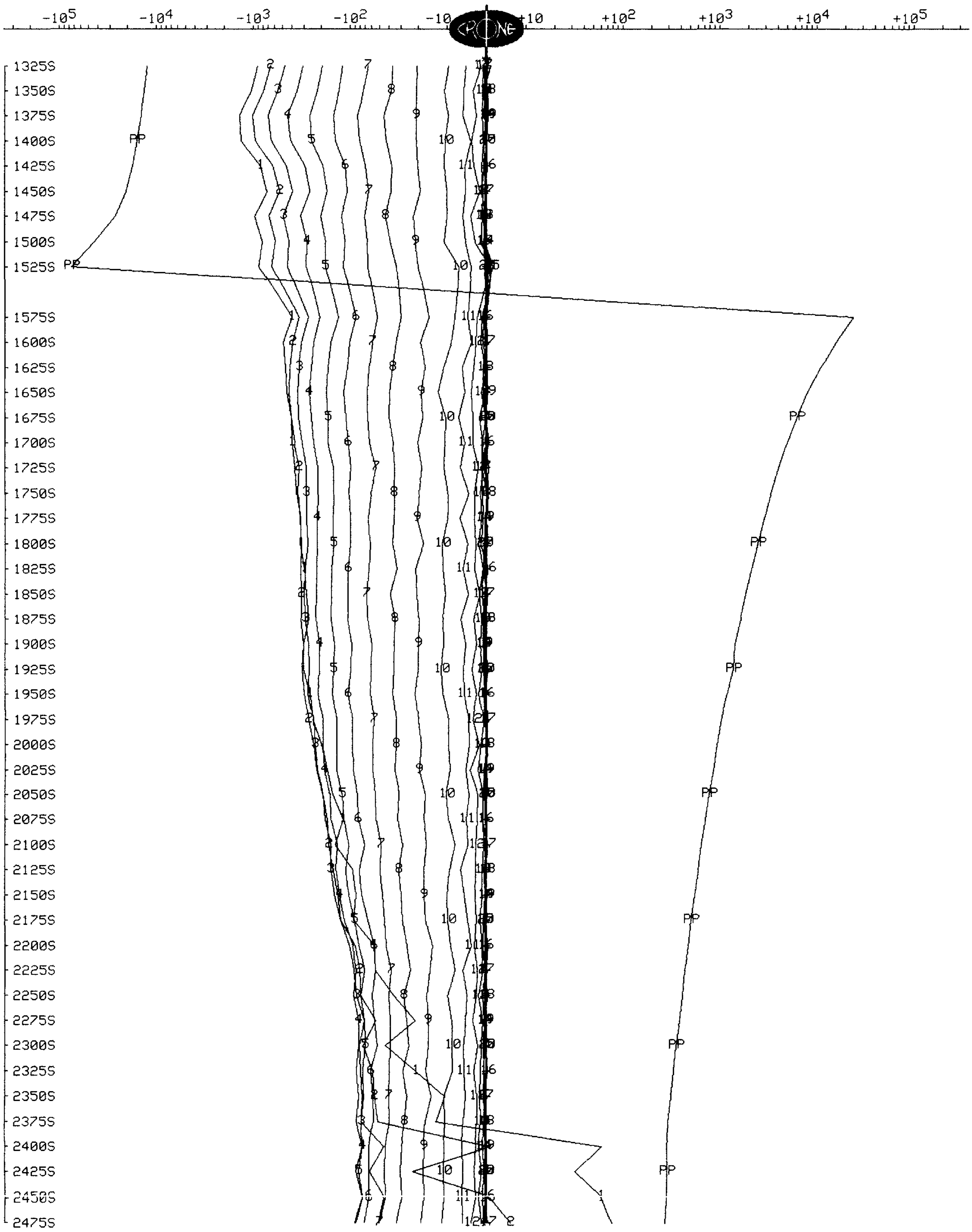


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6600W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 31, 1998	File name	: L6600WS.PEM

X Points North
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

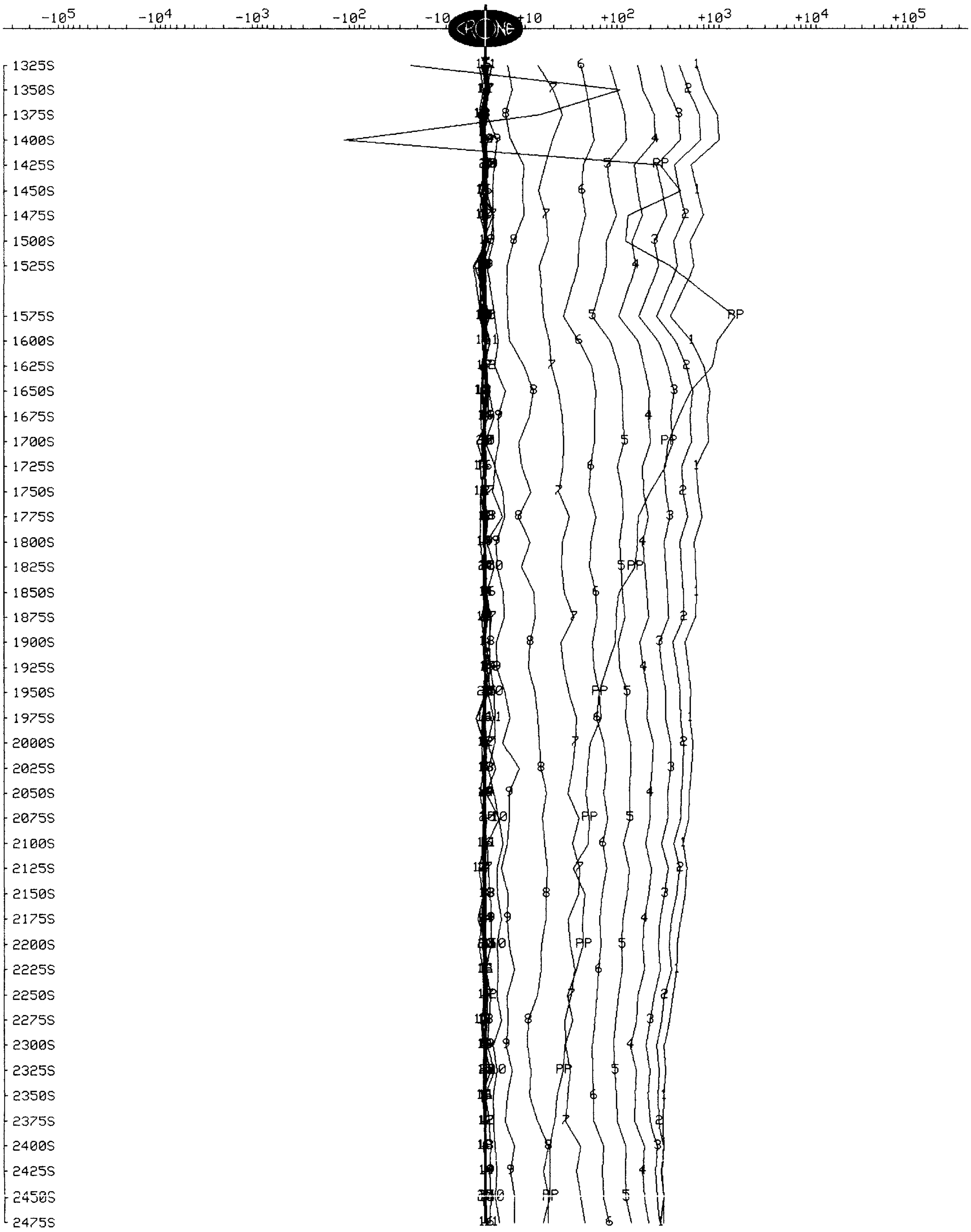
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6600W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 31, 1998	File name	: L6600WS.PEM

X Points North
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000

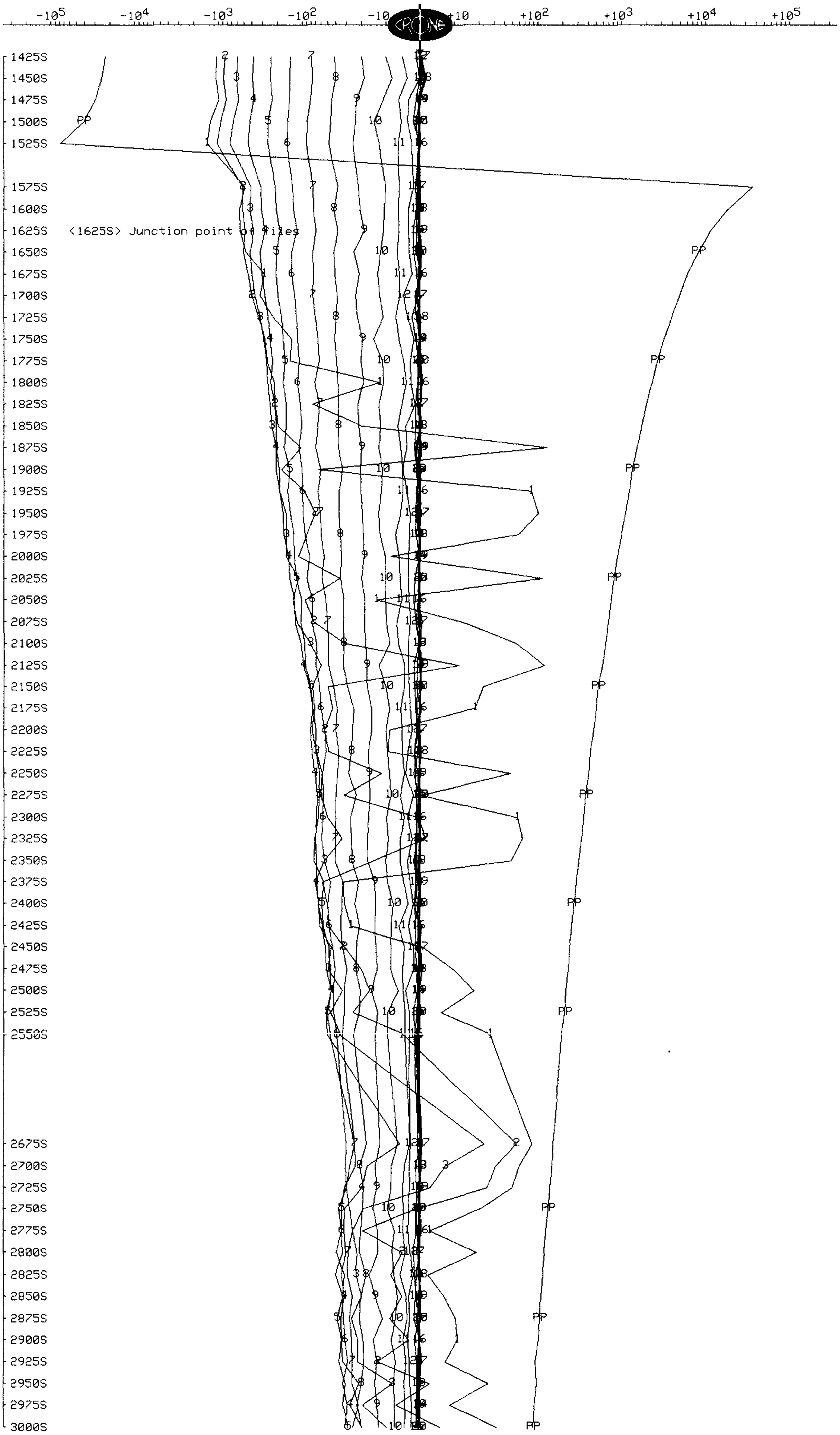


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: **Golden Knight Resources**	Line	: **L6700W**
Grid	: **Nighthawk 330**	Tx Loop	: **L6**
Date	: May 31, 1998	File name	: L6700WS.PEM

X Positive to North
Data Scaled by Factor of 1.00
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

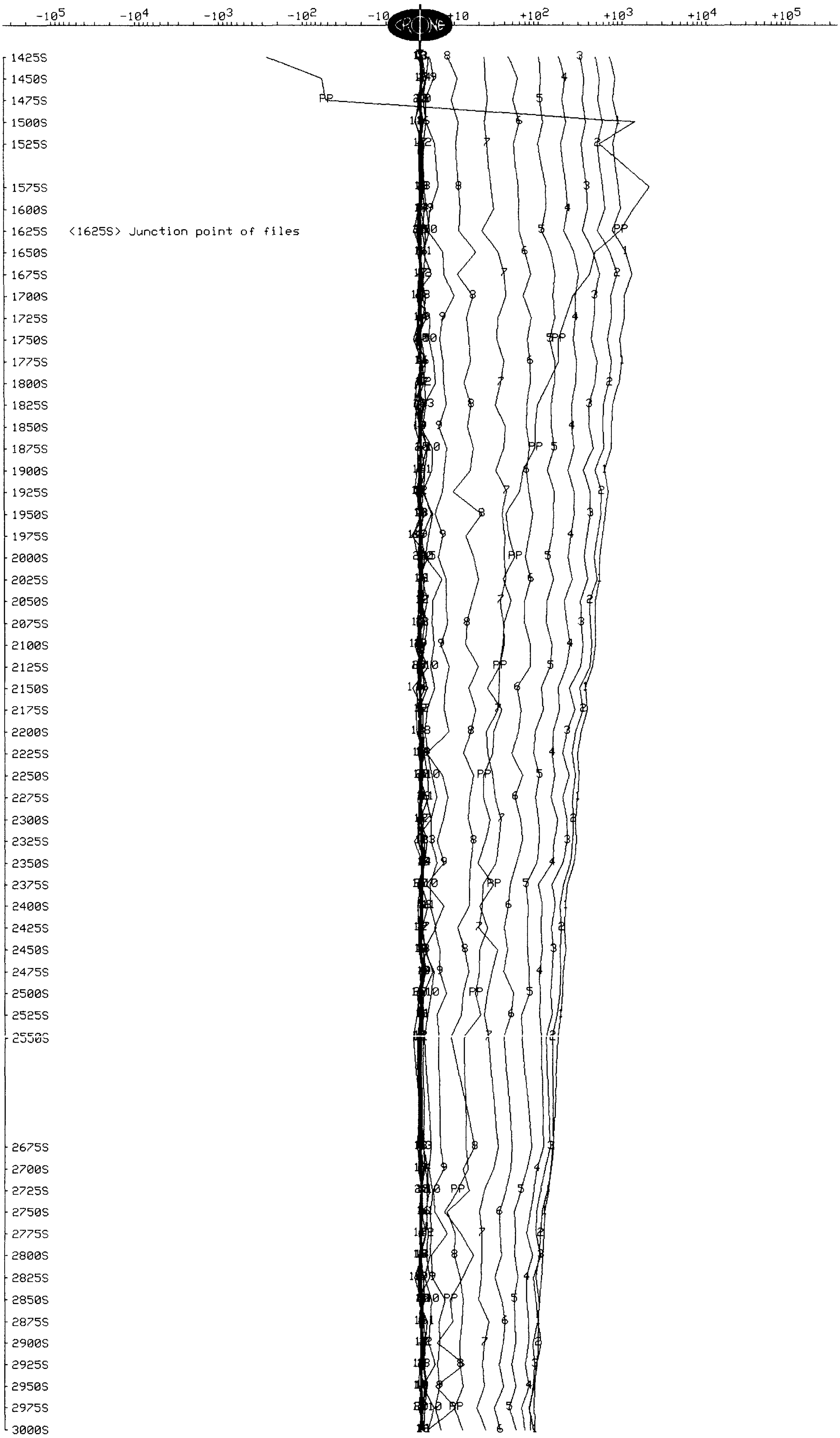
Scale: 1:5000



CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: Golden Knight Resources	Line	: L6700W
Grid	: Nighthawk 330	Tx Loop	: L6
Date	: May 31, 1998	File name	: L6700WS.PEM

X Positive to North
Data Scaled by Factor of 1.00
IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:5000

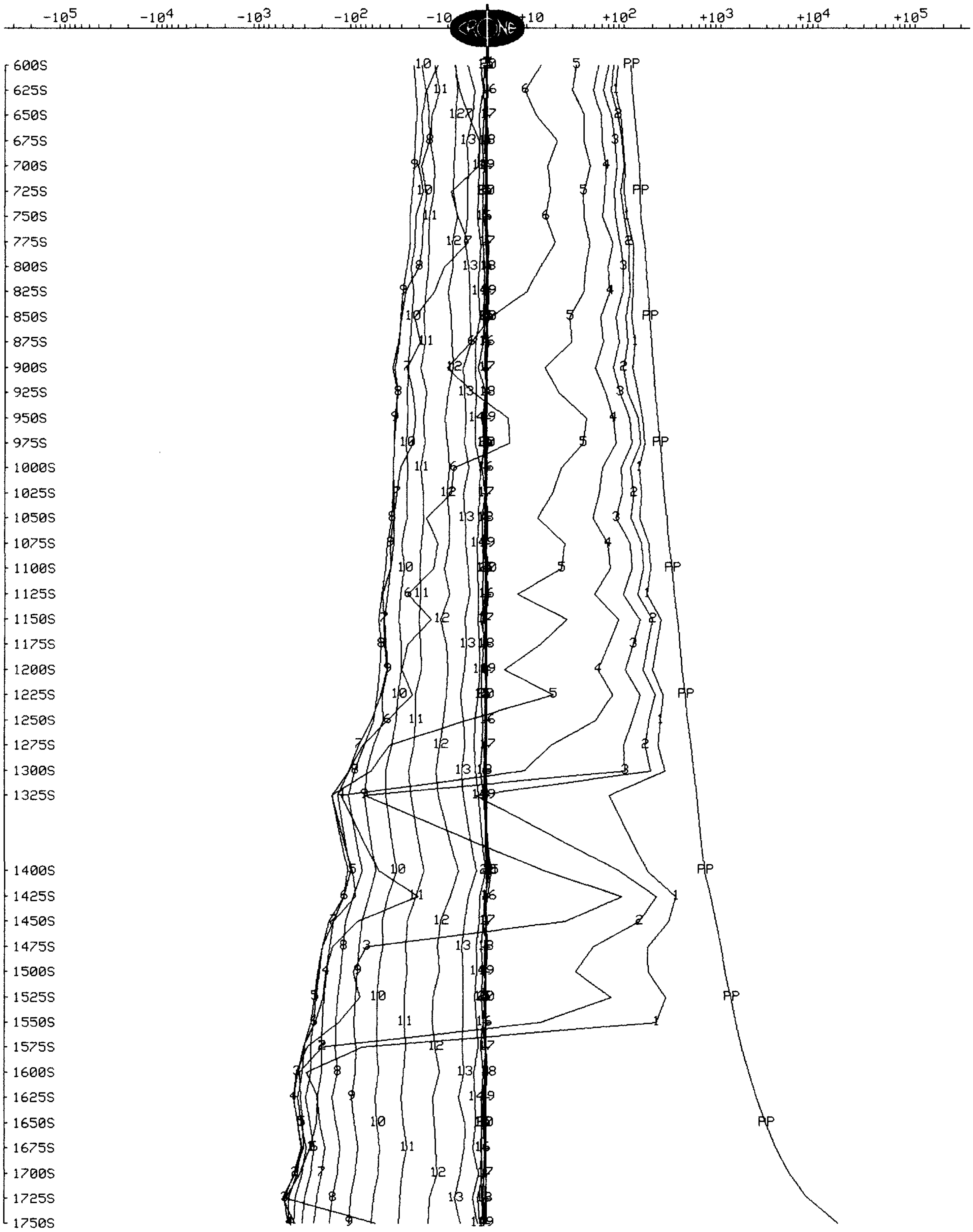


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3200W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 13, 1998	File name	: L32W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

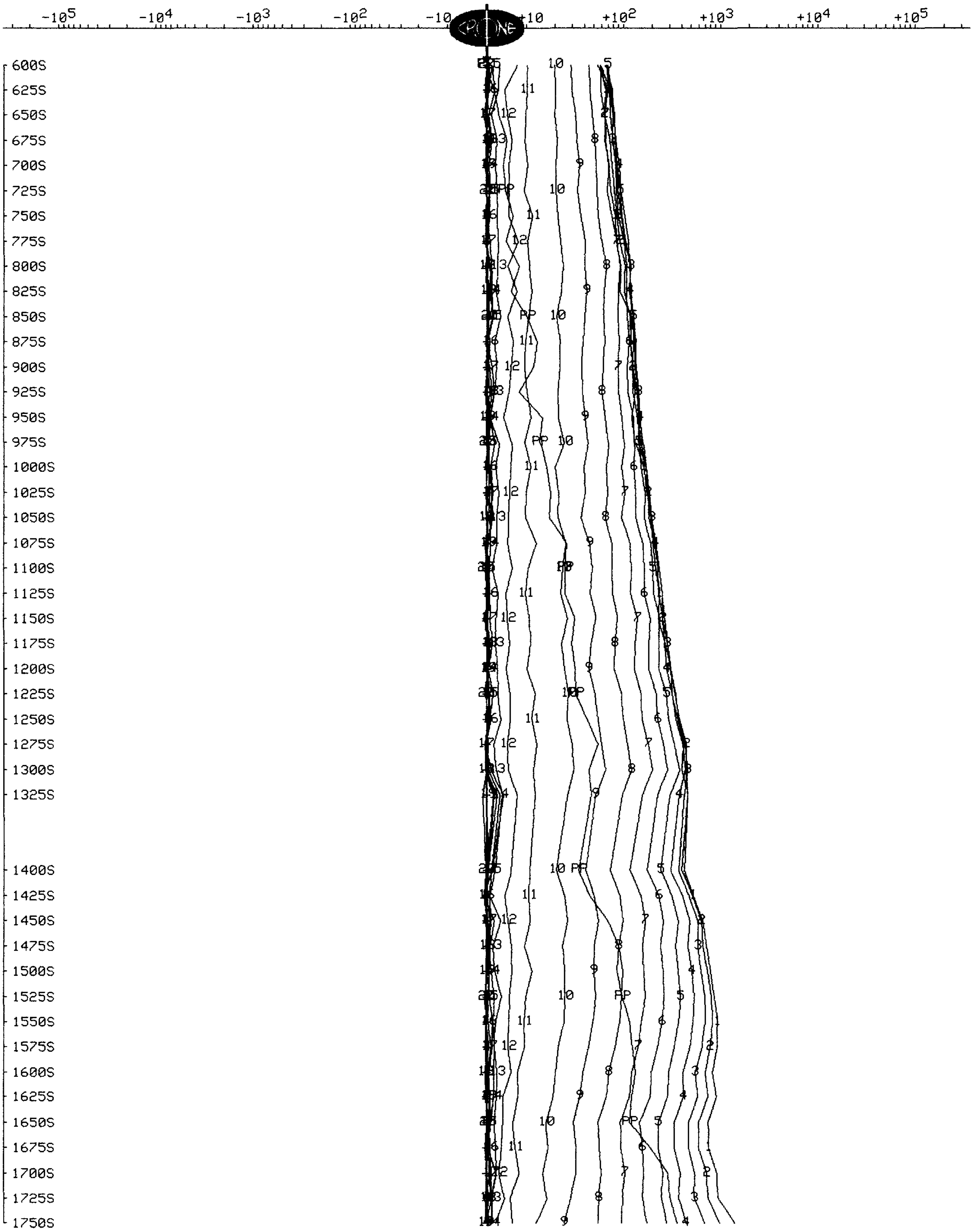


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3200W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 13, 1998	File name	: L32W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

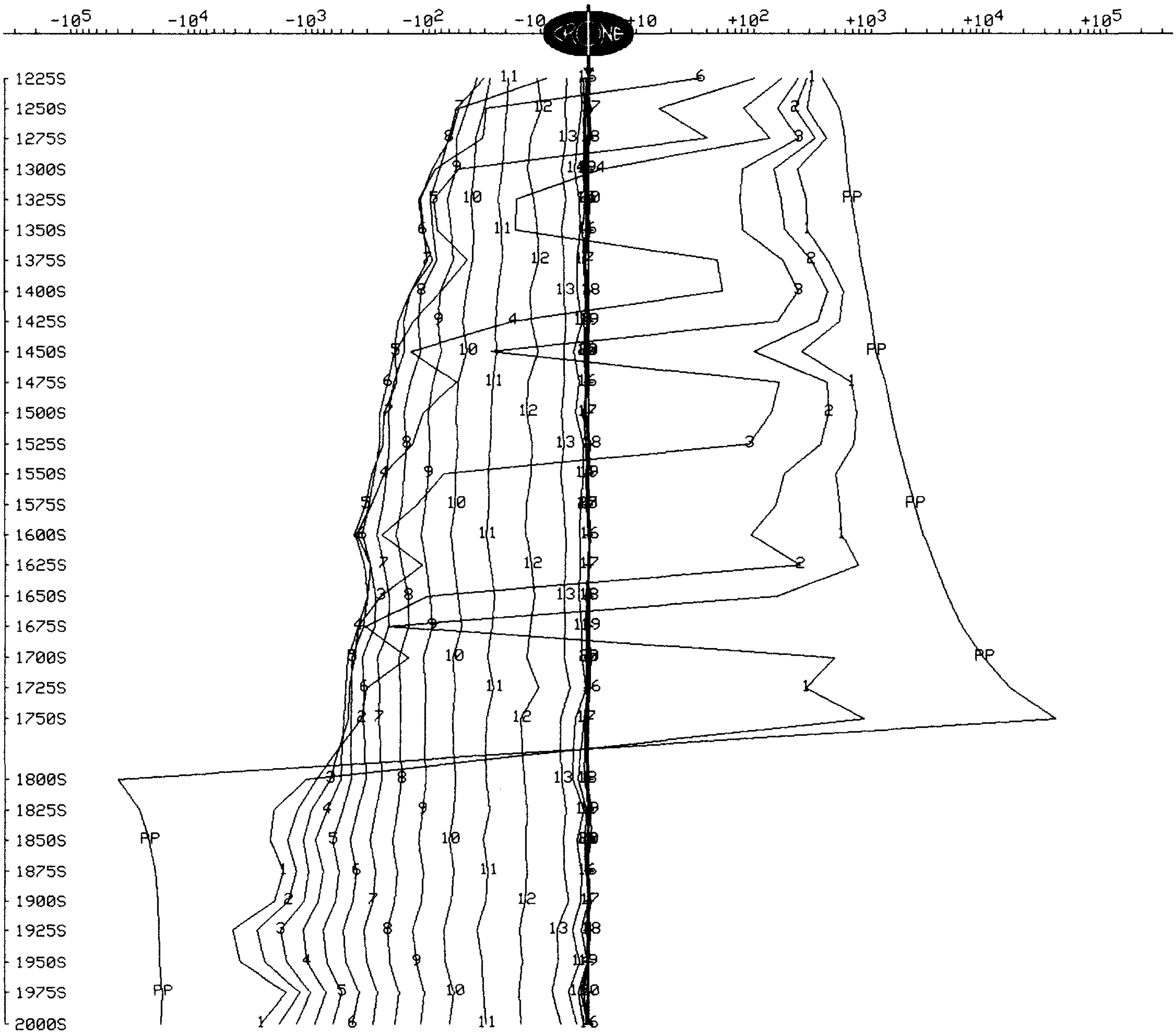


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3300W
Grid	: 330 grid	Tx Loop	: A
Date	: September 12, 1998	File name	: L33W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

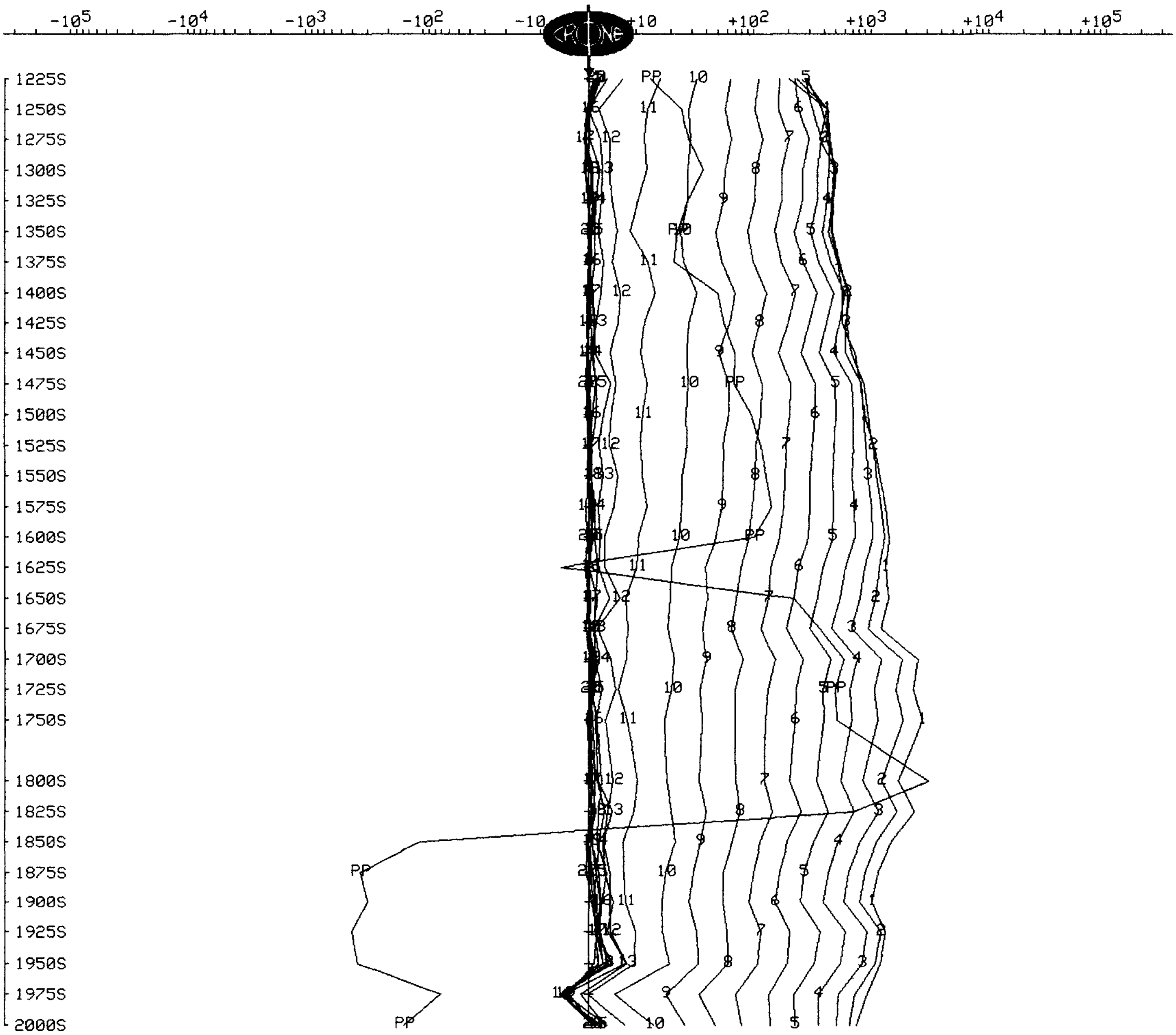


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3300W
Grid	: 330 grid	Tx Loop	: A
Date	: September 12, 1998	File name	: L33W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

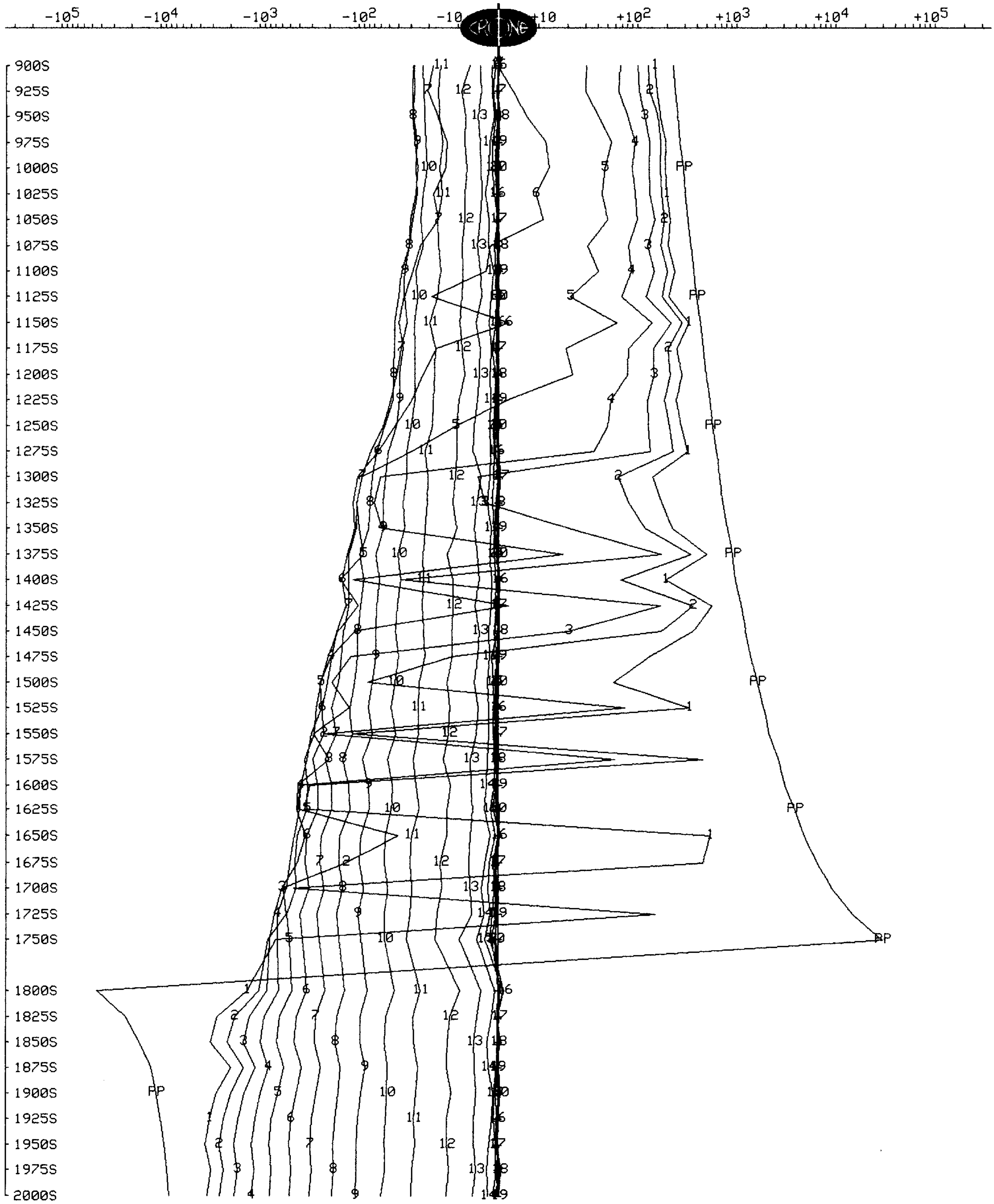


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3400W
Grid	: 330 grid	Tx Loop	: A
Date	: September 11, 1998	File name	: L34W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

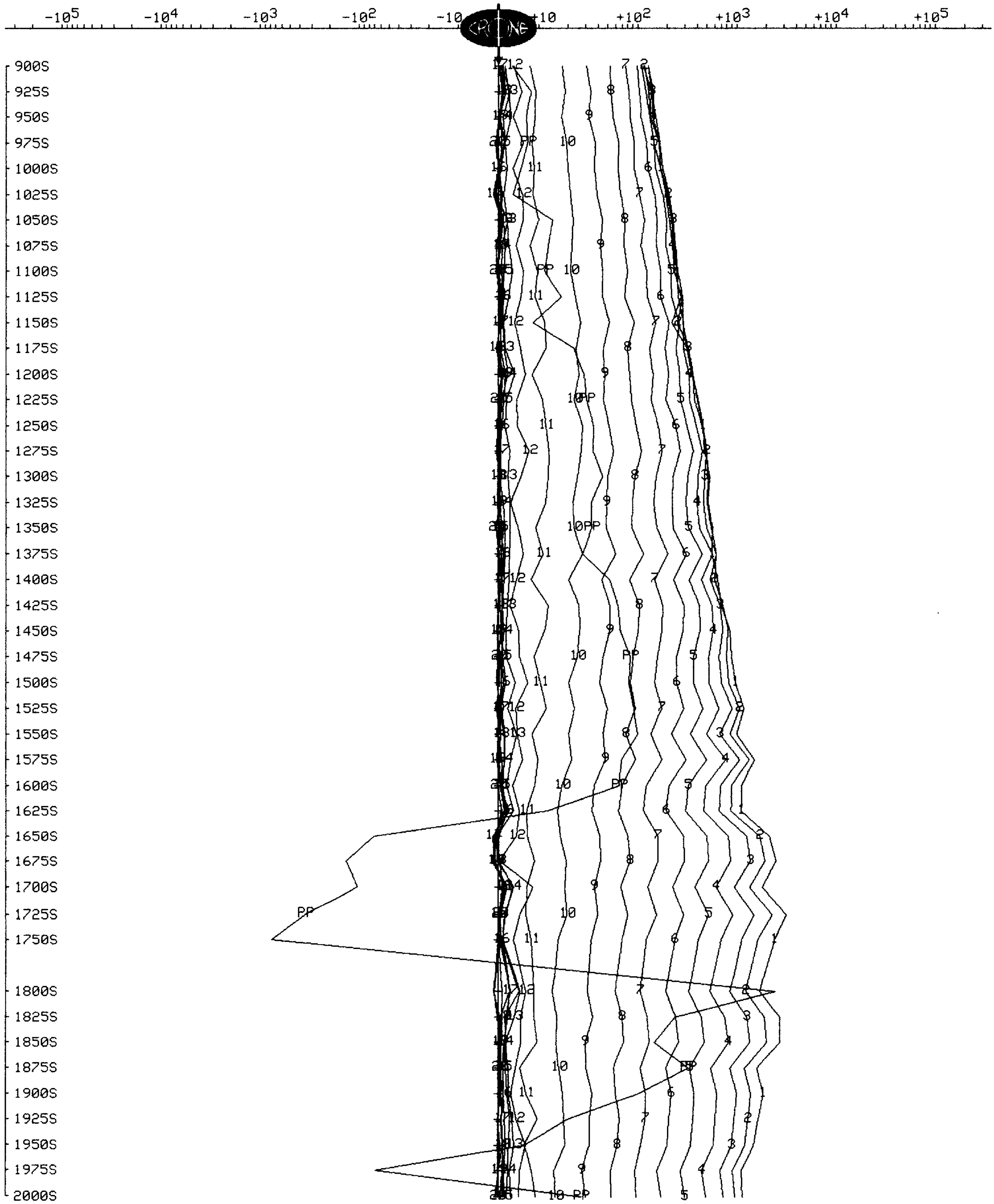


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3400W
Grid	: 330 grid	Tx Loop	: A
Date	: September 11, 1998	File name	: L34W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

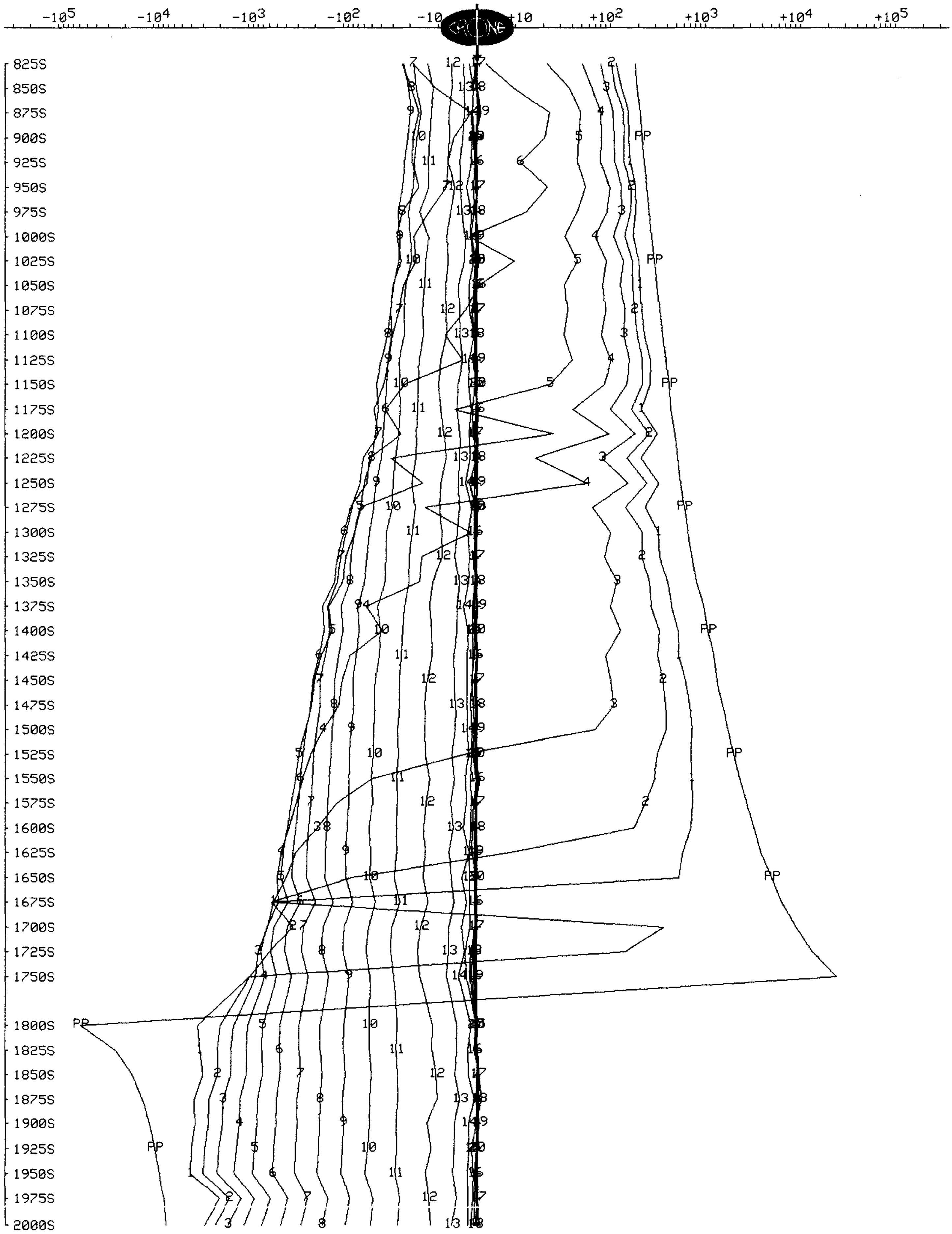


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3500W
Grid	: 330 grid	Tx Loop	: A
Date	: September 11, 1998	File name	: L35W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

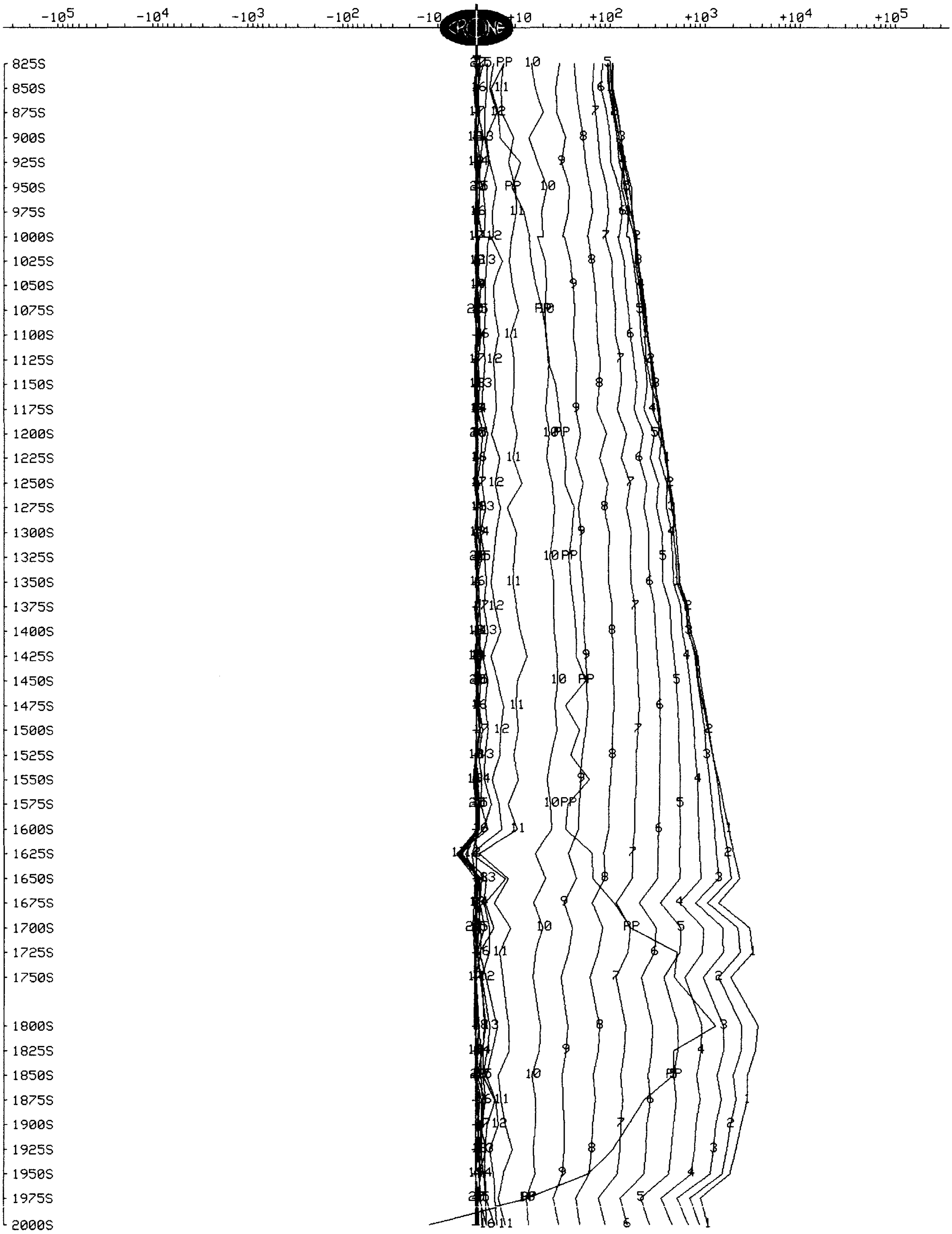


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3500W
Grid	: 330 grid	Tx Loop	: A
Date	: September 11, 1998	File name	: L35W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



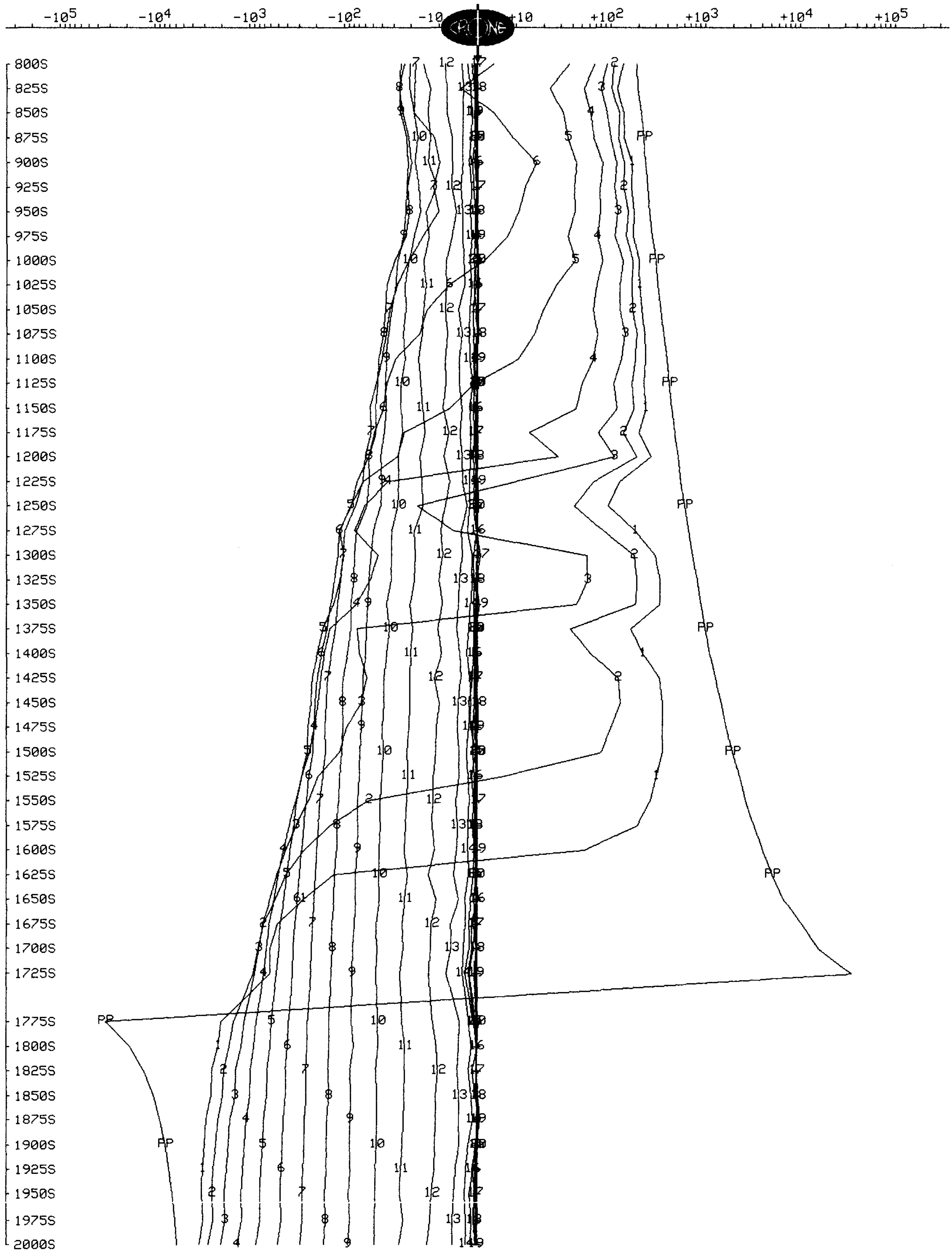
CRONE GEOPHYSICS & EXPLORATION LTD

SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3600W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 9, 1998	File name	: L36W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

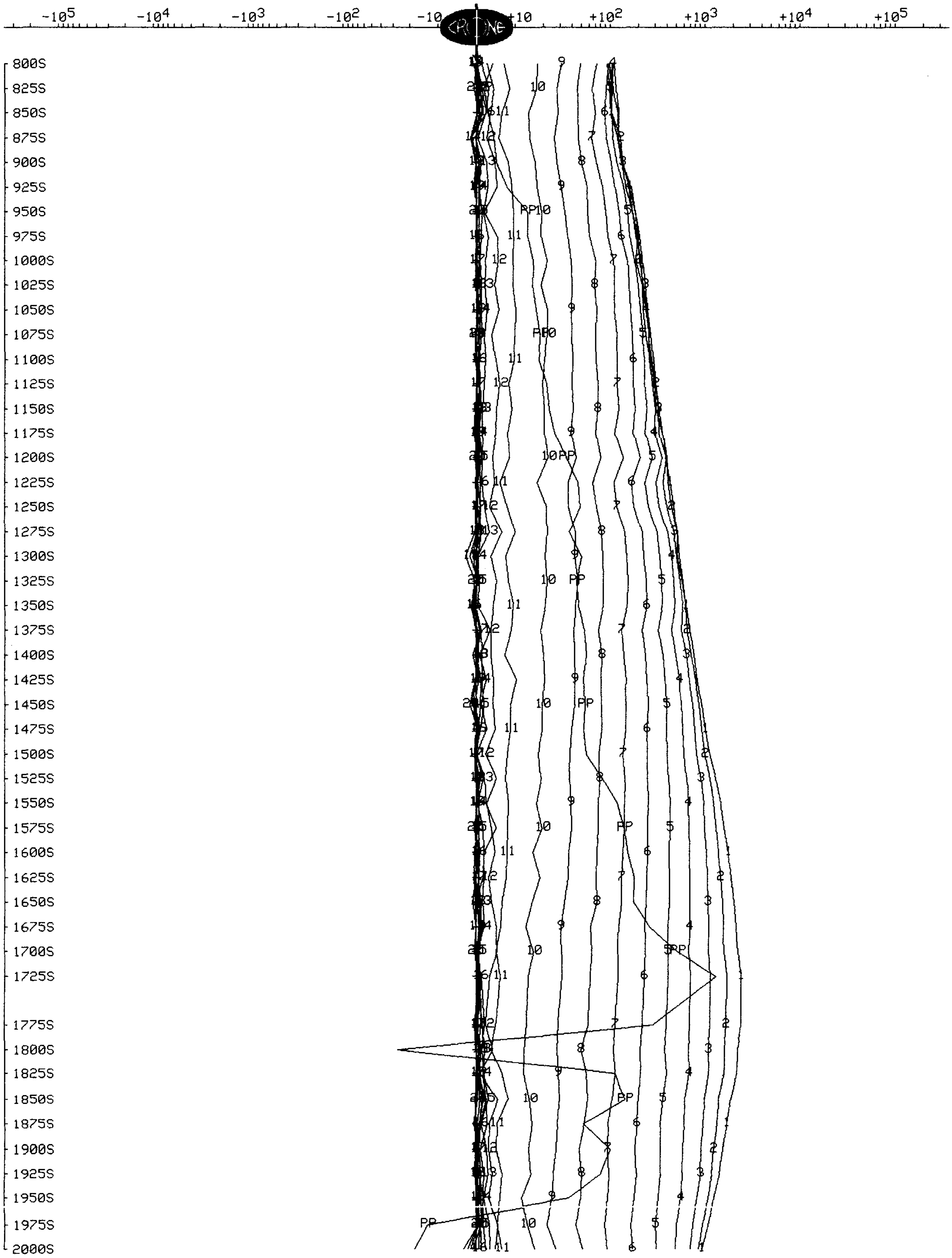


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	:	CROSS LAKE MINERALS LTD.	Line	:	3600W
Grid	:	330 Grid	Tx Loop	:	A
Date	:	September 9, 1998	File name	:	L36W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



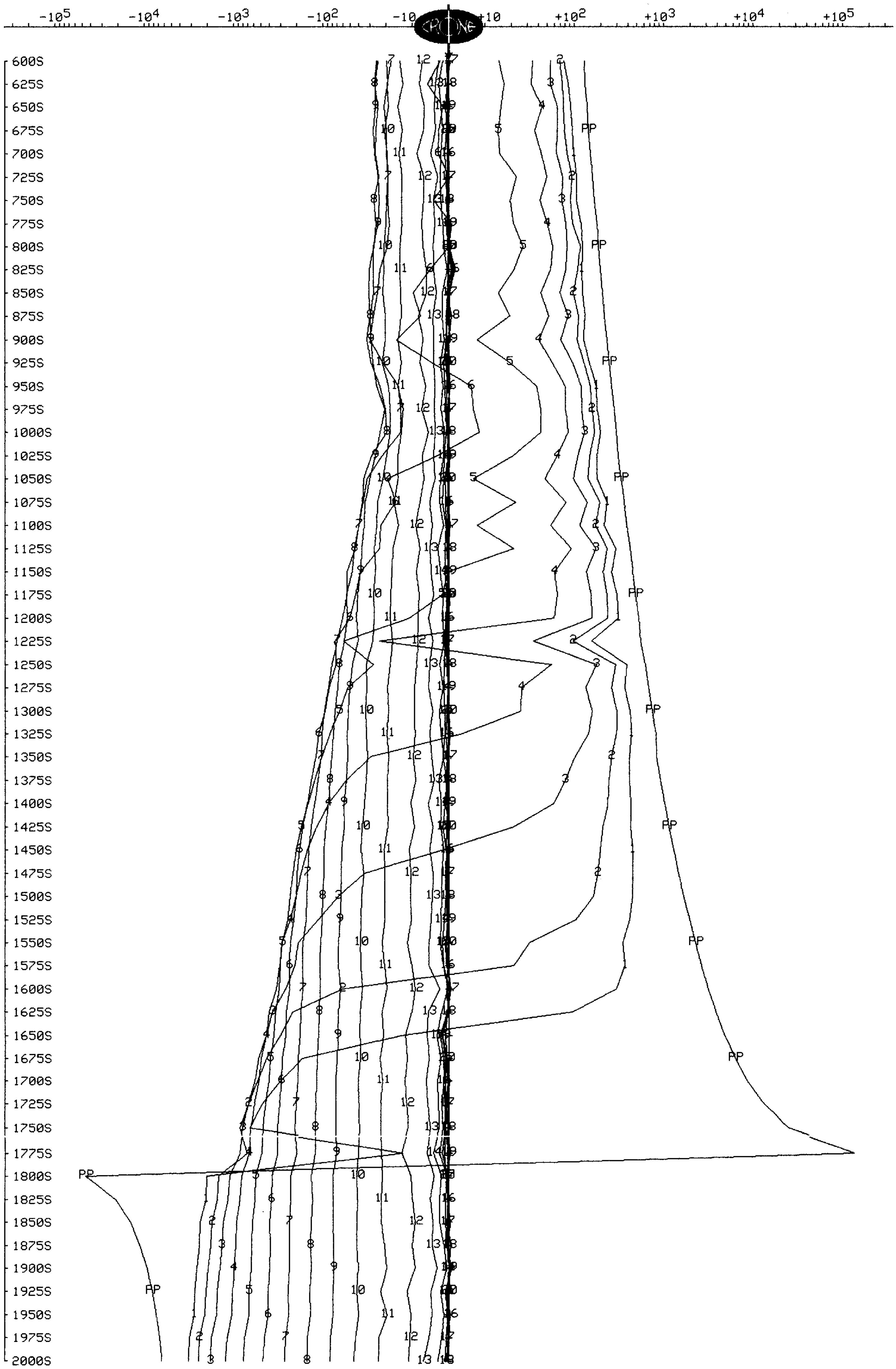
CRONE GEOPHYSICS & EXPLORATION LTD

SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3700W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 9, 1998	File name	: L37W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

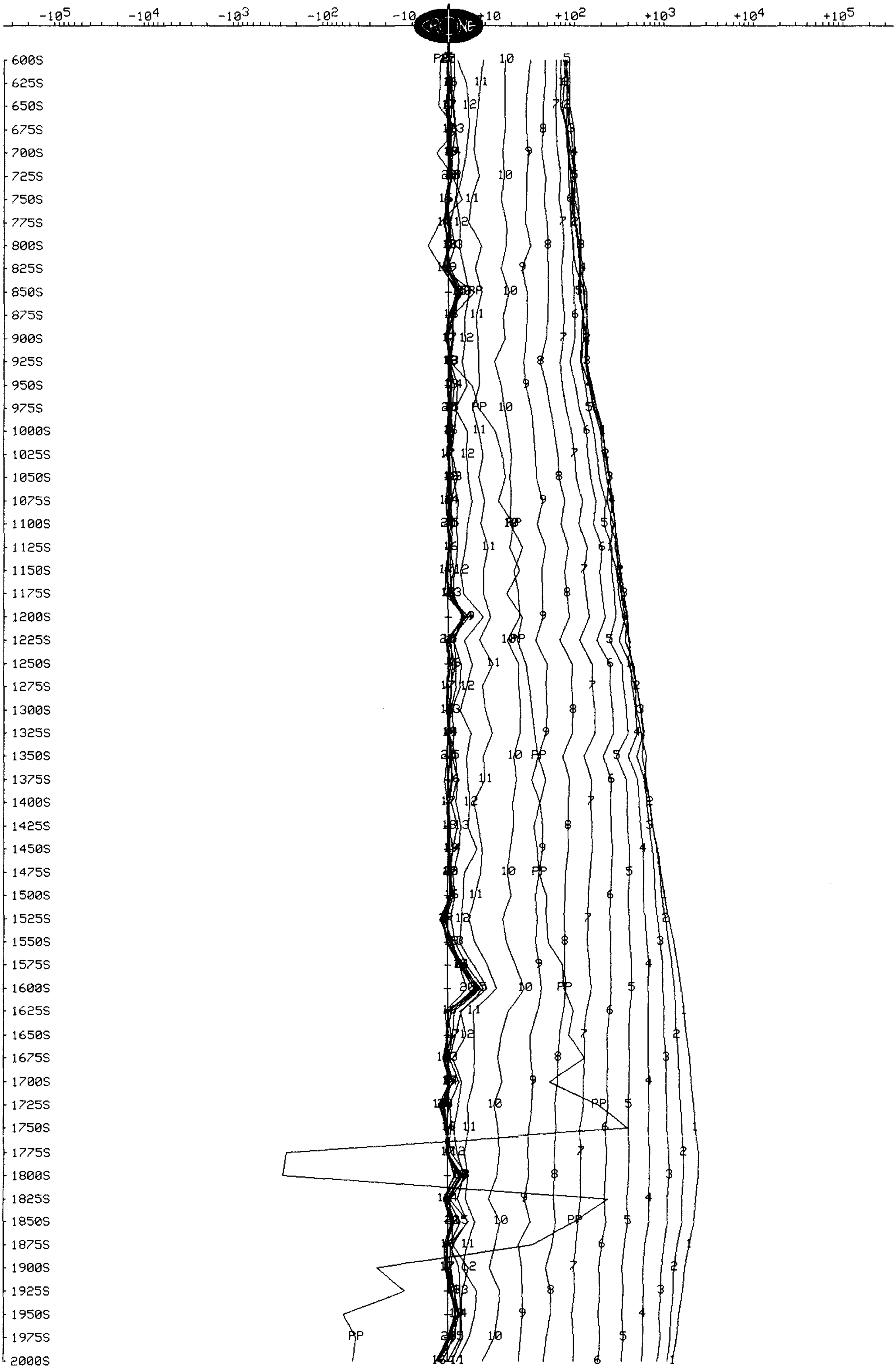


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3700W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 9, 1998	File name	: L37W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

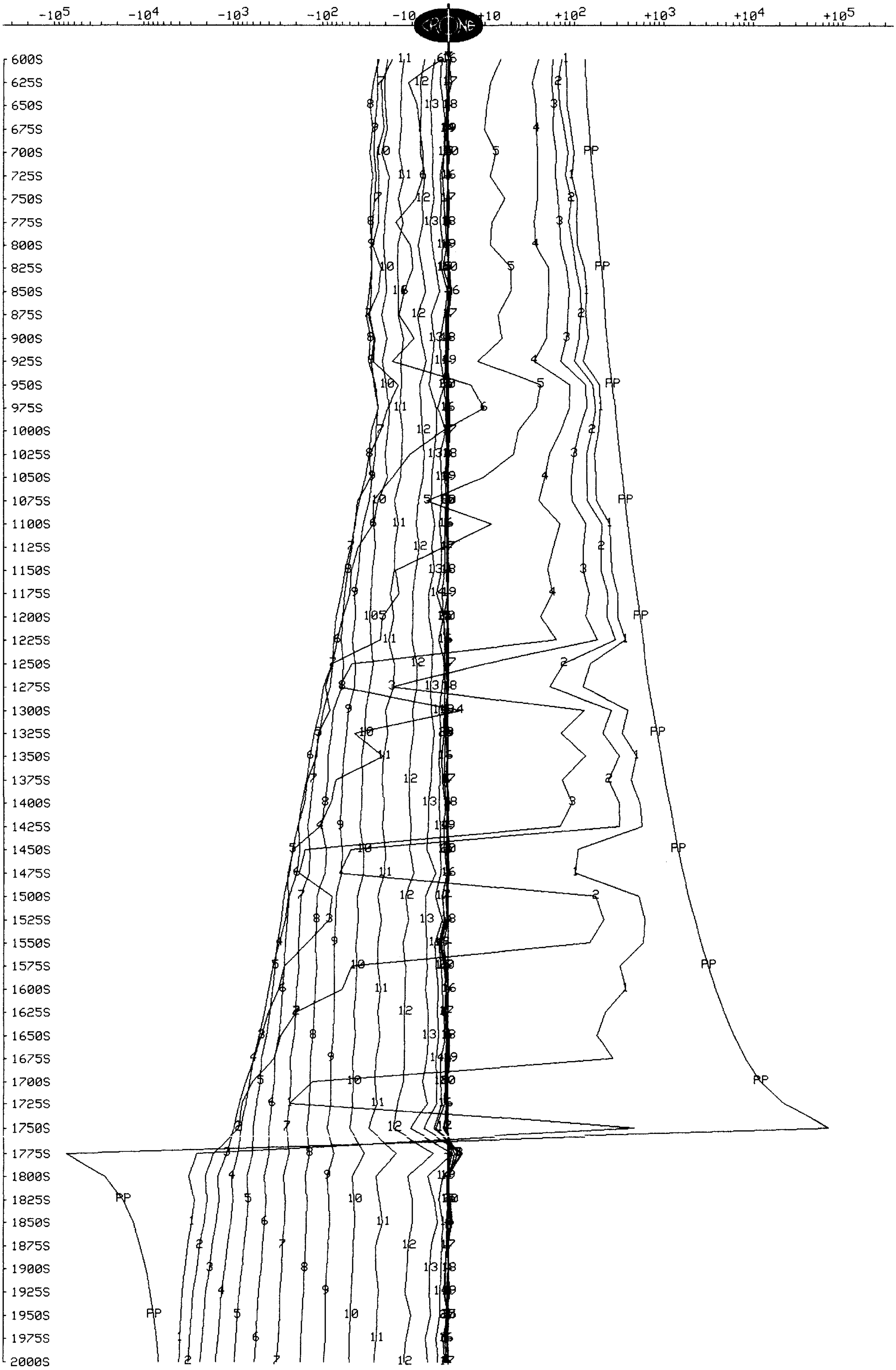


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3800W
Grid	: 330 grid	Tx Loop	: A
Date	: September 7, 1998	File name	: L38W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

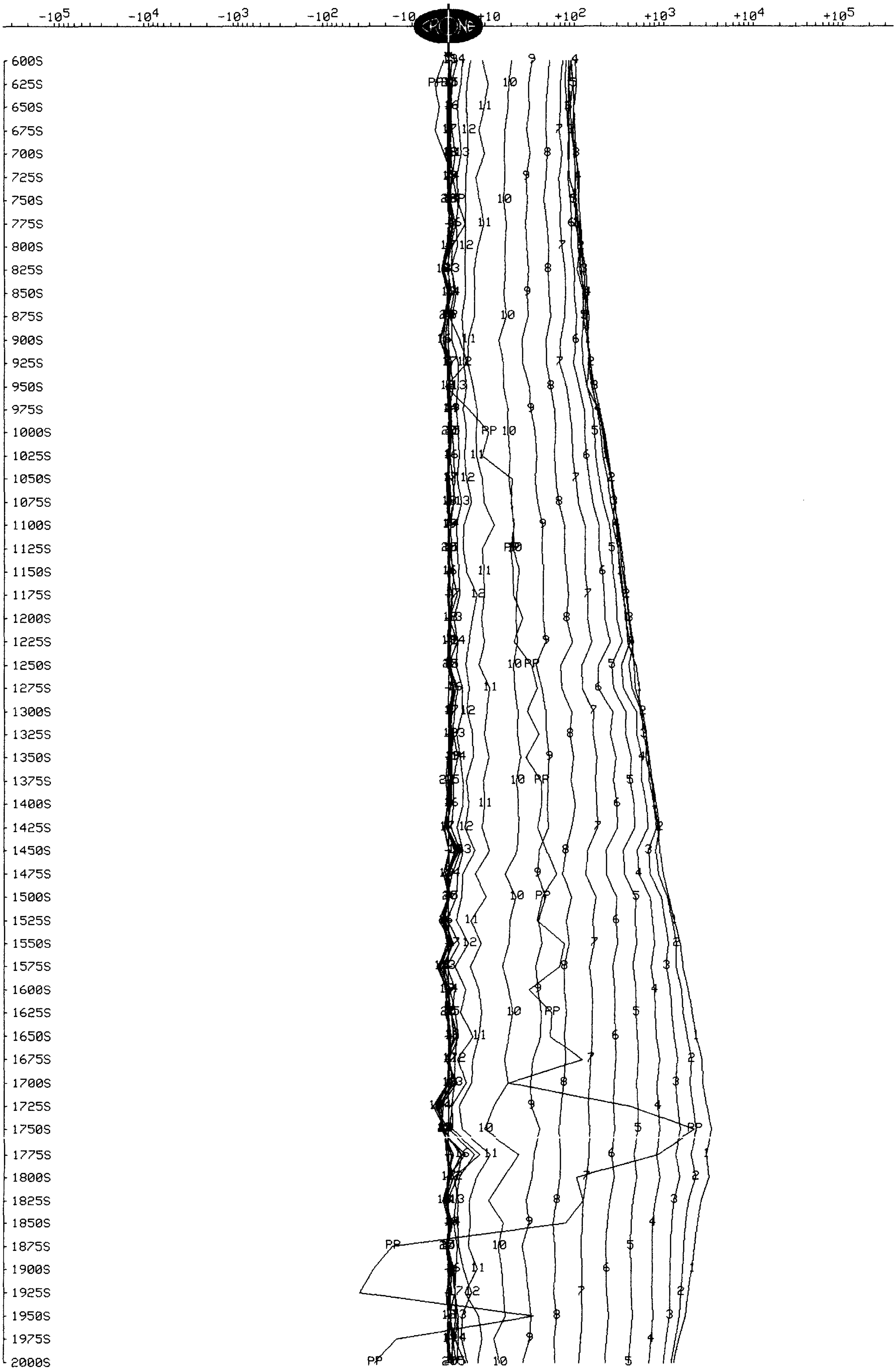


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3800W
Grid	: 330 grid	Tx Loop	: A
Date	: September 7, 1998	File name	: L38W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



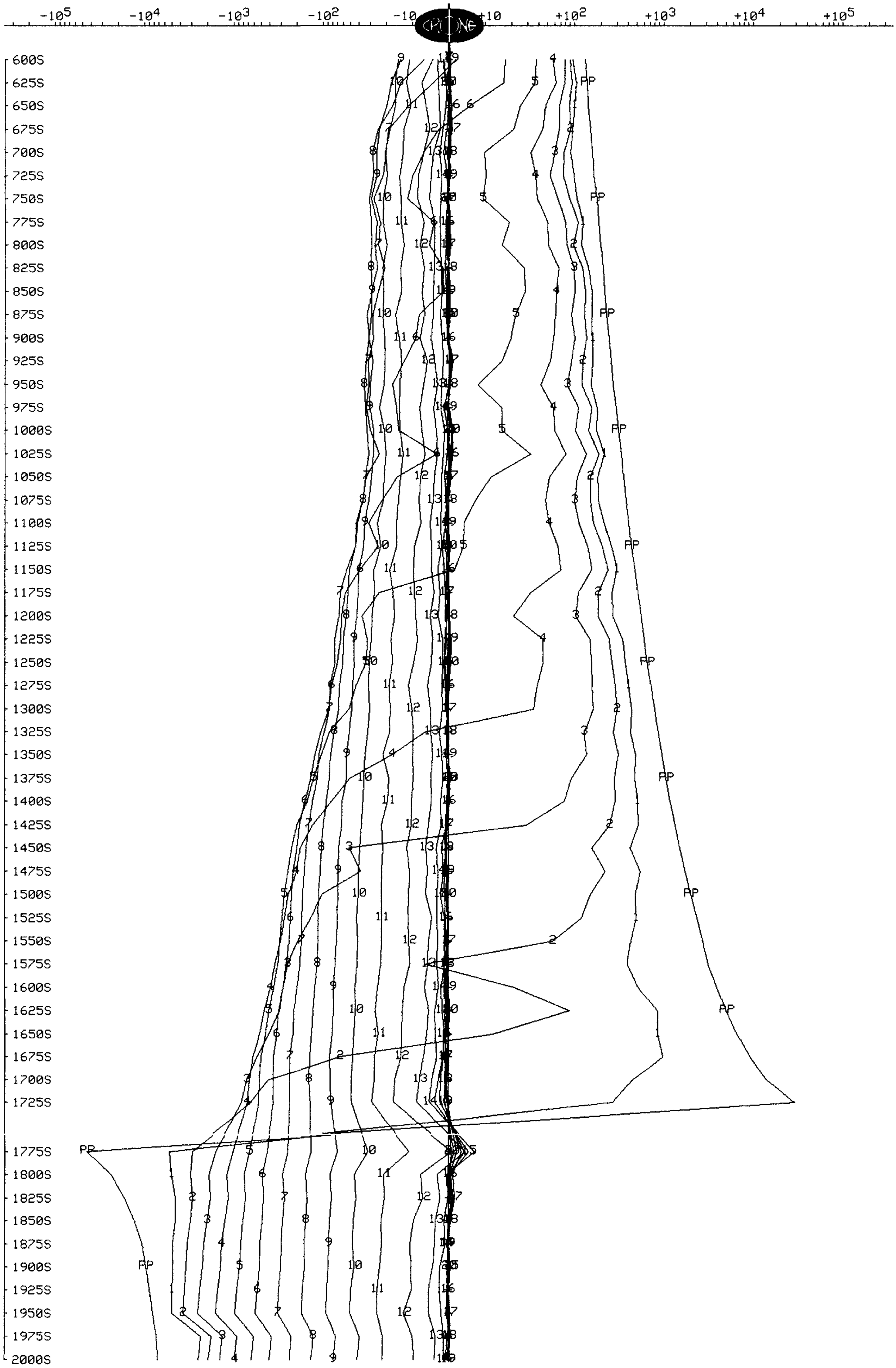
CRONE GEOPHYSICS & EXPLORATION LTD

SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 3900W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 10, 1998	File name	: L39W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

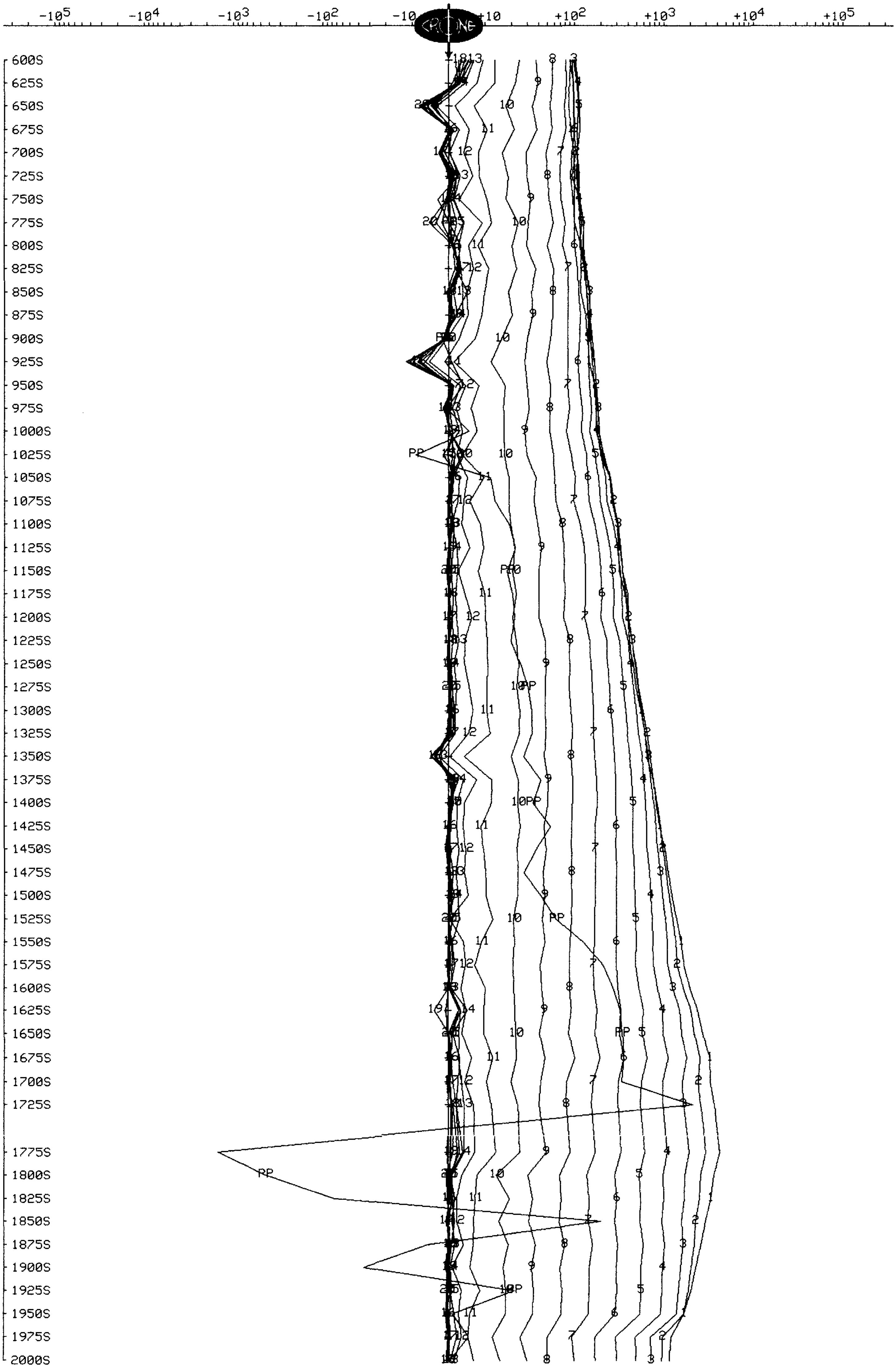


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.		Line	:	3900W
Grid	: 330 Grid		Tx Loop	:	A
Date	: September 10, 1998		File name	:	L39W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

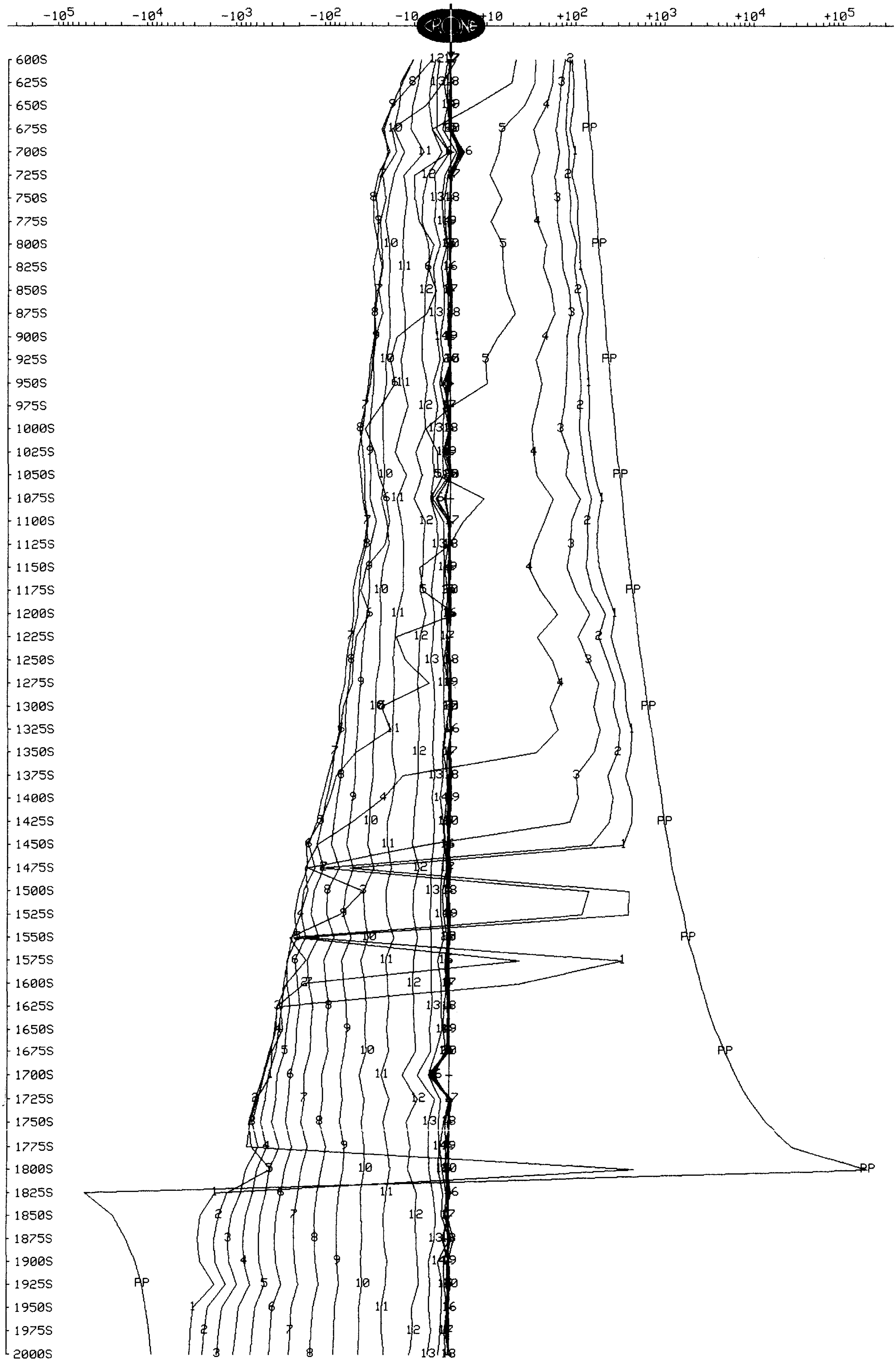


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 4000W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 10, 1998	File name	: L40W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

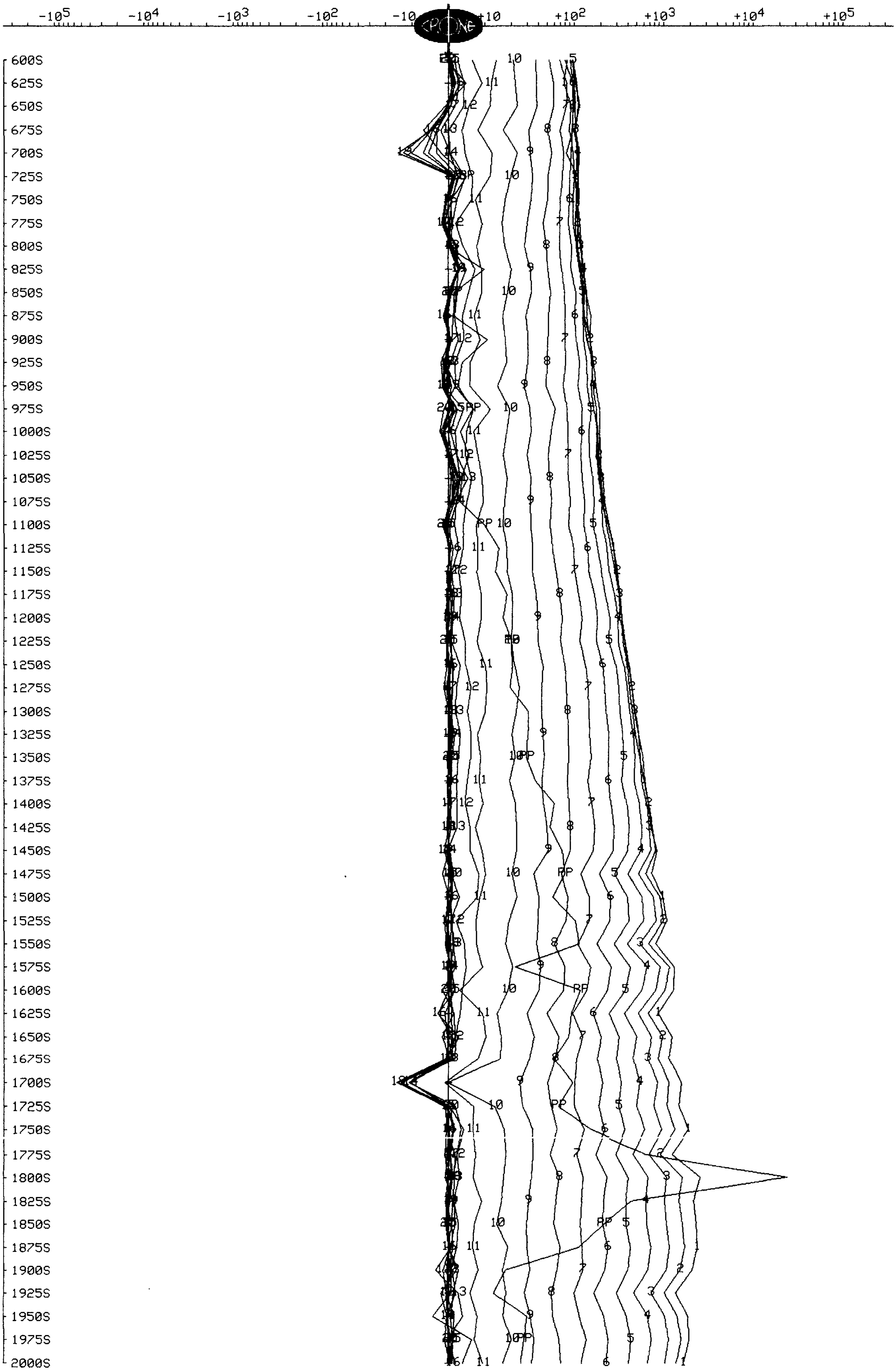


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: **4000W**
Grid	: 330 Grid	Tx Loop	: **A**
Date	: September 10, 1998	File name	: **L40W.PEM**

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

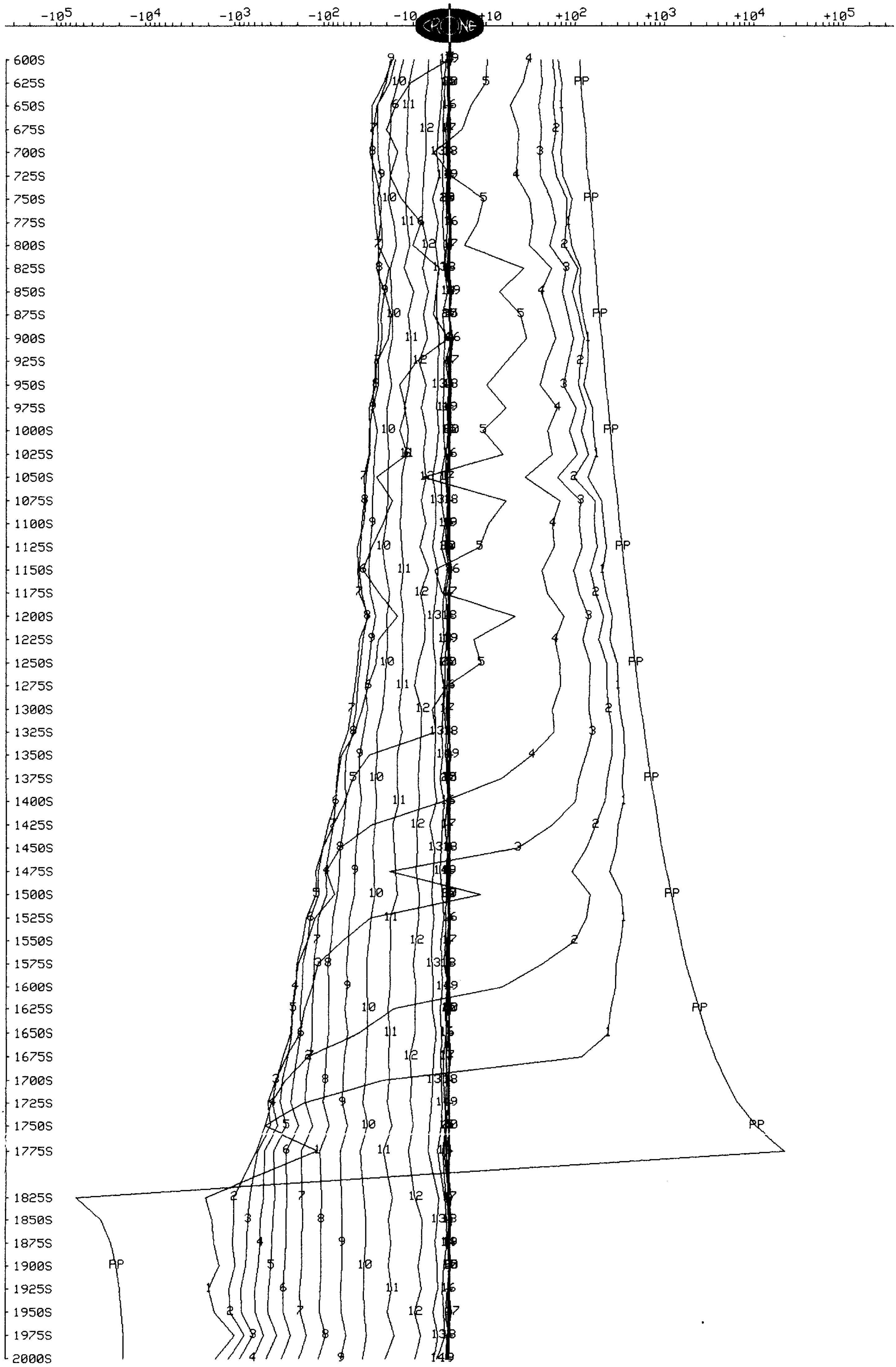


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 4100W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 6, 1998	File name	: L41W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

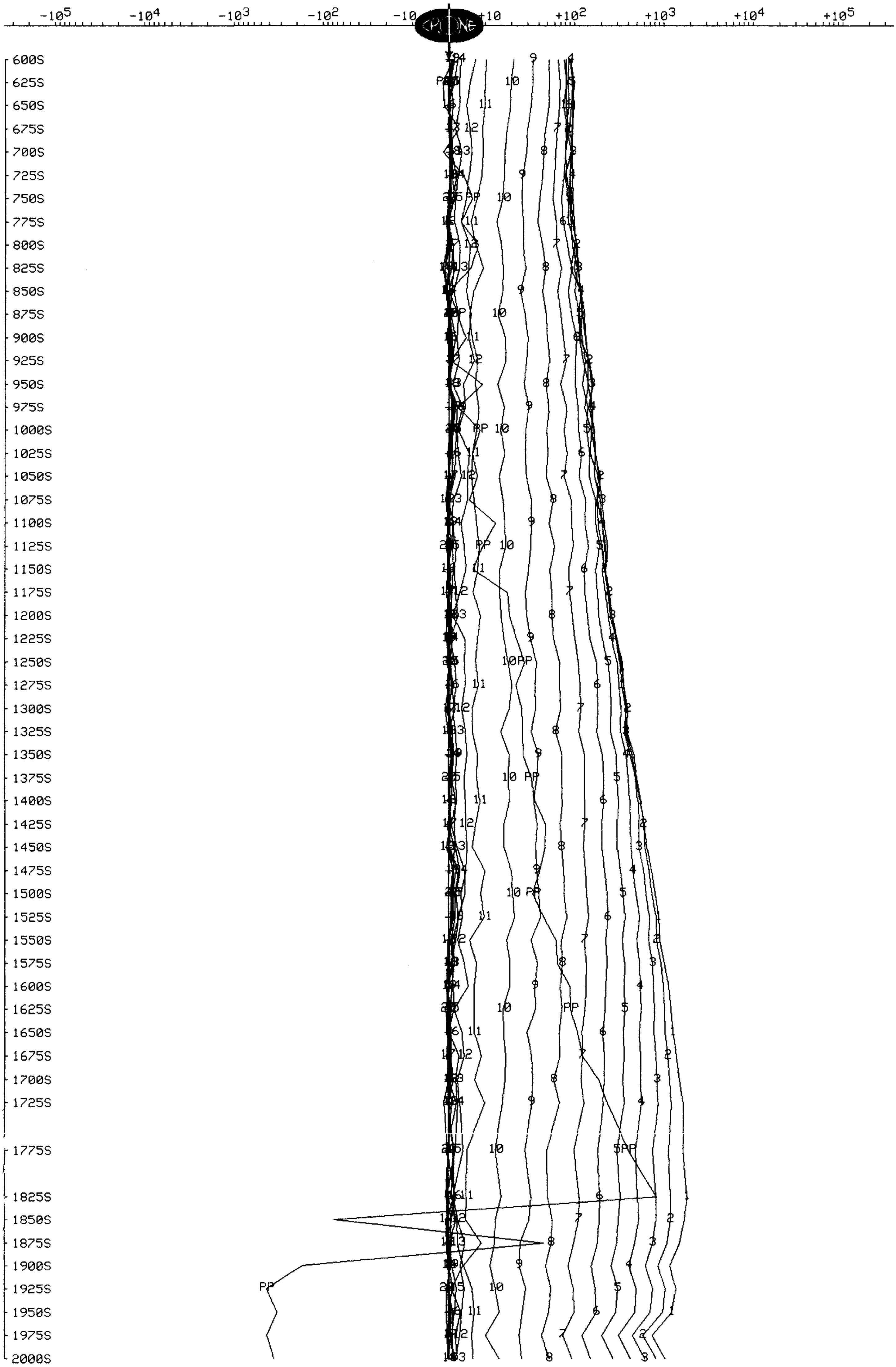


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: **CROSS LAKE MINERALS LTD.**	Line	: **4100W**
Grid	: **330 Grid**	Tx Loop	: **A**
Date	: **September 6, 1998**	File name	: **L41W.PEM**

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

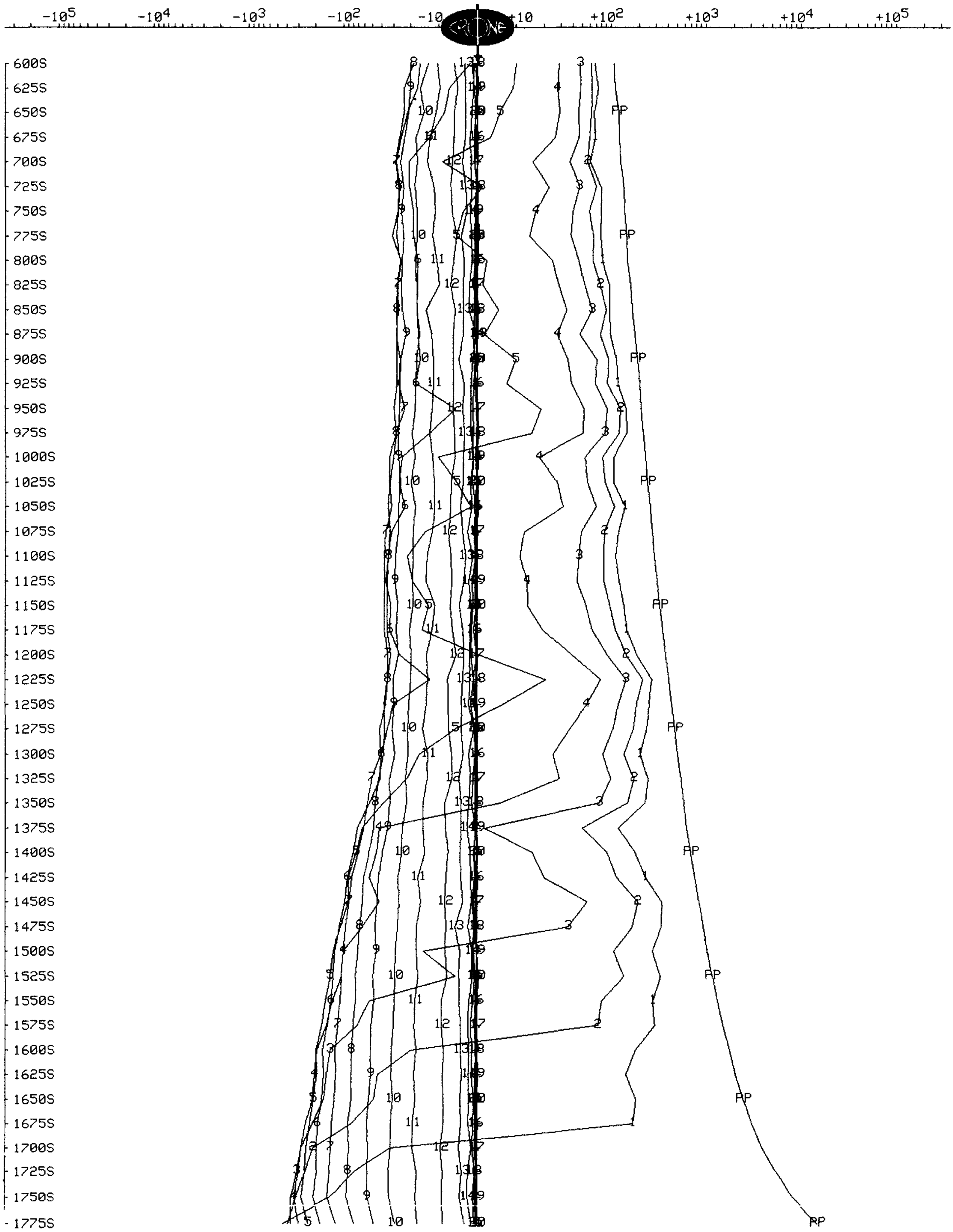


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client : CROSS LAKE MINERALS LTD. Line : 4200W
Grid : 330 Grid Tx Loop : A
Date : September 6, 1998 File name : L42W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

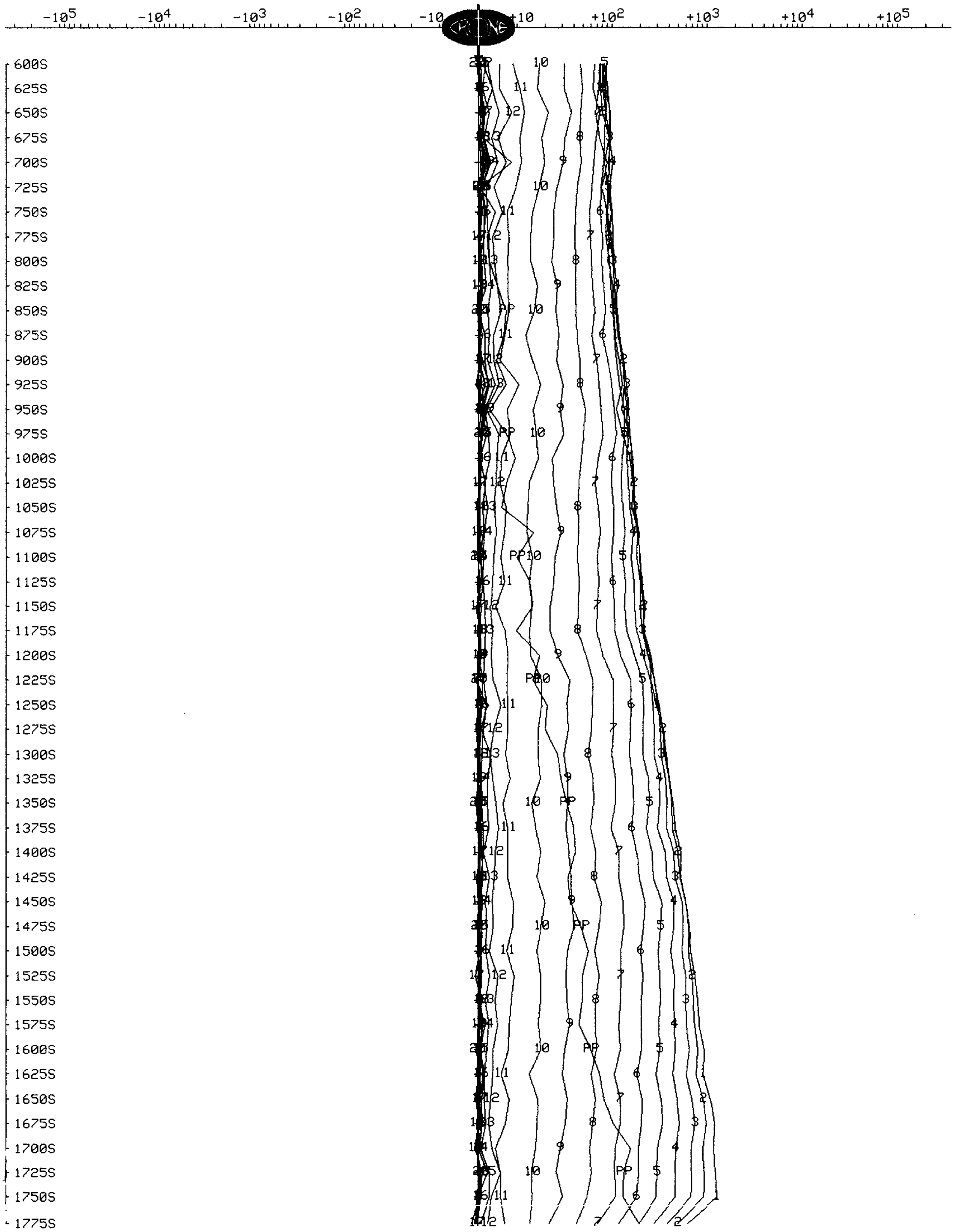


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: 4200W
Grid	: 330 Grid	Tx Loop	: A
Date	: September 6, 1998	File name	: L42W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

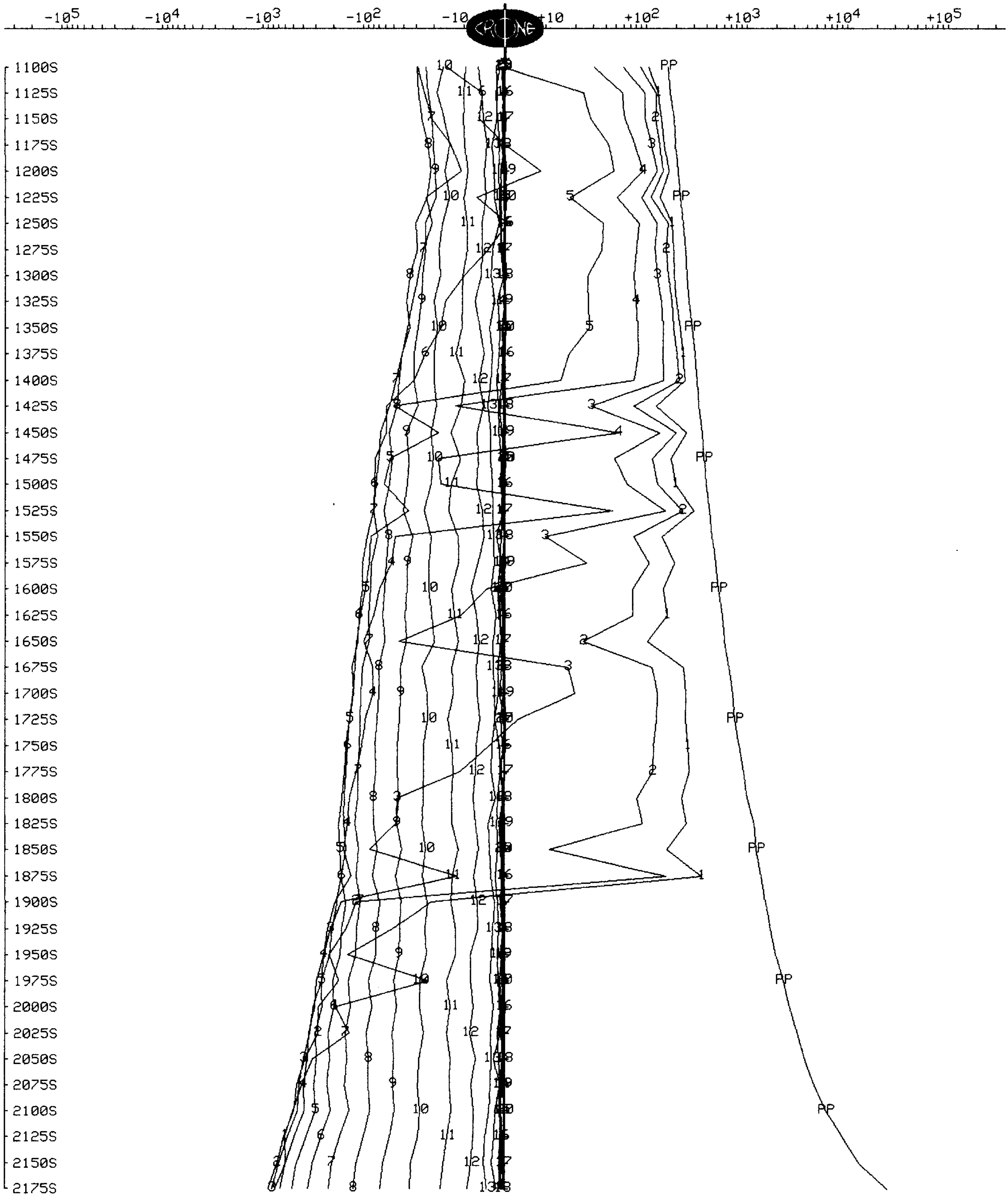


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4400W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 9, 1998	File name	: L4400W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

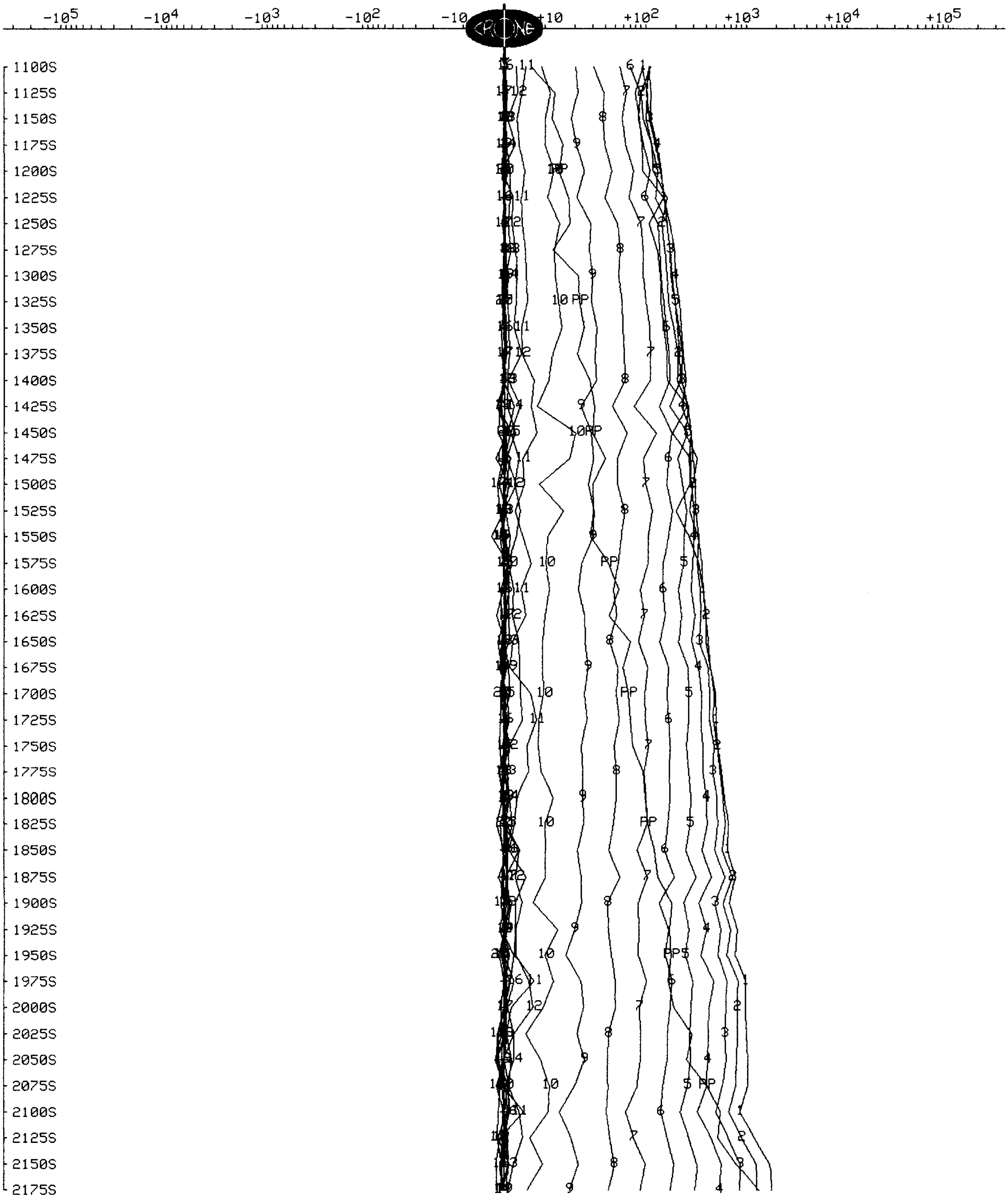


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4400W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 9, 1998	File name	: L4400W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

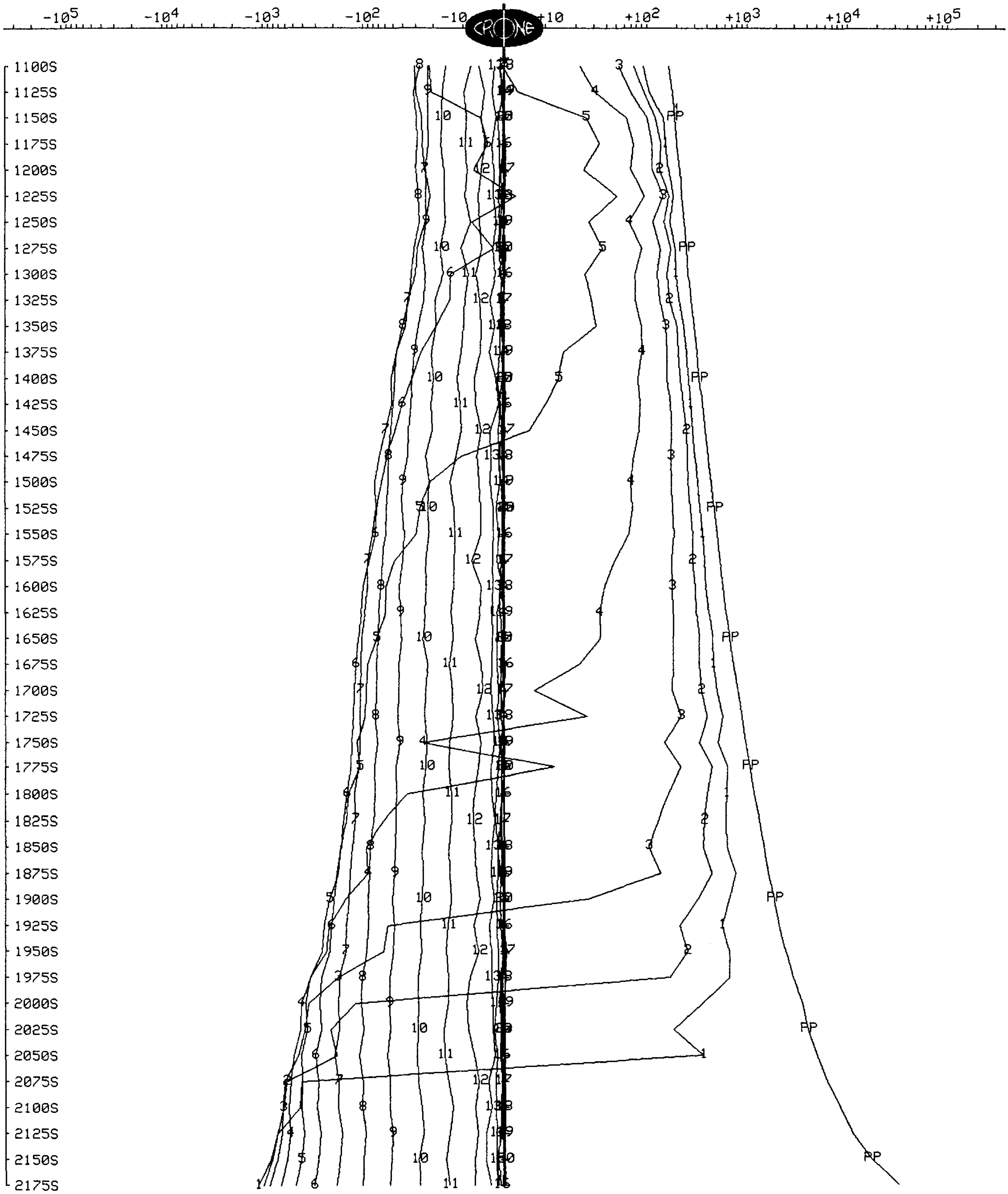


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4500W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 9, 1998	File name	: L4500W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



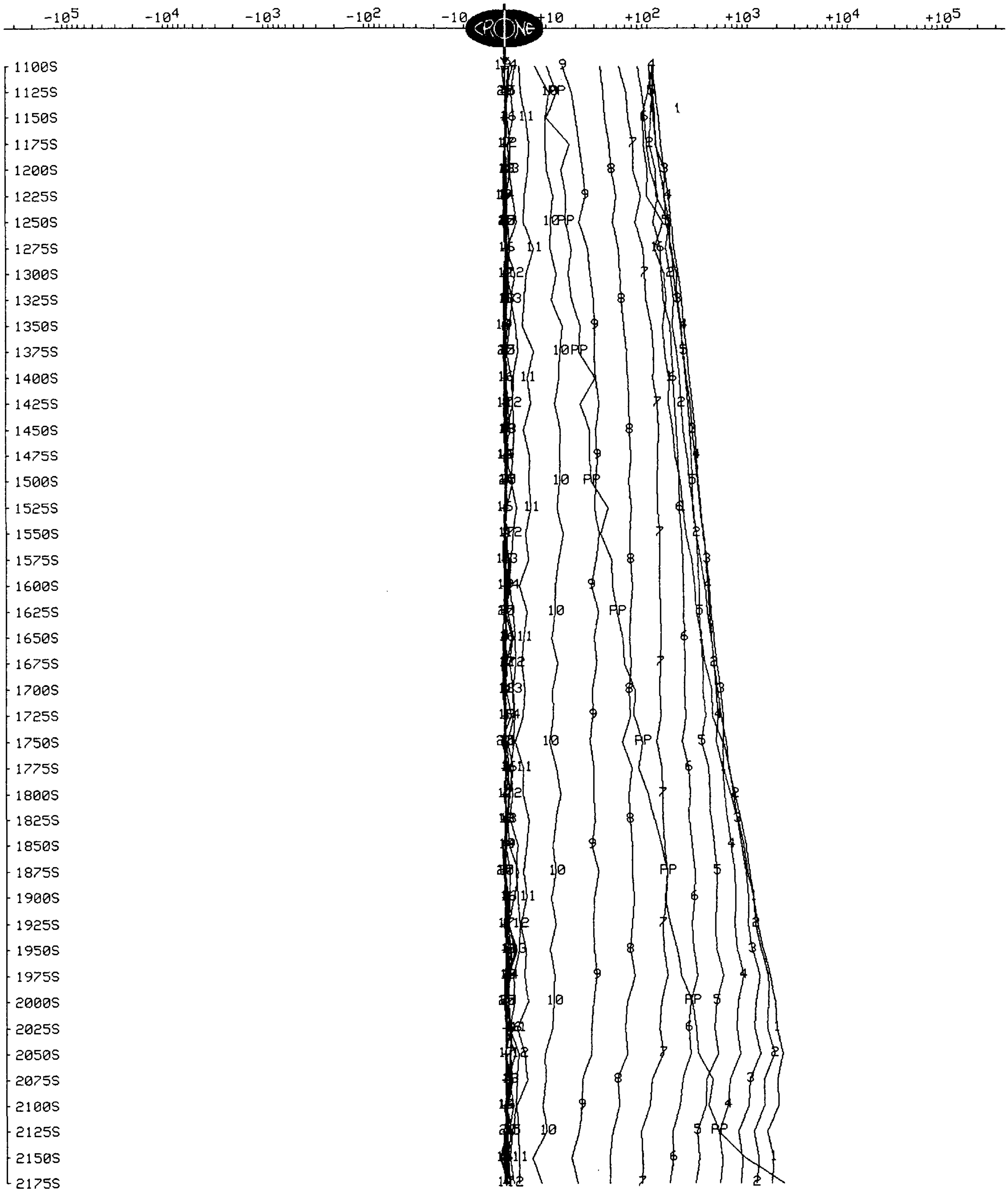
CRONE GEOPHYSICS & EXPLORATION LTD

SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4500W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 9, 1998	File name	: L4500W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

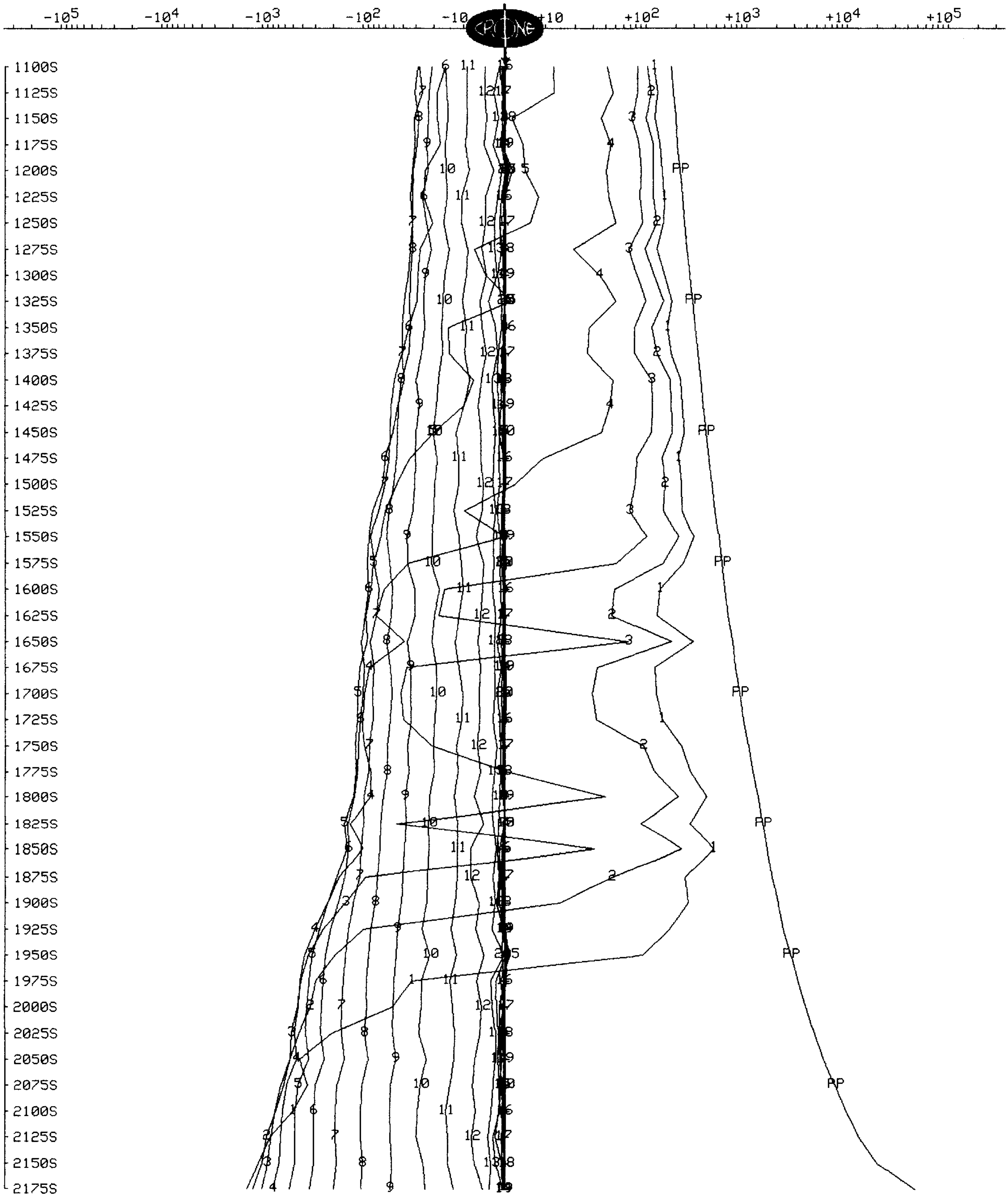


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4600W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 9, 1998	File name	: L4600W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

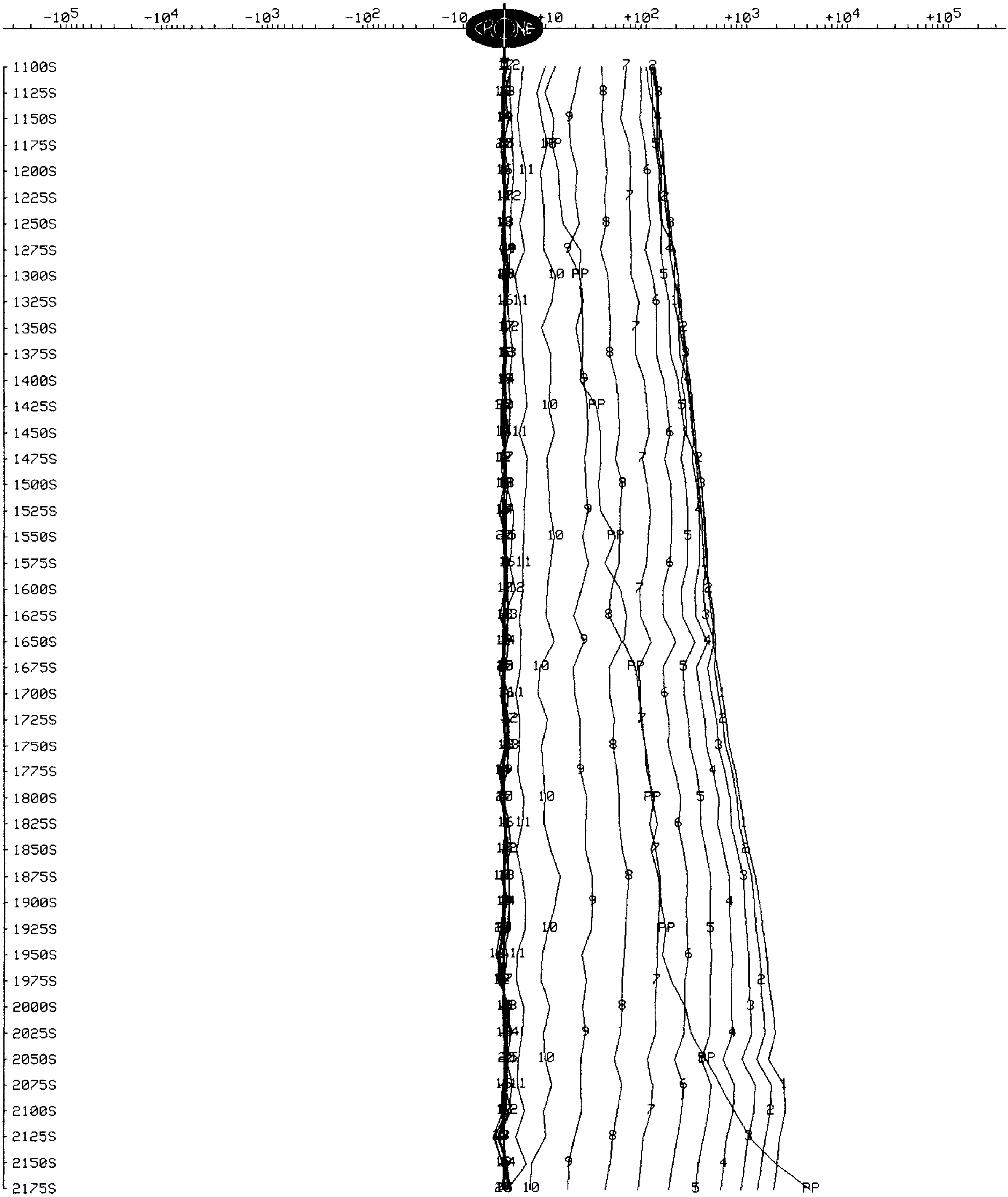


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	:	CROSS LAKE MINERALS LTD.	Line	:	L4600W
Grid	:	330 GRID	Tx Loop	:	L7
Date	:	Jun 9, 1998	File name	:	L4600W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

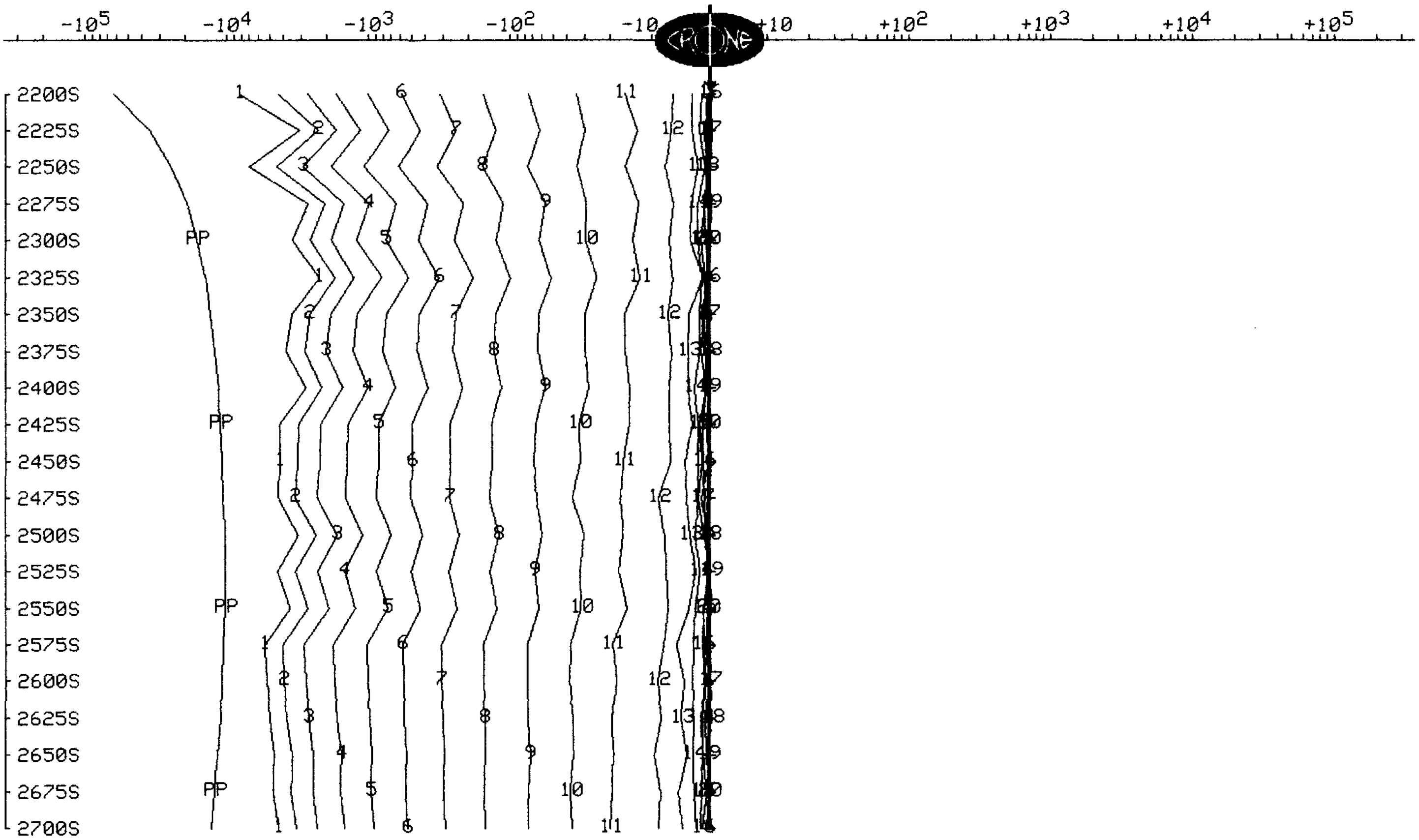


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4700W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 11, 1998	File name	: L4700.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

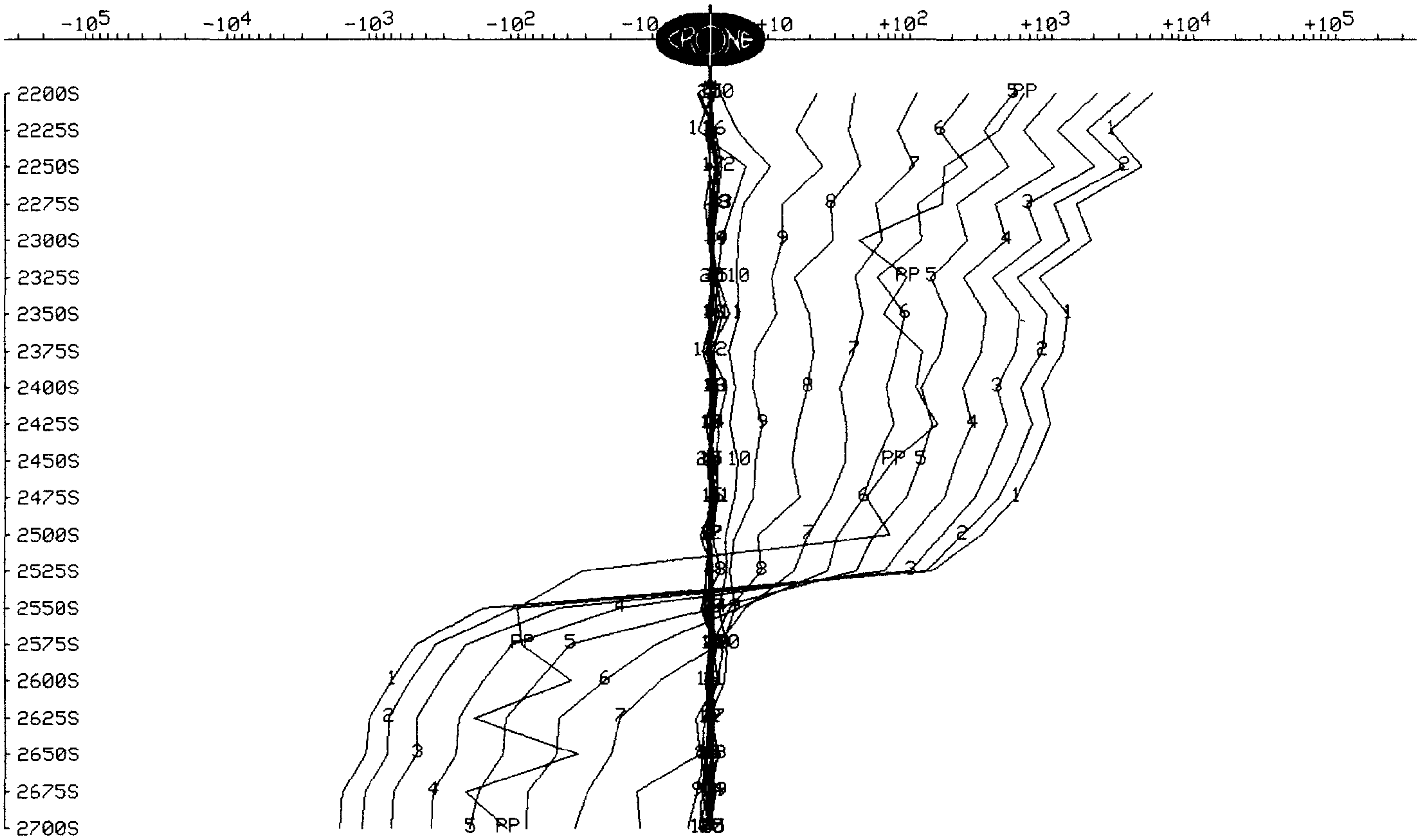


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4700W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 11, 1998	File name	: L4700.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

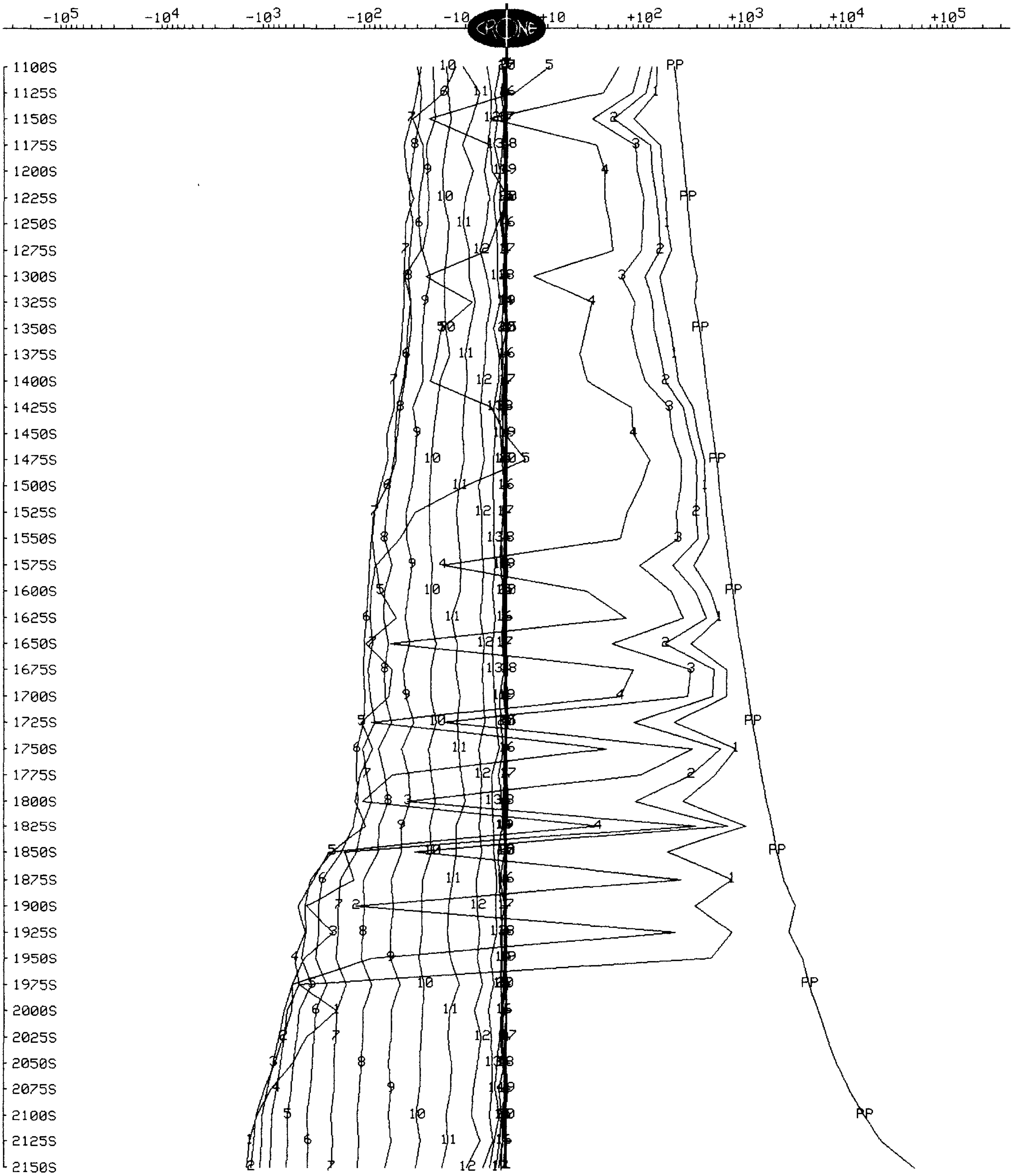


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	:	CROSS LAKE MINERALS LTD.	Line	:	L4700W
Grid	:	330 GRID	Tx Loop	:	L7
Date	:	Jun 8, 1998	File name	:	L4700W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

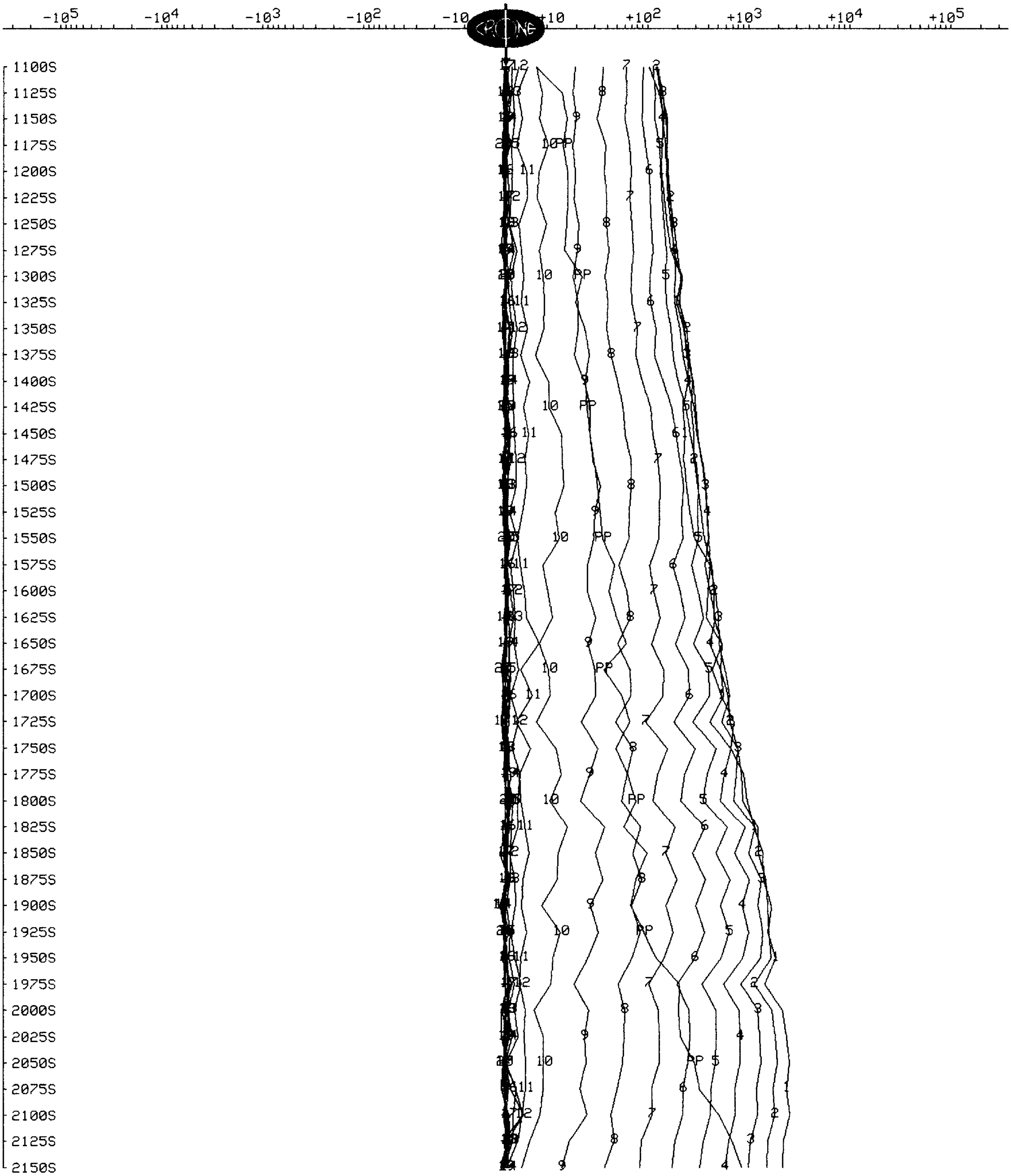


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4700W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 8, 1998	File name	: L4700W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

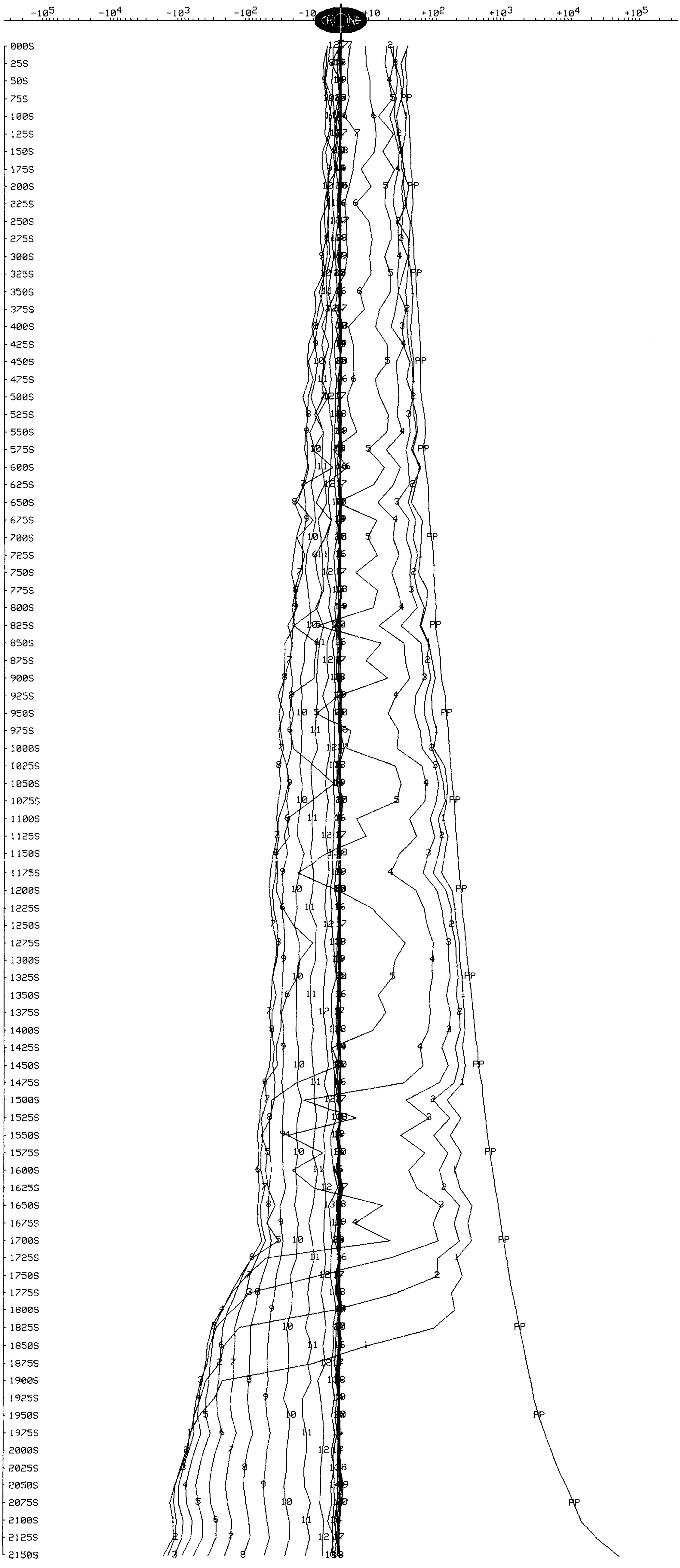


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4800W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 5, 1998	File name	: L4800WO.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

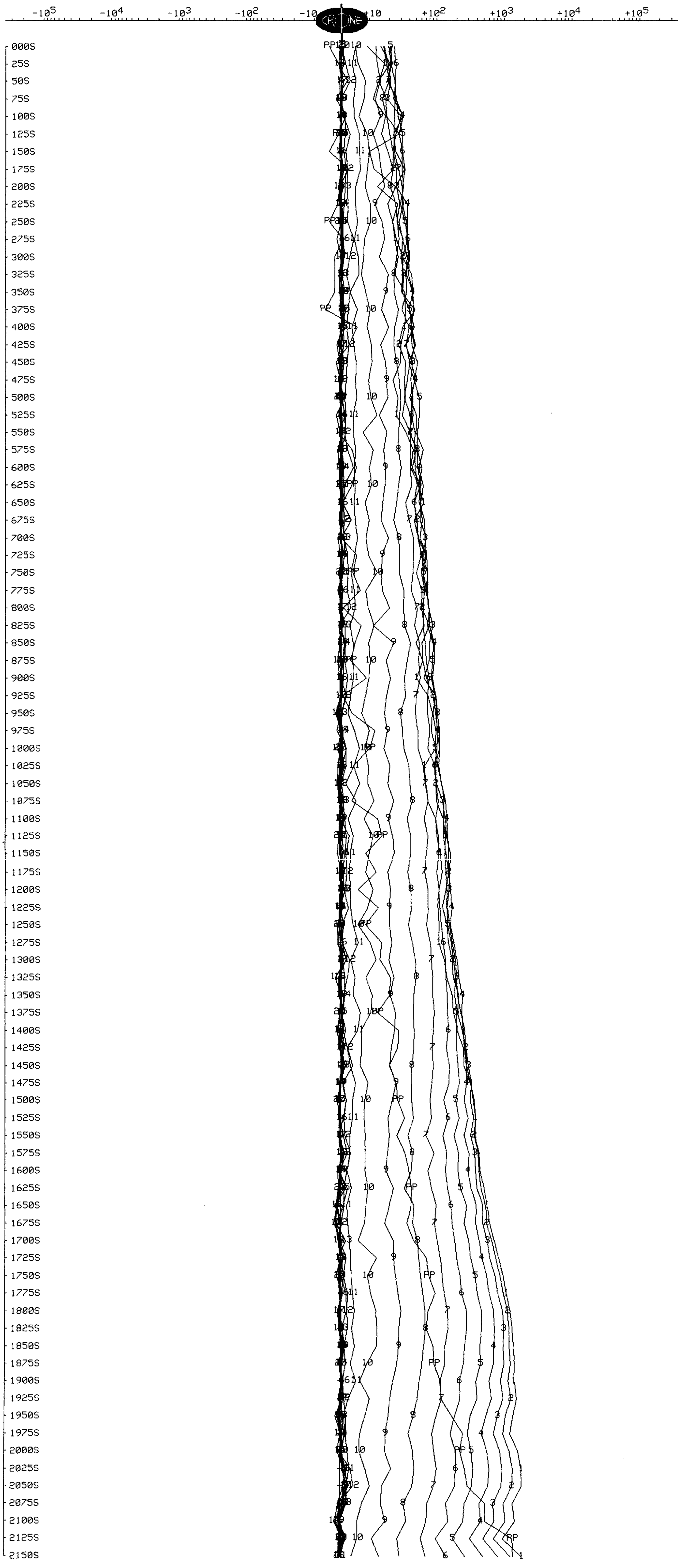


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4800W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 5, 1998	File name	: L4800WO.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

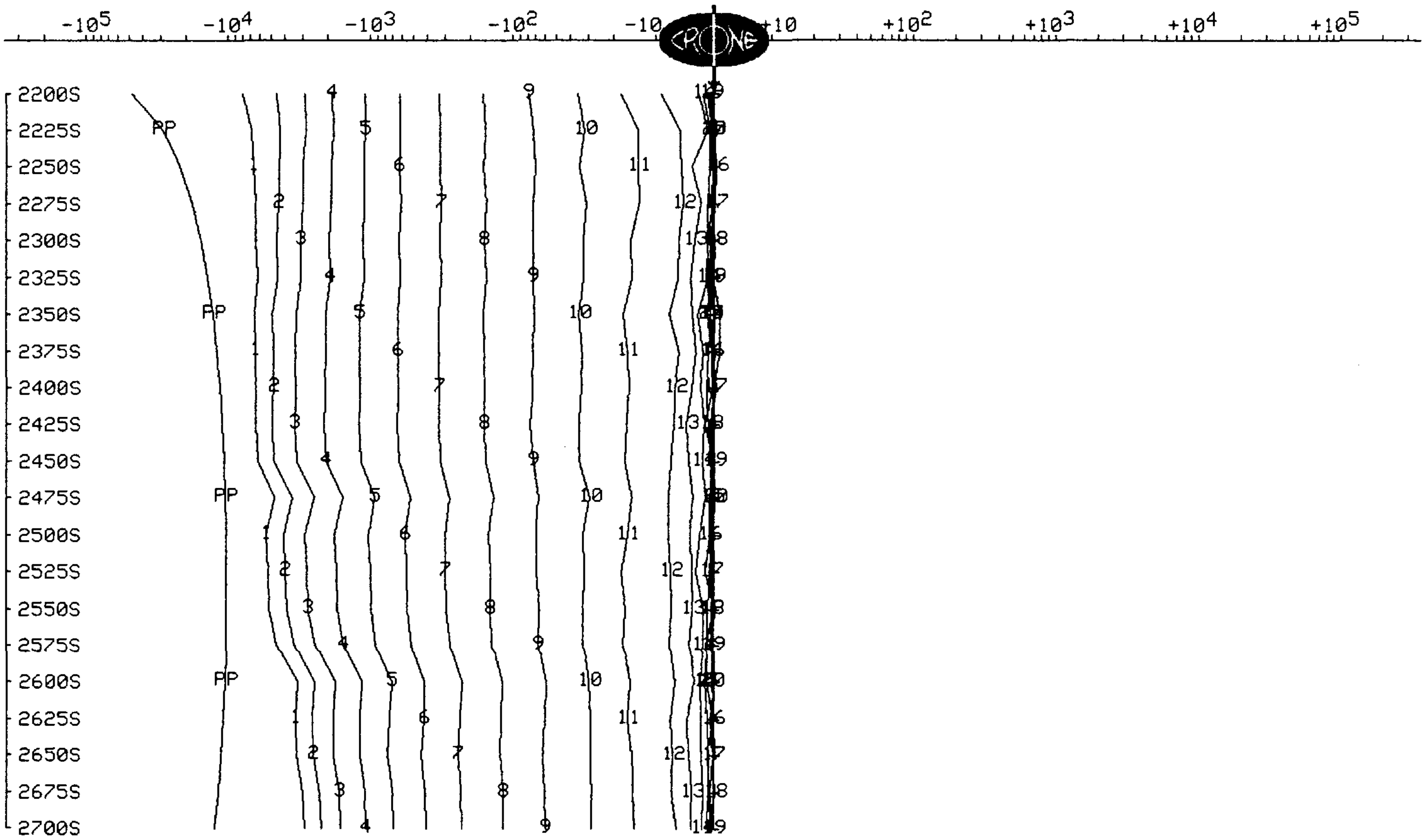


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client : CROSS LAKE MINERALS LTD.
Grid : 330 GRID
Date : Jun 11, 1998
Line : L4800W
Tx Loop : L7
File name : L4800W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

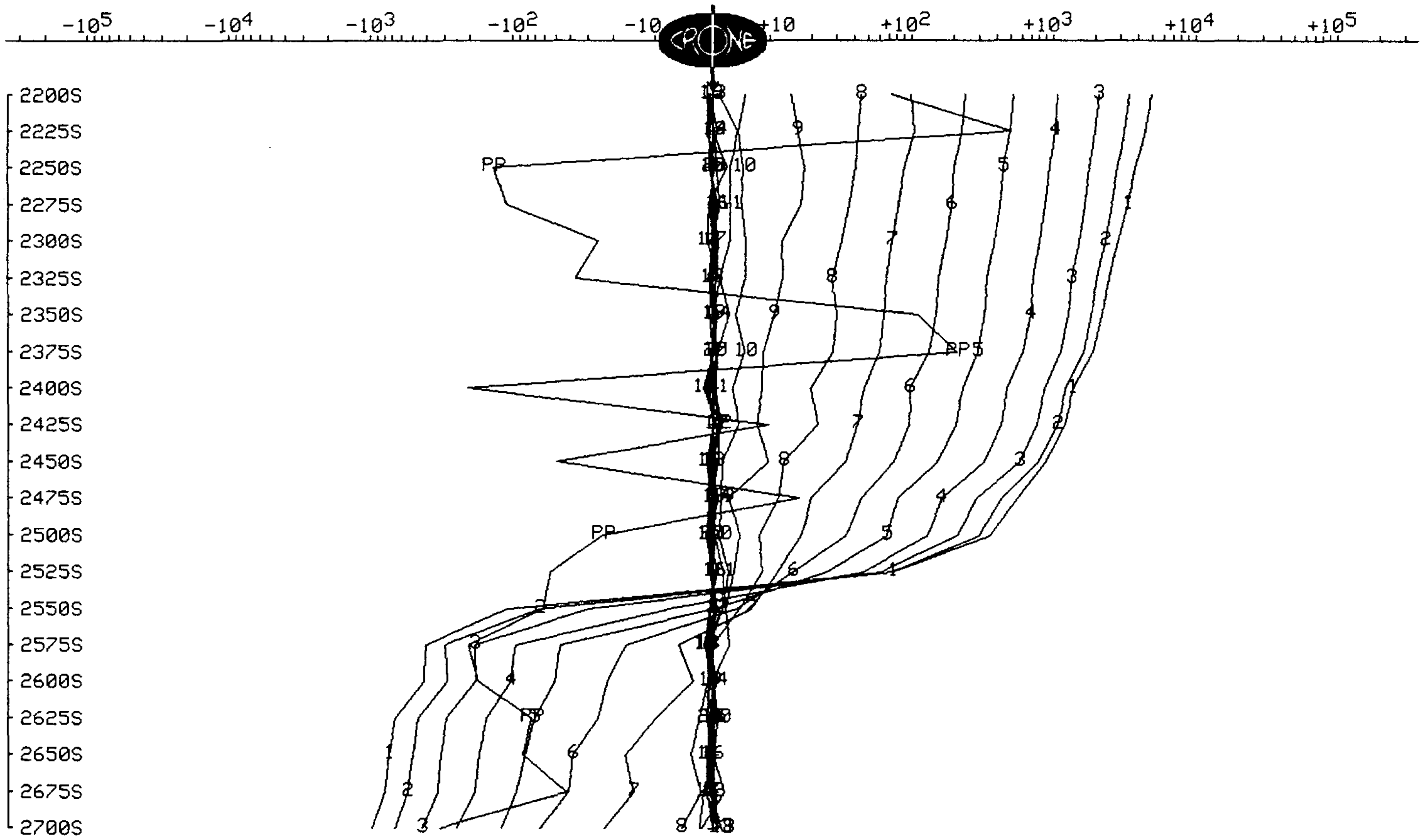


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4800W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 11, 1998	File name	: L4800W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

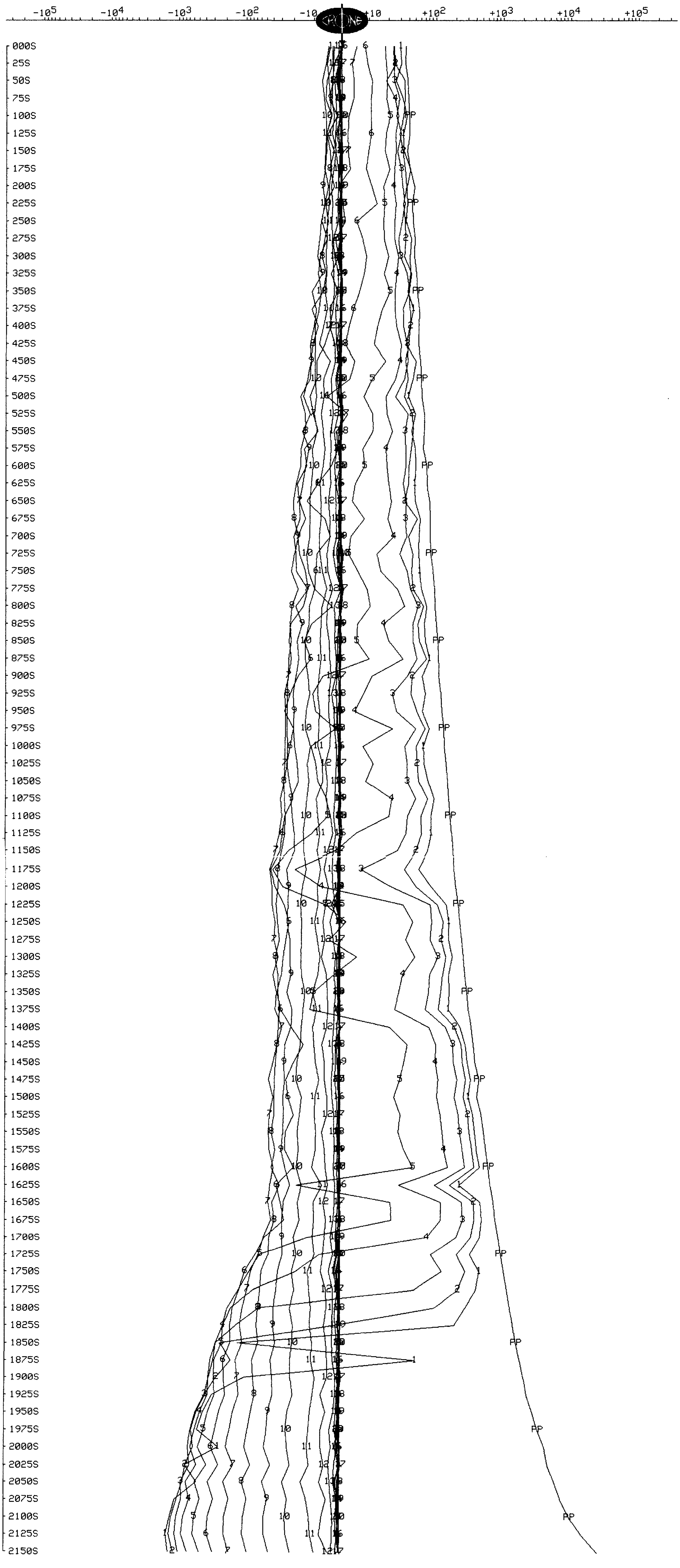


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4900W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 5, 1998	File name	: L4900WO.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



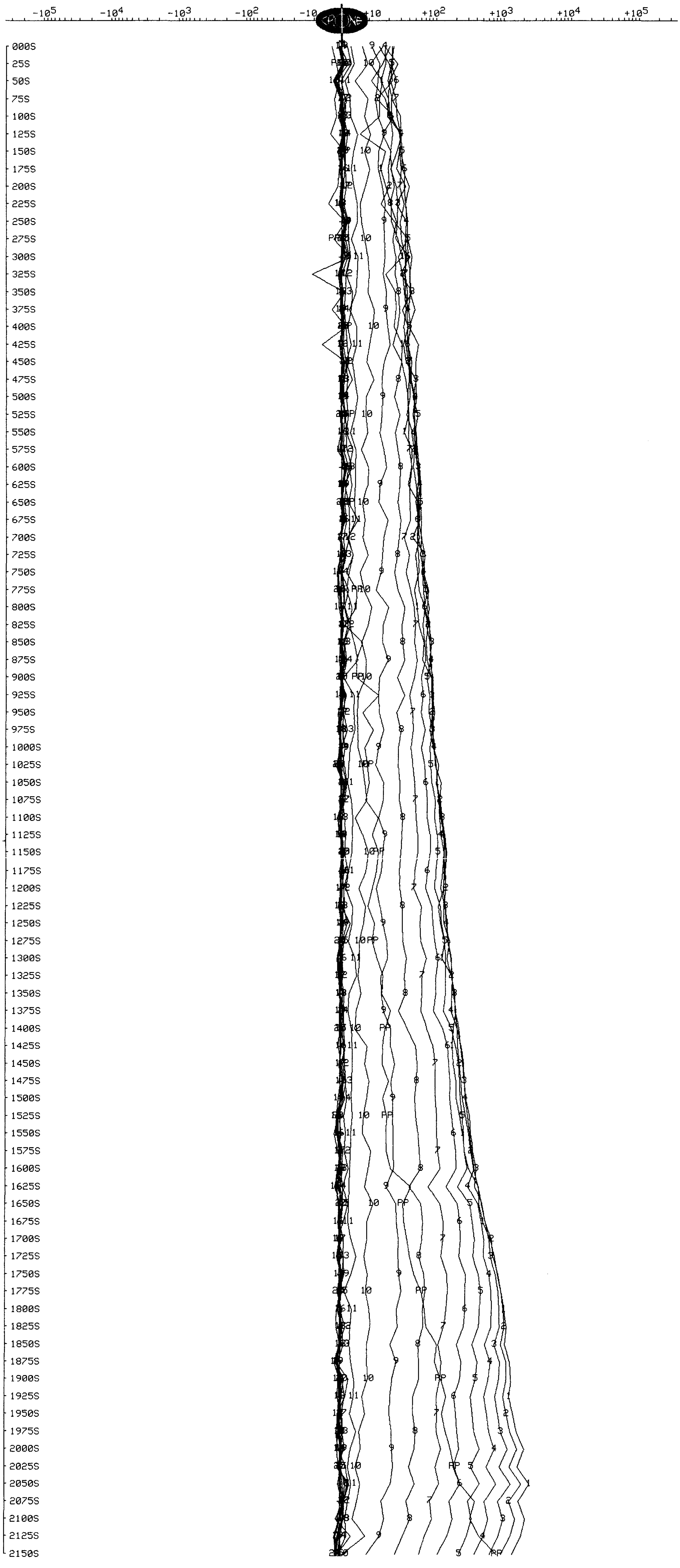
CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client : CROSS LAKE MINERALS LTD.
Grid : 330 GRID
Date : Jun 5, 1998

Line : L4900W
Tx Loop : L7
File name : L4900WO.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

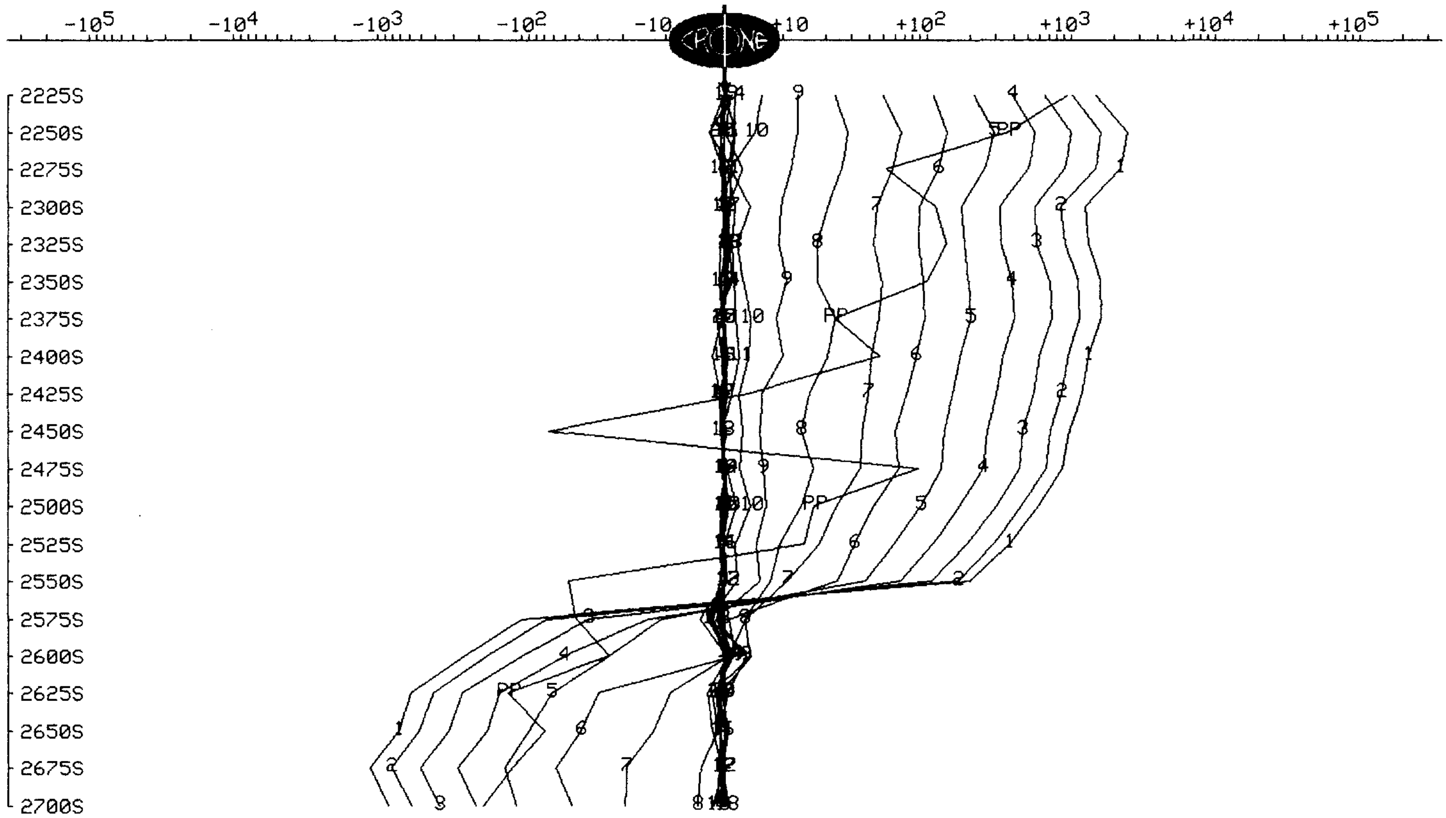


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4900W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 11, 1998	File name	: L4900W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

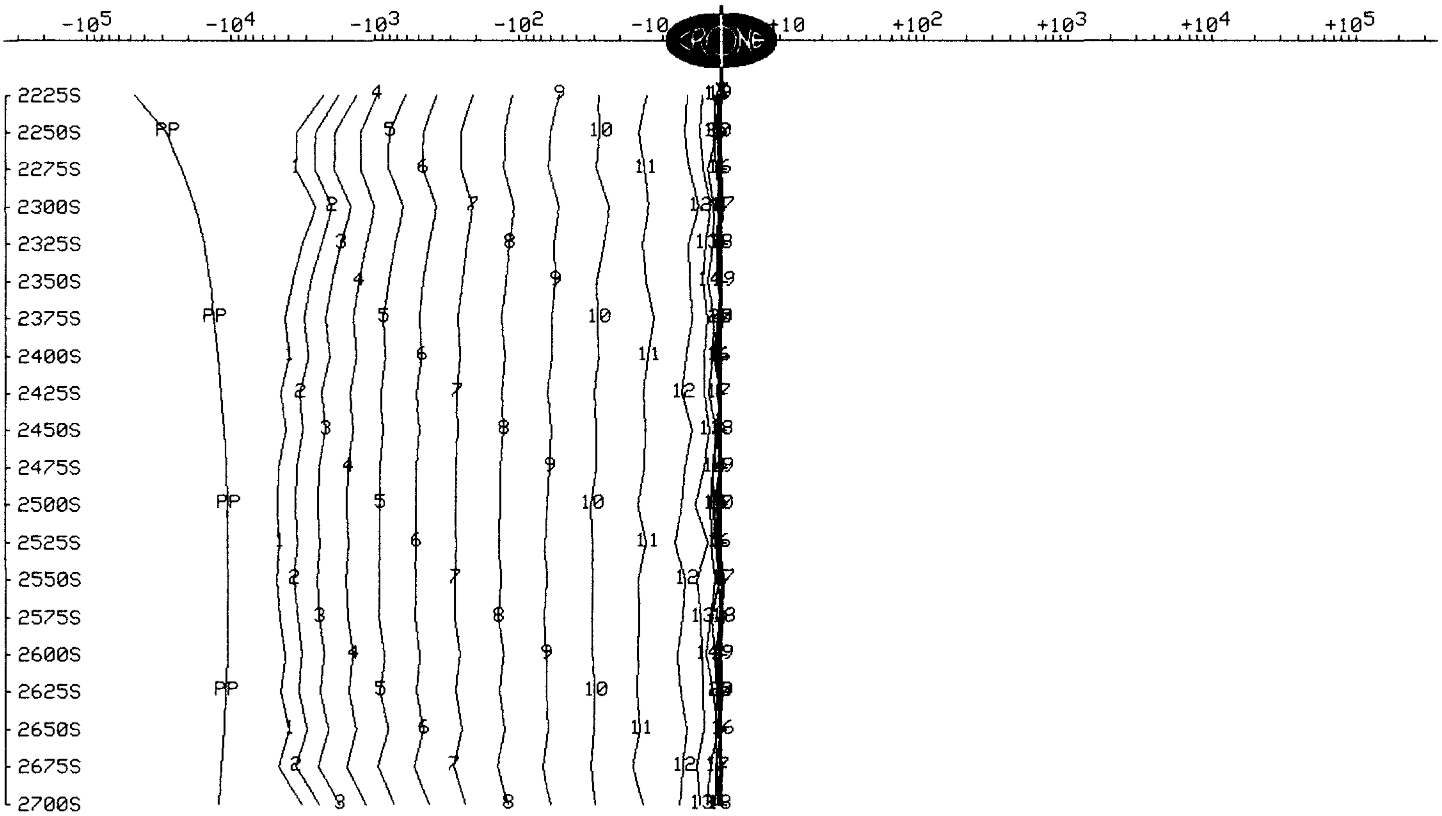


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L4900W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 11, 1998	File name	: L4900W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

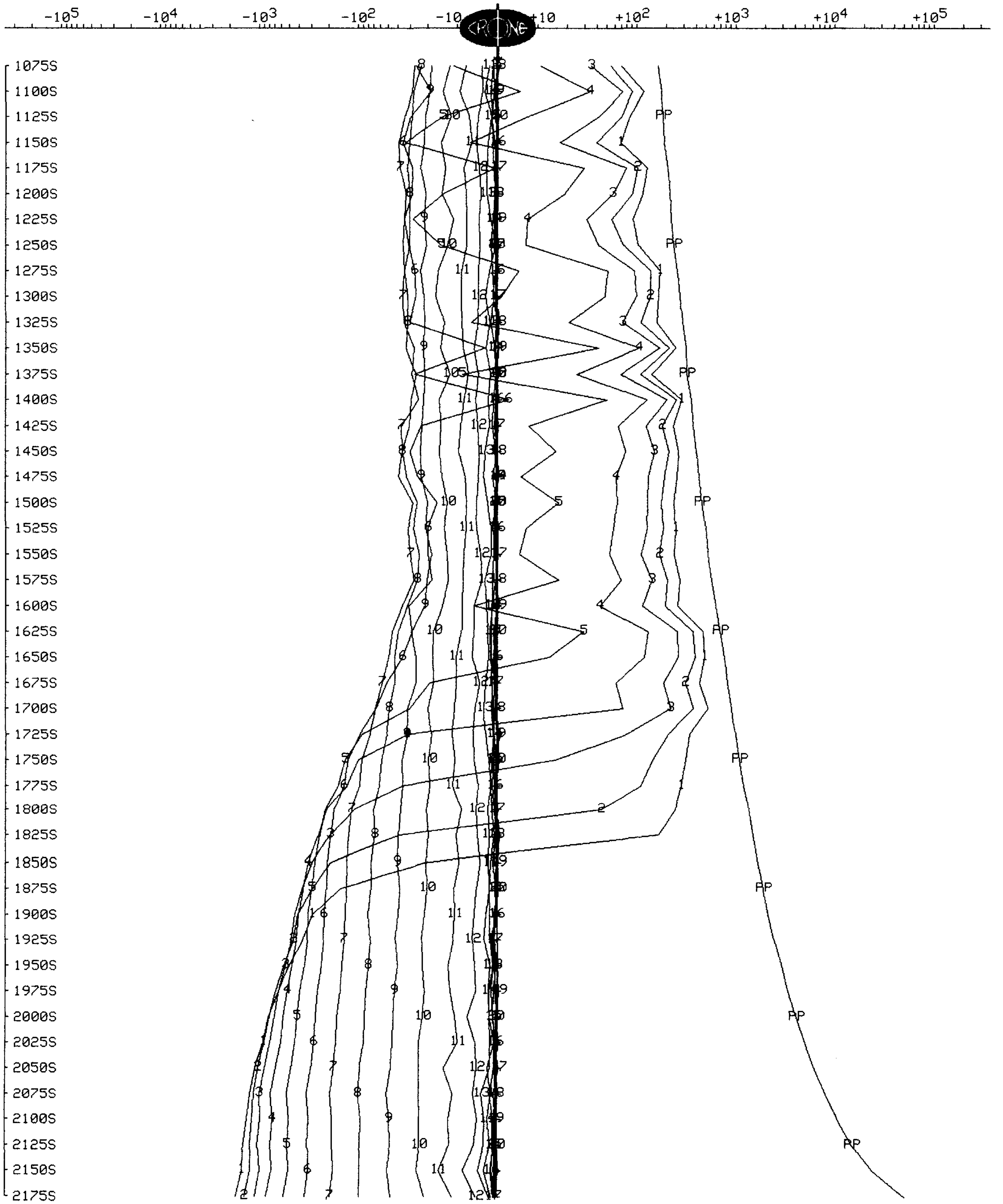


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L5000W
Grid	: 330 GRID	Tx Loop	: L7
Date	: June 6, 1998	File name	: L5000WO.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



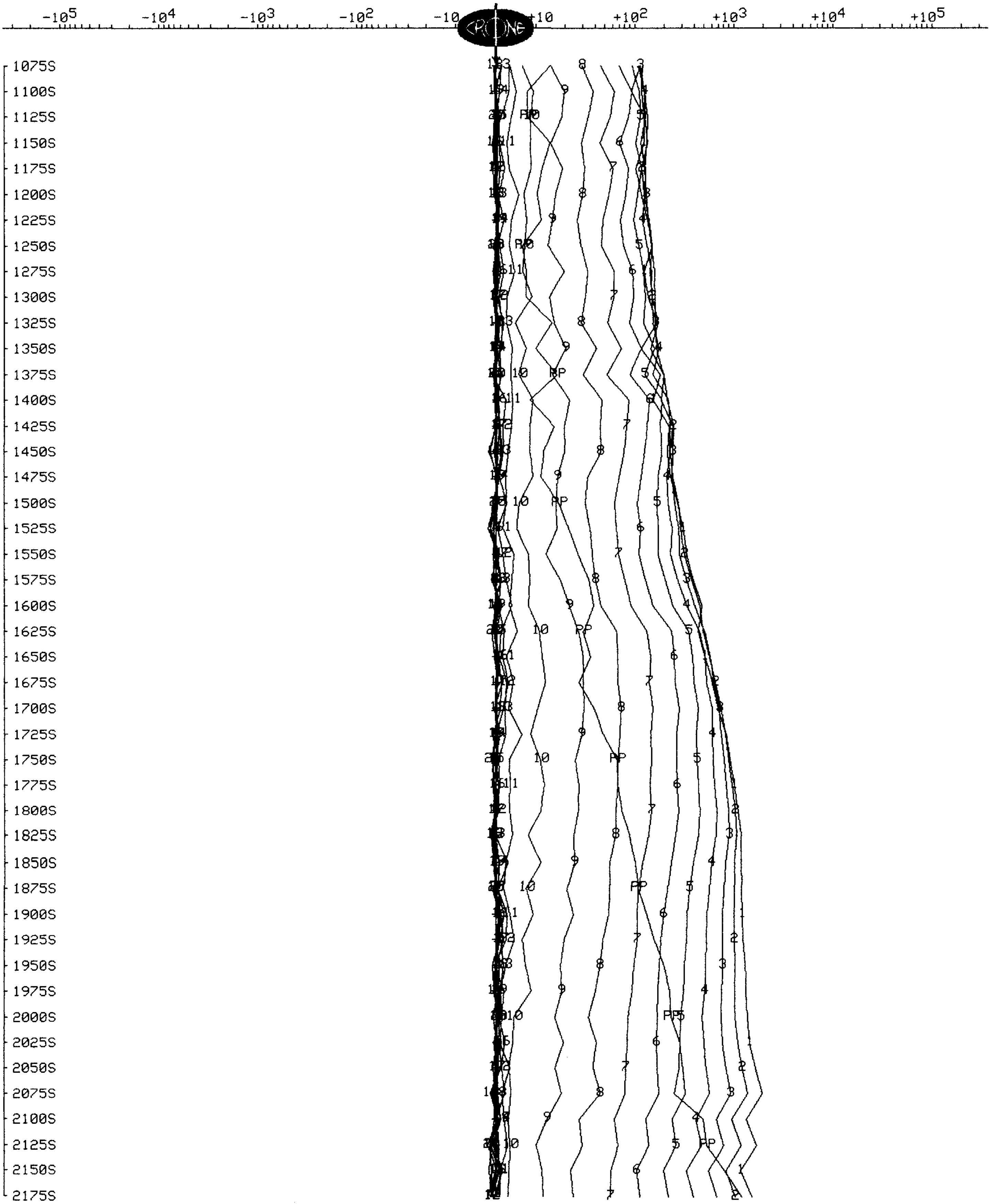
CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client : CROSS LAKE MINERALS LTD.
Grid : 330 GRID
Date : June 6, 1998

Line : L5000W
Tx Loop : L7
File name : L5000WO.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

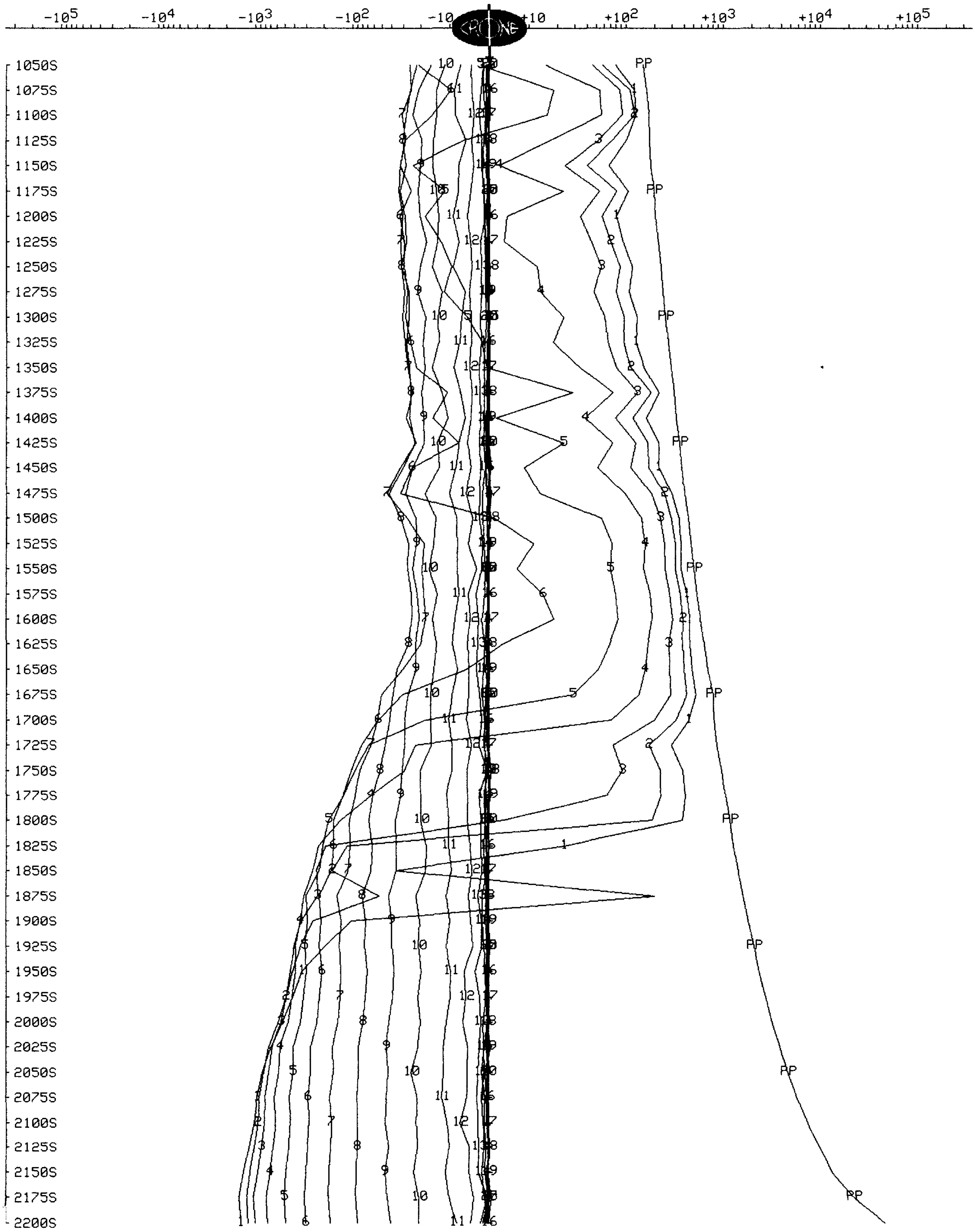


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L5100W
Grid	: 330 GRID	Tx Loop	: L7
Date	: June 6, 1998	File name	: L5100W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

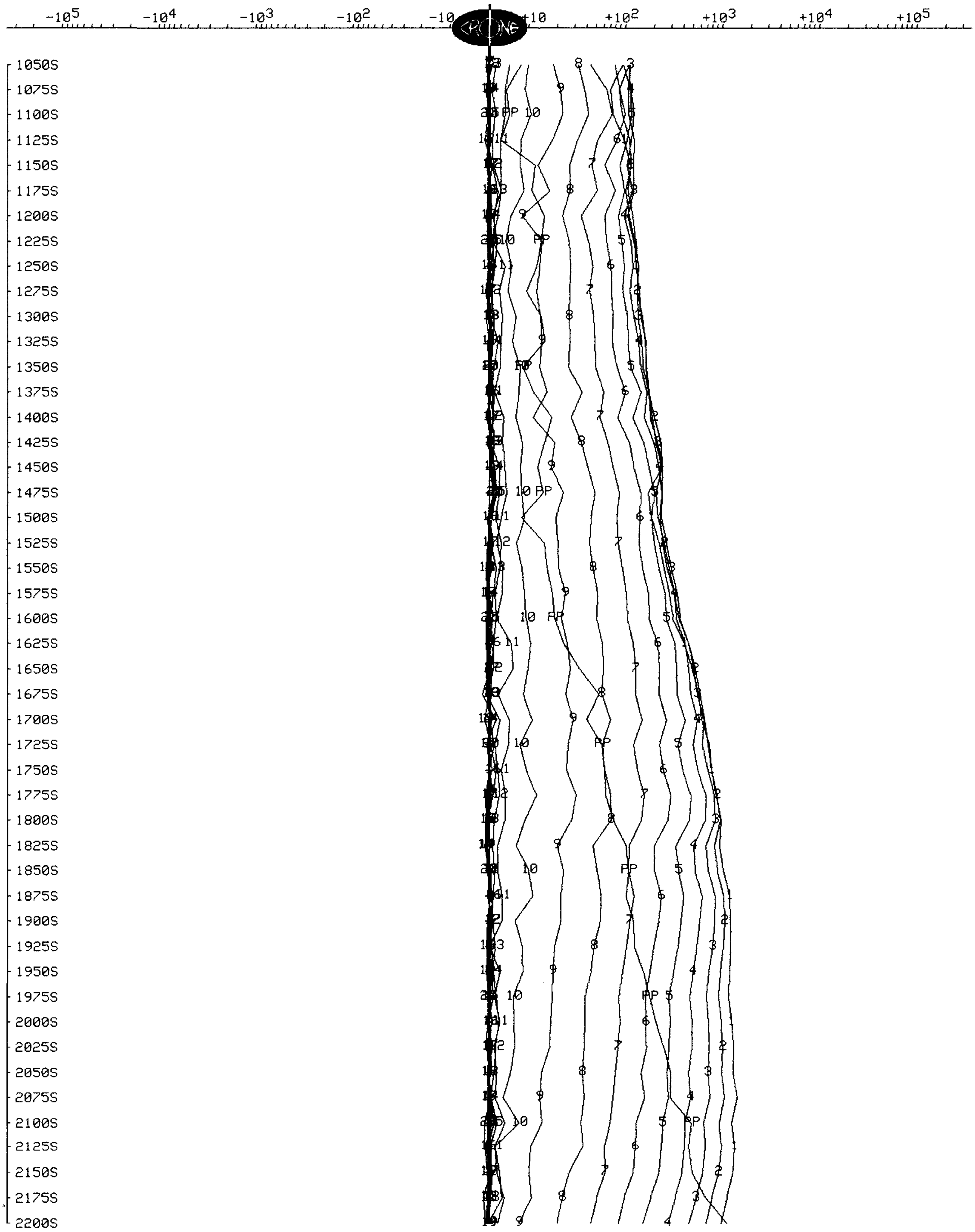


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: **CROSS LAKE MINERALS LTD.**	Line	: **L5100W**
Grid	: **330 GRID**	Tx Loop	: **L7**
Date	: **June 6, 1998**	File name	: **L5100W.PEM**

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

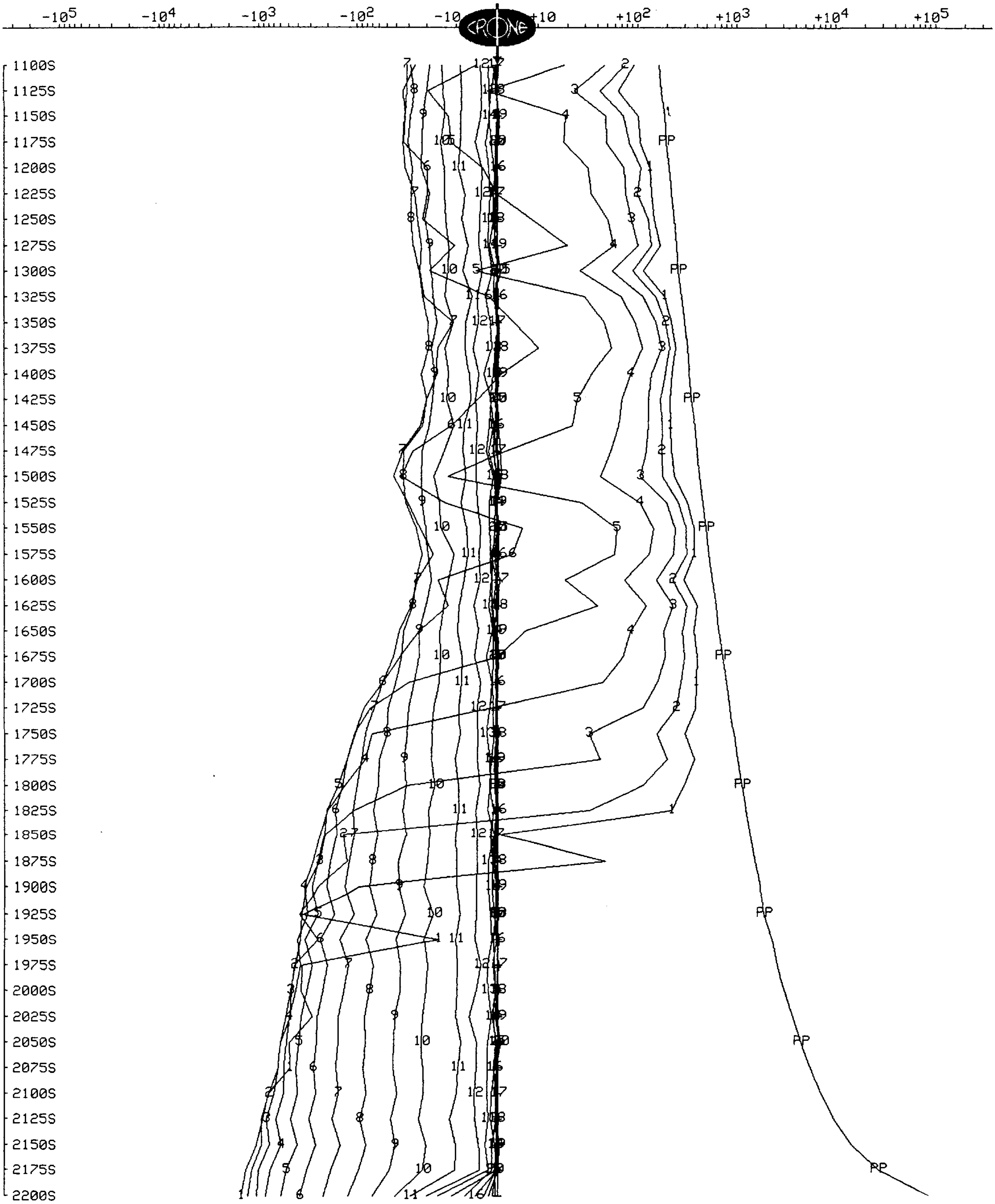


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L5200W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 8, 1998	File name	: L5200W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

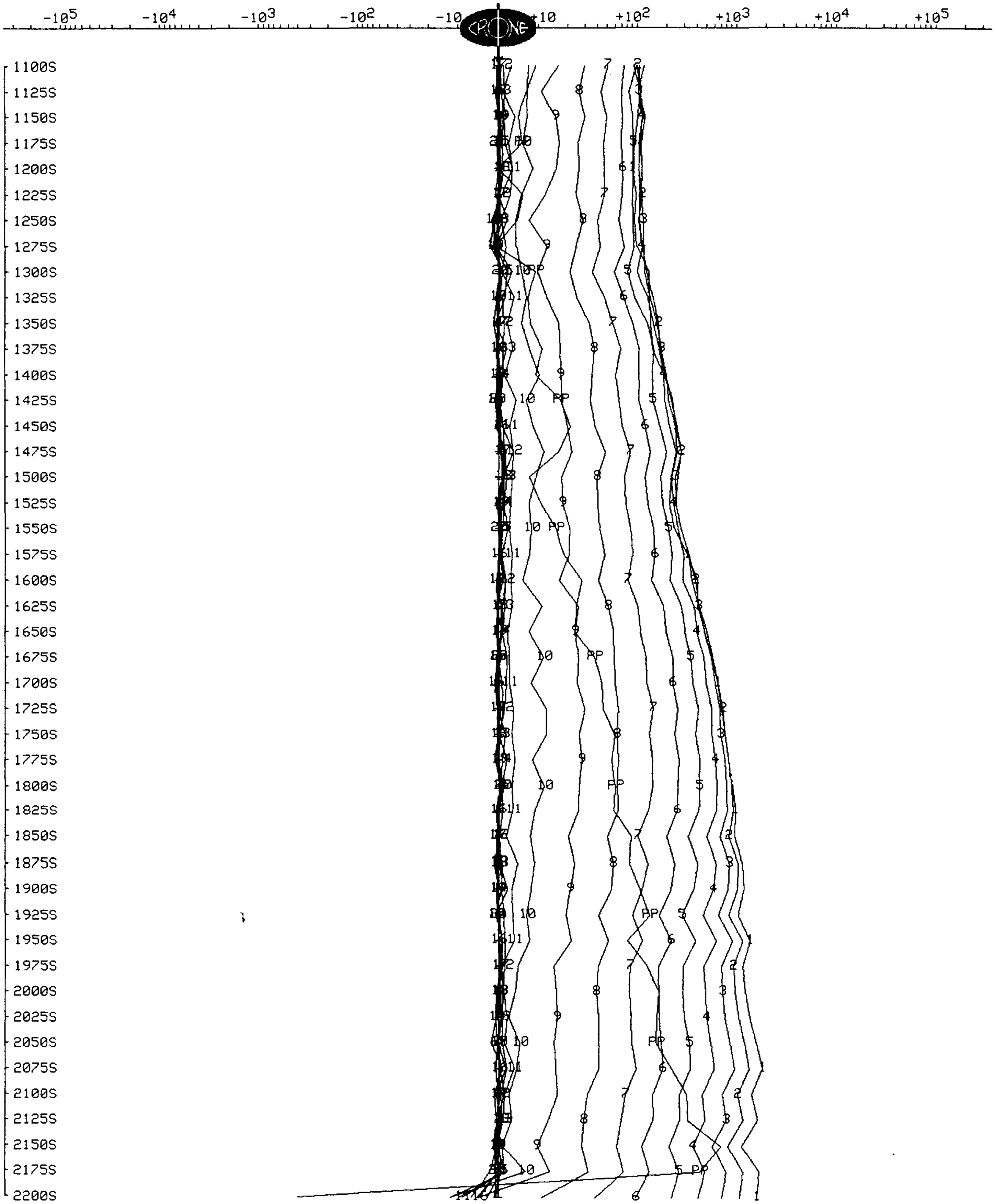


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L5200W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 8, 1998	File name	: L5200W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

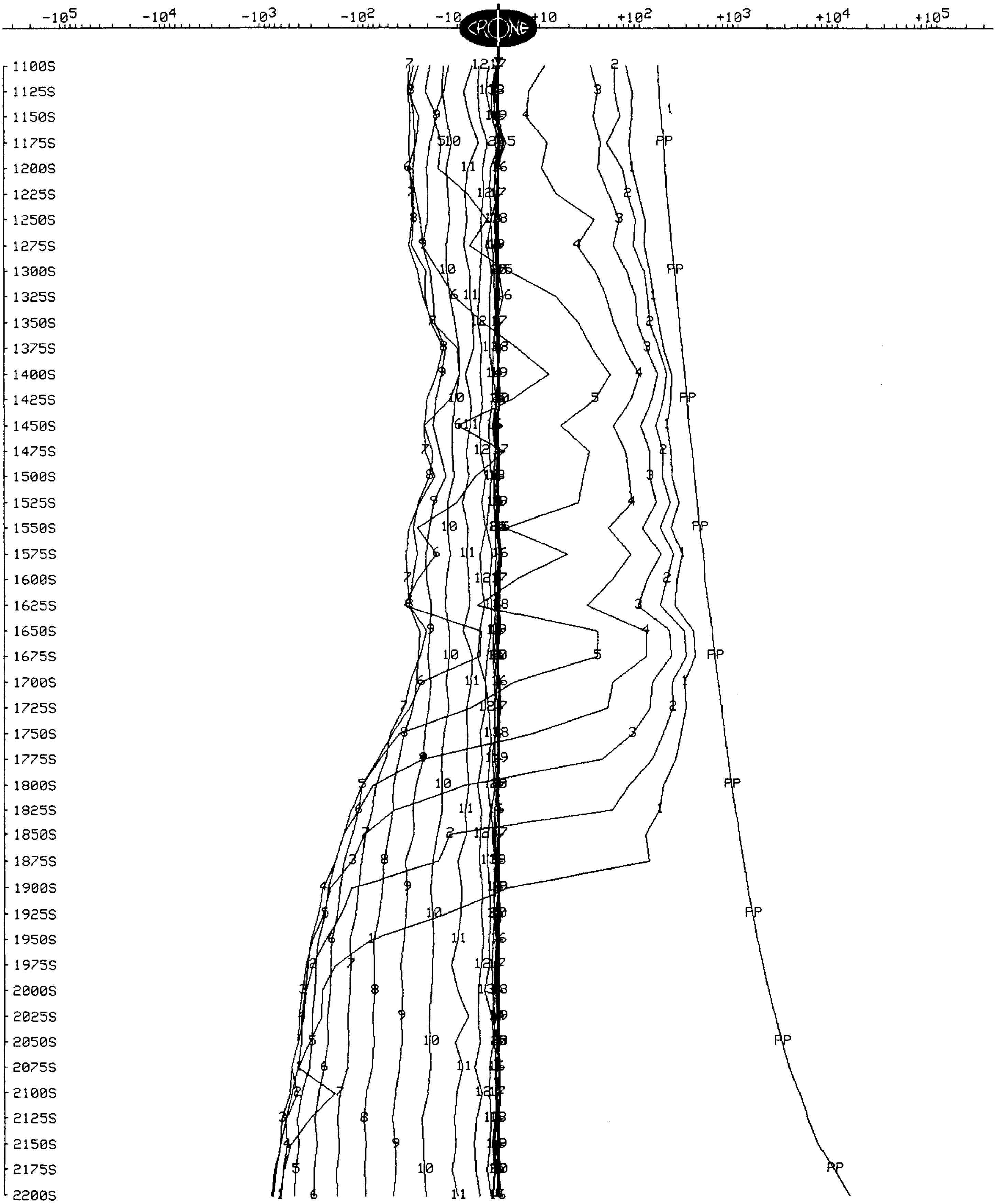


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	:	CROSS LAKE MINERALS LTD.	Line	:	L5300W
Grid	:	330 GRID	Tx Loop	:	L7
Date	:	Jun 8, 1998	File name	:	L5300W.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

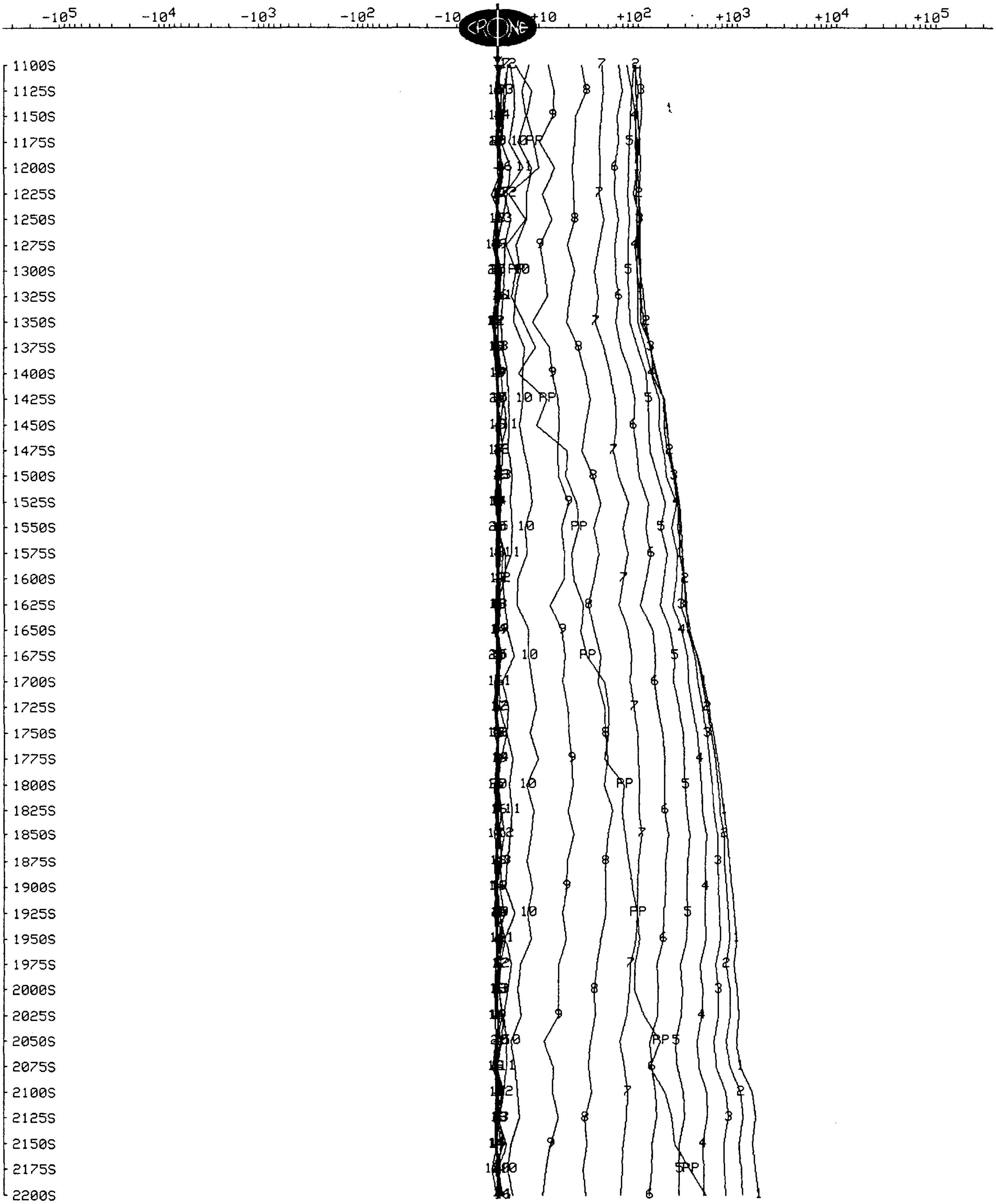


CRONE GEOPHYSICS & EXPLORATION LTD
SURFACE PEM

Client	: CROSS LAKE MINERALS LTD.	Line	: L5300W
Grid	: 330 GRID	Tx Loop	: L7
Date	: Jun 8, 1998	File name	: L5300W.PEM

IN-LINE HORIZONTAL COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



APPENDIX C:

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 centre 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 kilometres 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 aluminium case
- unit weight 10kg; shipping weight 18kg
- padded wooden shipping box

Transmitter

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

Specifications: PEM Transmitter

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

Hardware:

- 24v rechargeable gel cell battery supply
- two CMOS microprocessors (NSC800)
- alphanumeric keyboard
- 2 x 16 character cold weather display
- 16 x 40 character (256 x 128 pixels graphic) display
- 64k byte solid state memory storage
- cable, radio or crystal clock synchronization
- RS-232 serial I/O

Sampling process features:

- 16 bit A/D conversion
- digital recording of data in nano-tesla/sec
- rejection of atmospheric noise samples based on digital threshold detection
- automatic gain control to optimize receiver signal to noise ratio

Menu driven operating software system offering the following functions:

- controls channel positions, channel widths, and number of channels using a basic slice of 4.5msec
- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, and 30ms
- ramp time selectable in 4.5msec steps
- 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 aluminium case
- unit weight 2.7kg

Specifications: Booster Antenna

- 8m, 4 section aluminium 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 aluminium 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
- built-in preamplifier
- VLF filter
- 10khz bandwidth
- 23:1 amplifier gain
- 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
- built-in preamplifier
- 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 aluminium 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
- built-in preamplifier
- 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 aluminium tube
- shipped in padded wooden box; total shipping weight 20kg

Orientation Tool

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

Specifications: Orientation Tool

- 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 aluminium 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
- *length are available upto 2600m on three sizes of spool*
- shipped in wooden box

Specifications: Slip Ring

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

Specifications: Borehole Frame

- welded aluminium 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 aluminium spool
- cable mounts on borehole frame
- various lengths to 2600m on 3 spool sizes.

Ontario | Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use): W9960.00166

Assessment Files Research Imaging

42A07NW2011 2.19364 SHERATON 900

subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, ...e assessment work and correspond with the mining land holder. Questions about this ...ern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario,

... before **recording** a claim, use form 0240.

- Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary)

Name	Golden Knight Resources Inc.	Client Number	302803
Address	#1180 - 999 West Hastings Street	Telephone Number	(604) 689-3846
	Vancouver, B.C. V6C 2W2	Fax Number	(604) 689-3847
Name		Client Number	
Address		Telephone Number	
		Fax Number	

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

☑ Geotechnical: prospecting, surveys, assays and work under section 18 (regs)

☐ Physical: drilling, stripping, trenching and associated assays

☐ Rehabilitation

Work Type: DOWN HOLE AND SURFACE PULSE EM.		**Office Use**
		Commodity
		Total $ Value of Work Claimed: 39,304
Dates Work Performed — From: 06 (Day) 02 (Month) 98 (Year)	To: 13 (Day) 09 (Month) 98 (Year)	NTS Reference
Global Positioning System Data (if available)	Township/Area: SHERATON.	Mining Division: Porcupine
	M or G-Plan Number	Resident Geologist District: Timmins

Please remember to:
- obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: HENRY ODWAR, CRONE GEOPHYSICS AND EXPLORATION LTD.	Telephone Number: 905 270 0096
Address: 3607 WOLFEDALE ROAD, MISSISSAUGA, ONT L5C 1V8	Fax Number: 905 270 3472
Name	Telephone Number
Address	Fax Number
Name	Telephone Number
Address	Fax Number

RECEIVED
APR 12 1999
GEOSCIENCE ASSESSMENT OFFICE

2.19364

4. Certification by Recorded Holder or Agent

I, Linda J. Sue (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: [signature] Assistant Secretary, Golden Knight Resources Inc.		Date: Mar. 30/99
Agent's Address: #1180 - 999 West Hastings Street, Vancouver, B.C., V6C 2W2	Telephone Number (604) 689-3846	Fax Number (604) 689-3847

Deemed July 11/99

5. Work to be recorded and distributed. Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must accompany this form.

W9960.00166

	Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date.
eg	TB 7827	16 ha	$26,825	N/A	$24,000	$2,825
eg	1234567	12	0	$24,000	0	0
eg	1234568	2	$8,892	$4,000	0	$4,892
1	P1223895	2	17431			17431
2	P1223894	2	4405			4405
3	P1223893	2	512			512
4	P1218055	8	7805			7805
5	P1218054	8	2853			2853
6	P1218056	8	5515			5515
7	P1218052	8	783			783
8						
9						
10						
11						
12						
13						
14						
15						
		Column Totals	39304			39304

I, Linda J. Sue (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing	Date
[signature] Assistant Secretary, Golden Knight Resources Inc.	MAR. 30/99

6. Instructions for cutting back credits that are not approved.

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- ☑ 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- ☐ 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- ☐ 3. Credits are to be cut back equally over all claims listed in this declaration; or
- ☐ 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

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Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only

Received Stamp	Deemed Approved Date	Date Notification Sent
2 . 3 . . .	Date Approved	Total Value of Credit Approved
	Approved for Recording by Mining Recorder (Signature)	

Ontario Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use) W9960.00166

Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of Work Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of Work	Total Cost
GEOPHYSICS	22 days	1786.49/day	39303
(SURFACE + BOREHOLE)			
Associated Costs (e.g. supplies, mobilization and demobilization).			
Transportation Costs			
Food and Lodging Costs			
		Total Value of Assessment Work	39303

Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK x 0.50 = Total $ value of work claimed.

Note:

- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

Certification verifying costs:

I, Linda J. Sue (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as Assistant Secretary, Golden Knight Resources Inc. (recorded holder, agent, or state company position with signing authority) I am authorized to make this certification.

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Signature [signature] Date Mar. 30/99

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9846
Fax: (877) 670-1555

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

May 19, 1999

Linda J. Sue
GOLDEN KNIGHT RESOURCES INC.
1180-999 WEST HASTINGS STREET
VANCOUVER, B.C.
V6C-2W2

Submission Number: 2.19364

Dear Sir or Madam:

		Status
Subject: Transaction Number(s):	W9960.00166	Deemed Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Lucille Jerome by e-mail at lucille.jerome@ndm.gov.on.ca or by telephone at (705) 670-5858.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 13750

Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.19364

Date Correspondence Sent: May 19, 1999

Assessor: Lucille Jerome

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9960.00166	P1223895	SHERATON	Deemed Approval	April 28, 1999

Section:
18 Other DHGEO
14 Geophysical EM

Correspondence to:

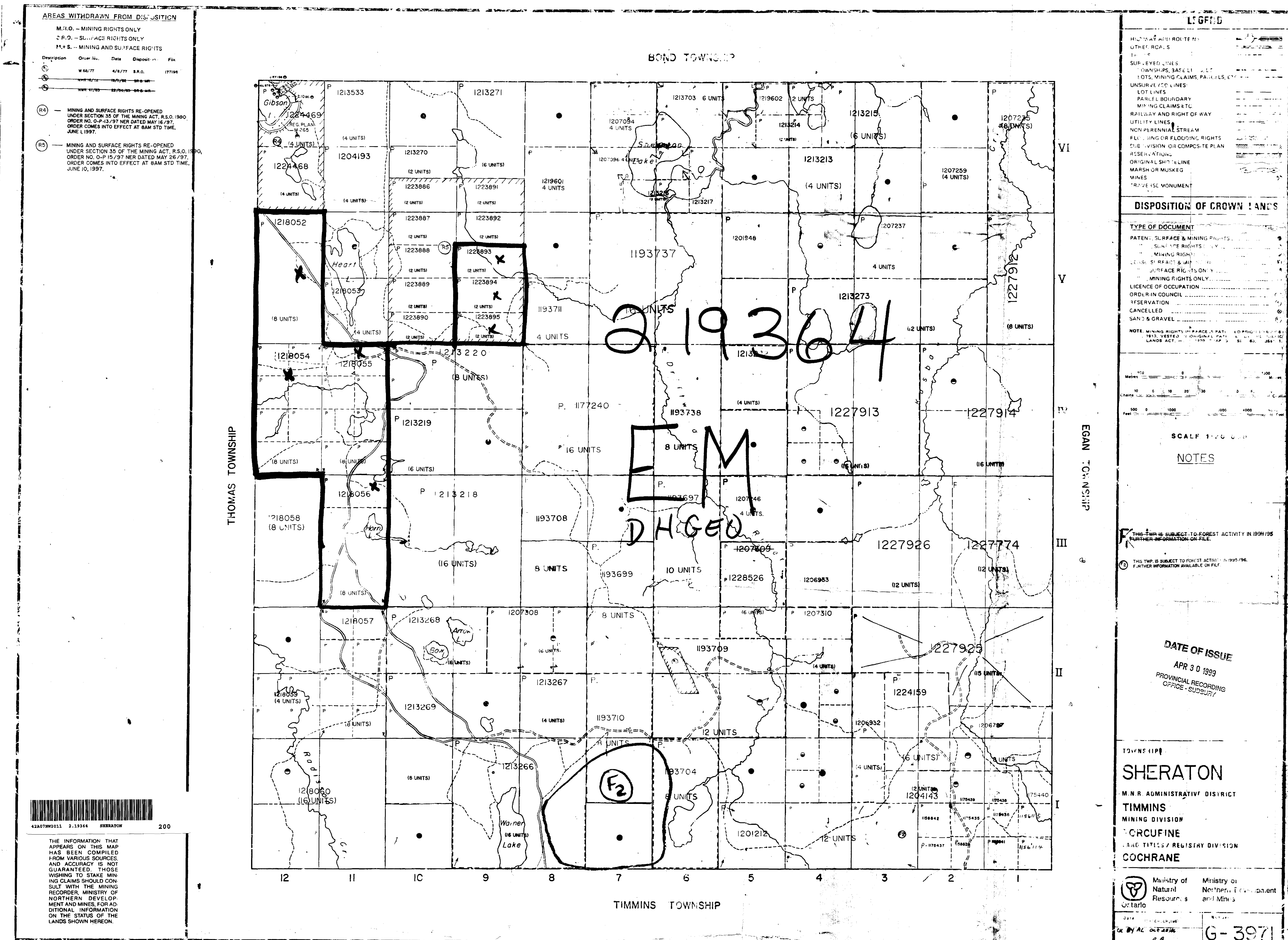
Resident Geologist
South Porcupine, ON

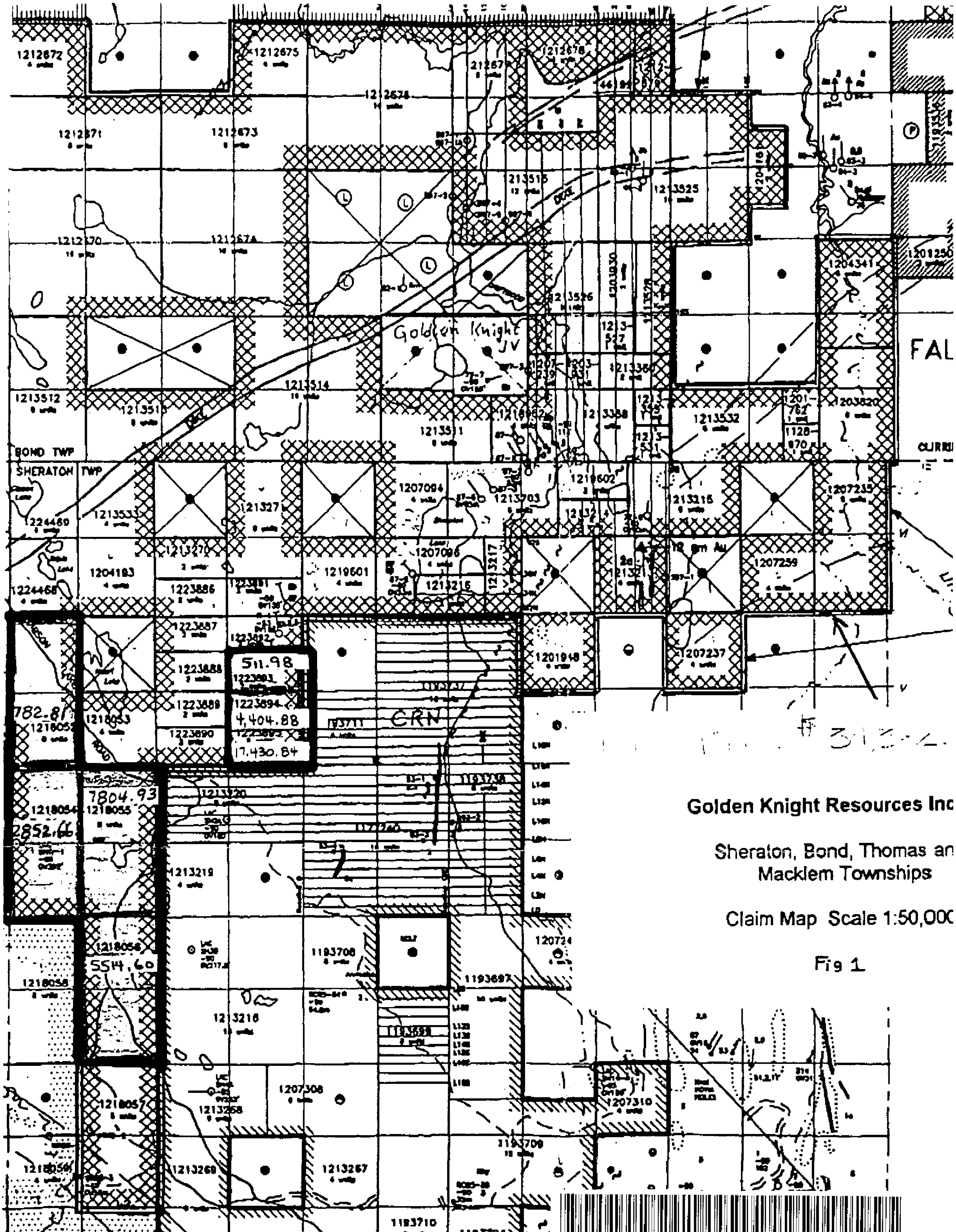
Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):

Linda J. Sue
GOLDEN KNIGHT RESOURCES INC.
VANCOUVER, B.C.

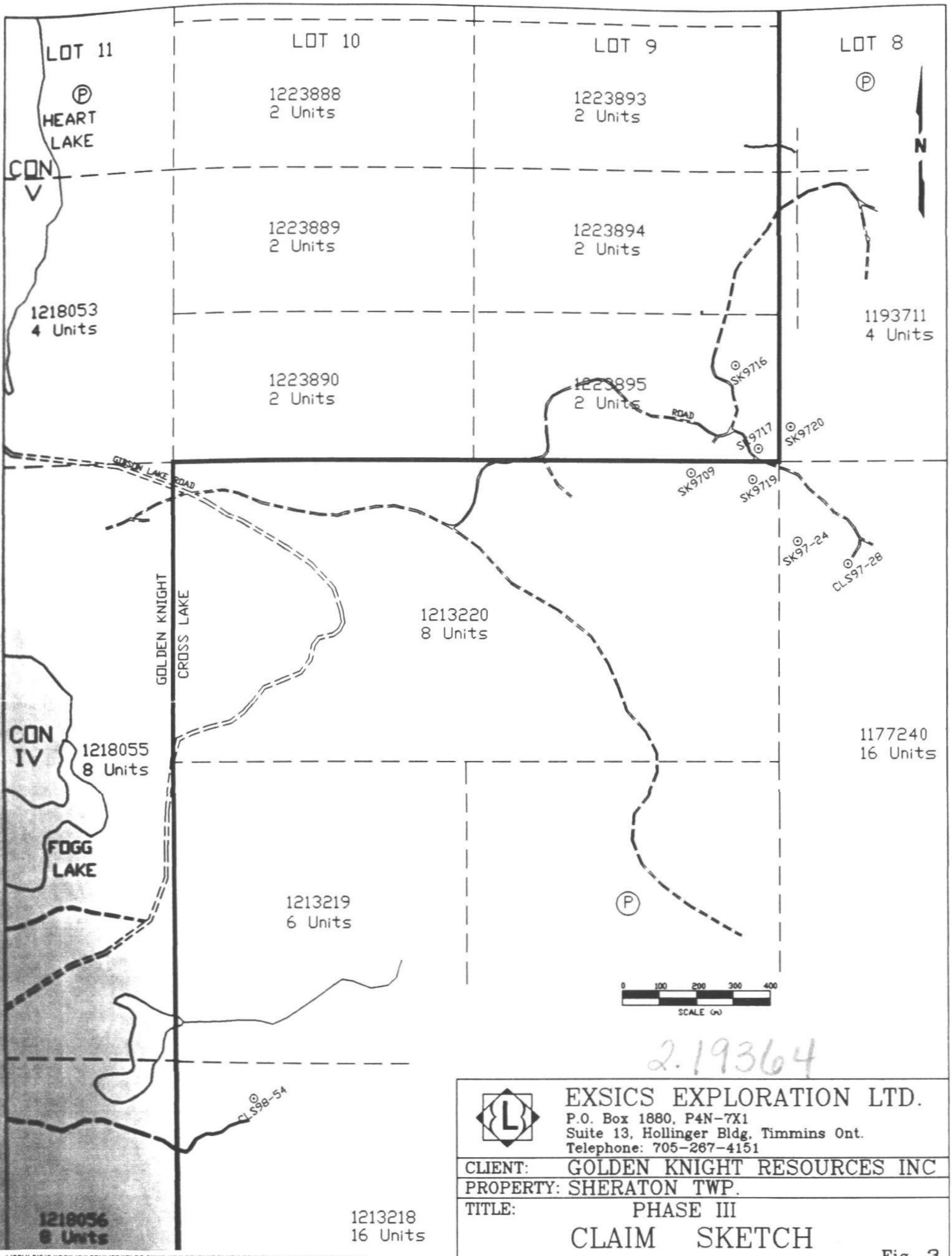
Correspondence ID: 13750


AREAS WITHDRAWN FROM DISPOSITION
M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+S. – MINING AND SURFACE RIGHTS
R4 — MINING AND SURFACE RIGHTS RE-OPENED UNDER SECTION 35 OF THE MINING ACT, R.S.O. 1990 ORDER NO. O-P-13/97 NER DATED MAY 16/97. ORDER COMES INTO EFFECT AT 8AM STD TIME, JUNE 1, 1997.
R5 — MINING AND SURFACE RIGHTS RE-OPENED UNDER SECTION 35 OF THE MINING ACT, R.S.O. 1990, ORDER NO. O-P 15/97 NER DATED MAY 26/97. ORDER COMES INTO EFFECT AT 8AM STD TIME, JUNE 10, 1997.
42A07NW2011 2.19364 SHERATON 200
THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.
BOND TOWNSHIP
THOMAS TOWNSHIP
EGAN TOWNSHIP
TIMMINS TOWNSHIP
2.19364
EM
DHGEO
Gibson
Heart L.
Horn
Arrow L.
Warner Lake
1218052
1218053
1218054
1218055
1218056
1218057
1218058 (8 UNITS)
1223893
1223894
1223895
1213220 (8 UNITS)
1177240
1193737
1227913
1227914
1227926
1227774
1227925
SHERATON
M.N.R. ADMINISTRATIVE DISTRICT
TIMMINS
MINING DIVISION
PORCUPINE
LAND TITLES / REGISTRY DIVISION
COCHRANE
Ministry of Natural Resources
Ministry of Northern Development and Mines
Ontario
G-3971
LEGEND
DISPOSITION OF CROWN LANDS
SCALE 1:20 000
NOTES
THIS TWP. IS SUBJECT TO FOREST ACTIVITY IN 1995/96. FURTHER INFORMATION AVAILABLE ON FILE
DATE OF ISSUE
APR 30 1999
PROVINCIAL RECORDING OFFICE - SUDBURY



MAY 18 '99 14:48

42A07NW2011 2.19364 SHERATON



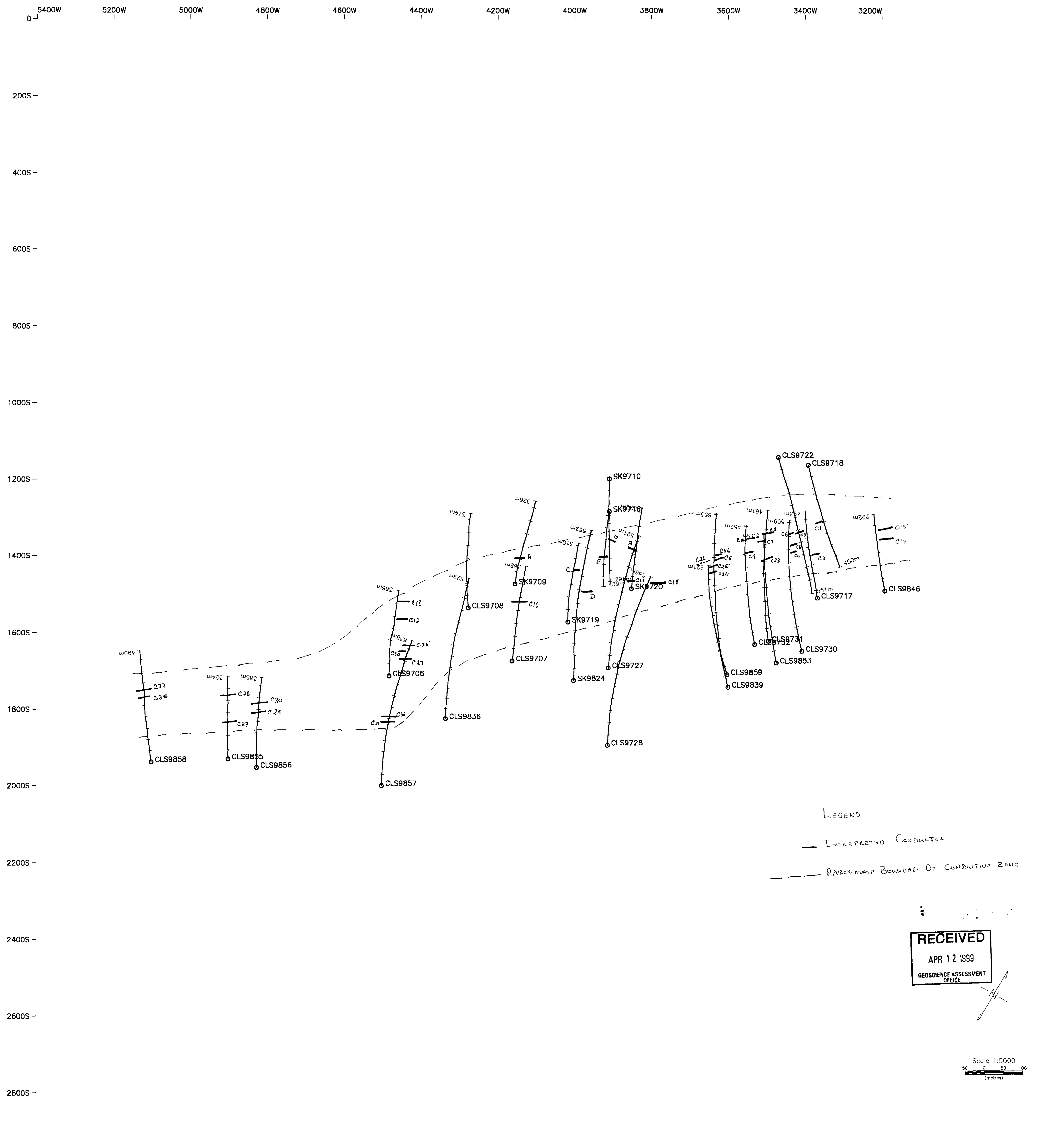
2.19364

EXSICS EXPLORATION LTD.
P.O. Box 1880, P4N-7X1
Suite 13, Hollinger Bldg, Timmins Ont.
Telephone: 705-267-4151

CLIENT:	GOLDEN KNIGHT RESOURCES INC
PROPERTY:	SHERATON TWP.
TITLE:	PHASE III CLAIM SKETCH

Fig. 3

Date: July 1998	Scale:	NTS:
Drawn: P.Gauthier	Interp: J.C.Grant	Job No.: E-323



Cross Lake Minerals Ltd.
Golden Knight Resources Inc.
330 Grid

3-D Borehole Pulse EM Survey

Borehole Location Map With Interpreted Conductors

Crone Geophysics & Exploration Ltd.

INTERPRETATION LEGEND

Anomaly ○ 9 Number of Channels

2.19364

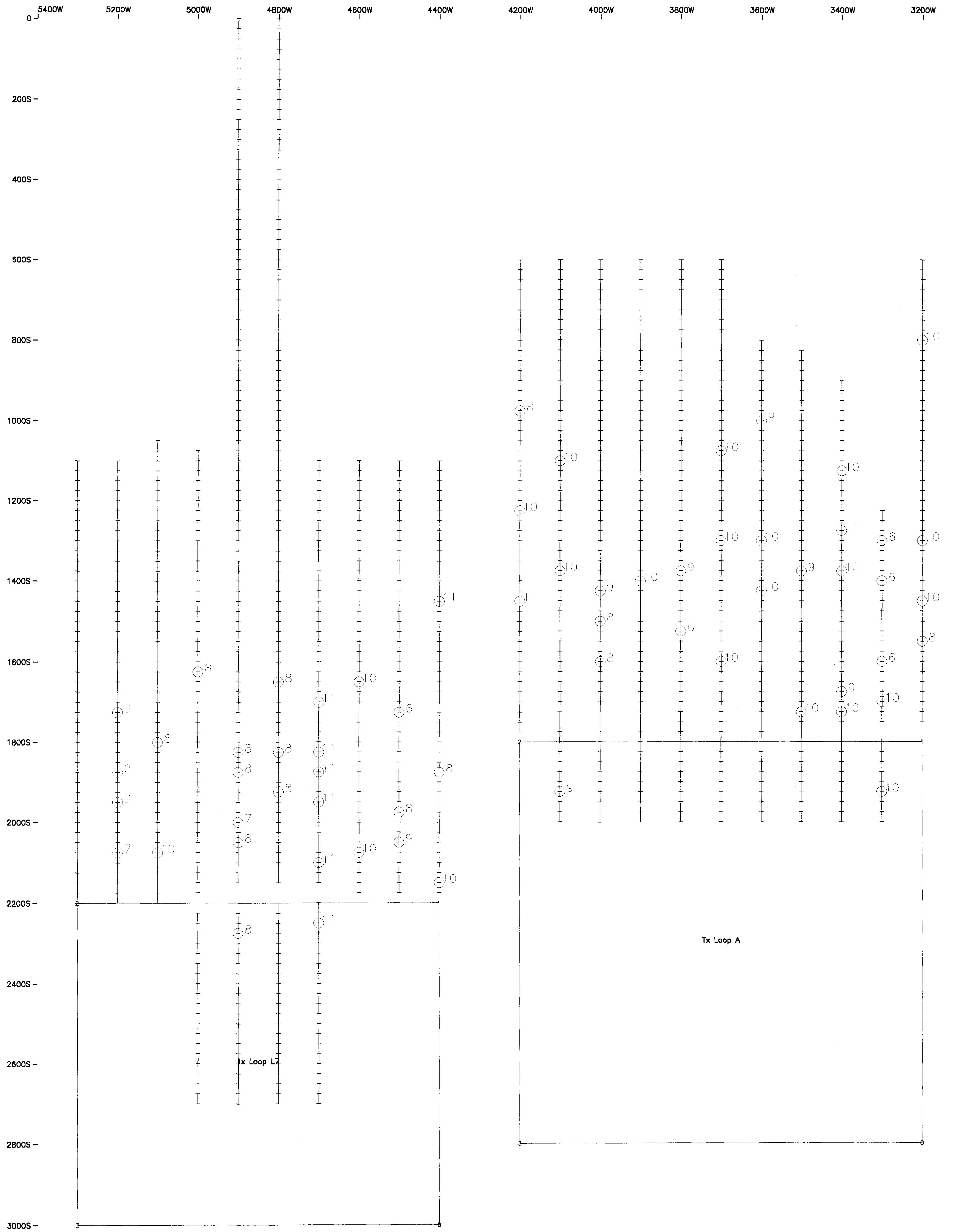
Scale 1:2500
25 0 25 50
(metres)

Golden Knight Resources Inc.
Nighthawk 330

Surface Pulse EM Survey
Interpretation

Survey Date: June 1998

Crone Geophysics & Exploration Ltd.



INTERPRETATION LEGEND

Anomaly ○9 Number of Channels

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GEOSCIENCE ASSESSMENT OFFICE

Scale 1:5000
(metres)

Golden Knight Resources Inc.
330 GRID
Surface Pulse EM Survey
Interpretation
Survey Date: May – Sept, 1998
Crone Geophysics & Exploration Ltd.

42A07NW2011 2.19364 SHERATON 250

108.6
103.9
99.4
95.8
92.6
90.3
87.7
85.3
83.1
81.4
79.3
77.4
75.5
74.0
72.2
70.4
68.7
67.3
65.6
63.9
62.2
60.5
59.1
57.4
55.6
53.8
52.4
50.5
48.5
46.5
44.8
42.5
40.1
35.2
32.0
28.4
23.9
19.2
10.8

(nt/sec)

CONTOUR LEGEND

5
25
100

SYSTEM SPECIFICATIONS

Receiver	-	Crone Digital Rx.
Transmitter	-	Crone 2.4Kw Tx.
Time base	-	16.66 msec
Ramp time	-	1.5 msec
Synchronization	-	Crystal Clock
Number of channels	-	20
Primary field outside loop	-	Up
In-line Horizontal (X)	-	Grid North
Vertical (Z)	-	Up
Station Interval	-	25m

2.19364

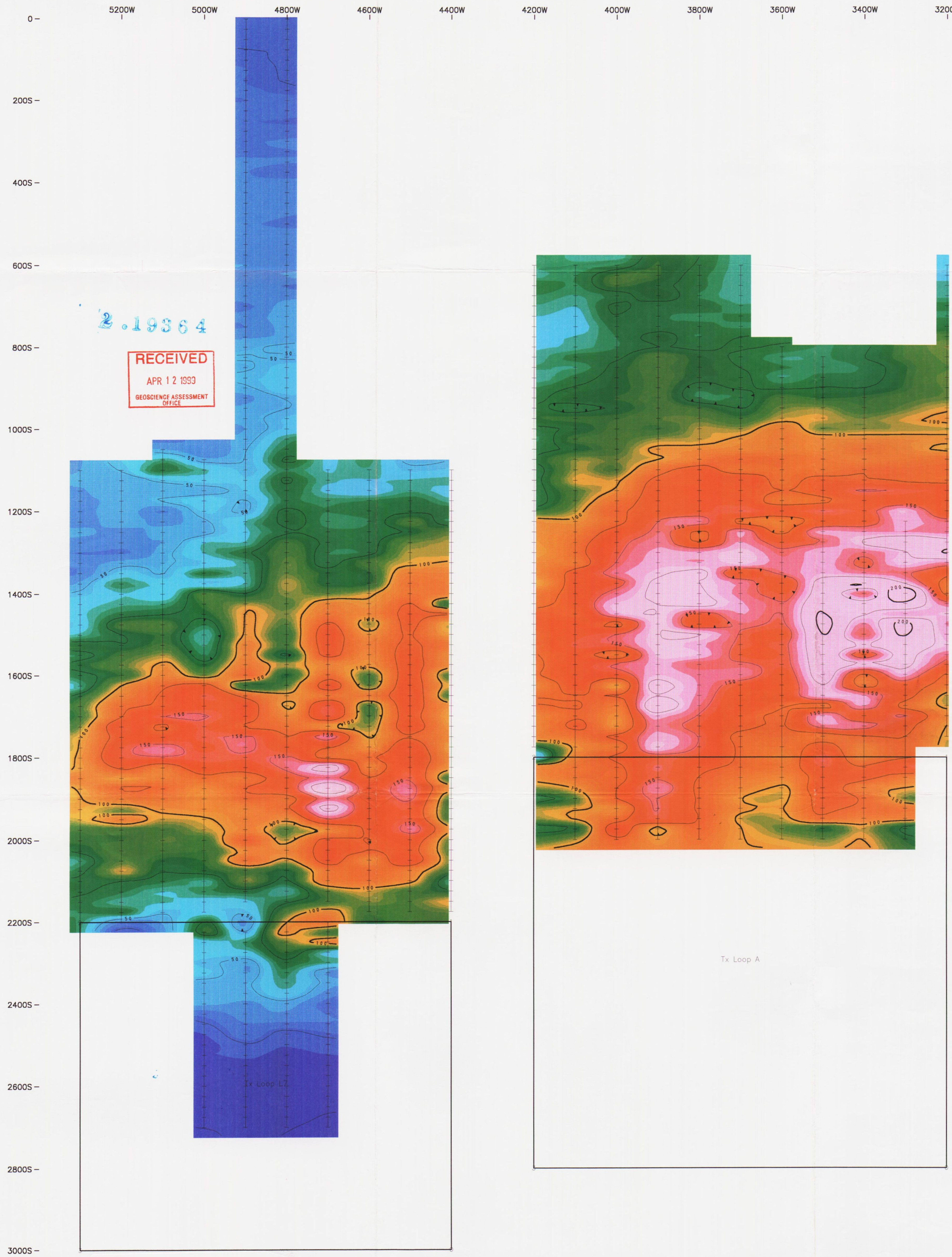
Scale 1:2500
25 0 25 50
(meters)

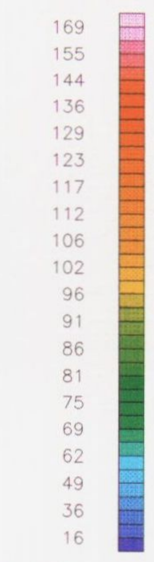
Golden Knight Resources
Nighthawk 330

Surface Pulse EM Survey
Channel Six

Horizontal X Contours
Survey Date: June 1998

Crone Geophysics & Exploration Ltd.





Horizontal (X) component (nT/sec)

System Specifications

Transmitter

System	Crone 2.4kWatt Pulse EM
Timebase	16.66 msecs
Ramp	1.5 msecs
Current	
Loop #L7	10 amps
Synchronization	Radio

Receiver

System	Crone Digital Pulse EM Receiver
Effective Coil Area	4000 sq. metres
Channel Configuration	20
Qty. Off-time Channels	20

Co-ordinate System

Primary Field In Loop	Up
In-line Horizontal (X)	Grid North
Vertical (Z)	Up

CONTOUR LEGEND

Contour Level 25

Contour Intervals: 25, 50, 100 and 500 nT/s

Scale 1:5000

50 0 50 100

(metres)

Golden Knight Resources Inc.

330 GRID

Surface Pulse EM Survey

In-line Horizontal (X) Component

Channel Six

Survey Date: May - Sept, 1998

Crone Geophysics & Exploration Ltd.