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NEWNHAM EXPLORATION & MINING SERVICES



EL43/92

see folio 26

MELBA FLATS PROJECT

EL 43/92

MICROFILMED
FICHE No. 015329-33

**ANNUAL REPORT FOR
PERIOD ENDING FEBRUARY 2000**

By:

L A Newnham, B.Sc., F.A.I.M.M.
PO Box 132
Riverside, Tas 7250

Ph: (03) 6394 3434
Fax: (03) 6394 3435

For:

Allegiance Mining NL
Level 1 55 York Street
Sydney NSW 2000

15 March 2000

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Annual Report for Period Ending February 2000 -
Melba Flats Project EL 43/92.
Allegiance Mining NL; Newnham Exploration and Mining
Newnham, L.A. EL43/92

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1. SUMMARY

Exploration Licence 43/92 at Melba Flats north of Zeehan is explored under a joint venture agreement between Allegiance Mining NL and Rio Tinto Exploration Pty Limited. Allegiance is currently the project manager and is incurring all expenditure.

Exploration is focused on the search for high grade nickel and copper sulfide deposits.

During the 12-month period, two cored drill holes were completed at Nickel Reward. The first hole, MF 11, intersected high grade nickel and copper sulfide approximately 40 m beneath the former mine workings. The second hole, MF 12, intersected significant disseminated nickel and copper sulfides approximately 30 m beneath MF 11.

Detailed geophysical surveys were undertaken on the surface around Nickel Reward and down both drill holes. The purpose of this work was to firstly guide further drilling at Nickel Reward, and secondly to establish geophysical survey parameters for more extensive surveying elsewhere on the tenement.

A program of further drilling and geophysical surveying is planned for the coming 12-month period.

2. EXPLORATION OBJECTIVE

The **near term** exploration objective at Melba Flats is to define modest tonnages of high grade nickel and copper sulfides in a number of near surface steeply dipping shoots, which can be extracted to supply low cost feed to a metallurgical complex based on the larger and possibly lower grade Avebury deposit.

The expectation is that these shoots may individually only contain about 50,000 t but, collectively, may represent a significant cost-important feed to an Avebury mill.

The drilling results obtained in the current period, together with an assessment of possible targets elsewhere on the Licence, give credence to this objective.

A **longer term** objective is to pursue the deeper exploration for a possible source of the near surface high grade shoots.

3. GEOLOGY and PREVIOUS WORK

The Melba Flats area is underlain by a sequence of Cambrian sediments (mudstones, siltstone, sandstones, volcanoclastic lithicwackes) intruded by a series of long, narrow gabbroic dykes or sills. The stratigraphy generally strikes N-S and dips east at approximately 60°. However, the northern section near Genets Winze strikes north-east and dips south-east.

The geology is shown on Fig 3 which is a reproduced 1:10,000 CRA plan, slightly modified by this writer to highlight the extent of the gabbroic dykes.

Drilling and mining to date suggests there are a number of parallel gabbroic dykes, probably disrupted by cross faulting, especially in the vicinity of fold axes near Genets Winze and Nickel Reward.

Small lenses of nickel and copper sulfide mineralisation have been developed within these gabbro bodies intermittently over four kilometres of strike length.

Drilling indicates these sulfide lenses are up to 75 m long, but generally 0.5-5.0 m thick. Previous mining and drilling suggests they may have limited depth extents, but this is open to substantial debate.

Nickel and copper mineralisation within these lenses can be high grade, commonly exceeding 15% combined Ni and Cu. Recent drilling has also confirmed elevated levels of Au, Pt, Pd within the sulfides.

Comprehensive historical overviews have been present in other well-documented reports.

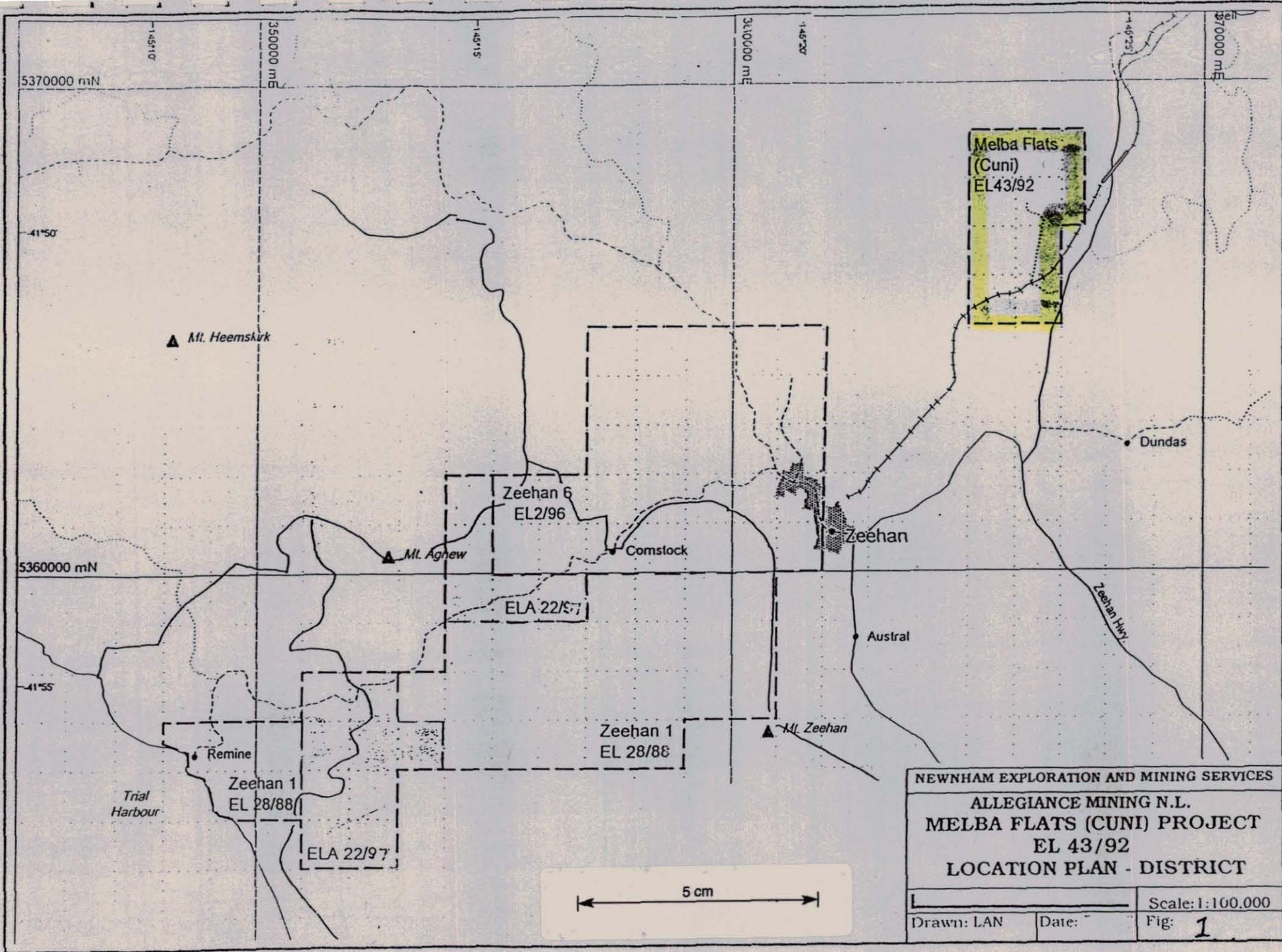
In summary, copper and nickel sulfides were discovered at Melba Flats in 1893 and have been intermittently worked by a series of shallow mines along a four kilometre strike length up until the late 1940s.

An estimated 8,000 t 7-11% Ni, 4-14% Cu were extracted from these workings.

Approximately 66 drill holes have been drilled into the area since the beginning of the century, but most of these were very shallow and records are typically poor. Very little drilling below 50 m vertical depth has been completed.

During the life of EL 43/92 the following work, in chronological order, has been completed:

- fixed wing TEM (QUESTEM) survey
- data review
- mineralogical studies on old drill cores
- whole rock regional geochemical surveys
- line cutting and gridding
- PROTEM and ground magnetic surveys over North Cuni-Genets Winze and Nickel Reward-Vaudeau area
- core drilling five holes at North Cuni-Genets Winze (average 90 m) and two holes at Nickel Reward-Vaudeau
- soil sampling
- IP and resistivity surveying of small orientation area
- helicopter borne magnetic survey
- core drilling one hole at North Cuni

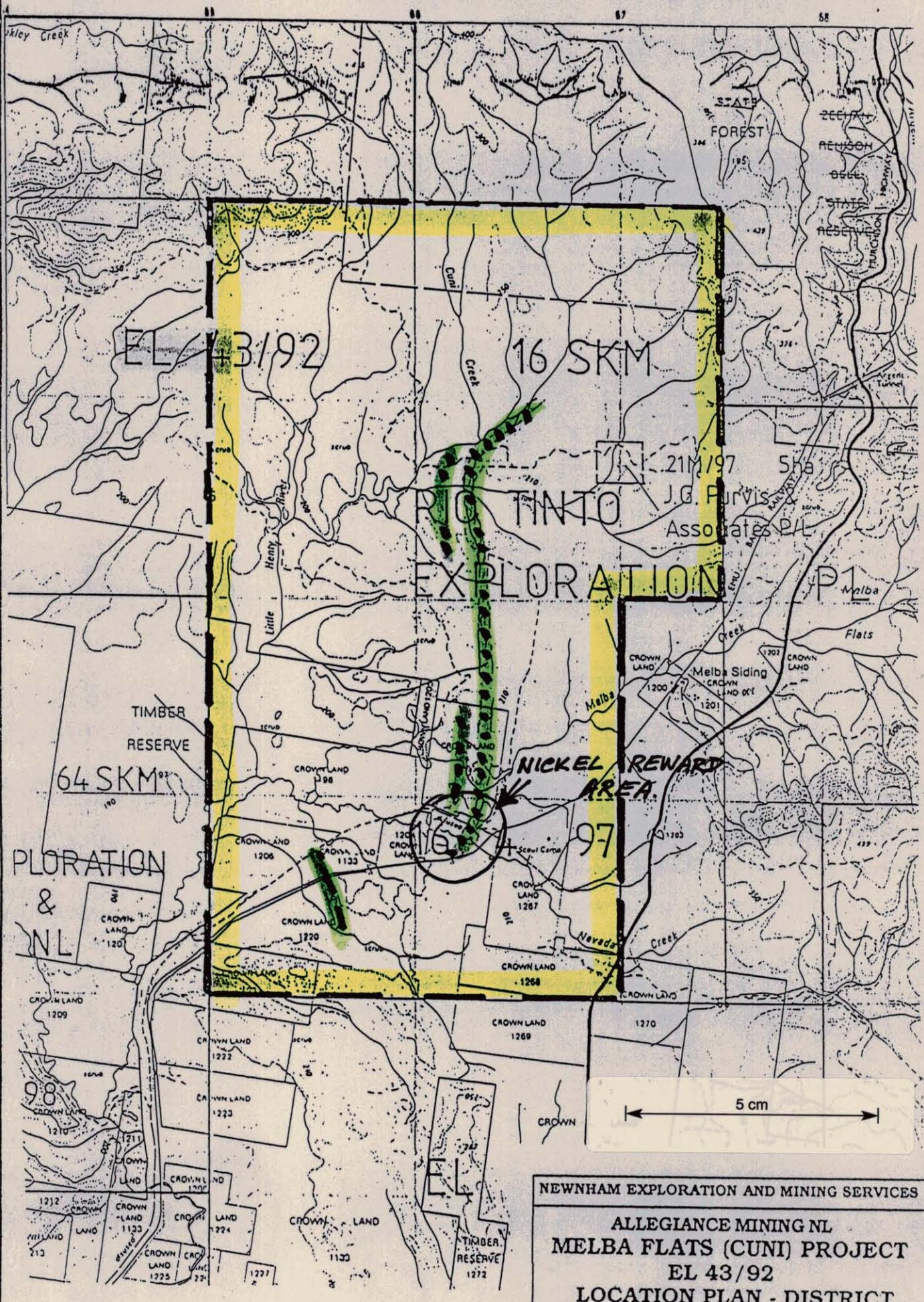


NEWMHAM EXPLORATION AND MINING SERVICES

ALLEGIANCE MINING N.L.
MELBA FLATS (CUNI) PROJECT
 EL 43/92
LOCATION PLAN - DISTRICT

Scale: 1:100,000	
Drawn: LAN	Date: -
Fig: 1	

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NEWNHAM EXPLORATION AND MINING SERVICES

ALLEGIANCE MINING NL
 MELBA FLATS (CUNI) PROJECT
 EL 43/92
 LOCATION PLAN - DISTRICT

Scale: 1:25,000	
Drawn: LAN	Date:
Fig 2	

4. WORK COMPLETED IN YEAR ENDING FEBRUARY 2000

During the year the following work was completed:

- (i) drilling of two cored drill holes, MF 11 and MF 12, at Nickel Reward
- (ii) various down-hole geophysical surveys on MF 11 and MF 12
- (iii) various surface geophysical surveys around the Nickel Reward Mine area
- (iv) detailed aerial photographic survey of the licence and subsequent development of new photogrammetric plans

4.1 Core Drilling:

Drill holes MF 11 and MF 12 were drilled to test the depth continuation of the shallow Nickel Reward mineralisation.

Drill logs, assays and petrological work are presented as Appendices 1, 2 and 3.

A plan and section of the holes is attached as Figs 4, 5(a) and 5(b).

Results of the two holes were regarded as highly encouraging and clearly further drilling is warranted.

4.2 Down-hole Geophysical Surveys:

Various down-hole geophysical surveys were undertaken by both Scintrex and Outer-Rim. Results were interpreted by Nigel Hungerford of Flagstaff GeoConsultants. The Outer-Rim data is represented as Appendix 4, and the Flagstaff interpretation report as Appendix 5.

4.3 Surface Geophysical Surveys:

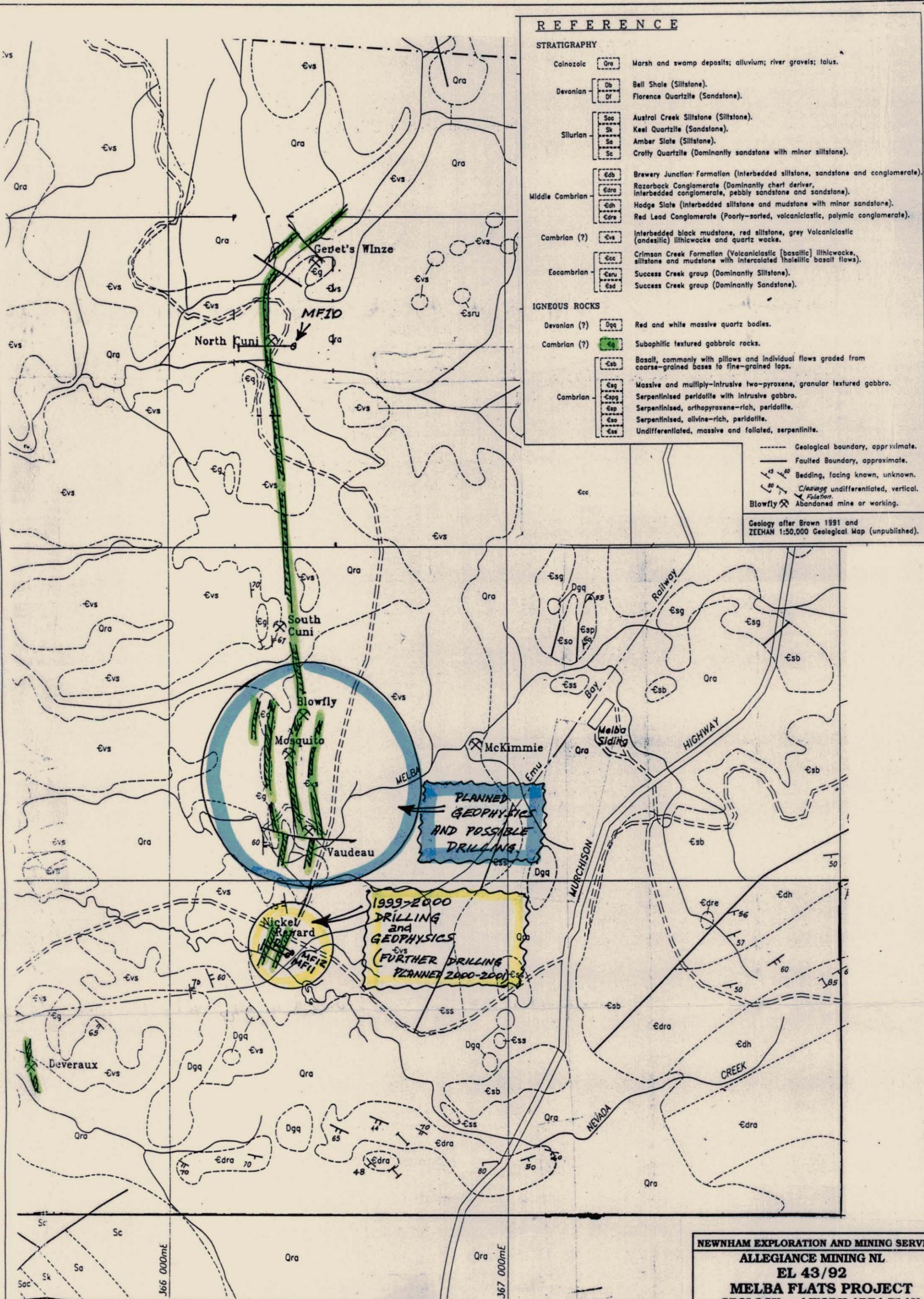
In order to guide future exploration on the licence area, a restricted but very intense campaign of surface geophysical surveying was undertaken around the Nickel Reward area.

Again, data and result interpretation reports are presented in Appendices 4 and 5.

4.4 Aerial Photography:

The more focused exploration on EL 43/92 started to highlight inadequacies in the existing 1:25,000 state map sheet.

HECEC was, therefore, contracted to fly the licence area at 1:15,000 and 1:30,000 scales, and to develop detailed orthophotographic sheets at 1:1,000, 1:2,000 and 1:5,000 scale.



REFERENCE

STRATIGRAPHY

Calozoic	Qra	Marsh and swamp deposits; alluvium; river gravels; talus.
Devonian	Db	Bell Shale (Siltstone).
	Df	Florence Quartzite (Sandstone).
Silurian	Saa	Austral Creek Siltstone (Siltstone).
	Sk	Keel Quartzite (Sandstone).
	Sa	Amber Slate (Siltstone).
	Sc	Crofty Quartzite (Dominantly sandstone with minor siltstone).
Middle Cambrian	Edb	Brewery Junction Formation (Interbedded siltstone, sandstone and conglomerate).
	Edra	Razorbuck Conglomerate (Dominantly chert derived, interbedded conglomerate, pebbly sandstone and sandstone).
	Esh	Hodge Slate (Interbedded siltstone and mudstone with minor sandstone).
	Ede	Red Lead Conglomerate (Poorly-sorted, volcanoclastic, polymic conglomerate).
Cambrian (?)	Eva	Interbedded black mudstone, red siltstone, grey volcanoclastic (andesitic) lithicwacke and quartz wacke.
Eocambrian	Eca	Crimson Creek Formation (Volcanoclastic (basaltic) lithicwacke, siltstone and mudstone with intercolated tholeiitic basalt flows).
	Ecu	Success Creek group (Dominantly Siltstone).
	Ecs	Success Creek group (Dominantly Sandstone).

IGNEOUS ROCKS

Devonian (?)	Dgq	Red and white massive quartz bodies.
Cambrian (?)	Eg	Subophitic textured gabbroic rocks.
	Esb	Basalt, commonly with pillows and individual flows graded from coarse-grained bases to fine-grained tops.
Cambrian	Esg	Massive and multiply-intrusive two-pyroxene, granular textured gabbro.
	Esp	Serpentinised peridotite with intrusive gabbro.
	Eso	Serpentinised, orthopyroxene-rich, peridotite.
	Esa	Serpentinised, olivine-rich, peridotite.
	Ese	Undifferentiated, massive and foliated, serpentinite.

- - - - - Geological boundary, approximate.
 ——— Faulted Boundary, approximate.
 / 45 80 Bedding, facing known, unknown.
 / 80 70 Cleavage undifferentiated, vertical.
 / Foliaion.
 Blowfly X Abandoned mine or working.

Geology after Brown 1991 and ZEEHAN 1:50,000 Geological Map (unpublished).

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NEWNHAM EXPLORATION AND MINING SERVICES
ALLEGIANCE MINING NL
EL 43/92
MELBA FLATS PROJECT
GEOLOGY and WORK AREA PLAN

Scale: 1: 10,000
 Drawn: LAN Date: Mar 00 Fig: 3

5 cm

EL 43/92- MELBA FLATS
NICKEL REWARD PROSPECT
GRID LAYOUT AND
DDH LOCATIONS

COMPILED : L.A.M.

DATE :

DRAWN : G.M.B.

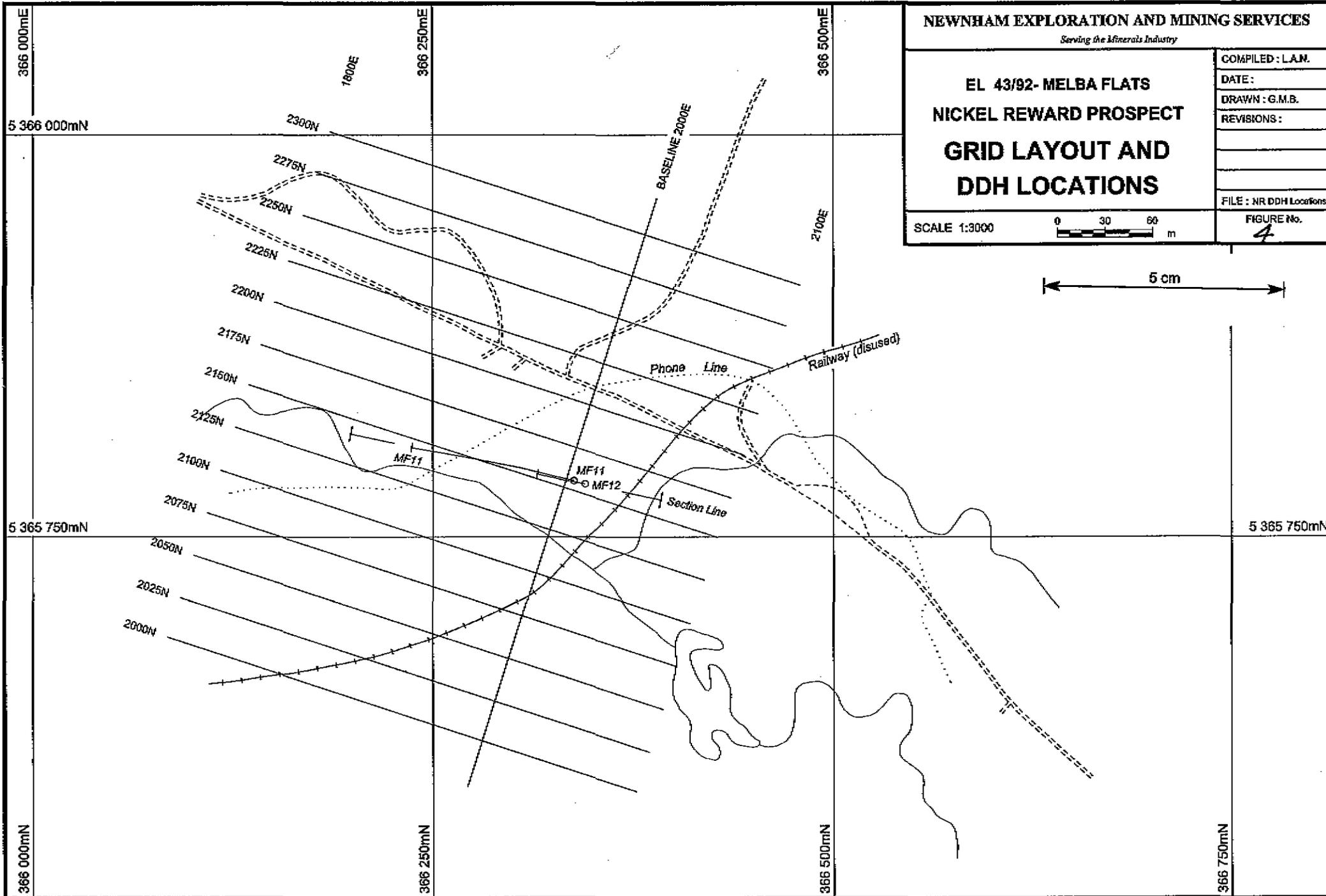
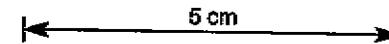
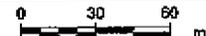
REVISIONS :

FILE : NR DDH Locations

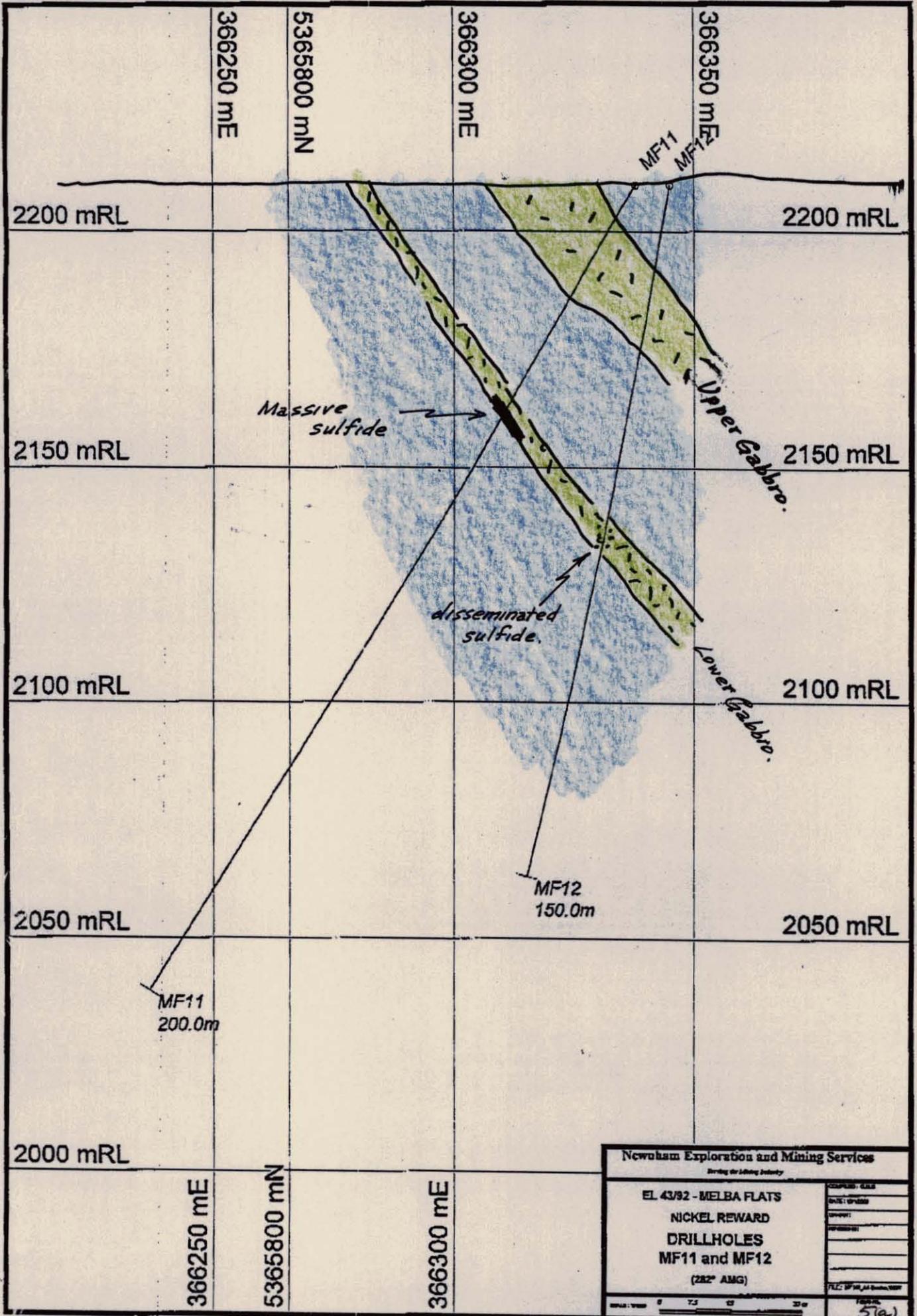
FIGURE No.

4

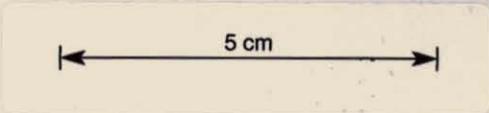
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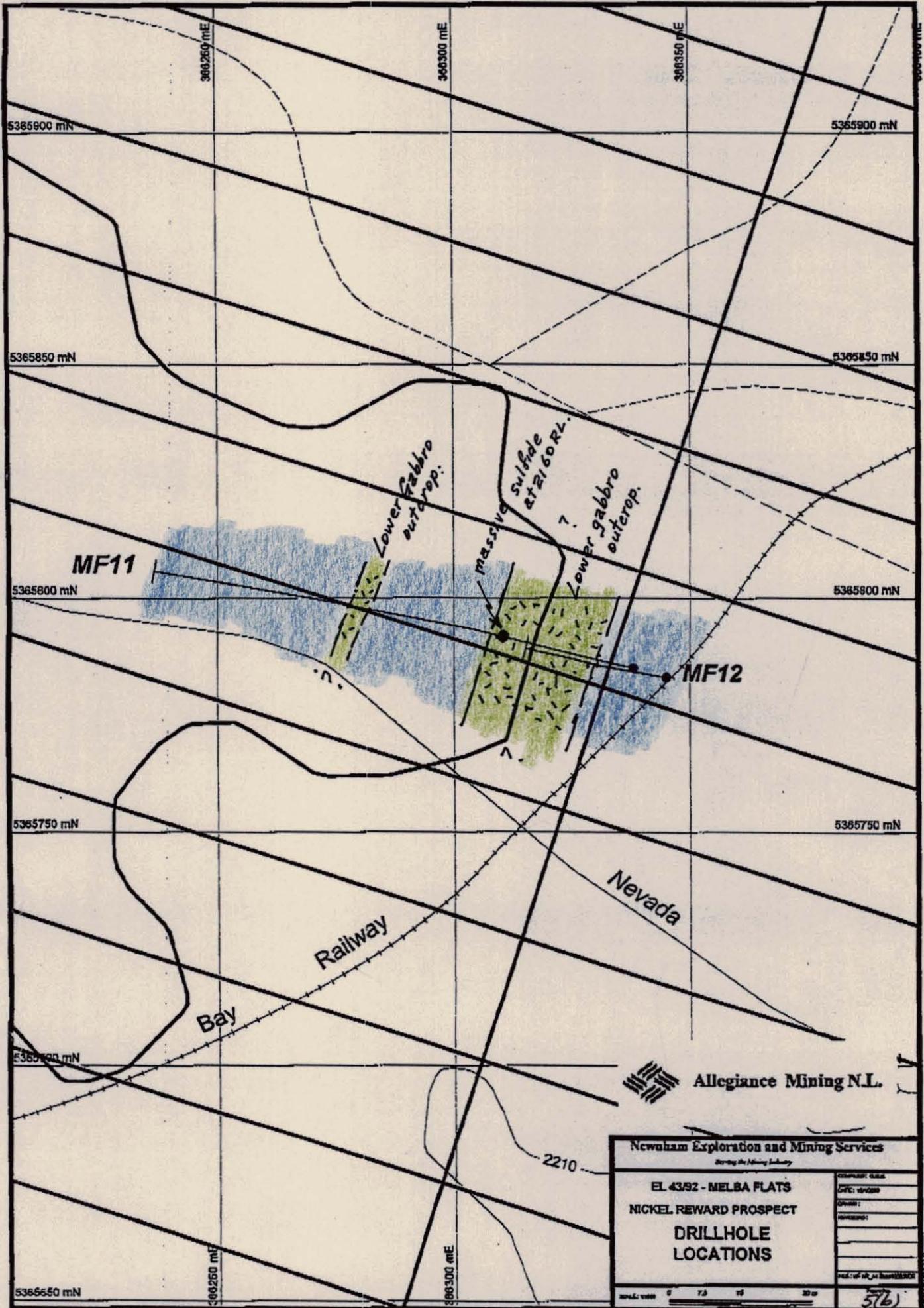


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Newham Exploration and Mining Services <i>Serving the Mining Industry</i>	
EL 43/92 - MELBA FLATS	
NICKEL REWARD	
DRILLHOLES	
MF11 and MF12	
(282° AMG)	
DATE: 09/05/00	SCALE: 1:5000
PROJECT:	FILE: 09/05/00
5(a)	





5. WORK PLANNED FOR YEAR ENDING FEBRUARY 2001

The following work is planned for the next 12-month period:

- high resolution helimag survey of the licence
- drilling of minimum 2-3 holes at Nickel Reward and possibly Mosquito
- extension of detailed electrical geophysical surveys over the Mosquito and Blowfly workings

Detailed scheduling and budgeting for this work has not yet been completed, but will be in the \$60,000-\$80,000 range.

.....

APPENDIX 1

DRILL LOGS

MF 11 and MF 12

COMPANY: Allegiance Mining NL
PROJECT: Cuni
HOLE NUMBER: MF 11

Commenced:	01 Sept 99
Completed:	09 Sept 99
Logged By:	L.A.Newnham
Drilled By:	Almac Drilling

Purpose of Hole
To test depth continuation of massive sulfide mineralisation worked near surface in Nickel Reward Mine.

Comments on Completion
two zones of massive sulfide were intersected within a gabbroic dyke at shallow depth beneath the Nickel Reward prospect; these zones contained high Ni, Cu, values with elevated Au, Pt, Pd; similar mineralisation was intersected in a thin gabbro dyke at 11.5 m. depth

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	5365785	366338	2210	-60	283

Length (m)
200 m.

Hole Size	
To (m)	Size
32.4	HQ
200	NQ

Significant Core Loss Zones		
From	To	%Rec.
0.0	6.0	8

Hole Condition on Completion
all rods and casing removed from hole; PVC inserted full length of hole;

Summary of Results:

Depth		Recovery %	Description	Assays							
From	To			Length	% Cu	% Ni	% S	% Co	Au	Pt	Pd
49.0	52.6	100	intervals of massive sulfide separated by sulfidic gabbro	3.65	2.86	4.36	18.70	0.12	0.307	0.435	0.523

DOWN HOLE SURVEY DATA

COMPANY: Allegiance Mining NL
PROJECT: Cuni (Melba Flats)
HOLE NUMBER: MF 11

Depth (m)	Dip	Bearing (AMG)	Interval		Length (D)	Vertical Distance		Horizontal Distance		Co-ordinates			
			From	To		D.sin dip	R.L.	D. cos dip (HD)	Cumulative HD	N. distance HD. cos brg.	N. co-ordinate	E. distance HD. sin brg.	E. co-ordinate
COLLAR	-60	283					2210.00		0.00		5,365,785.0		366,338.0
0	-60	283	0	25	25	21.65	2188.35	12.50	12.50	2.81	5,365,787.8	-12.18	366,325.8
50	-60	284	25	70	45	38.97	2149.38	22.50	35.00	5.44	5,365,793.3	-21.83	366,304.0
90	-59	281	70	105	35	30.00	2119.38	18.03	53.03	3.44	5,365,796.7	-17.70	366,286.3
120	-58	281	105	135	30	25.44	2093.94	15.90	68.92	3.03	5,365,799.7	-15.61	366,270.7
150	-58	280	135	175	40	33.92	2060.01	21.20	90.12	3.68	5,365,803.4	-20.87	366,249.8
200	-58	280	175	200	25	21.20	2038.81	13.25	103.37	2.30	5,365,805.7	-13.05	366,236.8
200													

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COMPANY: Allegiance Mining NL
 PROJECT: Cumi
 HOLE NUMBER: MF 11

Description		Core Recovery			RQD			Assays								
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As	
0.0	3.0	HW TRICONE: no core; PVC inserted;	0.0	3.0	0											
3.0	7.0	SILTSTONE: light gray-greenish strongly weathered, soft, friable fissile sediment; core very broken; clayey in places;	3.0	6.0	15	3.0	9.5	10								
7.0	7.3	GABBRO: medium grained, dark gray gabbro; very broken, limonite on fracture surfaces; trace medium grained sulfide; (pyrite?); dominant joint direction 50 CA;	6.0	8.0	80											
7.3	8.0	SILTSTONE: light gray, soft, broken siltstone; limonite common on some joint surfaces; vuggy nature, significant leaching; medium grained euhedral pyrite in bottom 20 mm;														
8.0	28.9	GABBRO: dark gray, speckled, medium grained gabbro; weathered and broken in places; feldspars extensively altered to creamy white clay; leached vuggy areas above 26 m., probably leached calcite veins; thin irregular calcite veining common below 26 m; 11.5-11.9 m: 2-3% coarse sulfides in crushed and sheared zone in gabbro; 12-12.4 m: light gray brecciated sedimentary band; gabbro becoming fresher down hole; trace disseminated sulfides in small blebs and grains throughout unit; sharp but sheared dark gray-black contact with sediments below; ground broken and weathered to 24 m., then significant improvement; principal joint set 50-70 CA. generally 55-65 CA;	8.0	11.0	70	9.5	13.8	10								
			11.0	14.0	90	13.8	16.7	5								
			14.0	28.9	100	16.7	19.9	10								
						19.9	23.4	50								
						23.4	26.7	70								
						26.7	30.1	80								
									11.5	11.9	1.01	0.95	2.60	250	<100	

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 11

Description		Core Recovery			RQD			Assays							
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As
28.9	32.5	HEMATITIC SEDIMENT: red brown arkosic sediment with poorly sorted grains set in overall fine grained reddish groundmass; thin irregular calcite veins common; some calcite sections have crescent shape (fossil shells?); no sulfides observed; core moderately competent, but several joint sets; principal joint set 50 CA;	28.9	32.5	100	30.1	32.4	80							
32.5	36.5	GABBRO: dark gray-green medium grained fresh gabbro; several narrow finer grained sections; numerous thin irregular calcite veins; sharp HW contact 60 CA; FW contact more diffuse and foliated /sheared and marked by significant calcite veining and trace sulfides; FW contact 45 CA; elsewhere only rare fine sulfide grains;	32.5	36.5	100	32.4	37.1	85	35.0	36.0	0.02	0.07	2.60	250	<100
									36.0	37.0	0.01	0.03	0.32	50	<100
									37.0	38.0	0.01	<0.01	<0.05	<25	<100
									38.0	39.0	<0.01	<0.01	0.11	44	<100
									39.0	40.0	<0.01	<0.01	<0.05	30	<100
									40.0	41.0	<0.01	<0.01	0.31	52	<100
									41.0	42.0	<0.01	<0.01	0.24	52	<100
									42.0	43.0	<0.01	<0.01	2.35	56	<100
									43.0	44.0	<0.01	<0.01	1.56	56	<100
36.5	49.0	SILTSTONE - SHALE: light-dark gray well bedded siltstone and shale with occasional thin grit bed; unit shows substantial soft sediment slumping with occasional intraformational brecciation; BCA variable but generally 60 CA; 43-47.0 m: sediments slumped and contorted; narrow calcite veining throughout; minor pervasive sulfides- either bedding conformable or as thin disseminated seams and coarser aggregates in matrix of soft sediment brecciation zone; ground conditions generally good with most fracturing parallel to bedding;	36.5	49.0	100	37.1	41.7	90	44.0	45.0	<0.01	0.01	1.91	52	<100
									41.7	46.1	100				
									46.1	50.5	80				
									45.0	46.0	<0.01	0.01	1.29	56	<100
									46.0	47.0	<0.01	0.01	1.36	66	<100
									47.0	48.0	<0.01	0.01	0.37	58	<100
									48.0	49.0	<0.01	<0.01	0.11	59	<100
49.0	49.8	GABBRO-SULFIDIC: dark gray medium grained gabbro, with abundant sulfides below 49.2 m; upper 200 mm. contains abundant random calcite and quartz-calcite veins and minor...	49.0	49.8	100				49.0	49.8	0.64	0.57	1.51	130	<100

633020

Description		Core Recovery			RQD			Assays								
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As	
49.0	49.8	disseminated sulfides; lower 800 mm., contains abundant sulfide (3-5%) as veinlets, coarse aggregates and disseminated grains; core moderately competent;														
49.8	52.65	MASSIVE SULFIDES with NARROW GABBRO BANDS: 49.8-50.1 m: 300 mm massive sulfide (pyrite- chalcopyrite-pentlandite?) 50.1-50.3 m: 200 mm gabbro with semi massive sulfides as aggregates and veins; 50.3-50.8 m: dark fine grained gabbro with several fine carbonate veins and minor sulfide blebs; 50.8-50.95 m: 150 mm. massive sulfide (pyrite- chalcopyrite-pentlandite ?) 50.95-51.10 m: 150 mm. dark gray gabbro, minor stringers sulfide; 51.1-52.65 m: massive sulfide (pyrite-chalco- pentlandite ?) with quartz-carbonate and common blebs and fine spots of magnetite; jointing and gabbro contacts generally 70 CA; sharp FW contact with sediments 45 CA;	49.8	52.6	100	50.5	54.9	75	49.80	50.30	2.80	7.35	25.90	1760	150	
									50.30	50.80	0.10	0.26	0.39	80	<100	
									50.80	50.95	6.10	4.60	26.50	1380	<100	
									50.95	51.10	0.67	0.62	4.65	280	<100	
									51.10	51.90	6.50	4.05	33.30	2060	<100	
									51.90	52.65	3.05	10.20	30.10	2110	150	
52.65	70.8	GRIT-SILTSTONE-SHALE: intermixed dark gray gritty siltstone and light gray shales; slumping and soft sediment deformation common; BCA variable; 30-70 CA due to slumping; narrow randomly orientated 1-4 mm white calcite veins common throughout; sulfide (pyrite?) associated with calcite veining especially in the top section of the unit, and decreasing down hole; some streaky disseminated sulfide common in several gritty bands near top of unit; ground conditions generally good;; fracture surfaces irregular and tight;	52.6	70.8	100	54.9	59.2	90	52.65	54.00	0.15	0.16	0.89	66	<100	
									54.00	55.00	0.03	0.08	0.75	46	<100	
									55.00	56.00	0.04	0.01	2.55	50	<100	
									56.00	57.00	<0.01	0.01	0.12	52	<100	
									57.00	58.00	<0.01	0.01	0.12	44	<100	
									58.00	59.00	<0.01	0.01	0.55	50	<100	
									59.00	60.00	<0.01	0.01	0.52	54	<100	

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 11

Description		Core Recovery			RQD			Assays									
From	To				From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As
70.8	73.0	BLEACHED SILTSTONE: light buff colored bleached siltstone, with several brecciated and slumped shale beds; white-cream carbonate veining common, mostly on thin irregular veins but occasional thicker bedding parallel veins; minor pyrite associated with veining; ground conditions good; most fractures parallel to bedding 40-60 CA;		70.8	73.0	100		72.9	77.5	90	71.0	72.0	<0.01	<0.01	0.25	32	<100
											72.0	73.0	<0.01	<0.01	0.79	36	<100
73.0	74.5	VEINED/FAULT ? UNIT: shale-siltstone unit brecciated and extensively veined by large masses of quartz and quartz-carbonate; 2-3% pyrite accompanying veining as large aggregates, blebs and thin streaks; good ground conditions;		73.0	74.5	100					73.0	74.5	<0.01	0.01	2.75	36	<100
74.5	80.1	SILTSTONE-SHALE: dark gray intermixed shale and gritty siltstone; soft sediment slumped sections in places; white carbonate as random thin veins and occasional thicker masses with minor pyrite; ground conditions good; grades into.....		74.5	80.1	100		77.5	82.0	100							
80.1	89.4	HEMATITIC SILTSTONE-MUDSTONE: massive fine grained hematitic mudstone/siltstone with occasional thin beds dark gray-green siltstone; several thin irregular white carbonate veins; only very rare fine grained specs disseminated pyrite; most fractures parallel to bedding at 45-55 CA; average 50; ground soft but very competent; grades into.....		80.1	89.4	100		82.0	86.6	95							
								86.6	91.1	85							
89.4	95.0	GRITTY SILTSTONE-SHALE: dark gray gritty siltstone interbedded with light gray siltstone-shale; irregular bedding due to soft sediment deformation;		89.4	95.0	100		91.1	95.9	100							

633029

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 11

Description		Core Recovery			RQD			Assays								
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As	
89.4 continued.....	95.0	BCA very irregular; white carbonate as isolated masses and thin irregular veins; occasional blebs and stringers sulfide (pyrite?) ground conditions very good;														
95.0	98.2	FINE GRAINED GABBRO (?) : massive dark gray fine-medium grained rock, either a gabbro or grit; white carbonate as abundant fine veins; irregular inclusions of finer grained sediment; sulfides common in places as heavily disseminated zones in gabbro(?) or associated with calcite veining; below 97 m., some larger areas clearly identifiable as medium grained gabbro; ground conditions very good;	95.0	98.2	100	95.9	100.1	95	95.0	96.0	<0.01	0.01	2.90	60	<100	
									96.0	97.0	0.02	0.01	0.65	46	<100	
									97.0	98.0	0.05	0.02	0.34	60	<100	
98.2	99.2	GABBRO : dark gray coarse grained gabbro, gradational with unit above but sharp contact with unit below; trace fine grained disseminated sulfides; ground conditions very good;	98.2	99.2	100				98.0	99.2	0.01	0.03	<0.10	66	<100	
99.2	101.0	SILTSTONE : light-dark gray siltstone with shale and mudstone clasts; only trace fine grained disseminated sulfides; grades into.....	99.2	101.0	100	100.1	104.6	95								
101.0	111.4	HEMATITIC MUDSTONE : gray hematitic mudstone, gritty in part with irregular patches green siltstone; narrow irregular quartz-carbonate veins common; brecciated host rock margins; trace sulfide associated with veins; ground conditions excellent;	101.0	111.4	100	104.6	109.1	90								
111.4	119.0	SILTSTONE : medium grained siltstone with thin shaley interbeds and mudstone/shale clasts; soft sediment deformation resulting in irregular....	111.4	119.0	100	109.1	113.5	85								
						113.5	118.1	95								
						118.1	122.7	100								

633023

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 11

Description			Core Recovery			RQD			Assays						
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As
111.4 continued.....	119.0	BCA's but generally in the range 30-45; thin irregular quartz-carbonate veining common; larger veins and masses have brecciated wallrock margins; minor-trace disseminated sulfides associated with veins and brecciated margins; ground conditions excellent;													
119.0	131.8	INTERBEDDED SILTSTONE and HEMATITIC MUDSTONE: thick light-medium gray siltstone beds with minor bleached shaley intervals interbedded with thick 2-3 m. units of red-brown finer grained hematitic mudstone-siltstone; BCA generally 50, but ranges 40-60; numerous fine white carbonate veins occasionally accompanied by trace fine grained pyrite; ground conditions generally good; more broken in zones associated with abundant veining;	119.0	131.8	100	122.7	127.2	100							
						127.2	131.7	95							
131.8	132.3	GABBRO: dark gray coarse grained gabbro; lower margin strongly altered to soft white-gray kaolinitic material; only minor sulfide (pyrite?) as small grains and clusters; core moderately broken;	131.8	132.3	100	131.7	136.3	85							
132.3	157.7	HEMATITIC SILTSTONE-MUDSTONE: massive units of red-brown hematitic siltstone-mudstone, gritty in places, interbedded above 142 m. with light gray-green shaley siltstone; these beds are often slumped and crushed; BCA variable but generally 50-70, typically 60 white calcite as common thin irregular veins, and occasionally as larger quartz-carbonate masses (eg) 144.5 m., where calcite vein contains angular fragments of hematitic siltstone; minor sulfide, pyrite with occasional blebs of	132.3	157.8	100	136.3	140.8	85							
						140.8	145.2	90							
						145.2	149.8	90							
						149.8	154.4	100							
						154.4	159.0	95							

633024

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 11

Description		Core Recovery			RQD			Assays							
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As
132.3 continued.....	157.7	chalcopyrite, generally associated with carbonate veining; coarse pyrite and euhedral pyrite associated with dark gray shaley partings in gray siltstone; ground conditions excellent; most fractures parallel to bedding;													
157.7	158.7	GRITTY SILTSTONE and SHALE: light fawn-pink siltstone and shale, cut by abundant irregular veins and masses of white calcite;	157.8	158.7	100										
158.7	172.0	SILTSTONE and MINOR SHALE: light gray siltstone, gritty in places; occasional thin intercalations of dark gray shale; below 167.5 m: several 70-100 mm. veins of chloritic altered gabbro(?), dark gray-green with selvages and masses of quartz-carbonate, and blebs of coarse chalcopyrite and sphalerite; veins at 40 CA; below 168 m: siltstone fractured by irregular network of very fine (<1mm) dark gray quartz(?) veinlets; 1-2% very fine euhedral pyrite disseminated throughout this section; elsewhere only trace disseminated pyrite in siltstone, but 2-3% as thin seams in shaley units; BCA 40-55; generally 50; ground conditions excellent;	158.7	172.0	100	159.0	168.2	100	167.0	168.0	<0.01	<0.01	0.23	46	<100
						168.2	172.7	95	168.0	169.0	<0.01	<0.01	0.20	44	<100
									169.0	170.0	<0.01	<0.01	0.12	52	<100
									170.0	171.0	<0.01	<0.01	0.11	50	<100
									171.0	172.0	<0.01	<0.01	0.14	48	<100
172.0	176.8	INTERBEDDED SILTSTONE and PYRITIC SHALE: dark gray-black pyritic shale thinly interbedded with medium gray gritty siltstone; slumping and soft sediment deformation common, and accompanied by numerous fine irregular calcite and quartz-calcite veining; BCA 45-70, but generally 60; 5-10% pyrite throughout but more concentrated in shale sections as very fine grained stratabound seams and occasionally	172.0	176.8	100	172.7	177.2	90	172.0	173.0	<0.01	<0.01	3.00	44	<100
									173.0	174.0	<0.01	<0.01	2.05	50	<100
									174.0	175.0	<0.01	<0.01	0.32	38	<100
									175.0	176.0	<0.01	<0.01	0.30	50	<100
									176.0	177.0	0.01	<0.01	0.24	40	<100

633025

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 11

Description		Core Recovery			RQD			Assays							
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As
172.0 continued.....	176.8	thin seams of coarser euhedral pyrite; large patches of euhedral pyrite and aggregates of fine pyrite common; ground conditions generally good; some shaley units more broken parallel to CA;													
176.8	184.8	SILTSTONE and MINOR SHALE: light gray siltstone, gritty in places, interbedded with dark gray-black shales; BCA 60; 1-2% pyrite, mainly as aggregates and blebs in shaley units and rimming thin irregular calcite veins and seggregations; several small blebs of chalcopyrite; ground conditions excellent; most fractures parallel to bedding;	176.8	184.8	100	177.2 181.9	181.9 186.2	100 85							
184.8	187.8	SHALE and MINOR SILTSTONE: black shale, often slumped and distorted, interbedded with minor fine grained light gray siltstone; quartz-carbonate and white coarse crystalline calcite common as veins and large irregular masses; BCA 60-70; 1-2% pyrite in shales as fine seams of stratabound euhedral grains and coarse aggregates; ground conditions excellent;	184.8	187.8	100	186.2	190.8	100	184.8 185.8	185.8 186.8	<0.01 <0.01	<0.01 <0.01	1.32 0.48	52 50	<100 <100
187.8	198.0	SILTSTONE-minor SHALE: massive light gray siltstone, generally gritty, with minor dark gray shale interbeds; white calcite present as thin veins and larger irregular masses; BCA 65; minor trace fine grained pyrite associated with carbonate veins and as thin stratabound seams in shale units; ground conditions excellent;	187.8	198.0	100	190.8 195.2	195.2 200.0	95 85							
198.0	200.0	SHALE - minor SILTSTONE: dark gray - black shale interbedded with light	198.0	200.0	100				198.0 199.0	199.0 200.0	<0.01 <0.01	<0.01 <0.01	0.38 1.09	44 50	<0.01 <100

633026

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 12

Commenced:	21 Oct 99
Completed:	25 Oct 99
Logged By:	L.A.Newnham
Drilled By:	Almac Drilling

Purpose of Hole
To test the depth extension of mineralisation intersected in MF 11 beneath the Nickel Reward Mine

Comments on Completion
hole intersected several dykes; the one at 66 m. was correlated with the mineralised dyke in MF 11; it contained disseminated mineralisation consisting mainly of nickel sulfide and chalcopyrite; Other interpretations of the dyke correlations between these two holes may be possible;

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	5365783	366345	2210	-80	280

Length (m)
149.5

Hole Size	
To (m)	Size
3.3	HW
17.5	HQ
149.5	NQ

Significant Core Loss Zones		
From	To	%Rec.
0.0	3.3	0
3.3	8.5	65

Hole Condition on Completion
all steel casing removed from hole; PVC placed in hole to facilitate future geophysics;

Summary of Results:

Depth		Recovery	Description	Assays							
From	To	%		Length	%Cu	%Ni	%S	%Co	ppm Au	Pt	Pd
65.8	73.9	100	gabbroic dyke containing disseminated sulfides	8.1	0.42	0.52	1.78	0.02	0.08	0.095	0.139

DOWN HOLE SURVEY DATA

COMPANY: Allegiance Mining NL
 PROJECT: Melba Flats
 HOLE NUMBER: MF 12

Depth (m)	Dip	Bearing (AMG)	Interval		Length (D)	Vertical Distance		Horizontal Distance		Co-ordinates			
			From	To		D.sin dip	R.L.	D. cos dip (HD)	Cumulative HD	N. distance HD. cos brg.	N. co-ordinate	E. distance HD. sin brg.	E. co-ordinate
COLLAR	-80	280					2210.00		0.00		5,365,783.0		366,345.0
0	-80	280	0	30	30	29.54	2180.46	5.21	5.21	0.90	5,365,783.9	-5.13	366,339.9
60	-79	280	30	75	45	44.17	2136.28	8.59	13.80	1.49	5,365,785.4	-8.46	366,331.4
90	-78	284	75	105	30	29.34	2106.94	6.24	20.03	1.51	5,365,786.9	-6.05	366,325.4
120	-77	282	105	135	30	29.23	2077.71	6.75	26.78	1.40	5,365,788.3	-6.60	366,318.8
150	-76	283	135	150	15	14.55	2063.15	3.63	30.41	0.82	5,365,789.1	-3.54	366,315.2
150													

633029

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 12

Description			Core Recovery			RQD			Assays						
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As
0.0	3.3	No recovery; HW tricone and casing;	0.0	3.3	0	0.0	7.4	10							
3.3	9.7	SILTSTONE and GRITS: light gray interbedded fine grained siltstone-mudstone with minor interbeds of coarse siltstone-grit BCA 45; no mineralisation observed; core soft and broken;	3.3	5.5	90	7.4	10.7	40							
			5.5	7.4	60										
			7.4	8.5	60										
			8.5	9.7	100										
9.7	11.0	SHEARED - FAULTED SEDIMENTS: siltstones and grits as above, brecciated and contorted; several narrow shear zones sub-parallel to CA, filled with sericite and limonite; core broken along these shear zones;	9.7	11.0	100	10.7	14.1	60							
11.0	14.0	MUDSTONE-SILTSTONE-GRIT: as for 3.3 m. above; minor quartz veining and small scale faulting BCA variable but generally 40;	11.0	14.0	100										
14.0	15.4	GABBRO: weathered and broken medium grained dark gray-black gabbro, decomposing into crumbly white-green clays and sericite; no sulfides observed; core broken; HW contact 30 CA; FW contact not definite;	14.0	15.4	90	14.1	17.5	70							
15.4	17.2	SILTSTONE-MUDSTONE: light gray-brown medium grained siltstone interbedded with light gray mudstone; minor thin quartz and quartz-carbonate veining; BCA 40;	15.4	17.2	100										
17.2	29.2	GABBRO: dark green-black, mottled, medium-coarse grained gabbro; fine random quartz, quartz-carbonate and carbonate veining common; unit leached and	17.2	29.2	100	17.5	22.1	60	17.1	19.0	0.01	0.09	0.25	120	<100
						22.1	26.1	75	19.0	21.0	0.01	0.09	0.18	120	<100
						26.1	30.5	80	21.0	23.0	0.01	0.07	0.14	98	120
									23.0	24.0	0.01	0.03	1.77	52	<100
									24.0	26.0	0.01	0.02	0.09	64	<100
									26.0	28.0	<0.01	0.01	0.12	58	<100
									28.0	29.1	0.01	0.01	0.22	66	<100

633030

COMPANY: Allegiance Mining NL
 PROJECT: Cuni
 HOLE NUMBER: MF 12

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As	
17.2 continued.....	29.2														
		extensively altered; 17.2-23.1 m: few small aggregates sulfide (Ni) and rare chalcopyrite; 23.1-23.9 m: siliceous gabbro, cut by large vein carrying abundant coarse crystalline galena (3-5%); at 23.7 m., 1-2 mm disrupted vein of pyrite/pent(?) cuts through the galena; 23.9-29.2 m: altered and weathered gabbro with numerous hairline sericite filled fractures; trace sulfides; core varies from moderately competent to very broken, especially along galena bearing vein; HW contact sharp 40 CA; FW contact sharp 30 CA;													
29.2	64.8	RED and GREEN SILTSTONE-MUDSTONE:	29.2	34.7	100	30.5	34.8	55	63.8	64.8	0.03	0.01	0.18	46	<100
		reddish-brown hematitic mudstone and siltstone interbedded with light green-gray siltstone with minor grit beds;	34.7	35.5	75	34.8	39.3	80							
		29.2-30.5 m: abundant fine random carbonate carbonate veining in hematitic siltstone;	35.5	64.8	100	39.3	44.0	90							
		BCA 30-40;				44.0	48.6	90							
		38.2-39.3 m: slumping and soft sediment deformation textures in hematitic siltstone with irregular "flames" of green grit in mudstone and minor small scale fault adjustment;				48.6	53.1	95							
		39.3-44.7 m: more massive medium grained grit and siltstone;				53.1	57.7	80							
		cream and white carbonate common as fine-coarse irregular veins;				57.7	62.3	90							
		44.7 m: 300 mm. coarse gabbro vein; chilled HW margin 50 CA;				62.3	66.8	90							
		45.0-55.0 m: BCA's 40-50;													
		below 55 m., BCA's variable 30-40, but generally 30;													
		64.3-64.8 m: minor gabbro clasts caught up in sediments with accompanying aggregates of sulfide;													

633031

Description		Core Recovery			RQD			Assays										
From	To		From	To	%	From	To	%	From	To	% Cu	% Ni	% S	Co	As			
64.8	73.9	GABBRO: dark gray medium grained gabbro; abundant fine quartz-carbonate-sericite veinlets and occasionally irregular masses; 5-10% sulfides throughout as fine grains, aggregates and veinlets of pentlandite, chalcopyrite, minor pyrite and rare grain of galena; HW contact not clear: possibly 40-45; FW contact also not clear: probably 50 CA; core moderately competent but affected by low angled joint set sub-parallel to CA;	64.8	73.9	100	66.8	71.6	80	64.8	65.8	0.01	0.08	0.36	60	<100			
						71.6	75.9	60	65.8	66.8	0.21	0.34	1.25	105	<100			
										66.8	67.8	0.62	0.83	2.65	240	120		
										67.8	68.8	0.10	0.17	0.37	96	<100		
										68.9	69.8	0.37	0.48	1.35	155	<100		
										69.8	70.8	0.82	1.08	3.85	270	<100		
										70.8	71.8	0.64	0.81	2.90	205	<100		
										71.8	72.8	0.29	0.34	1.17	140	<100		
										72.8	73.9	0.32	0.19	0.82	88	<100		
			73.9	149.5	GRIT-SILTSTONE-MUDSTONE SEQUENCE: light gray grit and coarse siltstone interbedded with light and dark gray mudstone; texture suggests intermbdng or slumping of these two units; significant sulfides in gritty beds; 73.9-96.1 m: slumped and intermixed grits and mudstone; BCA 40; 1-2% coarse disseminated pyrite, pervasive in coarser grits, locally to 5%; 96.1 m: 300 mm. gabbro dyke; HW and FW contacts 50 CA; 96.4-112.5 m: similar to 73.9 m....., but dominated by coarse gritty siltstones; BCA 40; clusters of coarse sulfide (?pyrite) along grit- mudstone boundaries (cf) 99.3 m; 112.5-123.3 m: Increase in dark gray-dark purple shaley component, interbedded with grits; BCA 45; 123.3-124.3 m: quartz-carbonate-sericite vein/breccia interval; 3-5% sulfides, (? pyrite), few specs galena; 124.3-135.3 m: interbedded dark gray-purple mudstone, siltstone and light gray-grits; BCA 40-45; <1% sulfides;	73.9	77.0	100	75.9	80.6	80	73.9	75.9	0.01	0.01	0.28	46	<100
						80.6	85.0	95										
						80.2	89.5	80	85.0	89.5	65	77.0	79.0	0.02	0.01	0.69	52	<100
						89.5	92.5	20	89.5	96.1	80							
						92.5	149.5	100	96.1	100.7	90	82.0	84.0	0.01	0.01	<0.1	46	<100
									100.7	105.3	100							
									105.3	109.9	85	85.0	87.0	0.04	0.01	0.94	54	<100
									109.9	114.3	80							
									114.3	119.0	95	94.0	96.0	0.03	0.01	<0.10	46	<100
									119.0	123.5	95							
									123.5	127.9	90	99.0	101.0	0.02	0.01	0.23	52	<100
									127.9	132.3	95							
									132.3	137.0	90	108.0	110.0	0.02	0.01	0.46	44	<100
									137.0	141.3	90							
									141.3	145.7	80	119.5	120.5	<0.01	<0.01	0.44	40	<100
						145.7	149.5	95										
									123.0	124.5	<0.01	<0.01	0.71	34	<100			
									128.5	130.5	<0.01	<0.01	0.64	52	<100			

000000

APPENDIX 2

ASSAY REPORTS

MF 11 and MF 12



Our reference : BU017069
 Your reference : 128511
 Project code : Drill Core
 Date received : 02/11/99
 Date reported : 17/11/99

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (03) 6431 6837
 Facsimile : (03) 6431 8890

Lindsay Newnham
 Managing Geologist

Allegiance Mining NL
 Newnham Exploration and Mining Service
 PO Box 132
 RIVERSIDE
 TAS 7250

Number of pages of results : 6
 Number of Samples : 27
 First Sample : MF12 17.1-19.0
 Last Sample : MF12 128.5-130.5

Invoice to:
 Lindsay Newnham
 Managing Geologist
 Allegiance Mining NL
 Newnham Exploration and Mining Service
 PO Box 132
 RIVERSIDE
 TAS 7250

Electronic Data Transmission :
 Modern Y 17/11/99
 Facsimile / /
 Disk Report Y / /

Results to:

Results to:

Remarks :

Authorised by
 On behalf of:

Rob Chapman
 Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory
 for preparation and/or analysis as requested by the client.

A subsidiary of Scientific Services Limited



Our reference : BU017069
 Your reference : 128511
 Project code : Drill Core
 Report date : 17/11/99
 Report status : Final
 Page : 2 of 6

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (03) 6431 6837
 Facsimile : (03) 6431 8890

ANALYTICAL DATA

Sample	S				
MF12 17.1-19.0	2550				
MF12 19.0-21.0	1850				
MF12 21.0-23.0	1400				
*Std STANDARD	--				
MF12 23.0-24.0	1.77%				
MF12 24.0-26.0	900				
MF12 26.0-28.0	1250				
MF12 28.0-29.1	2200				
MF12 63.8-64.8	1850				
MF12 64.8-65.8	3650				
*SS MF12 65.8-66.8	1.25%				
MF12 65.8-66.8	--				
MF12 66.8-67.8	2.65%				
MF12 67.8-68.8	3700				
MF12 68.8-69.8	1.35%				
MF12 69.8-70.8	3.85%				
MF12 70.8-71.8	2.90%				
MF12 71.8-72.8	1.17%				
MF12 72.8-73.9	8200				
MF12 73.9-75.9	2800				
MF12 77.0-79.0	6950				
MF12 82.0-84.0	<500				
*Blk BLANK	--				
MF12 85.0-87.0	9400				
*Std STANDARD	--				
MF12 94.0-96.0	750				
MF12 99.0-101.0	2300				
MF12 108.0-110.0	4650				
MF12 119.5-120.5	4400				
MF12 123.0-124.5	7150				
MF12 128.5-130.5	6400				
*Rep MF12 19.0-21.0	--				
*Rep MF12 21.0-23.0	--				
Method	1105				
Units	ppm				
Detection Limit	500				

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received



Our reference : BU017069
 Your reference : 128511
 Project code : Drill Core
 Report date : 17/11/99
 Report status : Final
 Page : 3 of 6

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (03) 6431 6837
 Facsimile : (03) 6431 8890

ANALYTICAL DATA

Sample	Pb				
*Blk BLANK	--				
MF12 17.1-19.0	--				
MF12 19.0-21.0	--				
MF12 21.0-23.0	--				
MF12 23.0-24.0	4.85				
MF12 24.0-26.0	--				
MF12 26.0-28.0	--				
MF12 28.0-29.1	--				
MF12 63.8-64.8	--				
MF12 64.8-65.8	--				
*SS MF12 65.8-66.8	--				
MF12 65.8-66.8	--				
MF12 66.8-67.8	--				
*Std 3024	--				
MF12 67.8-68.8	--				
MF12 68.8-69.8	--				
MF12 69.8-70.8	--				
MF12 70.8-71.8	--				
MF12 71.8-72.8	--				
MF12 72.8-73.9	--				
MF12 73.9-75.9	--				
MF12 77.0-79.0	--				
MF12 82.0-84.0	--				
MF12 85.0-87.0	--				
MF12 94.0-96.0	--				
MF12 99.0-101.0	--				
MF12 108.0-110.0	--				
MF12 119.5-120.5	--				
MF12 123.0-124.5	--				
MF12 128.5-130.5	--				
*Std MP1A	--				
*Std CCU1B	--				
*Rep MF12 17.1-19.0	--				
*Rep F12 108.0-110.0	--				
Method Units Detection Limit	A120 % 0.025				

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received



Our reference : BU016845
Your reference : 128501
Project code :
Date received : 10/09/99
Date reported : 08/10/99

Analabs Pty. Ltd.
ACN 004 591 664
14 Thirkell St, Burnie
Tasmania 7320
Telephone : (03) 6431 6837
Facsimile : (03) 6431 8890

Lindsay Newnham
Managing Geologist

Allegiance Mining NL
Newnham Exploration and Mining Service
PO Box 132
RIVERSIDE
TAS 7250

Number of pages of results : 6
Number of Samples : 50
First Sample : 17151
Last Sample : 17200

Invoice to:
Lindsay Newnham
Managing Geologist

Allegiance Mining NL
Newnham Exploration and Mining Service
PO Box 132
RIVERSIDE
TAS 7250

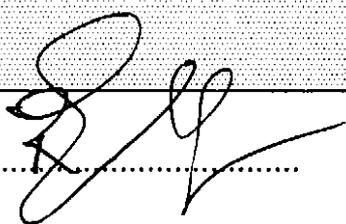
Electronic Data Transmission :
Modem Y 08/10/99
Facsimile //
Disk Report Y //

Preliminary Reports :
22/09/99 Report
23/09/99 Report

Results to:

Results to:

Remarks :

Authorised by
On behalf of: 
Rob Chapman
Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory for preparation and/or analysis as requested by the client.



Our reference : BU016845
 Your reference : 128501
 Project code :
 Report date : 08/10/99
 Report status : Final
 Page : 1 of 2

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (03) 6431 6837
 Facsimile : (03) 6431 8890

ANALYTICAL DATA

Sample	Cu	Ni	As	Pb	Co	Zn
11.5-11.9 17151	1.01%	9550	<100	55	250	530
35.0-36.0 17152	250	765	<100	<50	100	270
36.0-37.0 17153	110	355	<100	650	50	650
37.0-38.0 17154	110	78	<100	<50	<25	230
38.0-39.0 17155	68	72	<100	130	44	380
39.0-40.0 17156	88	80	<100	<50	30	225
40.0-41.0 17157	62	78	<100	<50	52	230
41.0-42.0 17158	54	88	<100	<50	52	165
42.0-43.0 17159	90	96	<100	75	56	185
43.0-44.0 17160	94	96	<100	<50	56	175
44.0-45.0 17161	78	105	<100	100	52	320
45.0-46.0 17162	94	110	<100	<50	56	185
46.0-47.0 17163	84	115	<100	<50	66	150
47.0-48.0 17164	54	105	<100	<50	58	165
48.0-49.0 17165	<25	98	<100	<50	50	185
49.0-49.8 17166	6400	5770	<100	<50	130	285
49.8-50.3 17167	2.80%	7.35%	150	95	1760	205
50.3-50.8 17168	1090	2600	<100	<50	80	185
50.8-50.95 17169	6.10%	4.60%	<100	80	1380	<25
50.95-51.1 17170	6700	6230	<100	<50	280	240
51.1-51.9 17171	6.50%	4.05%	<100	125	2060	<25
51.9-52.65 17172	3.05%	10.2%	150	170	2110	<25
52.65-54.0 17173	1580	1640	<100	<50	66	180
54.0-55.0 17174	380	865	<100	<50	46	205
55.0-56.0 17175	415	170	<100	<50	50	245
56.0-57.0 17176	58	145	<100	<50	52	200
57.0-58.0 17177	44	110	<100	<50	44	175
58.0-59.0 17178	62	120	<100	<50	50	185
59.0-60.0 17179	84	145	<100	<50	54	205
71.0-72.0 17180	30	74	<100	105	32	440
72.0-73.0 17181	<25	54	<100	275	36	1630
73.0-74.5 17182	26	110	<100	240	36	545
95.0-96.0 17183	100	115	<100	<50	60	165
96.0-97.0 17184	290	100	<100	<50	46	165
97.0-98.0 17185	505	245	<100	<50	60	175
98.0-99.2 17186	125	345	<100	<50	66	190
167.0-168.0 17187	80	92	<100	145	46	185
168.0-169.0 17188	72	94	<100	695	44	190
169.0-170.0 17189	66	90	<100	<50	52	215
170.0-171.0 17190	66	82	<100	<50	50	245
171.0-172.0 17191	68	80	<100	<50	48	240
172.0-173.0 17192	88	88	<100	125	44	375
173.0-174.0 17193	68	88	<100	505	50	885
174.0-175.0 17194	70	86	<100	<50	38	225
175.0-176.0 17195	76	88	<100	<50	50	130
176.0-177.0 17196	115	56	<100	<50	40	100
184.8-185.8 17197	60	78	<100	55	52	130
185.8-186.8 17198	40	44	<100	140	50	400
198.0-199.0 17199	74	74	<100	380	44	890
199.0-200.0 17200	60	80	<100	860	50	1850
Method	I105	I105	I105	I105	I105	I105
Units	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	25	25	100	50	25	25

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received



Our reference : BU016845
 Your reference : 128501
 Project code :
 Report date : 08/10/99
 Report status : Final
 Page : 2 of 2

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (03) 6431 6837
 Facsimile : (03) 6431 8890

ANALYTICAL DATA

Sample	S	Au	Au(R)	Pd	Pt	Pd
17151	2.60%	260	300	335	223	--
17152	1600	N.A.	N.A.	N.A.	N.A.	--
17153	3250	N.A.	N.A.	N.A.	N.A.	--
17154	<500	N.A.	N.A.	N.A.	N.A.	--
17155	1100	N.A.	N.A.	N.A.	N.A.	--
17156	<500	N.A.	N.A.	N.A.	N.A.	--
17157	3100	N.A.	N.A.	N.A.	N.A.	--
17158	2450	N.A.	N.A.	N.A.	N.A.	--
17159	2.35%	N.A.	N.A.	N.A.	N.A.	--
17160	1.56%	N.A.	N.A.	N.A.	N.A.	--
17161	1.91%	N.A.	N.A.	N.A.	N.A.	--
17162	1.29%	N.A.	N.A.	N.A.	N.A.	--
17163	1.36%	N.A.	N.A.	N.A.	N.A.	--
17164	3750	N.A.	N.A.	N.A.	N.A.	--
17165	1100	N.A.	N.A.	N.A.	N.A.	--
49.0 - 49.8 17166	1.51%	239	--	198	139	--
49.8 - 50.3 17167	25.9%	464	--	542	694	--
50.3 - 50.8 17168	3950	38	--	43.0	23.0	--
50.8 - 50.95 17169	26.5%	397	--	704	614	--
50.95 - 51.1 17170	4.65%	60	--	212	113	--
51.1 - 51.9 17171	33.3%	350	--	601	670	--
51.9 - 52.65 17172	30.1%	377	--	> 1000	633	1.12
52.65 - 54.0 17173	8900	37	--	41.0	27.0	--
54.0 - 55.0 17174	7550	N.A.	N.A.	N.A.	N.A.	--
55.0 - 56.0 17175	2.55%	N.A.	N.A.	N.A.	N.A.	--
56.0 - 57.0 17176	1250	N.A.	N.A.	N.A.	N.A.	--
57.0 - 58.0 17177	1200	N.A.	N.A.	N.A.	N.A.	--
58.0 - 59.0 17178	5550	N.A.	N.A.	N.A.	N.A.	--
59.0 - 60.0 17179	5200	N.A.	N.A.	N.A.	N.A.	--
71.0 - 72.0 17180	2550	N.A.	N.A.	N.A.	N.A.	--
72.0 - 73.0 17181	7900	N.A.	N.A.	N.A.	N.A.	--
73.0 - 74.5 17182	2.75%	N.A.	N.A.	N.A.	N.A.	--
95.0 - 96.0 17183	2.90%	N.A.	N.A.	N.A.	N.A.	--
96.0 - 97.0 17184	6550	N.A.	N.A.	N.A.	N.A.	--
97.0 - 98.0 17185	3450	N.A.	N.A.	N.A.	N.A.	--
98.0 - 99.2 17186	<500	N.A.	N.A.	N.A.	N.A.	--
167.0 - 168.0 17187	2350	N.A.	N.A.	N.A.	N.A.	--
168.0 - 169.0 17188	2050	N.A.	N.A.	N.A.	N.A.	--
169.0 - 170.0 17189	1200	N.A.	N.A.	N.A.	N.A.	--
170.0 - 171.0 17190	1150	N.A.	N.A.	N.A.	N.A.	--
171.0 - 172.0 17191	1450	N.A.	N.A.	N.A.	N.A.	--
172.0 - 173.0 17192	3.00%	N.A.	N.A.	N.A.	N.A.	--
173.0 - 174.0 17193	2.05%	N.A.	N.A.	N.A.	N.A.	--
174.0 - 175.0 17194	3250	N.A.	N.A.	N.A.	N.A.	--
175.0 - 176.0 17195	3050	N.A.	N.A.	N.A.	N.A.	--
176.0 - 177.0 17196	2450	N.A.	N.A.	N.A.	N.A.	--
184.8 - 185.8 17197	1.32%	N.A.	N.A.	N.A.	N.A.	--
185.8 - 186.8 17198	4800	N.A.	N.A.	N.A.	N.A.	--
198.0 - 199.0 17199	3850	N.A.	N.A.	N.A.	N.A.	--
199.0 - 200.0 17200	1.09%	N.A.	N.A.	N.A.	N.A.	--
Method	1105	F627	F627	F627	F627	F652
Units	ppm	ppb	ppb	ppb	ppb	ppm
Detection Limit	500	1	1	0.5	0.5	0.01
Upper Method				F652		

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

APPENDIX 3

MF 11 PETROLOGY

633046

Central Mineralogical Services

8 Bradshaw Avenue, Crafers, S.A. 5152
Telephone (08) 8370 9779 Fax (08) 8370 9788
International Telephone +618 8370 9779 Fax +618 8370 9788



11 October 1999

Mr L.A. Newnham
Newnham Exploration and Mining Services
PO Box 132
RIVERSIDE Tas. 7250

REPORT CMS 99/10/1

YOUR REFERENCE: Fax 6.10.99
DATE RECEIVED: 7 October 1999
SAMPLE NO'S: MF11
SUBMITTED BY: L.A. Newnham
WORK REQUESTED: Mineragraphy



H.W. Fander, M.Sc.

REPORT CMS 99/10/1

MELBA FLAT MF11 INTERSECTIONS

Six sulphide intersections were received for mineralogical study; polished sections were prepared and examined.

The sulphide mineralogy is the same in all intersections; there are variations in textures and relative amounts of the minerals present, but these are comparatively minor.

The sulphides identified are pyrite, millerite, pentlandite and chalcopyrite (millerite is beta-NiS, with about 64% Ni; pentlandite is $(Fe, Ni)_9S_8$ with about 34% Ni).

Generally, pyrite is the main phase, forming a granular matrix for the other sulphides. Except at **50.2m**, where the sulphides are dispersed in gangue, intersections consist of massive sulphides.

The pyrite forms a matrix of rounded, granular particles, loosely to densely aggregated, with the interstitial spaces filled with the other sulphides. Millerite and chalcopyrite form grains $5\mu - 100\mu$, and larger patches (on a $100\mu - 1mm$ scale) generally containing small pyrite inclusions ("sieve texture"); there are occasional coarser patches, up to 2mm or more, of these minerals, especially chalcopyrite at **51.8m**.

Pentlandite appears to have been deposited later than the other sulphides; it is generally coarser, tends to occur in veinlike masses and as lenses and has few inclusions of the other sulphides; the veinlike bodies are up to 1mm wide.

The attached table summarises the mineralogical features of the individual intersections; photomicrographs of typical occurrences are being prepared.

The main metallurgical problem is liberation. The absence of pyrrhotite is encouraging as it tends to oxidise and cause complications.

Gangue minerals are magnetite, carbonate, and silicate (at **50.2m**).

The Ni minerals could contain significant cobalt.

SAMPLE	MILLERITE	PENTLANDITE	CHALCOPYRITE	PYRITE	COMMENTS
<u>MF11</u> 49.9m	10 μ - 1mm grains, patches, intergrown with pyrite and with pyrite, chalcopyrite inclusions.	Up to 500 μ . Good cleavage. As patches in pyrite matrix.	5 μ - 200 μ irregular grains in pyrite, millerite.	Forms dense matrix of rounded grains hosting the other sulphides.	Mostly granular intergrowths on a 20 μ - 200 μ scale.
50.2m	20 μ - 200 μ grains in pyrite.	Small dispersed patches <200 μ intergrown with pyrite.	As 5 μ - 100 μ (rarely up to 300 μ) grains in gangue. Intergrown with pyrite on <50 μ scale.	More dispersed but closely associated with the other sulphides.	Sulphides dispersed in silicate gangue.
50.9m	Minor, as 100 μ - 500 μ patches with pyrite inclusions.	Up to 300 μ patches, also as veinlike bodies up to 500 μ wide.	Granular intergrowths with pyrite on a 10 μ - 100 μ scale. Coarser patches up to 500 μ .	Dense matrix of rounded grains.	-
51.4m	Patches up to 1mm with pyrite inclusions. Also 20 μ - 100 μ intergrowths with pyrite.	Trace only, up to 200 μ in pyrite.	Up to 1mm but mostly intergrown with pyrite on a 20 μ - 100 μ scale.	As above.	-
51.8m	Patches up to 500 μ in pyrite. Minor.	Minor patches up to 500 μ in pyrite.	Patches up to 2mm+ but mostly 100 μ - 500 μ intergrown with pyrite.	Coarser than in other intersections.	Unusual "fibrous" magnetite as radiating patches.
52.3m	Lens- and veinlike bodies up to 800 μ wide and as prismatic crystals up to 1mm. Pyrite inclusions.	Veinlike bodies up to 1mm wide or more, with good cleavage.	Granular intergrowths with pyrite, on 10 μ - 50 μ and 100 μ - 600 μ scales.	Mostly coarsely-granular, massive.	-

APPENDIX 4

**GEOPHYSICAL
FIELD DATA,
OUTER-RIM EXPLORATION**

(2 VOLS)

633050



OUTER-RIM EXPLORATION SERVICES

ACN 059 220 192

26 Leopold Street,
(P.O. Box 1754)
AITKENVALE, QLD. 4814

Geophysical Contracting Services

100% Australian Owned

Tel: 07 4725 3544
Fax: 07 4725 4805
Mob: 0412 54 9980
Email: oreserv@ozemail.com.au

Volume 1 of 2.

Client : Allegiance Mining NL

Prospect : Melba Flats and Avebury.

Area : Zeehan, Tas.

Survey : Surface and Borehole PEM Surveys

Survey Period : 13th December, 1999 to 19th February, 2000

Operator : Brett Rankin and Kent Honner.

633051

PLOTS

CONTENTS

Plan No.	Plan Type	ID.	Description	Scale
1	Contour	East Loop	Contour plot - Ch #10	1:2500
2			Contour plot - Ch #20	1:2500
3	Header	2000N	Header information	N/A
4	Profile		Z - Log plot	1:2000
5	Header	2025N	Header information	N/A
6	Profile		Z - Log plot	1:2000
7	Header	2050N	Header information	N/A
8	Profile		Z - Log plot	1:2000
9	Header	2075N	Header information	N/A
10	Profile		Z - Log plot	1:2000
11	Header	2100N	Header information	N/A
12	Profile		Z - Log plot	1:2000
13	Header	2125N	Header information	N/A
14	Profile		Z - Log plot	1:2000
15	Header	2150N	Header information	N/A
16	Profile		Z - Log plot	1:2000
17	Header	2175N	Header information	N/A
18	Profile		Z - Log plot	1:2000
19	Header	2200N	Header information	N/A
20	Profile		Z - Log plot	1:2000
21	Header	2225N	Header information	N/A
22	Profile		Z - Log plot	1:2000
23	Header	2250N	Header information	N/A
24	Profile		Z - Log plot	1:2000
25	Header	2275N	Header information	N/A
26	Profile		Z - Log plot	1:2000
27	Header	2300N	Header information	N/A
28	Profile		Z - Log plot	1:2000
29	Contour	West Loop	Contour plot - Ch #10	1:2500
30			Contour plot - Ch #20	1:2500
31	Header	2000N	Header information	N/A
32	Profile		Z - Log plot	1:2000
33	Header	2025N	Header information	N/A
34	Profile		Z - Log plot	1:2000
35	Header	2050N	Header information	N/A
36	Profile		Z - Log plot	1:2000
37	Header	2075N	Header information	N/A
38	Profile		Z - Log plot	1:2000
39	Header	2100N	Header information	N/A
40	Profile		Z - Log plot	1:2000
41	Header	2125N	Header information	N/A
42	Profile		Z - Log plot	1:2000
43	Header	2150N	Header information	N/A
44	Profile		Z - Log plot	1:2000
45	Header	2175N	Header information	N/A

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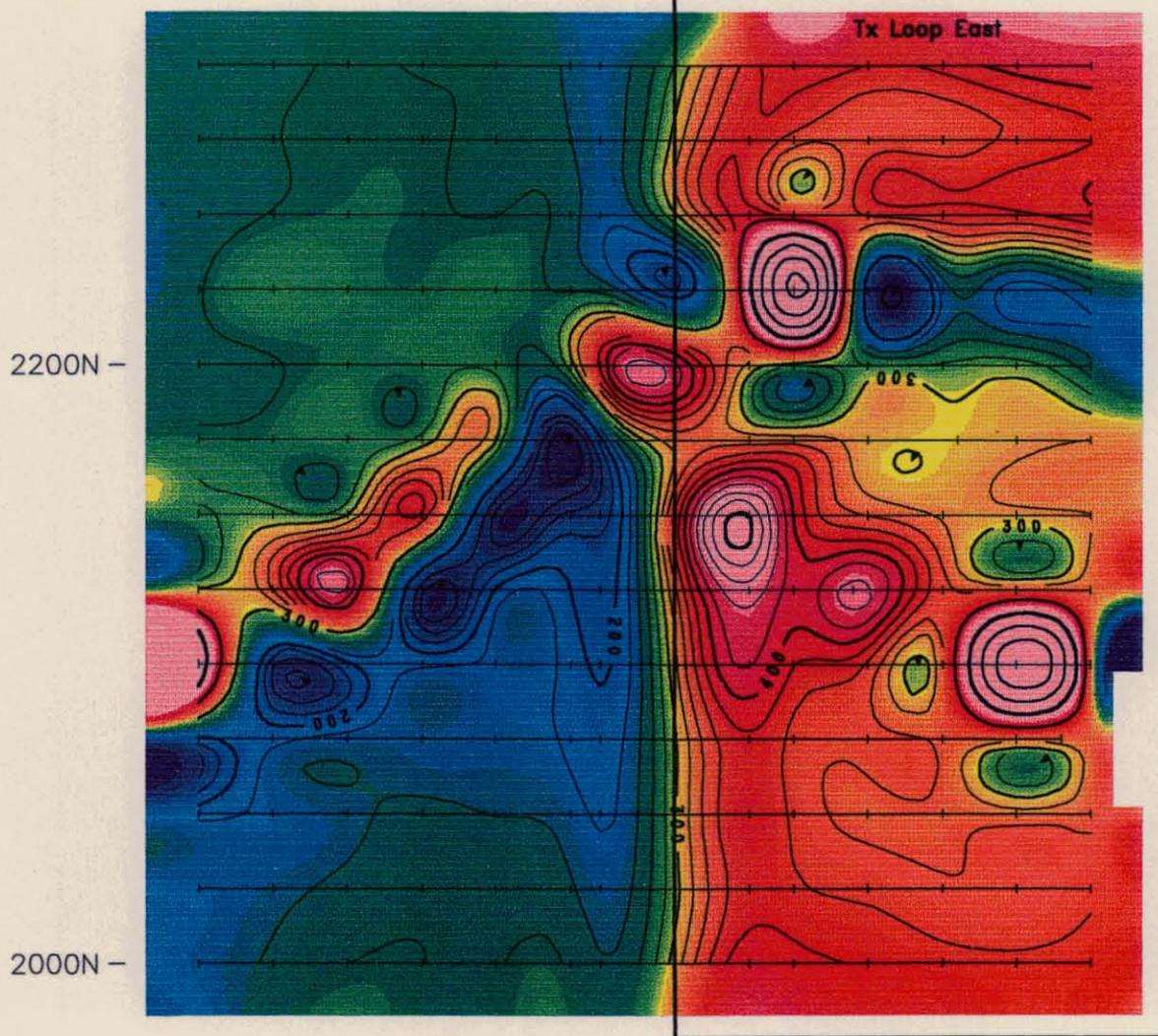
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49	Header	2225N	Header information	N/A
50	Profile		Z - Log plot	1:2000
51	Header	2250N	Header information	N/A
52	Profile		Z - Log plot	1:2000
53	Header	2275N	Header information	N/A
54	Profile		Z - Log plot	1:2000
55	Header	2300N	Header information	N/A
56	Profile		Z - Log plot	1:2000
57	Plan	MF-11,12	Drillhole Location plan	1:5000
58	Section		Primary Field plot	1:2500
59			Primary Field plot	1:2500
60	Header	MF-11	Header information	N/A
61	Profile	(#1)	Z - Log plot	1:1000
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63			- Linear, Ch20-30, 1:200	1:1000
64			- Linear, Ch30-36, 1:5	1:1000
65			X - Log plot	1:1000
66			- Linear, Ch1-20, 1:2000	1:1000
67			- Linear, Ch20-30, 1:150	1:1000
68			- Linear, Ch30-36, 1:3	1:1000
69			Y - Log plot	1:1000
70			- Linear, Ch1-20, 1:2000	1:1000
71			- Linear, Ch20-30, 1:150	1:1000
72			- Linear, Ch30-36, 1:3	1:1000
73			Total Field plot	1:1000
74	Header	MF-11	Header information	N/A
75	Profile	(#2)	Z - Log plot	1:1000
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77			- Linear, Ch20-30, 1:500	1:1000
78			- Linear, Ch30-36, 1:10	1:1000
79			X - Log plot	1:1000
80			- Linear, Ch1-20, 1:1000	1:1000
81			- Linear, Ch20-30, 1:250	1:1000
82			- Linear, Ch30-36, 1:10	1:1000
83			Y - Log plot	1:1000
84			- Linear, Ch1-20, 1:1000	1:1000
85			- Linear, Ch20-30, 1:250	1:1000
86			- Linear, Ch30-36, 1:10	1:1000
87			Total Field plot	1:1000
88	Header	MF-12	Header information	N/A
89	Profile	(#1)	Z - Log plot	1:1000
90			- Linear, Ch1-20, 1:1500	1:1000

CONTENTS

Plan No.	Plan Type	ID.	Description	Scale
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95			- Linear, Ch20-30, 1:5	1:1000
96			- Linear, Ch30-36, 1:2	1:1000
97			Y - Log plot	1:1000
98			- Linear, Ch1-20, 1:1500	1:1000
99			- Linear, Ch20-30, 1:5	1:1000
100			- Linear, Ch30-36, 1:2	1:1000
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105			- Linear, Ch20-30, 1:5	1:1000
106			- Linear, Ch30-36, 1:2	1:1000
107			X - Log plot	1:1000
108			- Linear, Ch1-20, 1:1000	1:1000
109			- Linear, Ch20-30, 1:5	1:1000
110			- Linear, Ch30-36, 1:2	1:1000
111			Y - Log plot	1:1000
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113			- Linear, Ch20-30, 1:5	1:1000
114			- Linear, Ch30-36, 1:2	1:1000
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117	Section	A-010	Primary Field plot	1:5000
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119			Primary Field plot	1:5000
120		A-011	Primary Field plot	1:5000
121			Primary Field plot	1:5000
122			Primary Field plot	1:5000
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126			- Linear, Ch20-30, 1:50	1:2000
127			- Linear, Ch30-36, 1:2	1:2000
128	Header	A-010	Header information	N/A
129	Profile	(#6)	Z - Log plot	1:2000
130			- Linear, Ch1-20, 1:1500	1:2000
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132			- Linear, Ch30-36, 1:2	1:2000
133			X - Log plot	1:2000
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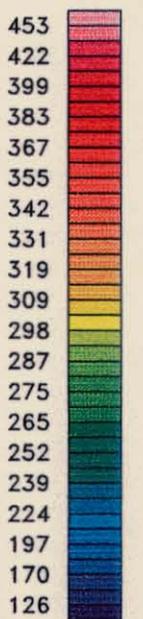
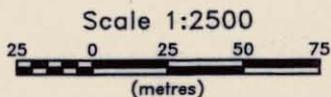
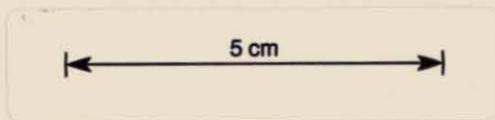
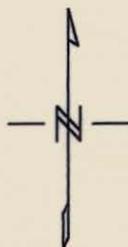
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140				- Linear, Ch30-36, 1:2	1:2000
141				Total Field plot	1:2000
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144				- Linear, Ch1-20, 1:750	1:2000
145				- Linear, Ch20-30, 1:50	1:2000
146				- Linear, Ch30-36, 1:2	1:2000
147	Header	A-011		Header information	N/A
148	Profile	(#3)	Z	- Log plot	1:2500
149				- Linear, Ch1-20, 1:200	1:2500
150				- Linear, Ch20-30, 1:50	1:2500
151				- Linear, Ch30-36, 1:2	1:2500
152	Header	A-011		Header information	N/A
153	Profile	(#4)	Z	- Log plot	1:2500
154				- Linear, Ch1-20, 1:300	1:2500
155				- Linear, Ch20-30, 1:50	1:2500
156				- Linear, Ch30-36, 1:15	1:2500
157			X	- Log plot	1:2500
158				- Linear, Ch1-20, 1:500	1:2500
159				- Linear, Ch20-30, 1:100	1:2500
160				- Linear, Ch30-36, 1:5	1:2500
161			Y	- Log plot	1:2500
162				- Linear, Ch1-20, 1:500	1:2500
163				- Linear, Ch20-30, 1:100	1:2500
164				- Linear, Ch30-36, 1:5	1:2500
165				Total Field plot	1:2500
166	Header	A-011		Header information	N/A
167	Profile	(#5)	Z	- Log plot	1:2500
168				- Linear, Ch1-20, 1:200	1:2500
169				- Linear, Ch20-30, 1:40	1:2500
170				- Linear, Ch30-36, 1:10	1:2500
171			X	- Log plot	1:2500
172				- Linear, Ch1-20, 1:1000	1:2500
173				- Linear, Ch20-30, 1:75	1:2500
174				- Linear, Ch30-36, 1:5	1:2500
175			Y	- Log plot	1:2500
176				- Linear, Ch1-20, 1:1000	1:2500
177				- Linear, Ch20-30, 1:75	1:2500
178				- Linear, Ch30-36, 1:5	1:2500
179				Total Field plot	1:2500



1800E

2000E



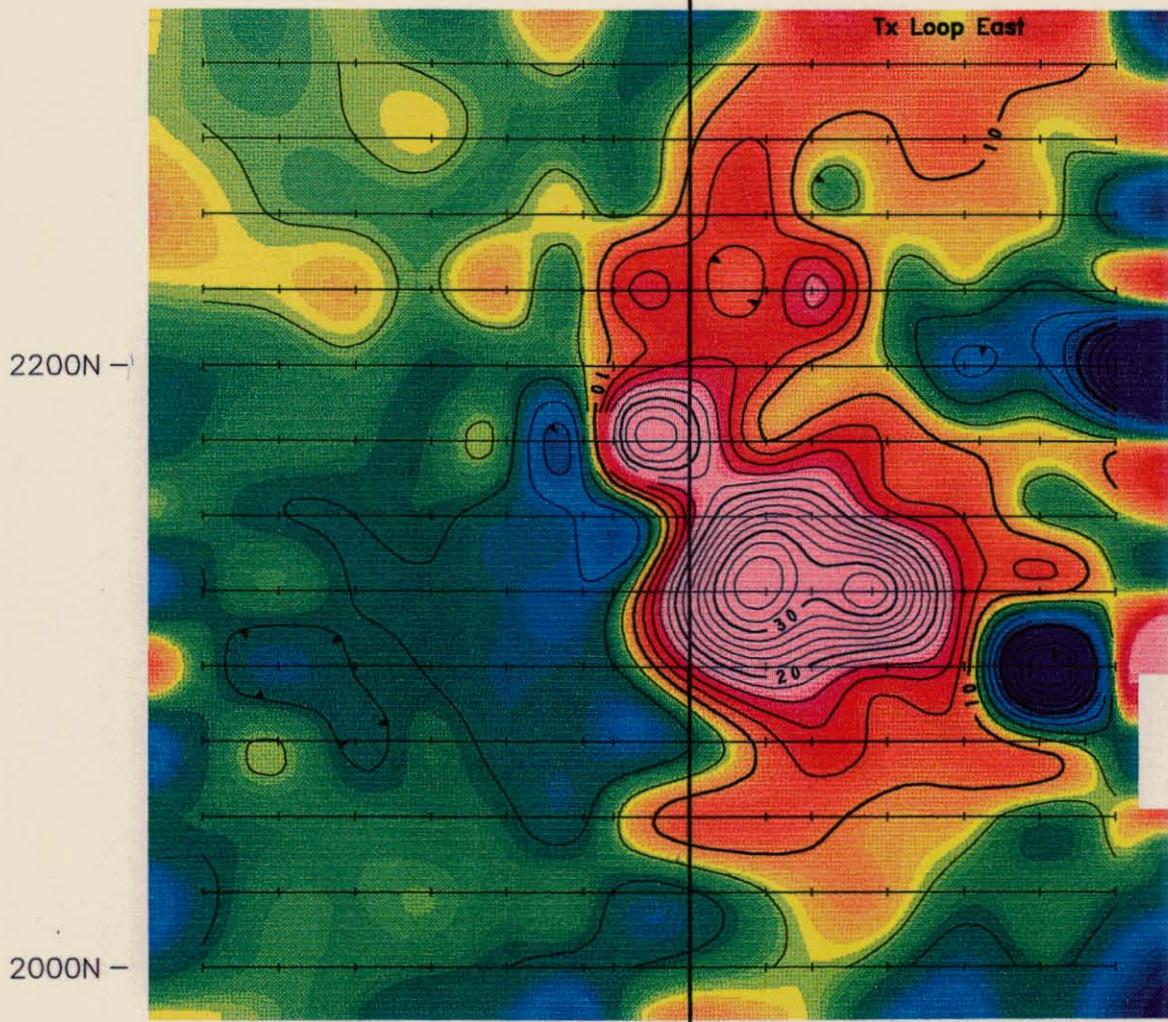
Units nT/s

Allegiance Mining NL
 Melba Flats

Surface Pulse EM Survey
Fixed Loop Survey
Vertical Component

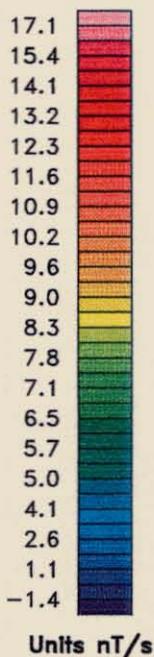
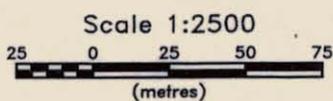
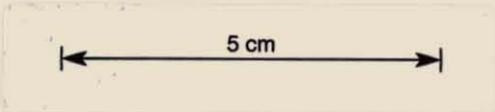
Channel 10
 Survey Date: Feb 14/17, 2000

Outer-Rim Exploration Services



1800E

2000E



Allegiance Mining NL
 Melba Flats

Surface Pulse EM Survey
Fixed Loop Survey
Vertical Component

Channel 20
 Survey Date: Feb 14/17, 2000

Outer-Rim Exploration Services

OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2000N
Grid	: Melba Flats	Tx Loop	: East
Date	: Feb 15, 2000	File name	: 2000NE.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 240m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2000m, 0m	2. 90deg, 0.1deg, 300m
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Channel Times (usec)

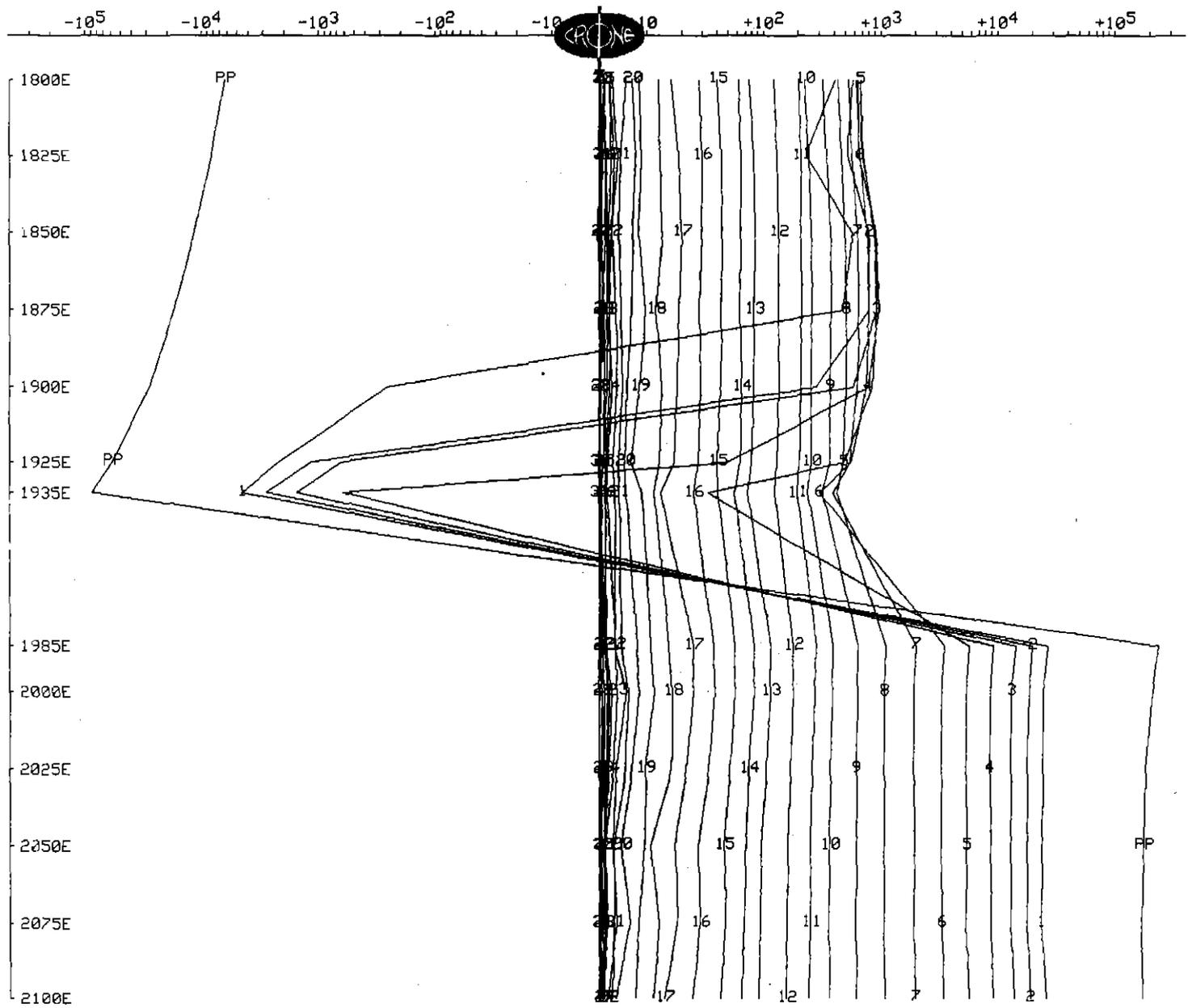
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 15, 2000

Line : 2000N
Tx Loop : East
File name : 2000NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2025N
Grid	: Melba Flats	Tx Loop	: East
Date	: Feb 15, 2000	File name	: 2025NE.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 240m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2025m, 0m	2. 90deg, 0.1deg, 275m
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Channel Times (usec)

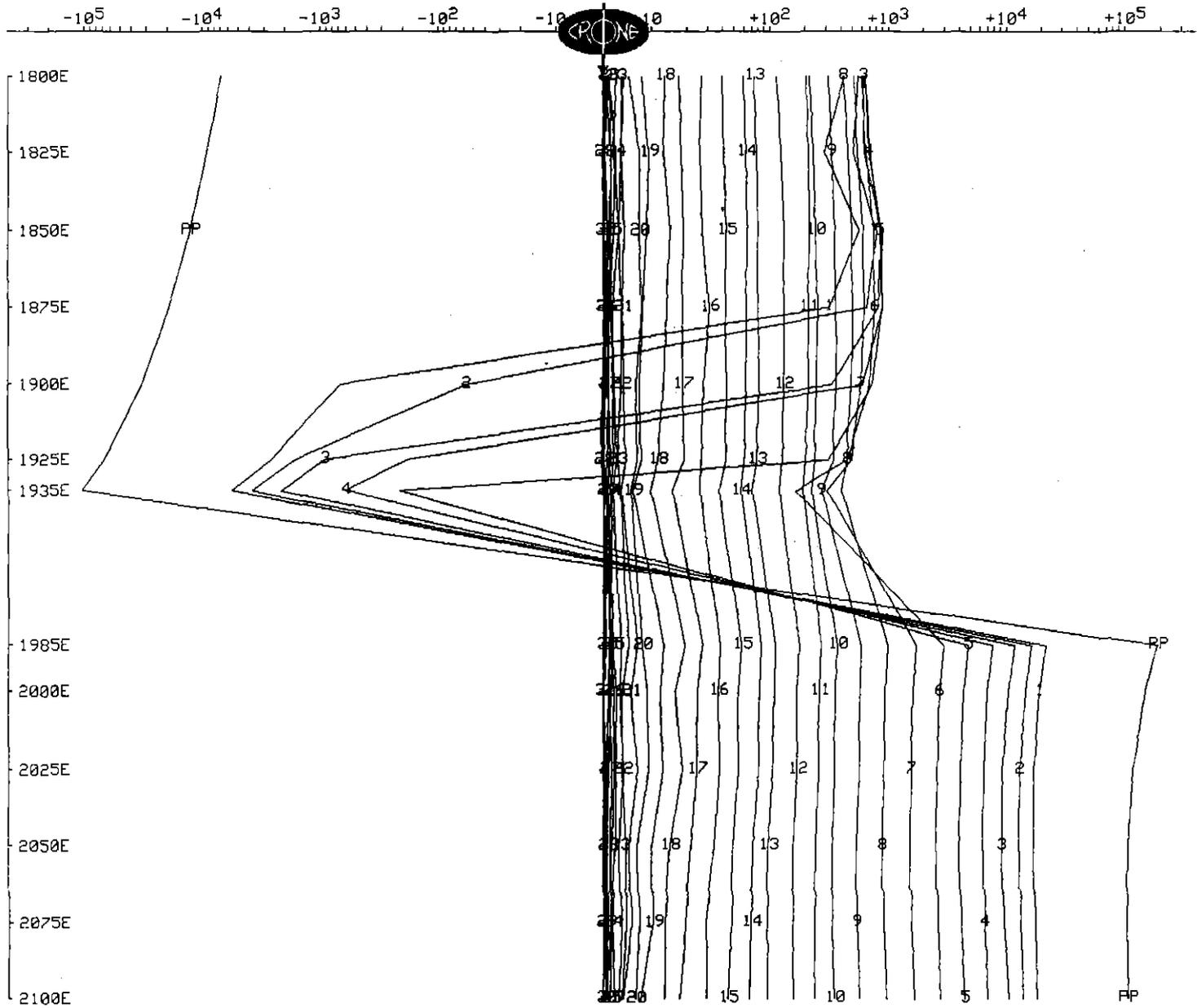
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center	
PP	-198	-99	-149	1	50	58	54	2	58	72	65	
	3	72	86	79	4	86	104	94	5	104	126	115
	6	126	153	140	7	153	185	169	8	185	225	205
	9	225	270	248	10	270	328	299	11	328	396	362
	12	396	482	439	13	482	580	531	14	580	702	641
	15	702	850	776	16	850	1026	938	17	1026	1242	1134
	18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
	21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
	24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
	27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
	30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 15, 2000

Line : 2025N
Tx Loop : East
File name : 2025NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2050N
Grid	: Melba Flats	Tx Loop	: East
Date	: Feb 15, 2000	File name	: 2050NE.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 240m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2050m, 0m	2. 90deg, 0.1deg, 275m
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Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center	
PP	-198	-99	-149	1	50	58	54	2	58	72	65	
	3	72	86	79	4	86	104	94	5	104	126	115
	6	126	153	140	7	153	185	169	8	185	225	205
	9	225	270	248	10	270	328	299	11	328	396	362
	12	396	482	439	13	482	580	531	14	580	702	641
	15	702	850	776	16	850	1026	938	17	1026	1242	1134
	18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
	21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
	24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
	27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
	30	12000	14490	13245	31	14490	17510	16000				

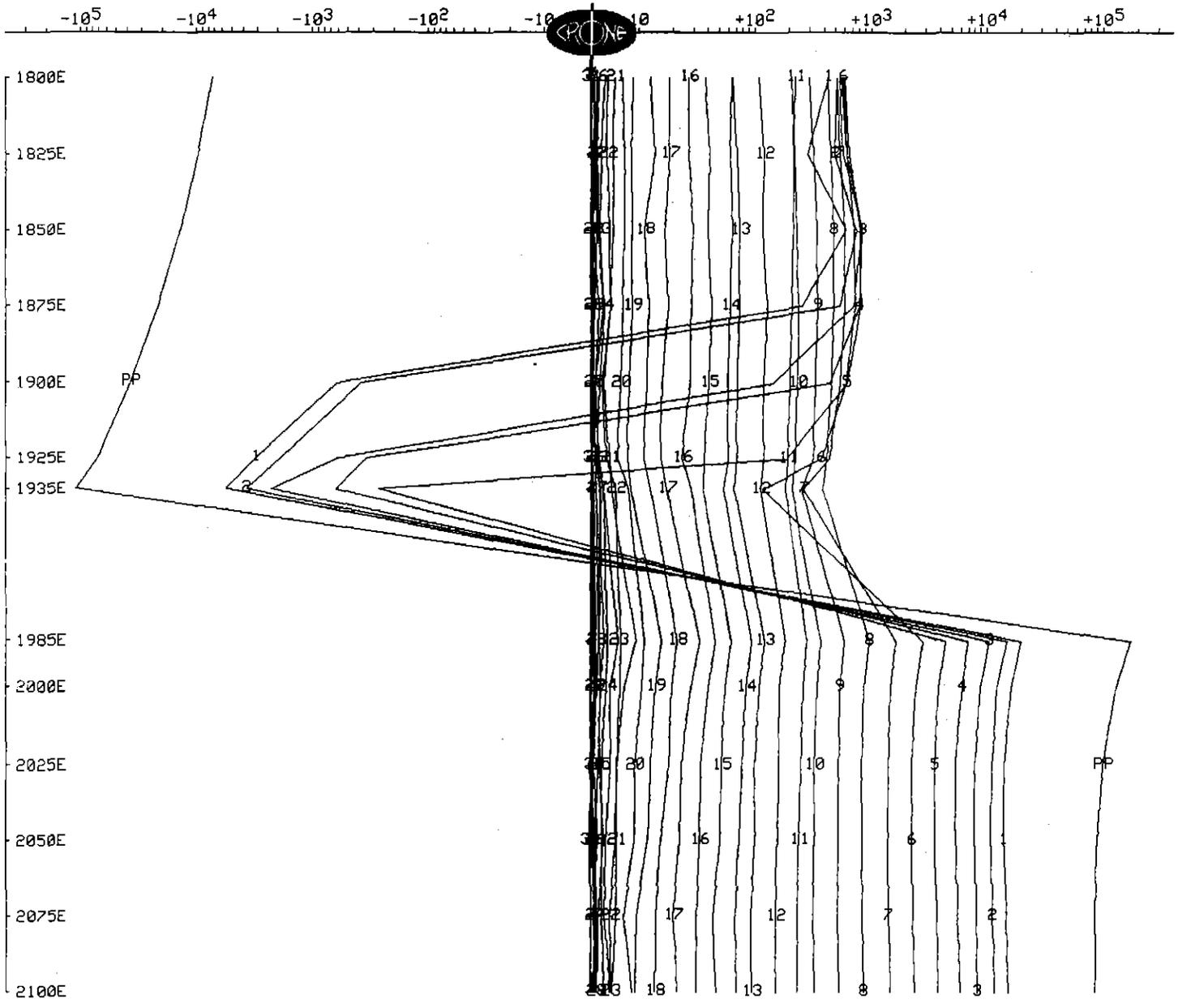
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 15, 2000

Line : 2050N
Tx Loop : East
File name : 2050NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2075N
Grid	: Melba Flats	Tx Loop	: East
Date	: Feb 15, 2000	File name	: 2075NE.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 240m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2075m, 0m	2. 90deg, 0.1deg, 275m
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Channel Times (usec)

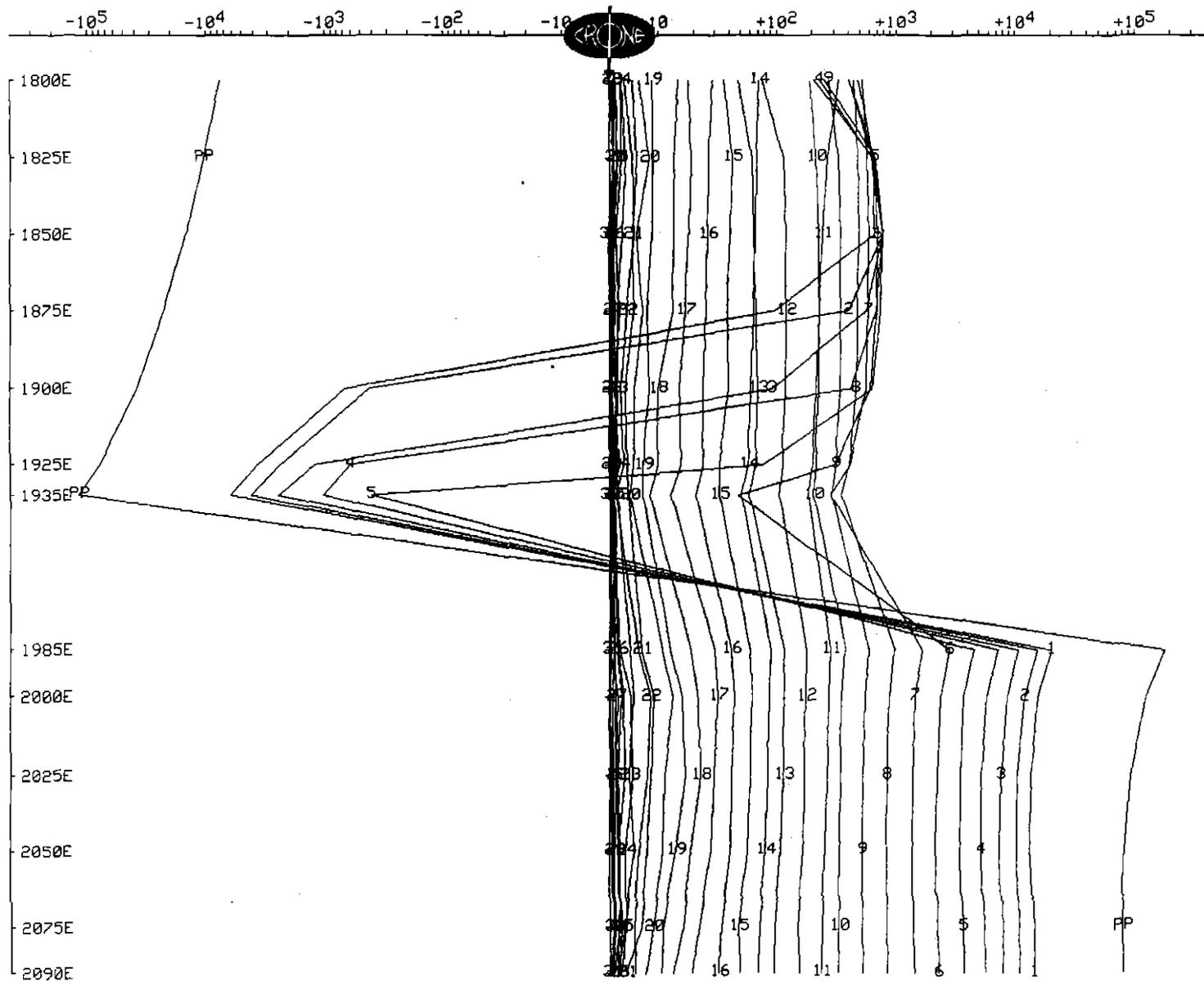
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 15, 2000

Line : 2075N
Tx Loop : East
File name : 2075NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2100N
Grid : Melba Flats	Tx Loop : East
Date : Feb 15, 2000	File name : 2100NE.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 240m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2100m, 0m	2. 90deg, 0.1deg, 275m
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Channel Times (usec)

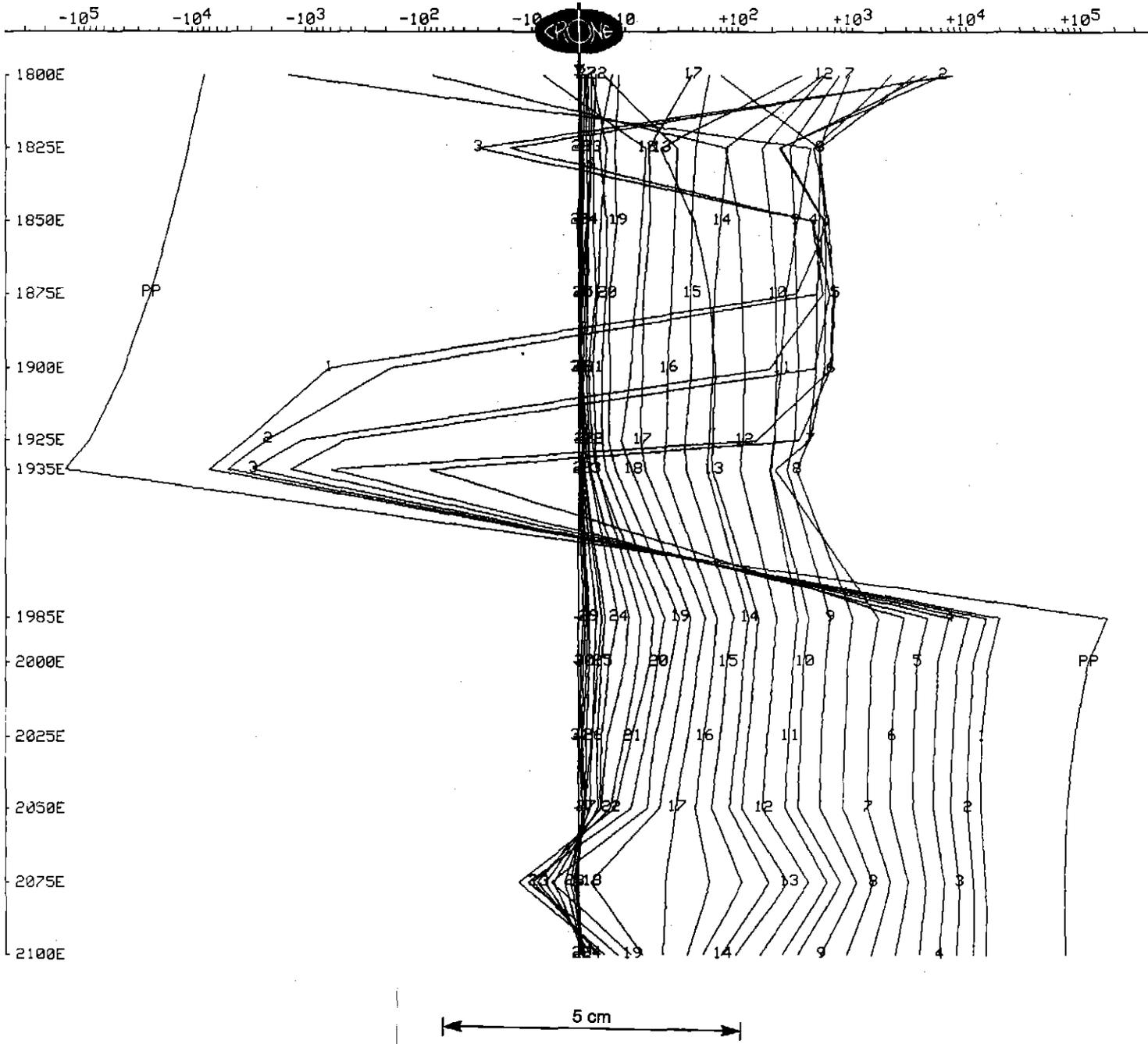
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 15, 2000

Line : 2100N
Tx Loop : East
File name : 2100NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2125N
Grid : Melba Flats	Tx Loop : East
Date : Feb 15, 2000	File name : 2125NE.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 240m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2125m, 0m	2. 90deg, 0.1deg, 275m
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Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2175N
Grid	: Melba Flats	Tx Loop	: East
Date	: Feb 14, 2000	File name	: 2175NE.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 240m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2175m, 0m	2. 90deg, 0.1deg, 300m
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Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

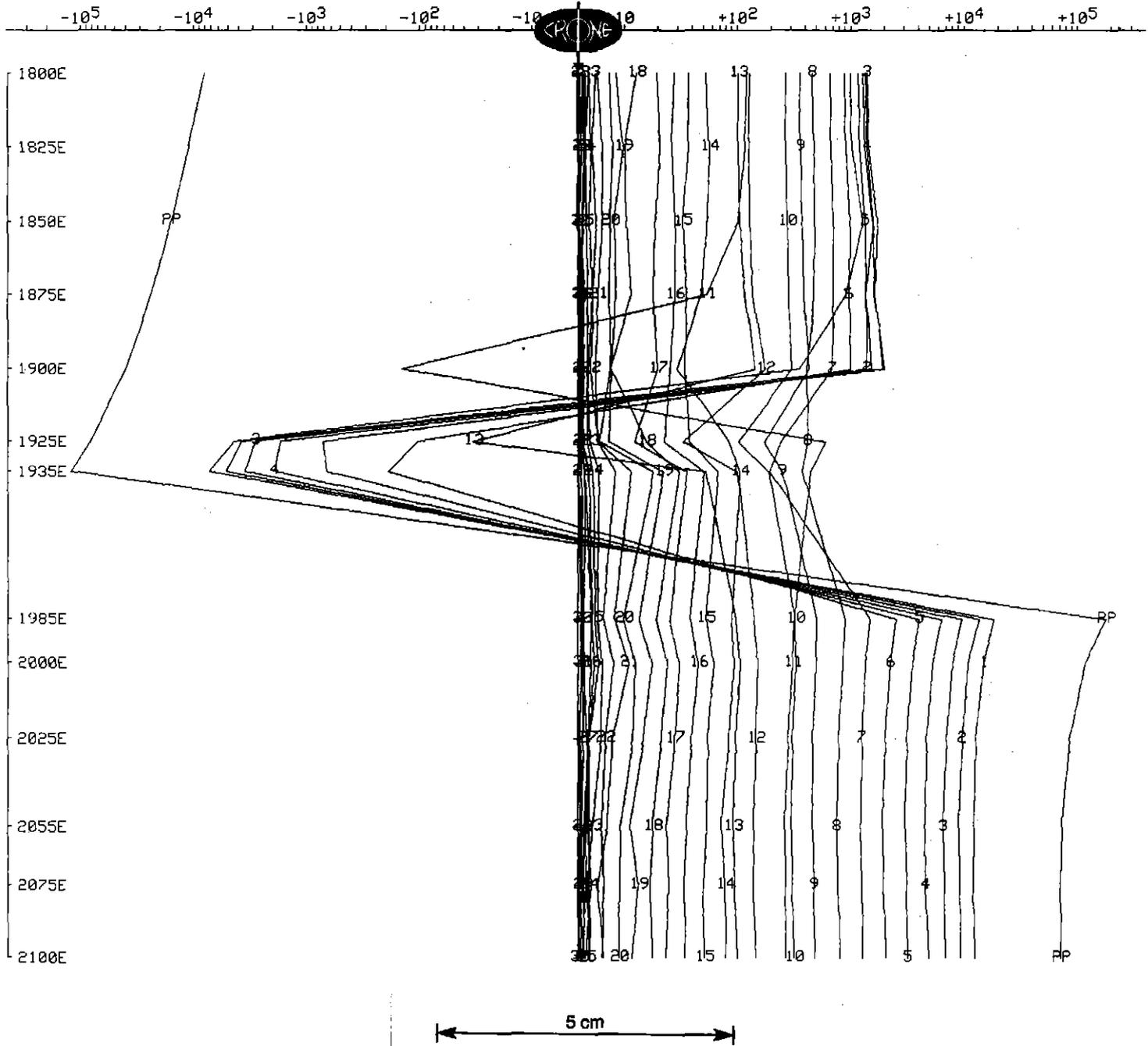
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 14, 2000

Line : 2175N
Tx Loop : East
File name : 2175NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2200N
Grid : Melba Flats	Tx Loop : East
Date : Feb 14, 2000	File name : 2200NE.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 240m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2200m, 0m	2. 90deg, 0.1deg, 300m
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Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

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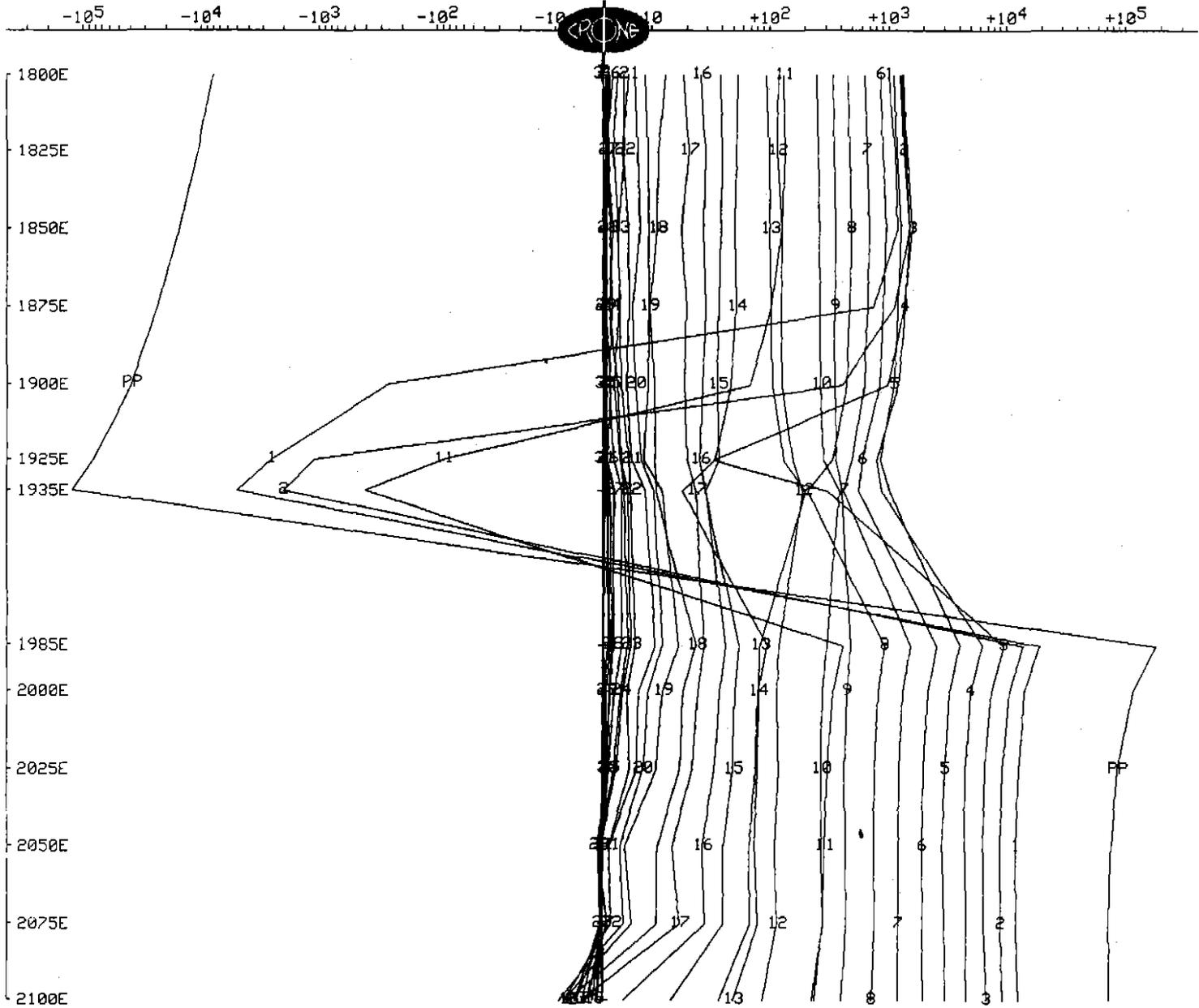
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 14, 2000

Line : 2200N
Tx Loop : East
File name : 2200NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2225N
Grid : Melba Flats	Tx Loop : East
Date : Feb 14, 2000	File name : 2225NE.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 240m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2225m, 0m	2. 90deg, 0.1deg, 300m
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Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

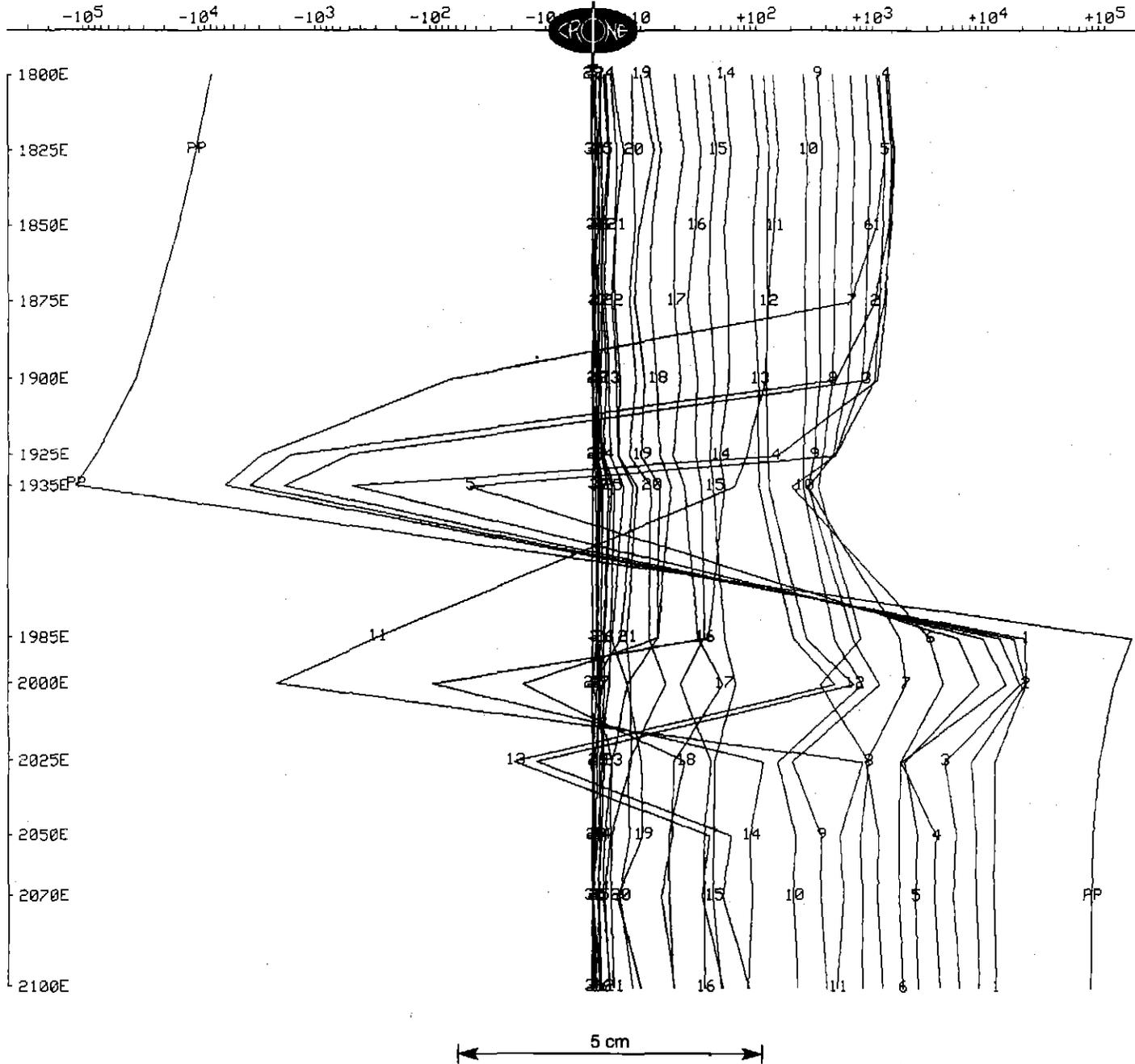
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 14, 2000

Line : 2225N
Tx Loop : East
File name : 2225NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2250N
Grid : Melba Flats	Tx Loop : East
Date : Feb 14, 2000	File name : 2250NE.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 240m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2250m, 0m	2. 90deg, 0.1deg, 300m
---------------------	------------------------

Channel Times (usec)

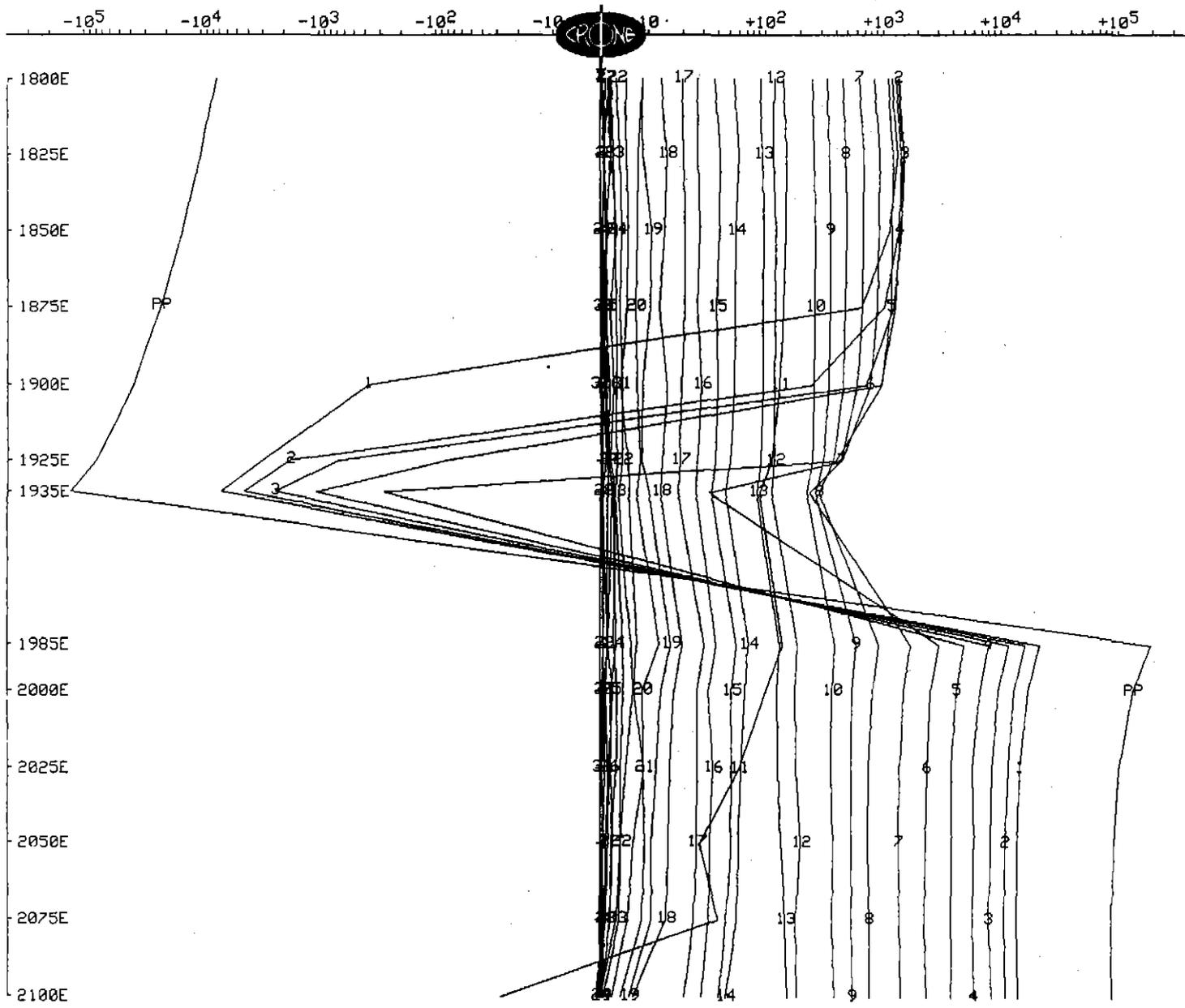
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2250N
Grid	: Melba Flats	Tx Loop	: East
Date	: Feb 14, 2000	File name	: 2250NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2275N
Grid : Melba Flats	Tx Loop : East
Date : Feb 14, 2000	File name : 2275NE.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 240m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2275m, 0m	2. 90deg, 0.1deg, 300m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

633079

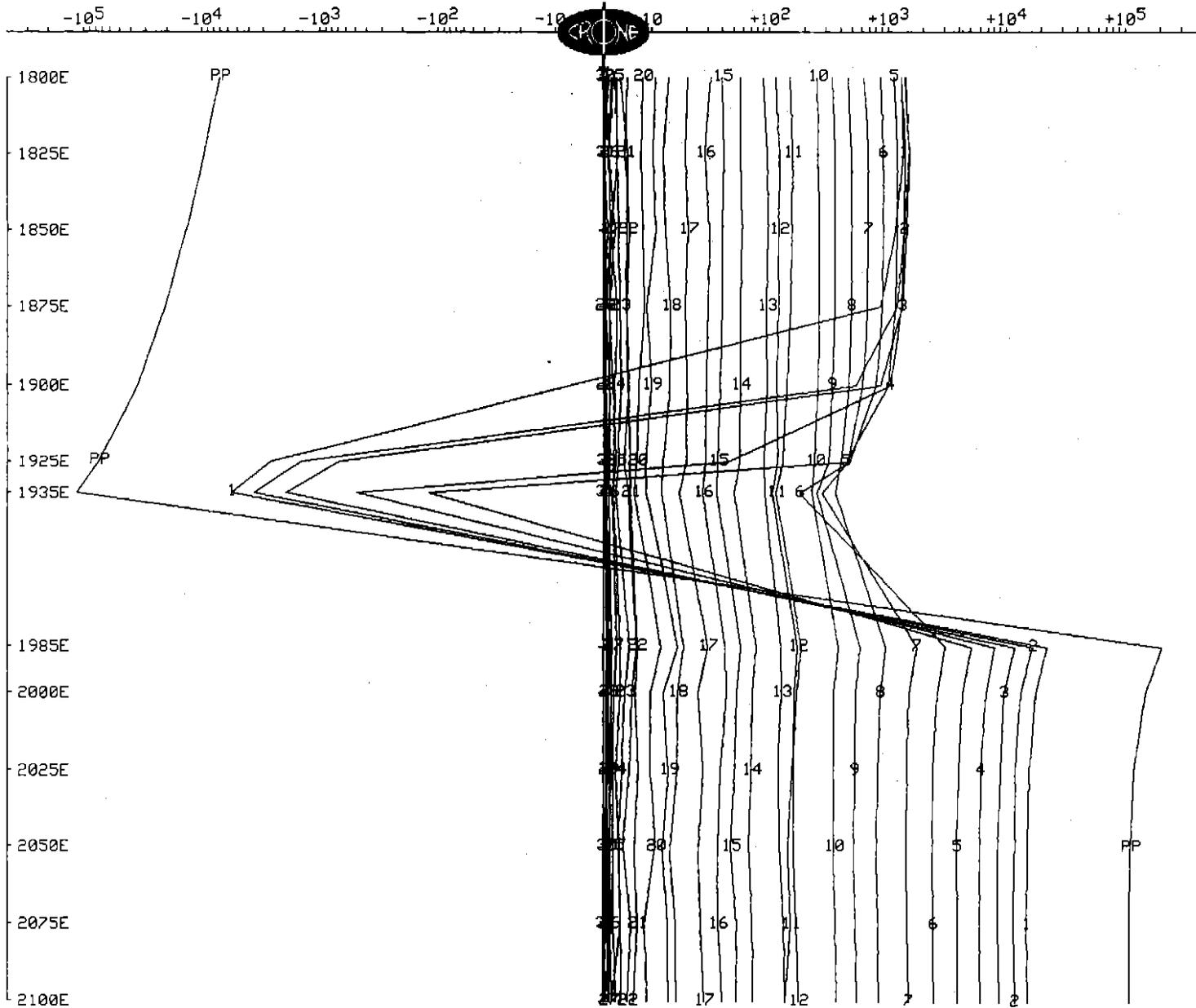
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 14, 2000

Line : 2275N
Tx Loop : East
File name : 2275NE.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2300N
Grid : Melba Flats	Tx Loop : East
Date : Feb 14, 2000	File name : 2300NE.PEM
Time Base : 20.00 ms	# Readings: 12
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 240m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 1960m, 1975m, 0m	2. 2200m, 1975m, 0m
3. 2200m, 2325m, 0m	4. 1960m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2300m, 0m	2. 90deg, 0.1deg, 250m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

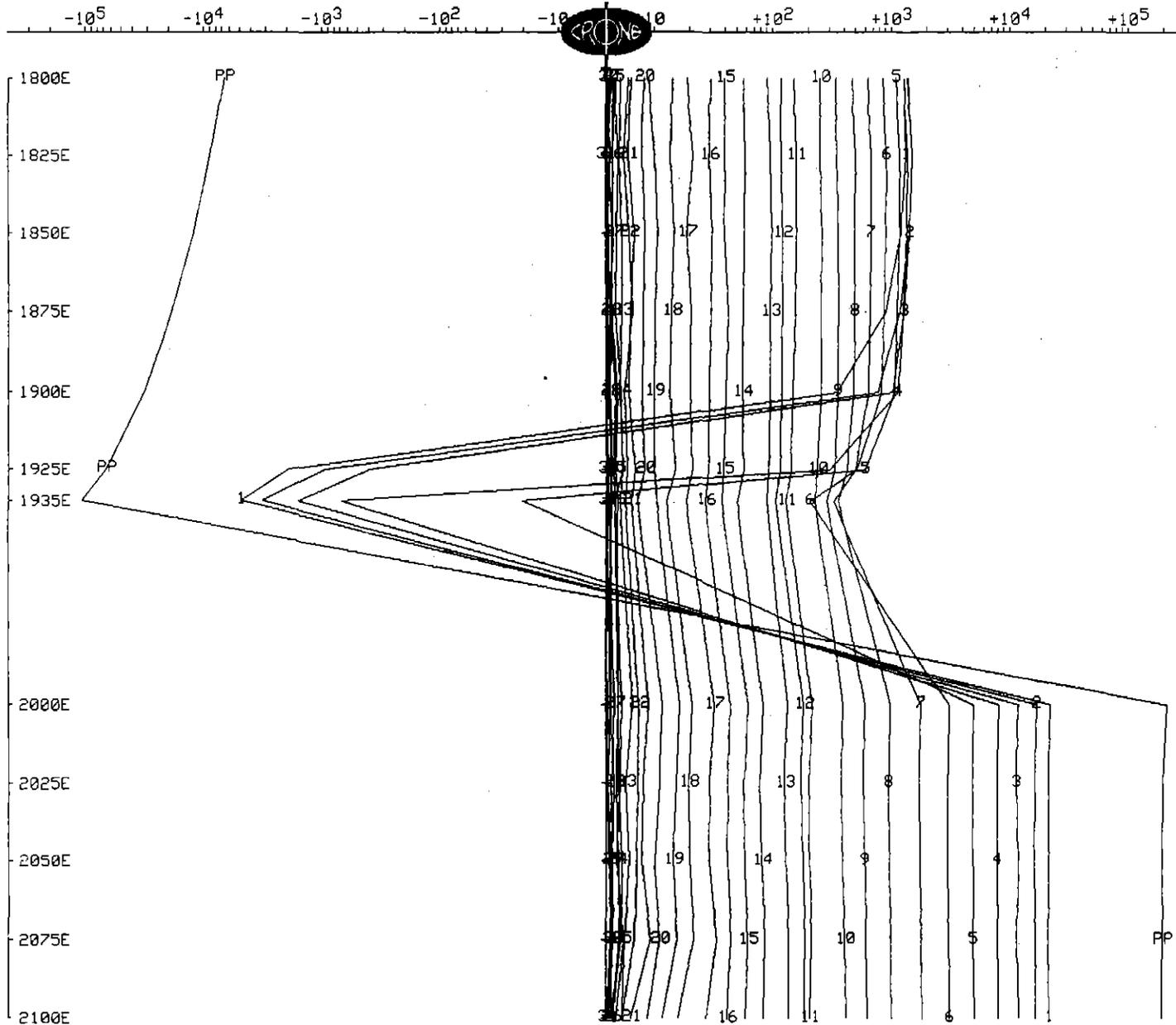
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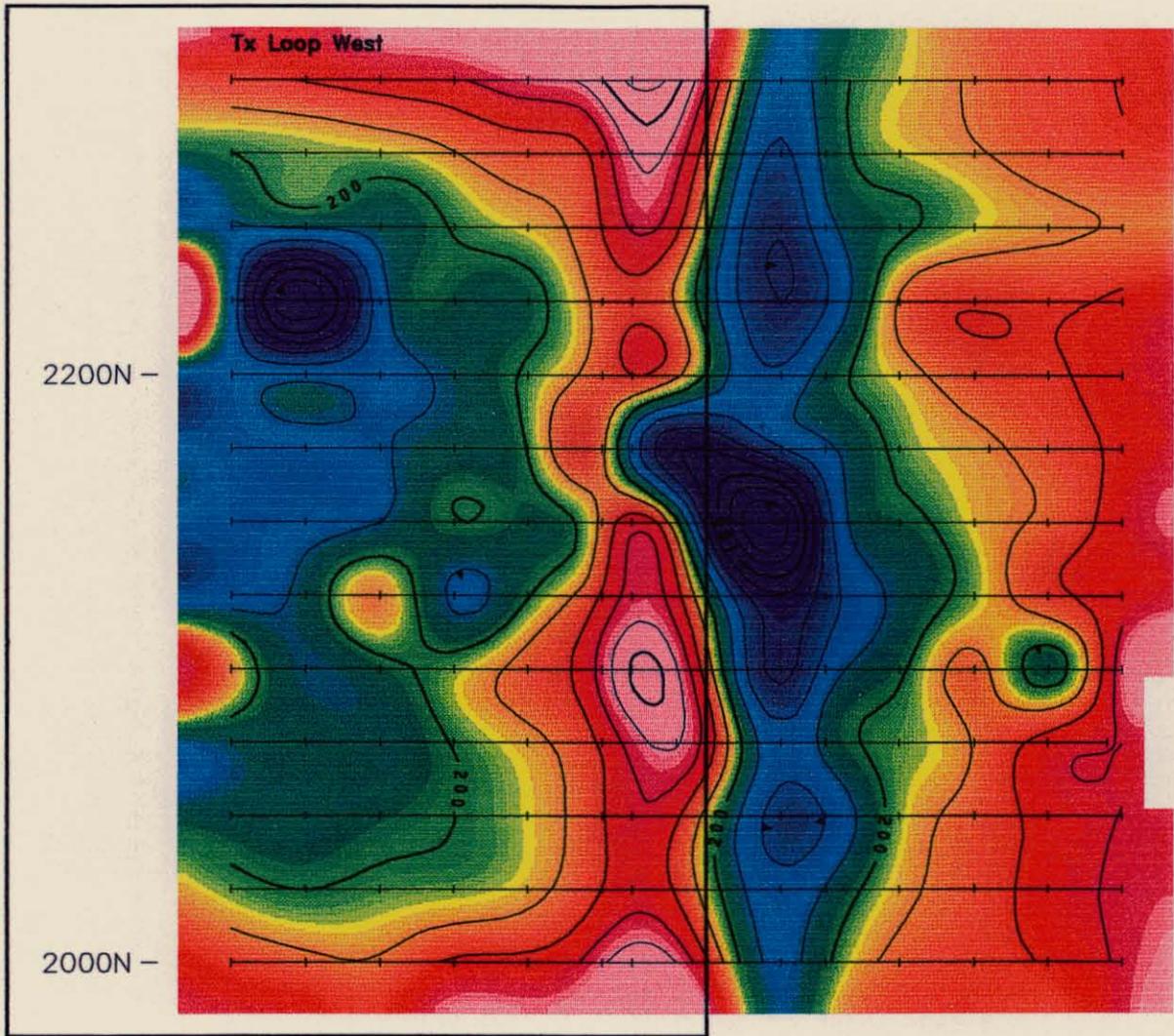
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 14, 2000

Line : 2300N
Tx Loop : East
File name : 2300NE.PEM

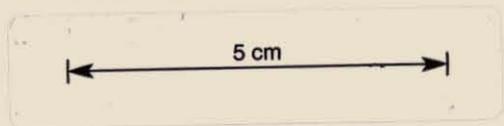
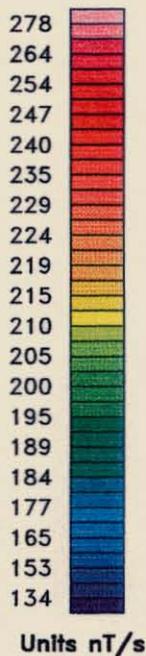
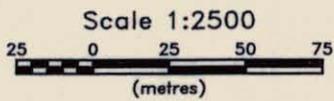
VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000





1800E

2000E

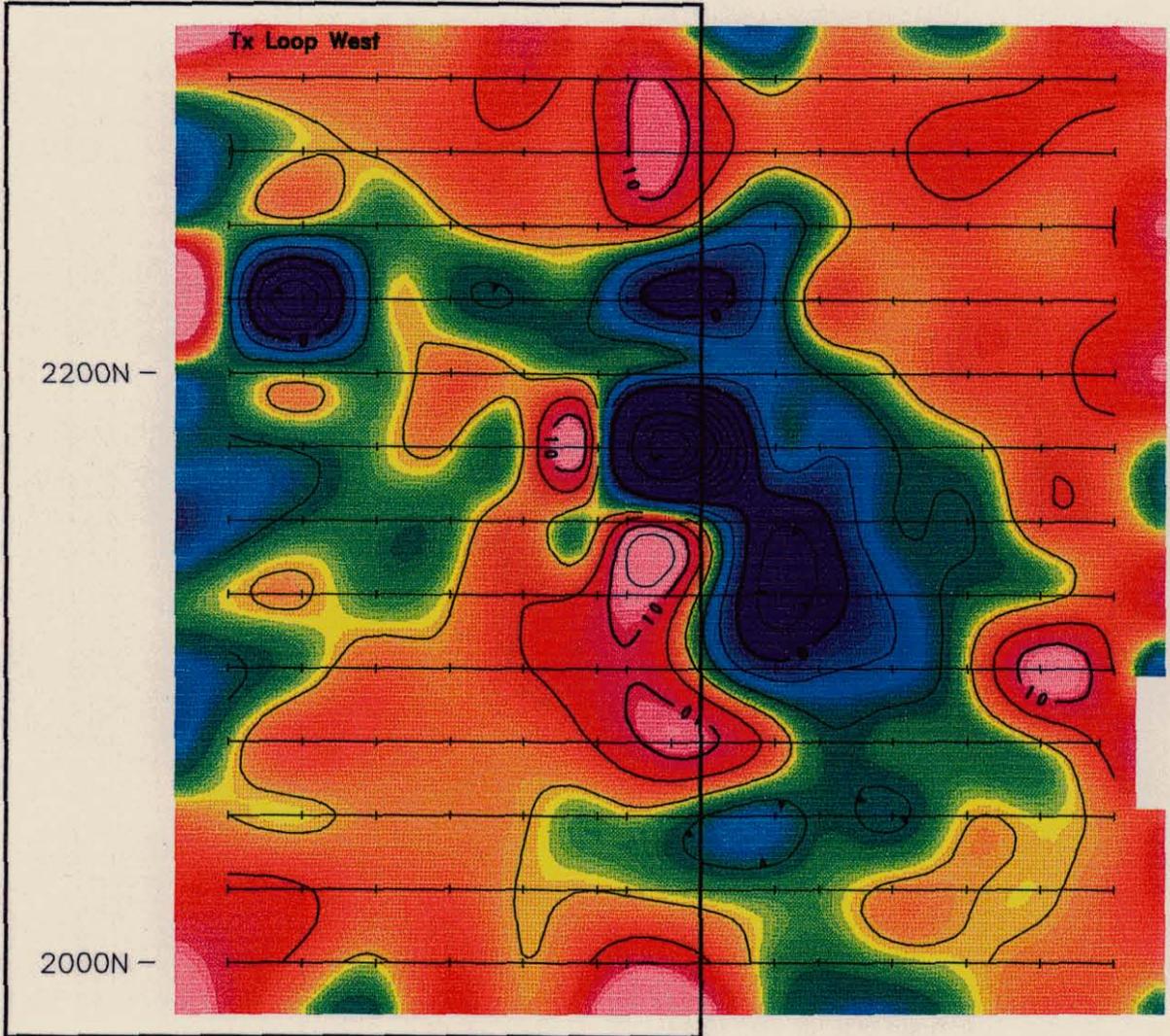


Allegiance Mining NL
Melba Flats

Surface Pulse EM Survey
Fixed Loop Survey
Vertical Component

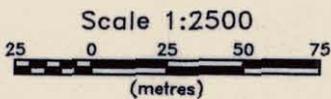
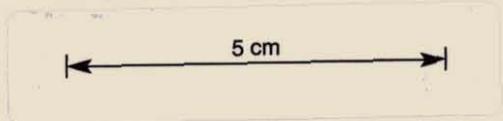
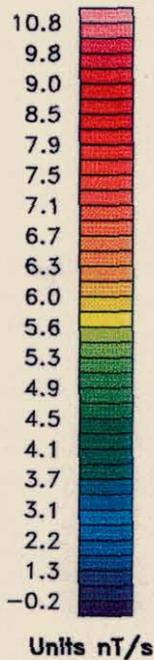
Channel 10
Survey Date: Feb 14/17, 2000

Outer-Rim Exploration Services



1800E

2000E



Allegiance Mining NL
 Melba Flats

Surface Pulse EM Survey
Fixed Loop Survey
 Vertical Component

Channel 20
 Survey Date: Feb 14/17, 2000

Outer-Rim Exploration Services

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2000N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 17, 2000	File name	: 2000NW.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 235m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2000m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

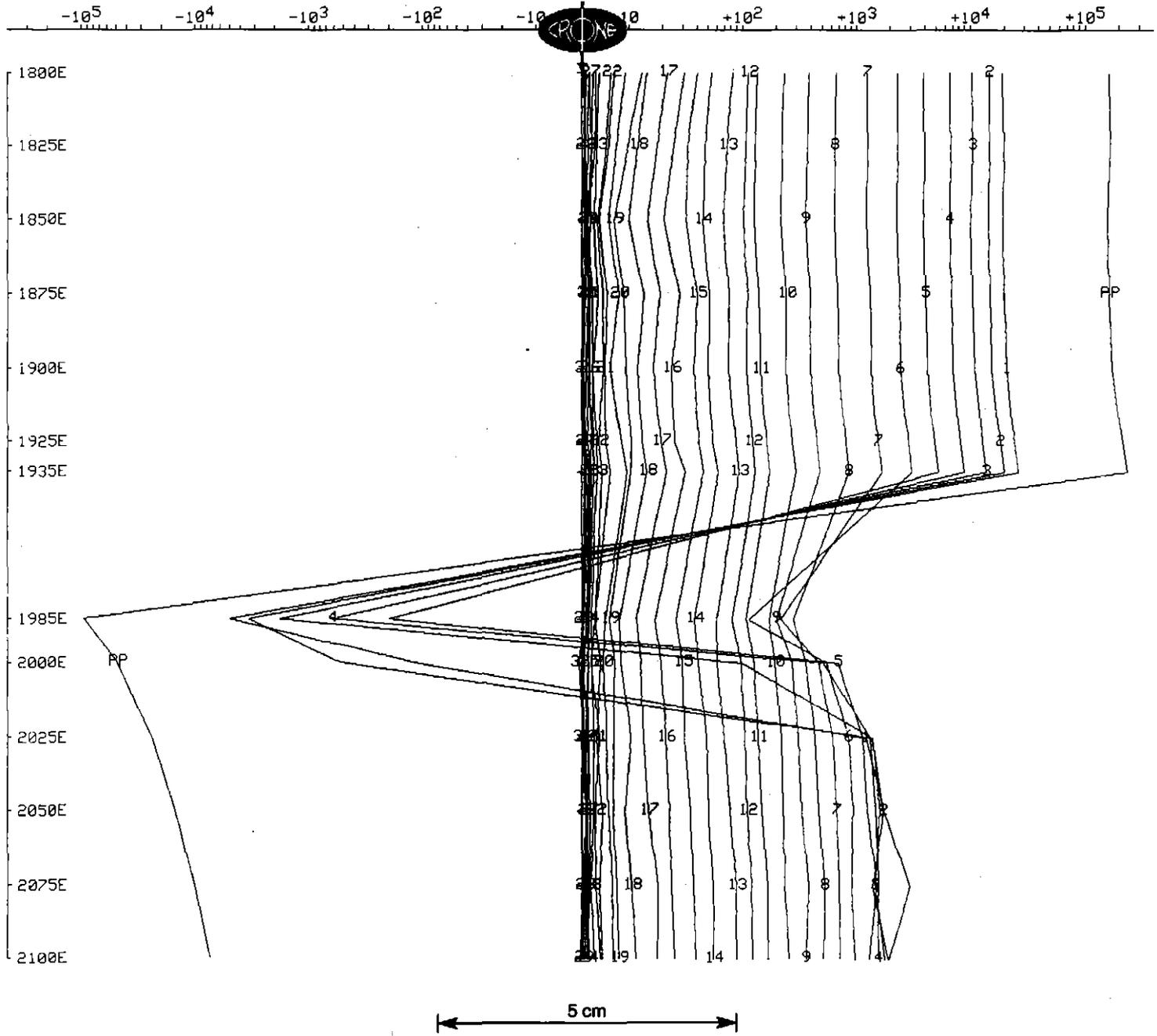
OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 17, 2000

Line : 2000N
Tx Loop : West
File name : 2000NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2025N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 17, 2000	File name	: 2025NW.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 235m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent/Heath

Loop Coordinates (X,Y,Z)

- | | |
|---------------------|---------------------|
| 1. 1725m, 1975m, 0m | 2. 1960m, 1975m, 0m |
| 3. 1960m, 2325m, 0m | 4. 1725m, 2325m, 0m |

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

- | | |
|---------------------|------------------------|
| 1. 1800m, 2025m, 0m | 2. 90deg, 0.1deg, 275m |
|---------------------|------------------------|

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

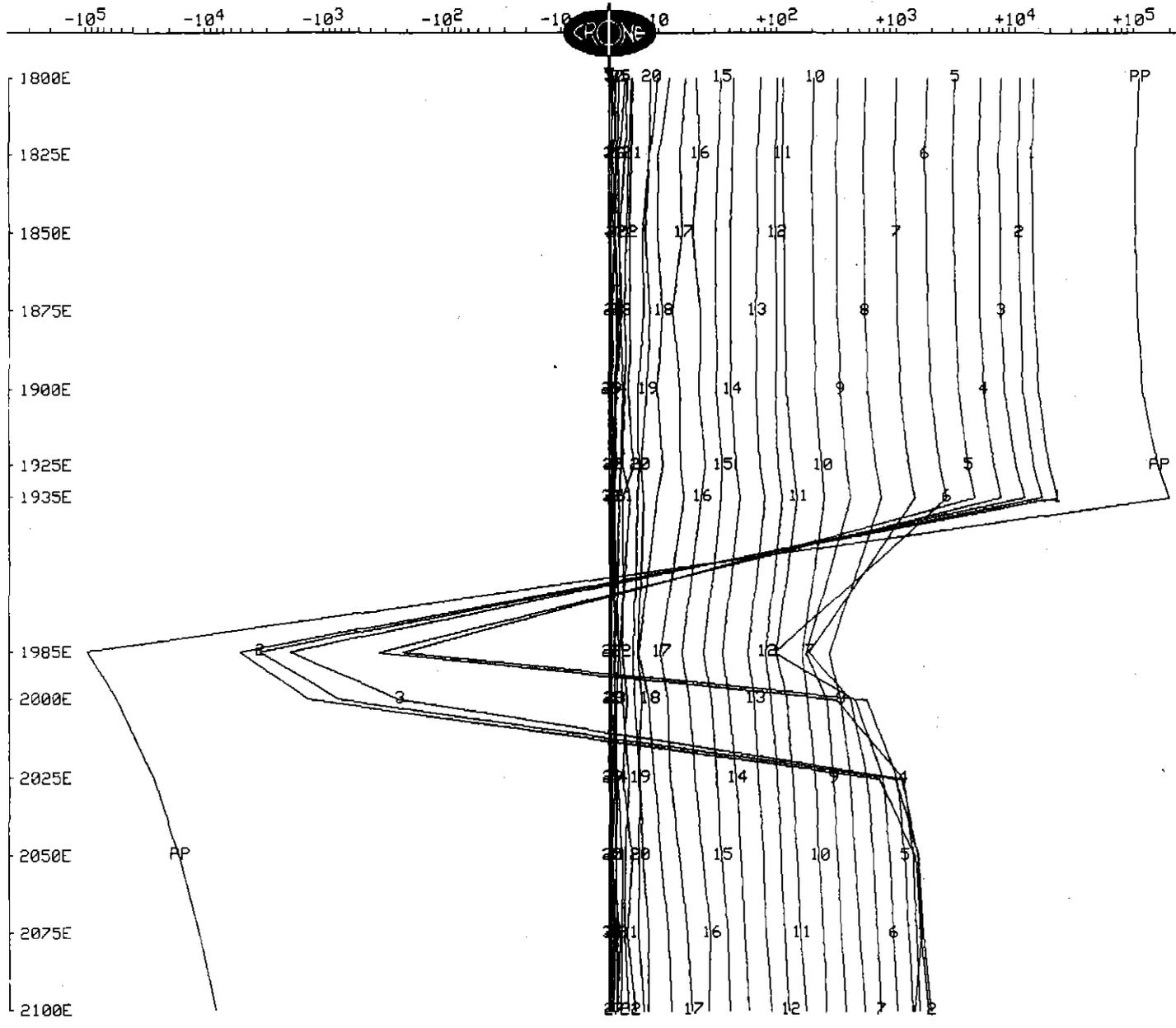
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 17, 2000

Line : 2025N
Tx Loop : West
File name : 2025NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2050N
Grid : Melba Flats	Tx Loop : West
Date : Feb 17, 2000	File name : 2050NW.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 235m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2050m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center	
PP	-198	-99	-149	1	50	58	54	2	58	72	65	
	3	72	86	79	4	86	104	94	5	104	126	115
	6	126	153	140	7	153	185	169	8	185	225	205
	9	225	270	248	10	270	328	299	11	328	396	362
	12	396	482	439	13	482	580	531	14	580	702	641
	15	702	850	776	16	850	1026	938	17	1026	1242	1134
	18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
	21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
	24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
	27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
	30	12000	14490	13245	31	14490	17510	16000				

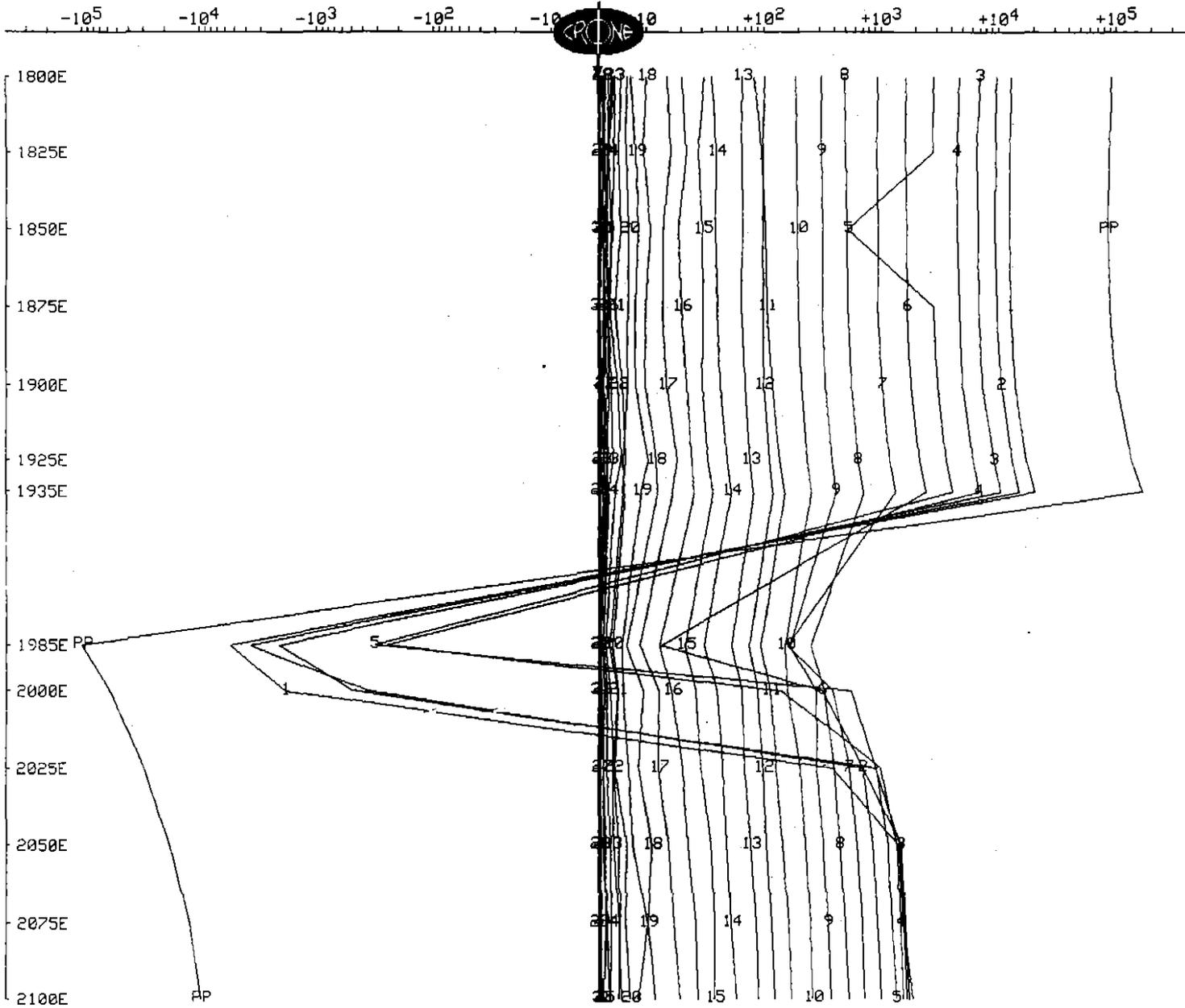
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 17, 2000

Line : 2050N
Tx Loop : West
File name : 2050NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2075N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 17, 2000	File name	: 2075NW.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 235m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent/Heath

Loop Coordinates (X,Y,Z)

- | | |
|---------------------|---------------------|
| 1. 1725m, 1975m, 0m | 2. 1960m, 1975m, 0m |
| 3. 1960m, 2325m, 0m | 4. 1725m, 2325m, 0m |

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

- | | |
|---------------------|------------------------|
| 1. 1800m, 2075m, 0m | 2. 90deg, 0.1deg, 275m |
|---------------------|------------------------|

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

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OUTER-RIM EXPLORATION SERVICES

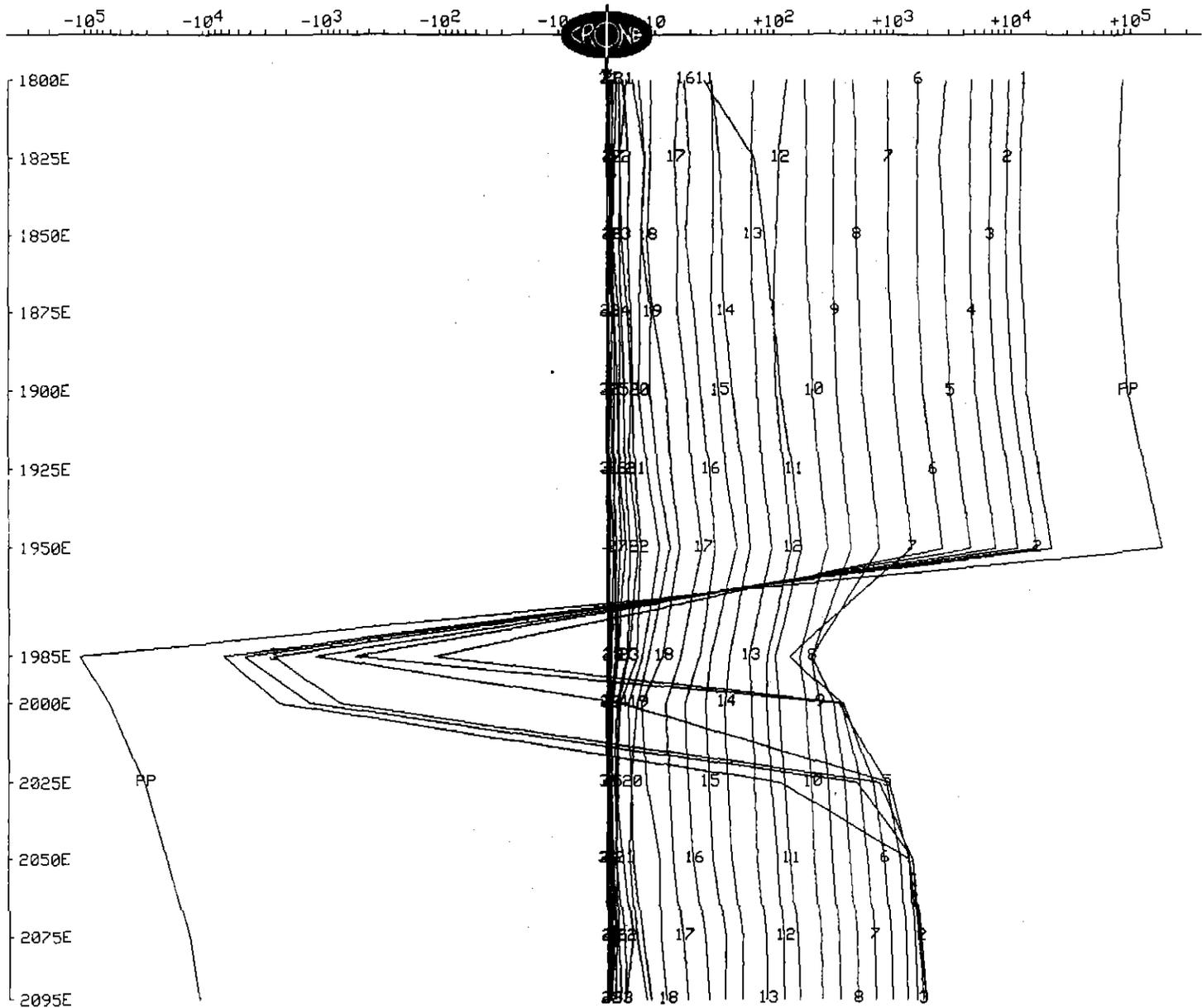
Surface Pulse EM Survey

Client : Allegiance Mining NL
 Grid : Melba Flats
 Date : Feb 17, 2000

Line : 2075N
 Tx Loop : West
 File name : 2075NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2100N
Grid : Melba Flats	Tx Loop : West
Date : Feb 17, 2000	File name : 2100NW.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 235m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2100m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

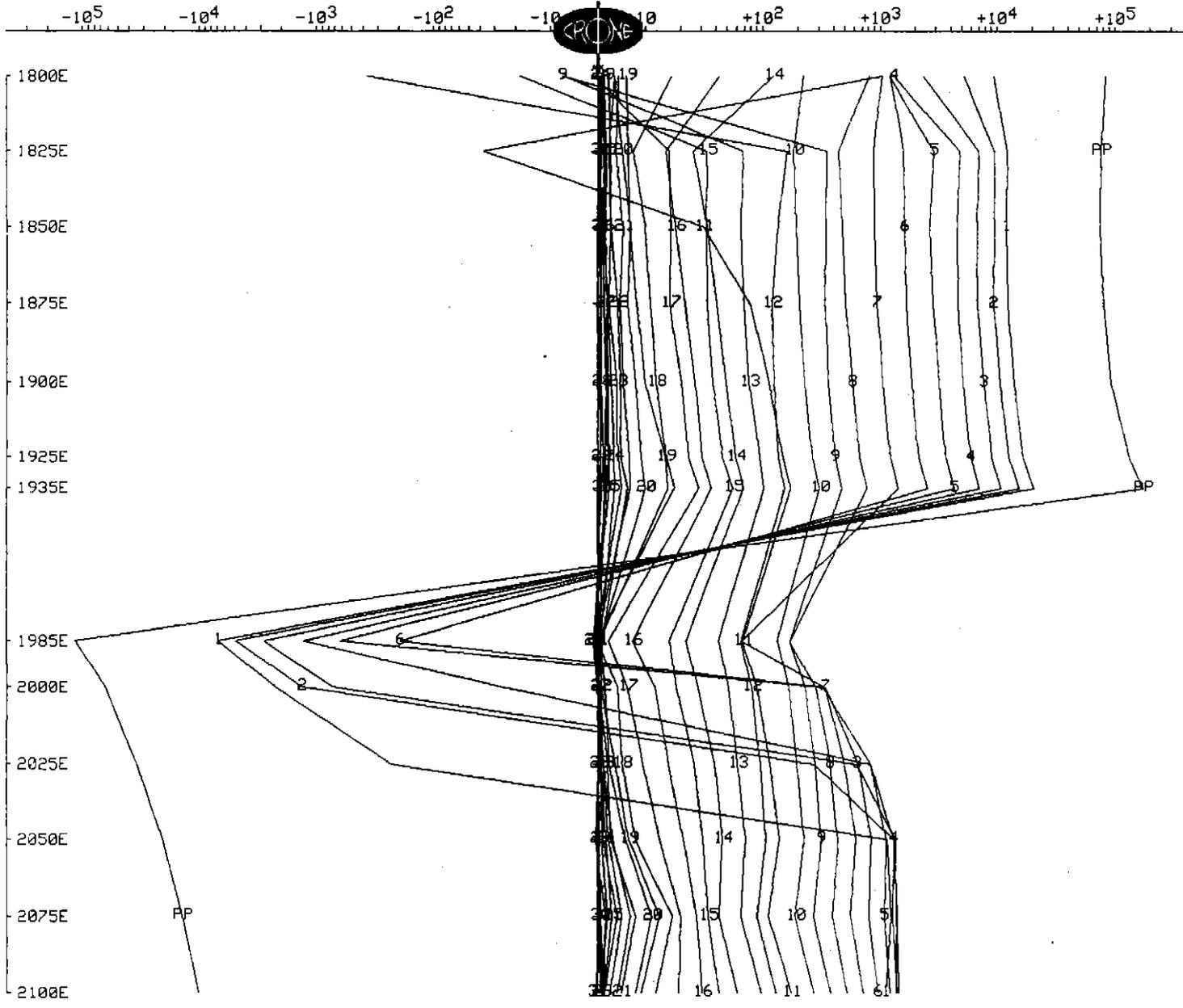
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 17, 2000

Line : 2100N
Tx Loop : West
File name : 2100NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2125N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 16, 2000	File name	: 2125NW.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 235m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2125m, 0m	2. 90deg, 0.1deg, 275m
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Channel Times (usec)

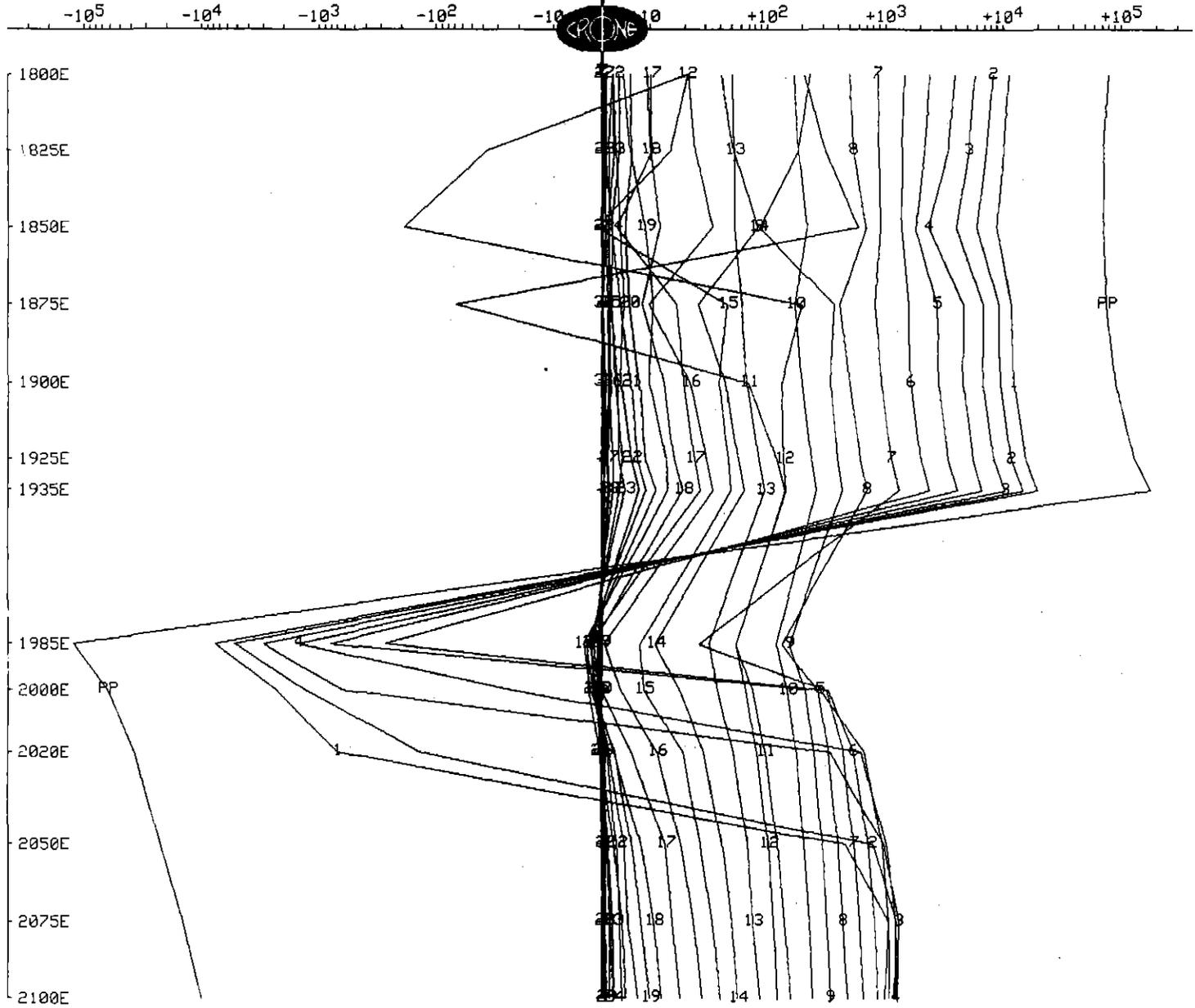
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 16, 2000

Line : 2125N
Tx Loop : West
File name : 2125NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2150N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 16, 2000	File name	: 2150NW.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 235m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2150m, 0m	2. 90deg, 0.1deg, 300m
---------------------	------------------------

Channel Times (usec)

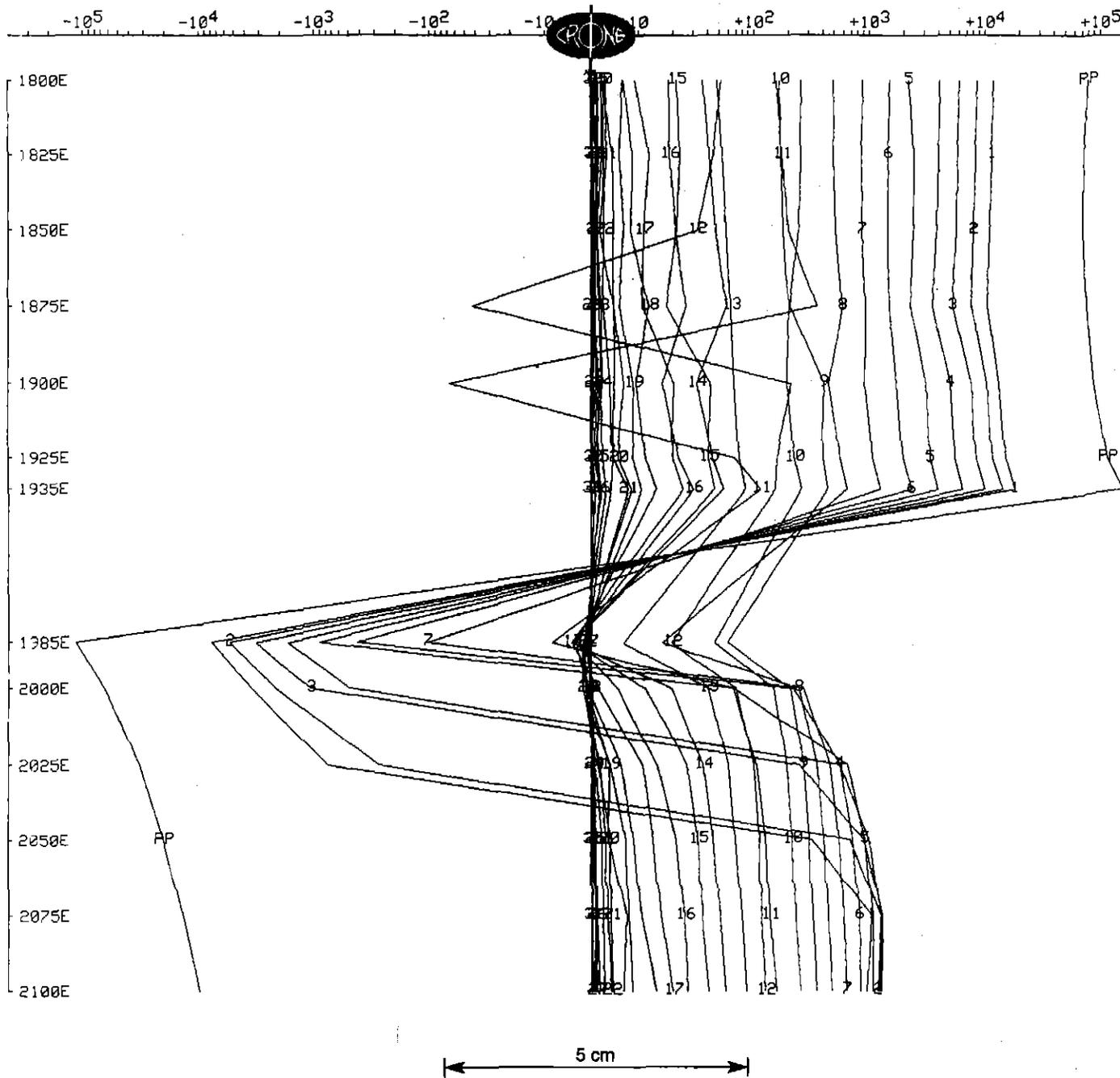
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 16, 2000

Line : 2150N
Tx Loop : West
File name : 2150NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP
Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES
Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2175N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 16, 2000	File name	: 2175NW.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 235m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2175m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

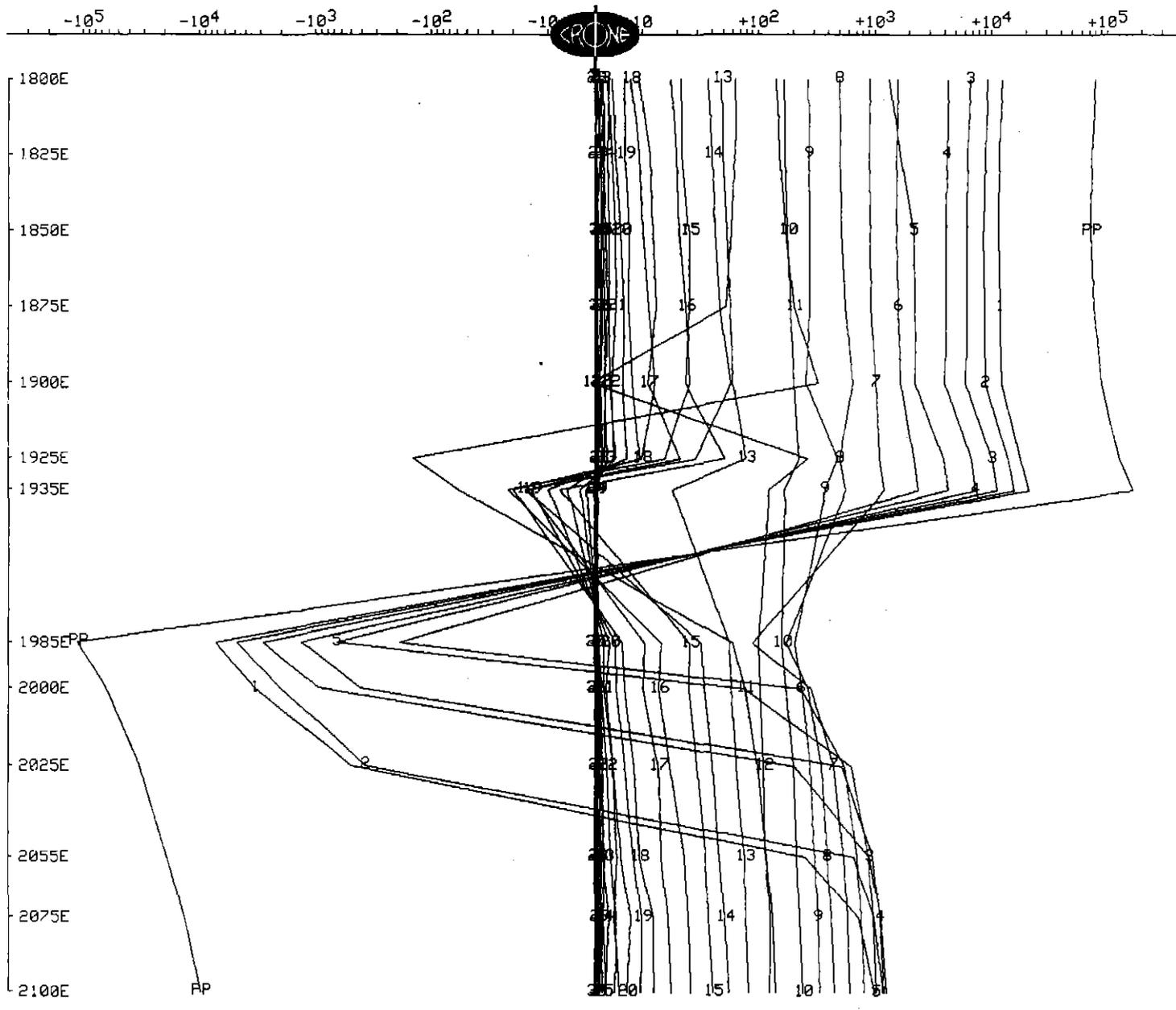
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center	
PP	-198	-99	-149	1	50	58	54	2	58	72	65	
	3	72	86	79	4	86	104	94	5	104	126	115
	6	126	153	140	7	153	185	169	8	185	225	205
	9	225	270	248	10	270	328	299	11	328	396	362
	12	396	482	439	13	482	580	531	14	580	702	641
	15	702	850	776	16	850	1026	938	17	1026	1242	1134
	18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
	21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
	24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
	27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
	30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2175N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 16, 2000	File name	: 2175NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2200N
Grid : Melba Flats	Tx Loop : West
Date : Feb 16, 2000	File name : 2200NW.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 235m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2200m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

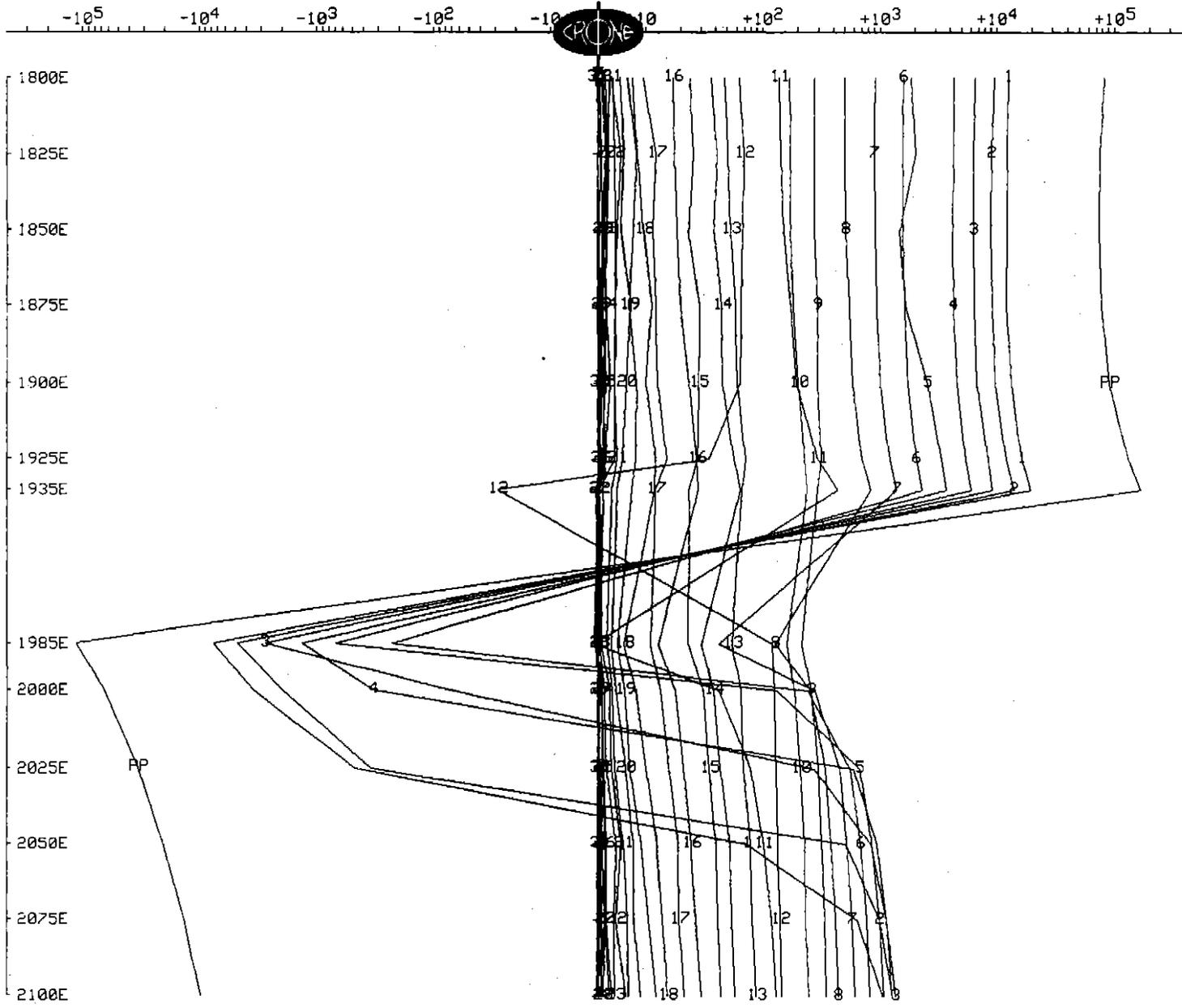
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 16, 2000

Line : 2200N
Tx Loop : West
File name : 2200NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2225N
Grid : Melba Flats	Tx Loop : West
Date : Feb 16, 2000	File name : 2225NW.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 235m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2225m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center	
PP	-198	-99	-149	1	50	58	54	2	58	72	65	
	3	72	86	79	4	86	104	94	5	104	126	115
	6	126	153	140	7	153	185	169	8	185	225	205
	9	225	270	248	10	270	328	299	11	328	396	362
	12	396	482	439	13	482	580	531	14	580	702	641
	15	702	850	776	16	850	1026	938	17	1026	1242	1134
	18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
	21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
	24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
	27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
	30	12000	14490	13245	31	14490	17510	16000				

620103

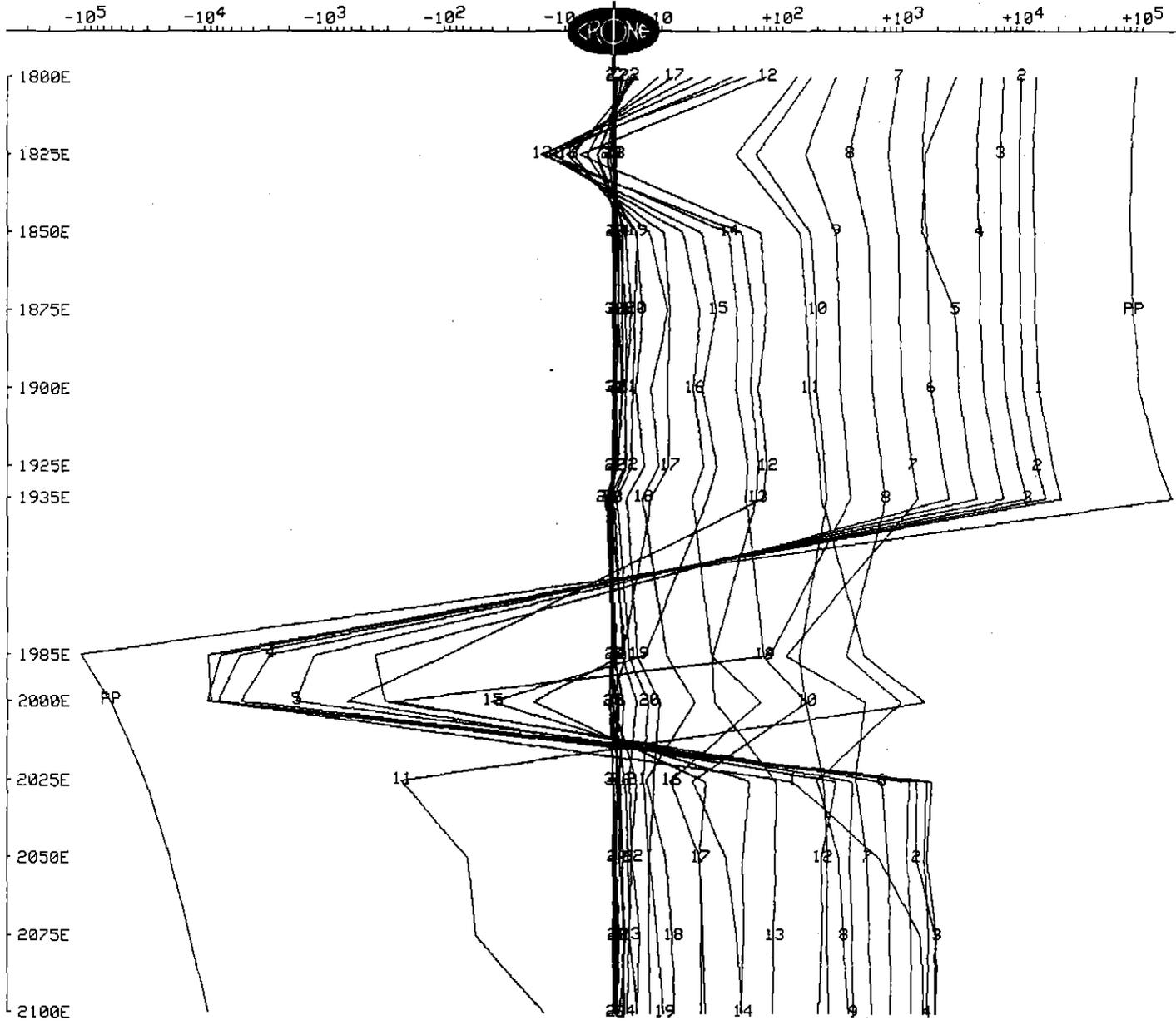
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 16, 2000

Line : 2225N
Tx Loop : West
File name : 2225NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2250N
Grid : Melba Flats	Tx Loop : West
Date : Feb 16, 2000	File name : 2250NW.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 235m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2250m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

OUTER-RIM EXPLORATION SERVICES

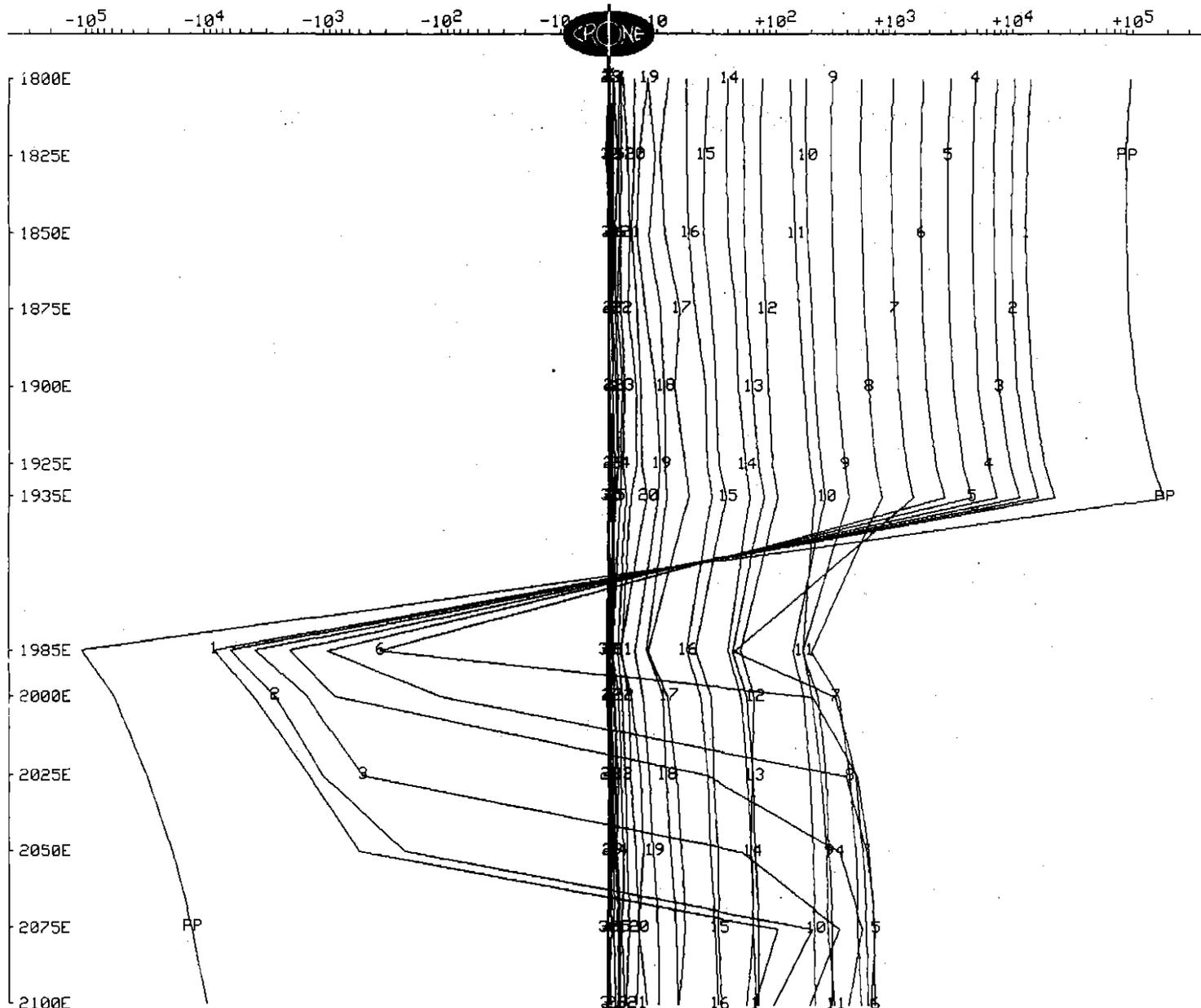
Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 16, 2000

Line : 2250N
Tx Loop : West
File name : 2250NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client : Allegiance Mining NL	Line : 2275N
Grid : Melba Flats	Tx Loop : West
Date : Feb 16, 2000	File name : 2275NW.PEM
Time Base : 20.00 ms	# Readings: 13
Ramp Time : 1.00 ms	Stn Units : Metric
# Channels: 31	Coil Area : 4000 sq m
Sync Type : Crystal-MASTER	Polarity : +
Loop Size : 235m X 350m	Receiver : Digital #105
Current : 17 Amps	Operator : Kent/Heath

Loop Coordinates (X,Y,Z)

1. 1725m, 1975m, 0m	2. 1960m, 1975m, 0m
3. 1960m, 2325m, 0m	4. 1725m, 2325m, 0m

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

1. 1800m, 2275m, 0m	2. 90deg, 0.1deg, 275m
---------------------	------------------------

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center	
PP	-198	-99	-149	1	50	58	54	2	58	72	65	
	3	72	86	79	4	86	104	94	5	104	126	115
	6	126	153	140	7	153	185	169	8	185	225	205
	9	225	270	248	10	270	328	299	11	328	396	362
	12	396	482	439	13	482	580	531	14	580	702	641
	15	702	850	776	16	850	1026	938	17	1026	1242	1134
	18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
	21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
	24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
	27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
	30	12000	14490	13245	31	14490	17510	16000				

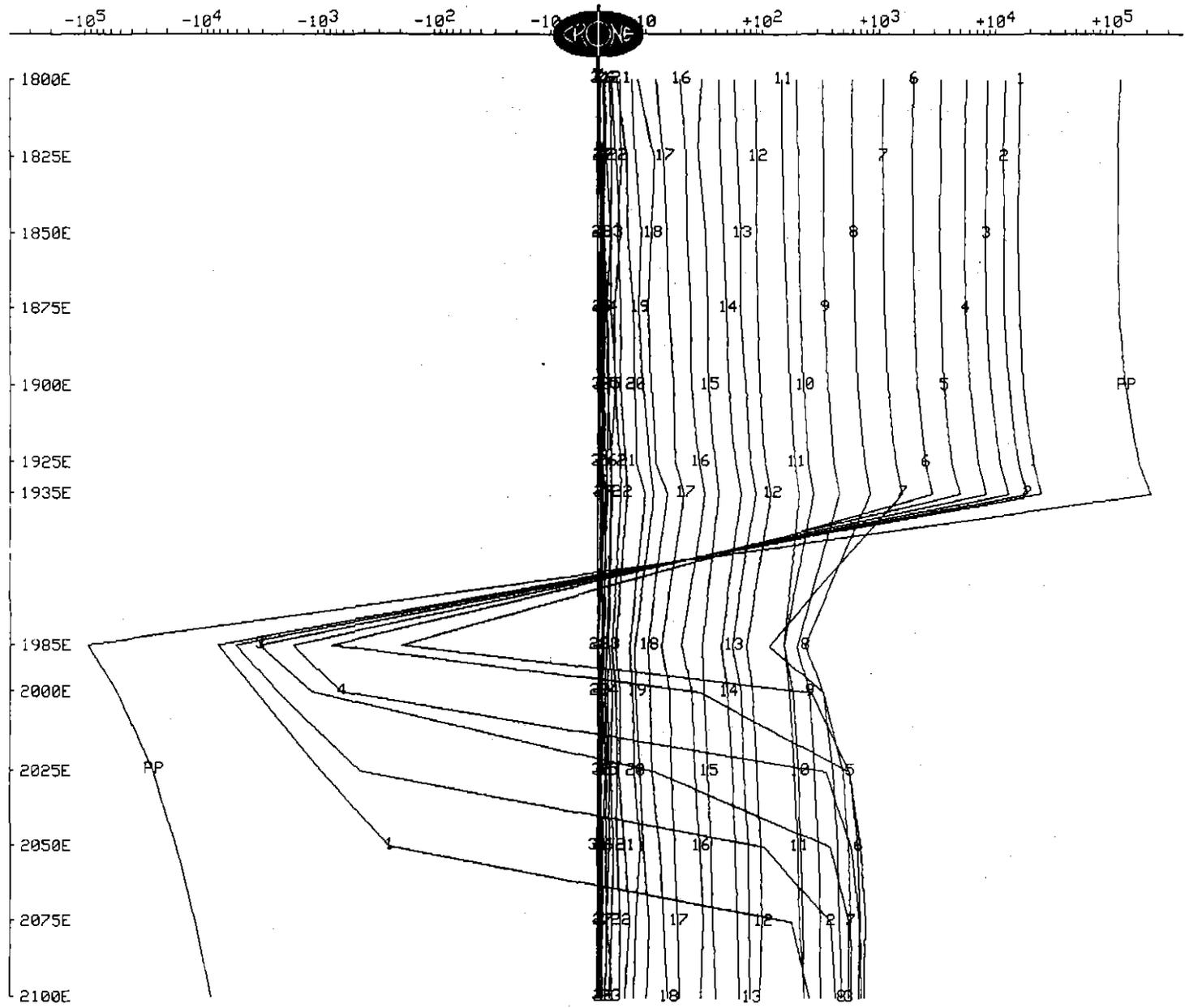
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 16, 2000

Line : 2275N
Tx Loop : West
File name : 2275NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

622103

OUTER-RIM EXPLORATION SERVICES

Surface Pulse EM Survey

Client	: Allegiance Mining NL	Line	: 2300N
Grid	: Melba Flats	Tx Loop	: West
Date	: Feb 16, 2000	File name	: 2300NW.PEM
Time Base	: 20.00 ms	# Readings	: 13
Ramp Time	: 1.00 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 4000 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 235m X 350m	Receiver	: Digital #105
Current	: 17 Amps	Operator	: Kent/Heath

Loop Coordinates (X,Y,Z)

- | | |
|---------------------|---------------------|
| 1. 1725m, 1975m, 0m | 2. 1960m, 1975m, 0m |
| 3. 1960m, 2325m, 0m | 4. 1725m, 2325m, 0m |

Line Coordinates (X,Y,Z) or (Azimuth,Dip,Length)

- | | |
|---------------------|------------------------|
| 1. 1800m, 2300m, 0m | 2. 90deg, 0.1deg, 275m |
|---------------------|------------------------|

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	58	54	2	58	72	65
3	72	86	79	4	86	104	94	5	104	126	115
6	126	153	140	7	153	185	169	8	185	225	205
9	225	270	248	10	270	328	299	11	328	396	362
12	396	482	439	13	482	580	531	14	580	702	641
15	702	850	776	16	850	1026	938	17	1026	1242	1134
18	1242	1498	1370	19	1498	1813	1656	20	1813	2187	2000
21	2187	2646	2416	22	2646	3195	2920	23	3195	3861	3528
24	3861	4666	4264	25	4666	5634	5150	26	5634	6808	6221
27	6808	8221	7514	28	8221	9936	9078	29	9936	12000	10968
30	12000	14490	13245	31	14490	17510	16000				

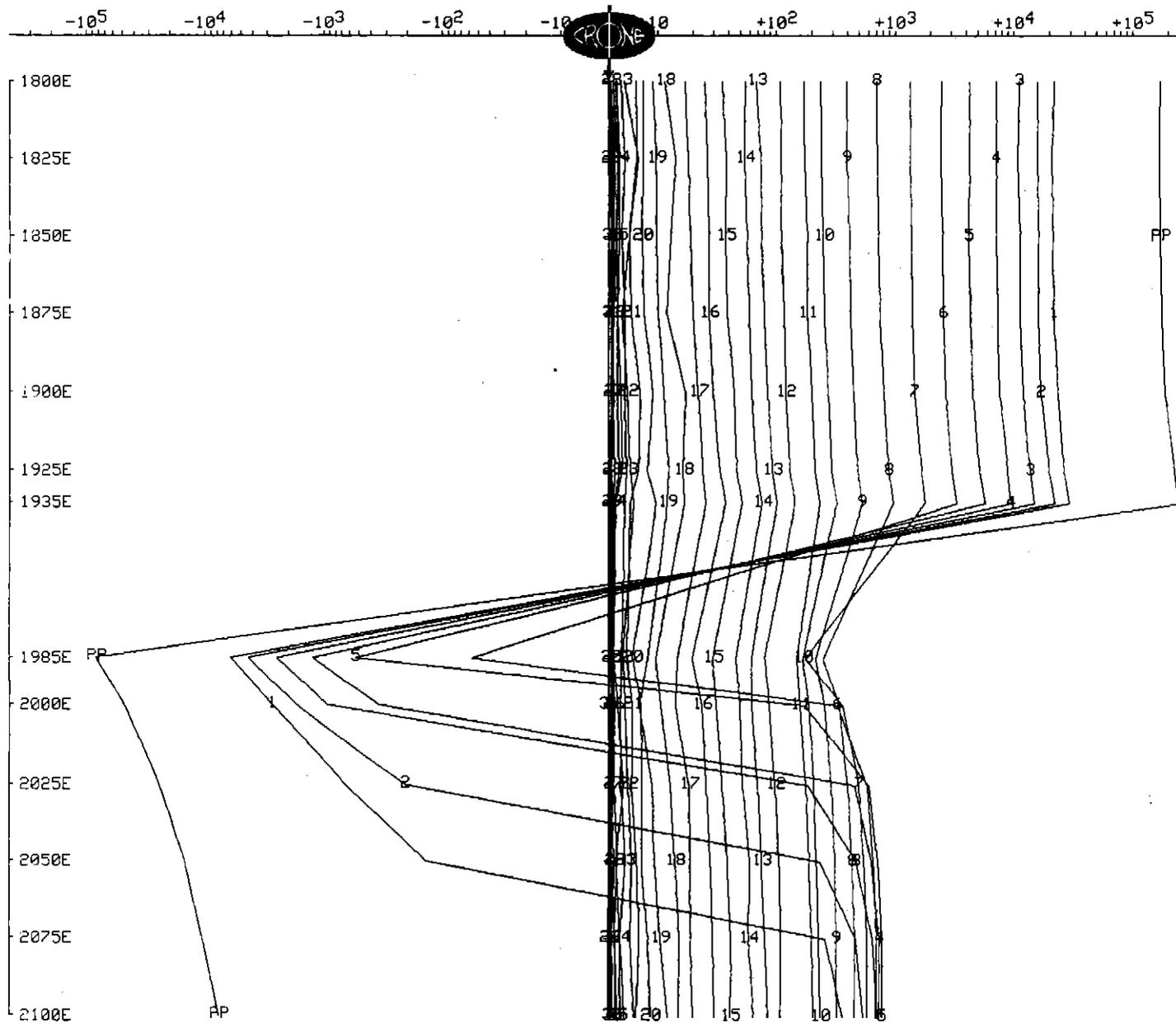
OUTER-RIM EXPLORATION SERVICES Surface Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Feb 16, 2000

Line : 2300N
Tx Loop : West
File name : 2300NW.PEM

VERTICAL COMPONENT dBz/dt nanoTesla/sec - 31 of 31 channels and PP

Scale: 1:2000



5 cm

APPENDIX

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, 50.00ms and 150ms.

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

Zero Time Set

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

Receiver Channels

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

PP Channel

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

Synchronization

Since the PEM system measures the secondary field in the absence of the primary field, the receiver must be in

"sync" with the transmitter to read during the off-time. There are three synchronization methods available: cable connection, radio telemetry, and crystal clock. This flexibility enhances the operational capabilities of the system.

SURVEY METHODS

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

Moving Coil

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

Moving Loop

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

Moving In-Loop

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

Large In-Loop

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

Deepem

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

Borehole (Z Component only)

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

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

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

3-D Borehole

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

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

Underground Borehole

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

Resistivity Soundings

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

EQUIPMENT

Transmit Loops

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

Power Supply

The PEM system normally operates with an input voltage from 24v to 120v. The maximum current is 20 amps in a single loop but the effective current can be increased by doubling the loop wire in series. 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)
- belt drive to D.C. alternator
- cable output to regulator
- maximum output: 120v, 20amp (2 kw);
- fuse type overload protection
- steel frame
- external gas tank
- unit weight: 33kg (2 kw); 52kg (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

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, 50ms 150ms.
- 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

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
- unit weight 15kg; shipping weight 25.5kg
- 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 4.5 μ sec
- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, 50ms and 150ms
- ramp time selectable in 4.5 μ sec 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

Specifications: Booster Antenna

- 8m, 4 section aluminum mast
- guide rope support
- 1/4 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
- 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

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 2800m

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

Orientation Device

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

Specifications: Orientation Device

- 2 axis tilt sensors
- sensitivity +/- 0.1 deg.
- operating range -89.5 to -10 deg.
- dimensions: length - 0.94m; dia - 28.5cm

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
- currently 1500m but will shortly have capability of surveying to depths of 3000m.

Specifications: Slip Ring

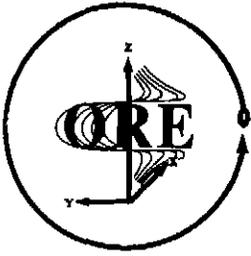
- attaches to side of borehole cable spool providing a connection to the receiver while allowing the spool to turn.
- VLF filter
- pure silver contacts

Specifications: Borehole Counter

- attaches to the drill hole casing
- calibrated in metres

Specifications: Dummy Probe and Cable

- solid steel or steel pipe
- same dimensions as borehole probe
- shear pin connection to dummy cable



OUTER-RIM EXPLORATION SERVICES

ACN 059 220 192

26 Leopold Street,
(P.O. Box 1754)
AITKENVALE, QLD. 4814

Geophysical Contracting Services

100% Australian Owned

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Fax: 07 4725 4805
Mob: 0412 54 9980
Email: oreserv@ozemail.com.au

Volume 2 of 3

Client : Allegiance Mining NL

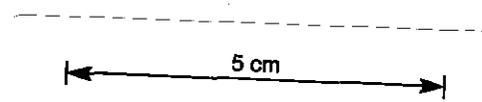
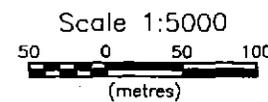
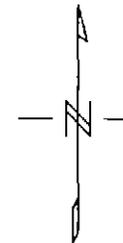
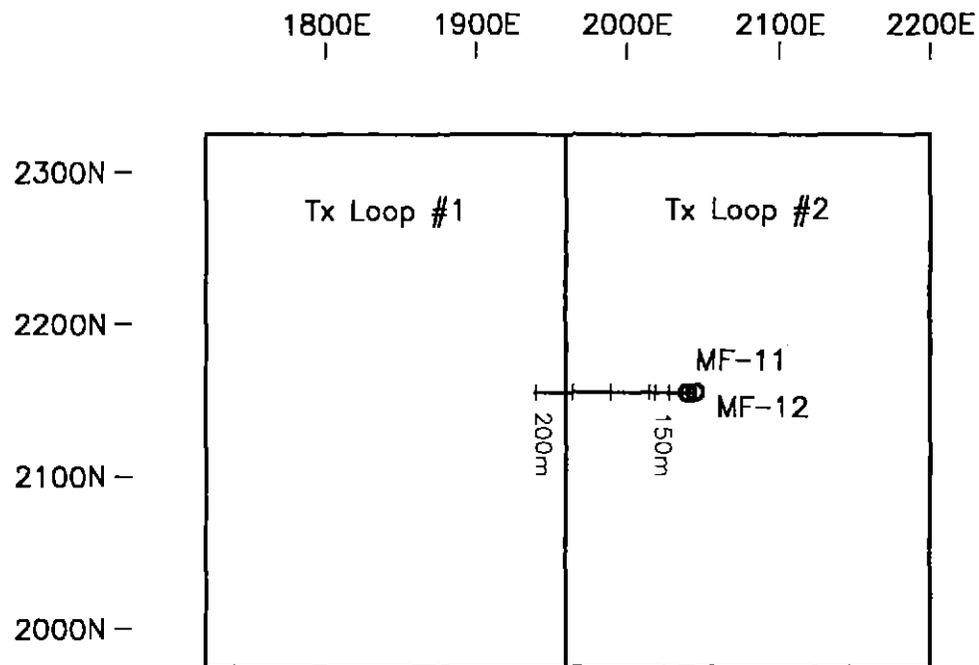
Prospect : Melba Flats and Avebury.

Area : Zeehan, Tas.

Survey : Surface and Borehole PEM Surveys

Survey Period : 13th December, 1999 to 19th February, 2000

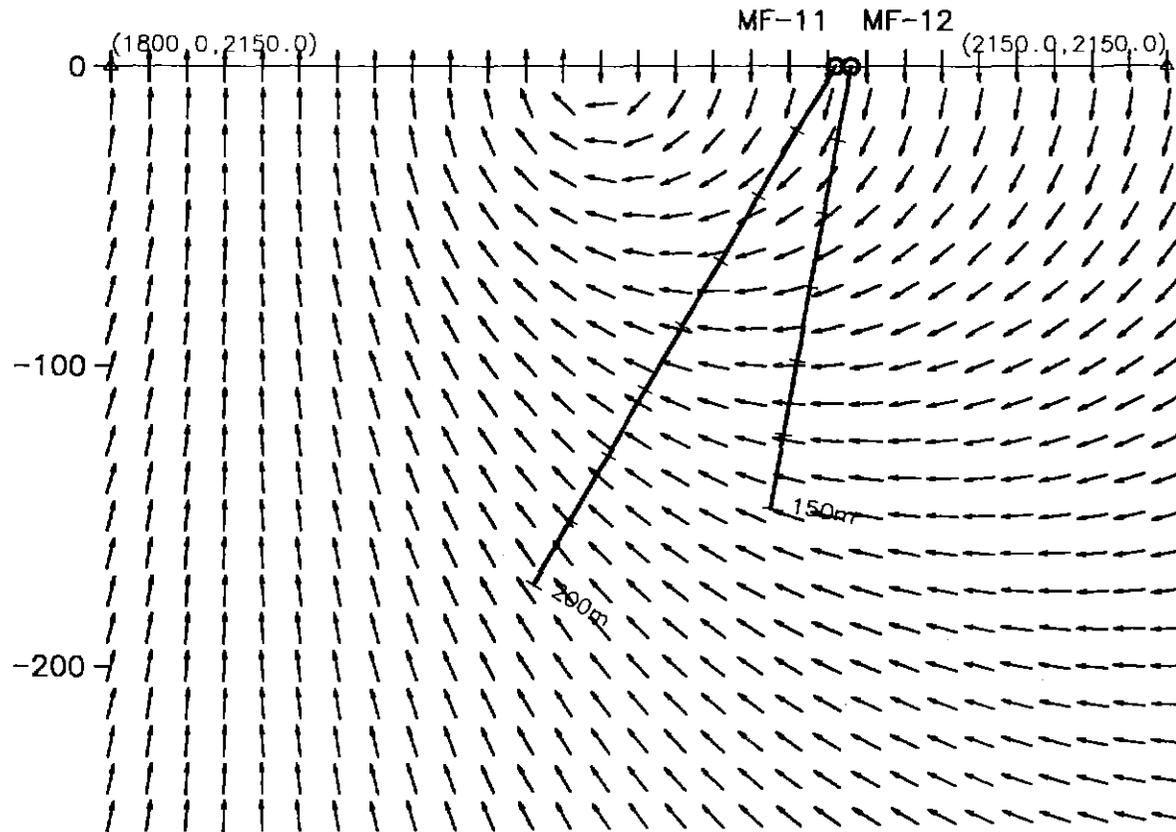
Operator : Brett Rankin and Kent Honner.



<i>Allegiance Mining NL</i> Melba Flats
3-D Borehole Pulse EM Survey Borehole & Loop Location Map
Hole: MF-11 & MF-12 Survey Date: Dec 14/15, 1999
<i>Outer-Rim Exploration Services</i>

023117

Loop #1



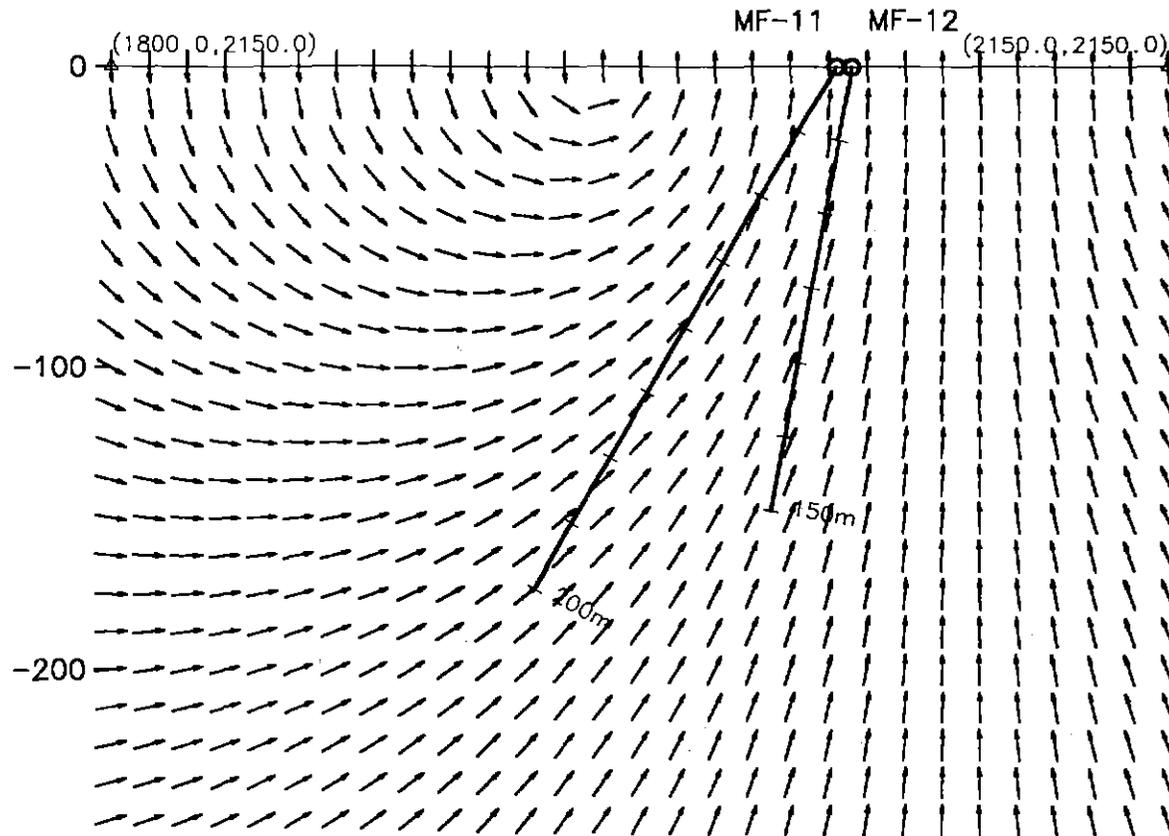
Scale 1:2500
25 0 25 50
(metres)

5 cm

<i>Allegiance Mining NL</i> Melba Flats
3-D Borehole False EM Survey Hole Section with Primary Field
Hole: MF-11 & MF-12 Survey Date: Dec 14/15, 1999
Outer-Rim Exploration Services

600115

Loop #2



Allegiance Mining NL
Melba Flats

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

Hole: MF-11 & MF-12
Survey Date: Dec 14/15, 1999

Outer-Rim Exploration Services

000119

OUTER-RIM EXPLORATION SERVICES

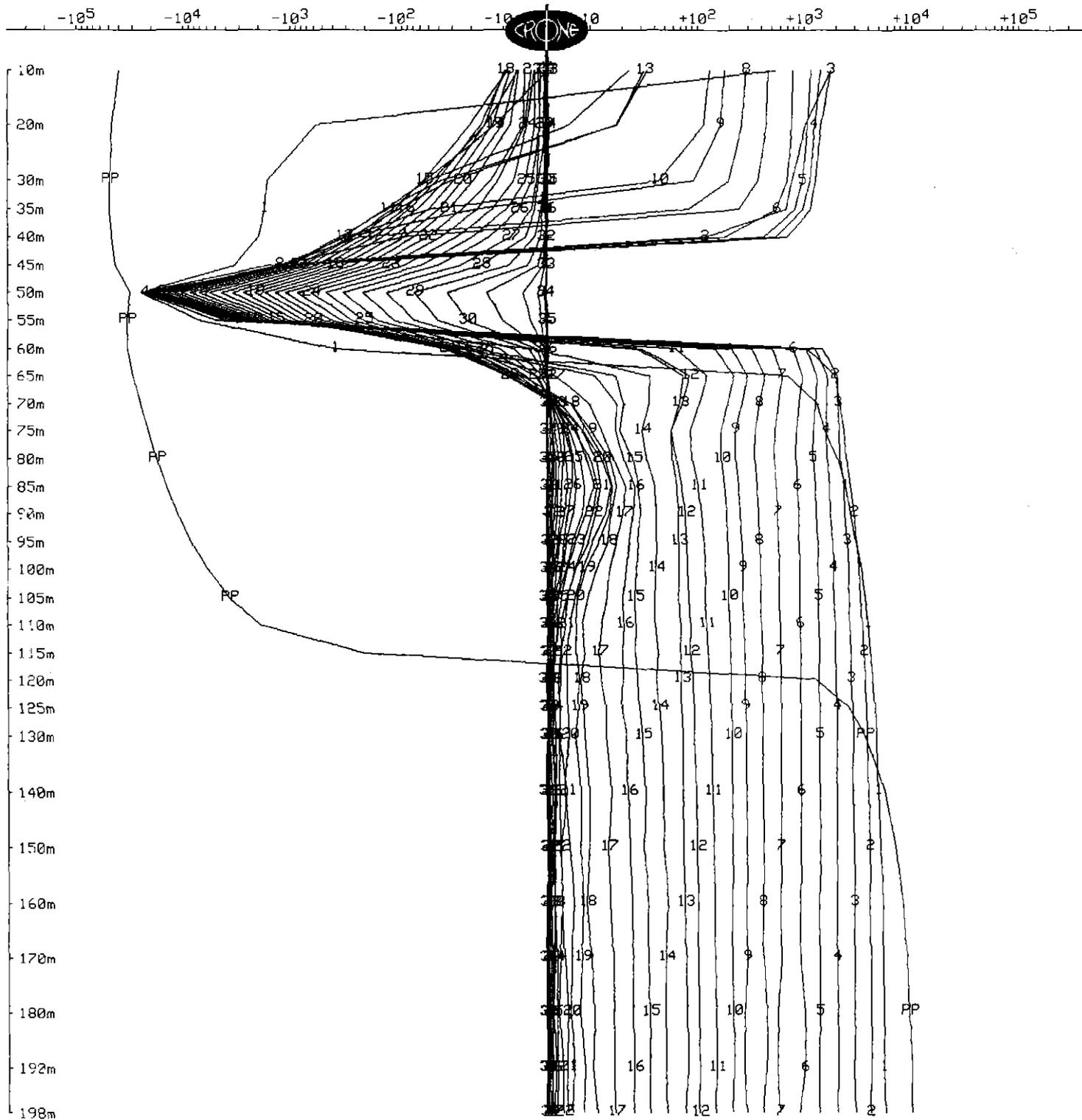
Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-11
Tx Loop : #1
File name : MF11Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000

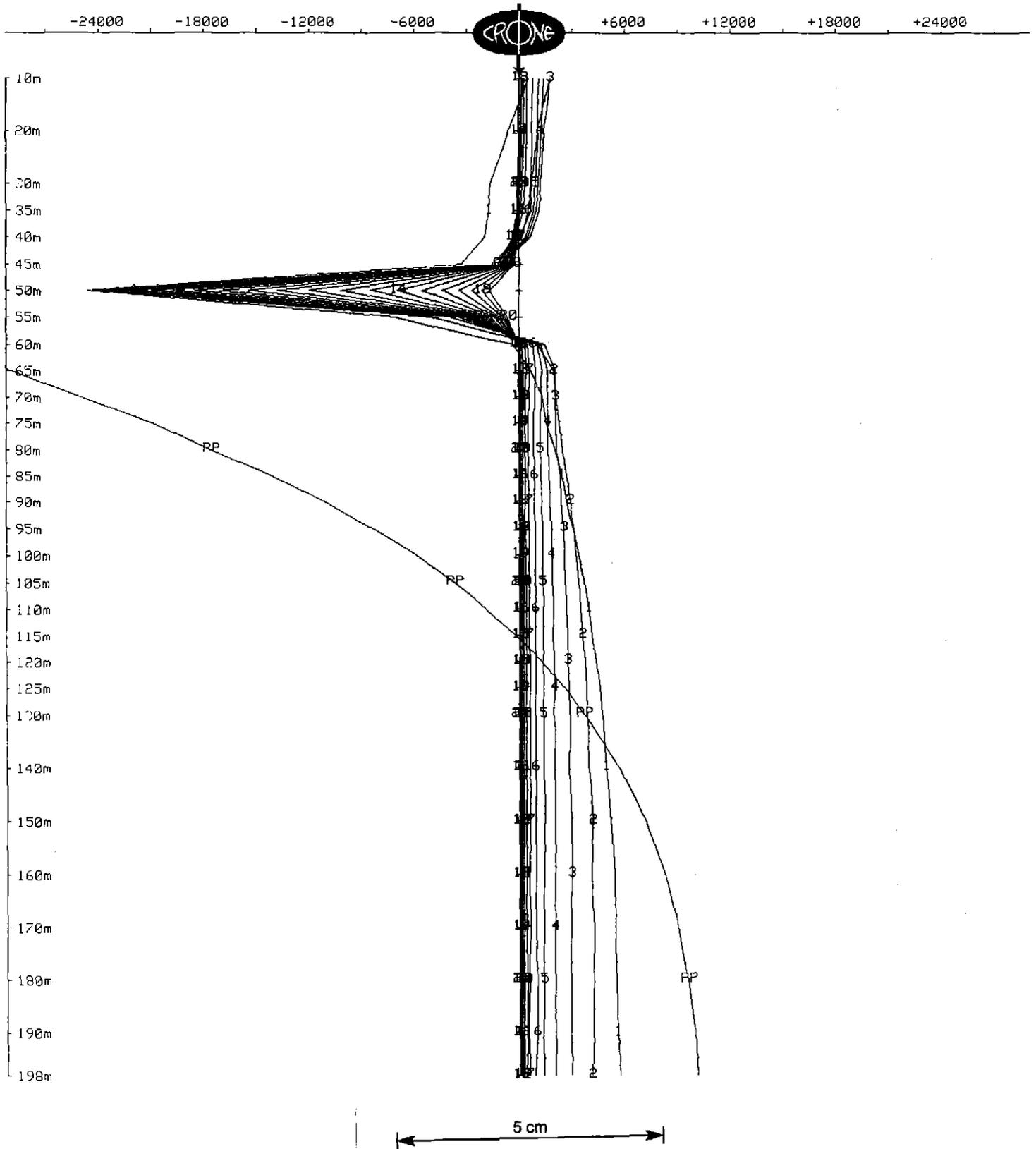


OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-1J
Tx Loop : #1
File name : MF11Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 36 channels and PP
Scale: 1:1000 Unit Scale: 1cm = 3000 nT/s



OUTER-RIM EXPLORATION SERVICES
Borehole Pulse EM Survey

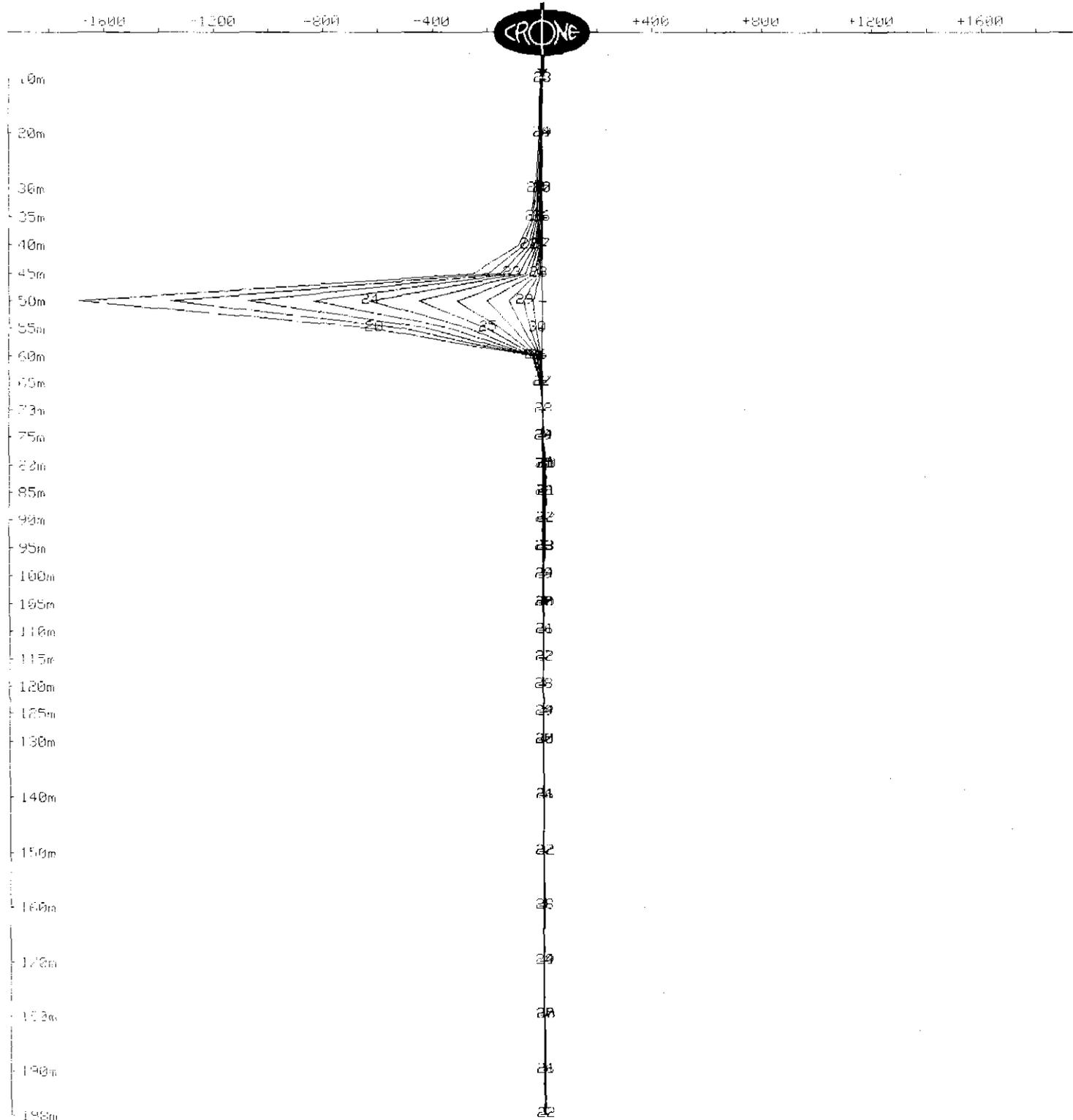
Client : Allegiance Mining NL
 Grid : Melba Flats
 Date : Dec 14, 1999

Hole : MF-11
 Tx Loop : #1
 File name : MF11Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 200 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

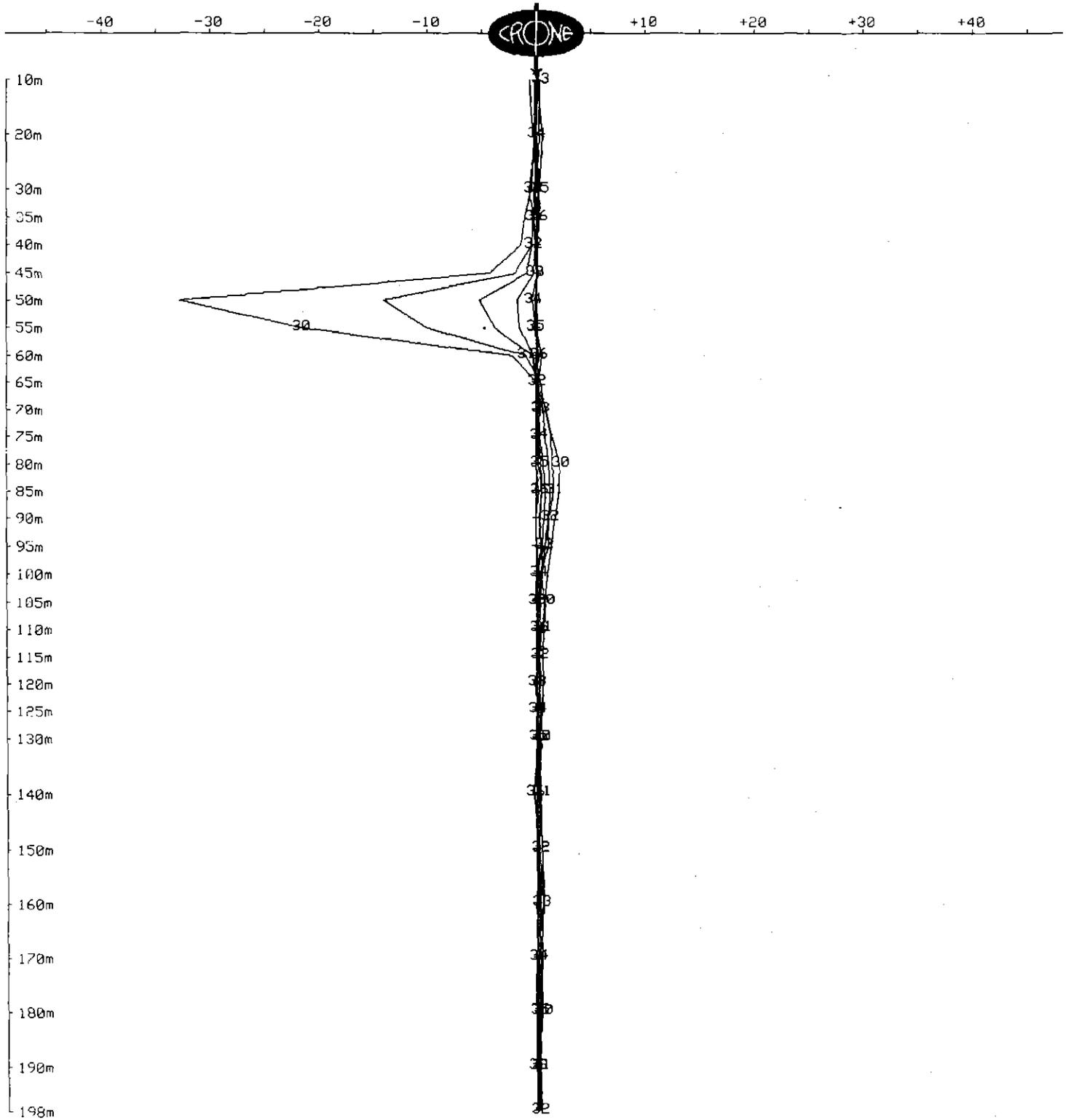
Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-11
Tx Loop : #1
File name : MF11Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 5 nT/s



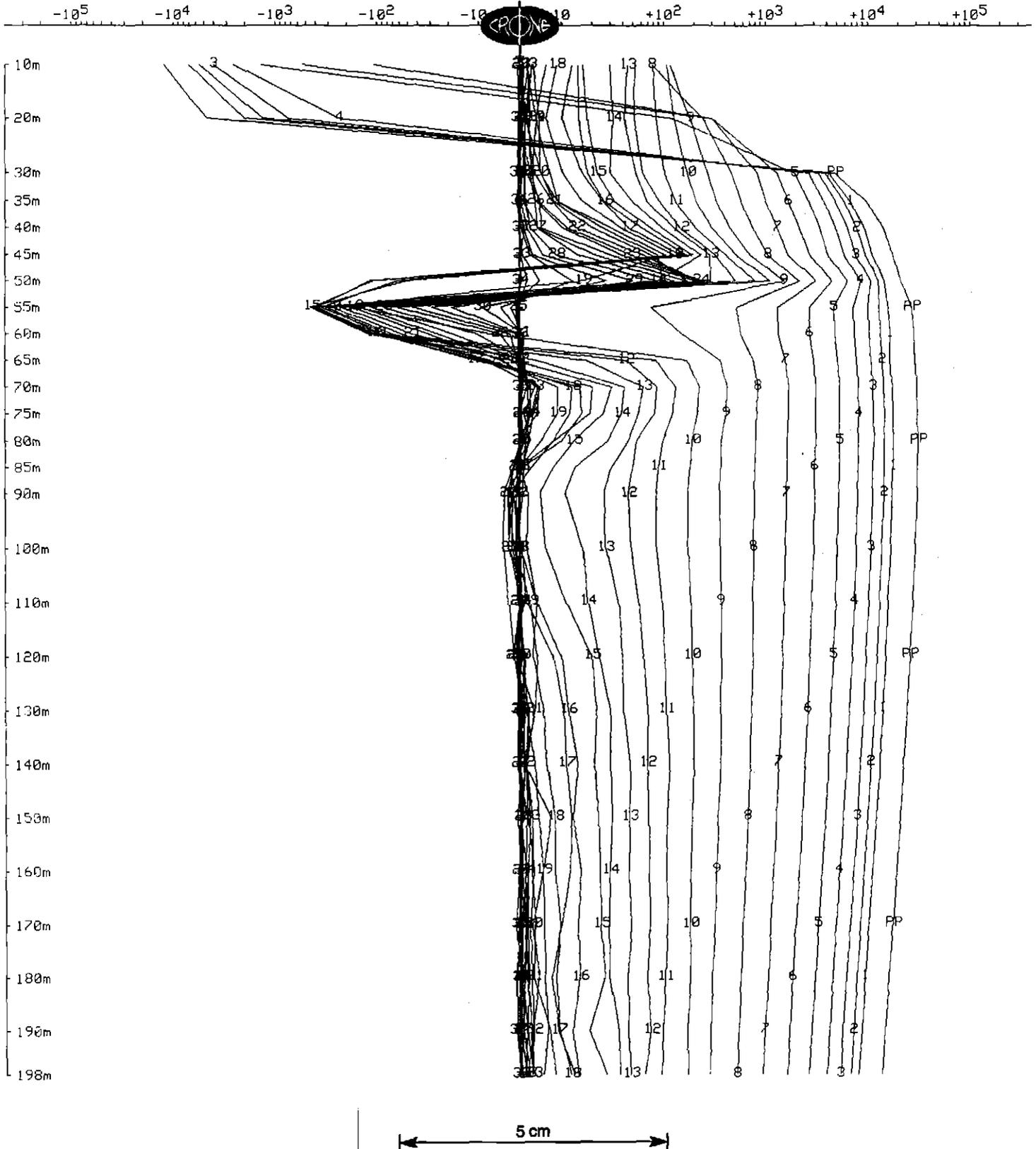
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-11
Tx Loop : #1
File name : MF11XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

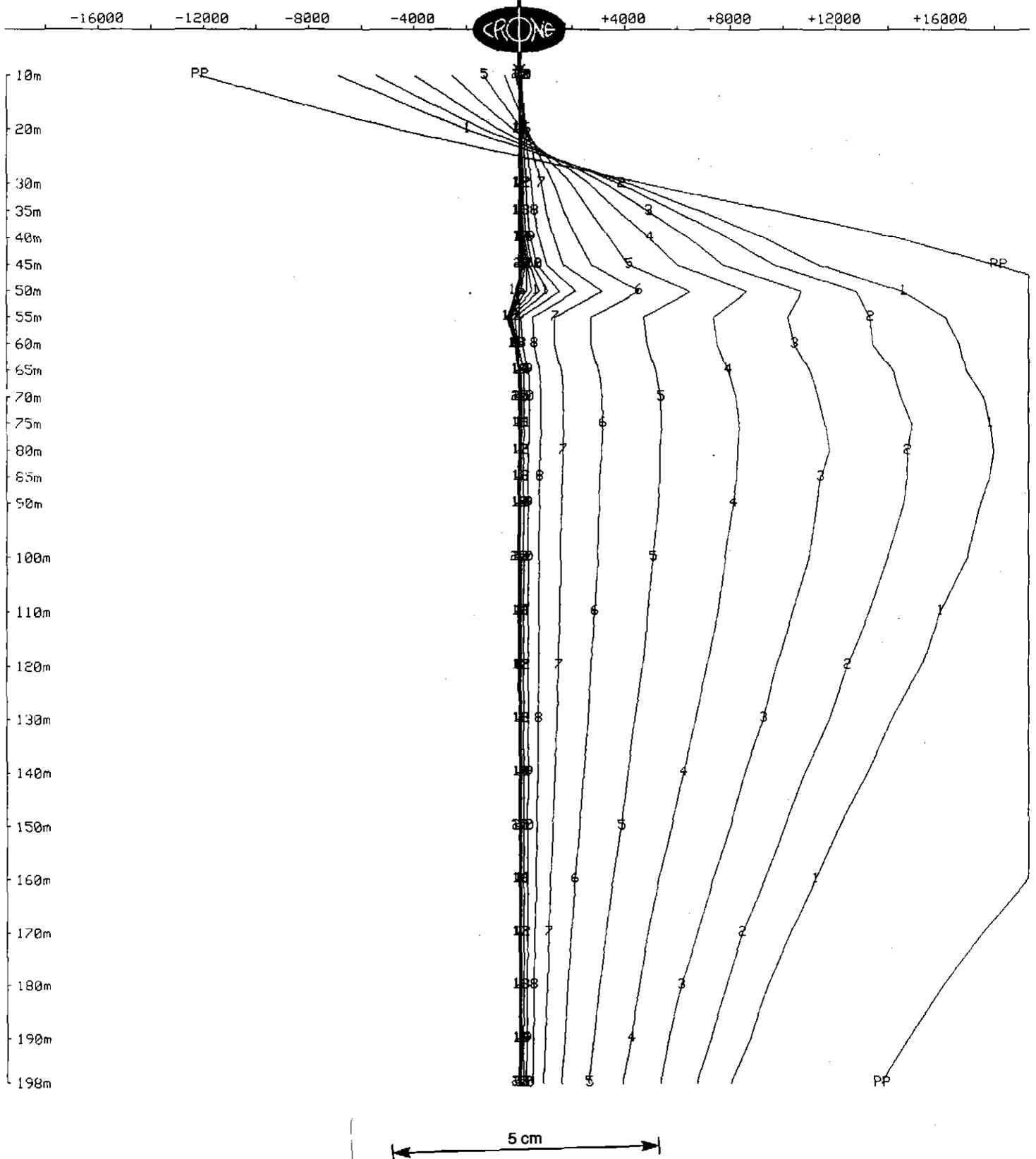
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Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-11
Tx Loop : #1
File name : MF11XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 2000 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

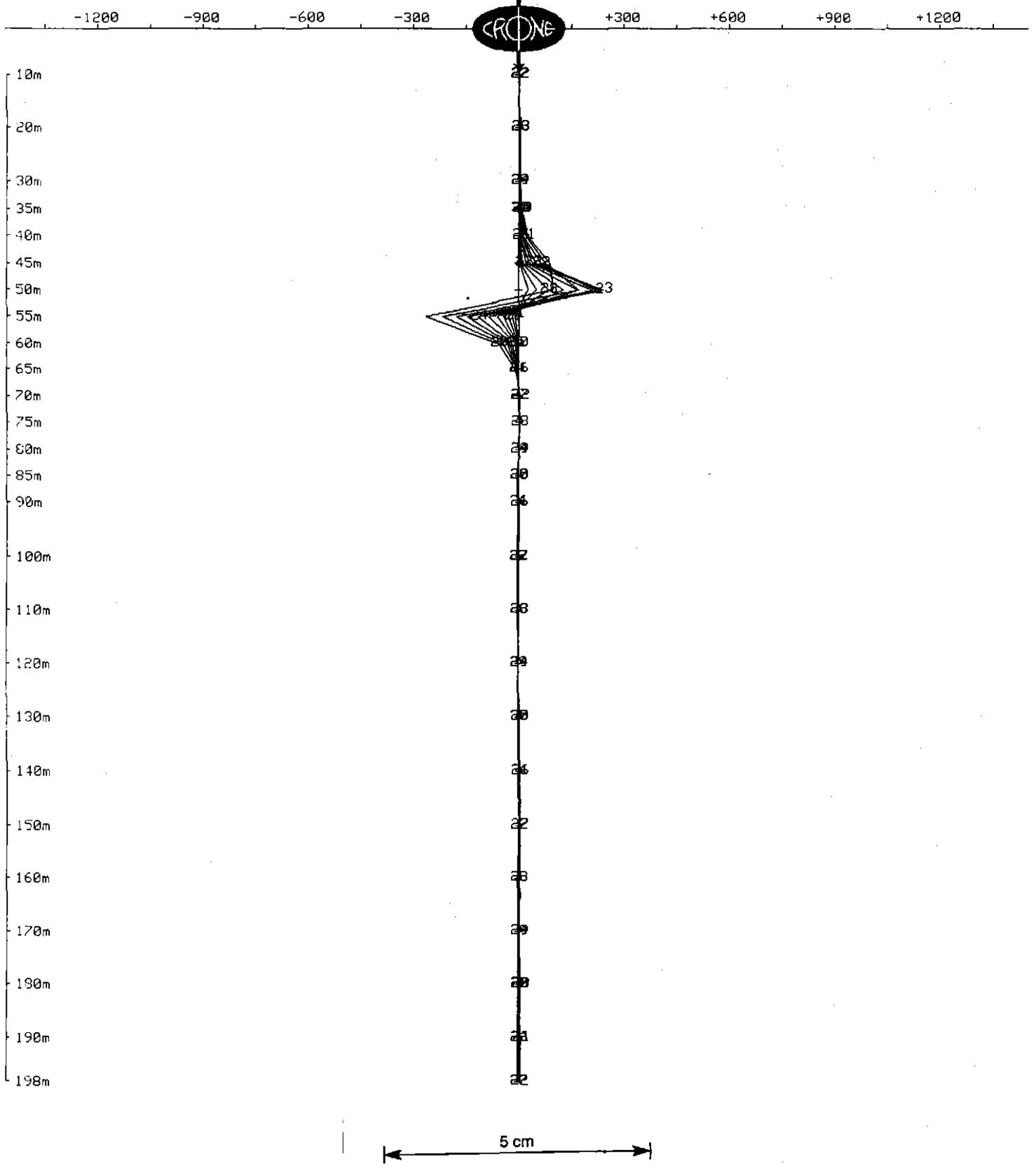
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Date : Dec 14, 1999

Hole : MF-11
Tx Loop : #1
File name : MF11XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 150 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

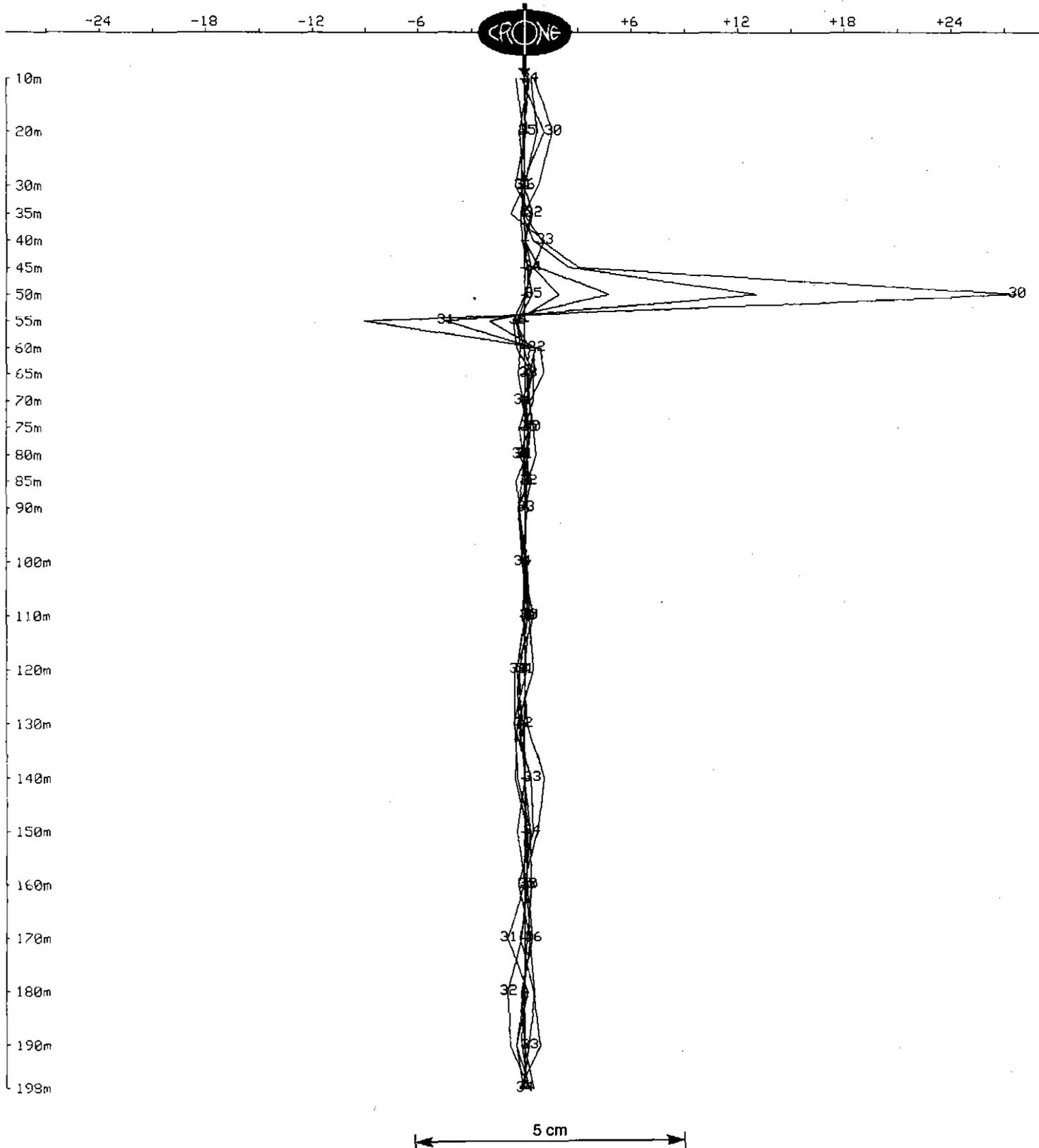
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Hole : MF-11
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X COMPONENT dBx/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 3 nT/s



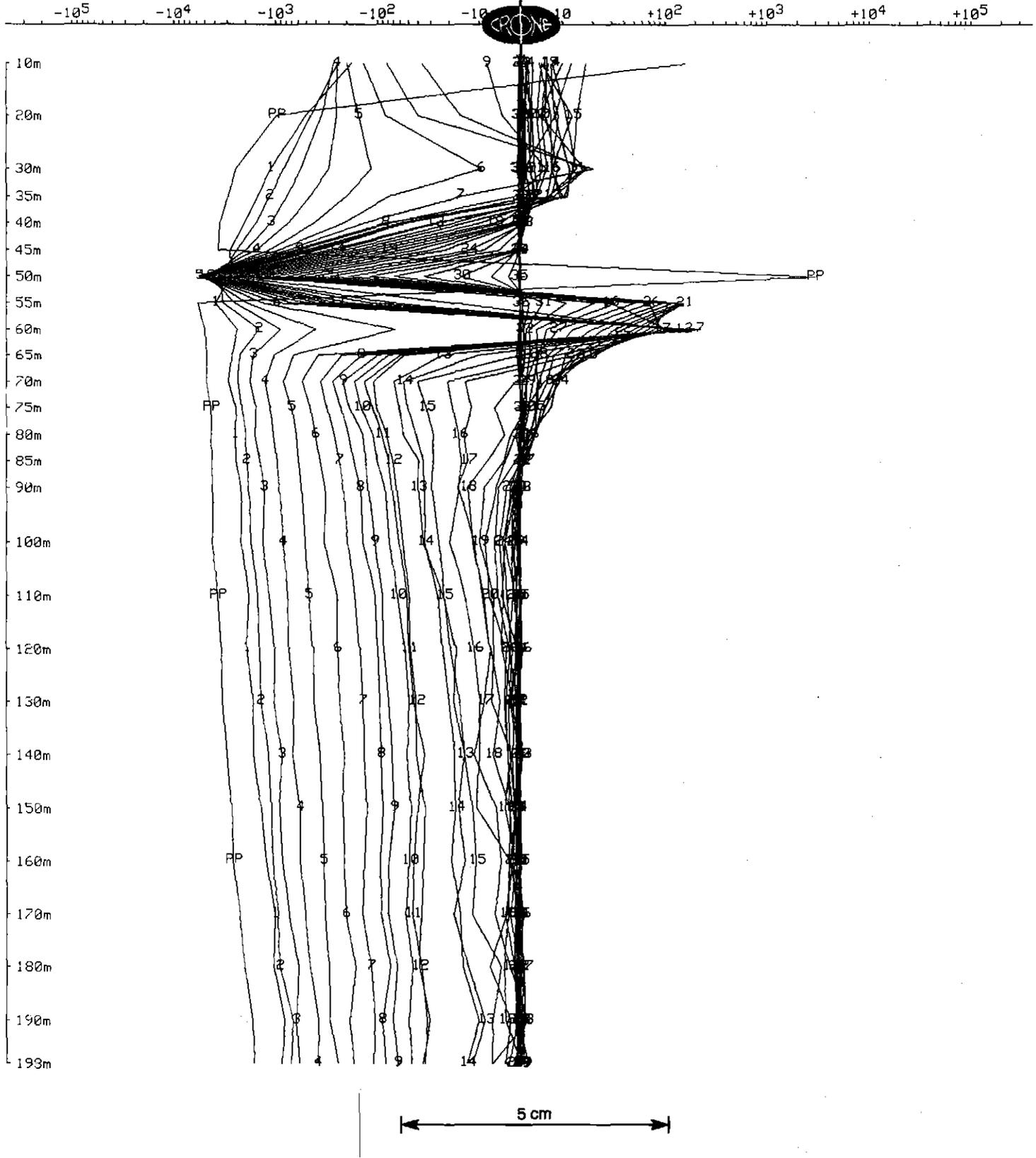
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-11
Tx Loop : #1
File name : MF11XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



623130

OUTER-RIM EXPLORATION SERVICES

Borehole Pulse EM Survey

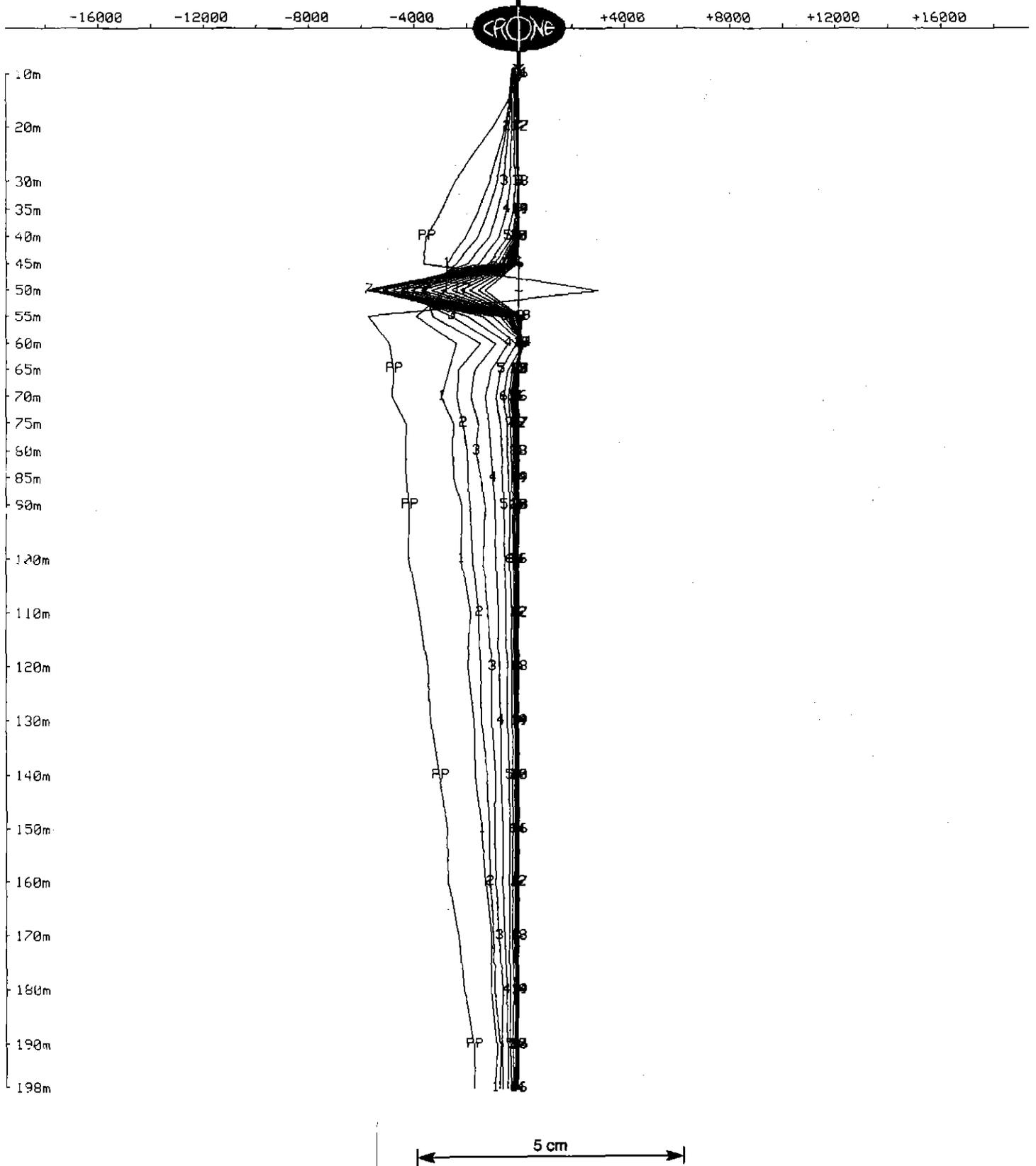
Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-1J
Tx Loop : #1
File name : MF11XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 2000 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

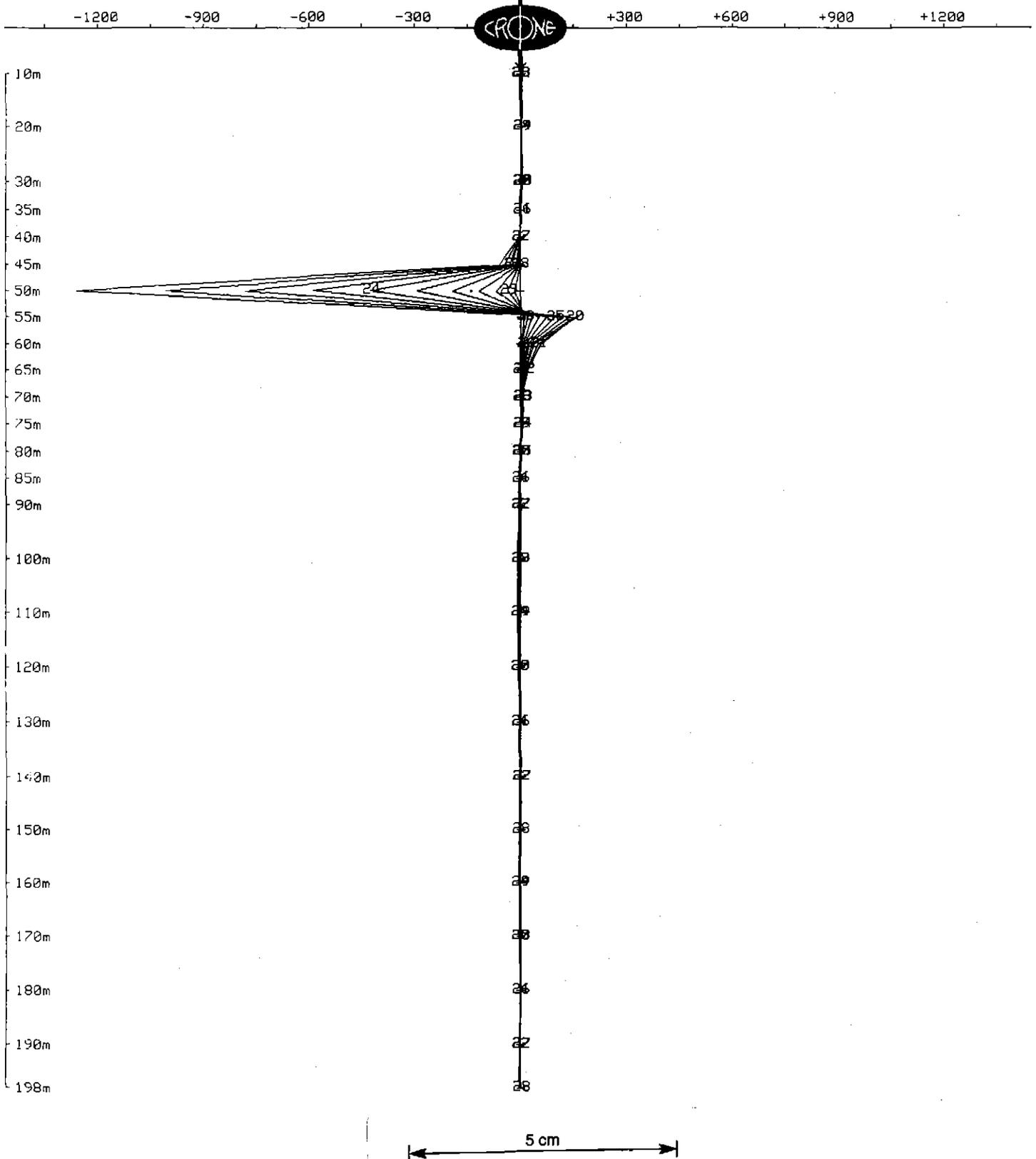
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Hole : MF-11
Tx Loop : #1
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Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 150 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

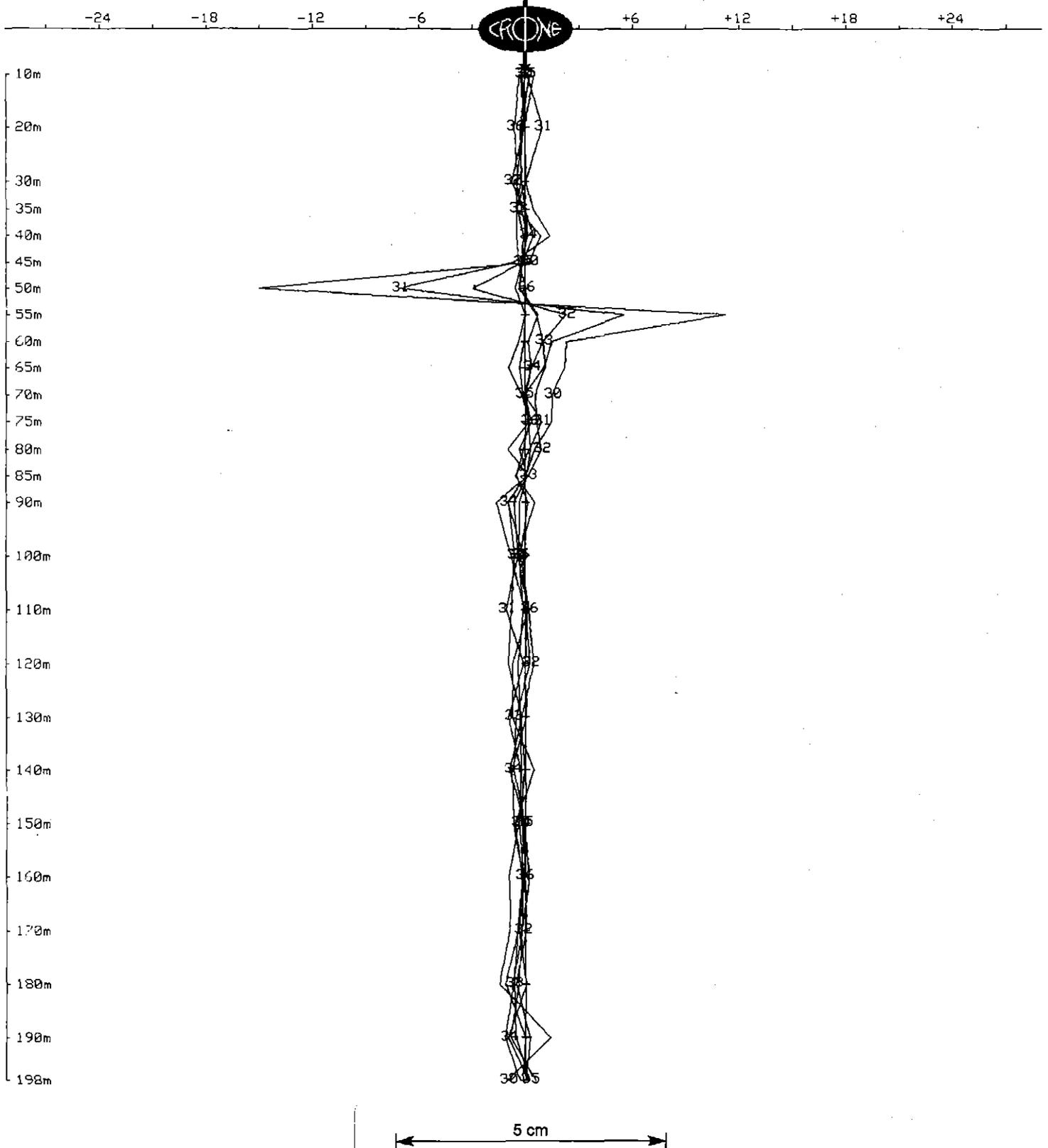
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Hole : MF-11
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File name : MF11XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 3 nT/s



622131

OUTER-RIM EXPLORATION SERVICES

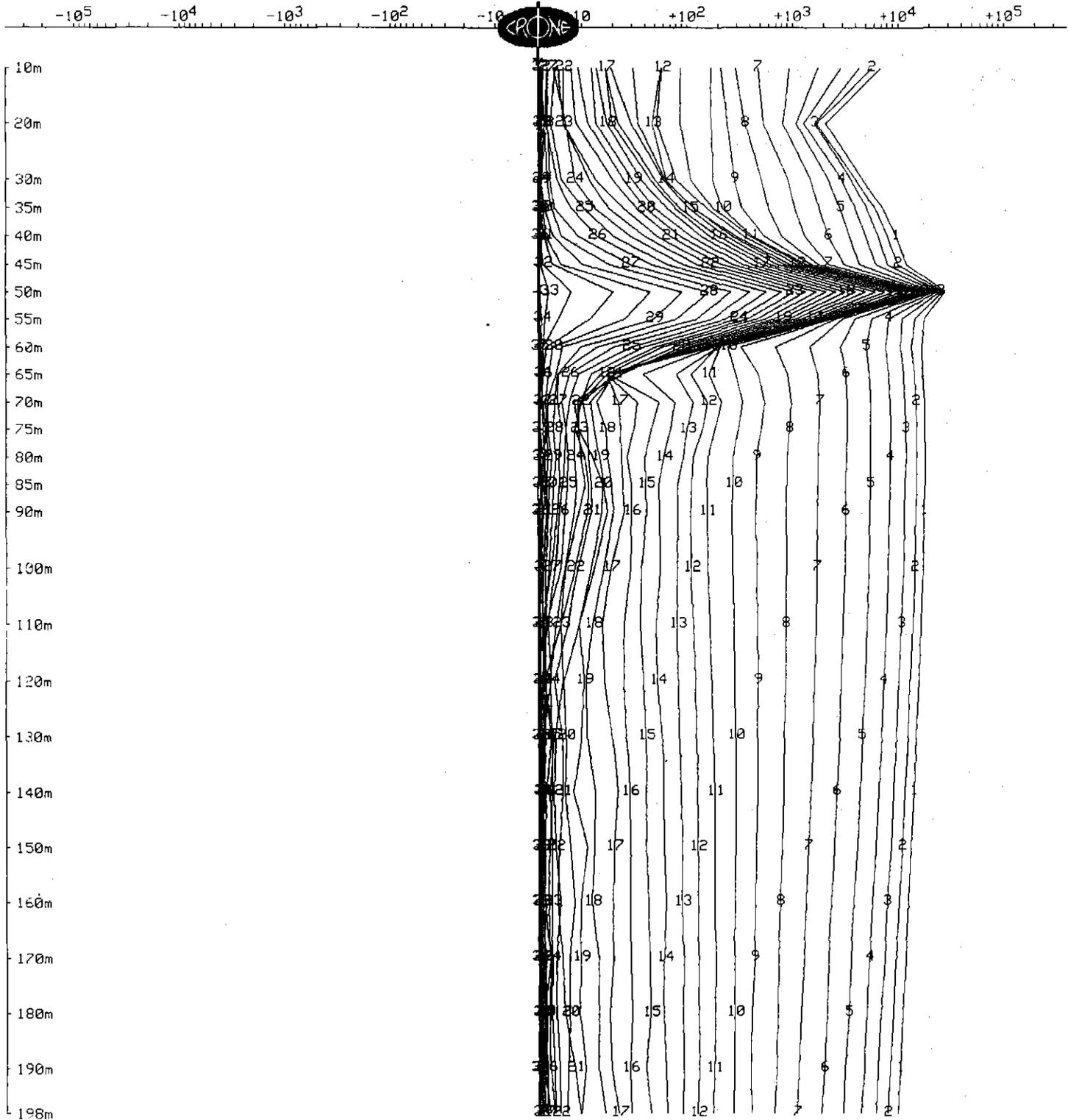
Borehole Pulse EM Survey

Client : Allegiance Mining NL
 Grid : Melba Flats
 Date : Dec 14, 1999

Hole : MF-11
 Tx Loop : #1
 File name : MF11XYZ1.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 36 of 36 channels

Scale: 1:1000



633135

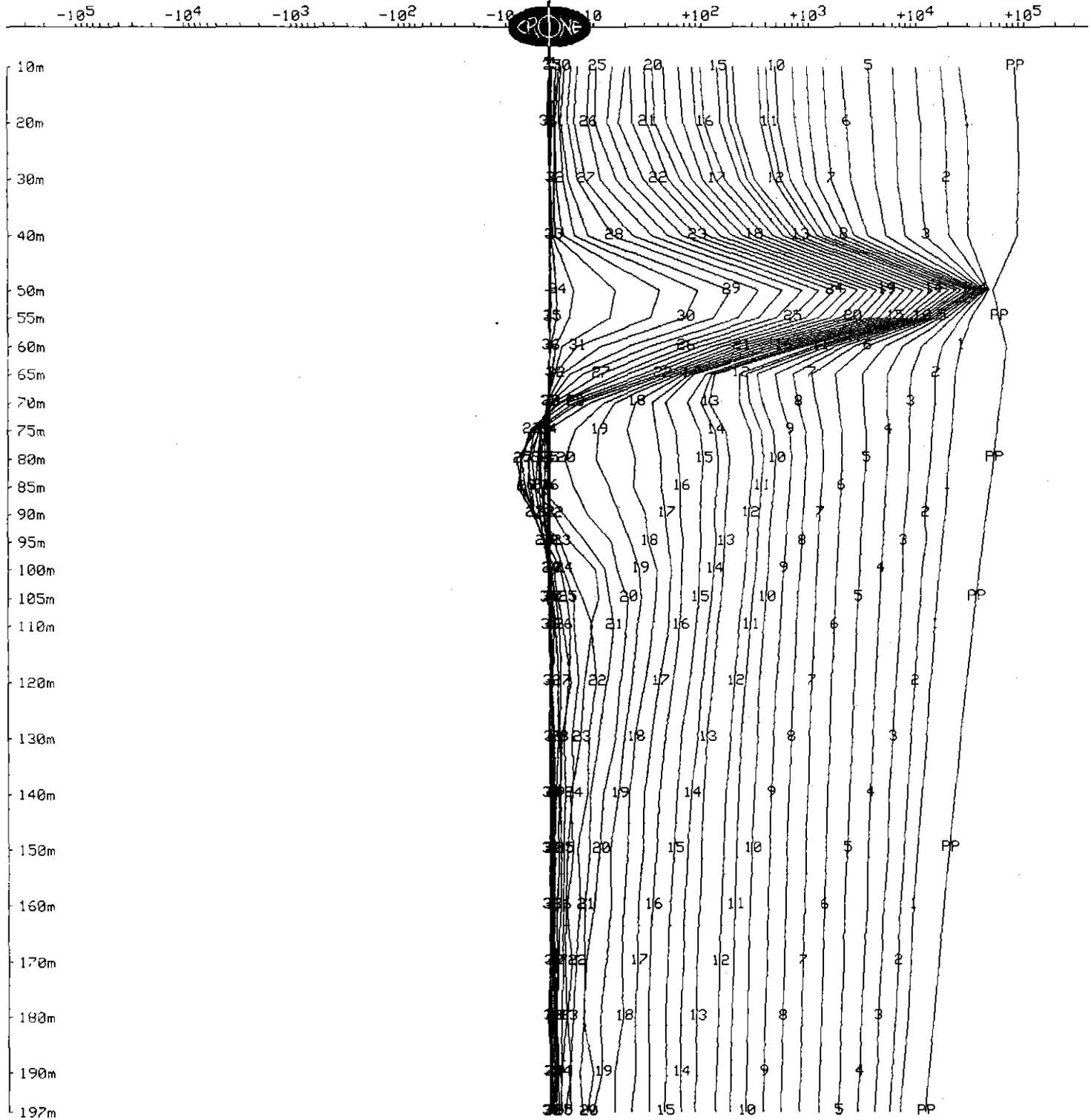
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Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



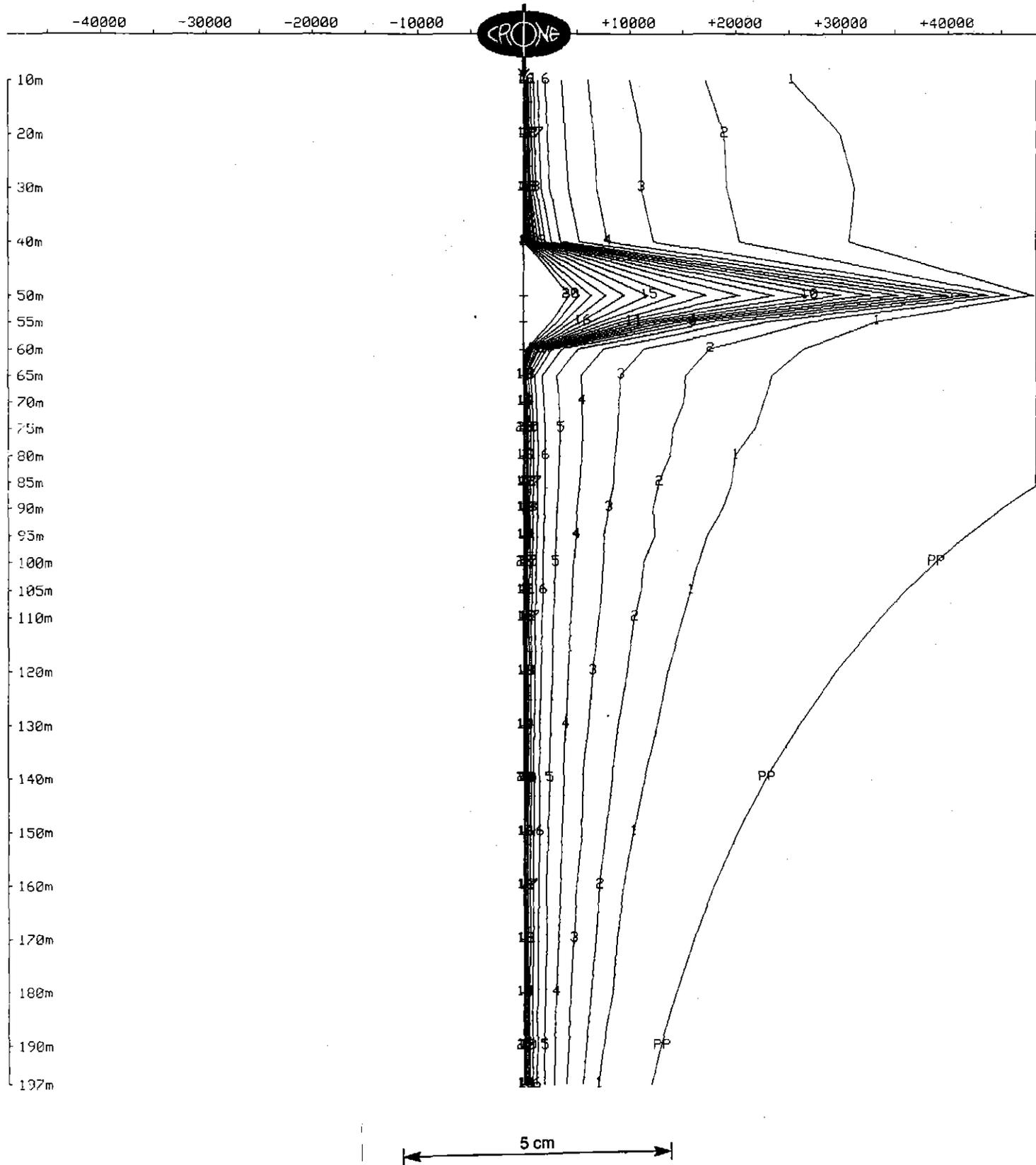
633130

OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 36 channels and PP
Scale: 1:1000 Unit Scale: 1cm = 5000 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

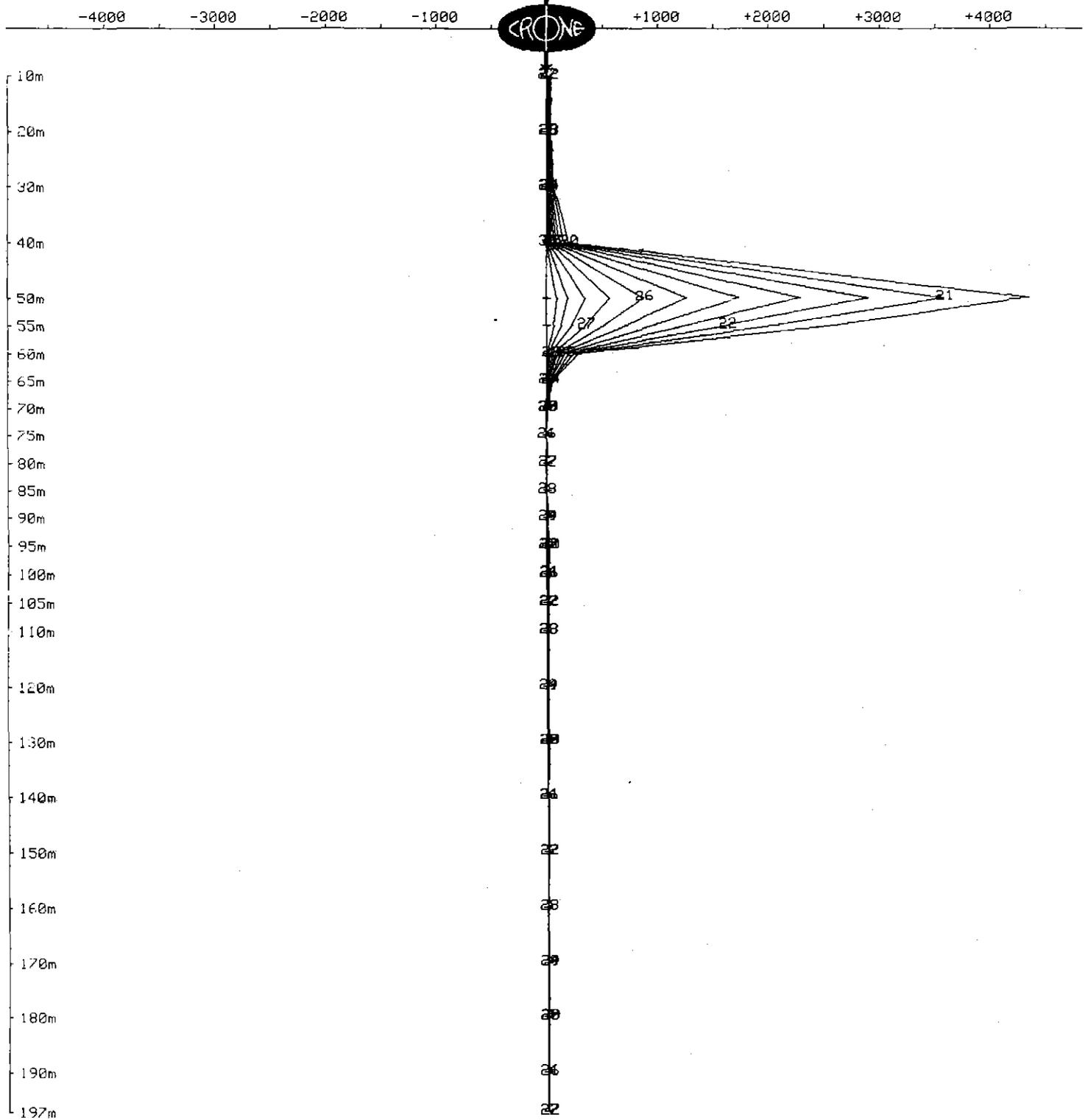
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Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 500 nT/s



5 cm

OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

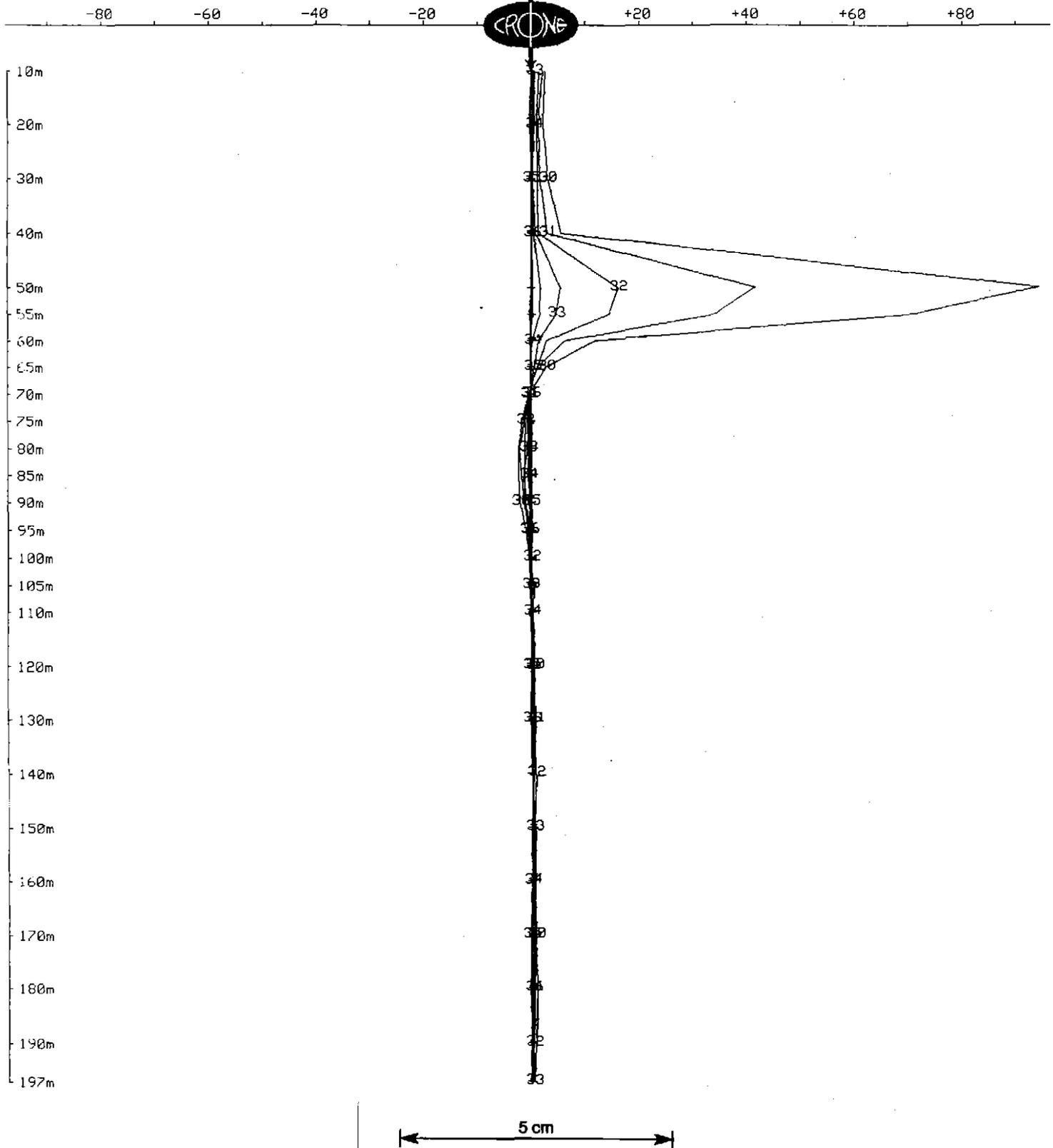
Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 10 nT/s



633139

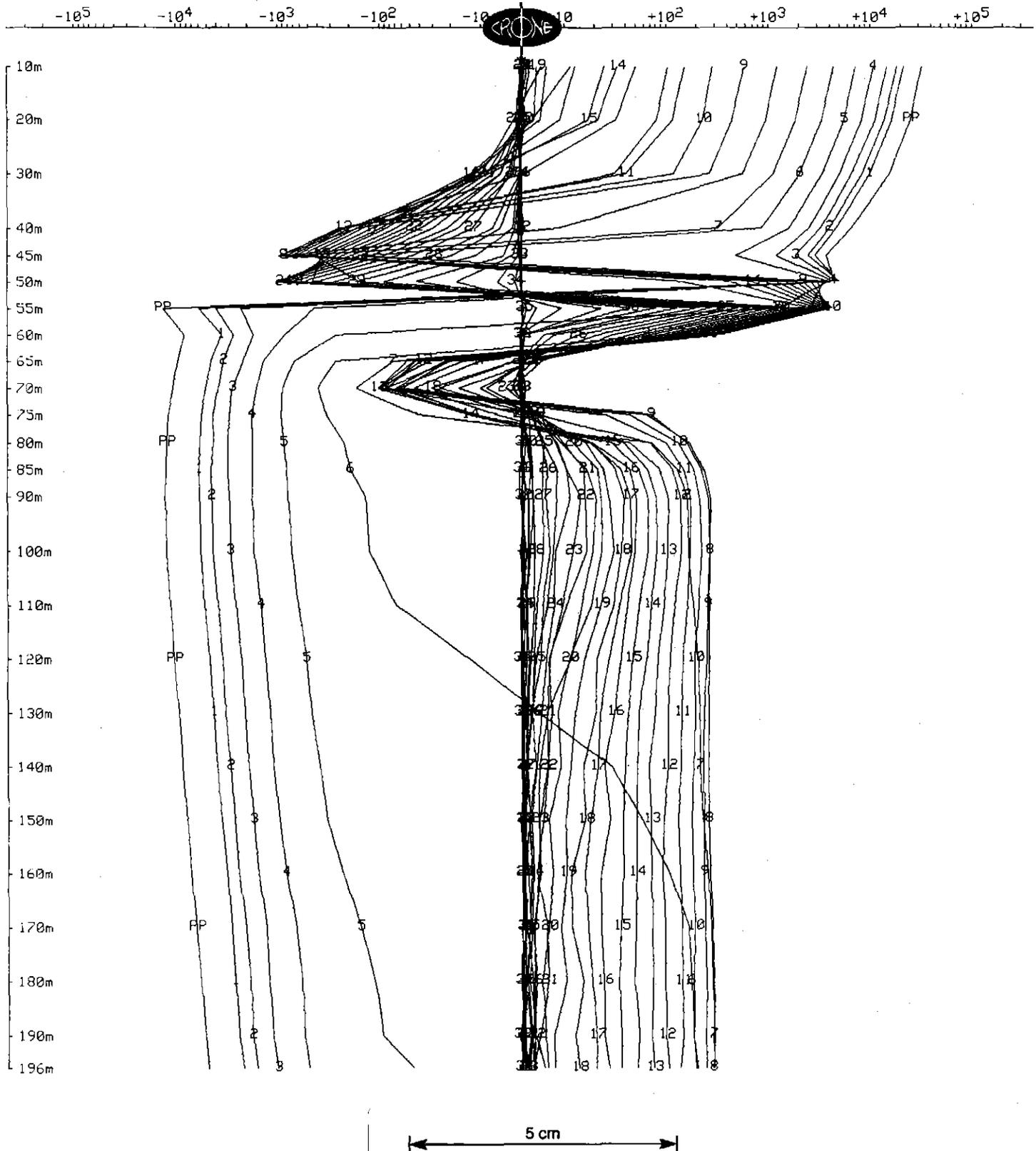
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

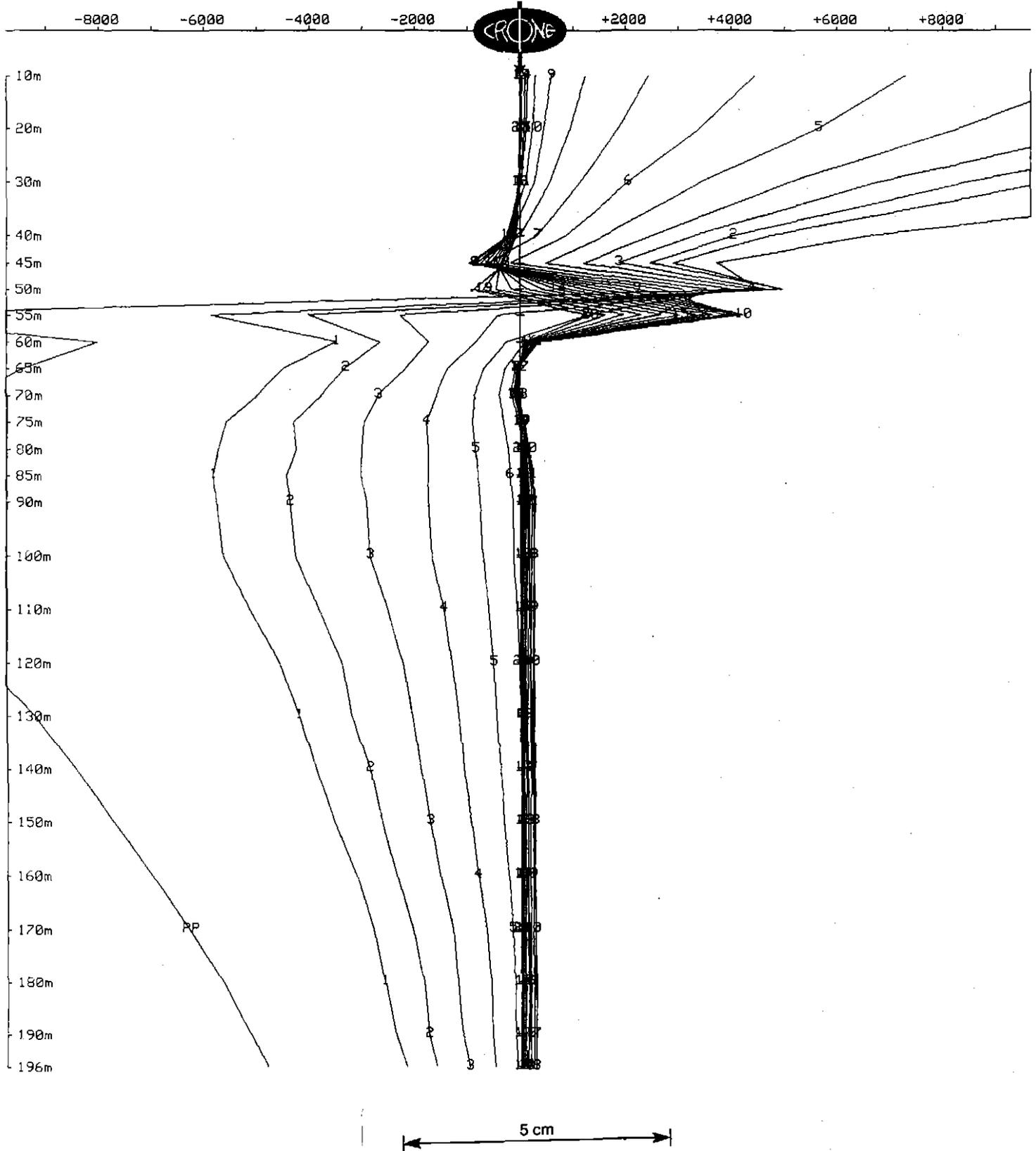
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 Grid : Melba Flats
 Date : Dec 15, 1999

Hole : MF-11
 Tx Loop : #2
 File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
 X COMPONENT dBx/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 1000 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

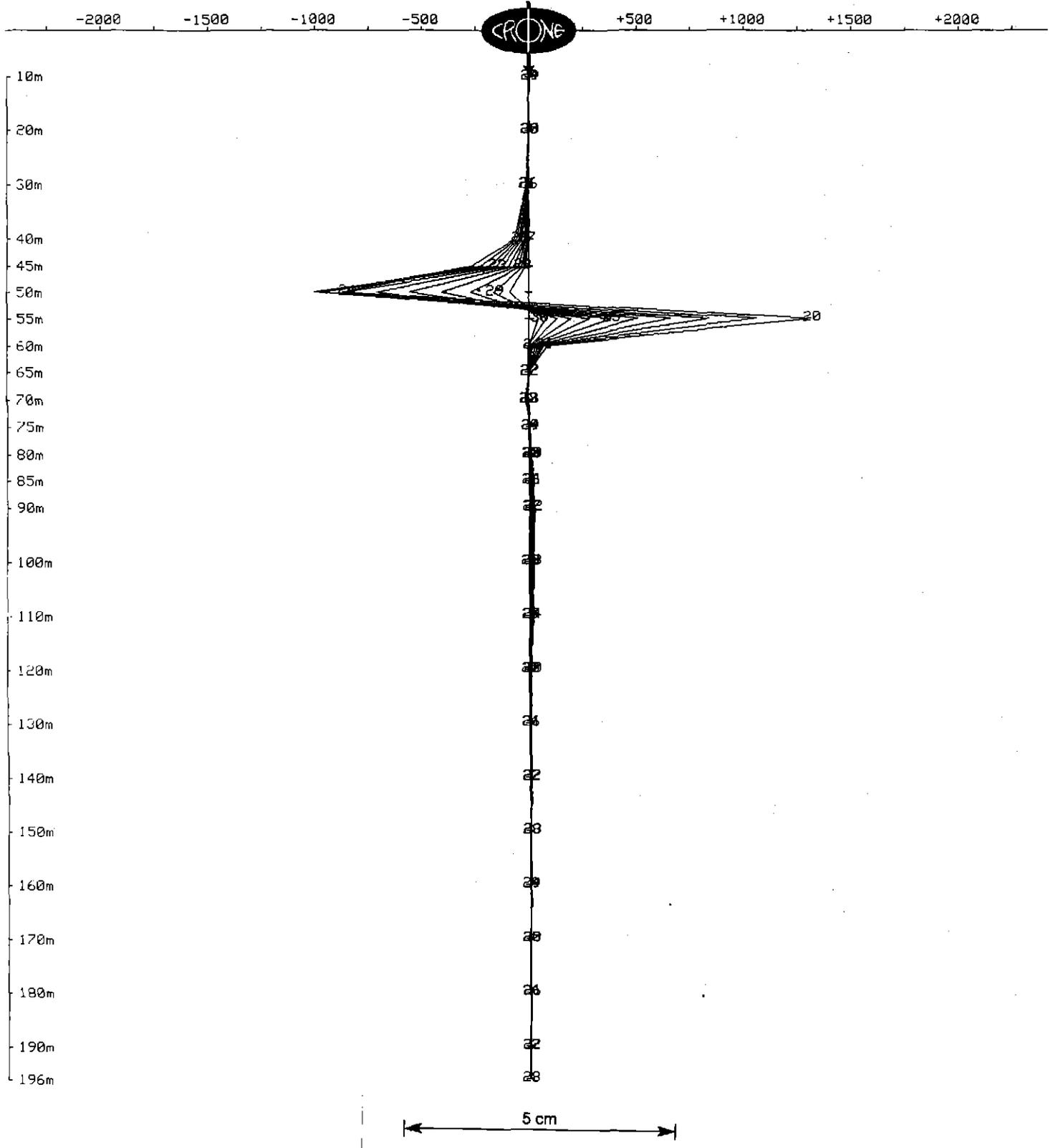
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Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 250 nT/s



600117

OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

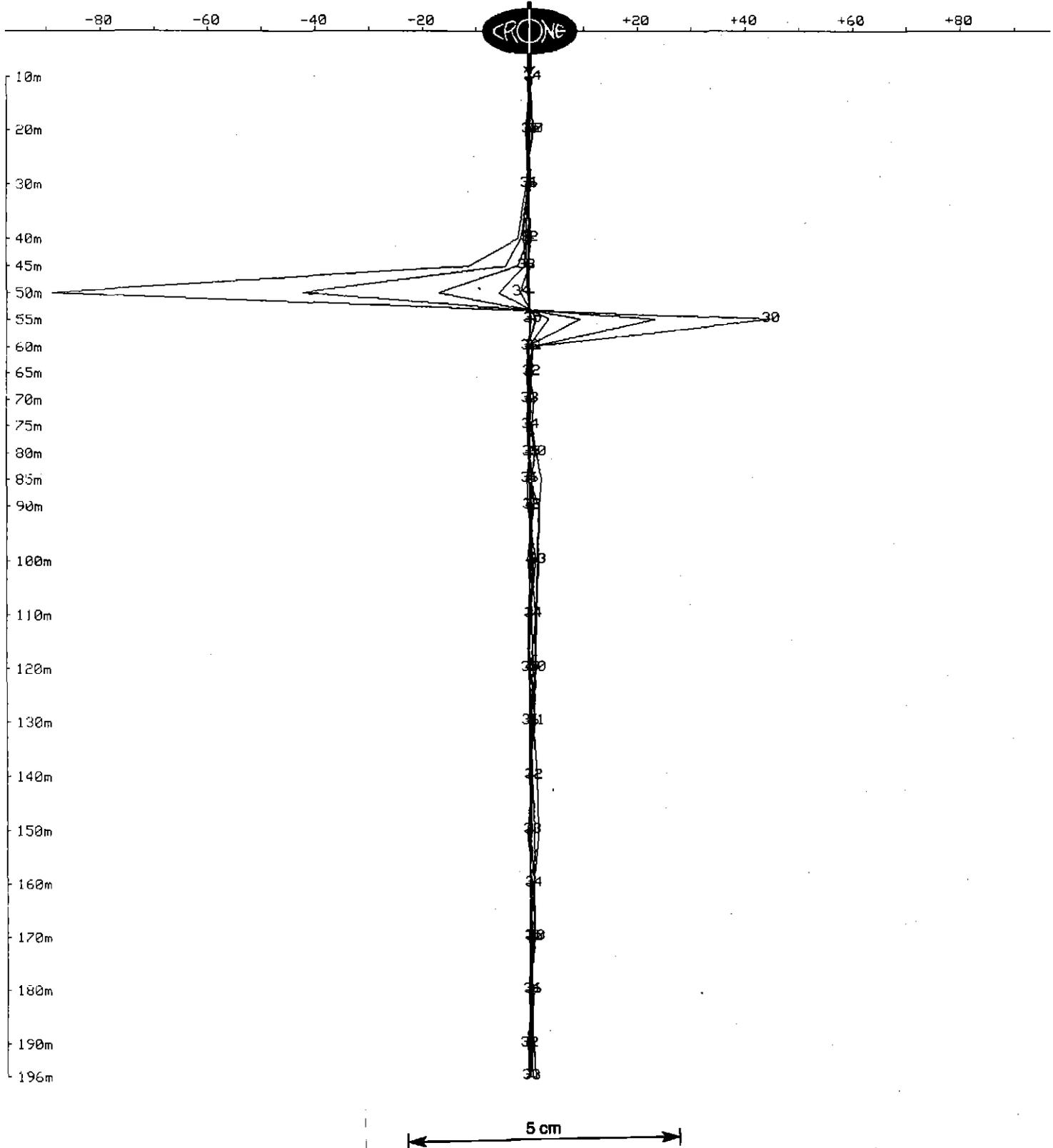
Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 10 nT/s



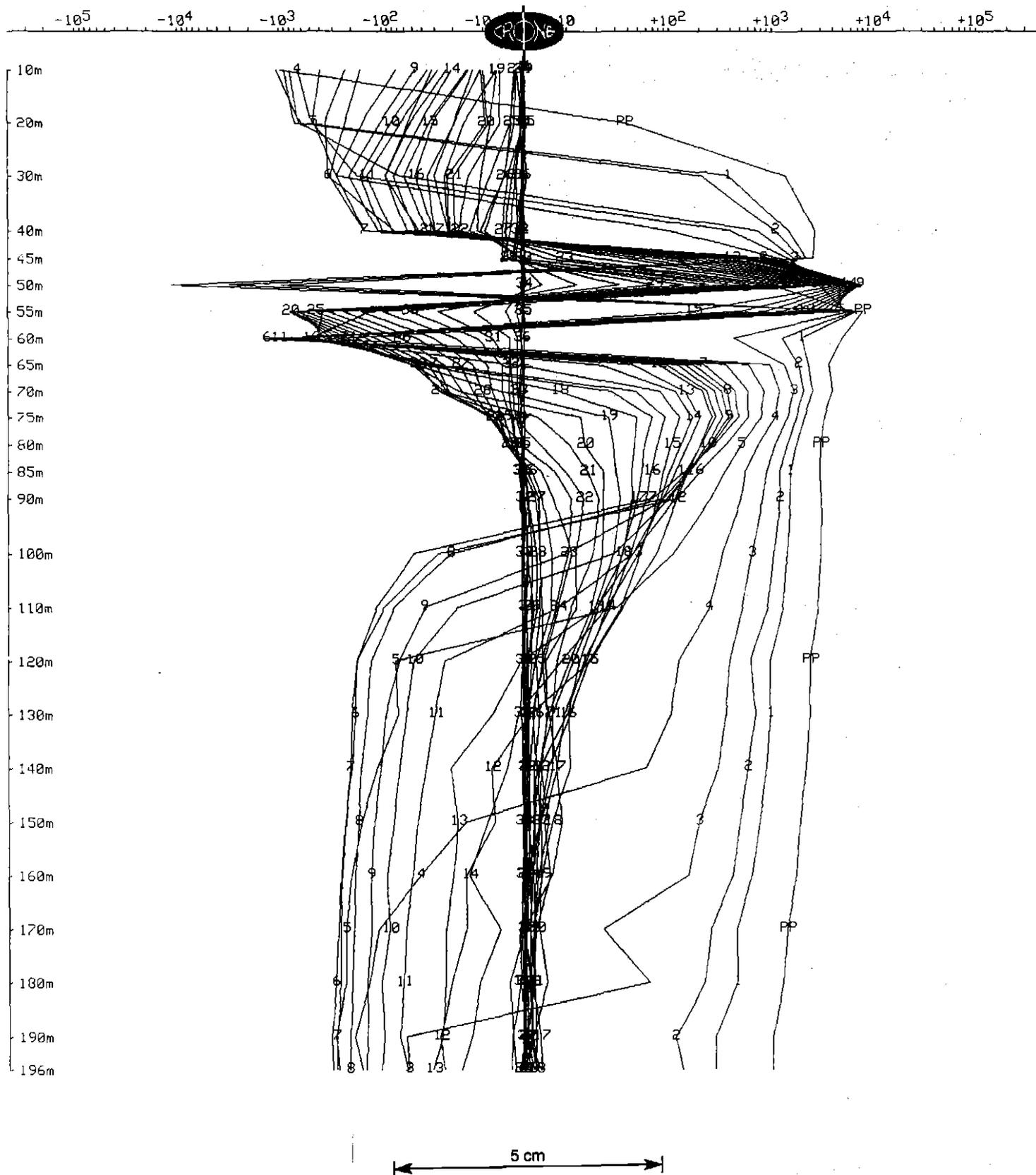
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



633144

OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

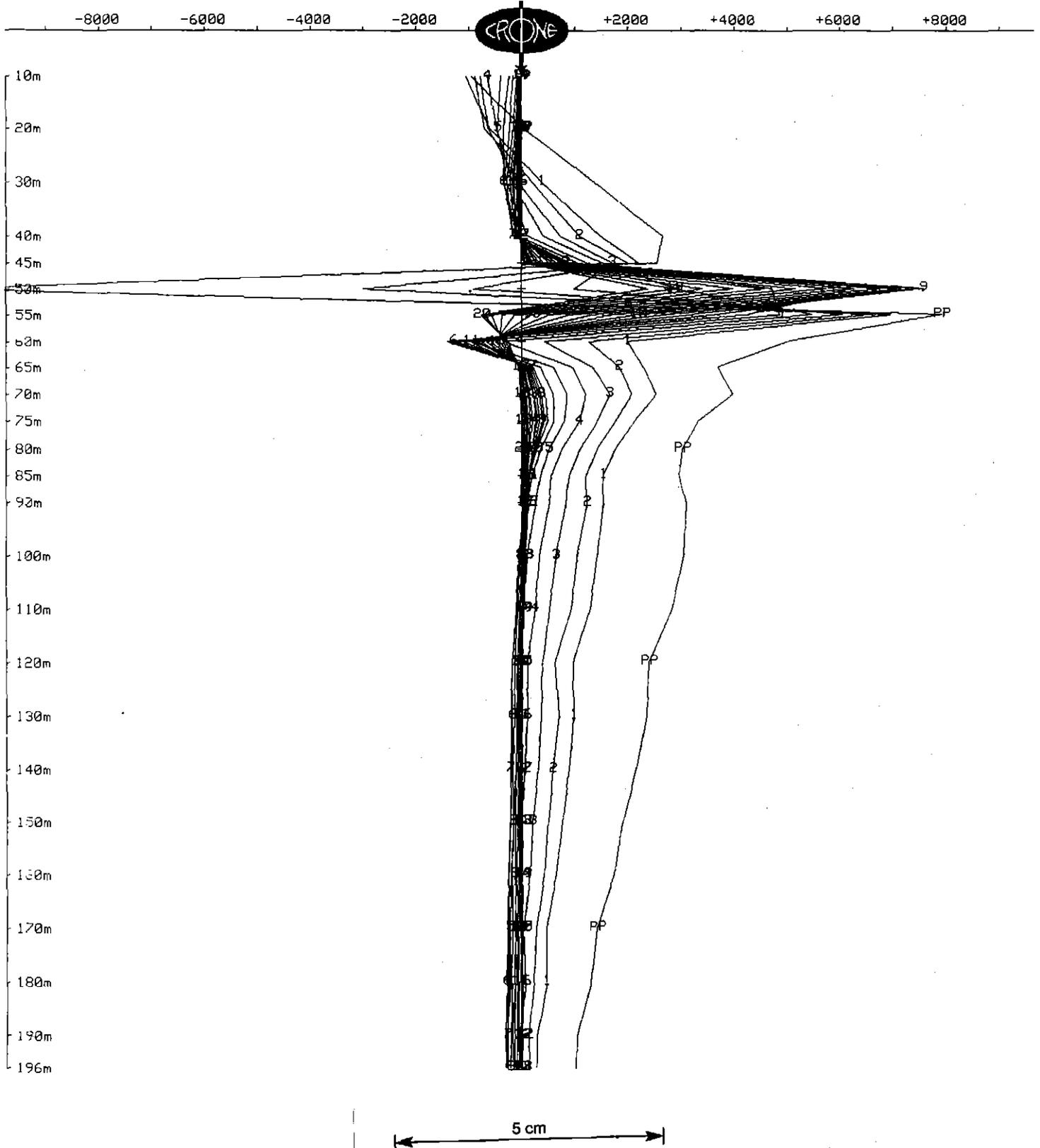
Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 1000 nT/s



633143

OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

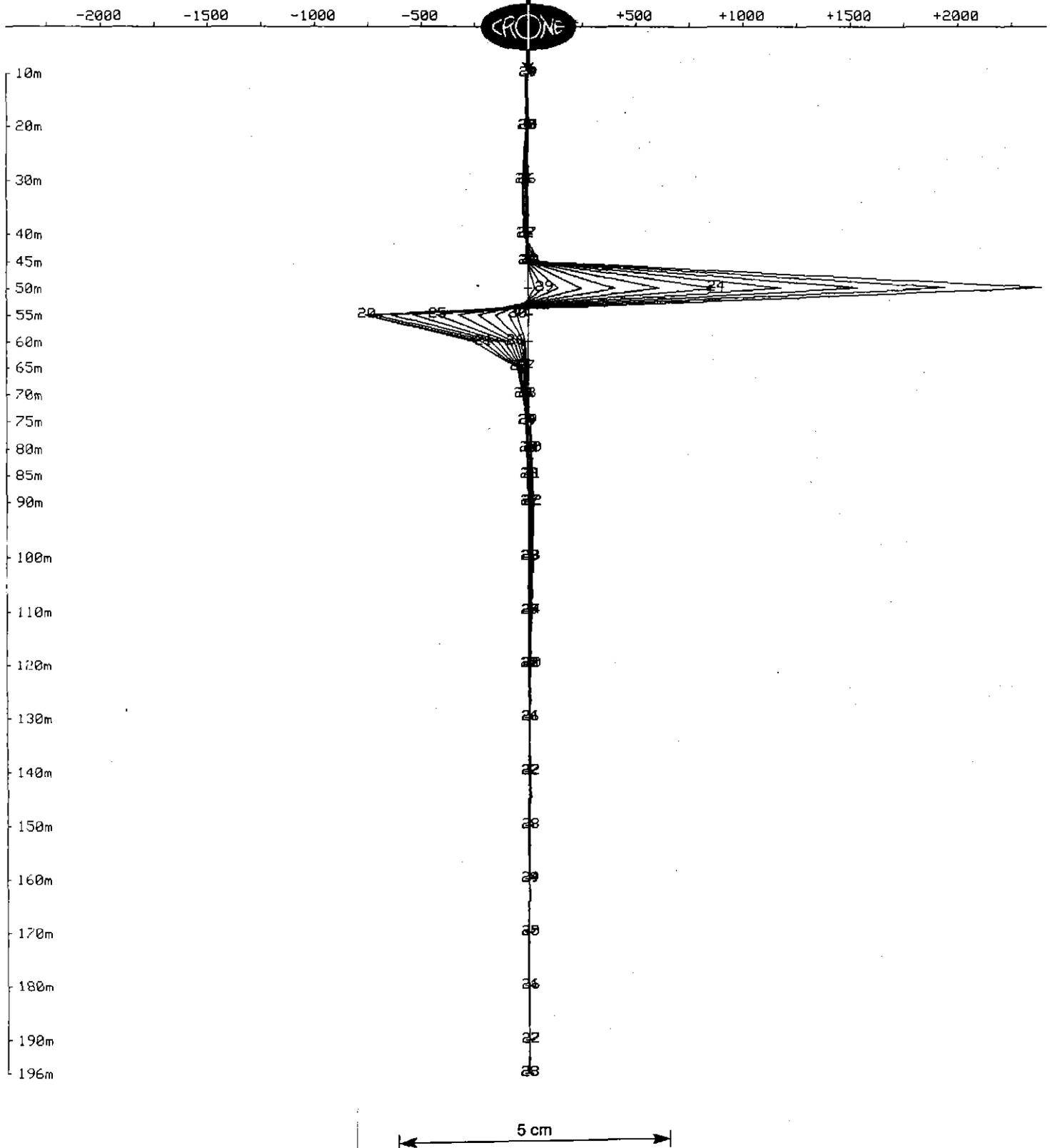
Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 250 nT/s



633140

OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

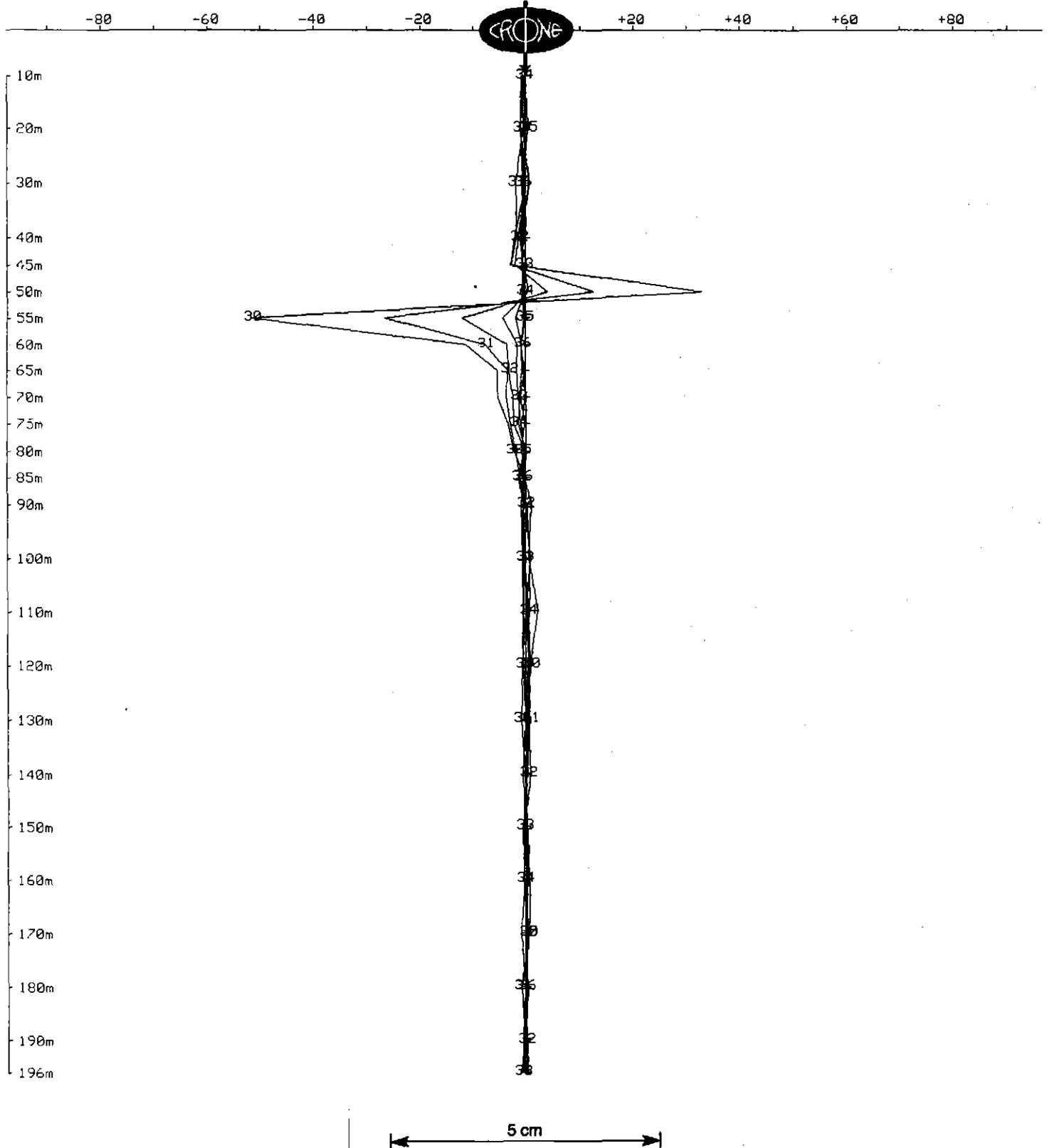
Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 10 nT/s



633147

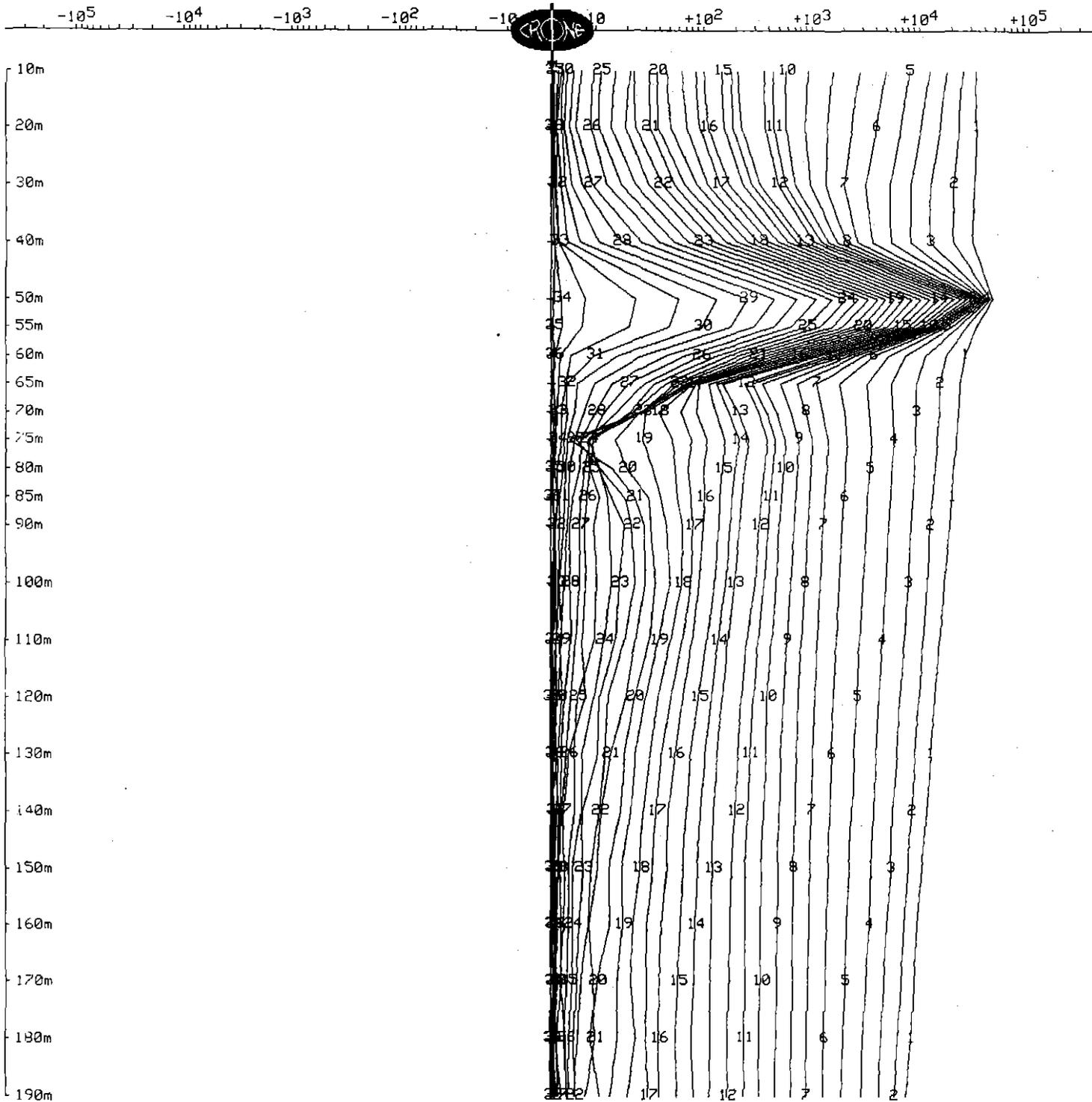
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-11
Tx Loop : #2
File name : MF11XYZ2.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 36 of 36 channels

Scale: 1:1000



633140

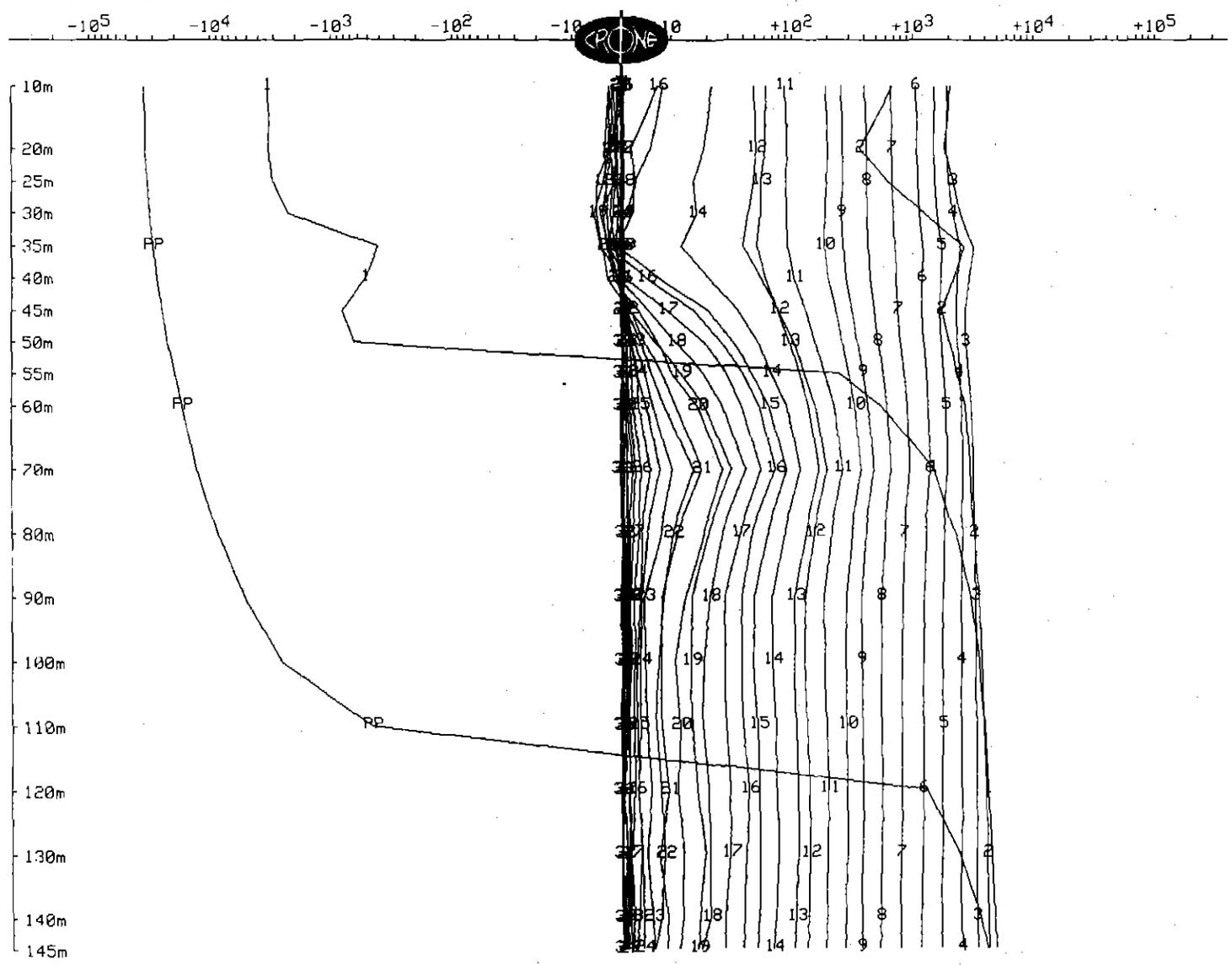
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Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



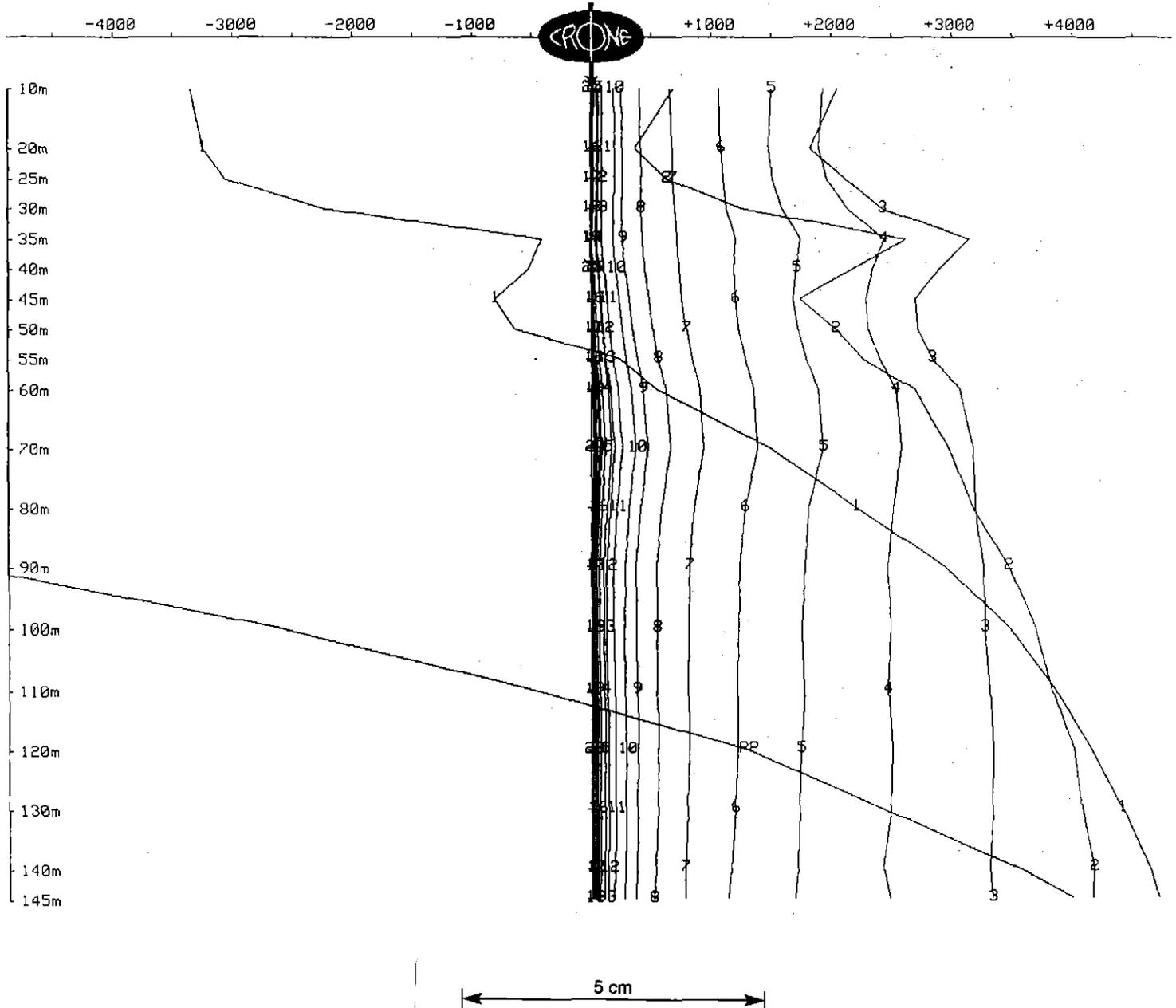
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Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 36 channels and PP
Scale: 1:1000 Unit Scale: 1cm = 500 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

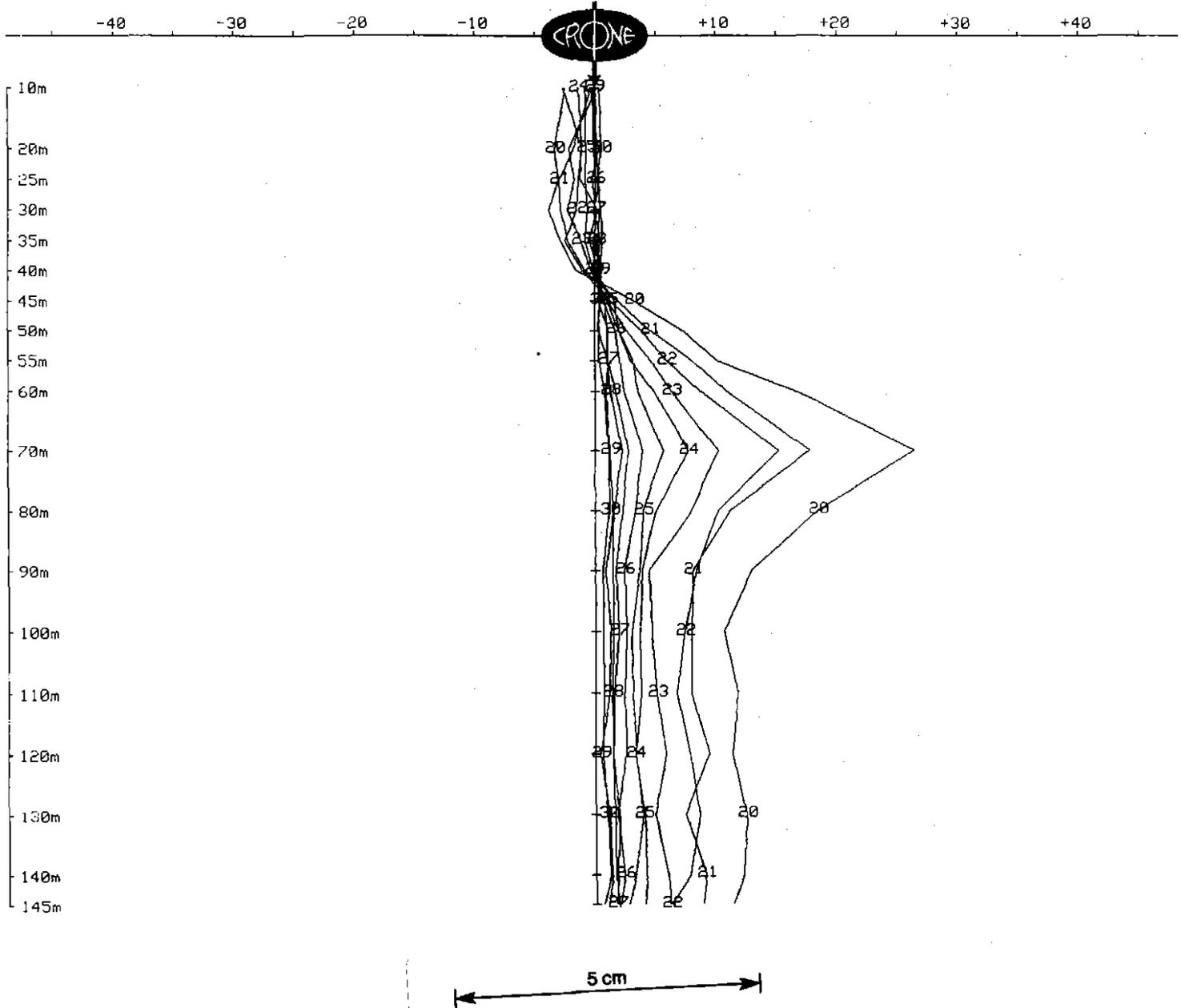
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Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 5 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

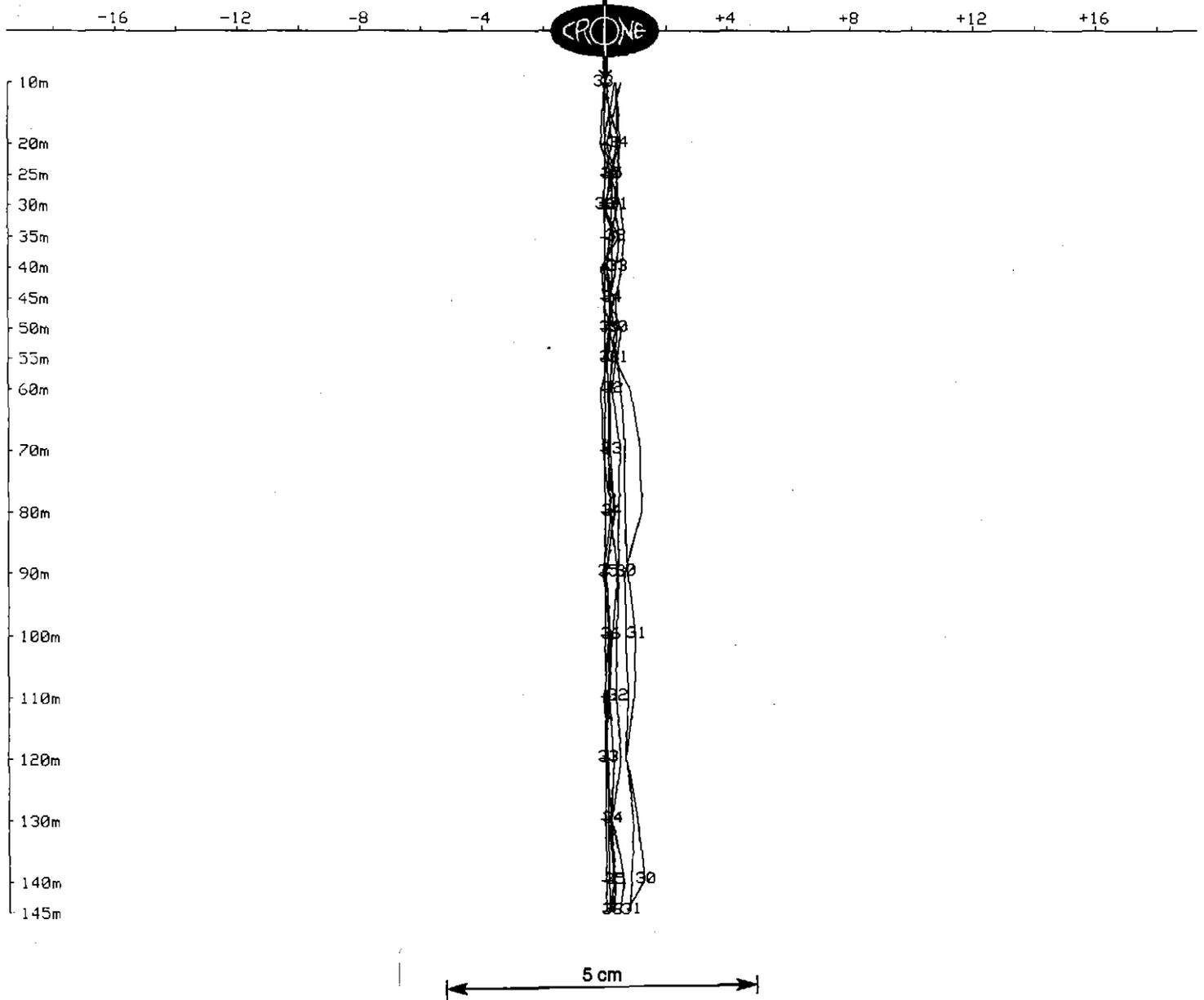
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Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 2 nT/s



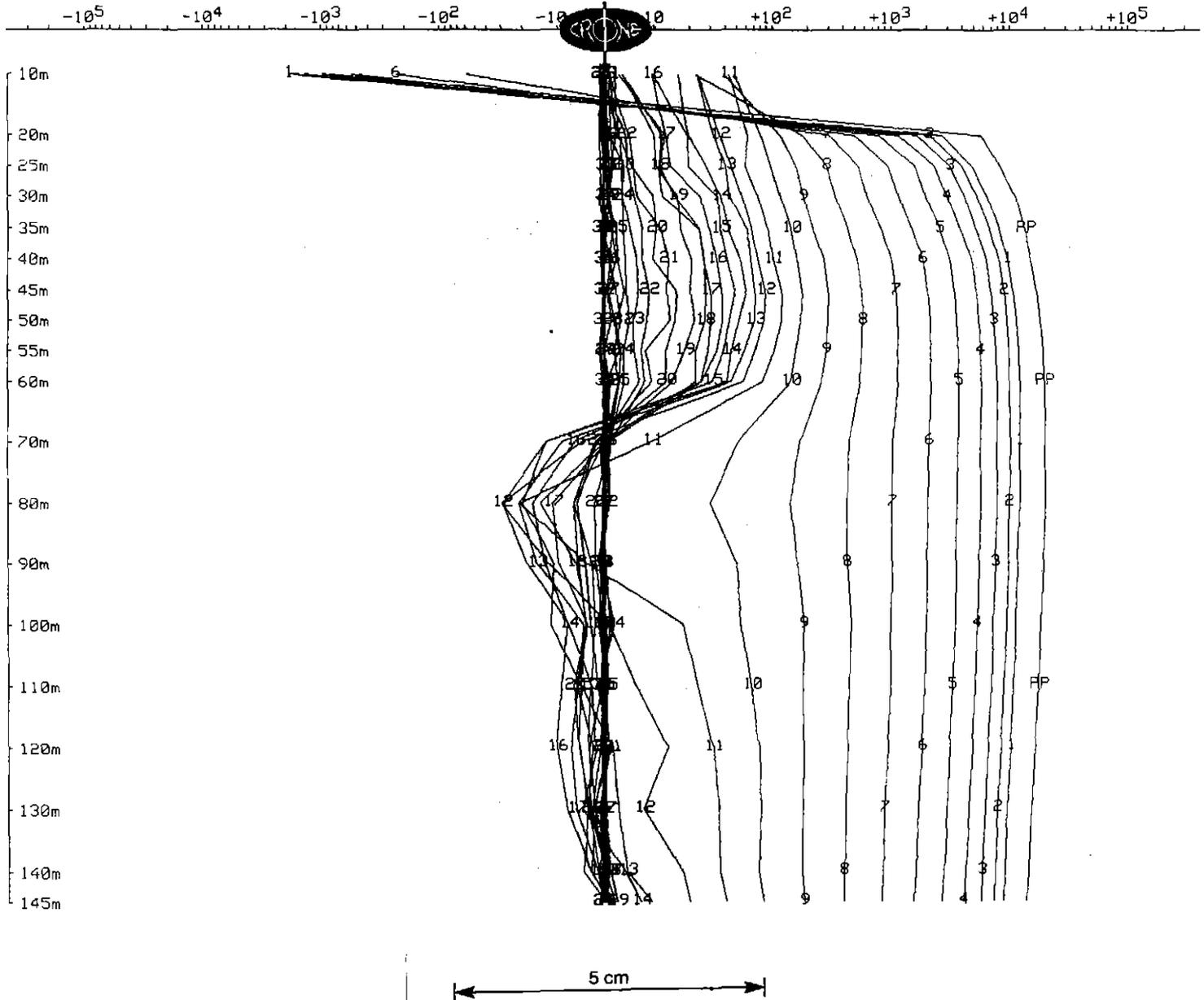
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

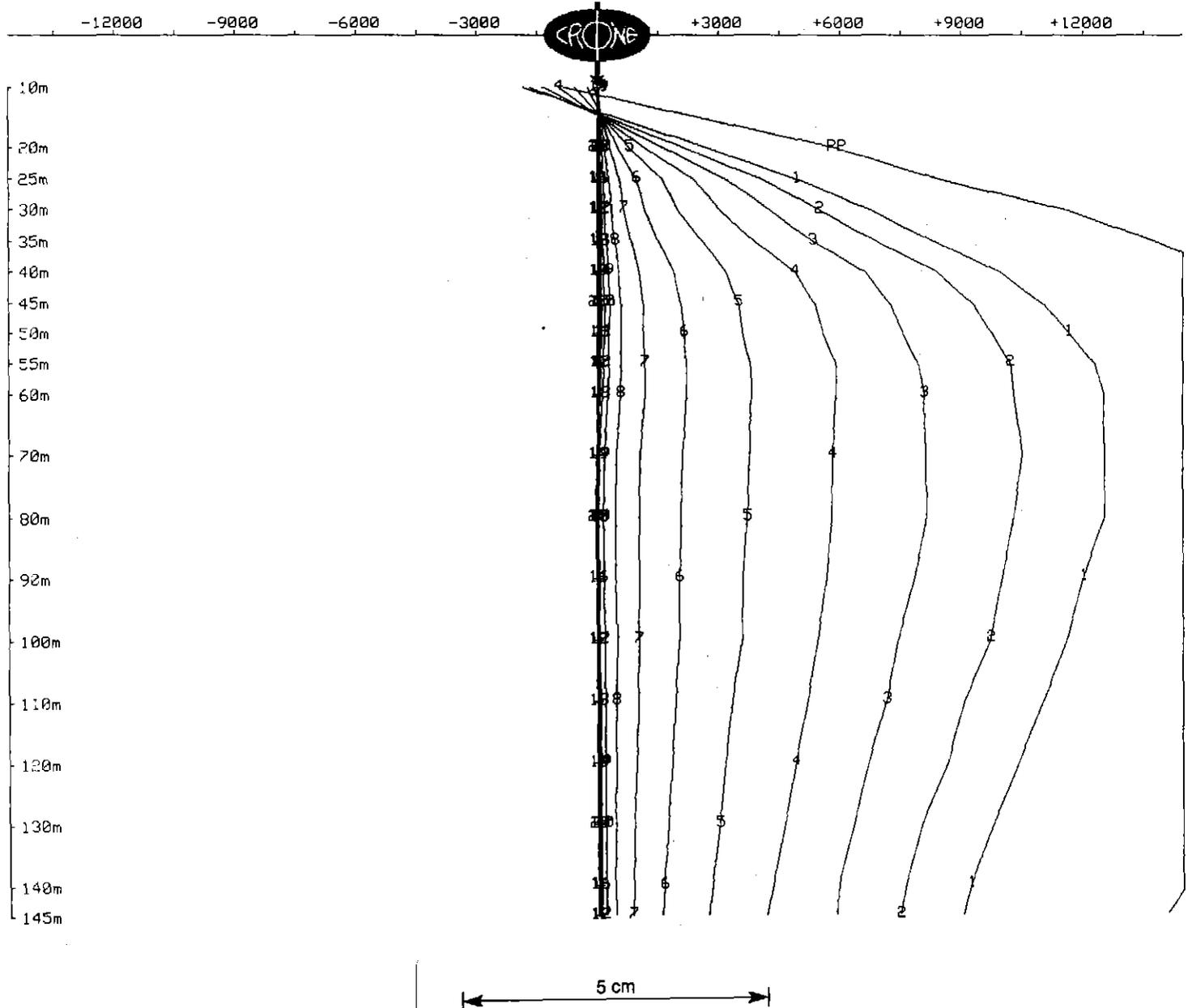
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Hole : MF-12
Tx Loop : #1
File name : MF12XY1.PEM

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X COMPONENT dBx/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 1500 nT/s



OUTER-RIM EXPLORATION SERVICES

Borehole Pulse EM Survey

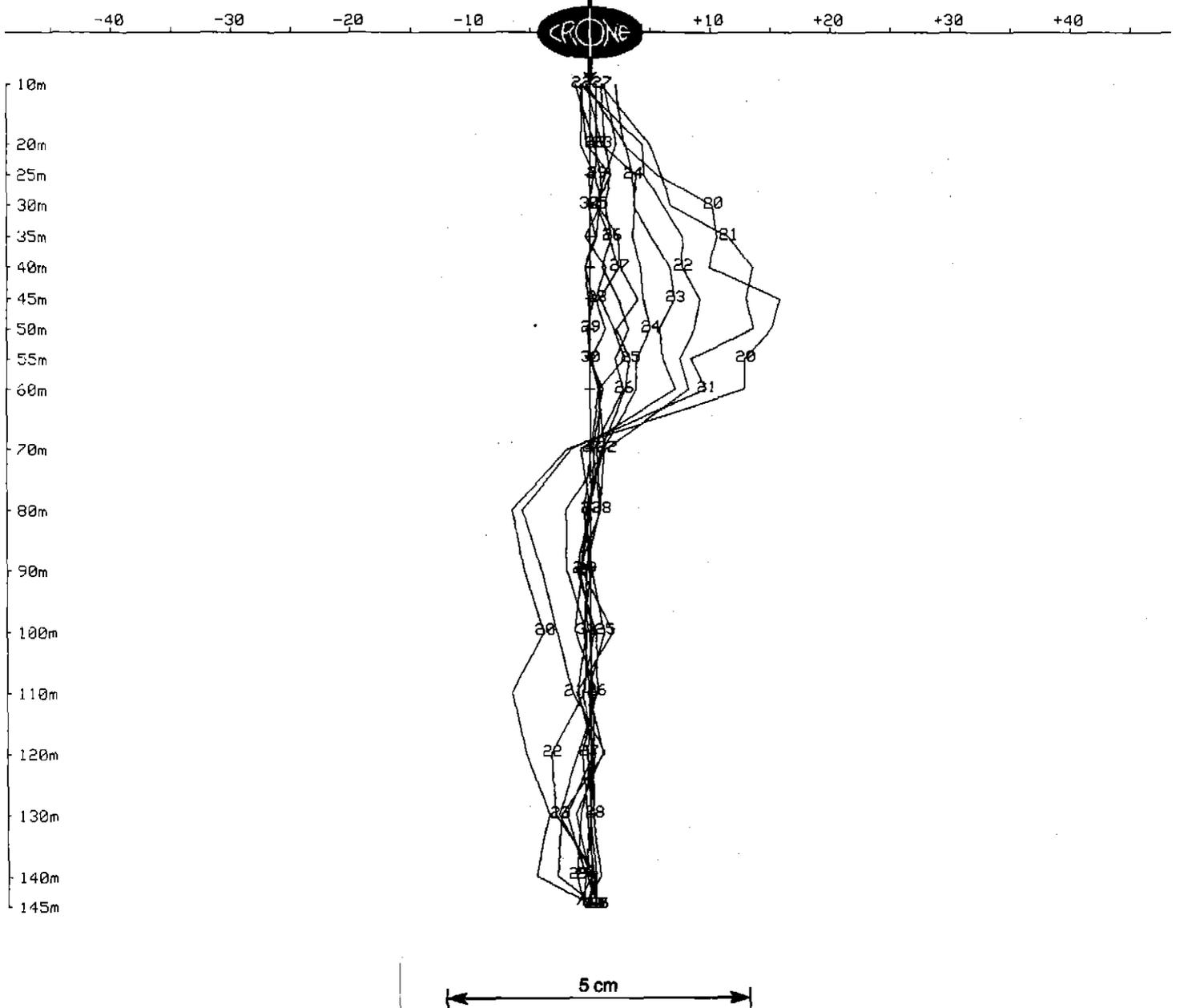
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Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 5 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

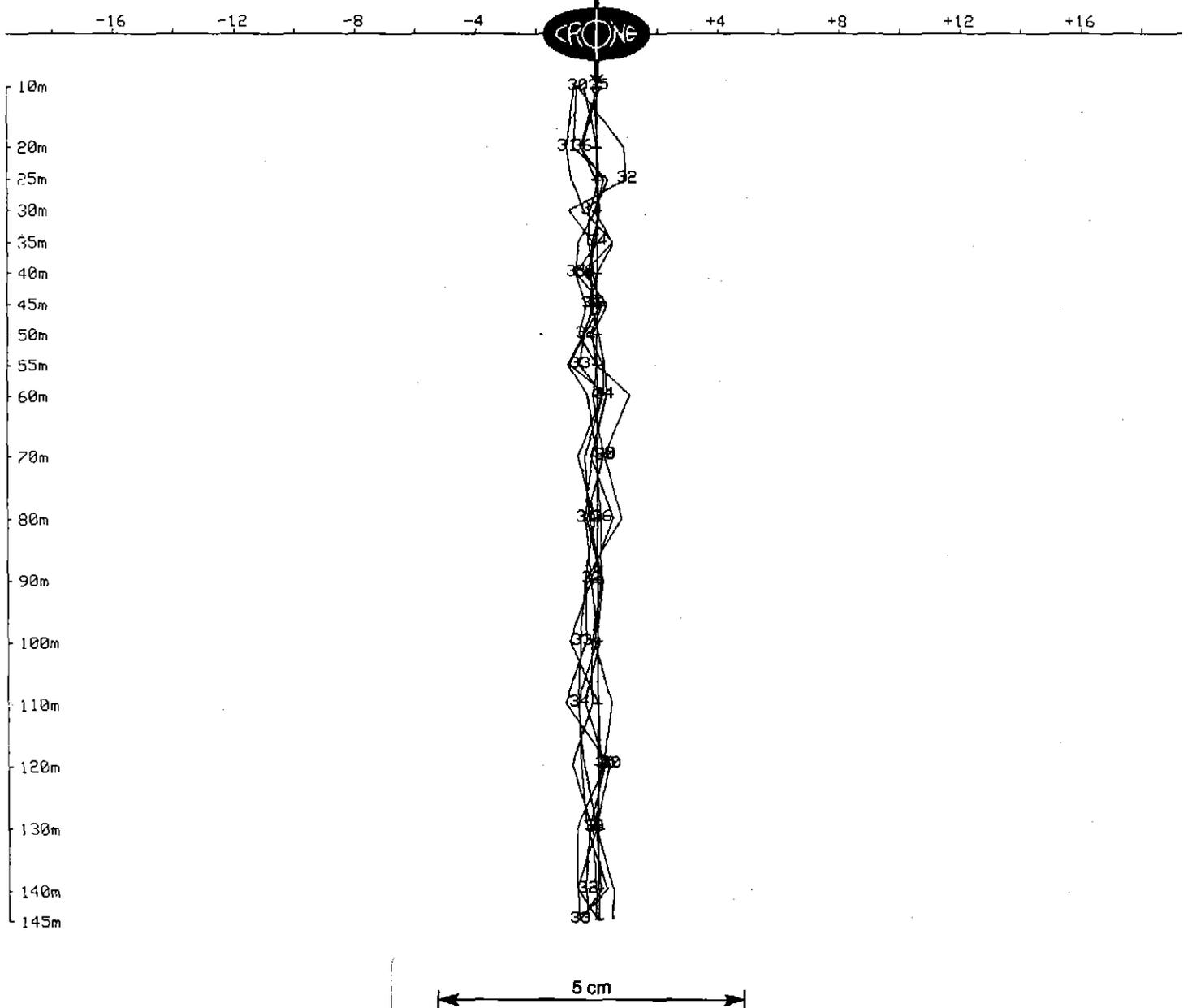
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File name : MF12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8

X COMPONENT dBx/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 2 nT/s



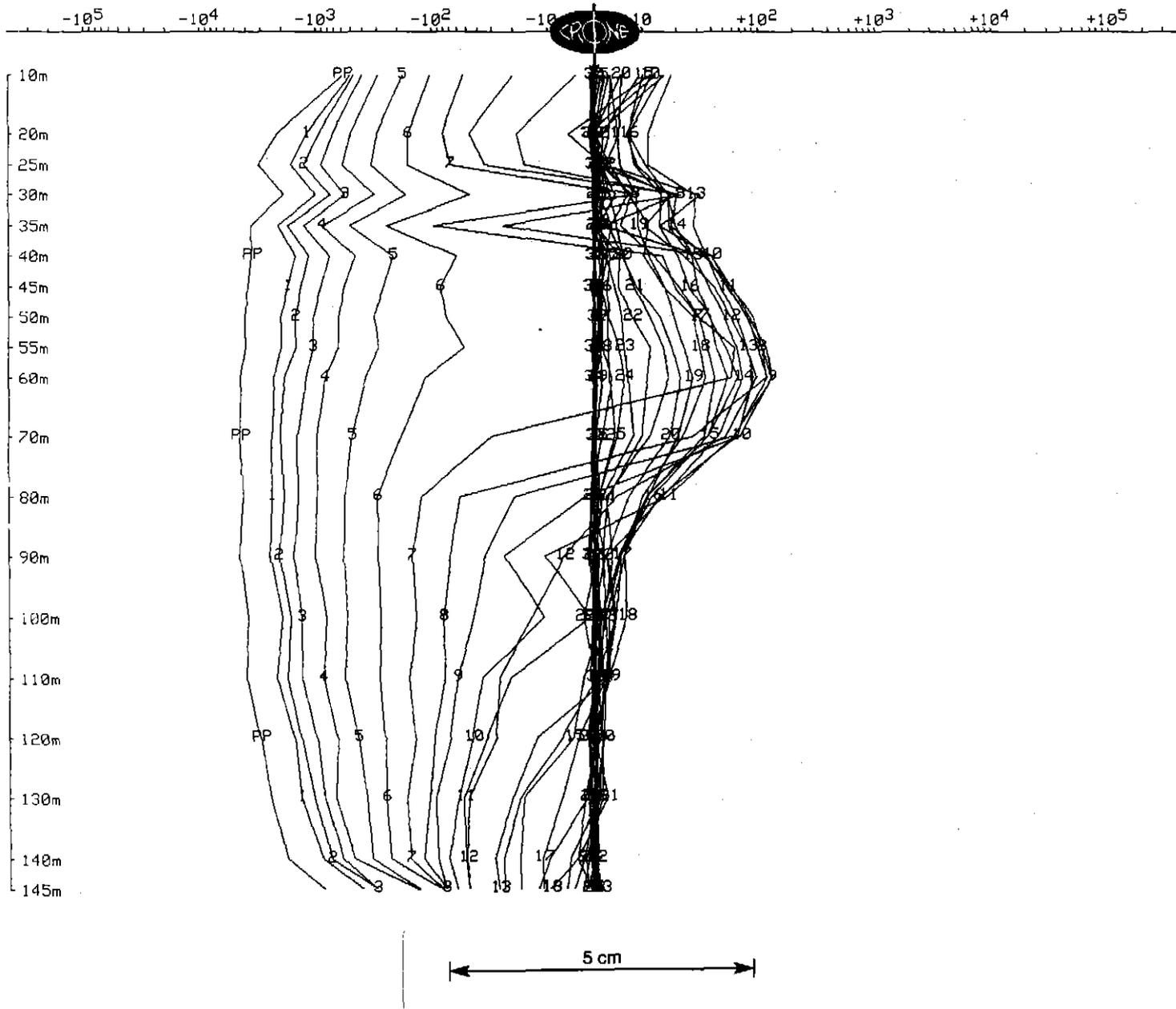
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Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

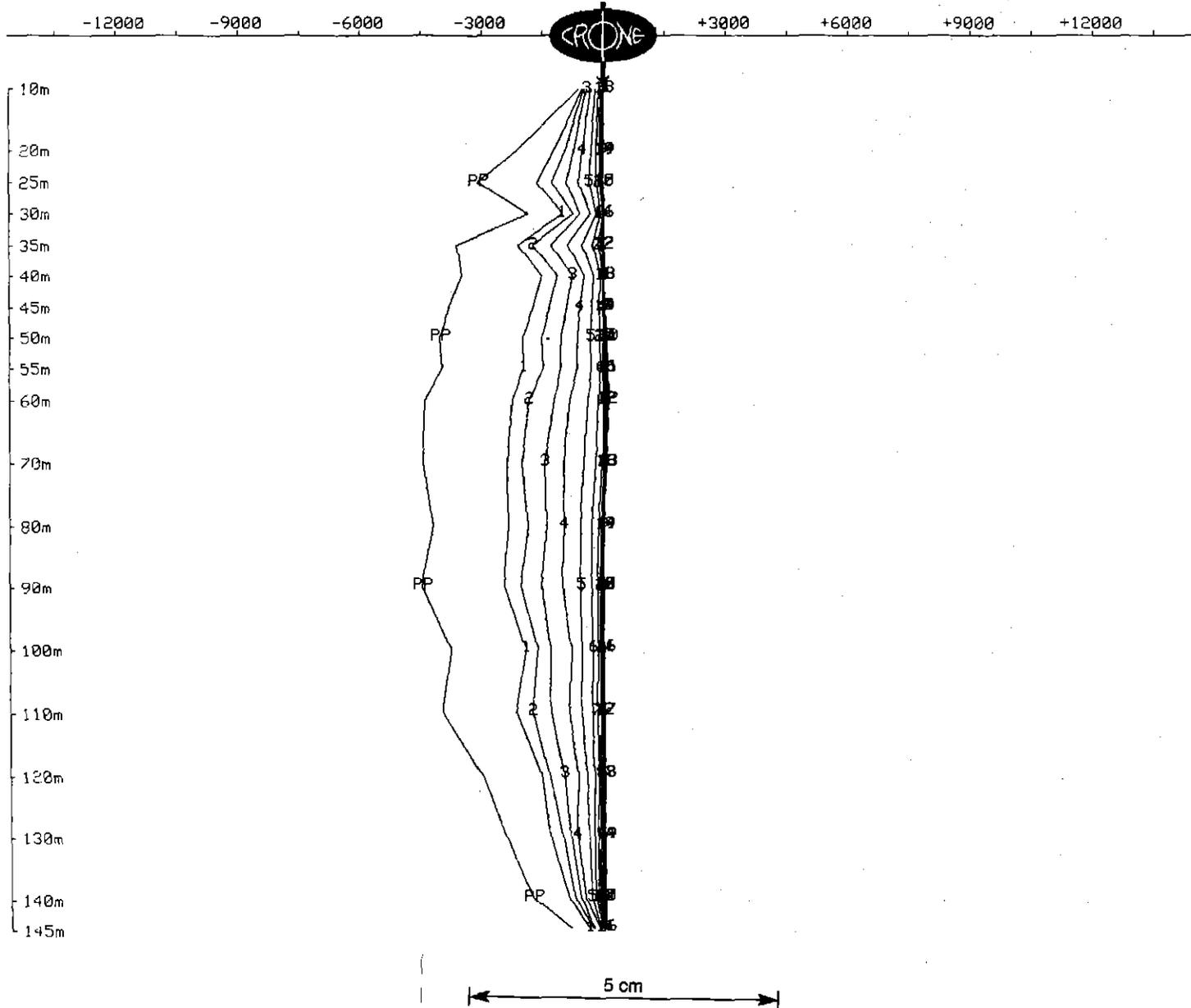
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 Grid : Melba Flats
 Date : Dec 14, 1999

Hole : MF-12
 Tx Loop : #1
 File name : MF12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
 Y COMPONENT dBy/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 1500 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

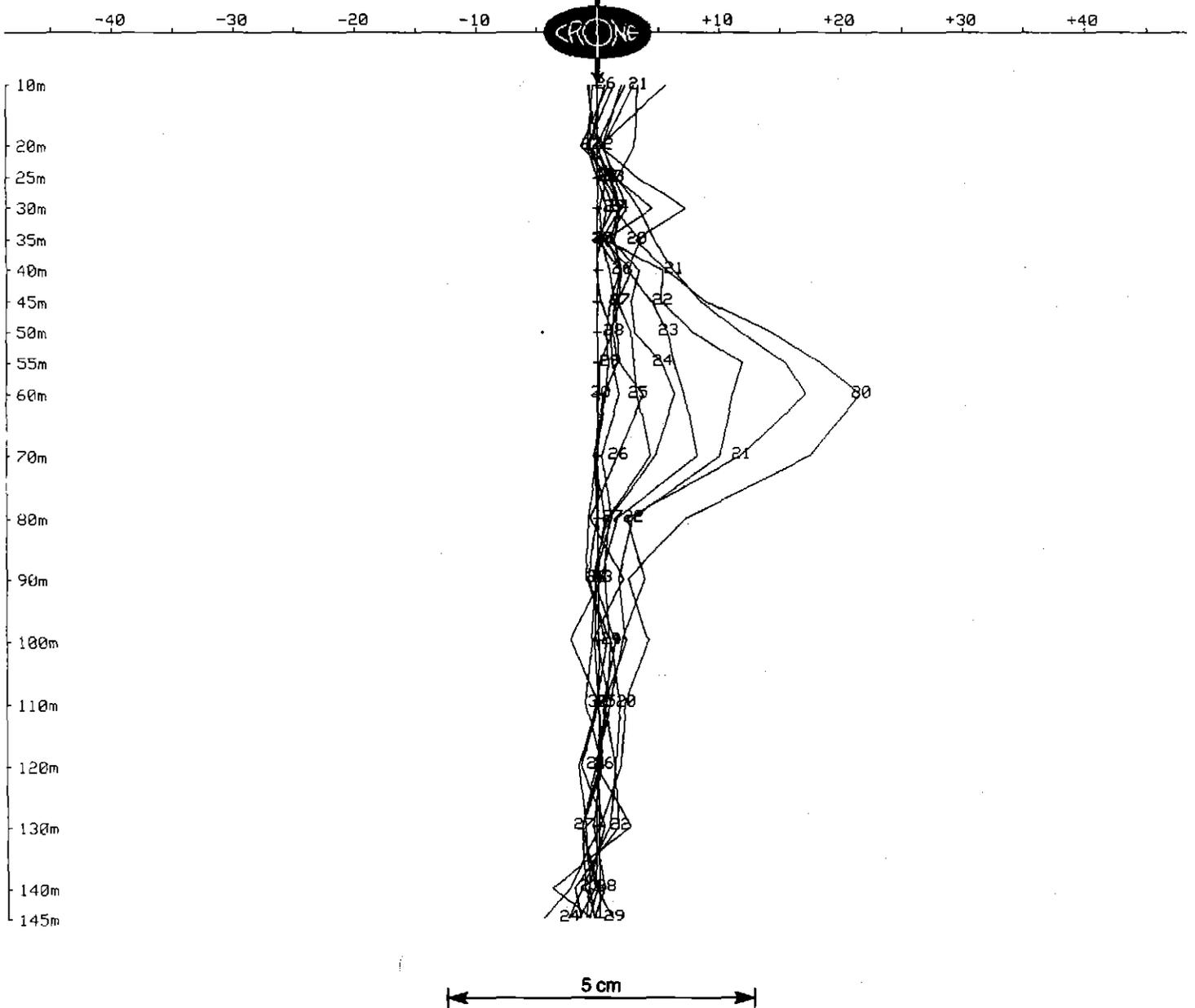
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Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 5 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

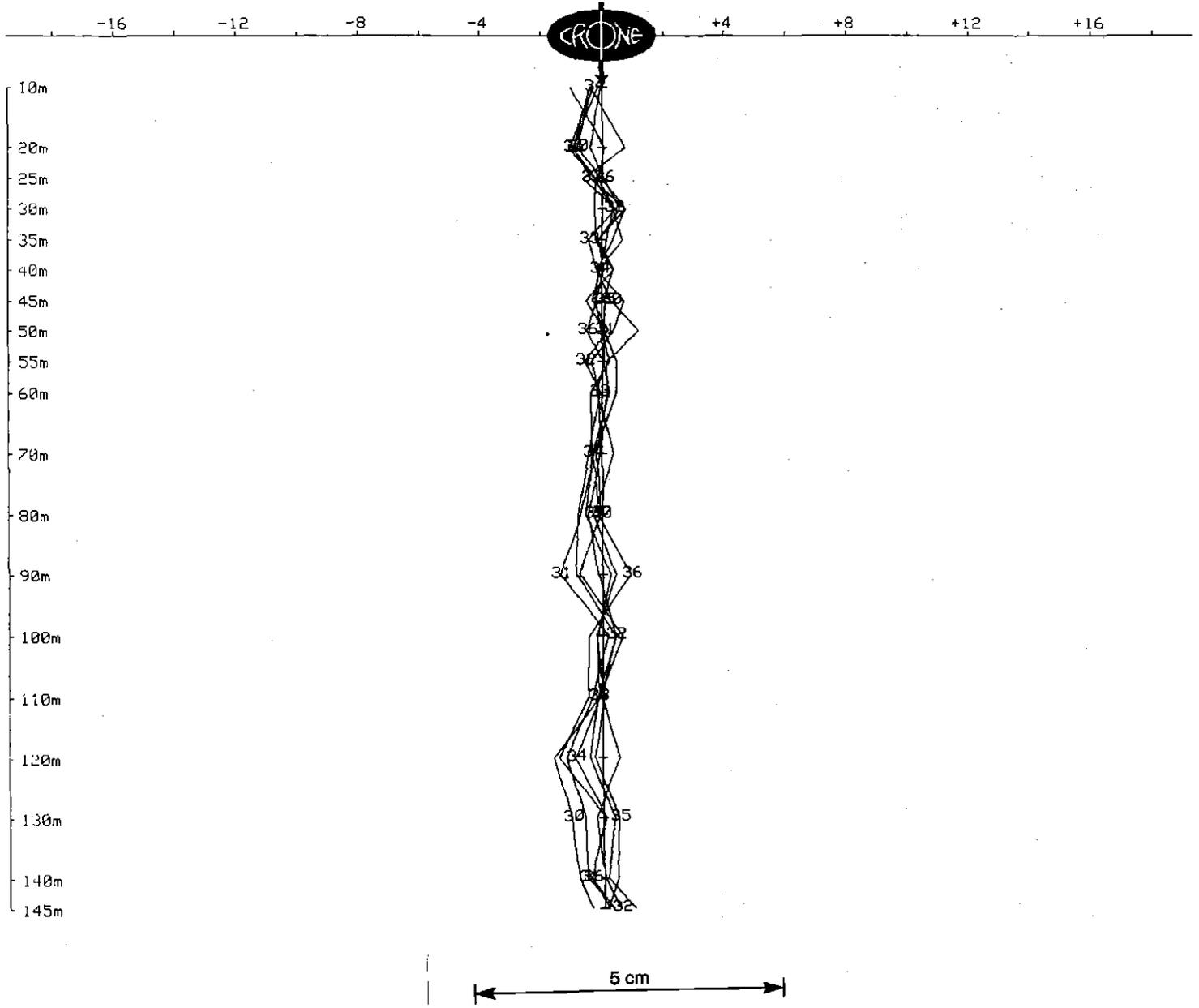
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Grid : Melba Flats
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Hole : MF-12
Tx Loop : #1
File name : MF12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 2 nT/s



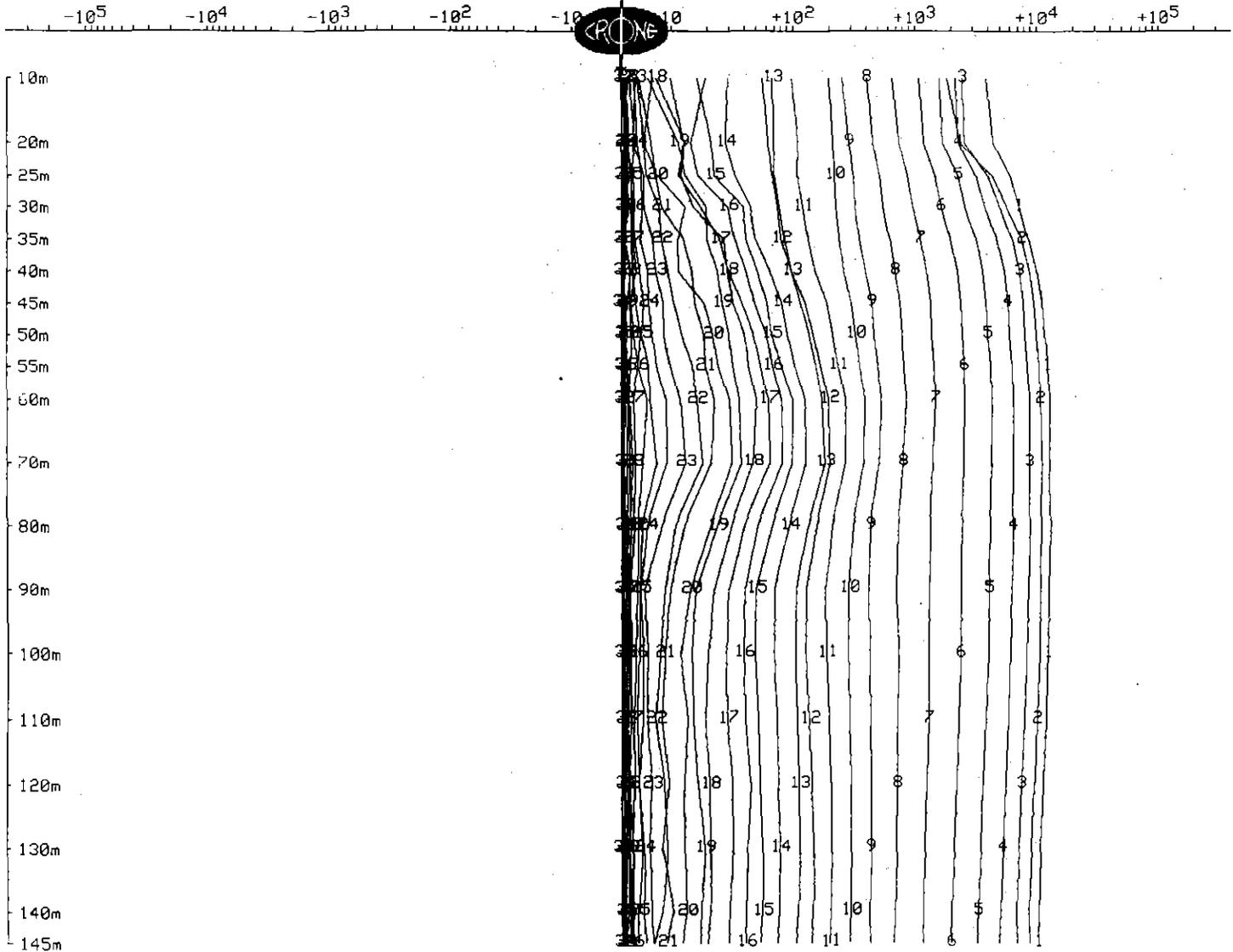
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 14, 1999

Hole : MF-12
Tx Loop : #1
File name : MF12XYZ1.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 36 of 36 channels

Scale: 1:1000



5 cm

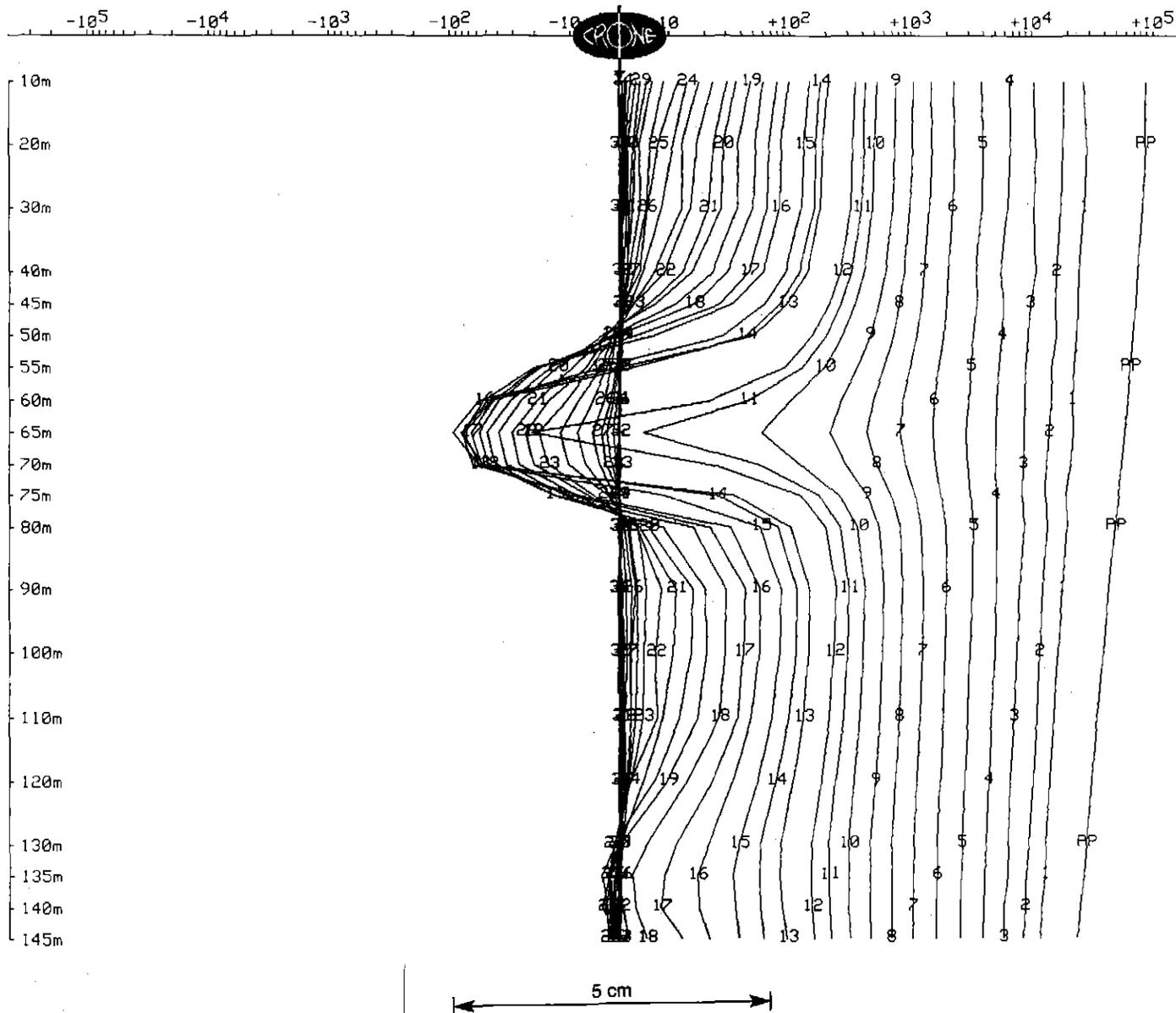
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Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000

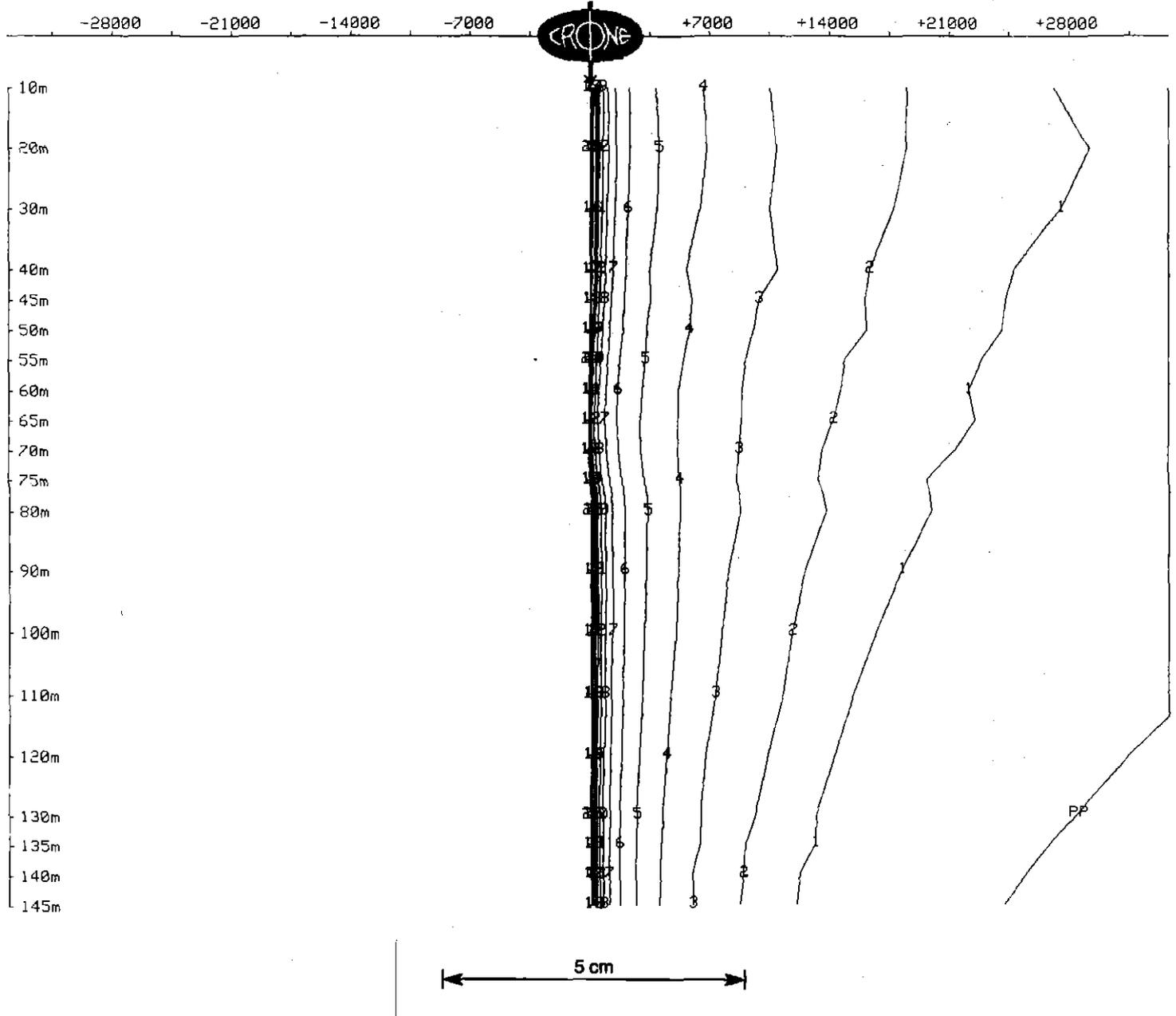


OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 of 36 channels and PP
Scale: 1:1000 Unit Scale: 1cm = 3500 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

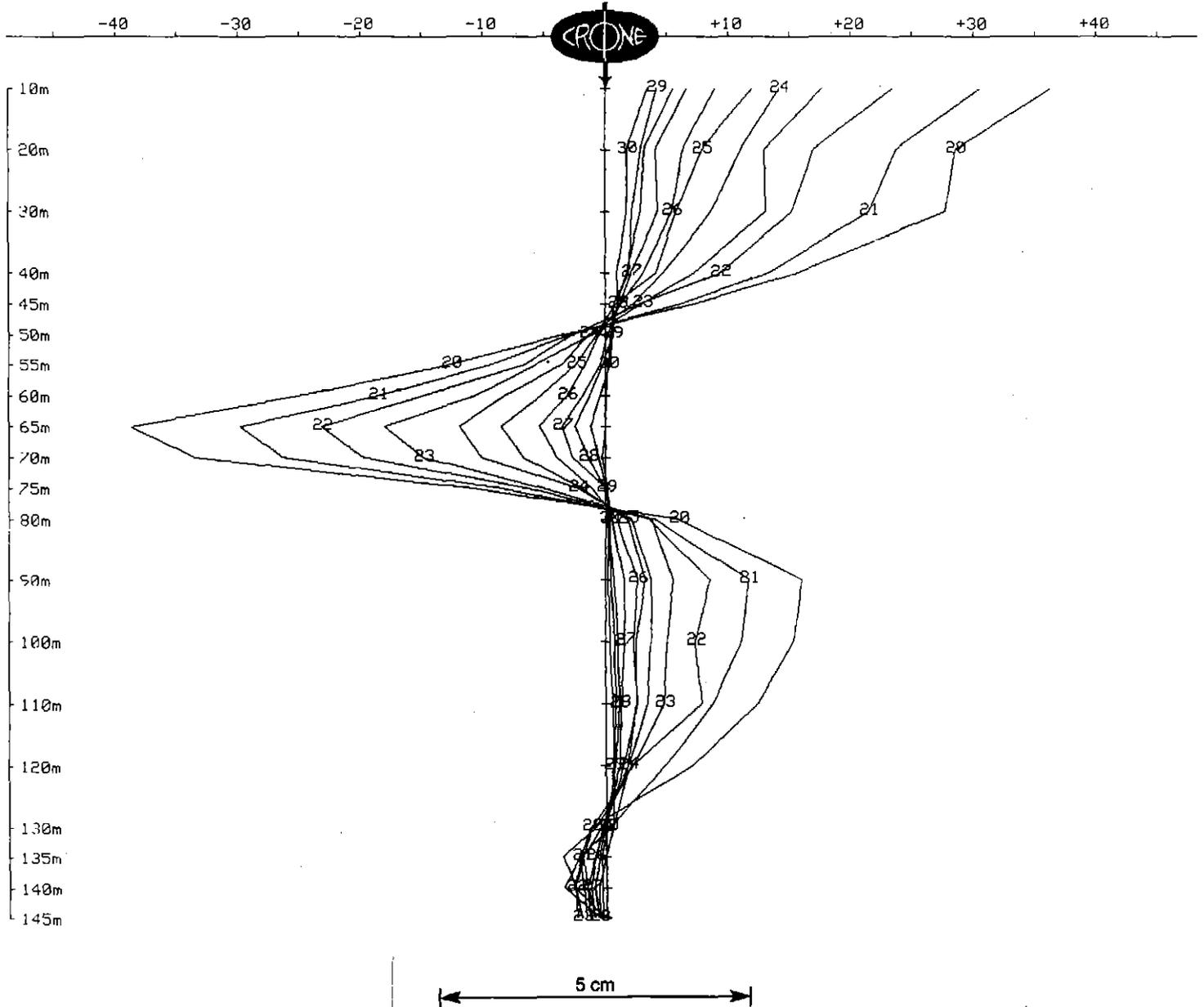
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Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 5 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

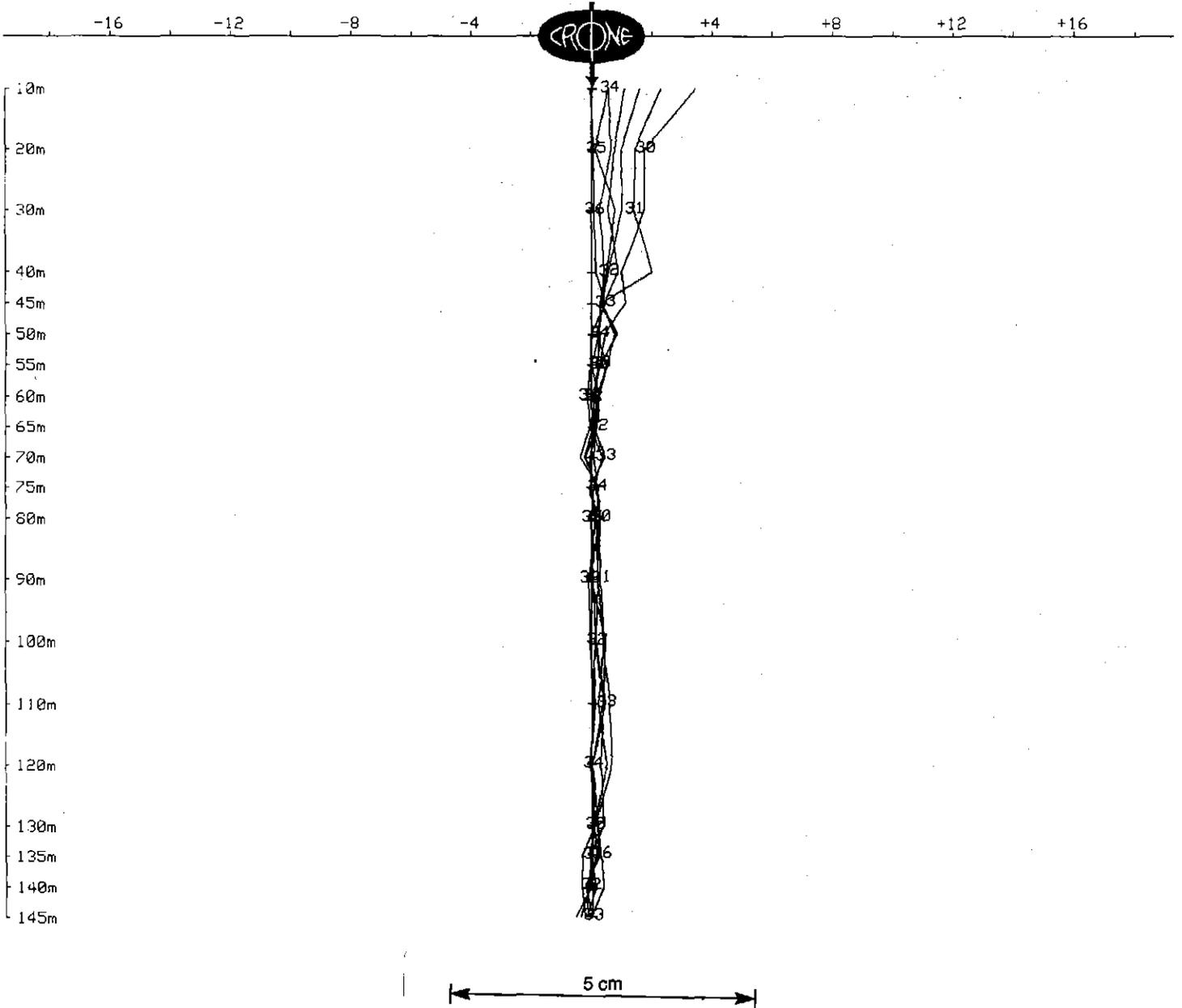
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Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 2 nT/s



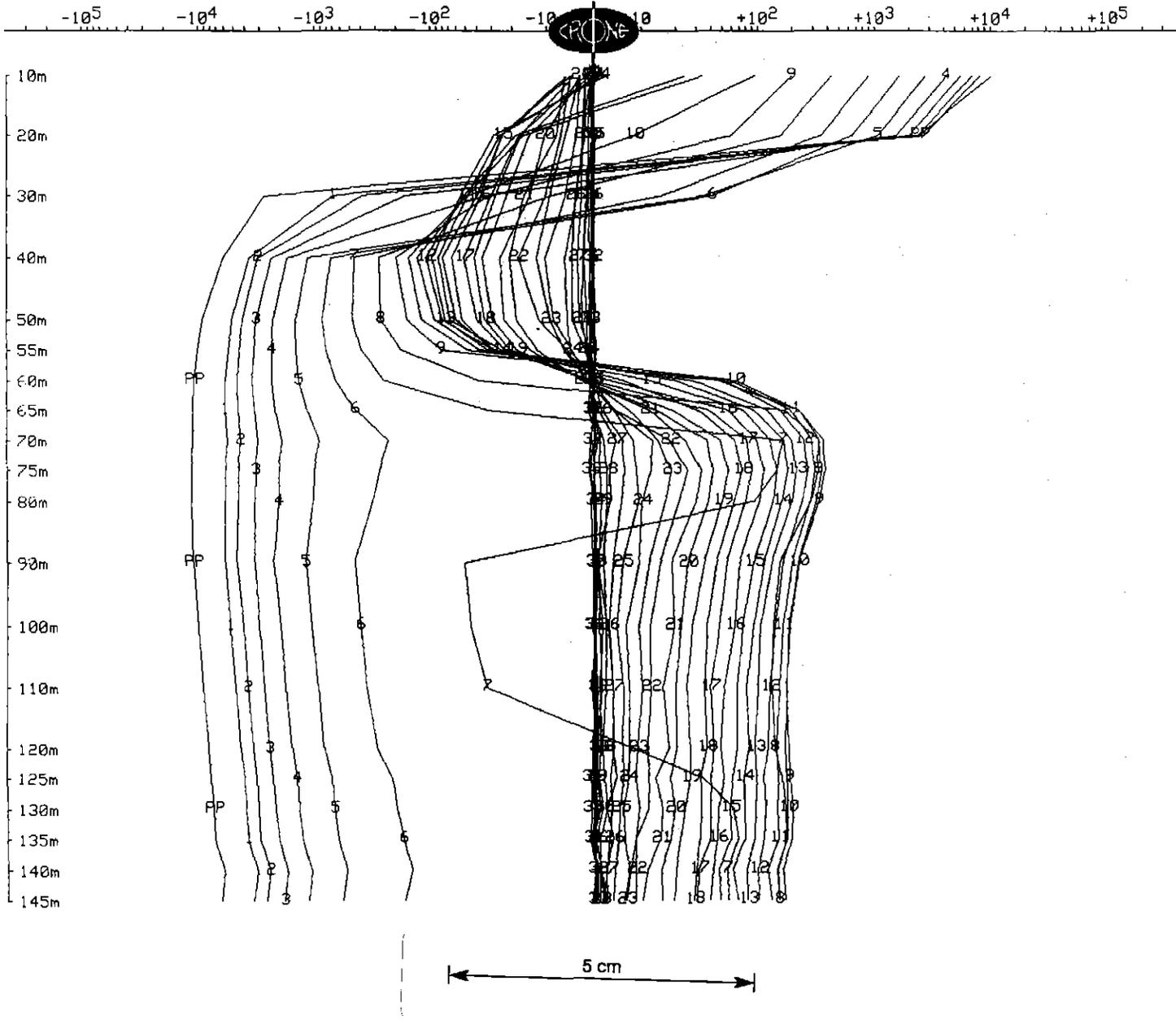
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

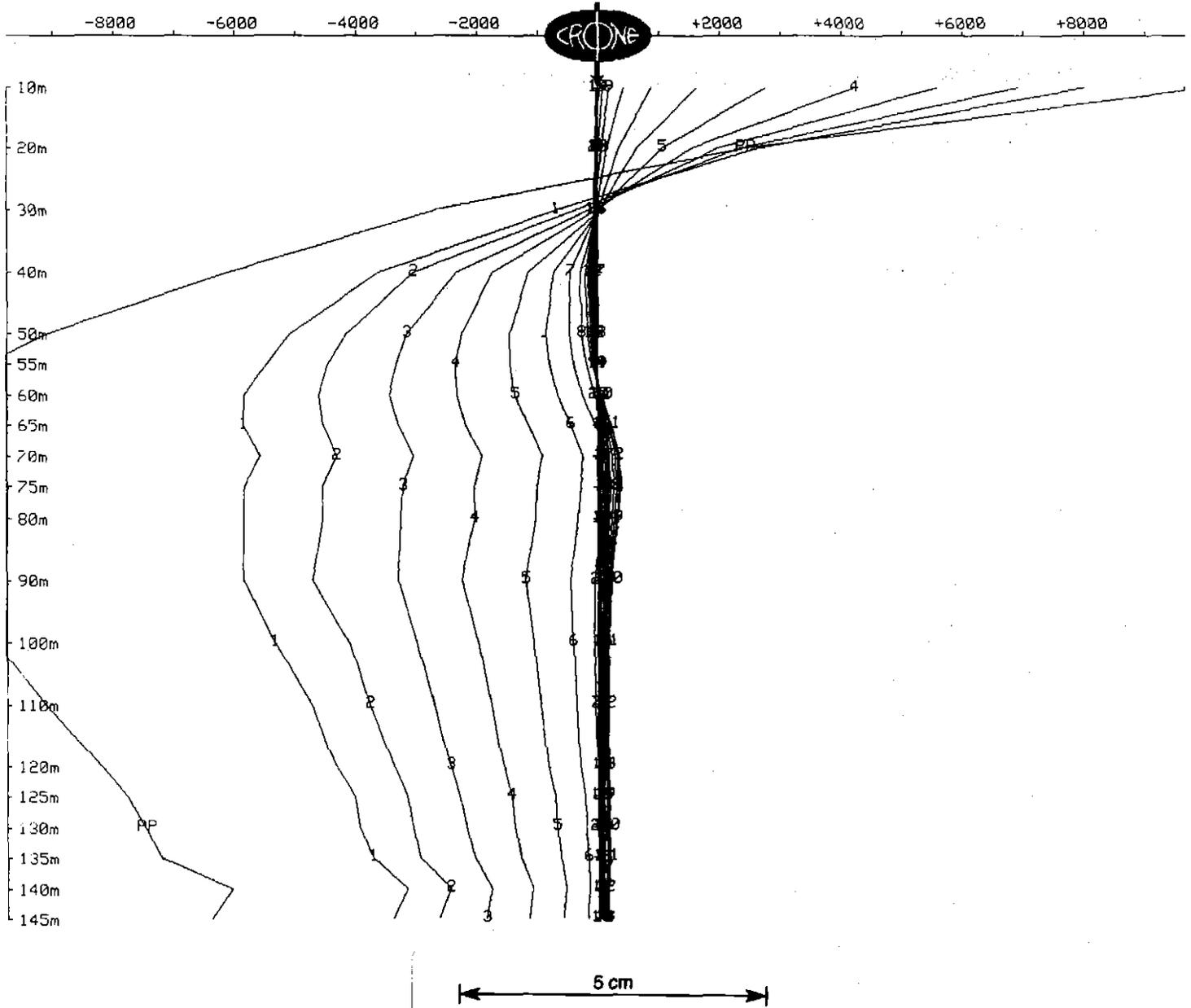
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Hole : MF-12
Tx Loop : #2
File name : MF12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 1000 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

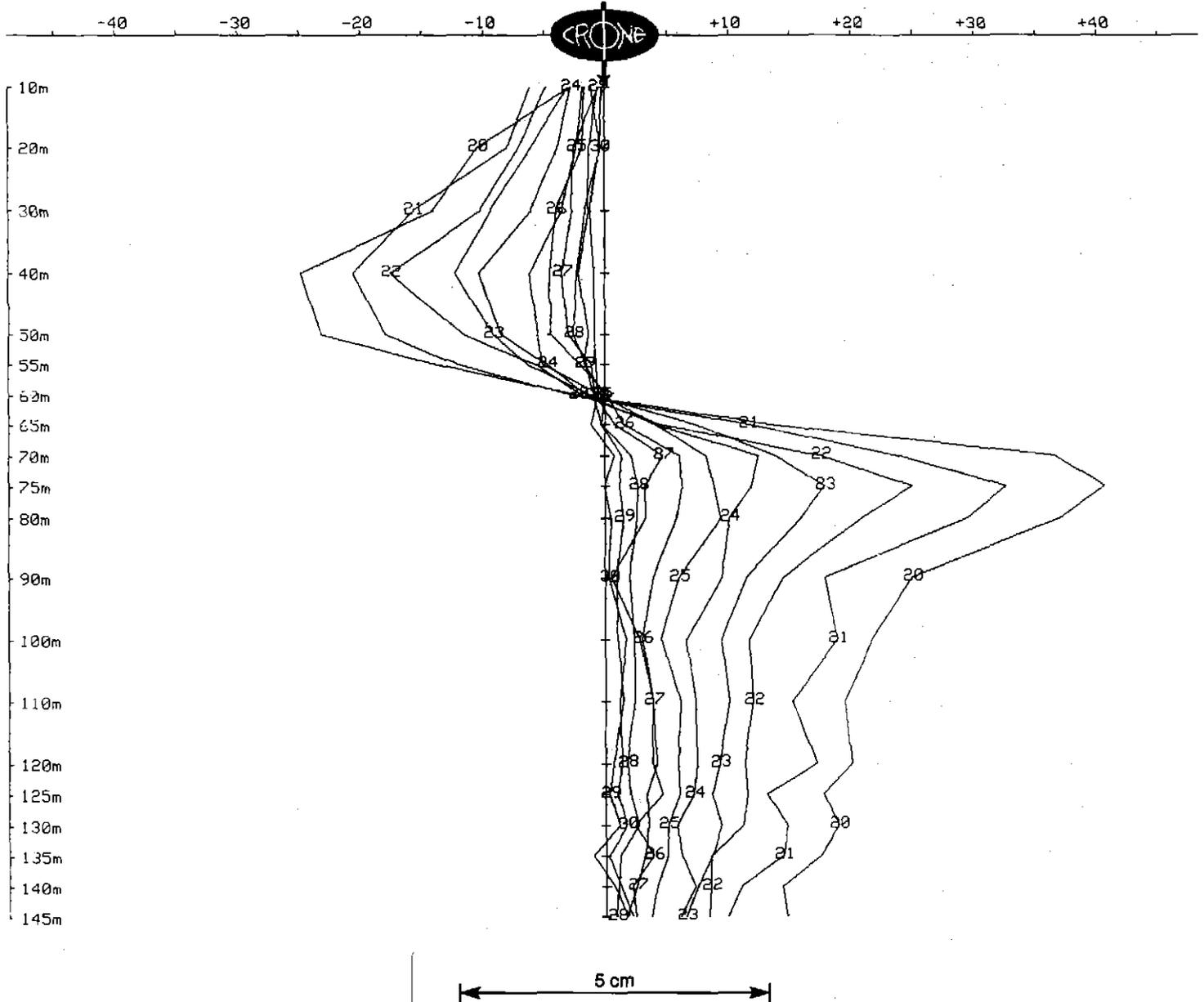
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Hole : MF-12
Tx Loop : #2
File name : MF12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 5 nT/s



633170

OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

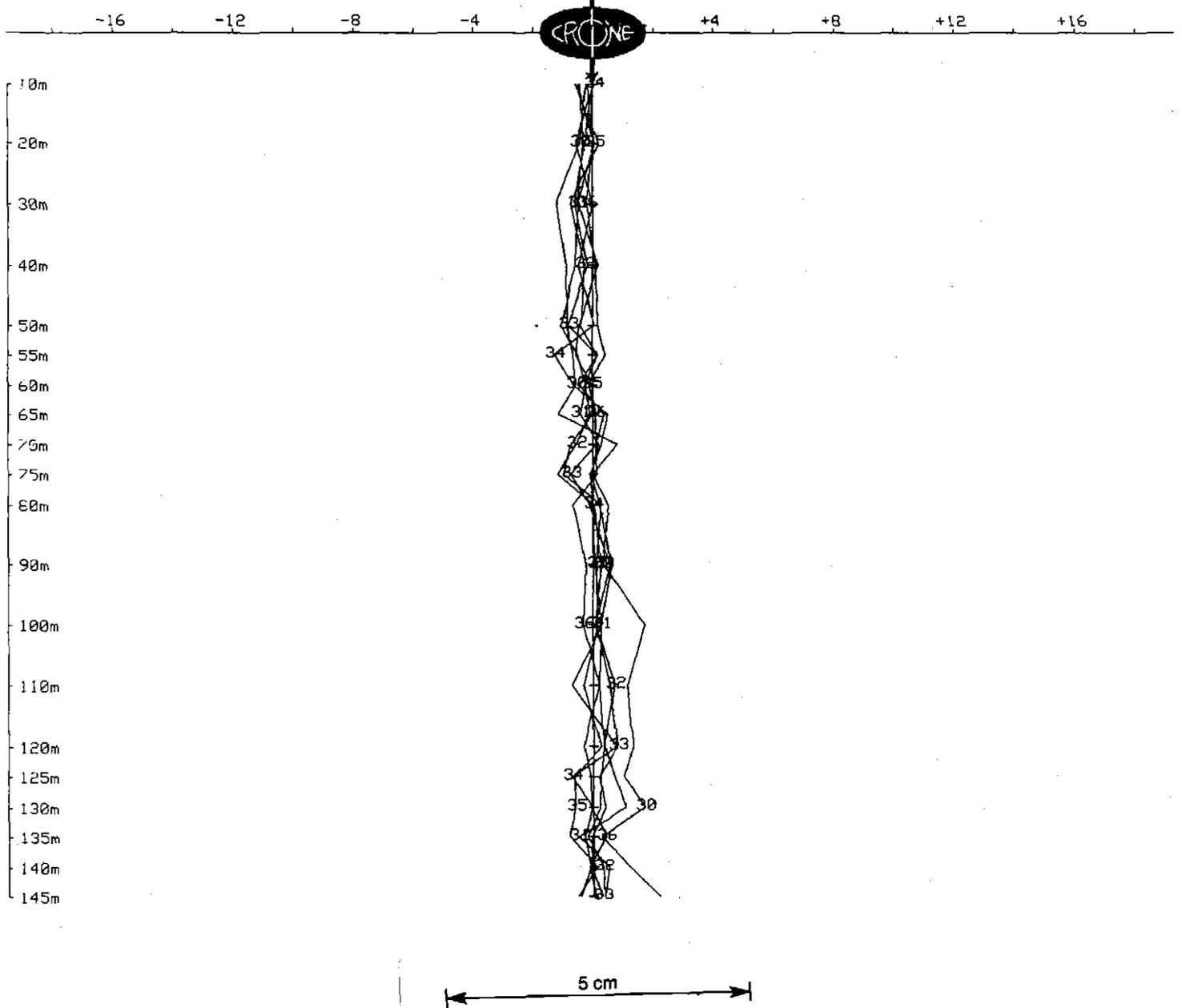
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Hole : MF-12
Tx Loop : #2
File name : MF12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 2 nT/s



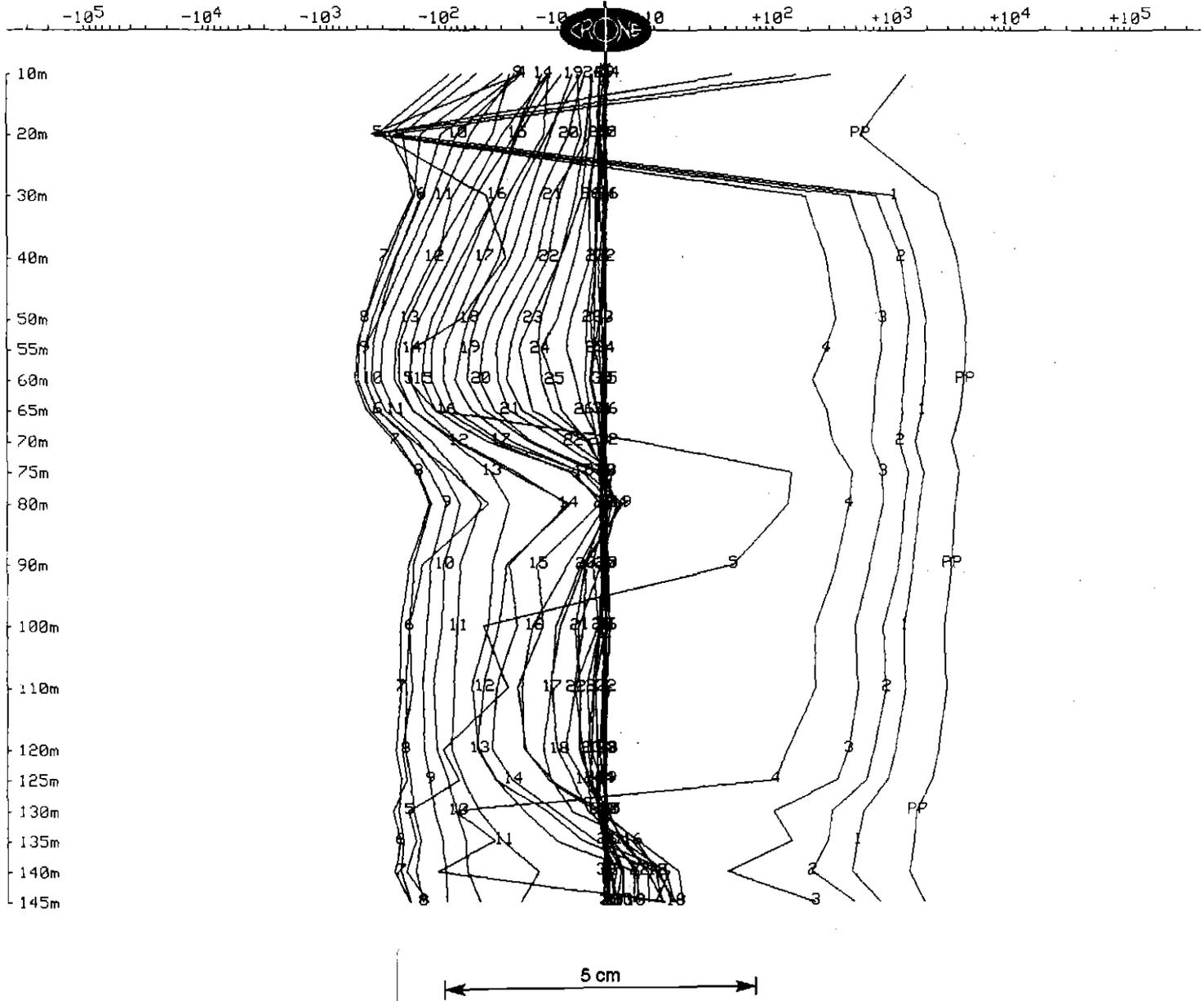
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Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 36 of 36 channels and PP

Scale: 1:1000



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

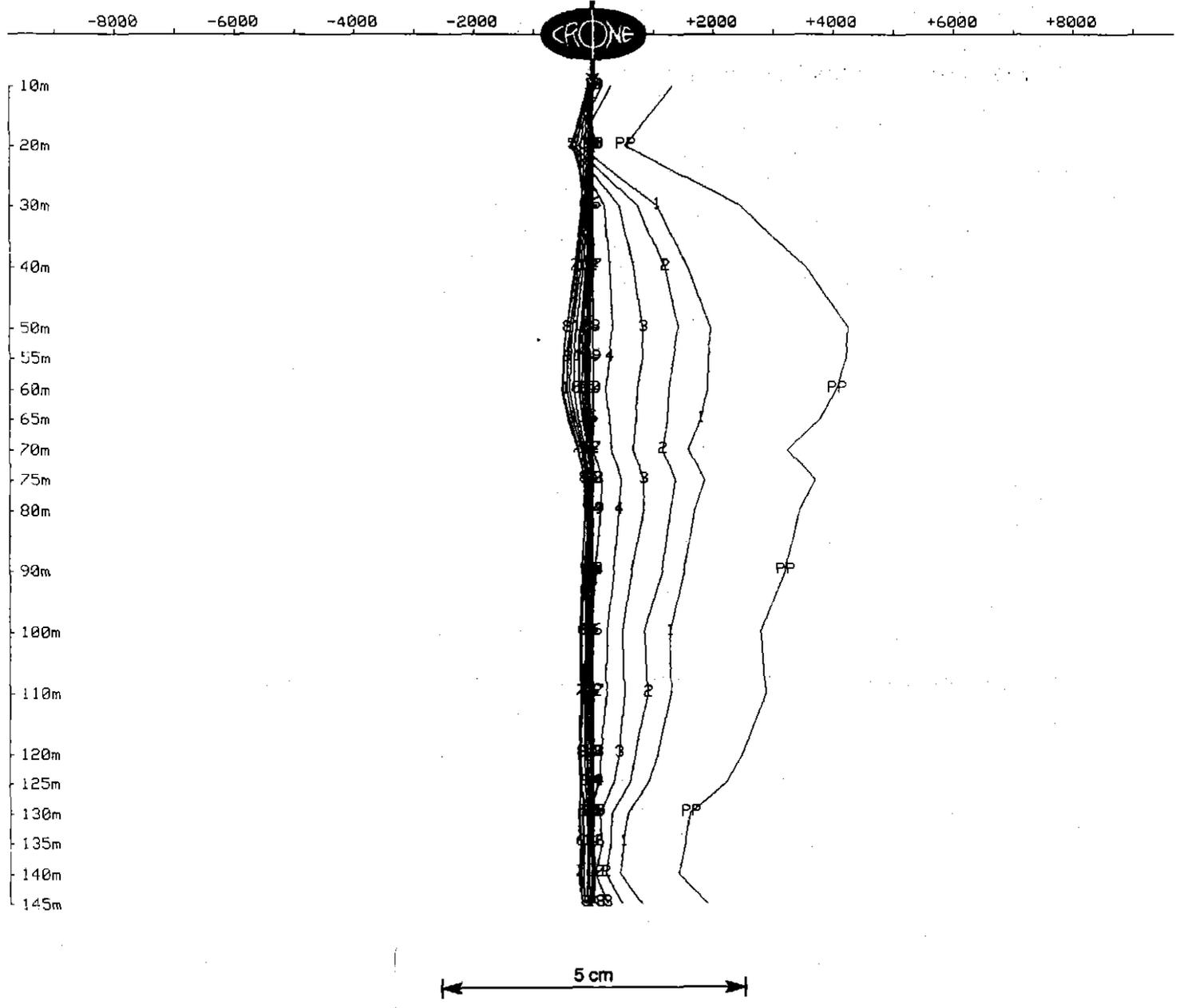
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Hole : MF-12
Tx Loop : #2
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Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 20 of 36 channels and PP

Scale: 1:1000

Unit Scale: 1cm = 1000 nT/s



OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

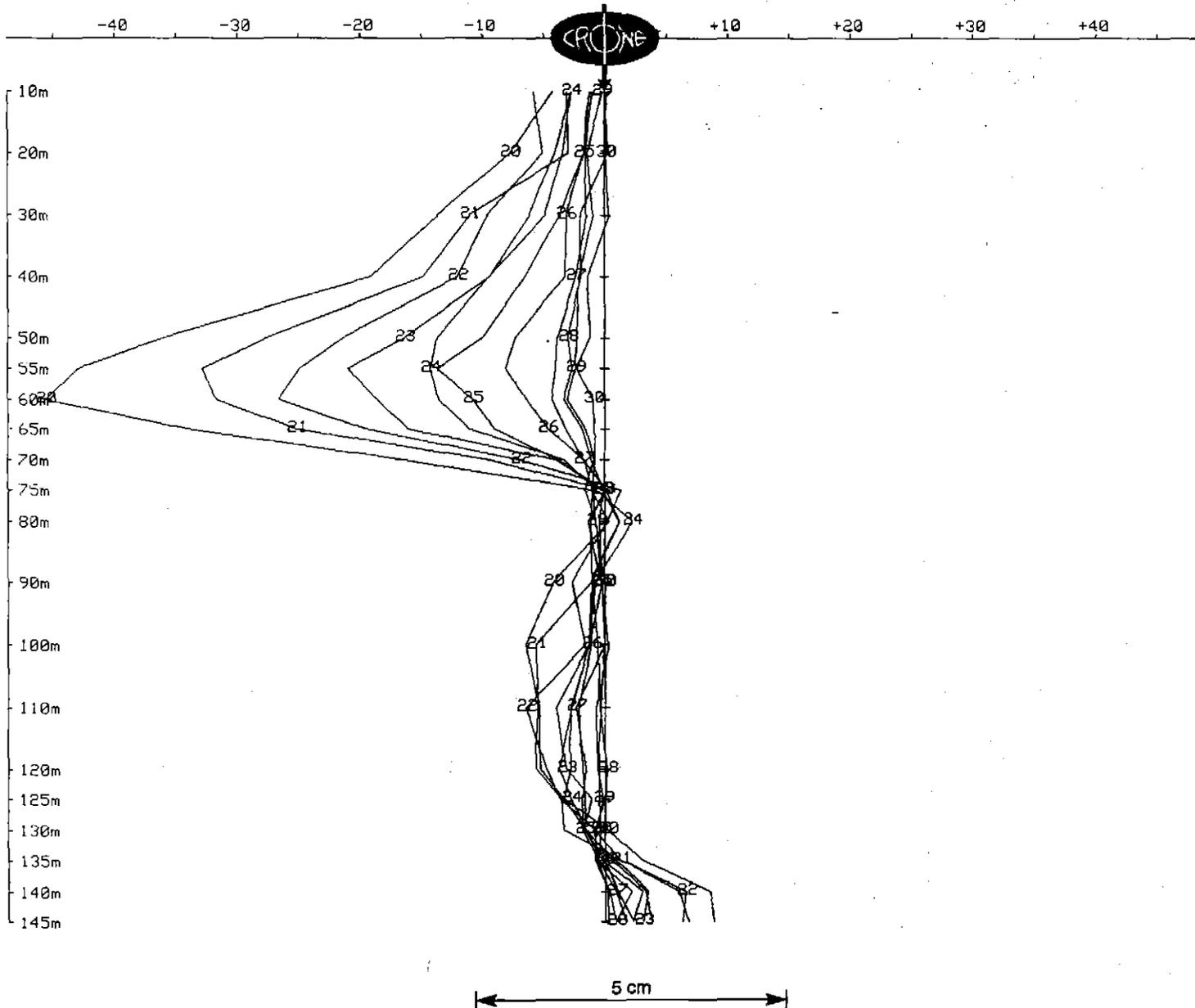
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Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 11 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 5 nT/s



OUTER-RIM EXPLORATION SERVICES

Borehole Pulse EM Survey

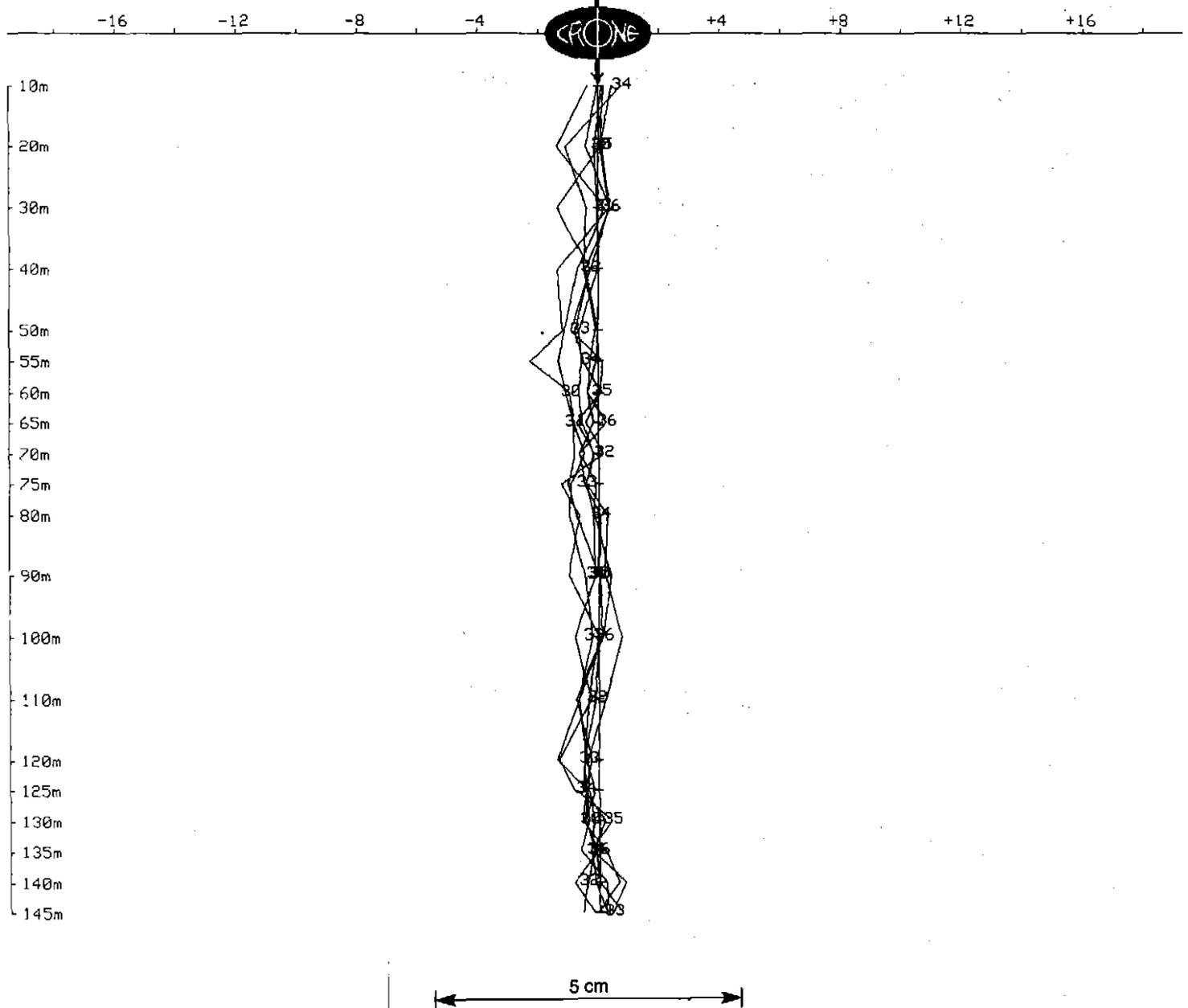
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Hole : MF-12
Tx Loop : #2
File name : MF12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 7 of 36 channels

Scale: 1:1000

Unit Scale: 1cm = 2 nT/s



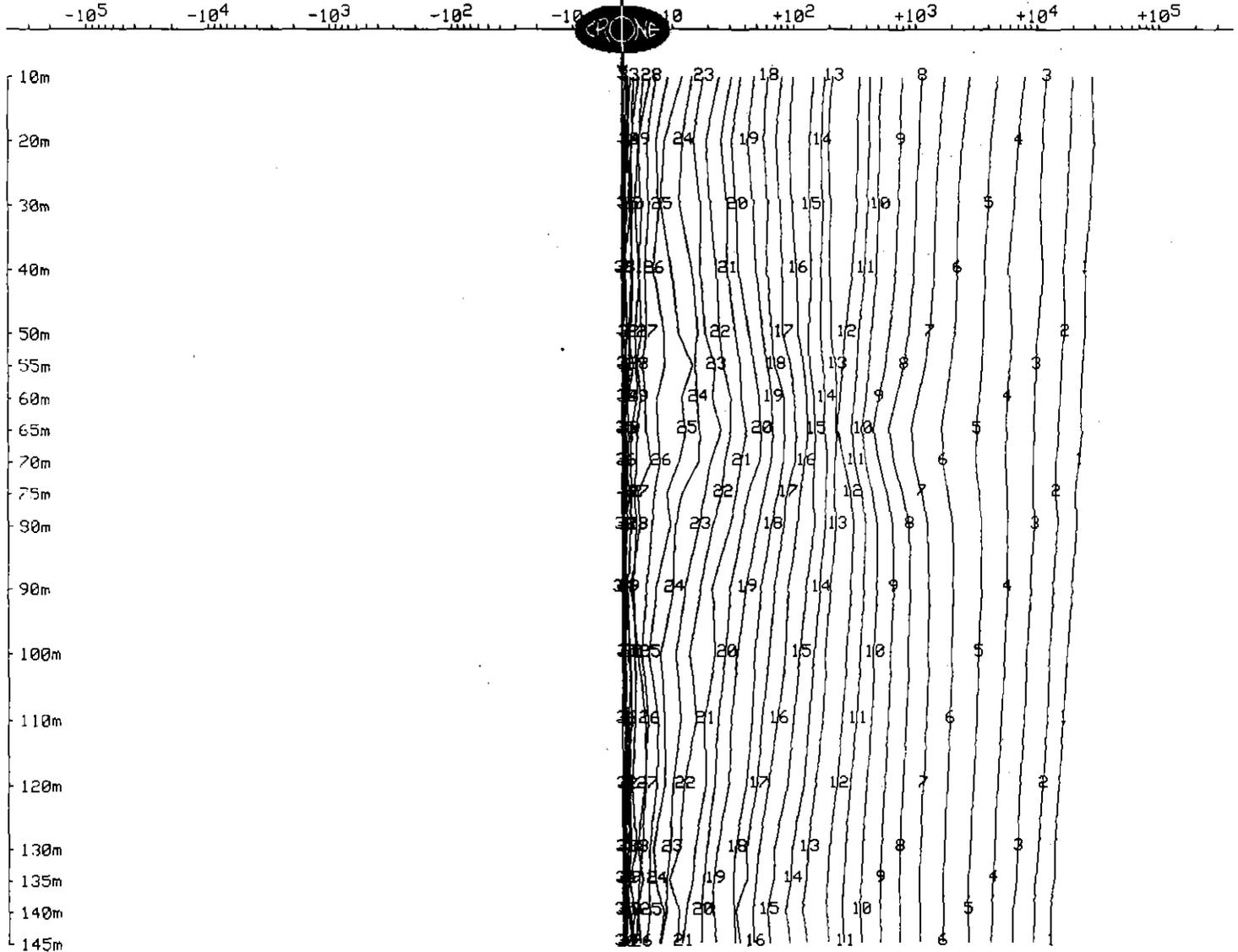
OUTER-RIM EXPLORATION SERVICES Borehole Pulse EM Survey

Client : Allegiance Mining NL
Grid : Melba Flats
Date : Dec 15, 1999

Hole : MF-12
Tx Loop : #2
File name : MF12XYZ2.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
TOTAL FIELD dBxyz/dt nanoTesla/sec - 36 of 36 channels

Scale: 1:1000



5 cm

sheet 4-00

APPENDIX 5

**GEOPHYSICAL
INTERPRETATION REPORT,
FLAGSTAFF
GEOCONSULTANTS**

Flagstaff Geo-Consultants

ALLEGIANCE MINING NL
NICKEL REWARD PROSPECT,
EL 43/92; MELBA FLATS, TASMANIA
REPORT ON GEOPHYSICAL SURVEYS



**ALLEGIANCE MINING NL
NICKEL REWARD PROSPECT,
EL 43/92; MELBA FLATS, TASMANIA
REPORT ON GEOPHYSICAL SURVEYS**

By N. Hungerford
Flagstaff GeoConsultants
March 2000

Copies: Allegiance Mining, C/o Newnham Exploration x 5
Flagstaff x 1

SUMMARY

A variety of geophysical surveys have been carried out over the Nickel Reward prospect on the Melba Flats Exploration Licence of Allegiance Mining in Western Tasmania.

The intention of these surveys was to define the strike and dip extensions of high grade nickel mineralisation previously intersected in 2 closely spaced drill holes.

The geophysical surveys included fixed loop surface and downhole TEM, surface and downhole Applied Potential, Gradient IP/Resistivity, Downhole IP/Resistivity and Magnetometric Resistivity (MMR).

The TEM surveys were organised by Flagstaff GeoConsultants and run by Outer Rim Geophysics, whilst the other surveys were organised by Allegiance Mining and run by Scintrex. The surface TEM surveys were completed in February 2000, whilst the remainder were carried out in November and December 1999.

All the surveys were carried out using local grid coordinates, which were subsequently warped to AMG coordinates (AGD84, Zone 55). Plans are plotted at 1:20,000.

FIGURES

1. Gradient IP/Resistivity Survey: Chargeability
2. Gradient IP/Resistivity Survey: Resistivity
3. Downhole IP/Resistivity: MF11
4. Downhole IP/Resistivity: MF12
5. Applied Potential Survey:
6. Applied Potential Profiles, Line 2150N
7. MMR Survey
8. MMR Profiles, Line 2150N
9. TEM Survey, East Loop voltage plans
10. TEM Survey, West Loop voltage plans
11. Downhole TEM, MF11, Axial Component
12. Downhole TEM, MF12, Axial Component
13. Downhole TEM Model Profiles
14. Diagrammetric Section on line 2150N

GEOPHYSICAL SURVEYS

GRADIENT IP/RESISTIVITY

Thirteen lines, 25 metres apart, were surveyed with a potential electrode spacing of 25m. The current electrodes were on line 2150N at 2600E and 1500E. The time-domain transmitter pulse was 2secs and 14 chargeability windows were measured as well as apparent resistivity. The chargeability slice of 400 to 1000msecs was gridded at a 5m cell size and then imaged.

Plans showing the chargeability and resistivity results are attached. The chargeability image (Fig 1) indicates an isolated anomaly at the Nickel Reward prospect (where the 2 drill holes are shown in red). This is coincident with a moderately low resistivity response (Fig 2), indicating the presence of semi-massive connected sulphides with a very restricted strike extent (about 35m). Dip (or plunge) of this essentially pipe-like body appears to be near vertical judging from the symmetry of the anomaly.

100 metres to the east of the drillhole collars a strong chargeable conductor is evident striking NNE. This may contain sulphides although the long strike extent suggests that it is more likely to be a graphitic horizon. It is not evident on the Questem airborne EM survey flown by CRA but this may be due to excessive flying height. (A very extensive non-magnetic conductor was detected by the Questem survey about 500m east of the collars.)

DOWNHOLE IP/RESISTIVITY

Surveys were run down drillholes MF11 and MF12 to 160 and 140metres respectively. A 2m pole-dipole array was used with a 5m station interval downhole. The profiles are attached. The plotting point is the midpoint between the current electrode and the midpoint between the potential electrodes.

The nickel mineralisation (pentlandite) in MF11 at 53 metres depth (Fig 3) is shown as a strong positive/negative chargeability response, with an associated very low resistivity (<1 ohm-m) appropriate to massive sulphides. Resistivities through the top 40 metres (weathered layer?) are between 70 and 1500 ohm-m, below which bedrock is very resistive (between 2000 and 4000 ohm-m).

As would be expected the disseminated sulphides in MF12 at 71m are clearly indicated as a strong chargeability peak with no associated low resistivity (Fig 4). Depth of weathering appears to be about 35m depth below which high resistivities are present (>2000 ohm-m). The weathered zone is also weakly chargeable possibly due to clays weathered from the gabbro.

The downhole logs indicate that the weakly conductive weathered zone can be expected to give a weak TEM response at early channels.

APPLIED POTENTIAL

Current electrodes were placed in drillhole MF11 at 51.5m depth and on the surface at 2150N/1300E and 2150N/2600E. 13 lines on the surface were surveyed as well as drillholes MF11 and MF12.

The surface survey (Fig 5) shows a response consistent with that from the IP survey, ie a response from a pipe-like conductor with a vertical dip/plunge, subcropping just north of the holes at 1985E/2160N (366320mE/5365800mN).

The profile on 2150N (Fig 6) suggests a possible plunge of the conductor towards the west judging from the gradients of the profile (shallower on the west side). However the complete section including the downhole responses can be interpreted to indicate 2 small conductors, one primarily west of MF11 at about 50m depth and the other between the 2 holes somewhat deeper.

MAGNETOMETRIC RESISTIVITY (MMR)

5 lines were measured using transmitter wire with electrodes oriented along strike at 1975E/2000N and 1975E/2300N. The MMR data were gridded and imaged as shown on the attached plan (Fig 7). Results are similar to the IP and Applied Potential data and show a confined conductor subcropping immediately north of the drillholes. The profile of the various survey parameters along line 2150N, across the mineralisation, is shown on Fig 8.

SURFACE TEM

Two transmitter loops each of dimensions 240m east by 350m north were used to energise the known mineralisation from opposite directions. A Crone receiver was used to measure the secondary EM field down to 41 microseconds after cessation of the primary EM field.

Line spacing was 25 metres and station spacing was 25 metres. The vertical (Z) component was measured using a small receiver coil.

The data have been analysed using EMVision software and gridded and imaged in Geosoft. These images (Fig 9, 10) are attached as composite plans showing the responses from both loops at 4 channel times (after Fraser filtering of the profiles to convert the crossovers to peaks). The early channels (10 and 15) respond more to shallower conductors and late channels (20 and 25) to deeper conductors.

The channel 10 image on each plan shows considerable response from the weathered layer and from the primary field at the edge of the transmitter loop. Also evident, especially on the east loop data, is the effect of the underground telephone line that crosses the grid in a SW-NE orientation north of the drillholes. This line has adversely effected much of the surface TEM data although the west loop data are of better quality due to a special effort to increase the signal to noise ratio by increasing the signal stacking (this loop was surveyed after the east loop).

As the channel times increase, the response from the bedrock conductor becomes more isolated due to migration of the secondary currents into the conductor, with the strongest response just south of the holes at 1960E/2125N (66280mE/5365770mN). The peak responses are slightly displaced for the two loops with that from the west loop being slightly to the south of that from the east loop. This will be a function of different coupling between the loops and the conductor.

The amplitude from the west loop is half that from the east loop indicating that a fairly steep dip to the east is likely. This is steeper than that indicated from the drillholes suggesting that the mineralisation may not be stratabound and could cross-cut stratigraphy at a high angle.

The TEM profiles on line 2150N for both loops are shown on Fig 10a. A conductor is indicated at 1970E (+- 25m) where there is a vertical (Z) component crossover. This is coincident with the peak chargeability IP and applied potential responses, and is the point at which the nickel mineralisation is closest to surface.

DOWNHOLE TEM

Holes MF11 and MF12 were surveyed using the same 2 transmitter loops as for the surface TEM surveys. The reading interval downhole was 10 metres, or 5 metres through any anomalous response. A 3-component probe was used to measure 3 orthogonal components (axial-uphole, above-hole, and along strike)

The nickel mineralisation intersected in hole MF11 at 55 metres is evident on all components as a very strong response with a time-constant of about 3.37msecs, appropriate to a small lens of massive sulphide. An offhole conductor is also evident beneath the hole at about 85metres depth extending to the south. These responses are illustrated on Fig 11, which shows the axial component responses for each of the 2 transmitter loops.

A conductor can be seen on the profiles from hole MF12 at 65 metres where it occurs above the hole (Fig 12). This conductor is thus present between the 2 holes and appears to be separate from the lens intersected in MF11. It has a short dip extent of about 25 metres and extends along strike primarily to the south.

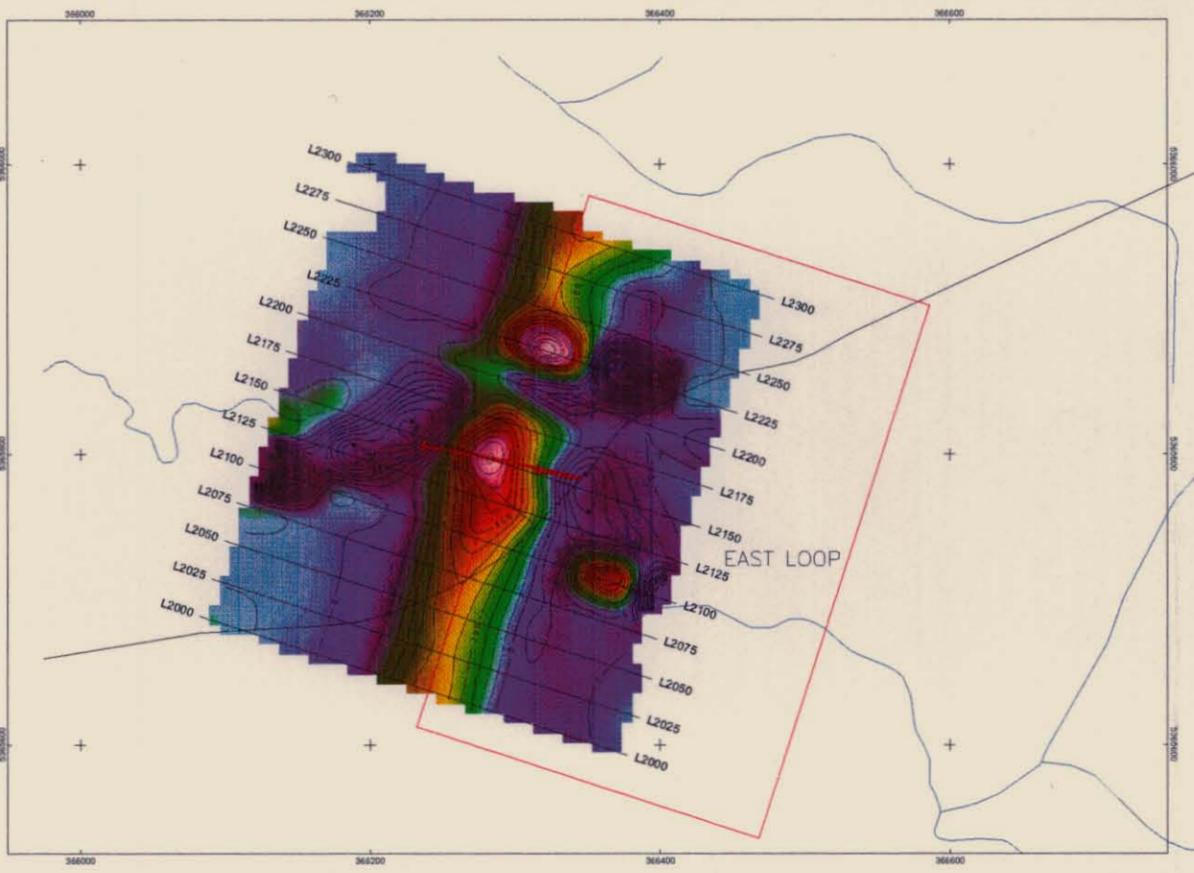
Also evident from the survey in hole MF12 is an offhole conductor near the end of the hole about 140m downhole. Unfortunately the hole does not extend far enough to fully cover the anomalous response so it cannot be accurately modelled. However it appears to be primarily along strike at this depth rather than above or below the hole.

These conductors have been numerically modelled and the results are shown on Fig 13. On the left of this figure are the 3 components (Axial at the top, along-strike in the middle, and above-hole at the bottom). The black profiles are the observed data, and the red profiles are the calculated responses from the 3 conductors shown in section (top right) and plan (bottom right). The comparisons between the observed and modelled profiles are reasonable considering that there appear to be multiple conductors.

CONCLUSIONS

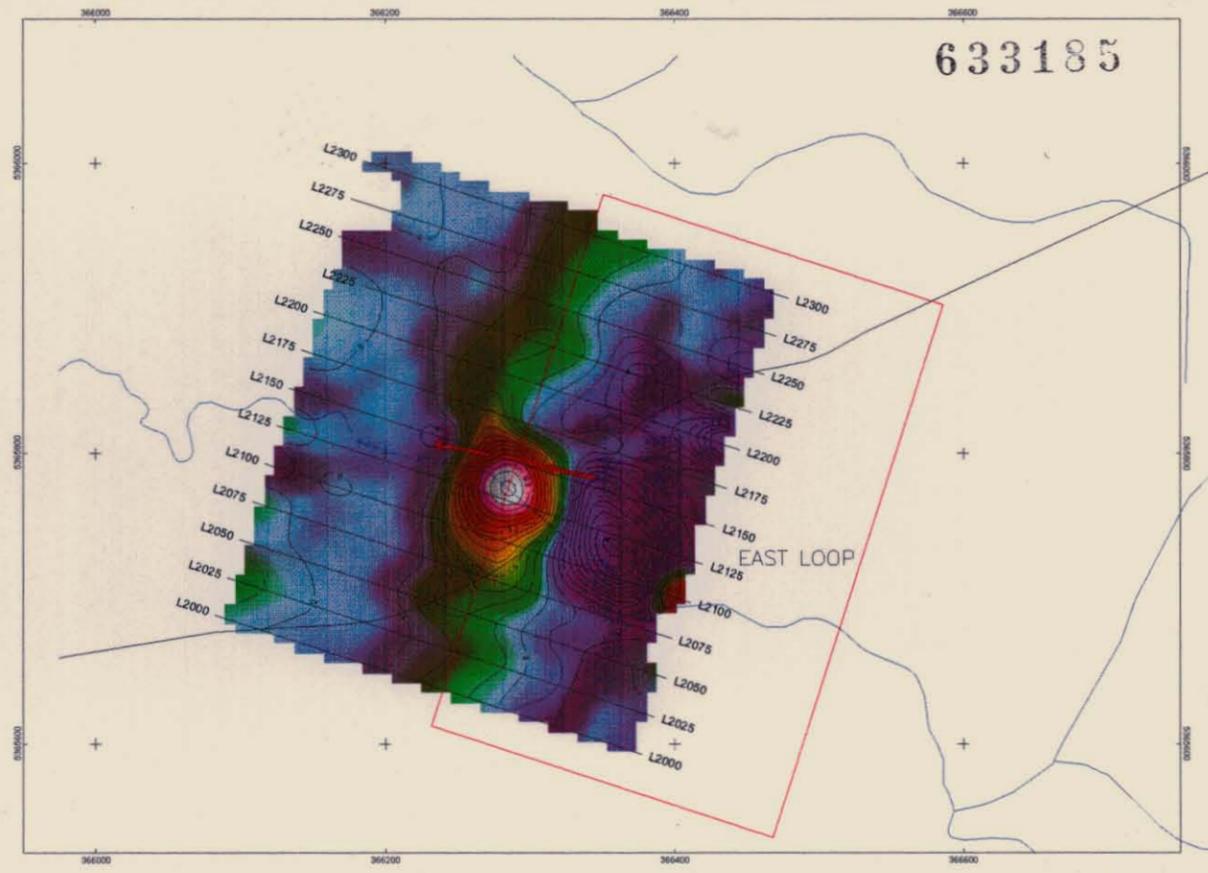
The mineralisation at Nickel Reward appears to be composed of stacked massive sulphide lenses of small dimensions. The lenses probably dip steeply to the east, possibly slightly discordant with the bedding, having a horizontal (along strike) extent of no more than 50 metres, and downdip extent of 20-30 metres. A diagrammatic section is attached (Fig 14)

Further drilling should be on section 2125N, which is 25metres south of the section already drilled. The recommended hole on this section would have a depth of about 170 metres and be collared at 2025E with a dip of 75deg and azimuth of 72deg TN (along grid line).



ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, EAST LOOP; CH 10 (0.299ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000

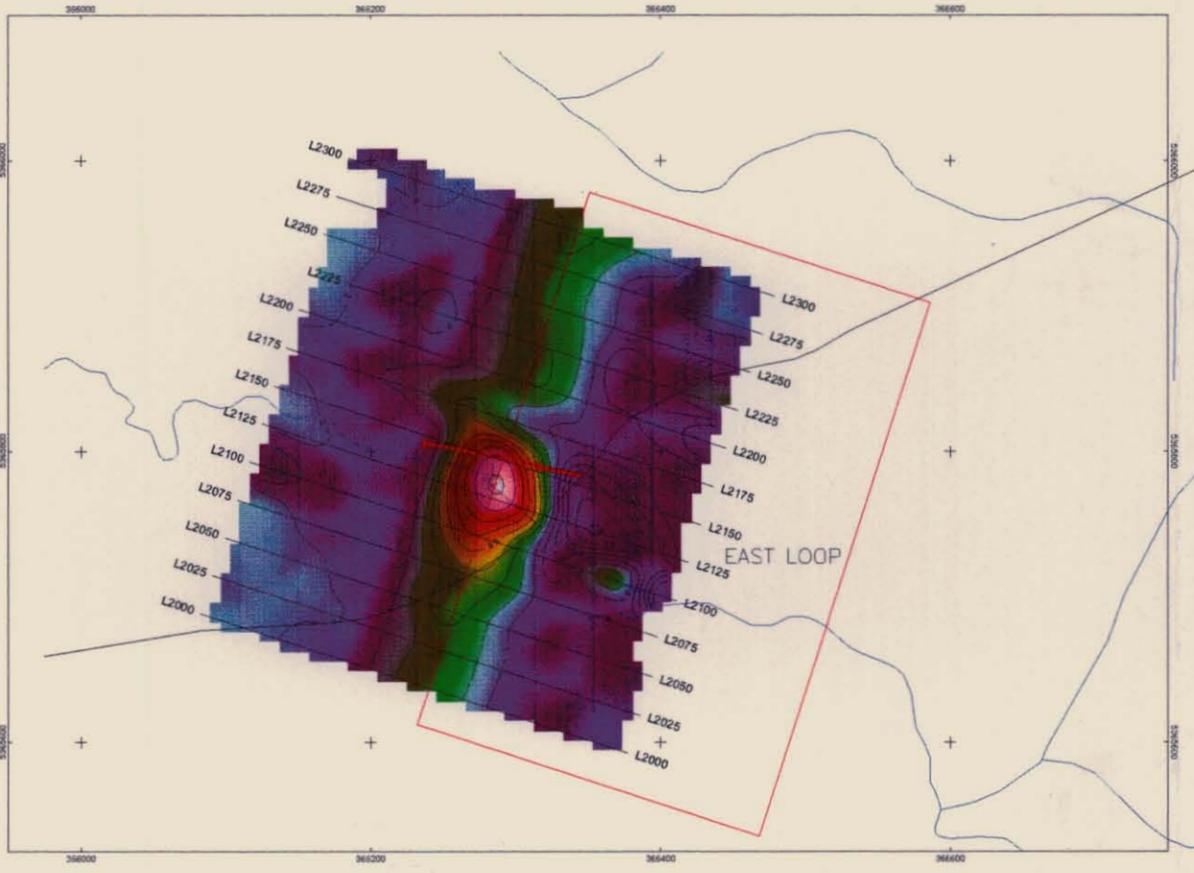
5 cm



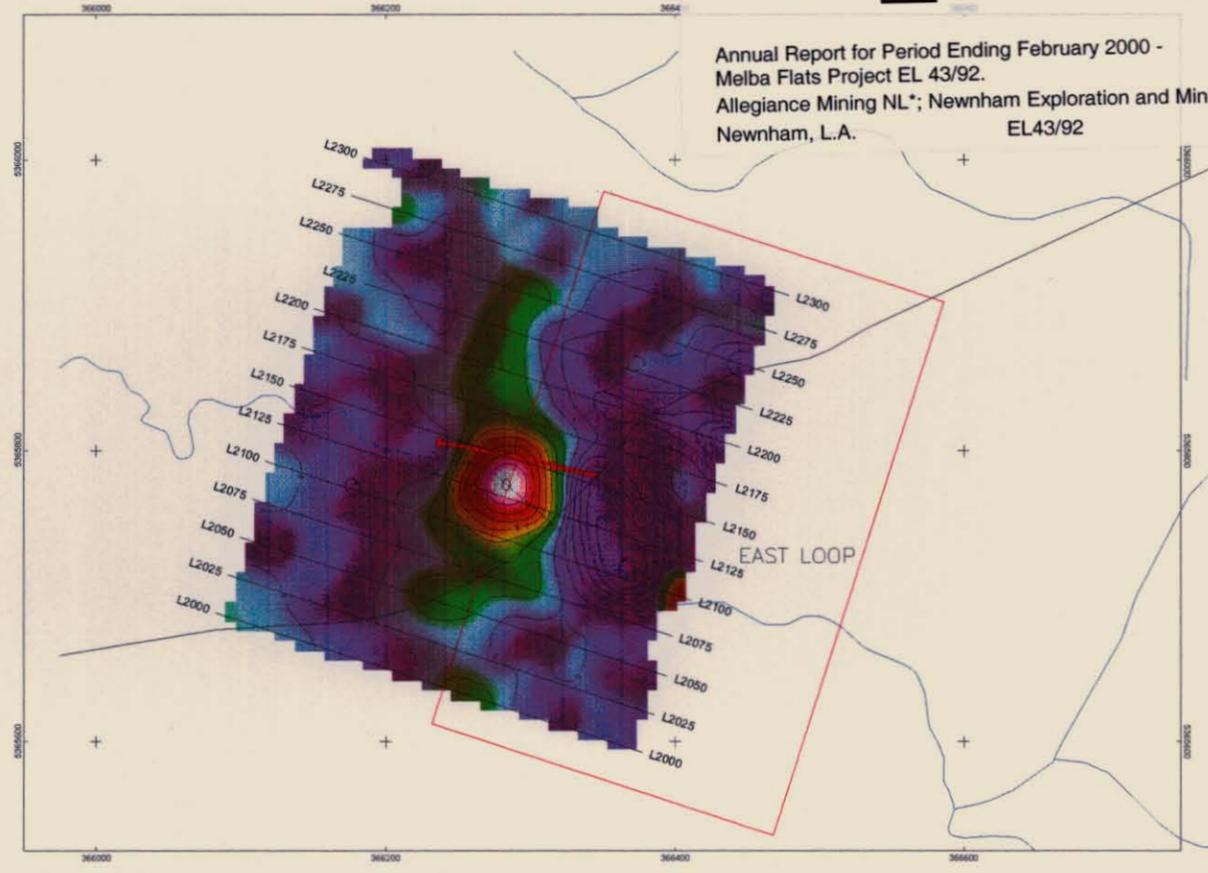
ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, EAST LOOP; CH 20 (2.0ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000

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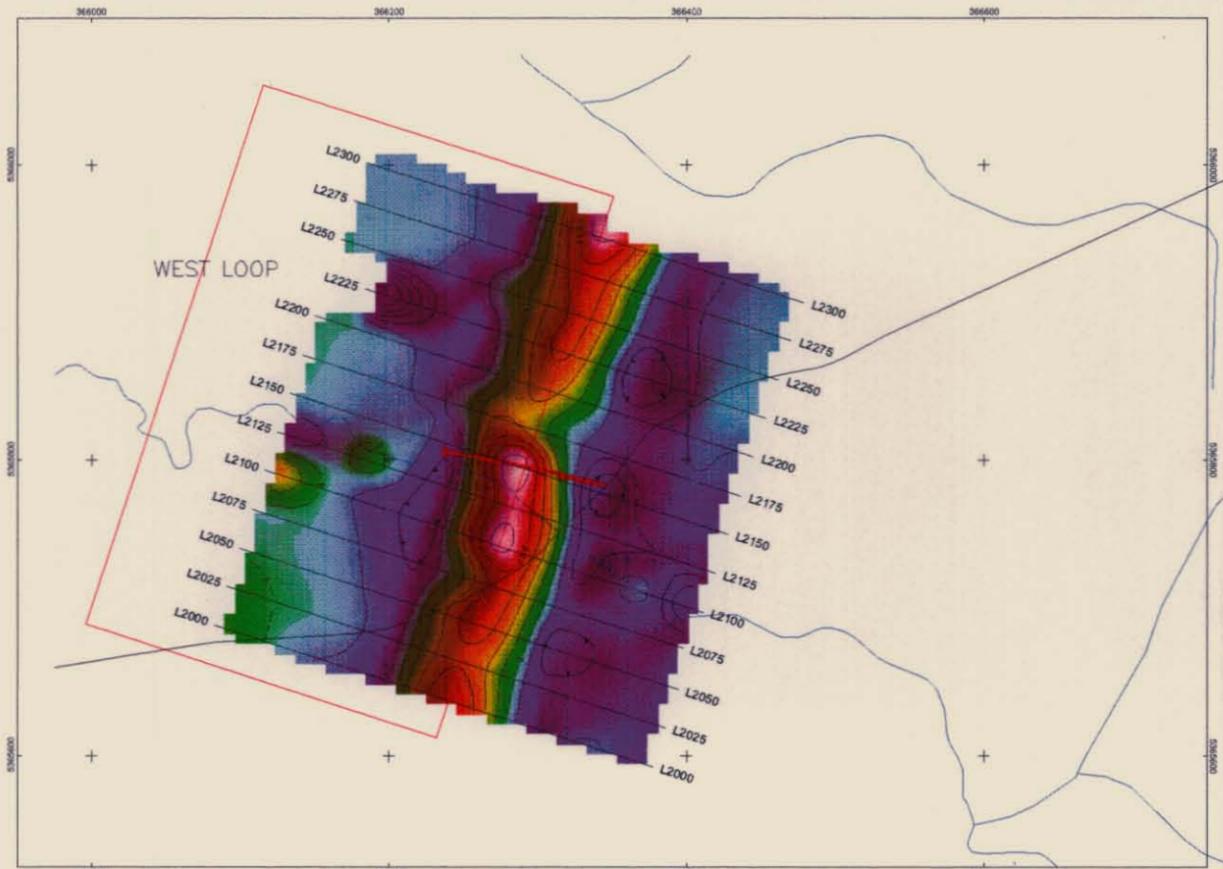


ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, EAST LOOP; CH 15 (0.776ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000

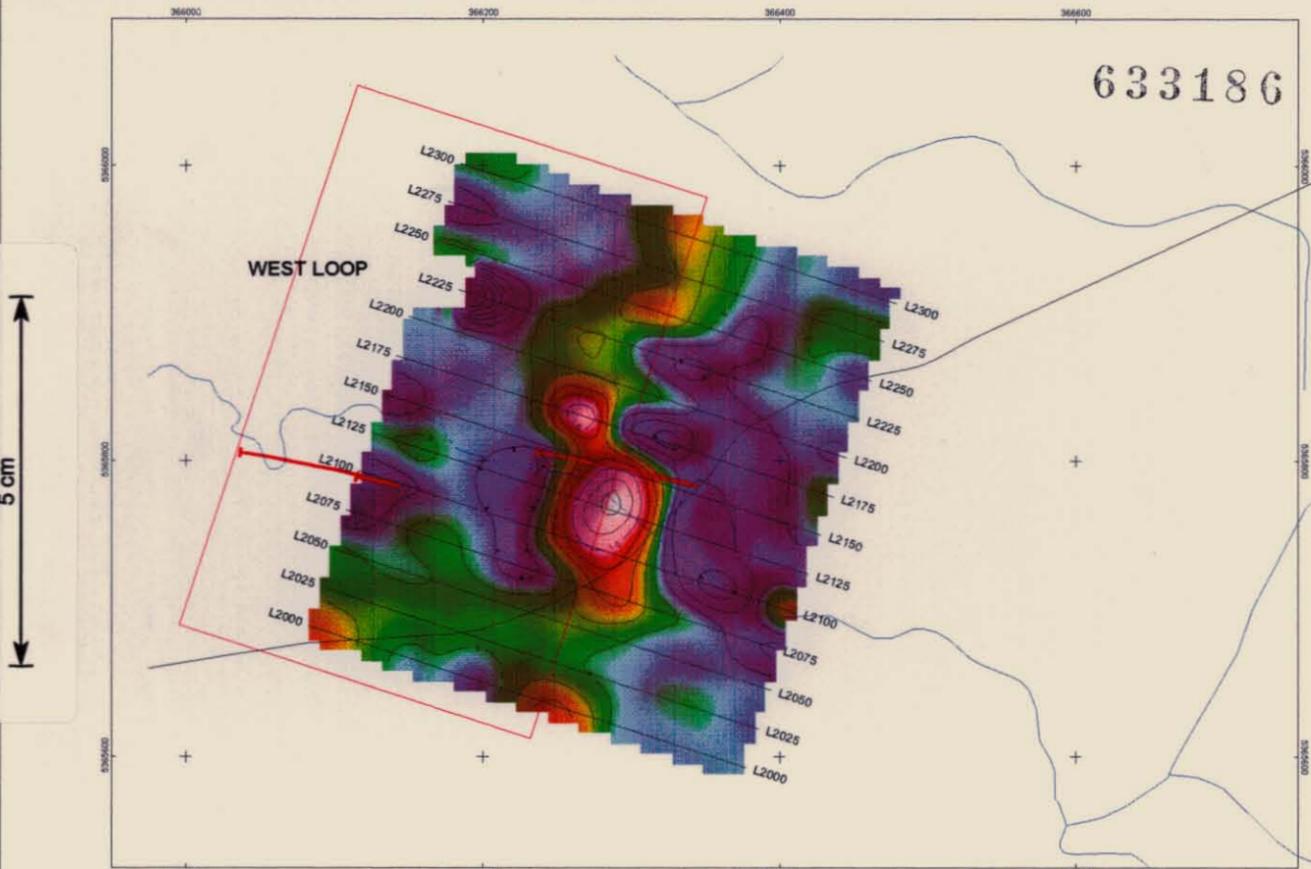


ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, EAST LOOP; CH 25 (5.15ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000

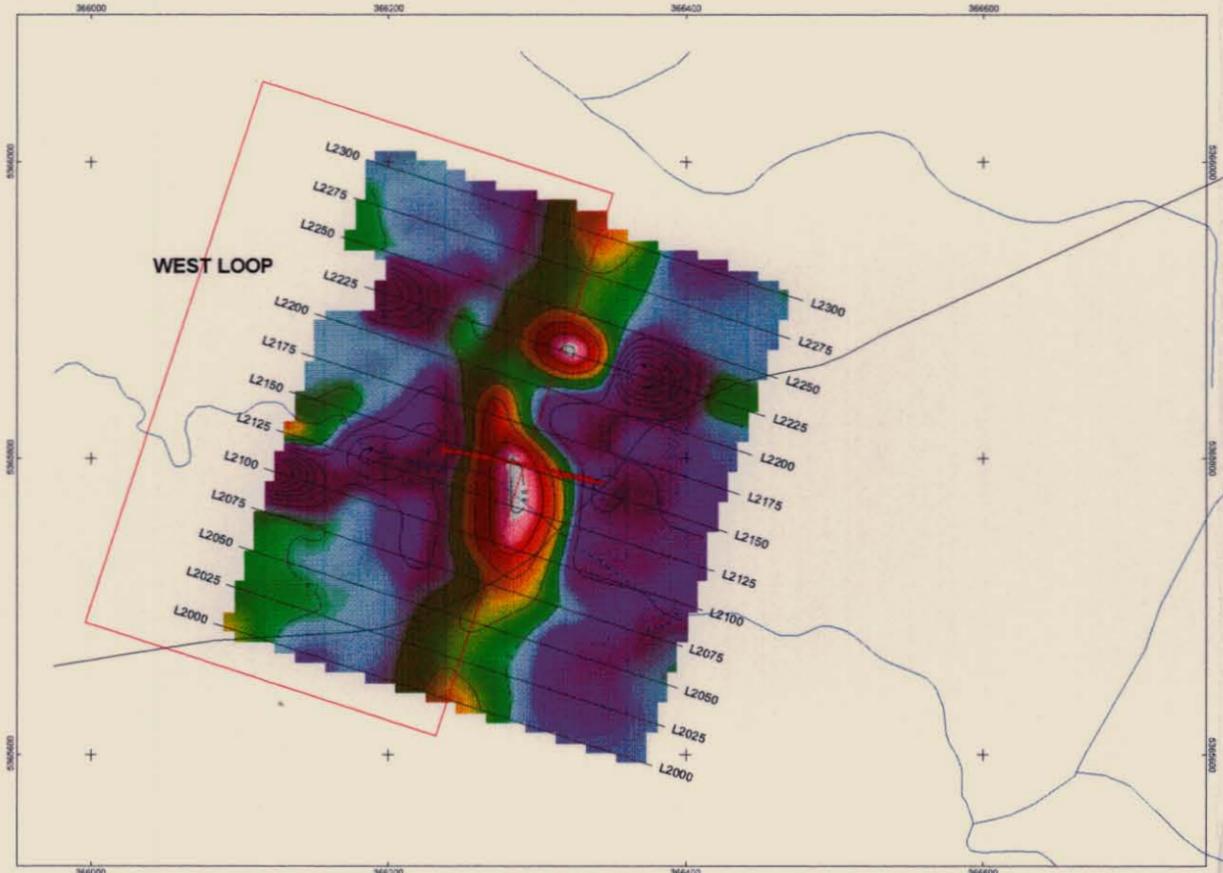
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 Newnham, L.A. EL43/92



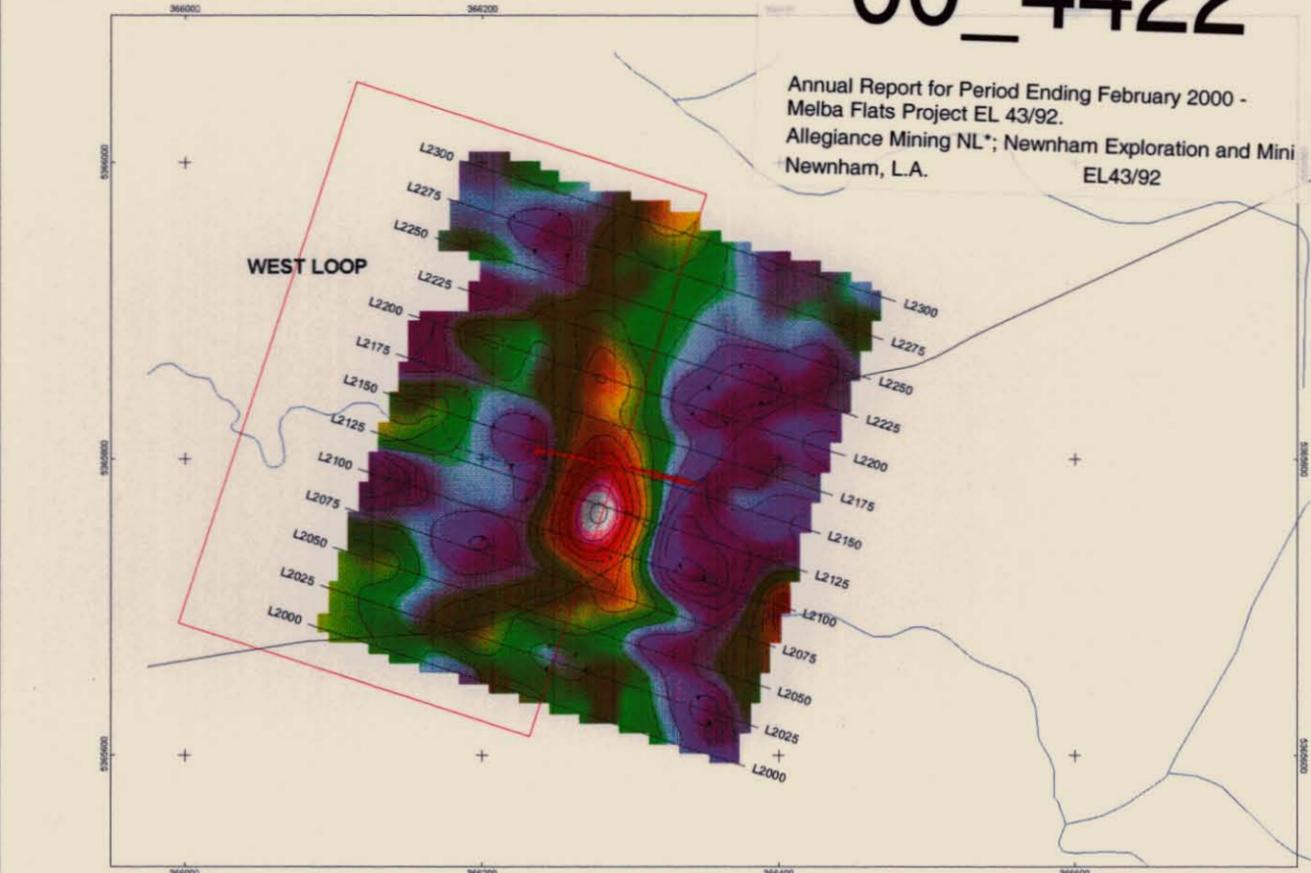
ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, WEST LOOP; CH 10 (0.299ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000



ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, WEST LOOP; CH 20 (2.0ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000



ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, WEST LOOP; CH 15 (0.776ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000



ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 FIXED LOOP TEM, WEST LOOP; CH 25 (5.15ms) FRASER FILTER
 FLAGSTAFF GEOCONSULTANTS; NH, 02/2000

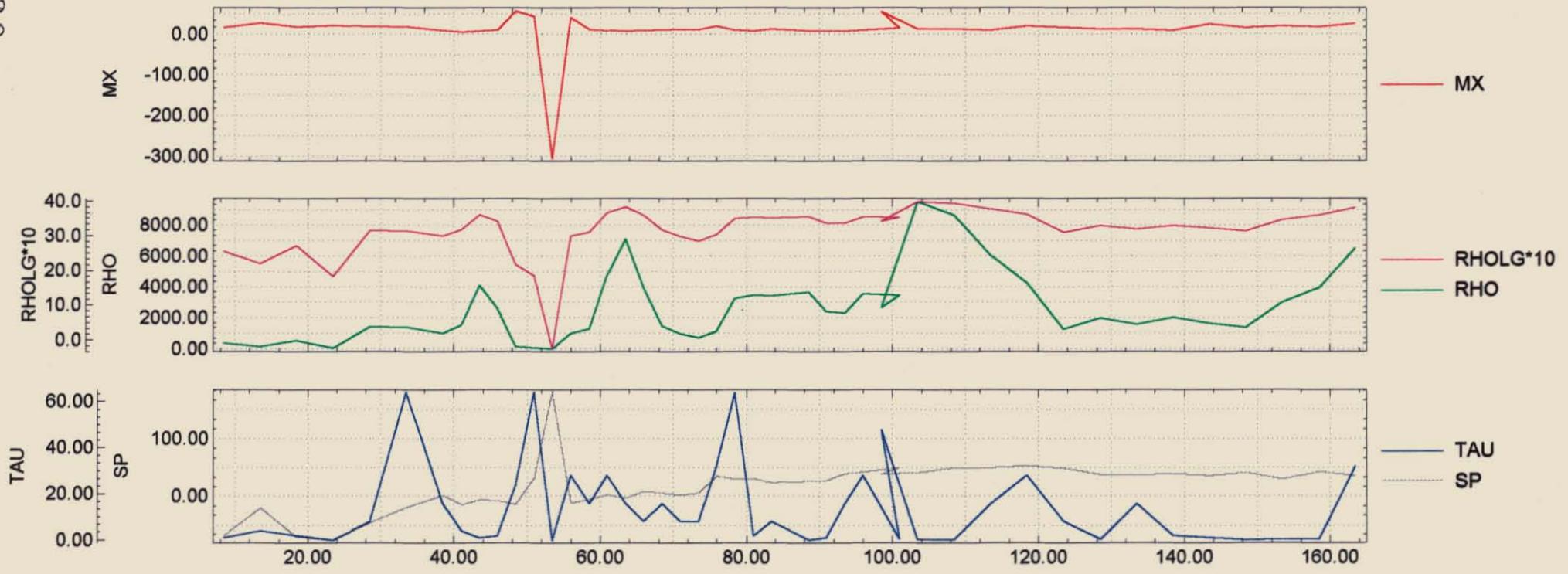
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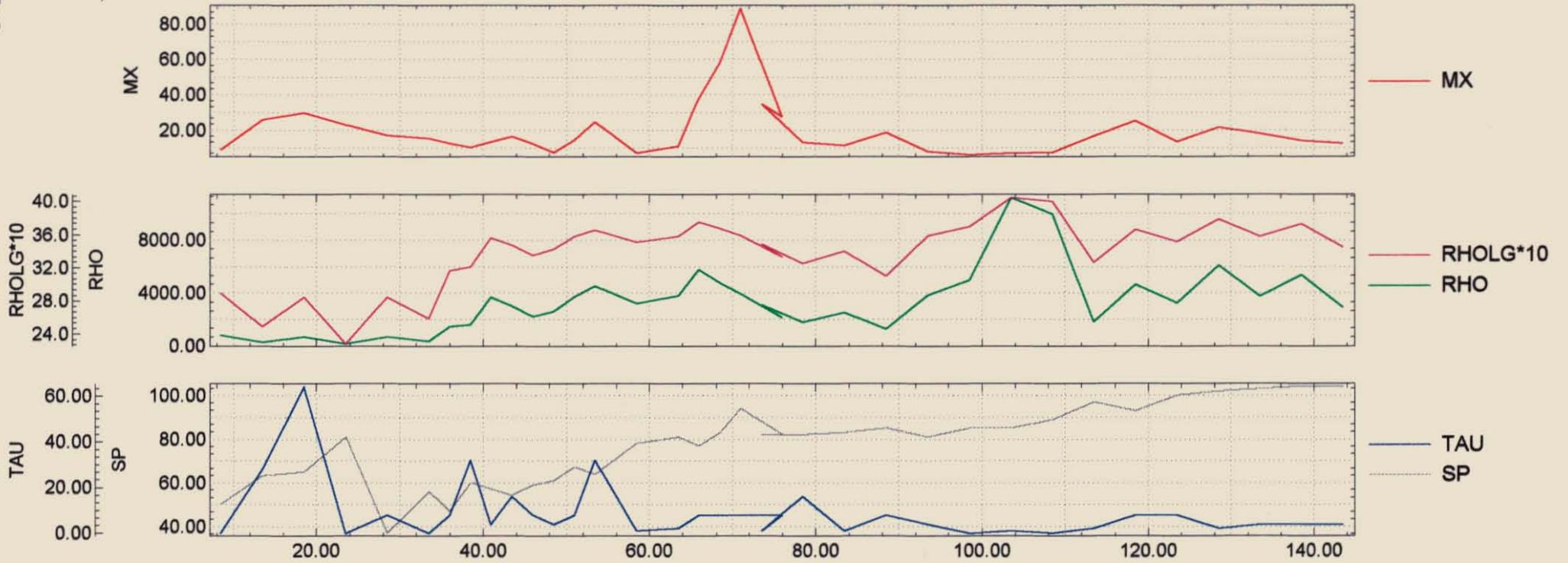
633187

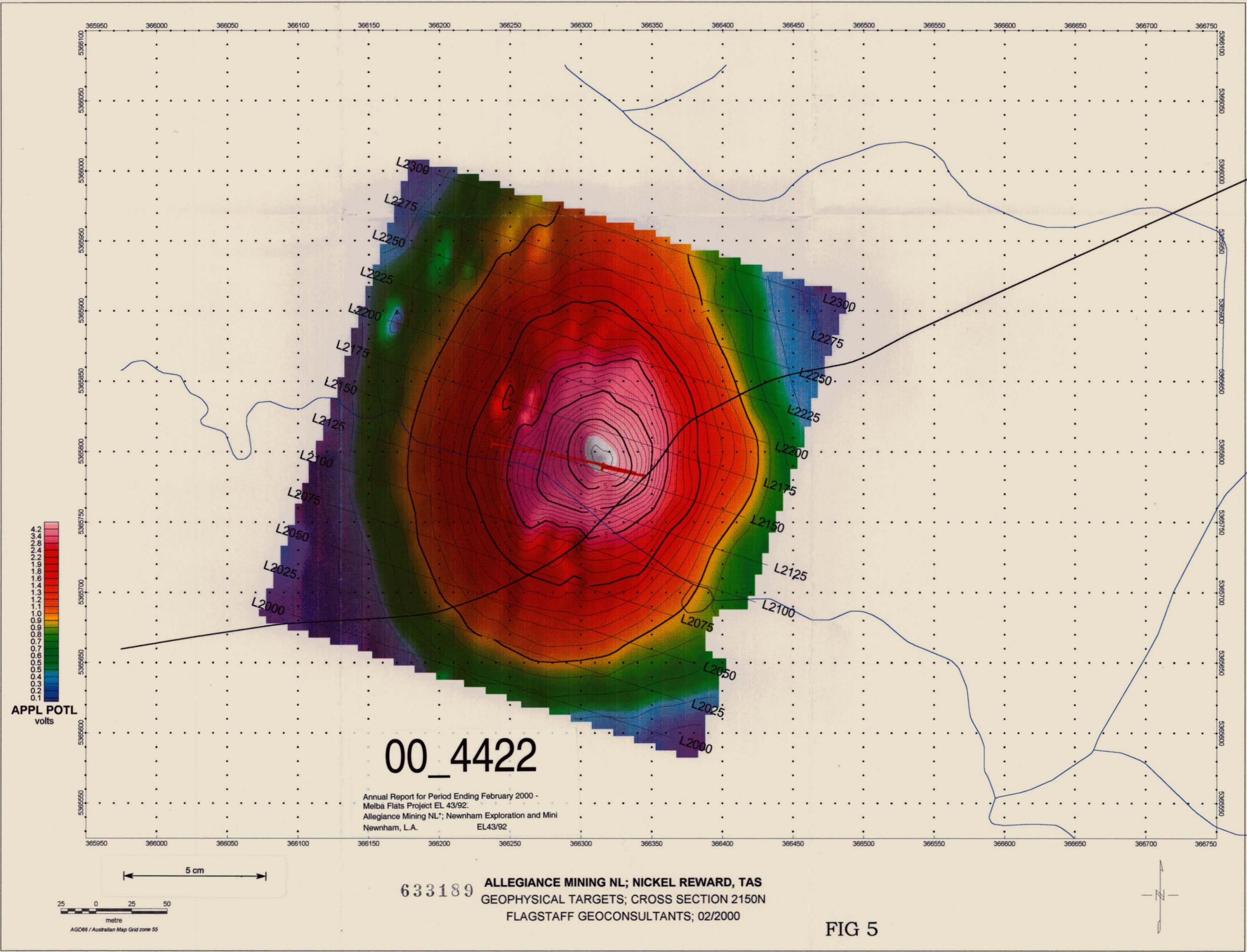
NICKEL REWARD, MF11, DOWNHOLE IP/RESISTIVITY



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NICKEL REWARD, MF12, DOWNHOLE IP/RESISTIVITY





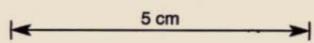
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 Newnham, L.A. EL43/92

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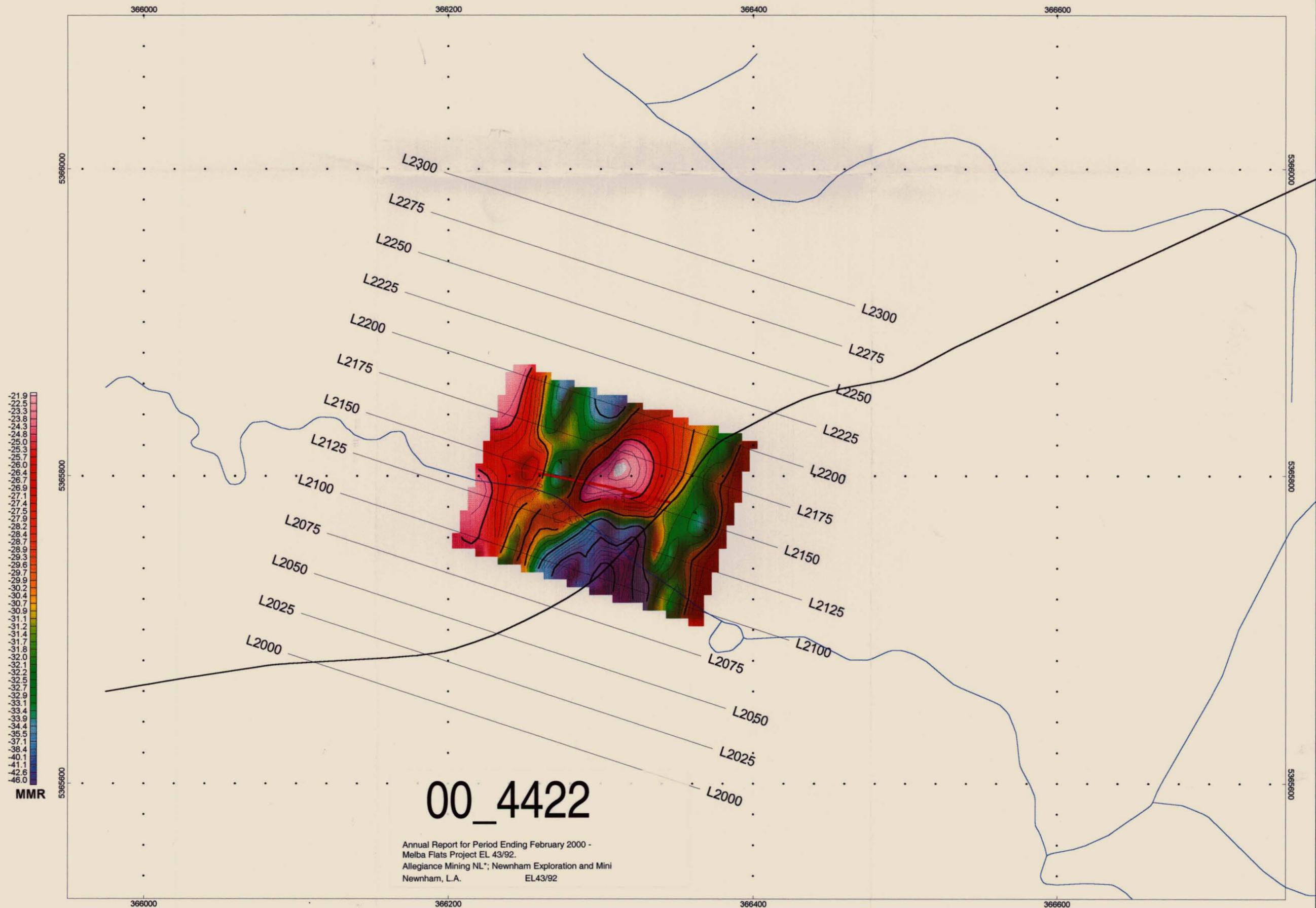
ALLEGIANE MINING NL; NICKEL REWARD, TAS
 GEOPHYSICAL TARGETS; CROSS SECTION 2150N
 FLAGSTAFF GEOCONSULTANTS; 02/2000

FIG 5



AGD66 / Australian Map Grid zone 55





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 Melba Flats Project EL 43/92.
 Allegiance Mining NL; Newnham Exploration and Mini
 Newnham, L.A. EL43/92

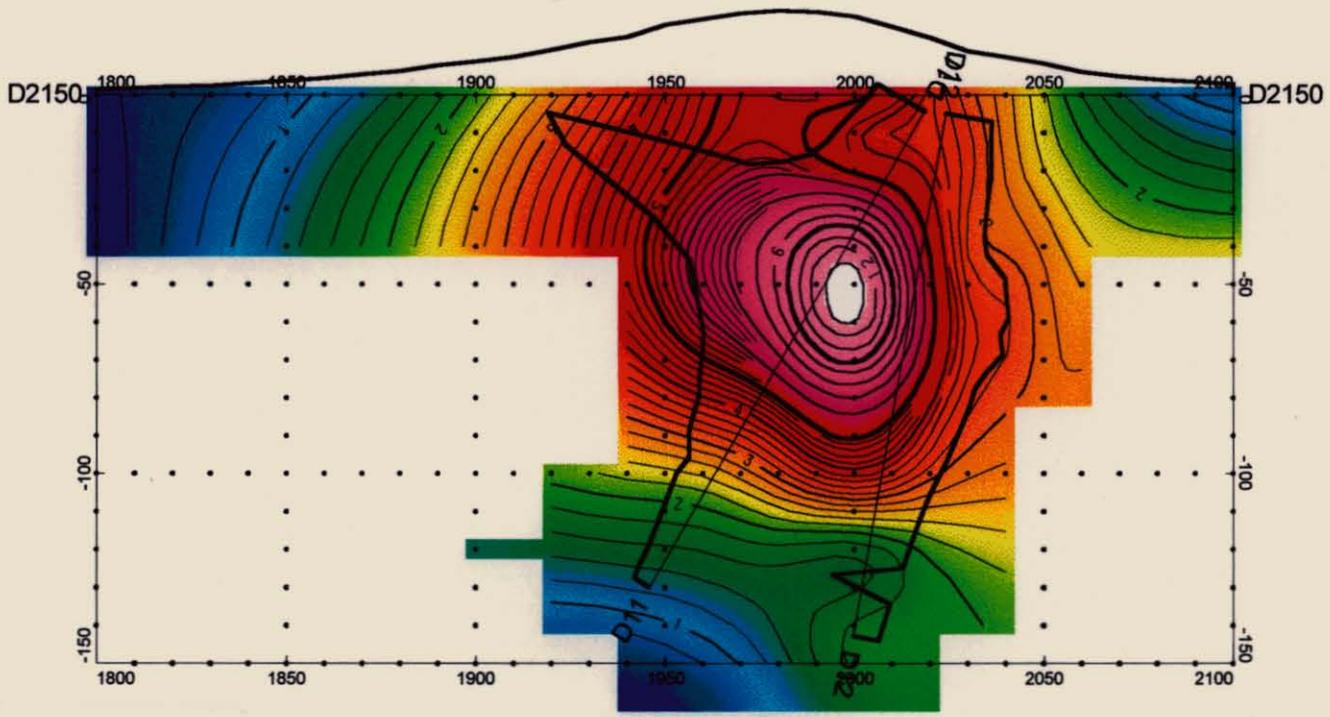
633190
 ALLEGIANCE MINING NL; NICKEL REWARD, TAS
 MAGNETOMETRIC RESISTIVITY (MMR) SURVEY
 FLAGSTAFF GEOCONSULTANTS; 1/2000

FIG 7

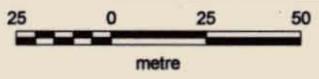
25 0 25 50
 metre
 AGD86 / Australian Map Grid zone 55

5 cm

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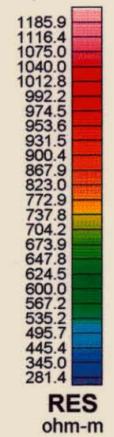
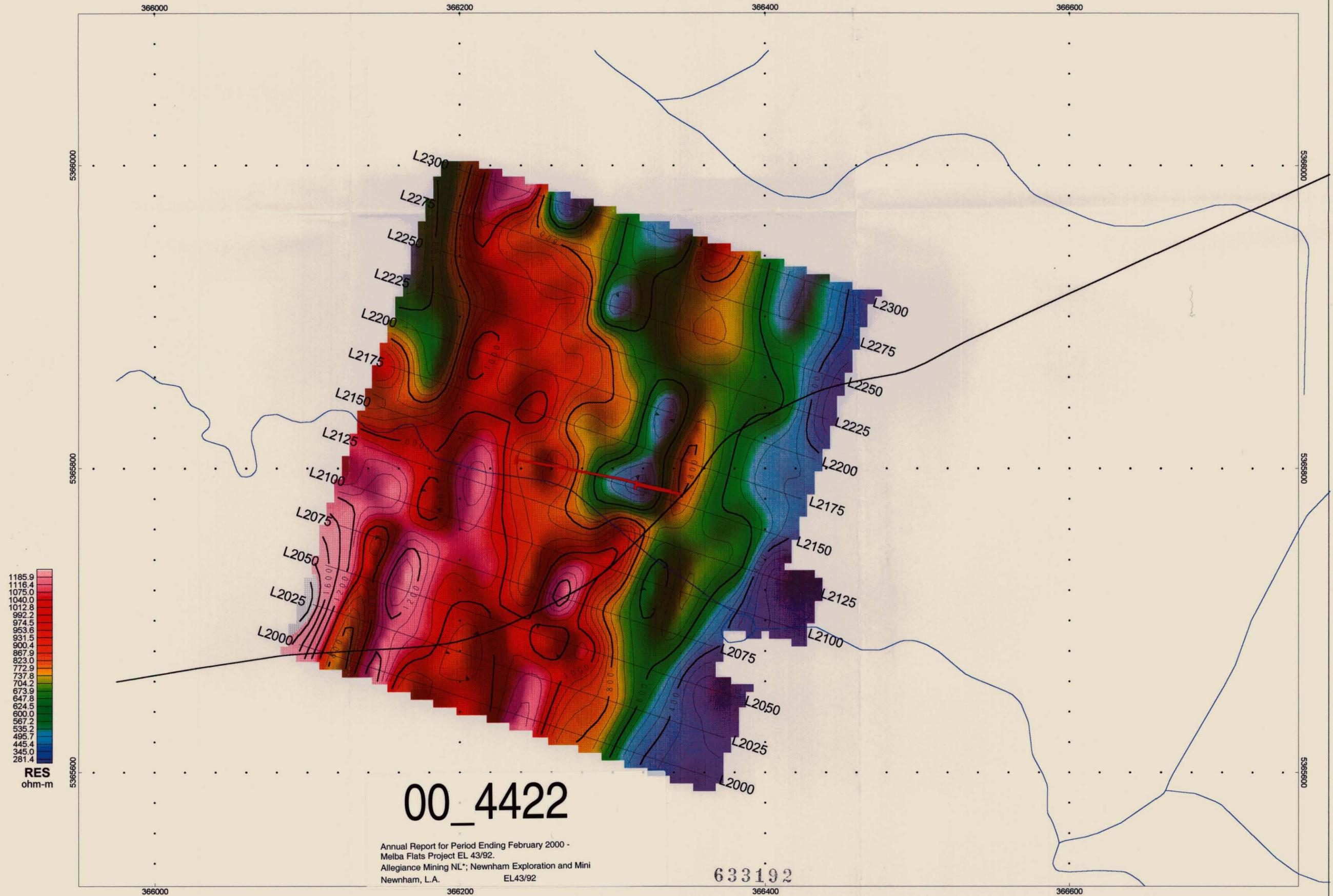
5 cm



ALLEGIANCE MINING NL; NICKEL REWARD, TAS
GEOPHYSICAL TARGETS; CROSS SECTION 2150N
FLAGSTAFF GEOCONSULTANTS; 02/2000



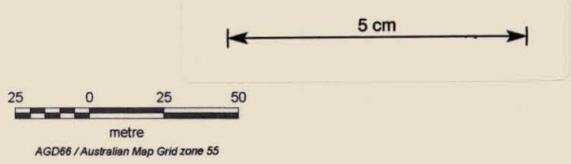
FIG 6



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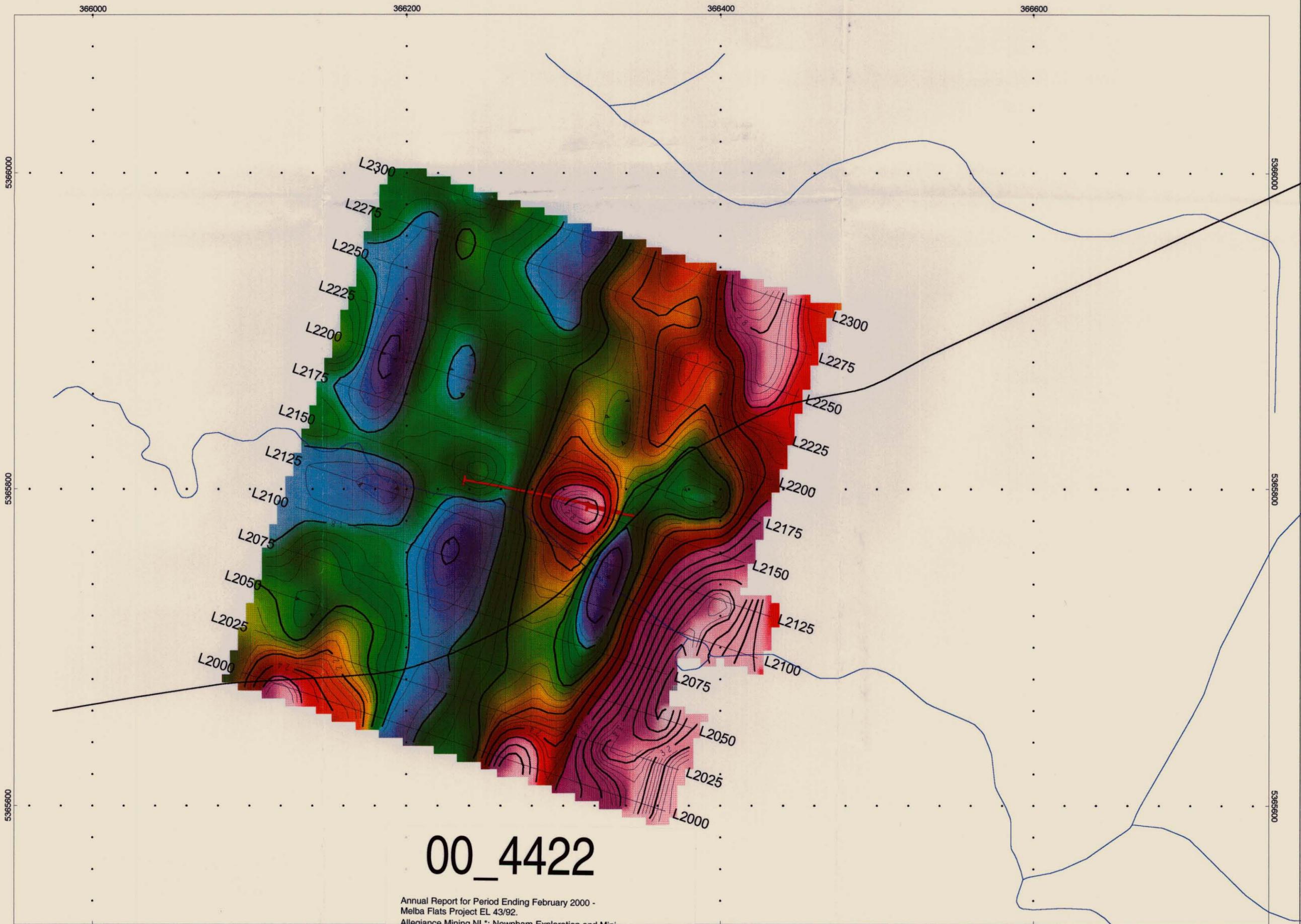
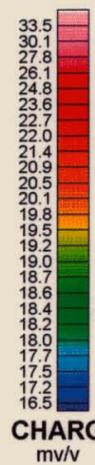
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Newham, L.A. EL43/92

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ALLEGIANCE MINING NL; NICKEL REWARD, TAS
GRADIENT IP, APPARENT RESISTIVITY
FLAGSTAFF GEOCONSULTANTS ; 1/2000
FIG 2

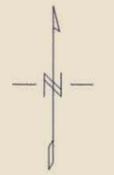
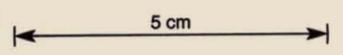


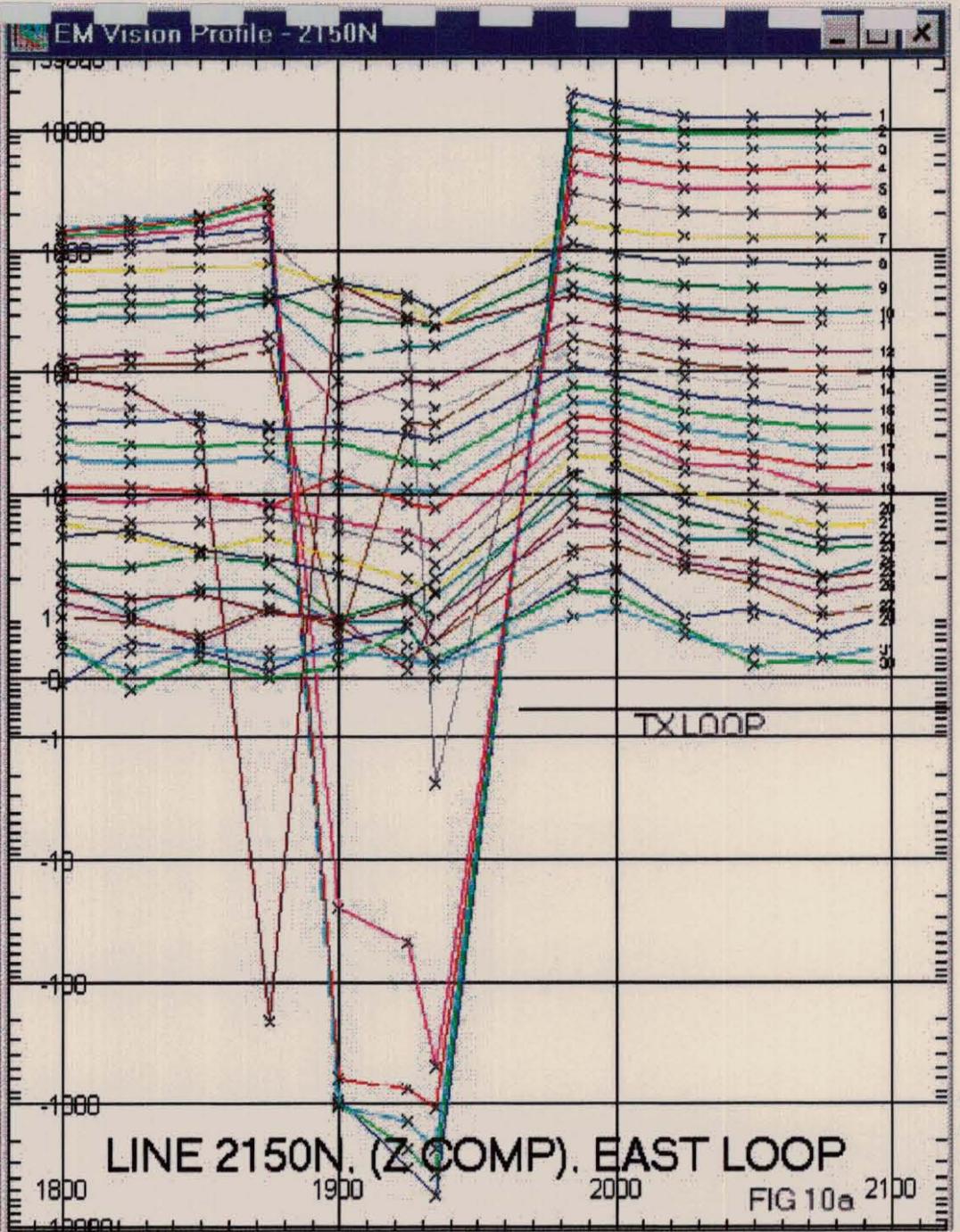
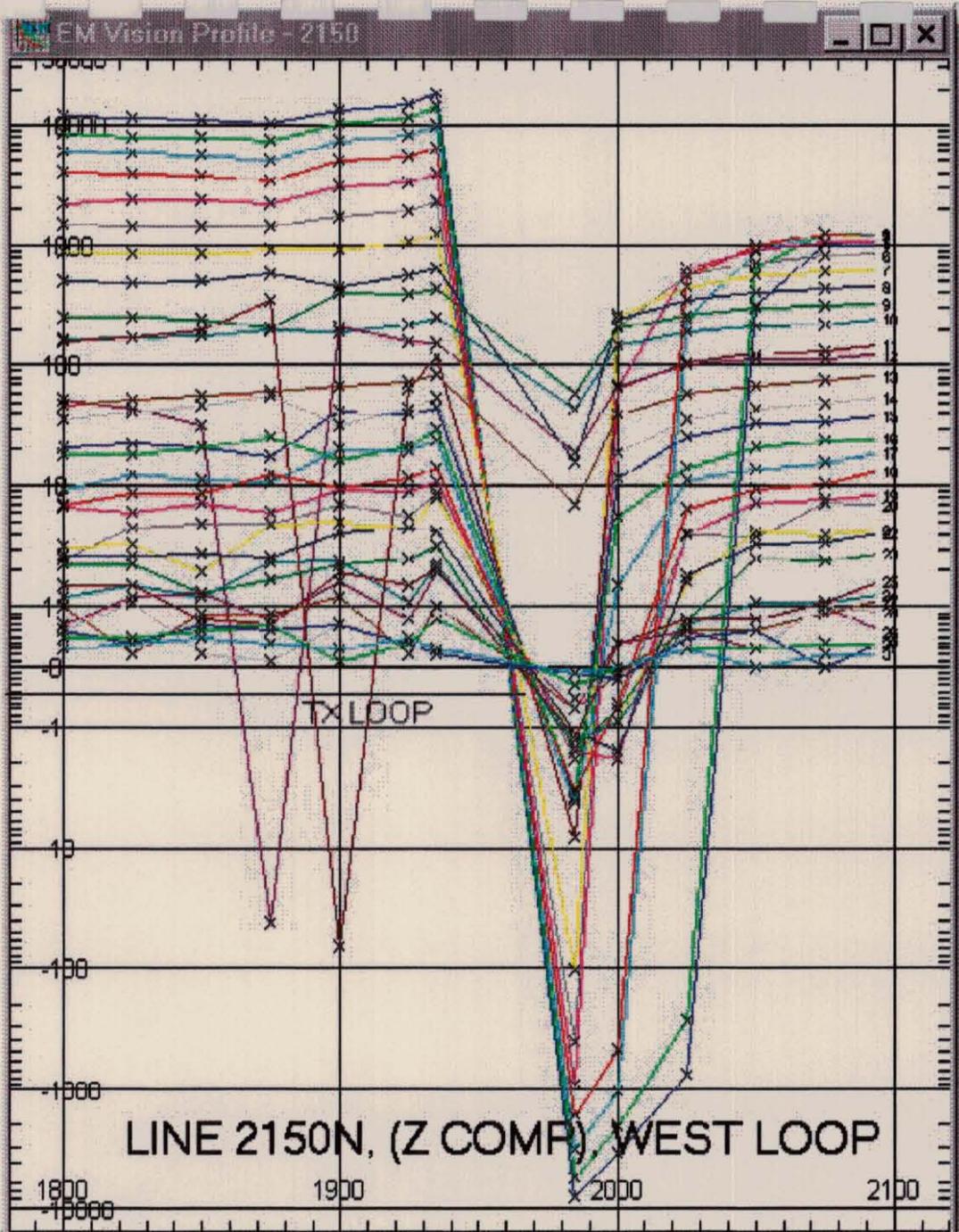


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Allegiance Mining NL; Newnham Exploration and Mini
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ALLEGIANE MINING NL; NICKEL REWARD, TAS
GRADIENT IP, APPARENT CHARGEABILITY
633193 FLAGSTAFF GEOCONSULTANTS ; 1/2000
FIG 1





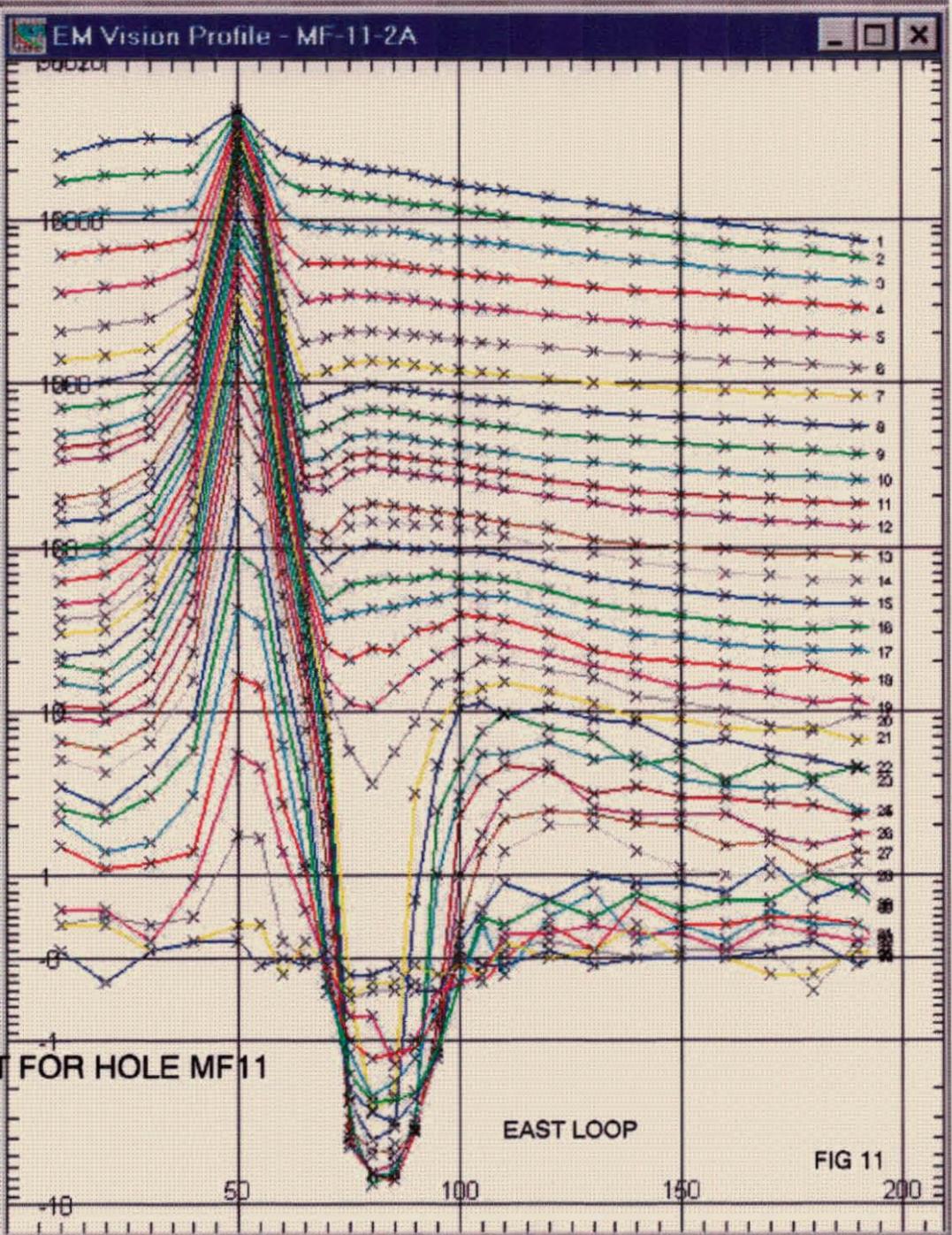
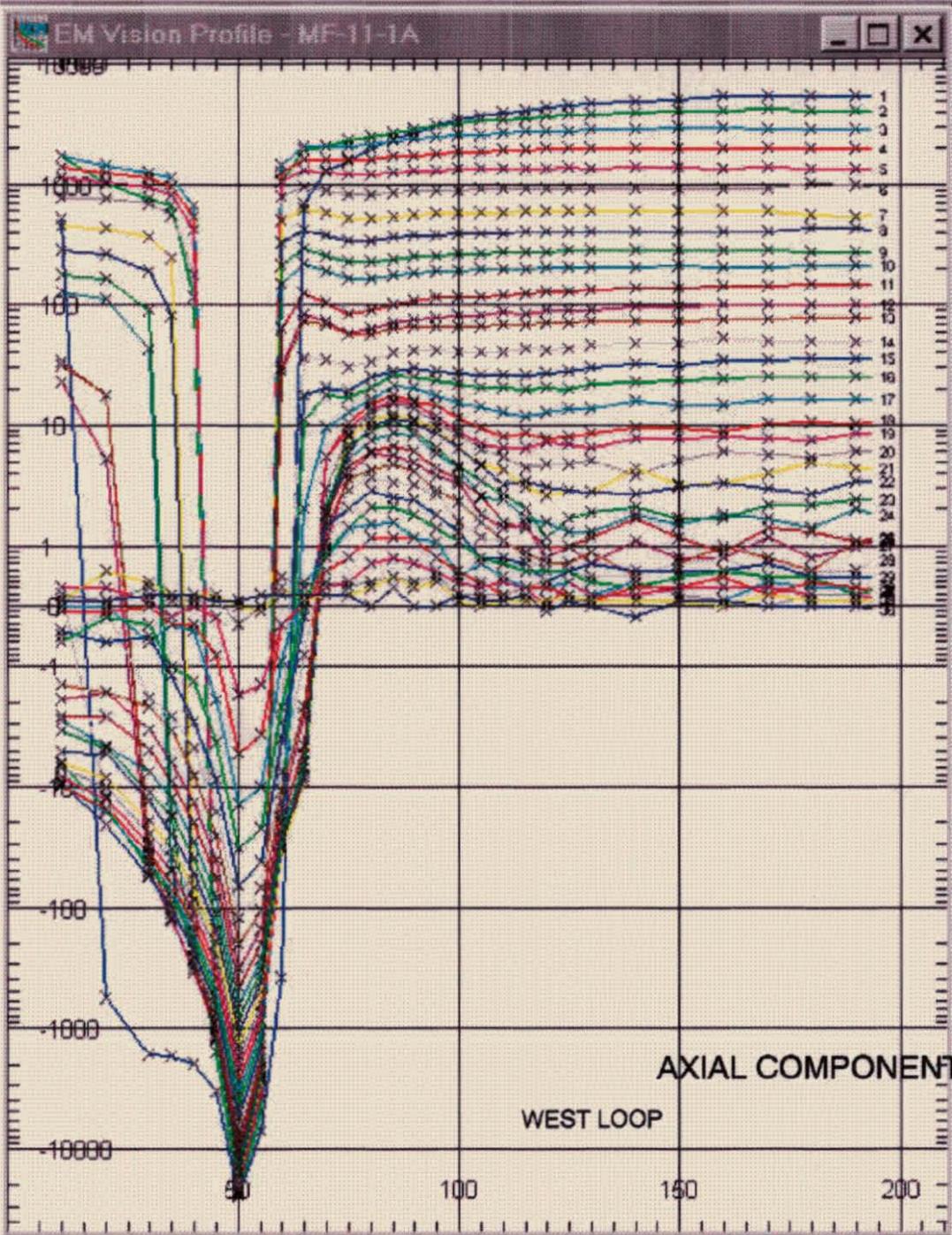
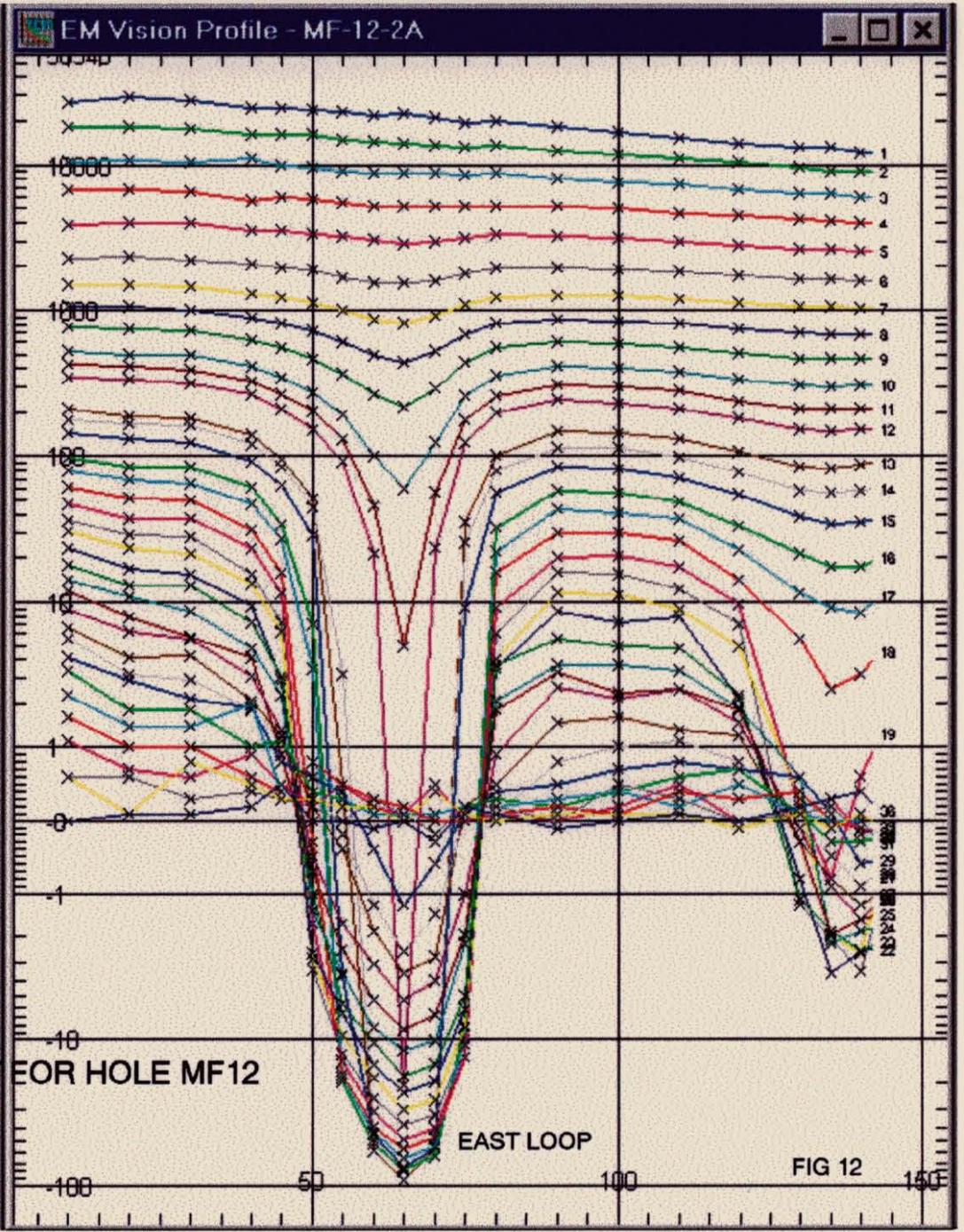
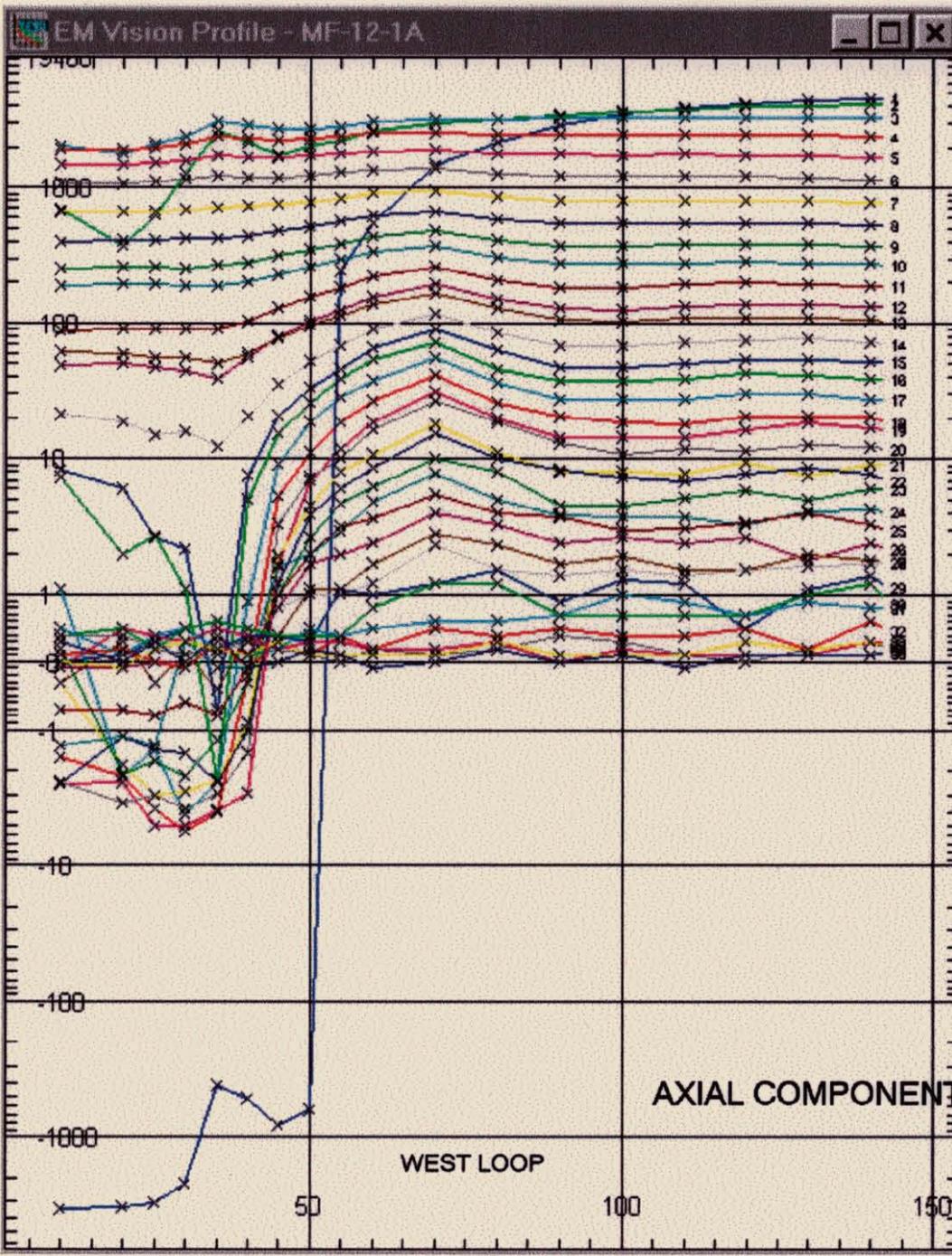


FIG 11

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FIG 12

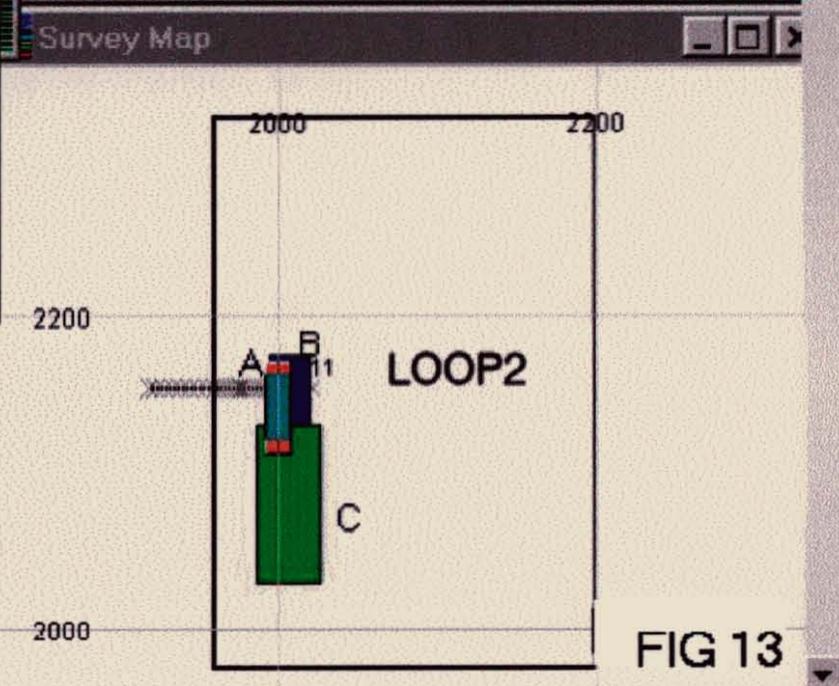
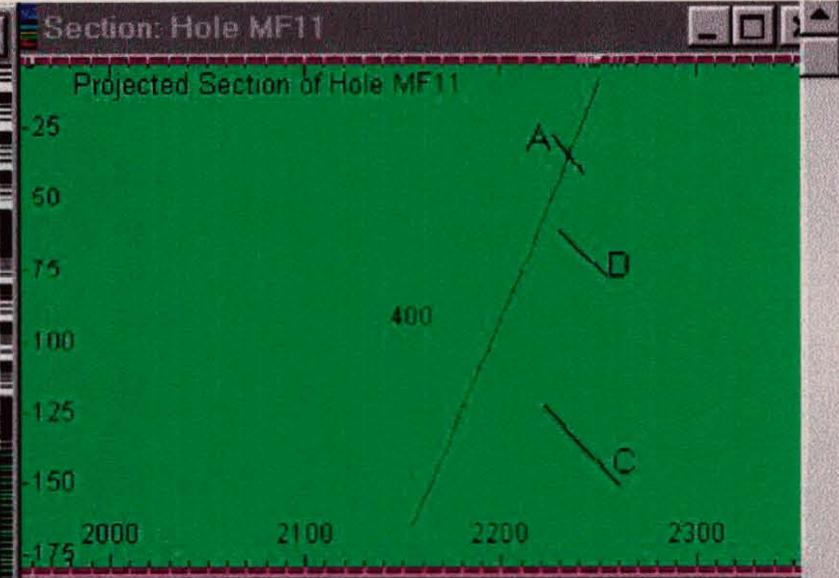
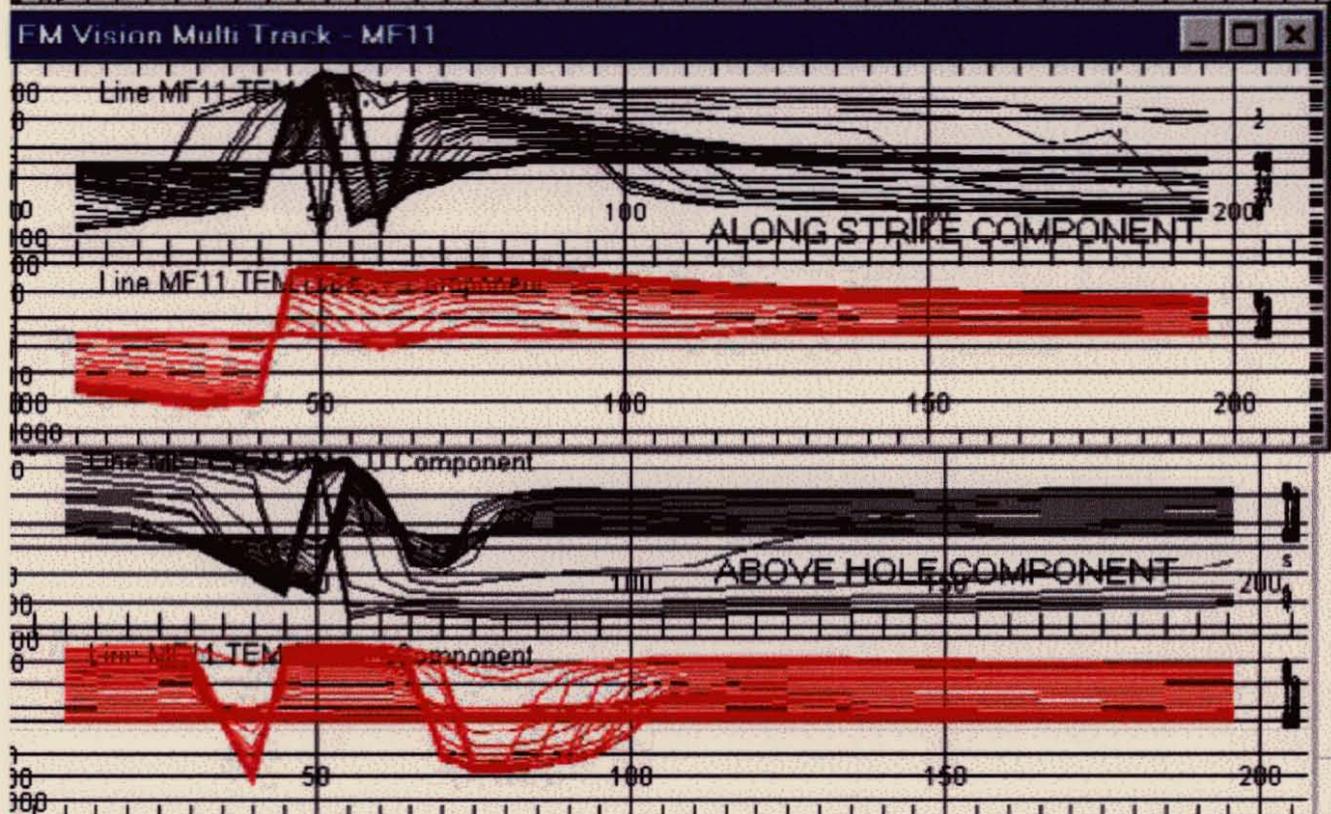
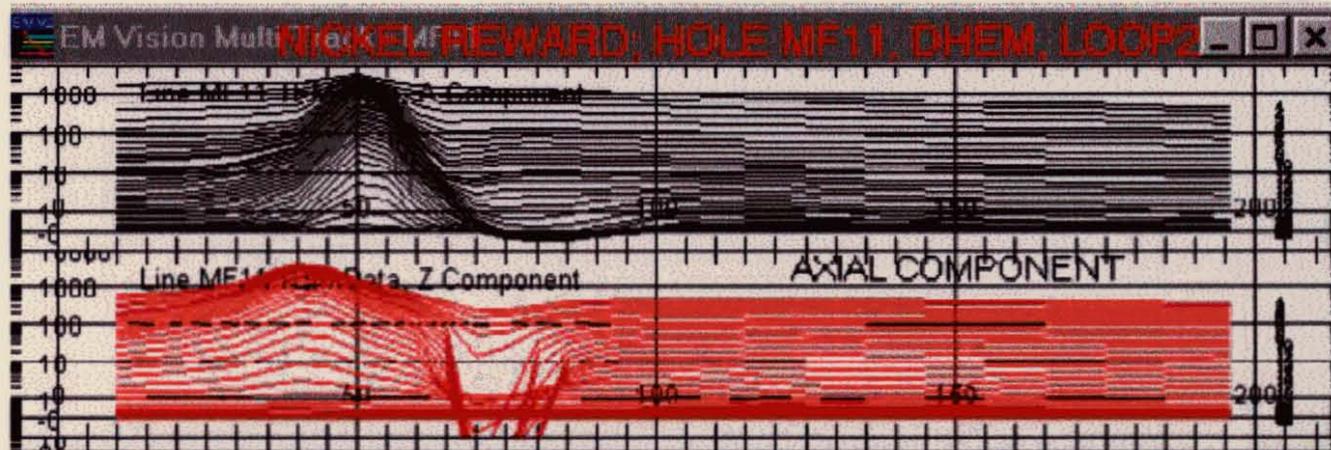
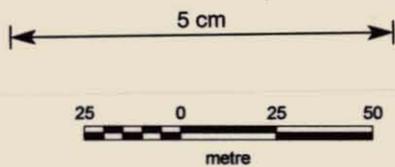
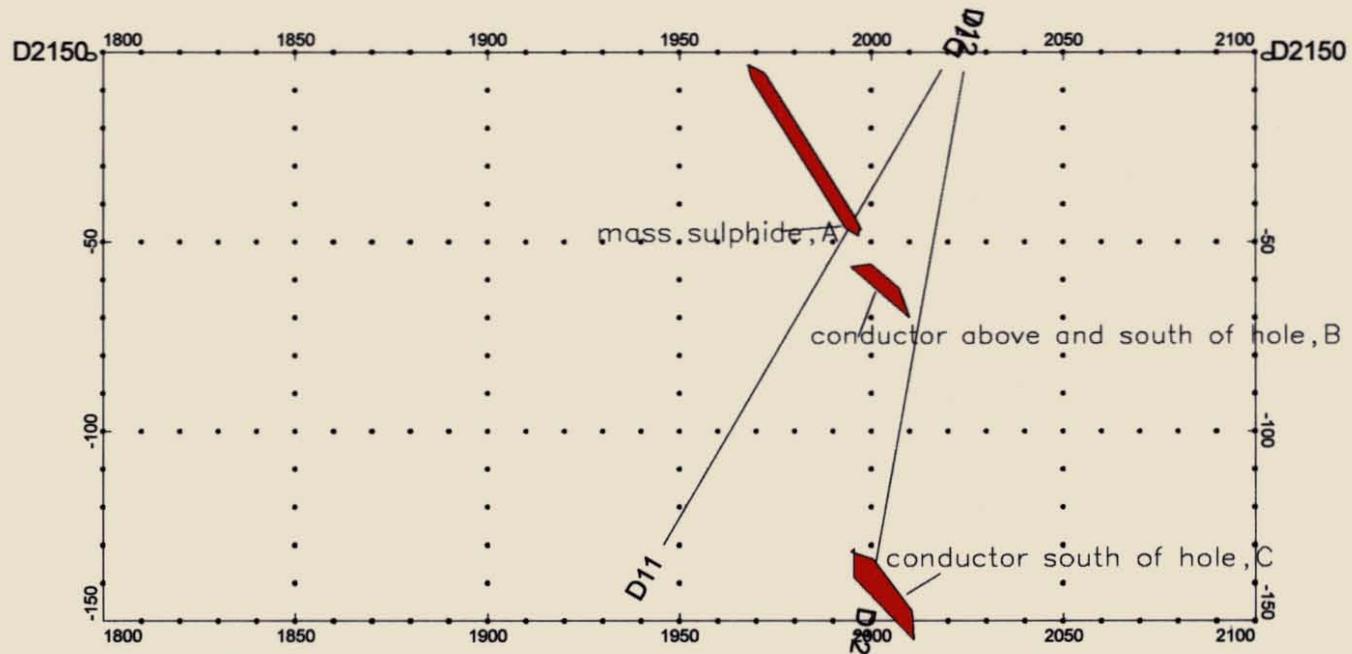


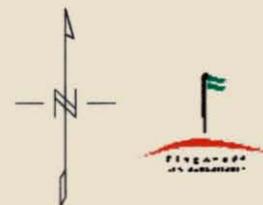
FIG 13

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ALLEGIANCE MINING NL; NICKEL REWARD, TAS
GEOPHYSICAL TARGETS; CROSS SECTION 2150N
FLAGSTAFF GEOCONSULTANTS; 02/2000

FIG 14



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