723001

RGC EXPLORATION

ANNUAL REPORT 1995/96

96-3834

TASMANIAN BASE METALS

ELS 102/87, 55/89 AND 12/92

"Queenstown", "Mt Darwin" &
"Queenstown South"

1996

EL102/87 FOLIO 10
EL55/89 FOLIO 49
EL12/92 FOLIO 74

Vol 1 of 2
Text and Appendices

HELD BY: BHP Minerals

MANAGER & OPERATOR: RGC Exploration

TRANSPARENCIES HELD

96-3834
VOLUME 1 OF 2
ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

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25 January, 1996

PROSPECTS: Garfield, Slate Spur, Jukes Proprietary, Mountain Maid

MAP SHEETS:	**1:100,000: Franklin, Sophia**	
GEOGRAPHIC COORDS	**Min East: 3750000mE** **Min North:5320000mN**	**Max East: 387000mE** **Max North: 5368000mN**

COMMODITY(s): Cu, Pb, Zn, Au, Ag

KEY WORDS: Cu-Au Mineralization, Western Tasmania

Distribution:

- o **RGC Exploration Information Centre Reference:**
- o **RGC Exploration Zeehan**
- ● **Industry, Safety and Mines**
- o **BHP Minerals**

SUMMARY

Exploration Licences 102/87 Queenstown, 55/89 Mt Darwin and 12/92 South Queenstown cover a 30km N-S trending exposure of Cambrian Mt Read Volcanics from Lake Margaret to Slate Spur. E.L.'s 102/87 and 55/89 are held by BHP Minerals Ltd and explored by RGC Exploration under a joint venture agreement entered into on 29th November, 1991. RGC acquired an adjoining area as E.L. 12/92 on 12th October 1992, and this was also included in the joint venture. The total area covered by these licences is 130 sq kms.

Six diamond drill holes were completed at the Garfield Prospect. They intersected low grade Cu-Au mineralisation with average Cu grades ranging from 700 to 2000ppm. Four drill holes were tested with down hole EM surveys, but no conductors were detected. A small gradient array IP survey extended the coverage from a previous survey and also tested another lithological (andesite) target and a magnetic target. This traced the host andesite as a chargeability anomaly for almost 1km to the north of the Cu prospect, but the response is weak and does not warrant drilling. The Garfield Prospect has now been fully tested and no further work will be undertaken here.

A hole was drilled at the Penghana Prospect to test a magnetic anomaly in an andesite unit that has affinities with the Garfield andesite. No mineralisation other than a 45cm base metal vein was intersected. This hole was also tested with down hole EM.

Detailed mapping and infill soil sampling is underway at Slate Spur where the target is the possible seafloor position equivalent to the top of the Garfield Cu-system. Details of the mapping are presented in this report, but the soil sampling has not yet been completed.

A mapping and IP program was completed at the Mountain Maid Prospect on the northern slopes of Mount Huxley. This has defined a conformable alteration zone in a package of sediments between dacitic lava units. The zone is limited to a strike length of about 250m and a decision is yet to be made about whether it will be drilled.

A review of the Jukes Proprietary Prospect indicated that the centre of the magnetic and IP anomalies related to the mineralisation has not been drilled. However, the adjacent drill holes, adit sampling, road-side sampling and the location of the King River Tunnel constrain the size of the untested target. It is not considered worthwhile proceeding with further drilling at this prospect.

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1. INTRODUCTION

Exploration Licences 102/87 - Queenstown and 55/89 Mt Darwin are held by BHP Minerals Ltd. (BHPM) and an adjoining licence, E.L. 12/92 is held by RGC. These licences are explored by RGC Exploration Ltd under the terms and conditions of a joint venture agreement. Approval was granted allowing the joint reporting of the exploration work because the tenements form a single coherent geological block.

The tenements currently occupy a total area of 130 sq kms surrounding Queenstown extending to the north, in part, some 30 kms to Moxon Saddle and to the south some 20 kms to Slate Spur (Figure 1). They cover a significant portion of the Cambrian Mount Read Volcanics. These rocks host a variety of significant mineral occurrences.

Much of the previous work in this area targeted copper-gold mineralisation of the Mt Lyell style. More recently BHPM covered selected areas with blanket UTEM looking for VMS mineralisation. This was supported by some geological mapping and rock chip/stream sediment geochemistry.

RGC is also exploring this area for Rosebery-style VMS mineralisation. The exploration approach which has been applied involves detailed geological mapping in an attempt to identify possible mineralised horizons and alteration zones. This mapping is supported by multi-element soil and rock geochemistry. Any alteration zones thus identified can be tested by deep drilling and down-hole geophysics.

This report documents the work completed by RGC during the period March 1995 to February 1996.

2. LAND TENURE

E.L. 102/87 - **Queenstown** was granted to BHPM on 22nd April, 1988. The tenement initially covered 95 sq kms in three separate parts (Figure 1)

Part (i)	-	Queenstown of 74 sq kms
Part (ii)	-	Garfield of 19 sq kms
Part (iii)	-	Moxon Saddle of 2 sq kms

Part (i) totally enclosed the Mt Lyell Mine Lease, 30M/80. In 1988 Mining Lease Application areas (MLA's) were cancelled by Mt Lyell increasing the area of Part (i) to 79 sq kms. Again in early 1992 additional MLA's were relinquished further increasing Part (i) to 84 sq kms. This tenement currently covers 105 sq kms and was due for 50% reduction on or before 22nd April, 1993. A meeting with representatives of the Department of Mines Tasmania (DMT) was held on 15th April, 1992 where RGCE expressed its interest in postponing the reduction date by 12 months due to its recent entry into the Agreement with BHPM.

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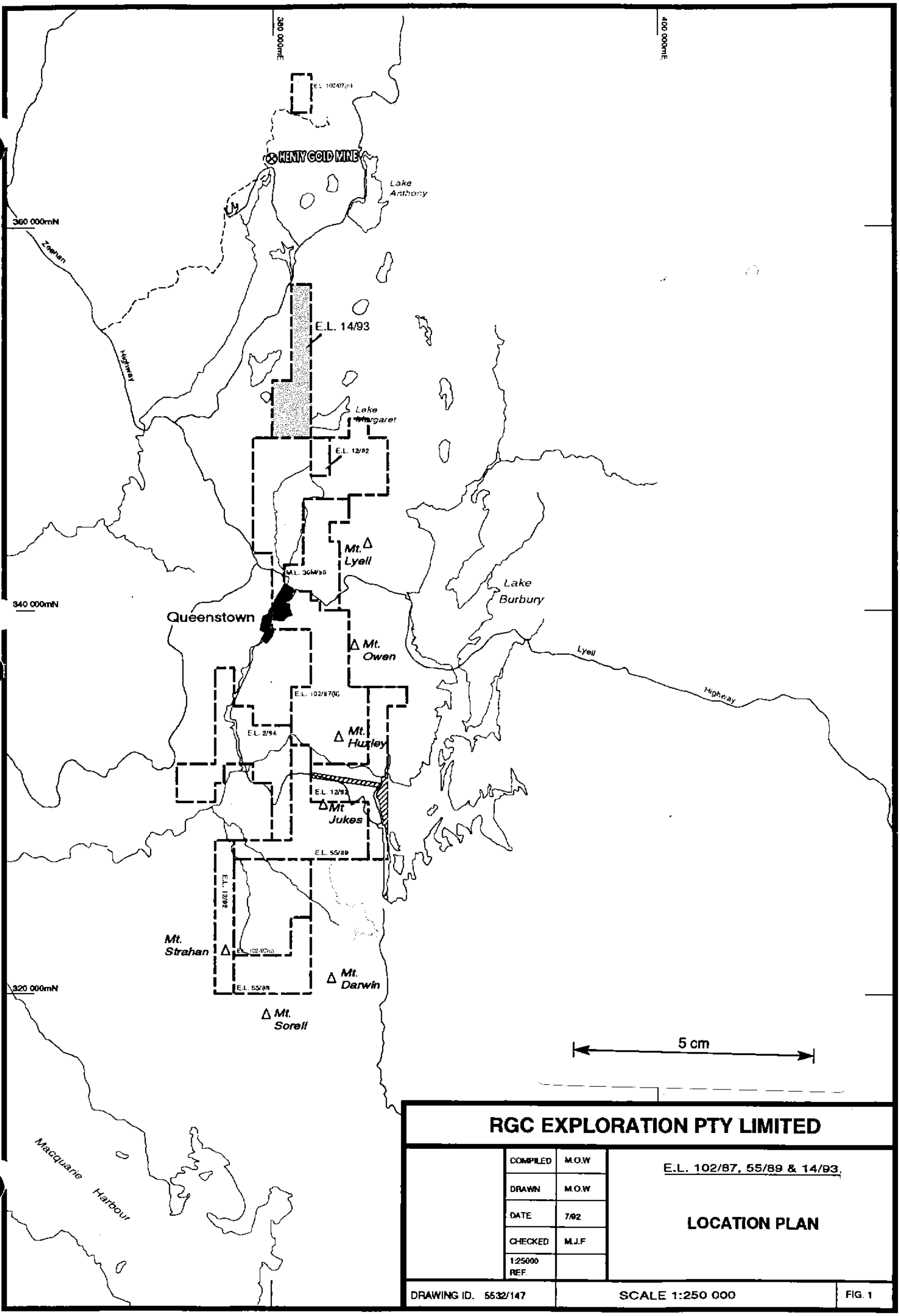


RGC EXPLORATION PTY LIMITED

COMPILED	M.O.W	E.L. 102/87, 55/89 & 14/93,
DRAWN	M.O.W	
DATE	7/92	LOCATION PLAN
CHECKED	M.J.F	
1:25000 REF.		

DRAWING ID. 5532/147 SCALE 1:250 000 FIG. 1

E.L. 55/89 - **Mt Darwin** was granted to BHPM on 5th May, 1990. This tenement covers 78 sq kms and links Parts (i) and (ii) of E.L. 102/87 (Figure 1) resulting in a continuous exposure of Mt Read Volcanics over a strike length of 14 sq kms which is explored as a single coherent block. Because of this BHPM was successful in gaining approval from the DMT to jointly report on exploration activities (15th March, 1991).

E.L. 12/92 - **South Queenstown** was granted to RGC on 12th October 1992. This tenement formed a narrow strip partly enclosing the other E.L.'s. It was divided into 3 parts:

Part (i) - 49 sq kms on the eastern side of the West Coast Range
Part (ii) - 15 sq kms over Mt Sorell and Mt Strahan
Part (iii) - 2 sq kms south of Lake Margaret.

A significant portion of E.L.'s 102/87 and 55/89 was within the South-West Conservation Area (SWCA) and considered to be environmentally sensitive. Despite the revocation of Conservation Area status in areas north of Macquarie Harbour exploration activities in the Garfield/Clark Valley are still subject to approval from the Mineral Exploration Working Group.

Following the partial relinquishment in 1995 the total area covered by the three E.L.'s was reduced to 130 sq kms. This is made up of:

E.L. 102/87 Part (i) Queenstown - 56 sq kms
Part (ii) Garfield - 18 sq kms
Part (iii) Moxon Saddle - 2 sq kms

E.L. 55/89 Part (i) Mt Darwin - 28 sq kms

E.L. 12/92 Part (i) West Coast Range - 16 sq kms
Part (ii) Mount Sorell - 8 sq kms
Part (iii) Lake Margaret - 2 sq kms

3. WORK COMPLETED

3.1 Previous Work

Previous exploration work completed by BHP is summarised by Cameron and Read (1991). The work completed by RGC since entering the joint venture is documented by Halley (1992), Halley (1993), Halley (1994) and Halley, Vicary and Boyd (1995). The most significant outcome of this work was the discovery of the Garfield Prospect, a Prince Lyell style of disseminated and veinlet Cu-Au mineralisation. The geochemistry and genesis of the Garfield Prospect is described in Appendix 14.

3.2 Helimag Survey

During February 1995 a detailed Helimag survey was flown over all of RGC's tenements south of Henty. This survey employed a stinger-mounted sensor, rather than a towed bird, and with real-time corrected differential GPS navigation accurate to +/- 2m, this survey will most likely be the best magnetic data available for the next ten to twenty years. The survey was flown by UTS Geophysics Pty Ltd in a Helicopter Resources Squirrel helicopter. The survey was flown with a flight line spacing of 100m and a nominal ground clearance of 30m. The data was processed by Tesla 10.

3.3 Garfield

Five short diamond drill holes were completed to test the near surface Cu values, to try to understand the low tenor of the surface geochemistry. The holes were drilled by Nick Poltock with his portable drilling equipment. Details of the holes are given in the following table.

Drill hole GAR012 was designed to test the mineralised zone at depth between holes GAR001 and 003. It was a helicopter supported hole drilled by Diamond Drilling Tasmania with a Longyear 38 rig. All of the equipment was flown in and out from the surge pond site next to the Mount Jukes road.

HOLE	GAR007	GAR008	GAR009	GAR010	GAR011	GAR012
DRILLED BY	NICK POLTOCK	NICK POLTOCK	NICK POLTOCK	NICK POLTOCK	NICK POLTOCK	DIAMOND DRILLING TAS.
START	APRIL 1995	APRIL 1995	APRIL 1995	APRIL 1995	APRIL 1995	3/10/95
FINISH	APRIL 1995	APRIL 1995	APRIL 1995	APRIL 1995	APRIL 1995	14/10/92
SIZE	TT46	TT46	TT346	TT46	TT46	NQ
DEPTH	40.15	39.8	40.9	41.0	40.0	482.0
INTERVAL SAMPLED	1 - 40.15	1 - 39.8	3 - 40.9	1 - 41.0	0 - 40.0	410 - 455
ELEMENTS ASSAYED	Au, Ag, Cu, Pb, Zn	Au, Ag, Cu, Pb, Zn	Au, Ag, Cu, Pb, Zn	Au, Ag, Cu, Pb, Zn	Au, Ag, Cu, Pb, Zn	Au, Ag, Cu, Pb, Zn

Four of the Garfield drill holes, GAR004, 005, 006 and 012 were surveyed with downhole transient electromagnetics. The surveys were conducted by Outer-rim Exploration Services using a Crone Pulse EM system. The loop layouts were designed to utilise as far as possible existing cut grid lines to minimise the environmental impact. Although it was recognised that the mineralisation identified at Garfield would not respond to EM, it is still considered that there is high potential for the discovery of exhalite massive sulphide mineralisation at a higher level in the stratigraphy. The down hole EM survey was designed and conducted with this model in mind.

The previous IP survey conducted at Garfield (Halley, 1995) did not close off the chargeability anomaly to the north. An extension to the IP coverage was proposed to test three targets, (1) the continuation of the known chargeability anomaly, (2) a second parallel lens of andesite to the north that is also strongly altered and (3) a small andesite body near the Thomas Curry rivulet with a strong magnetic signature identified in the Helimag survey. The IP survey was conducted by Quadrant Geophysics using a Scintrex IPR12 receiver and Zonge GGT-2.5kw two second time domain transmitter. The gradient array survey used a 50 metre receiver dipole and data was recorded at half the receiver dipole length, 25 metres. Two lines were resurveyed with a dipole-dipole array.

3.4 Slate Spur

Another target considered at Garfield is the position of the seafloor at the time the Cu mineralisation was forming. Isotope studies show that Garfield is a seawater dominated alteration system, and the seafloor position above the Cu-Au mineralisation should have potential for Rosebery style Pb-Zn mineralisation. This horizon might be in the siltstone unit that runs along the Garfield River, or it might be at the base of the Tyndall Group which is a mineralised horizon in other parts of the Mount Read Volcanics. The only anomalism of any kind noted so far is a Pb-Zn soil geochemical response near the top of the Yolande River Sequence on the northern slopes of Slate Spur. This area was remapped in more detail by Bill Wyman, paying particular note to any alteration that may be present, and subdividing the stratigraphy as far as possible. The original soil sampling program sampled 400m spaced lines, with samples collected at 50m intervals. Work is in progress in this area to close the sample spacing to 200m by 25m so that the base metal anomaly can be properly evaluated.

3.5 Mountain Maid Prospect.

This is not from here
but Mt Ellen.

Previous work by BHP around the Mountain Maid Prospect included reconnaissance rock chip sampling and a trial line of dipole-dipole IP. This work noted a strong chargeability response over the old workings and a channel sample of 5m @ 2.15ppm Au was recorded. To follow up on this result, RGC mapped the area at 1:1,000 and collected rock chip samples throughout the alteration zone. A small gradient array IP survey was designed to test the extent of the exposed alteration system. The IP survey was conducted by Quadrant Geophysics using a Scintrex IPR12 receiver and Zonge GGT-2.5kw two second time domain transmitter. The gradient array survey used a 50 metre receiver dipole and data was recorded at half the receiver dipole length, 25 metres. Two lines were resurveyed with a dipole-dipole array.

3.6 Jukes Proprietary Prospect.

The Helimag survey indicated that the centre of the magnetite alteration zone at Jukes Pty does not coincide with the centre of the known mineralisation. When this was compared with the open file IP data from this prospect, it was discovered that the chargeability anomaly was adjacent and parallel to the magnetic anomaly, but both were north of the historic Jukes Pty workings. In light of this the prospect was remapped, in particular looking at possible zonations in the alteration mineralogy. Previous exploration data was reviewed to see if the magnetic - IP target warranted drill testing. An extensive whole rock and trace element database was made available by Bill Wyman from his Ph.D. research work. As part of this work he had systematically sampled and assayed the road cuttings through the Jukes Pty area. RGC added to this database by submitting his sample pulps for assay by NAA to add Au, REE's, etc to the data.

3.7 Penghana

In a comparison of all andesites in the Lyell-Darwin district, two units with chemistry and air-mag signatures similar to Garfield were noted. One of these is Little Owen, south of Mount Lyell, where an intersection of 10m @ 4ppmAu has been recorded. The other is on Penghana Hill, north of Queenstown. Mapping, ground magnetics and a soil geochemistry program have been completed on this grid (Halley et al., 1995). The andesite, like that at Garfield, is not uniformly magnetic, suggesting that the magnetite is an alteration mineral rather than a primary magmatic phase. A large barite vein, Madam Howards Barite, occurs a few hundred metres away in the hangingwall sequence. This vein is similar to barite veins on Philosophers Ridge adjacent to Prince Lyell. The soil geochemistry showed that the andesite at Penghana was anomalous in Pb and Zn, at levels similar to the margins of the Garfield system. A single drillhole was completed to test the Penghana prospect. This hole was surveyed with the Crone 3-component pulse EM system.

4. RESULTS AND DISCUSSION

4.1 Helimag Survey

The specifications and details of the Helimag survey are presented in Appendix 13. The results are presented as plans of contoured total magnetic intensity (Plans 1 to 4).

4.2 Garfield Area

4.2.1 Diamond Drilling

4.2.1.1 Holes GAR007,008,009,010 and 011

The levels of copper recorded in drill holes GAR001, 002 and 006 were an order of magnitude higher than the rock chip or soil values sampled at surface above the holes. The median value for surface samples within the alteration zone was around 35ppm Cu compared to an average of 2000 to 3000 ppm in the drill holes. This may be due to leaching of copper in the weathering profile or it may represent a primary copper distribution, analogous to Western Tharsis, where ore grade copper was not intersected until 300m below surface.

To test this, a series of short diamond drill holes were completed. The holes will be drilled with Nick Poltock's portable drilling equipment to minimise the environmental impact. The holes were drilled into the top of the chargeability anomalies on lines 2000N to 2400N to a depth of about 40m. Each of the holes intersected a zone of disseminated and veinlet pyrite. No supergene copper minerals were noted. Fresh pyrite was present from surface, but the abundant calcite normally found with the Garfield mineralisation was leached out from these holes.

Assay results from the short DDH's were higher than expected, but still a factor of 2 or 3 lower than the previous deeper holes. The results supported the suggestion that copper values increase with depth. This is displayed in Figure 8 where histograms of copper assays down the drill holes are plotted on a projected longitudinal section. Drill logs and complete assays for these holes are presented in Appendix 2 and 5.

Hole No.	Assay interval	Cu ppm (average)
GAR007	39.2m	337ppm
GAR008	39.8m	2030ppm
GAR009	38.9m	667ppm
GAR010	40m	1683ppm
GAR011	39m	1458ppm

4.2.1.2 Drill Hole GAR012

The reason for drilling GAR012 can be seen in Figure 8. For the Garfield Prospect to become an economic proposition, a minimum resource of around 50 million tonnes at Prince Lyell grades (1.6% Cu, 0.5ppm Au) would be required. The vertical zonation in copper grades displayed in Figure 8 suggested that grades of that magnitude could be encountered beneath holes GAR001, 002 and 003. Given the thickness of the mineralised zone encountered in these holes, a significant tonnage potential is also present within a realistic depth range. GAR012 was designed to intersect the mineralised zone between GAR001 and 003 at a depth 100 to150m below the previous intersections.

GAR012 produced a disappointing result. The host andesite unit was intersected where expected, but was much narrower than in the holes up-dip. The mineralisation was only weakly developed in this hole, and consisted of disseminated pyrite with poorly developed sulphide veining. A 45m interval from 410 to 455m was assayed. This interval averaged 730 ppm Cu, with a maximum value of 4400 ppm. Full details of the hole are presented in Appendices 3 and 5, and the geological interpretation is presented as a cross section in Plan 5.

4.2.2 DHEM Survey

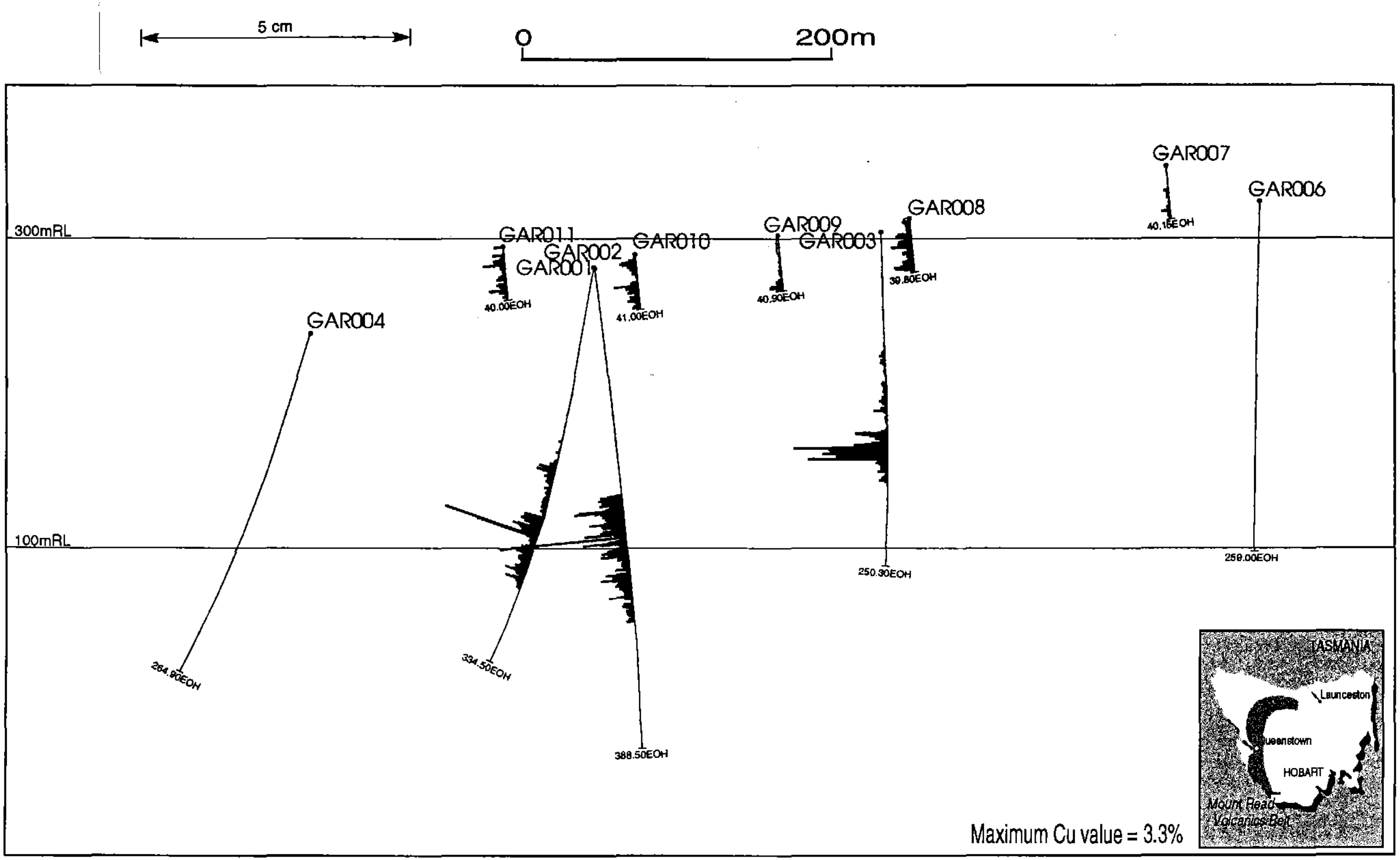
The results of the DHEM surveys are presented in Appendix 7. No anomalies of any interest were noted in any of the drillholes.

4.2.3 IP Survey

The IP survey extended the chargeability anomaly detected in the previous survey for an additional 600m to the north to at least 3200N, corresponding reasonably well with the mapped position of the host andesite. It is still open to the north. However, the strongest chargeability response detected to date is still in the zone from 2000N to 2300N where it has been demonstrated by the drilling results that a well developed mineralised zone is present. The extension of the chargeability zone is similar to the response recorded on line 2500N where drillhole GAR006 intersected only very weak mineralisation. It is therefore considered that the chargeable zone extending out to 3200N does not warrant testing by drilling. The chargeability response near the Thomas Currie River is further east than the magnetic anomaly and is clearly unrelated. Its position coincides with the contact the CVC and the ridge of Pioneer Beds that forms Snake Spur. This contact has been tested in this vicinity by two holes drilled by Goldfields in the mid 80's (Snake Spur Prospect). No further work is warranted here. The chargeability response detected in the western part of the survey area is most likely related to a sediment unit in the Yolande River Sequence. A more detailed discussion of the survey results is presented in Appendix 9.

Figure 8.

GARFIELD PROSPECT E.L. 102/87
LONGITUDINAL PROJECTION - Cu HISTOGRAMS



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4.3 Slate Spur Area

4.3.1 Mapping

The results of the Slate Spur mapping are presented on plans 6 and 7. The following notes about the mapping were prepared by Bill Wyman.

Lithological Descriptions:

Yolande River Sequence **Cyt**

Cytq Fine to medium grained white lava, intrusives (subvolcanic) and juvenile volcaniclastics. Generally very well developed cleavage parallel or at least subparallel to bedding and flow banding. Quartz phenocrysts well developed, euhedral and vary from 0.5 to 2 mm in diameter. This unit always has well developed light green sericite on cleavage surfaces causing a lot of shearing and a well developed grain parallel to cleavage and "bedding". This is the dominant lithology in the mapped area.

c.g. Cytq Coarse grained massive quartz phyric lava. quartz phenocrysts average 3 mm but many are larger. The groundmass is often medium grained and equigranular. Foliation and cleavage are poorly developed, but where cleavage is seen there is sericite developed on it. This unit dominates the western part of the Yolande River Sequence as the primary lava type and is intimately interbedded with siltstones, mudstone and other minor quartz phyric lavas.

Cytq(vc) Volcaniclastic. Dominated by lithic clasts about 5 - 10 cm in size, some are up to 70 cm. Most lithics are at least partially rounded to subrounded although the larger ones tend to be very angular. The lithics appear to be monomictic and are composed of flow banded quartz phyric lava. The groundmass is usually quartz phyric to aphyric rhyolite. These units may be hyaloclastitic and are usually not mappable along strike for any distance.

Cys(ss) or Cys(gw) Sandstone or greywacke. Medium grained light beige coloured sandstone. Occurs as lenses in the Cytq or as ,or extensive thin units in the sedimentary package. This unit may grade along strike into greywacke associated with Cytq.

Cys(st) or Cys(ms) Siltstone or mudstone. Often these are difficult to tell apart because they are probably interbedded and related. Thinly bedded friable with light coloured sericite on bedding surfaces. Cleavage is parallel to bedding

Cys(sh) Shale. Occasionally black shale as a few thin lenses. Probably grades along strike or vertically into siltstones. Often contains very finely disseminated pyrite.

Cys Undifferentiated sediments. Usually mudstone or siltstones in very thinly alternating units. Very hard to accurately locate as it weathers rapidly.

Cytqfb and Cytqb Quartz feldspar biotite porphyry. Medium to dark green massive coherent porphyry. Quartz phenocrysts to 1.5 mm, feldspar to 1.5 mm and biotite to 1mm in euhedral books. Biotite alters to hematite in weathered specimens but the larger biotites may alter to chlorite(?). The groundmass is sericitically altered. The well developed regional north west cleavage is only weakly developed in this unit but is visible. This unit appears to be intrusive in the southern portion of the study area but it becomes more conformable to the northwest where it begins to look like a lava and often looses its feldspar phenocrysts and is just quartz-biotite (or muscovite) phyric. The unit may represent a cryptodome and associated sills. In the northwest of the mapped area the unit is muscovite phyric (cf. previous mapping).

Cytqf(Cytfq) Medium grained quartz feldspar (or feldspar quartz) phyric lava. Feldspars rarely preserved and are usually replaced by a medium grained green sericite (?). This created a spotted or blotchy appearance to the rock. Quartz phenocrysts are 1 - 2 mm in diameter and are euhedral. In weathered specimens the feldspars are often replaced by minor hematite. The rock shows well developed cleavage in the southern portion of the area but to the north and east becomes massive and coherent with very poorly developed cleavage.

Observations

Quartz feldspar phyric rocks dominate the lower Yolande River Sequence in the mapped area. This is shown by the abundance in the northeast and southern parts of the area.

The Central Volcanics Sequence (Ccf) clearly interfingers with the quartz and quartz feldspar phyric rocks of the Yolande River Sequence in the north east portion of the map area.

The coarse grained Cytq in the west part of the map area is clearly different from the Cytq to the east. The rock is massive and poorly foliated and may represent a sill. The c.g. Cytq is intimately associated only with the sedimentary rocks of the Yolande River Sequence. This unit intruding into the Yolande River sequence sediments may have created enough concentrations of metals from the black shales and surrounding volcanics to account for the soil anomalies.

4.3.1 Soil Geochemistry

The soil sampling program at Slate Spur has yet to be completed. Assays for the first part of the survey are presented in Appendix 6. The second part of the survey will be conducted in late January - February 1996.

4.4 Mountain Maid Prospect

4.4.1 Mapping & Rock Chip Geochemistry

The Mountain Maid prospect is a stratigraphically controlled zone of intense quartz, pyrite, sheet silicate alteration. It occurs in a package of fine grained cherty siltstones lying between autobrecciated dacite lava flows. The alteration zone is of limited strike extent and has been mapped for about 300m. The intense alteration is confined to a 50m zone in which there is low level anomalous gold. This zone, however contains no associated base metal anomalism. The results of the mapping and rock chip sampling are described in Appendix 11.

4.4.2 IP Survey

The IP survey specifications are detailed in Appendix 10. The chargeability anomaly matched closely the position and extent of the mapped alteration zone.

4.5 Jukes Pty Prospect

4.5.1 Mapping

The 1:2,500 mapping and a discussion of the results is presented in Appendix 12. The best results from previous exploration at Jukes Pty came from the channel sampling in the lower adit (16m @ 1.68% Cu, 1.4ppm Au) and from a nearby drillhole (JP2, 9m @ 1.55% Cu, 1.56ppm Au). A row of holes 200m below the level of the adit (JP3, JP4, Z142003, JP1) all intersected thin low grade zones, and have effectively tested depth extensions of the Jukes Pty mineralisation. The anomalous IP and magnetic zone down slope from Jukes Pty remains untested near the surface, however the King Tunnel passed through barren rock 300m below this zone . The King Tunnel is also protected by a 200m exclusion zone. Both of these factors severely reduce the tonnage potential and accordingly it has been decided not to proceed with the drill hole proposed in Appendix 12.

4.6 Penghana Area

4.6.1 Diamond Drilling

Diamond drill hole PEN001 (Plan 8) was designed to test for "Garfield style" mineralisation within the strongly magnetic andesites at Penghana. The hole was targeted at the main magnetic anomaly (63275 nT) and an associated soil anomaly of 214 ppm Cu, 122 ppm Pb and 290 ppm Zn. A drill log of PEN001 is presented in Appendix 4 and assay results given in Appendix 5.

The hole was collared within Yolande River Sequence volcaniclastic siltstones and sandstones and the andesite was intersected from 40.5 to 229.5 m. The upper part of the andesite body from 40.5 to 119.0 m is a weakly altered equigranular andesite. It contained a thin quartz - carbonate - chlorite - epidote vein (approximately 0.45m wide) with 5% chalcopyrite, galena and pyrite. This is underlain by approximately 30 m of pink albite alteration with 1 % pyrite. Apart from the vein which assayed 1 m at 1.7% Cu and 0.62% Pb this alteration zone contained no significant basemetal abundances. Underlying the equigranular andesite is a weakly altered feldspar hornblende phyric porphyritic andesite. A zone of fine carbonate chlorite veinlets with traces of chalcopyrite and galena was intersected from 162 to 171 m. Assay values returned only low base metal values. There is local faulting at the contact between the two phases of andesite.

From 229.7 to 272.1 (EOH) m the hole intersected the Yolande River Sequence. The contact with the andesite was sharp and planar, and is most likely intrusive, suggesting that the andesite body is most likely a sill. From 229.7 to 242.5 m the Yolande River sequence consists of pale grey siltstones. These are underlain by crystal rich quartz feldspar phyric volcaniclastic sandstones from 242.5 to 272.1 (EOH).

4.6.2 DHEM Survey

A DHEM Survey was performed on hole PEN001 in November 1995. A detailed report is presented in Appendix 8. The results of the survey suggested that there were no off hole conductors present.

Due to the lack of significant alteration in drill hole PEN001 and the poor response from the DHEM survey no further work is planned at Penghana.

5. PROPOSED WORK PROGRAM - 1996/97

Drillhole GAR012 has tested the down dip potential of the Garfield Cu Prospect, and GAR006 and the IP surveys have closed off the potential along strike to the north. No further work is planned for this prospect.

A program of infill soil sampling is in progress at Slate Spur. This program will increase the sampling density to 200m by 25m across a package of rocks that contains the inferred Garfield seafloor position. If this sampling confirms the base metal zone suggested by the earlier broad spaced sampling, then it should be tested by drilling.

A review of the Jukes Proprietary Prospect indicates that it has been tested by five drill holes, systematic channel sampling of the old adits and the road cuttings, and by systematic mapping and sampling through the King River Tunnel. There have been no intersections with sufficient grades to support either a large-tonnage, low-grade operation, or a selective high grade mine. There is little remaining space in the system that has not been tested. No further work is planned here.

Mountain Maid is a well defined target that is appealing simply because it has not previously been drilled. The discouraging features are its small size and low geochemical tenor, but Henty and Mount Julia were also quite unimpressive in terms of their surface expression. It is proposed to do some stable isotope work on Mountain Maid to find out more about the nature of the hydrothermal system, and this prospect should be tested by a diamond drill hole and a down hole EM survey.

It is still planned to test the Beatrice and Moxon Saddle Prospects as described by Halley et al. (1995). The Moxon Saddle hole will be included as part of a more extensive Henty Mine Lease exploration program, and Beatrice should be drilled during the 1995/96 field season.

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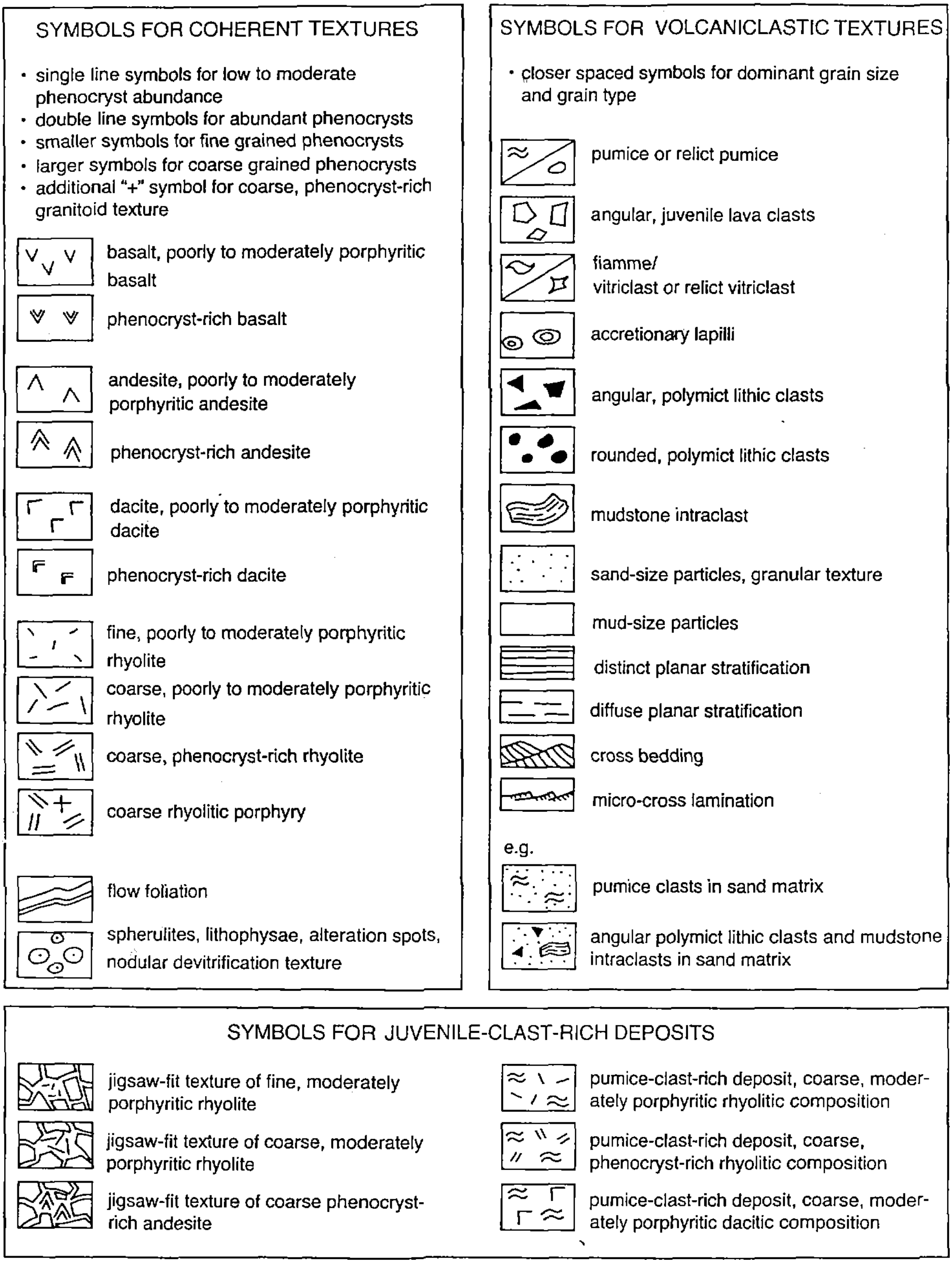
APPENDIX 1

Codes and Symbols used in Drill Logs

723022



SYMBOLS FOR COHERENT TEXTURES

- single line symbols for low to moderate phenocryst abundance
- double line symbols for abundant phenocrysts
- smaller symbols for fine grained phenocrysts
- larger symbols for coarse grained phenocrysts
- additional "+" symbol for coarse, phenocryst-rich granitoid texture

basalt, poorly to moderately porphyritic basalt

phenocryst-rich basalt

andesite, poorly to moderately porphyritic andesite

phenocryst-rich andesite

dacite, poorly to moderately porphyritic dacite

phenocryst-rich dacite

fine, poorly to moderately porphyritic rhyolite

coarse, poorly to moderately porphyritic rhyolite

coarse, phenocryst-rich rhyolite

coarse rhyolitic porphyry

flow foliation

spherulites, lithophysae, alteration spots, nodular devitrification texture

SYMBOLS FOR VOLCANICLASTIC TEXTURES

- closer spaced symbols for dominant grain size and grain type

pumice or relict pumice

angular, juvenile lava clasts

fiamme/
vitriclast or relict vitriclast

accretionary lapilli

angular, polymict lithic clasts

rounded, polymict lithic clasts

mudstone intraclast

sand-size particles, granular texture

mud-size particles

distinct planar stratification

diffuse planar stratification

cross bedding

micro-cross lamination

e.g.

pumice clasts in sand matrix

angular polymict lithic clasts and mudstone intraclasts in sand matrix

SYMBOLS FOR JUVENILE-CLAST-RICH DEPOSITS

jigsaw-fit texture of fine, moderately porphyritic rhyolite

jigsaw-fit texture of coarse, moderately porphyritic rhyolite

jigsaw-fit texture of coarse phenocryst-rich andesite

pumice-clast-rich deposit, coarse, moderately porphyritic rhyolitic composition

pumice-clast-rich deposit, coarse, phenocryst-rich rhyolitic composition

pumice-clast-rich deposit, coarse, moderately porphyritic dacitic composition

Fig. 9—Recommended composition and texture symbols for graphic logging of volcanic deposits.

(From:- McPhie, Doyle and Allen. CODES 1993)

TYPE

U - Volcanic (general)
V - Volcaniclastic
E - Epiclastic
L - Lava
I - Intrusive
P - Porphyry

COMPOSITION

R - Rhyolite
Y - Rhyodacite
D - Dacite
A - Andesite
B - Basaltic
F - Felsic
M - Mafic
U - Ultramafic

CRYSTAL TYPE

X - Crystal rich
A - Aphyric
F - Feldspar phyric
< - Feldspar - quartz phyric
> - Quartz - feldspar phyric
Q - Quartz phyric
H - Hornblende phyric
P - Pyroxene phyric
B - Biotite phyric
V - Vitric/glassy
L - Lithic rich

GRAINSIZE

B - Breccia
C - Coarse
M - Medium (Sandy)
F - Fine (Silty)
V - Very fine (Shaley)
A - Ashy
/ - Undifferentiated

ALTERATION

P - Pyrite
$ - Mineralised
Q - Quartz
O - Chlorite
C - Carbonate
H - Hematite
S - Sericite
K - K feldspar
A - Albite
E - Epidote
F - Fuchsite
M - Magnetite

N - Scale

1 - Very Weak
3 - Weak
5 - Moderate
7 - Strong
9 - Intense

723024

ROCK TYPE:

ALTD	Altered Rock	GRAN	Granite	QRTZ	Quartzite
AREN	Arenite				
ARLB	Arenite, Labile	HORN	Hornfels	SAND	Sandstone
ARLT	Arenite, Lithic			SCST	Schist
ARKS	Arkose	IRST	Ironstone	SMSL	Semi-Massive Sulphide
				SRPT	Serpentinite
BREC	Breccia	LAMP	Lamprophyre	SHAL	Shale
BRPM	Polymict Breccia	LMST	Limestone	SILT	Siltstone
		LTWC	Lithicwacke	SLSH	Siltstone with Shale
CARB	Carbonate			SKRN	Skarn
CHRT	Chert	MSGR	Massive Graphite	SLAT	Slate
CLAY	Clay (unconsolidated)	MSPY	Massive Pyrite	STRM	Structural Measurement (alt. STR)
CONG	Conglomerate	MSSL	Massive Sulphide		
CGPM	Polymict Conglomerate	MELG	Melange	TILL	Glacial Till
CGSC	Siliciclastic Congl.	MDST	Mudstone	TLLT	Tillite
CLOS	Core Loss	MYLN	Mylonite	TRBD	Turbidite
DOLM	Dolomite	NOCR	No core (precollar)	ULMF	Ultramafic
FALT	Fault	PBSS	Pebbly Sandstone	VEIN	Vein
FTBR	Fault Breccia				
FTSZ	Fault/Shear Zone				

Volcanic Rocks

E	Epiclastic	)
L	Lava	)
P	Porphyry	) TYPE
VO	Volcanic (General)	)
V	Volcaniclastic	)
A	Andesitic	)
B	Basaltic	)
D	Dacitic	)
FL	Felsic	) COMPOSITION
MA	Mafic	)
R	Rhyolitic	)
U	Ultramafic	)
X	Crystal-rich	
F	Feldspar Phyric	)
QF	Quartz-Feldspar Phyric	) CRYSTAL TYPE
Q	Quartz Phyric	)
BK	Blocky	)
BR	Breccia	)
C	Coarse	)
M	Medium (Sandy)	) GRAINSIZE
S	Fine (Silty)	)
Z	Very fine (Shaley)	)
/	Undifferentiated	

Examples

VOFL	Undiff. Felsic Lavas & Volcaniclastics
VBK	Blocky Volcaniclastic
VMAC	Coarse Mafic Volcaniclastic
VDM	Sandy Dacitic Volcaniclastic
VS	Silty Volcaniclastic
VZ	Shaley Volcaniclastic
VS/	Undiff. Fine-grained Volcaniclastics
VEFL	Felsic Volcaniclastics & Epiclastics
VABR	Andesitic Volcaniclastic Breccia
VOQF	Quartz-Feldspar Phyric Volcanic
LRF	Feldspar-Phyric Rhyolitic Lava
PQF	Quartz-Feldspar Phyric Porphyry
VX/	Undiff. XL-Rich Volcaniclastic
VXQF	Quartz-Feld. Phyric XL-Rich Volcaniclastic
EAXC	Coarse XL-Rich Andesitic Epiclastic
EXM	Sandy XL-Rich Epiclastic
EXS	Silty XL-Rich Epiclastic
EMA/	Undiff. Mafic Epiclastics
EBK	Blocky Epiclastics
EC	Coarse Epiclastics
EDM	Sandy Dacitic Epiclastics
ES	Silty Epiclastics
EBZ	Shaley Basaltic Epiclastics

APPENDIX 2

Drill Logs for hole GAR007 - GAR011

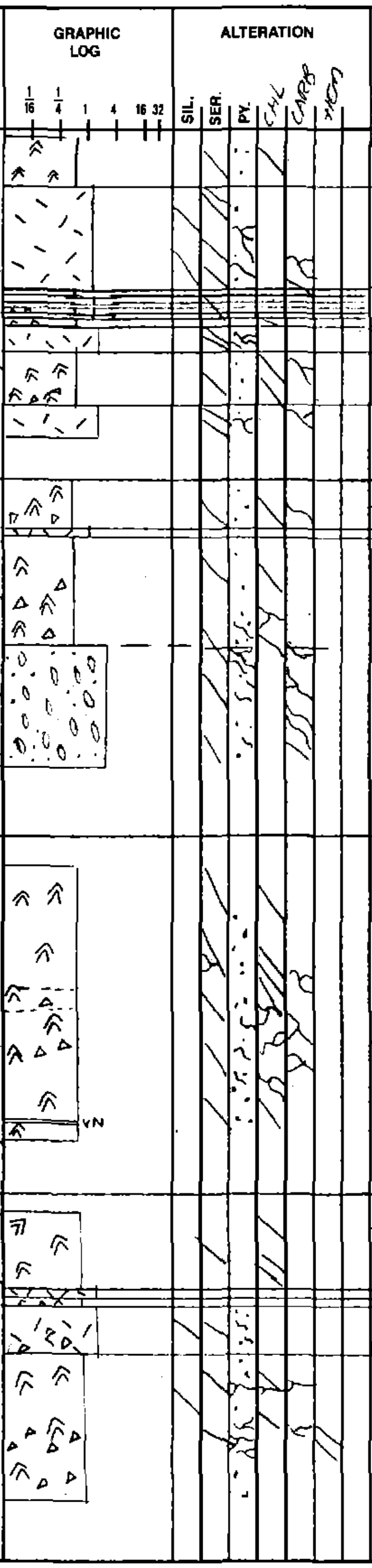
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 007 - 011

SHEET 1 **OF** 2

——	Bedding
└┘	Cleavage
▲	Foliation
∿∿	Fault, Shear
▽△▽	Breccia
▩	Broken core
░	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold

PROJECT : SUMMARY LOGS OF
PROSPECT : GARFIELD GEOCHEM. DDH
DATE : 21-04-95
LOGGED BY : SUE CORLETT



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
GAR 007	0			START 1.0M · feldspar phyric andesite	AND	
	10		S1 40	· rhyolite (quartz phyric)	Ectq	
	20		S1 48	alternating feldspar phyric andesite / rhyolite · rhyolite		
	30		S1	· feldspar phyric andesite (variably brecciated).		
	40		56	· rhyolite . END OF HOLE 40·15m		
008	0		S1	START 0m · feldspar phyric andesite (brecciated)		
	10		40	rhyolite lava (q phyric).		
	20		S1 50	· feldspar phyric andesite 2-5% pyrite in lenses/dissem & veins (variably brecciated)		
	30		S1 46	· mixed provenance (dominantly andesitic) volcaniclastic (conglomerate, poorly sorted (rhyolitic/siliceous clasts <20%) ~1% pyrite.		
	40			END OF HOLE 39·8M.		
009	0		S1	START 3·0M (poor recovery to 13·0m)		
	10		44	· Feldspar phyric andesite - generally <1% pyrite - variably brecciated		
	20		S1 40	- patchy chloritisation		
	30		S1 47	33·6m - 38·9m → <1% q-chalcopyrite veins		
	40			38·9 - 40·4m - quartz-chlorite vein ± siderite, chalcopyrite and pyrite END OF HOLE 40·9M.		
010	0		S1 53	START 1·0M · feldspar phyric andesite . rhyolite		
	10			· rhyolite / feldspar phyric andesite (brecciated) - ~1% pyrite		
	20		S1 34	· feldspar phyric andesite - variably brecciated		
	30		S1 28	- patchy hematitic alteration (± siderite)		
	40			END OF HOLE 41·0M .		

REMARKS

RGC EXPLORATION PTY LTD

──	Bedding	▒	Disseminated
└┘	Cleavage	■	Massive
─▲─	Foliation	▨	Pervasive
∿∿	Fault, Shear	↘	Narrow vein
▵▵	Breccia	*	Visible gold
▩	Broken core		

DRILL HOLE No GAR 011

SHEET 1 OF 1

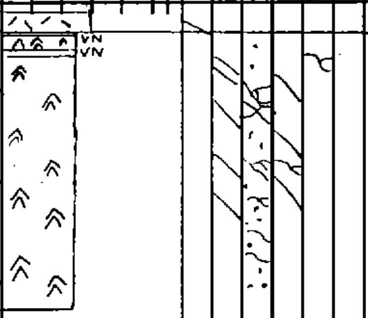
PROJECT : SUMMARY LOGS OF

PROSPECT : GARFIELD GEOCHEM. DDH.

DATE : 21-04-93

LOGGED BY : SUE CORLETT

GAR

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL. SER. PY. CHL CARB	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
011	0 10 20 30 40		S1 54 S1 48 S1 40°	 VN VN		START 1·0m • rhyolite (quartz phyric) } quartz-carbonate-limonite vein (± chlorite) • feldspar phyric andesite <1% pyrite (variably brecciated) • pyrite veins commonly feature 0·2-0·5cm alteration selvedges of sericite or chlorite – limonitic fractures to end of hole. END OF HOLE 40·0M.		

REMARKS

723027

RGC EXPLORATION
DRILL HOLE RECORD

HOLE NUMBER	GAR007	**DRILLED BY**	NIC POLTOCK
PROJECT	GARFIELD	**NORTHING**	2400N/5324995 mN
PROSPECT	GARFIELD	**EASTING**	2190E/3799552 mE
DESIGNED BY	S.CORLETT	**RL**	347
LOGGED BY	S.CORLETT	**INCLINATION**	-60
COMMENCED	APRIL 1995	**AZIMUTH**	050
FINISHED	APRIL 1995	**EOH**	40·15

PURPOSE

DRILLED TO TEST IP ANOMALY.

SURVEY DATA

DEPTH	INC.	AZI.	DEPTH	INC.	AZI.	DEPTH	INC.	AZI.
0	-60	050						

DRILLING DATA

HOLE SIZE	DEPTH	COMMENTS

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 007

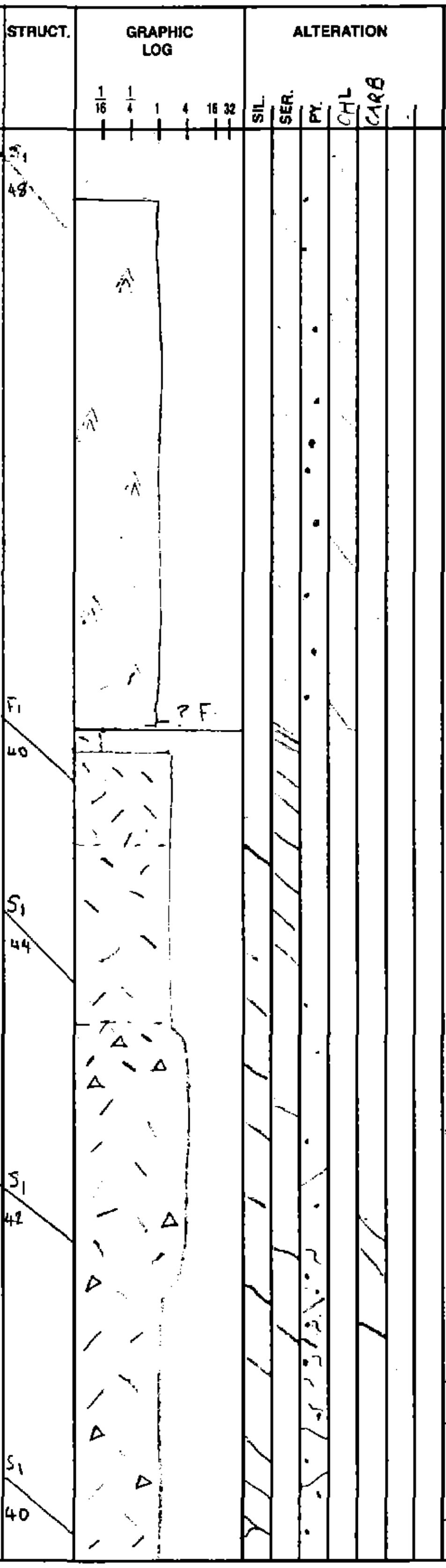
SHEET 1 **OF** 2

PROJECT	: GARFIELD
PROSPECT	:
DATE	: 7-04-95
LOGGED BY	: S CORLETT

- ─ Bedding
- ⊔ Cleavage
- ▲ Foliation
- ∿ Fault, Shear
- △ Breccia
- ▩ Broken core
- ░ Disseminated
- ■ Massive
- ▨ Pervasive
- ↘ Narrow vein
- * Visible gold

HOLE DEPTH | **SAMPLE No** PREFIX | **ASSAY RESULTS**

1
2
4
6
8
10
12
14
16
18
20



GEOLOGY NOTES

START 1·0m

- 1·0m to 8·5m feldspar phyric crystal rich andesite
- moderate chlorite/sericite alteration
- limonite staining (disem + in fractures) after pyrite

8·4m – 8·7m
Puggy ? fault contact between andesite & Eytq. (competency contrast ?)

8·5m – 10·9m
Eytq - quartz phyric (rhyolite).
- strongly sericitised
- coarse quartz phenocrysts (av. diam 3mm)

10·9m – 12·5m
→ ? rhyolite lava.
- moderate silicification

12·5 – 16·2m
- brecciated rhyolitic lavas
- moderately silicified - weakly sericitised
- pyrite disseminated (1%) & lenses (<1%)
- carbonate veins

16·2m – 17·7m
- pyrite ~5% in brecciated rhyolitic lavas - disseminated in lenses & veins
- vughs ~1%

17·7 – 18·9m
- ? finely disseminated chalcocite
- <1% chalcopyrite

18·9 – 19·05m
? chalcocite - pervasive matrix replacement (~20%)

SUMMARY ROCK | ALTERATION

AF
LRQ
LRB

REMARKS Sampled [illegible]-40m @ 1m intervals.

723029

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 007

SHEET 2 OF 2.

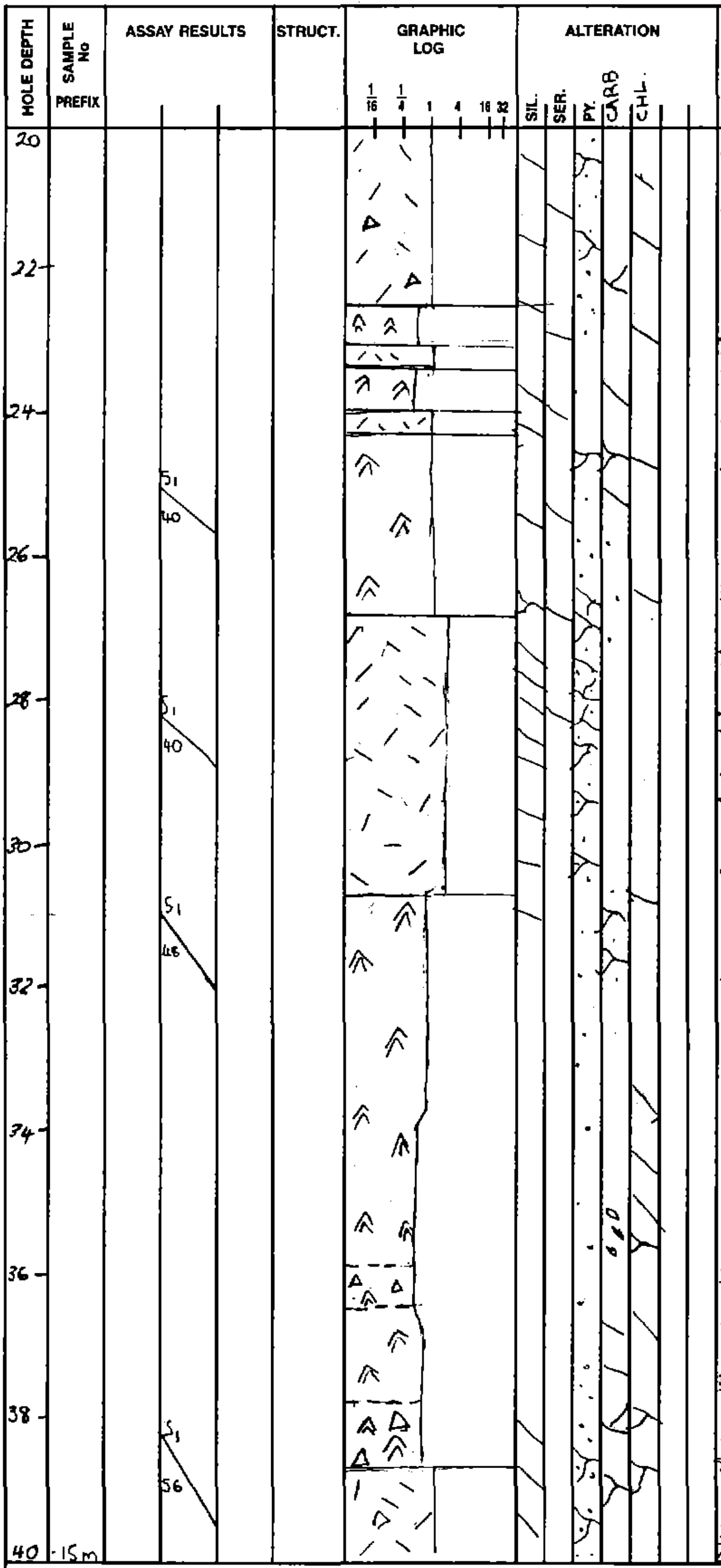
—	Bedding	░	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

PROJECT : GARFIELD

PROSPECT :

DATE : 17-04-95

LOGGED BY : S. CORLETT



GEOLOGY NOTES

19.05 - 22.3m
- rhyolitic brecciated lava
- moderate silicification / sericitisation
- 1-5% pyrite (dissem. / veins)
  23 - 23.3
  24.0 - 24.3m ⟩ phy

22.3m - 23.0
- weakly chloritised andesite
- feldspar phyric
- weakly pervasive siderite alteration (+ py/siderite lenses).
- variable weak to moderate silicification

23.0 - 23.3m
- rhyolitic lava

23.3 - 24.0 - andesite (feldspar phyric)

24.0 - 24.3 - rhyolite

24.3m - 26.8m
- feldspar phyric andesite (< 2% py)
- weak siderite alteration

26.8m - 30.75m
- strongly silicified brecciated rhyolite lava
- pyrite lenses, veins & dissem. (2-5%)

30.75 - 35.3m
- feldspar phyric andesite lava
- siderite veins & pervasive alteration < 2%
- disseminated pyrite < 1%

35.3 - 35.9m
- fine grained andesite with carbonate infilled vughs.

35.9 - 36.45m
- quartz vein (?carbonate pseudomorph), dilational.
- foliation transposed around vein - fine grained chloritic andesite brecciated clasts

36.45 - 37.85m
- moderately pervasive siderite alteration

37.85 - 38.55m
- dilational quartz vein, carbonate boiling textures pseudomorphed by silica
- chalcopyrite < 1% + chloritised brecciated andesitic clasts.

38.55m - 40.15m
brecciated rhyolitic lava.

SUMMARY

ROCK	ALTERATION
LRB	
AF	
LRQ	
AF	
LRB	

REMARKS

EOH 40.15m.

723030

RGC EXPLORATION
DRILL HOLE RECORD

HOLE NUMBER	GAR008	**DRILLED BY**	NIC POLTOCK
PROJECT	GARFIELD	**NORTHING**	2280N / 5324847 mN
PROSPECT	GARFIELD	**EASTING**	2165 E / 380029 mE
DESIGNED BY	S.CORLETT	**RL**	313
LOGGED BY	S.CORLETT	**INCLINATION**	-60°
COMMENCED	APRIL 1995	**AZIMUTH**	050
FINISHED	APRIL 1995	**EOH**	39·8 M

PURPOSE

DRILLED TO TEST IP ANOMALY.

SURVEY DATA

DEPTH	INC.	AZI.	DEPTH	INC.	AZI.	DEPTH	INC.	AZI.

DRILLING DATA

HOLE SIZE	DEPTH	COMMENTS

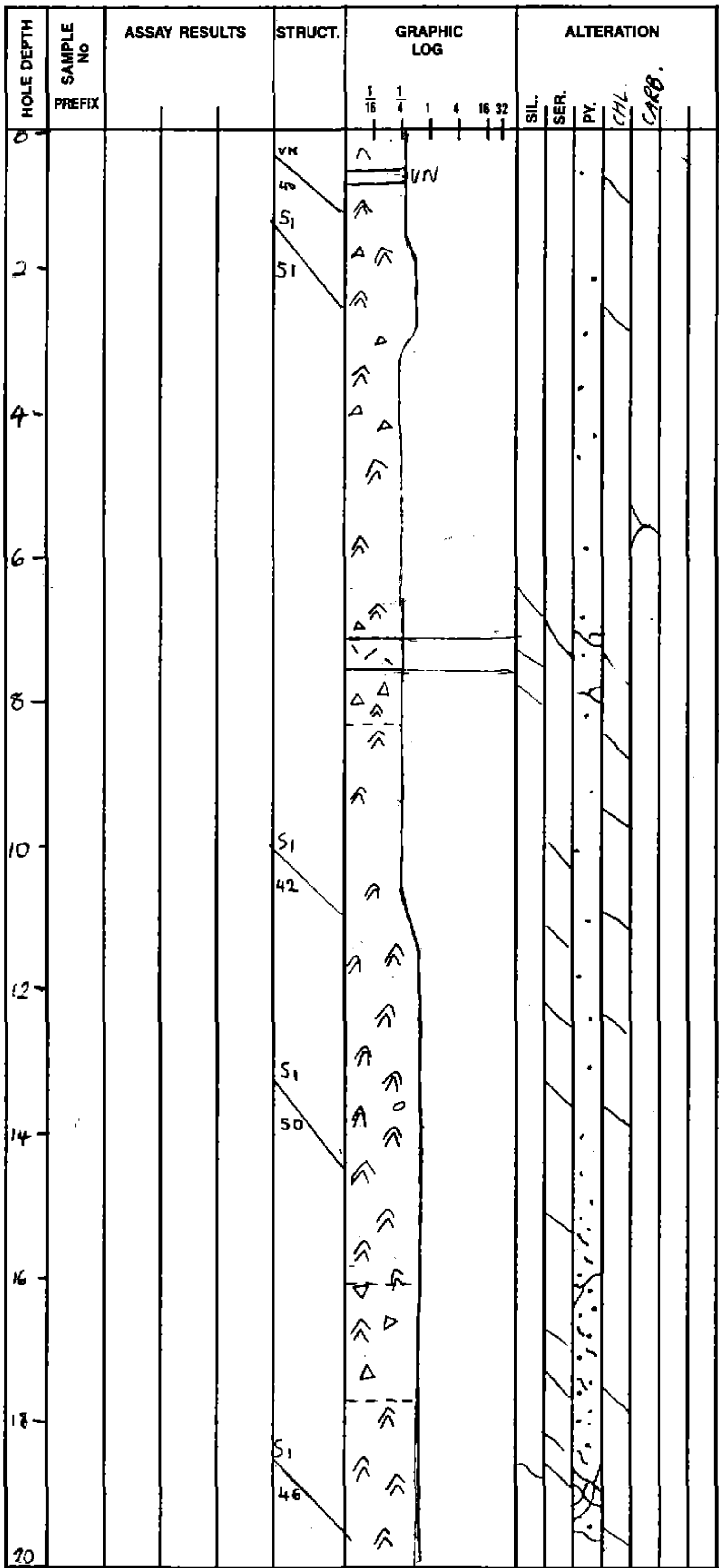
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR008

SHEET 1 **OF** 2

PROJECT	: GARFIELD
PROSPECT	:
DATE	: 17-04-95
LOGGED BY	: S. CORLETT.

─	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
▵	Breccia	*	Visible gold
▩	Broken core		



GEOLOGY NOTES

START 0m

0·8-0·9m
- limonitic quartz vein.

2·2m - 3·1m
- feldspar phyric andesite
- variably brecciated.

3·9 - 4·05m
- ?finegrained chalcocite in matrix

4·3 - 5·9m
- recrystallised-saccharoidal texture

7·1-7·5 - rhyolite lava
0·2-0·5mm quartz eyes

7·8m - 11·0m
- patchy weak to moderate chloritisation
- disseminated pyrite <1%.

11·0m - 16·1m
- feldspar phyric andesite
- pyrite 2-5% in lenses, veins & disseminated
- commonly replacive of remnant feldspar
- occasional hematitic-dusty clasts

16·1m · 17·7m
- brecciated andesitic lava
- pyrite in clasts, matrix and cross cut by py veins
- chloritised andesitic matrix.

17·7-19·1m
- quartz phyric andesite
- strongly sericitised
- 2% crosscutting py & qpy veins
- abundant py lenses & disseminations (~2-5%).

SUMMARY

ROCK	ALTERATION
LAF	
ECTQ	
LAF	

REMARKS Sampled 1-3·0m & 3-39·0m at 1m intervals.

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR008

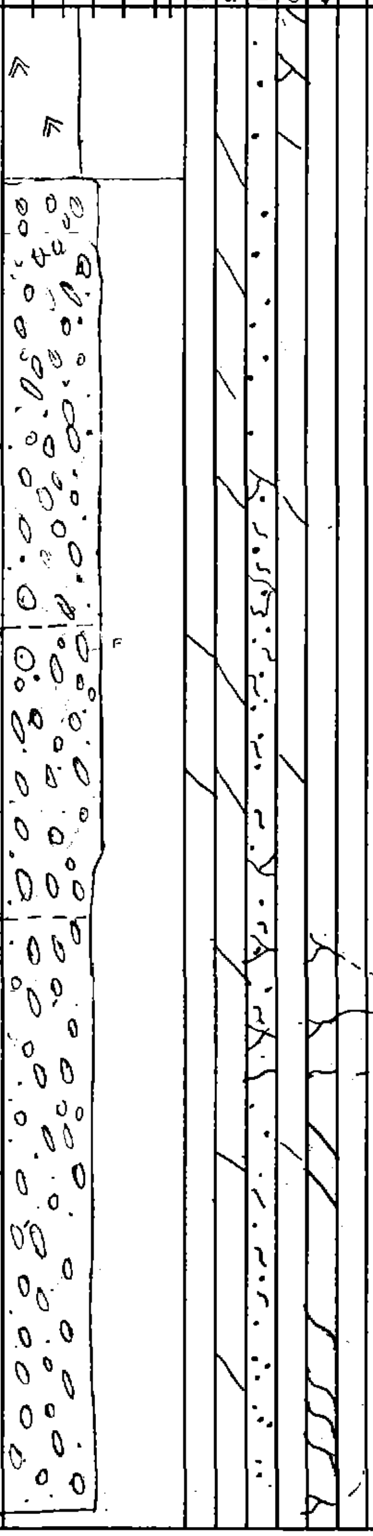
SHEET 2 OF 2

—	Bedding
⊔	Cleavage
▲	Foliation
〰	Fault, Shear
▵	Breccia
▩	Broken core
▒	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold
∽	lenses.

PROJECT	: GARFIELD
PROSPECT	:
DATE	:
LOGGED BY	: S CORLETT

HOLE DEPTH | SAMPLE No PREFIX | ASSAY RESULTS | STRUCT. | GRAPHIC LOG 1/16 1/4 1 4 16 32 | ALTERATION SIL. SER. PY. CHL CARB | GEOLOGY NOTES | SUMMARY ROCK ALTERATION

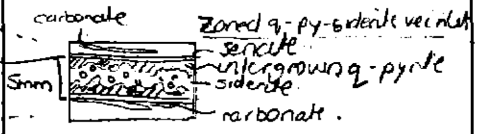
HOLE DEPTH	STRUCT.
20	
22	
24	
	S1 47
26	
	S1 42
28	
30	
32	
34	
	S1 41
36	
38	
	S1 46
40	



feldspar phyric andesite
weakly chloritised (blebs)

22.3 – 28.4m
: dominant andesitic provenance
- cherty clasts transposed into foliation ~10%
(sub rounded – 80%, subang 20%; 2-5mm av. diameter) & brecciated andephitic clasts
• pyrite 2-5%; not contained in cherty clasts but disseminated within andesitic clasts and in matrix
• patchy siderite alteration
- ?1% py-siderite veins
• 90% clasts
⇒ andesitic volcaniclastic conglomerate

28.4 – 39.8m
• mixed provenance volcaniclastic conglomerate
– rhyolitic clasts <5%
– andesitic clasts ?79%
– cherty/siliceous clasts ~15%
⇒ volcaniclastic conglom.
poorly sorted & appears ungraded.



32.0 – 39.8m
• 1-2% pyrite
• moderate carbonate alteration and veining <2%
• cherty clasts comprise <3% of rock
• – dominance of andesitic clasts (80%)
⇒ andesitic volcaniclastic conglomerate.

LAE

ECVS

REMARKS EOH 39.8m

723033

RGC EXPLORATION
DRILL HOLE RECORD

HOLE NUMBER	GAR009	**DRILLED BY**	NIC POLTOCK
PROJECT	GARFIELD	**NORTHING**	2200N / 5324734m
PROSPECT	GARFIELD	**EASTING**	2070E / 380003 m
DESIGNED BY	S.CORLETT	**RL**	302
LOGGED BY	S.CORLETT	**INCLINATION**	-60°
COMMENCED	APRIL 1995	**AZIMUTH**	050
FINISHED	APRIL 1995	**EOH**	40·9 M

PURPOSE

DRILLED TO TEST IP ANOMALY-

GEOCHEM. HOLE.

SURVEY DATA

DEPTH	INC.	AZL	DEPTH	INC.	AZL	DEPTH	INC.	AZL
0	-60	050						

DRILLING DATA

HOLE SIZE	DEPTH	COMMENTS

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR009

SHEET 1 **OF** 3

—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

PROJECT : GARFIELD

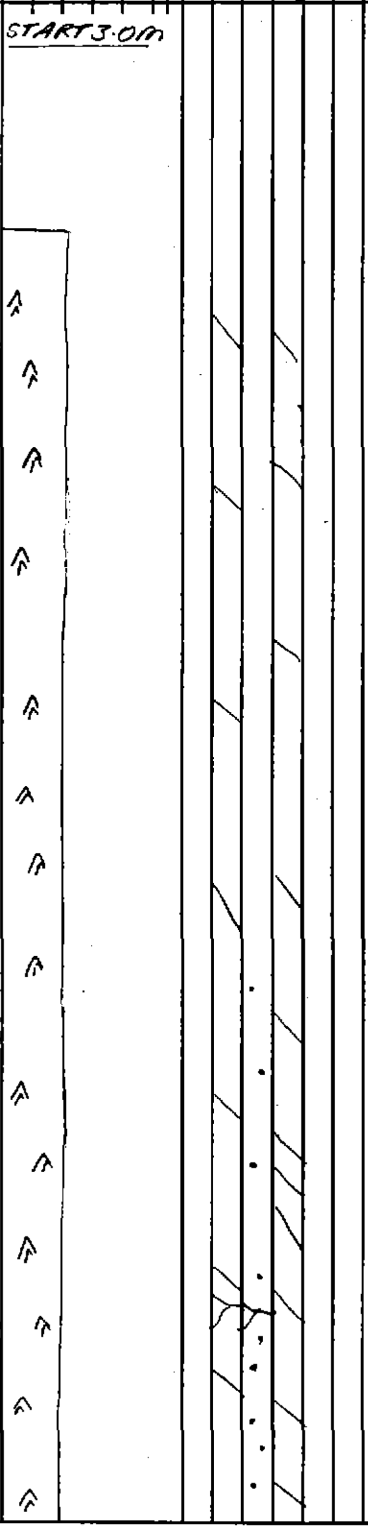
PROSPECT :

DATE : 18-04-95

LOGGED BY : SCORLETT

HOLE DEPTH | **SAMPLE No PREFIX** | **ASSAY RESULTS** | **STRUCT.** | **GRAPHIC LOG** (1/16, 1/4, 1, 4, 16, 32) | **ALTERATION** (SIL., SER., PY., CHL, CARB) | **GEOLOGY NOTES** | **SUMMARY** (ROCK, ALTERATION)

Hole depth: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20



STRUCT.: S1 44 (at c. 13 m); S1 44 (at c. 18 m)

GEOLOGY NOTES

*Poor recovery
0-13m
Recovery - 28/1300 × 100/1
RQD - 11/1300

0-13.0m
- Feldspar phyric andesite?
- puggy, strongly stained
- moderate to strong sericitisation and chloritisation.

13.0-13.9
- feldspar phyric andesite <1% disseminated pyrite

13.9-17.0m
- brecciated andesite ~1% disseminated pyrite
- strongly chloritised in patches - pyrite associated with chloritisation.

17.0m-18.0m
- 'whispy' pyrite veins with sericite alteration selvedges 0.5cm wide
- selective chloritisation
- brecciated
- ~1% pyrite

SUMMARY ROCK: LAF

REMARKS Sampled 0-13m & 14-40.9 at 1m intervals

723035

RGC EXPLORATION PTY LTD

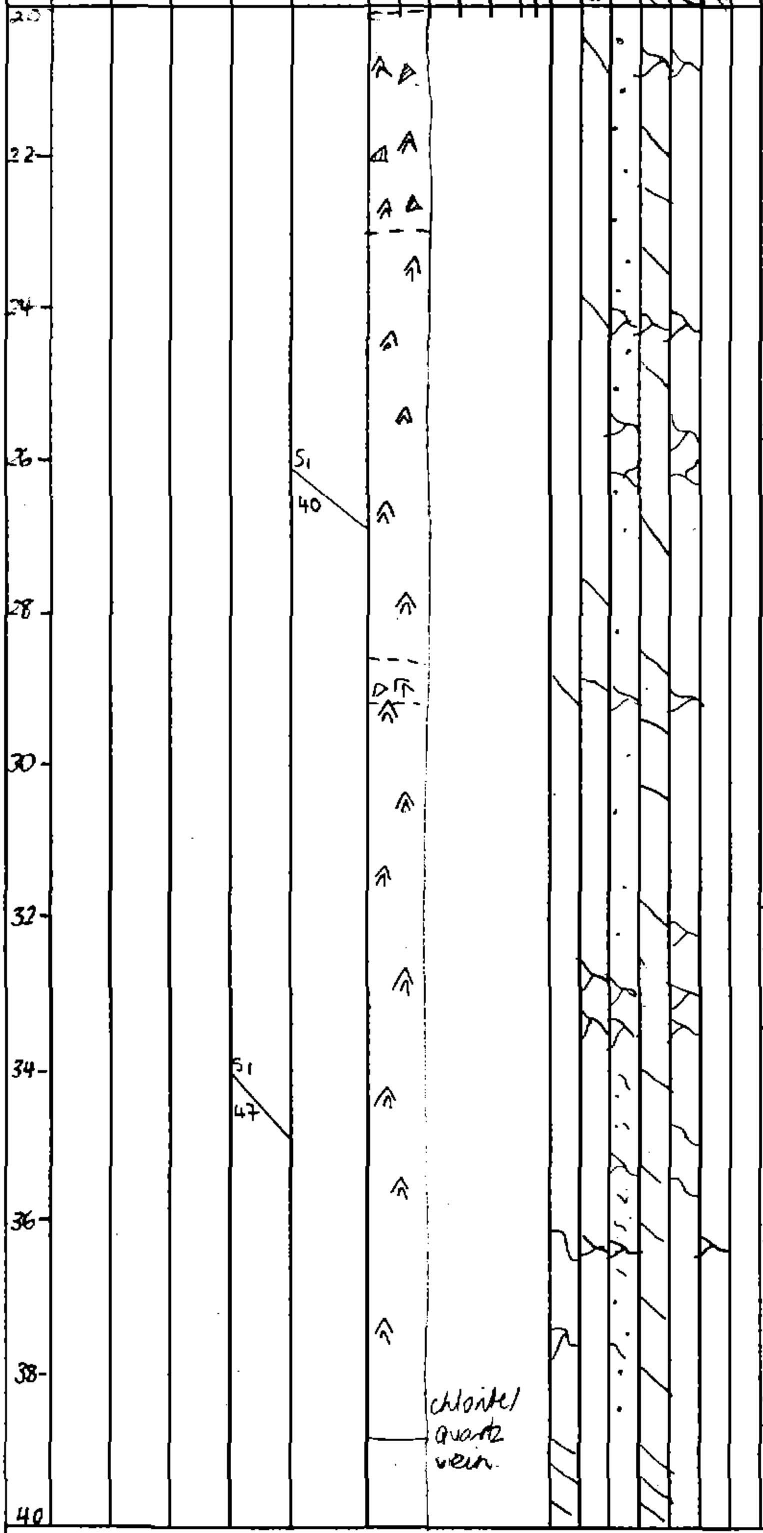
DRILL HOLE No GAR 009

SHEET 2 OF 3.

— Bedding	▨ Disseminated
⌴ Cleavage	■ Massive
▲ Foliation	▨ Pervasive
〰 Fault, Shear	↘ Narrow vein
△ Breccia	* Visible gold
▩ Broken core	

PROJECT : GARFIELD
PROSPECT :
DATE : 18-04-95.
LOGGED BY : S. CORLETT

HOLE DEPTH | SAMPLE No PREFIX | ASSAY RESULTS | STRUCT. | GRAPHIC LOG $\frac{1}{16}$ $\frac{1}{4}$ 1 4 16 32 | ALTERATION SIL. SER. PY. CHL CARB HEMATITE | GEOLOGY NOTES | SUMMARY ROCK ALTERATION



GEOLOGY NOTES

- matrix supported andesitic breccia
- feldspar phyric - strongly chloritised clasts & "blebs" (0.2 to 3.0cm)
- <1% pyrite in matrix* (1-2% in clasts).
- anastomosing siderite veins with chlorite selvedges

24.05m
- cross cutting pyrite veins with chlorite rims & remnant carbonate(?).

25 - 28.60m
- feldspar phyric andesite
- patchy chloritisation,
- cb-py (remnant) veins + vughs ~2%

28.60 - 29.2 M
- feldspar phyric andesite - brecciated
- weakly silicified - ~2-5% pyrite - carbonate veins / blebs.
- 1-2mm sericitic alteration selvedges around py veins

29.2 - 32.6m
- feldspar phyric andesite

32.6 - 33.6m
- feldspar phyric andesite
- anastomosing pyrite / siderite veins with 1-5cm sericite/carbonate alteration selvedges.

33.6m - 38.9m
- feldspar phyric andesite
- <1% disseminated pyrite (37.3m) hematite/py/sericite vein
- quartz-chalcopyrite veins <1%.

38.9 - 40.4m
- quartz-massive chlorite vein

SUMMARY ROCK: LAF

REMARKS

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 009

SHEET 3 **OF** 3

—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↙	Narrow vein
▽△	Breccia	*	Visible gold
▩	Broken core		

PROJECT : GARFIELD
PROSPECT :
DATE : 18-04-95
LOGGED BY : J. CORLETT

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL. SER. PY. CHL CARB	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
40 409			Si 44	^ ^		· moderate sericite - chlorite alteration · <1% pyrite	LAF	

REMARKS EOH 40.9

723037

RGC EXPLORATION
DRILL HOLE RECORD

HOLE NUMBER	GAR010	**DRILLED BY**	NIC POLTOCK
PROJECT	GARFIELD	**NORTHING**	2100 N / 5324652 mN
PROSPECT	GARFIELD	**EASTING**	2060E / 380047 mE
DESIGNED BY	S.CORLETT	**RL**	290
LOGGED BY	S.CORLETT	**INCLINATION**	-60°
COMMENCED	APRIL 1995	**AZIMUTH**	050
FINISHED	APRIL 1995	**EOH**	41.0M

PURPOSE

GEOCHEMICAL HOLE - DRILLED TO TEST IP ANOMALY.

SURVEY DATA

DEPTH	INC.	AZI.	DEPTH	INC.	AZI.	DEPTH	INC.	AZI.
0	-60	050						

DRILLING DATA

HOLE SIZE	DEPTH	COMMENTS

723038

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR010

SHEET 1 **OF** 3

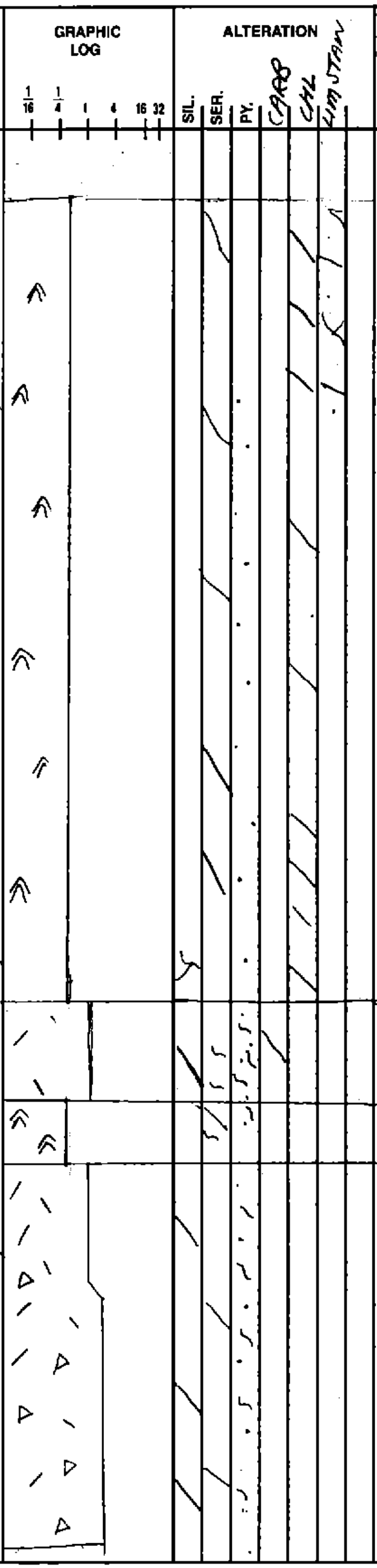
——	Bedding
└┘	Cleavage
—▲—	Foliation
∿∿	Fault, Shear
△▽	Breccia
▩	Broken core
░	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold

PROJECT : GARFIELD

PROSPECT :

DATE : 18-04-95

LOGGED BY : S CORLETT



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
0				START 1.0m.		
2 4			S1 53	10- 5.0m •limonite staining. both pervasive & as veins. within feldspar phyric andesite.		
6				5.0- 7.3m •'greasy'- saccaroidal nature to andesite ?weathered feldspar		
8 10 12			S1 48		AF	
				12.25 – 13.45 m •rhyolite - coarsley quartz phyric (~1% pyrite)	LRQ	
14				13.45 - 14.4m •feldspar phyric andesite	LAF	
16			S1 45	14.4 -16.1m •rhyolite - rhyolitic monomict breccia •5mm quartz eyes • ~1% pyrite	LRB	
18				16.1 - 19.8m •rhyolitic monomict clast supported breccia (?volcaniclastic) •<1% pyrite		
20				19.8m-20.1m quartz vein (massive)		

REMARKS Sampled 1-41.0m at 1m intervals

T23039

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 010

SHEET 2 **OF** 3

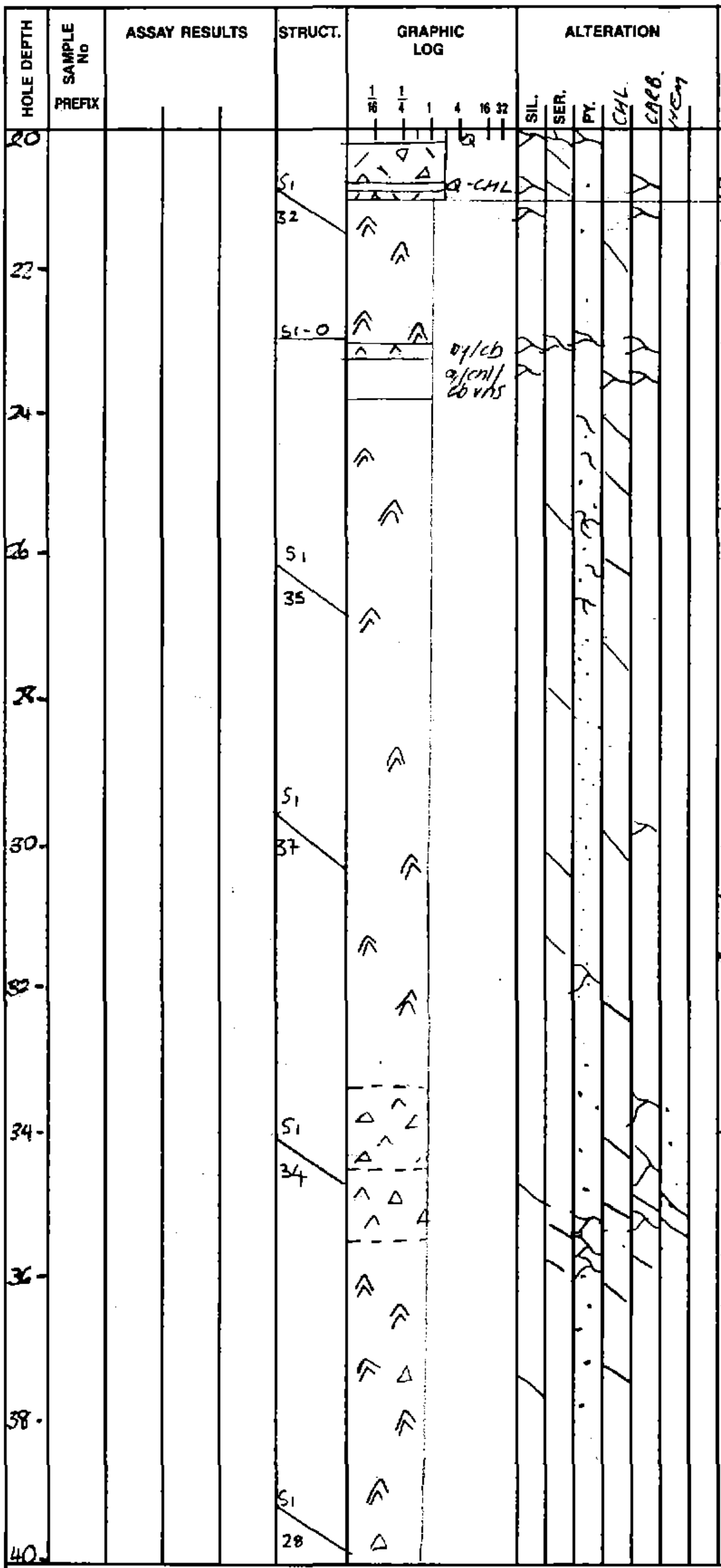
— Bedding	▒ Disseminated
⊔ Cleavage	■ Massive
▲ Foliation	▨ Pervasive
∿ Fault, Shear	↘ Narrow vein
∆ Breccia	* Visible gold
▩ Broken core	

PROJECT : GARFIELD

PROSPECT :

DATE : 18-04-95

LOGGED BY : SCORLETT



GEOLOGY NOTES

20·15 – 20·80m
- brecciated rhyolitic lava
- 20·8-20·9 - (Qvn)
- 20·9-21m - brecciated rhyolitic lava

21·0 – 23·15m
- feldspar phyric andesite
- <<1% pyrite, very fine grained, disseminated.

23·15 – 23·9m
- quartz-carbonate-chlorite ±pyrite veins
- ?carbonate boiling textures.

23·9 – 33·4m
- feldspar phyric andesite; variably chloritised and ?brecciated
- <1% disseminated fine grained pyrite/pyrite veins with sericite alteration selvedges.

33·4 – 34·5m
- ?brecciated andesite variably chloritised
- weak carbonate alteration
- <0·2% hematite(?) in vughs with pyrite/siderite
- variably altered clasts => ? volcaniclastic

34·5 – 35·0
- hematitic andesitic breccia
- pervasive hematite ±siderite alteration of andesitic clasts
- clast supported.

35·0 – 35·5
- matrix replacement by pyrite/carbonate (±gal, ?sph)
- q-carb ±pyrite veins with 0·5cm alteration (sericite) selvedges.

35·5 – EOH
- andesitic breccia
- <1% disseminated pyrite
- variably chloritised

SUMMARY

ROCK	ALTERATION
LRB	
AF	
AF	

REMARKS

723040

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 010

SHEET 3 **OF** 3

- —— Bedding
- ⊔ Cleavage
- ▲ Foliation
- ∿ *Fault, Shear*
- ▵ Breccia
- ▩ Broken core
- ░ Disseminated
- ■ Massive
- ▨ Pervasive
- *Narrow vein*
- * Visible gold

PROJECT	: GARFIELD
PROSPECT	:
DATE	: 18-04-95
LOGGED BY	: SUE CORLETT.

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL.	SER.	PY.	CHL	CARB	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
	40		S1 32.							·andesitic breccia ·<1% pyrite	AF	
	41											

REMARKS EOH: 41.0M

RGC EXPLORATION
DRILL HOLE RECORD

HOLE NUMBER	GAR011	**DRILLED BY**	NIC POLTOCK
PROJECT	GARFIELD	**NORTHING**	1975 N / 5324568 m
PROSPECT	GARFIELD	**EASTING**	2040 E / 380072 mE
DESIGNED BY	S.CORLETT	**RL**	295
LOGGED BY	S.CORLETT	**INCLINATION**	-60°
COMMENCED	APRIL 1995	**AZIMUTH**	050
FINISHED	APRIL 1995	**EOH**	40.0 M

PURPOSE

GEOCHEMICAL HOLE - DRILLED TO TEST IP ANOMALY.

SURVEY DATA

DEPTH	INC.	AZL	DEPTH	INC.	AZL	DEPTH	INC.	AZL
0	-60	050						

DRILLING DATA

HOLE SIZE	DEPTH	COMMENTS

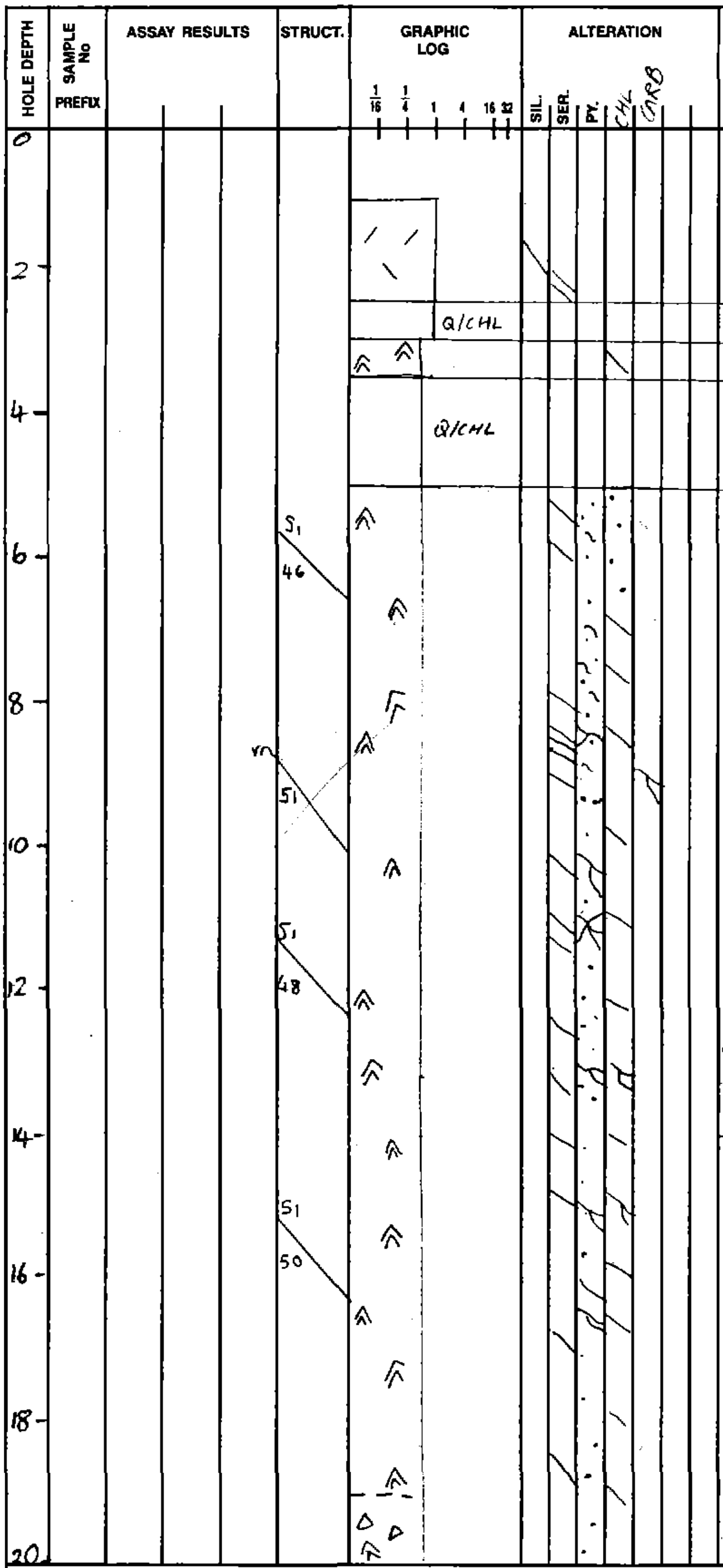
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR011

SHEET 1 OF 2

—	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
〰	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core	∽	lenses.

PROJECT	: GARFIELD
PROSPECT	:
DATE	: 19-04-95.
LOGGED BY	: S. CORLETT



GEOLOGY NOTES

START 1.0m.

1.0-2.4m
- quartz phyric rhyolite

2.4-3.0m
quartz-carbonate chlorite vein

3.0-3.4m
- feldspar phyric andesite

3.4-5.0m
- Quartz-chlorite-limonite-cb. vein (broken core)

5.0-18.1m
- feldspar phyric andesite
- moderately chloritised.
- <1% pyrite; commonly contained in chloritic zones

- 8.8m - 3cm pyritic vein with 1cm sericite alteration selvedge.

- 11.2m
- cross cutting pyrite/quartz veins (± siderite) + lenses
- strongly sericitised.

- 13.1m
pyrite vein with 0.5cm chlorite rim
- vughy limonitic (ex. pyrite/carbonate)

15.1-19.1m
- limonite - chlorite veins with sericite alteration selvedge (<1%)
- abundant limonitic fractures with <1% dissem. pyrite
⇒ feldspar phyric andesite

19.1-19.3m
- andesitic breccia

- moderately chloritised feldspar phyric andesite

SUMMARY ROCK ALTERATION

ELTQ

REMARKS Sampled 1-40.0m @ 1m intervals

723043

RGC EXPLORATION PTY LTD

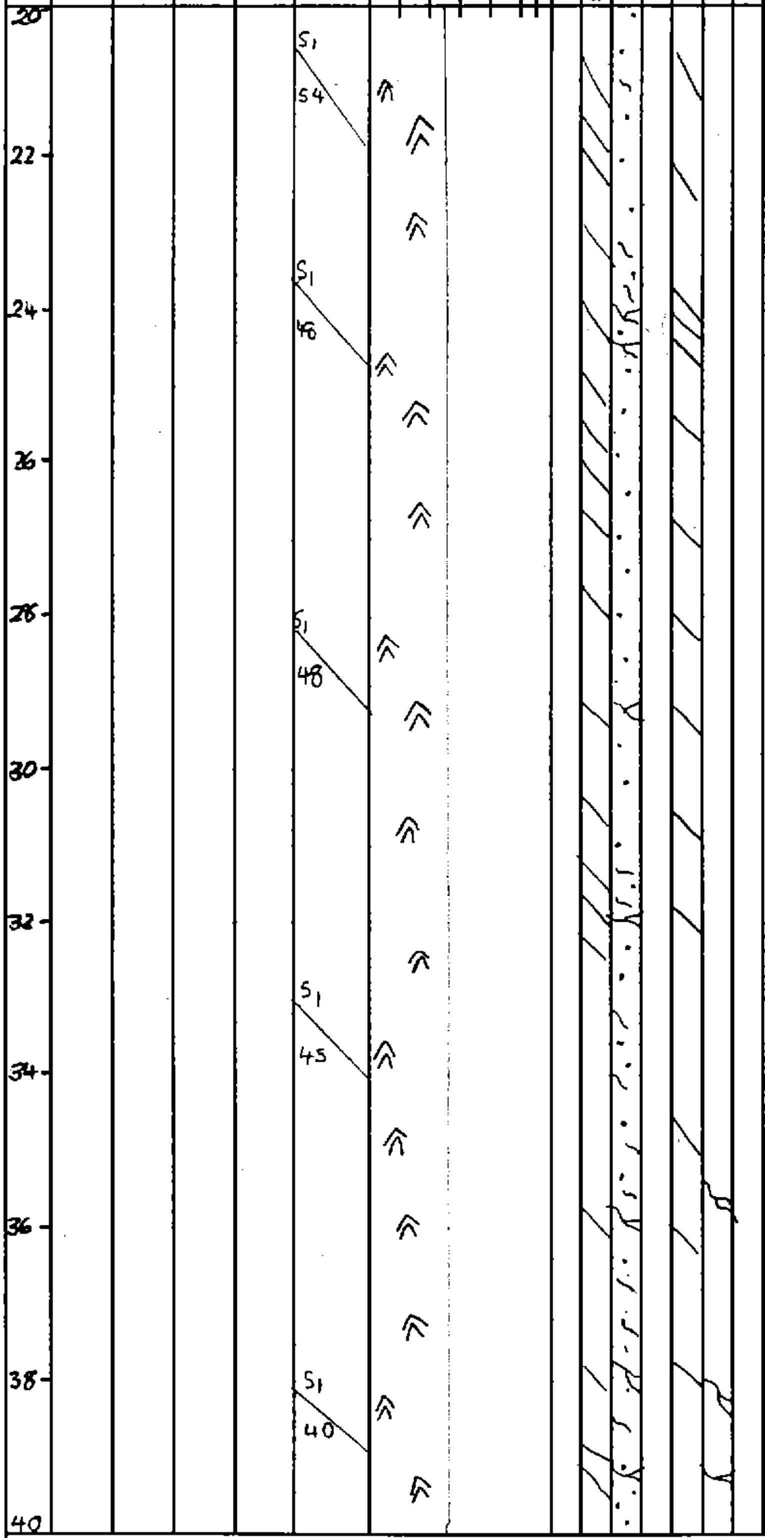
DRILL HOLE No GAR011

SHEET 2 **OF** 2

—	Bedding	▒	Disseminated
└┘	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
〰	Fault, Shear	⟋	Narrow vein
▵▿	Breccia	*	Visible gold
▩	Broken core	~	py lenses.

PROJECT	: GARFIELD
PROSPECT	:
DATE	: 19-04-95
LOGGED BY	: S. CORLETT.

HOLE DEPTH | **SAMPLE No** PREFIX | **ASSAY RESULTS** | **STRUCT.** | **GRAPHIC LOG** 1/16 1/4 1 4 16 22 | **ALTERATION** SIL. SER. PY. CARB CHL | **GEOLOGY NOTES** | **SUMMARY** ROCK ALTERATION



19·3 – 23·3

- ~~feldspar~~ phyric andesite
- patchy sericite + chlorite alteration
- <1% pyrite
- chloritic alteration phase hosts more pyrite than sericite dominated phase.

24·8 – 25·9m

- pyrite veining with ?siderite (remnant);
- rimmed by chlorite
- limonitic vughs & fractures ~1%

23·3 – 31·8

- poorly sulphidic variably chlorite/sericite altered
⇒ feldspar phyric andesite (<0·5% pyrite).

31·8 – 32·0m

- 10% pyrite-sericite veins
- weak chlorite alteration as 0·2mm veins

32m – 40·0m

- feldspar phyric andesite
- limonitic fractures persist until 40·0m
- 36·6m – carbonate/siderite vein (1cm).
- <1% pyrite

39·05m

- 1cm limonitic carbonate vein (+remnant py)
- diffuse sericite alteration selvedge.

REMARKS EOH 40·0m.

723045

APPENDIX 3

Drill Log for hole GAR012

RGC EXPLORATION
DRILL HOLE RECORD

HOLE NUMBER	GAR012	**DRILLED BY**	D.D. TAS
PROJECT	TAS BASE METALS	**NORTHING**	5324637
PROSPECT	GARFIELD EL55/89	**EASTING**	379827
DESIGNED BY	S. HALLEY	**RL**	(285)
LOGGED BY	S. HALLEY	**INCLINATION**	-75.8
COMMENCED	3/10/95	**AZIMUTH**	056 AMG.
FINISHED	14/10/95	**EOH**	482.0m

PURPOSE

TO TEST FOR Cu MINERALISATION AT DEPTH 100M TO THE NORTH OF D.D.H GAR001.

SURVEY DATA

Poorly Survey → 120

DEPTH	INC.	AZI.	DEPTH	INC.	AZI.	DEPTH	INC.	AZI.
30	-75.8	056	240	-70.3	047	450	-67.1	049
60	-75.4	054	270	-70	047	480	-66.2	051
90	-75	052	300	-69.5	047			
120	(-74)	(050)	330	-68.8	047			
150	-73	049	360	-68.5	050			
180	-72.1	048	390	-68.1	050			
210	-71.1	047	420	-67.8	051			

DRILLING DATA

HOLE SIZE	DEPTH	COMMENTS

RGC EXPLORATION PTY LTD

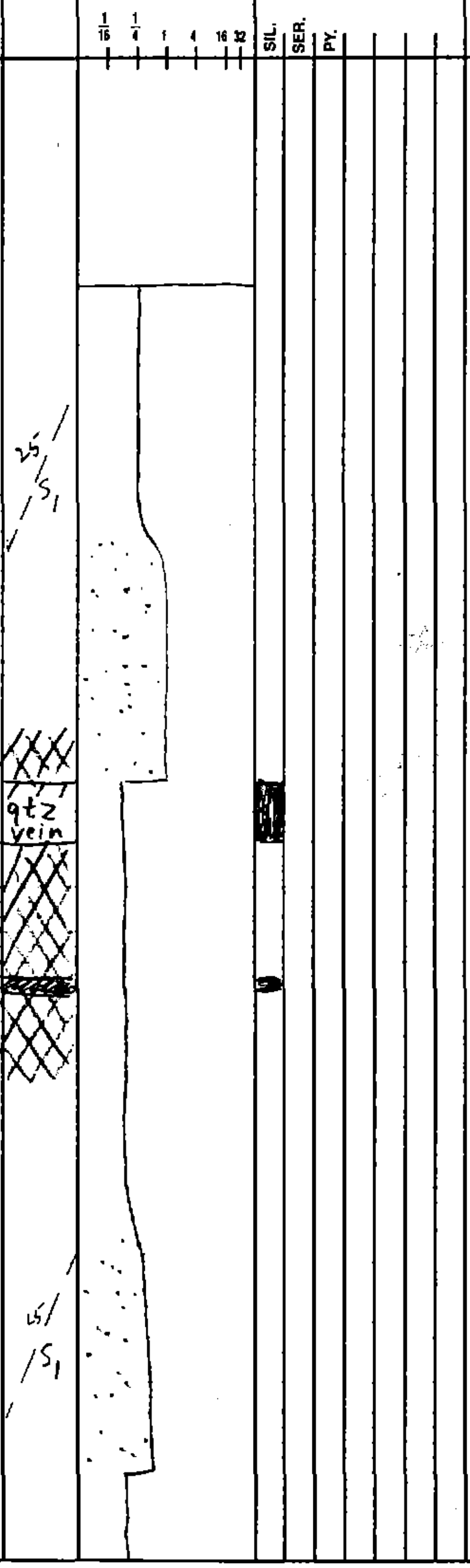
DRILL HOLE No GAR 012

SHEET 1 **OF** 25

- — Bedding
- ⊔ Cleavage
- ▲ Foliation
- 〰 Fault, Shear
- ▵ Breccia
- ▩ Broken core
- ░ Disseminated
- ■ Massive
- ▨ Pervasive
- ↘ Narrow vein
- * Visible gold

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : SWH

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION SIL. SER. PY.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
						0 – 3 No core	NONE	
1								
2								
3						3·0 — 25·1	VDAF	
4						Silty to fine sandy sediment		
5						The base of complete oxidation is 25·5 m.		
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								



REMARKS

723047

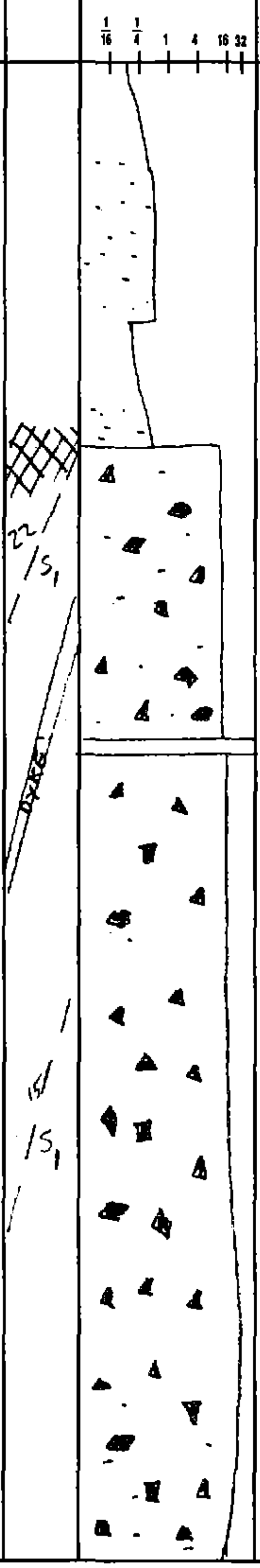
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR012

SHEET 2 **OF** 25

—	Bedding	░	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
▵	Breccia	*	Visible gold
▩	Broken core		

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S W H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION SIL.	SER.	PY.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
21										
22										
23										
24										
25								25·1 – 29·0 volcanic breccia with coarse dacite and rhyolite lava clasts. clast supported. moderately foliated		
26										
27									VRLC	
28										
29								29·0 - 29·2 rhyolite dyke	IRD	
30								29·2 – 46·7 lithic-rich volcanic breccia > 50% lithics		
31										
32										
33										
34								S_1 to CA 15°		
35									VRLC	
36										
37										
38										
39										

REMARKS

723048

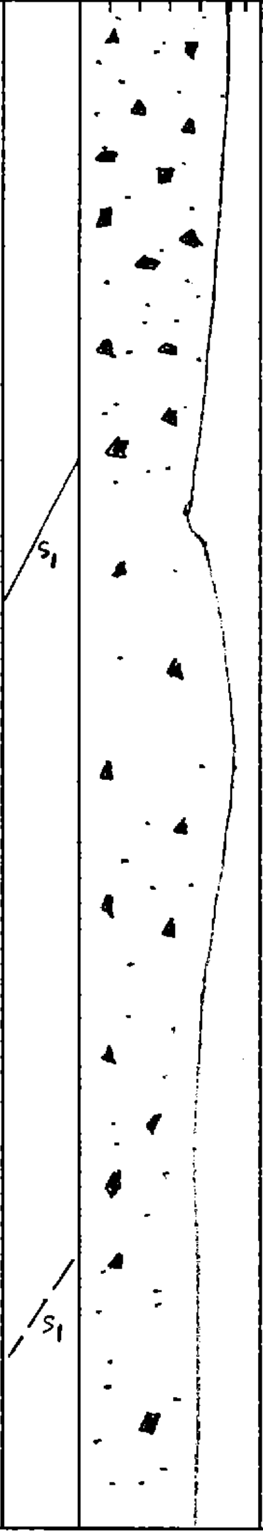
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR012

SHEET 3 **OF** 25

——— Bedding	▨ Disseminated
└┘ Cleavage	■ Massive
▲ Foliation	▨ Pervasive
∿∿ Fault, Shear	↘ Narrow vein
△ Breccia	* Visible gold
▩ Broken core	

PROJECT :	TAS BASE METALS
PROSPECT :	GARFIELD
DATE :	4/11/95
LOGGED BY :	S. W. H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	ALTERATION SIL.	SER.	PY.	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
41									
42									
43									
44									
45									
46							S0 to CA 25°		
47			S1				46.7 - 63.2		
48							finer-grained, fewer lithics		
49							matrix supported		
50									
51									
52									
53									
54							base of fracture oxidation 54 m.	VR<M	
55									
56									
57			S1						
58							S1 to CA 35°		
59									

REMARKS

723049

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR012

SHEET 4 **OF** 25

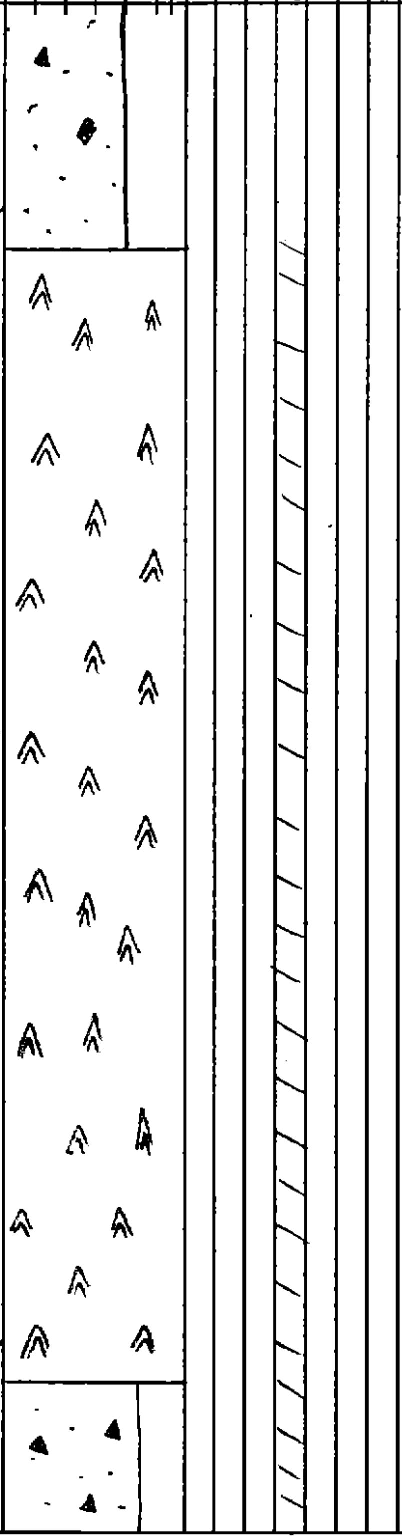
Symbol	Legend	Symbol	Legend
—	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
~	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

PROJECT : TAS BASE METALS

PROSPECT : GARFIELD

DATE : 4/11/95

LOGGED BY : S. W. H.



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
61								
62								
63			35			63·2 - 78·0		
64						chloritic andesite		
65						with abundant white		
66						sericitized feldspars strongly foliated		
67								
68								
69								
70			/S₁			S₁ to CA 35°		
71							IAF	
72								
73								
74								
75								
76								
77								
78						78·0 - 126·2		
79								

REMARKS

723050

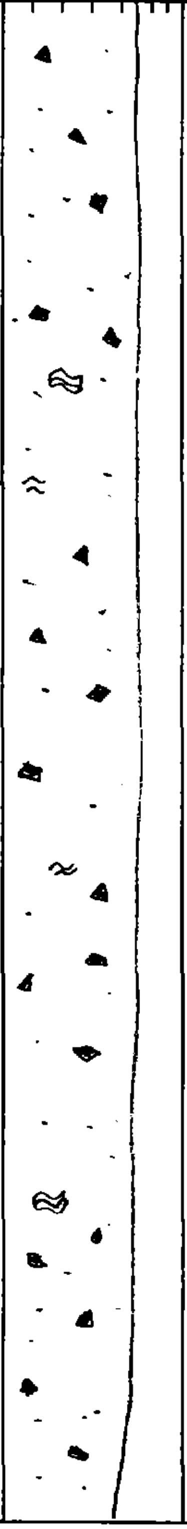
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012

SHEET 5 OF 25

- — Bedding
- ⊔ Cleavage
- ▲ Foliation
- ∼∼ Fault, Shear
- ▵▵ Breccia
- ▩ Broken core
- ▨ Disseminated
- ■ Massive
- ▧ Pervasive
- ↘ Narrow vein
- * Visible gold

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S. W. H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	ALTERATION SIL. SER. PY.	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
					massive homogenous		
81					volcaniclastic unit with small lithic clasts including		
82					some lava clasts + siltstone		
83					may be some pumice fragments sparse altered pyritic clasts		
84					moderately sericitic and		
85					foliated		
86							
87			S₁		S₁ to CA 35°		
88							
89							
90							
91						VD<M	
92							
93							
94							
95			35 S₁				
96							
97							
98							
99							

REMARKS

723051

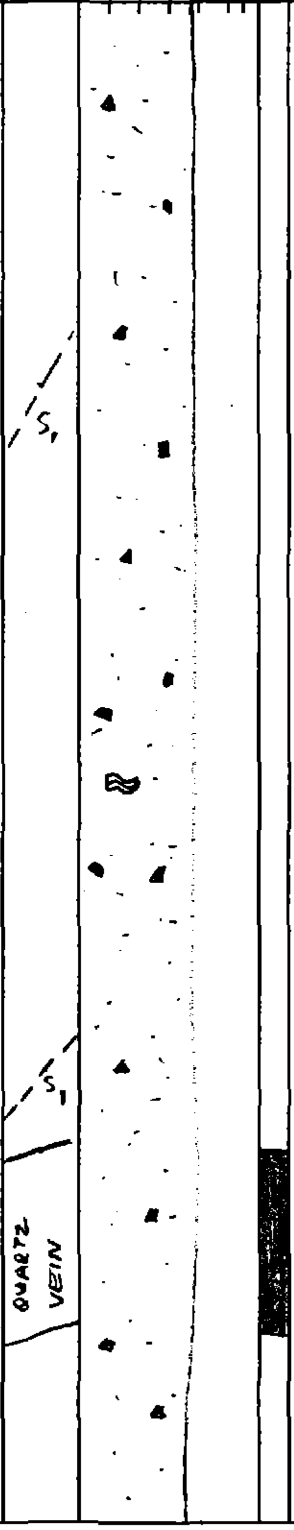
RGC EXPLORATION PTY LTD

———	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
〰	Fault, Shear	↘	Narrow vein
▽△▽	Breccia	*	Visible gold
▩	Broken core		

DRILL HOLE No GAR012

SHEET 6 OF 25

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S.W.H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION SIL. SER. PY.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
101						0-102.1 HQ		
102						102.1 - EOH NQ		
103								
104								
105						S1 to CA 30°		
106								
107								
108								
109								
110							VDCM	
111								
112								
113								
114						S1 to CA 40°		
115								
116								
117								
118								
119								

REMARKS

723052

RGC EXPLORATION PTY LTD

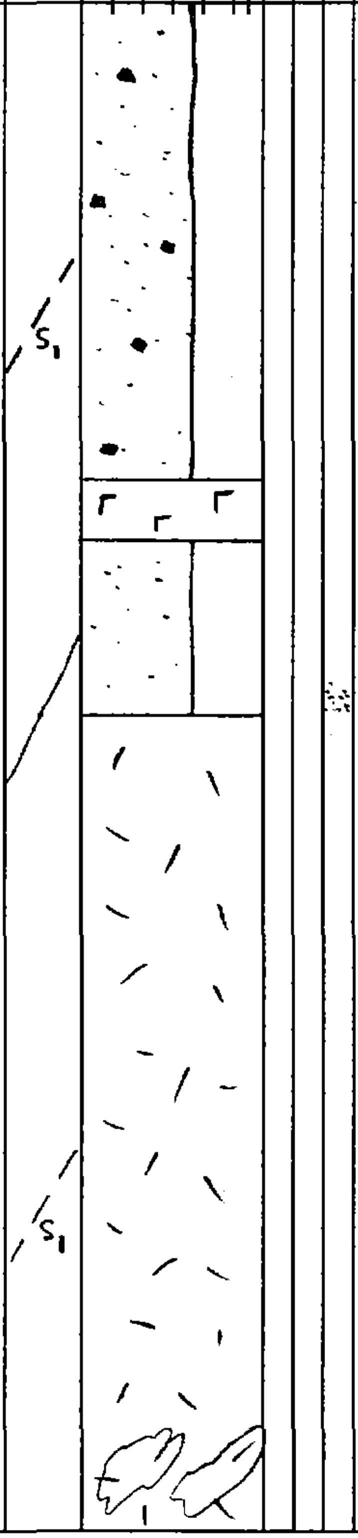
DRILL HOLE No GAR 012

SHEET 7 OF 25

Legend		Legend	
—	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿∿	Fault, Shear	↘	Narrow vein
▵▵	Breccia	*	Visible gold
▩	Broken core		

PROJECT	: TAS BASE METALS
PROSPECT	: GARFIELD
DATE	: 4/11/95
LOGGED BY	: S. W. H

HOLE DEPTH | SAMPLE No PREFIX | ASSAY RESULTS | STRUCT. | GRAPHIC LOG ($\frac{1}{16}$ $\frac{1}{4}$ 1 4 16 32) | ALTERATION (SIL. SER. PY.) | GEOLOGY NOTES | SUMMARY (ROCK, ALTERATION)



HOLE DEPTH	GEOLOGY NOTES	SUMMARY ROCK
121		
122		
123		
124	S1 to CA 30°	
125		
126	126.2 – 127.0 dacite dyke with chilled margins	DF
127		
128	127.0 – 129.3 volcaniclastic	VD<M
129		
130	129.3 – 142.0 rhyolite lava, weakly sericitic vague breccia textures particularly towards the base	
131		
132		
133		
134		
135		LRQ
136		
137		
138		
139		

REMARKS

723053

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012

SHEET 8 **OF** 25

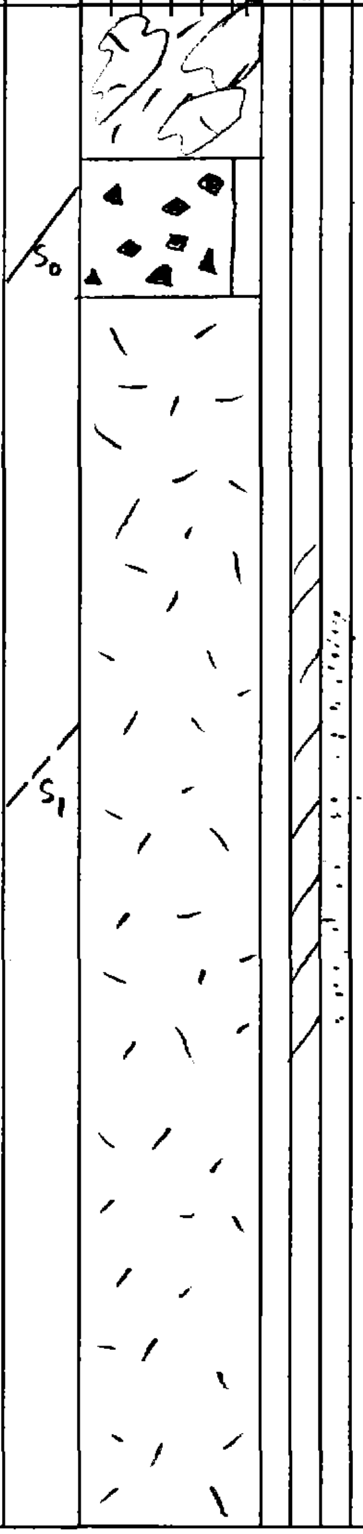
─	Bedding
⊔	Cleavage
▲	Foliation
∿	Fault, Shear
▵	Breccia
▩	Broken core
░	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold

PROJECT : TAS BASE METALS

PROSPECT : GARFIELD

DATE : 4/11/95

LOGGED BY : S. W. H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL.	SER.	PY.	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
141										
142								142.0 - 148.3 volcanic breccia		
143			S_0					S_0 to CA 35°	VR<C	
144								148.3 - 164.8		
145								rhyolite lava		
146										
147						▨				
148						▨	░			
149						▨	░			
150			S_1			▨	░	weak sericite - pyrite		
151						▨	░			
152						▨	░	weakly brecciated		
153						▨	░		LRQ	
154										
155										
156										
157										
158										
159										

REMARKS

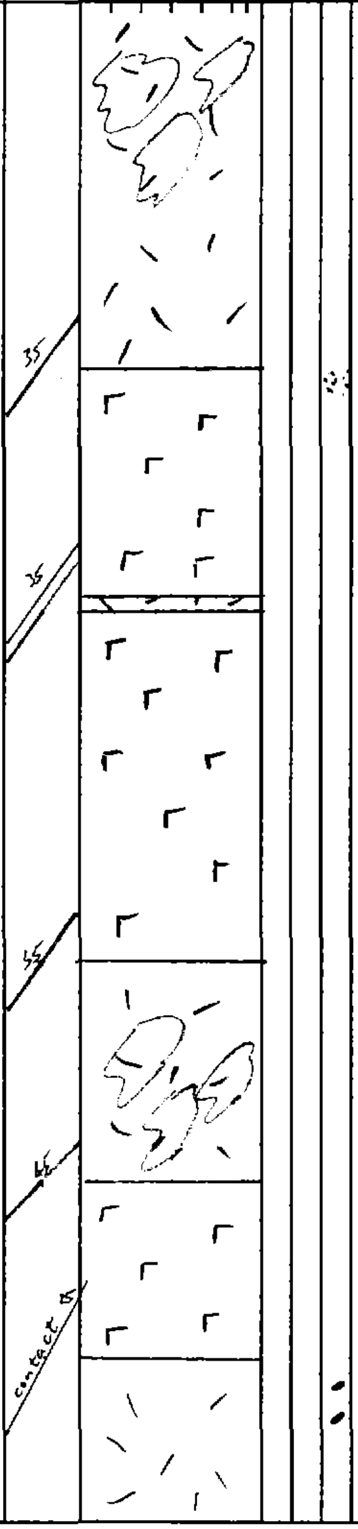
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012

SHEET 9 **OF** 25

PROJECT :	TAS BASE METALS
PROSPECT :	GARFIELD
DATE :	4/11/95
LOGGED BY :	S. W. H.

—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION SIL. SER. PY.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
161						weak breccia texture		
162								
163								
164			35					
165						164·8 – 167·8 amygdaloidal dacite dyke	IDF	
166								
167			35					
168						167·8 – 168 rhyolite lava 168·0 – 172·6	LRG	
169						amygdaloidal dacite dyke	IDF	
170								
171								
172			35					
173						172·6 – 175·5 rhyolite lava breccia includes several pyrite-quartz clasts	LRQB	
174								
175			65					
176						175·5 – 177·8 amygdaloidal dacite dyke	IDF	
177			contact 15					
178						177·8 – 190·1	LRQB	
179								

REMARKS

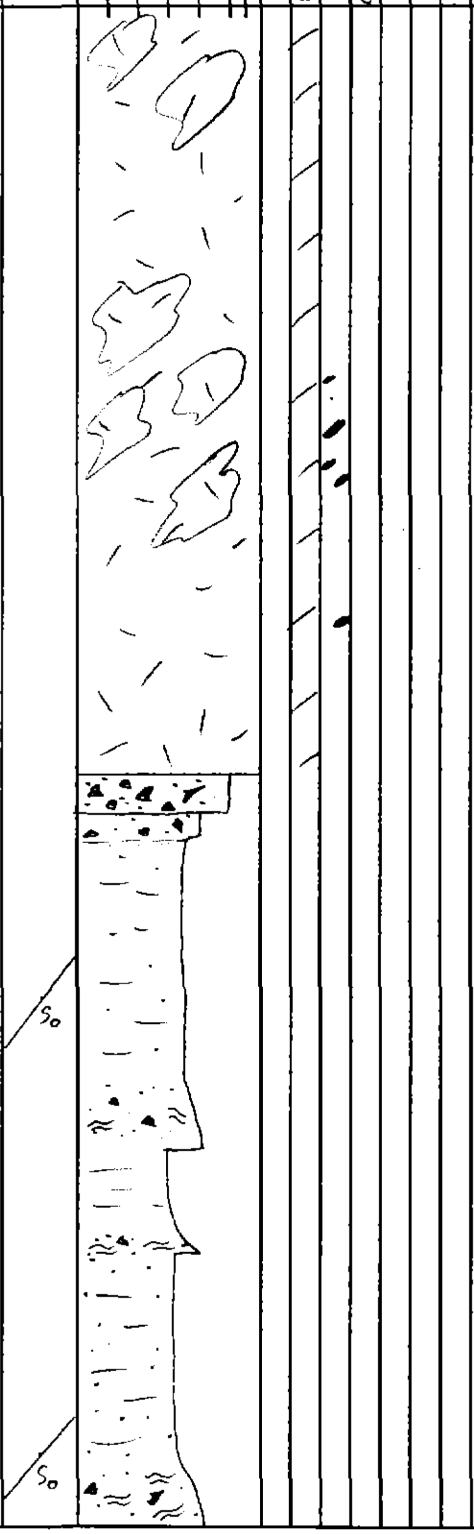
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012

SHEET 10 **OF** 25

- —— Bedding
- ⊔ Cleavage
- ▲ Foliation
- 〰 Fault, Shear
- △ Breccia
- ▩ Broken core
- ▨ Disseminated
- ■ Massive
- ▨ Pervasive
- ∼ Narrow vein
- * Visible gold

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S.W.H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
181						quartz phyric rhyolite lava with a ghosted fragmental texture and heterogeneous sericitic alteration		
182								
183						it contains unusual pyrite clasts(?)		
184								
185								
186							LRQB	
187								
188								
189								
190						190.1 - 214.0		
191								
192						graded volcanic sandstone distinctly bedded in places wispy sericite domains in the coarse bands may be after pumice		
193			S_0					
194								
195								
196							VR<M	
197								
198								
199			S_0			S_0 to CA 40°		

REMARKS

723056

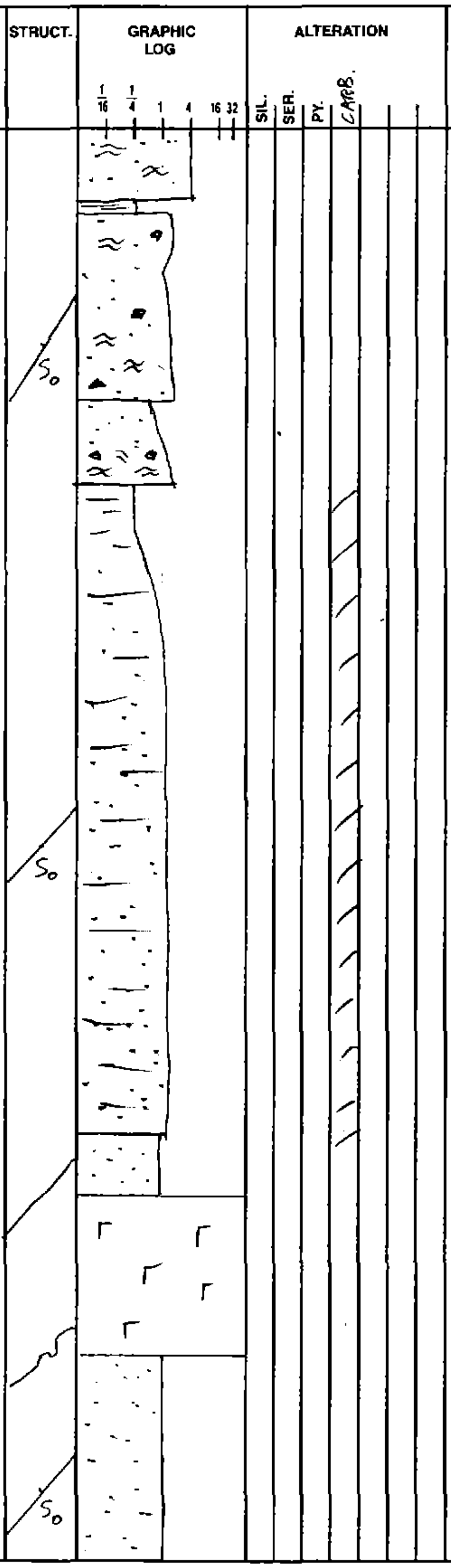
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012

SHEET 11 **OF** 25

PROJECT :	TAS BASE METALS
PROSPECT :	GARFIELD
DATE :	4/11/95
LOGGED BY :	S.W.H

- ── Bedding
- ⊔ Cleavage
- ─▲─ Foliation
- ∼∼ Fault, Shear
- ▵▿ Breccia
- ▩ Broken core
- ░ Disseminated
- ■ Massive
- ▨ Pervasive
- ↘ Narrow vein
- * Visible gold



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
201				VRCM	
202					
203			S_0 to CA 35°		
204					
205					
206					
207					
208			blotchy carbonate alteration with secondary rhombs (1-2mm) of ferroan carbonate		
209					
210			distinctly bedded		
211			S_0 to CA 40°		
212					
213					
214			214.0 – 214.9 sandstone	ER_M	
215			214.9 - 217.1	IDF	
216			dacitic dyke		
217			217.1 – 232.9	ER_M	
218			sandstone		
219			more 'mature' sediment than the last volcaniclastic unit		

REMARKS

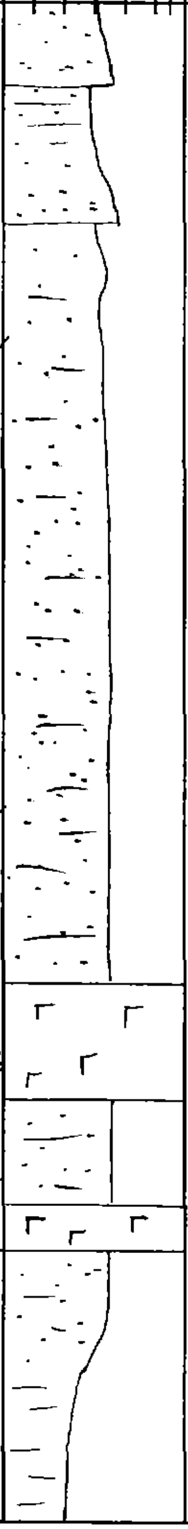
723057

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012
SHEET 12 OF 25

—	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

PROJECT :
PROSPECT :
DATE :
LOGGED BY :



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	SIL.	SER.	PY.	CARB	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
								▨		ER_M	
221								▨			
222								▨			
223								▨			
224								▨			
225			S_0					▨	S_0 40°		
226								▨	patchy ferroan carbonate alteration, enhancing the bedding.		
227								▨			
228								▨			
229								▨			
230								▨			
231			S_0					▨	S_0 45°		
232								▨			
233									232·9 - 234·4 dacite dyke	IDF	
234			CONTACT								
235									234·4 - 235·8	ER_M	
236									235·8 - 236·4 dacite dyke	IDF	
237									236·4 - 238 Sandstone	ER_m	
238									238·0 - 260·3 Siltstone	ER_F	
239											

REMARKS

RGC EXPLORATION PTY LTD

DRILL HOLE No 6AR012

SHEET 13 **OF** 25

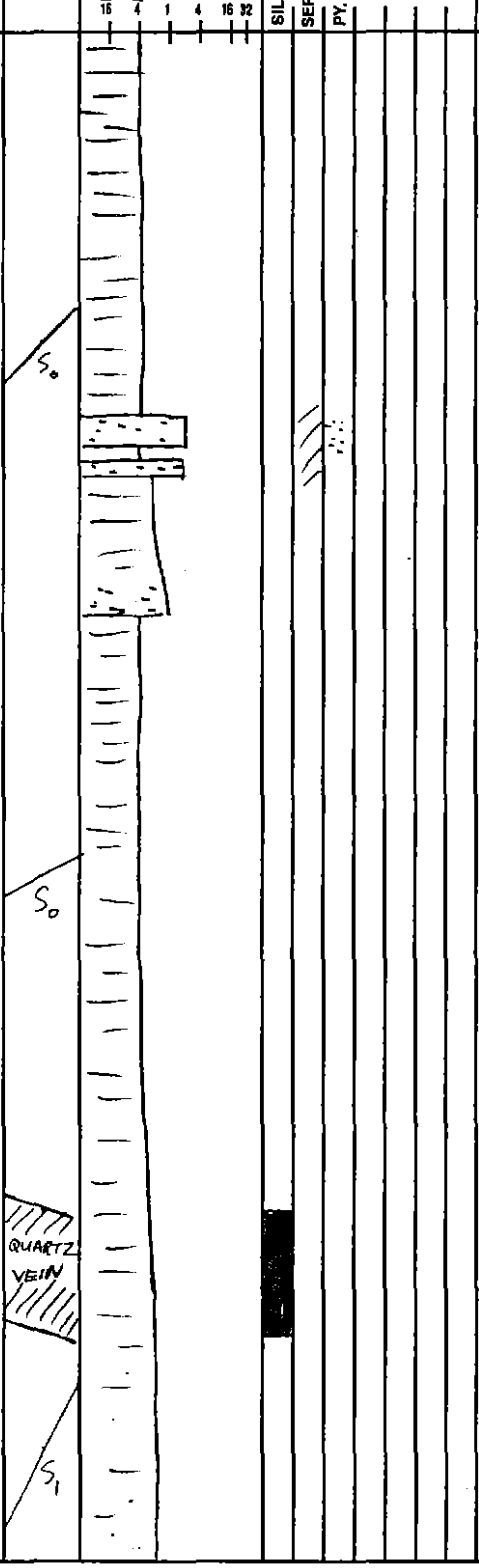
—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

PROJECT :

PROSPECT :

DATE :

LOGGED BY :



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
241								
242								
243								
244						S_0 40°		
245								
246								
247								
248								
249								
250								
251						S_0 60°		
252							ER_F	
253								
254								
255								
256								
257								
258								
259						S_1, S_0 25°		

REMARKS

723059

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012

SHEET 14 **OF** 25

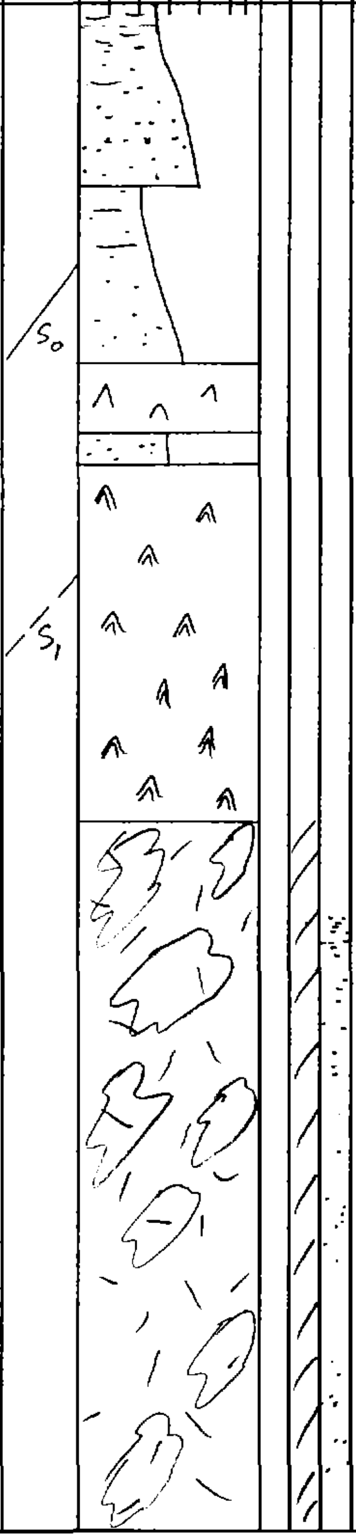
——	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
〰	Fault, Shear	↘	Narrow vein
▵	Breccia	*	Visible gold
▩	Broken core		

PROJECT :

PROSPECT :

DATE :

LOGGED BY :



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
				260·3 – 262·4		
261				quartz phyric volcaniclastic	VRQM	
262				*		
263				262·4 – 264·7 S_0 to CA 40°	VRQF	
264			S_0			
265				264·7 – 265·4 andesite dyke	IAF	
266				265·4 – 266	VRQF	
267				266·0 – 270·7 andesite dyke		
268			S_1	feldspar-rich.		
269				S_1 to CA 40°	IAF	
270						
271				270·7 – 289·0 rhyolite lava breccia		
272				heterogeneous sericitic alteration with minor pyrite, locally 2 to 5%.		
273						
274						
275						
276						
277						
278						
279						

REMARKS

723060

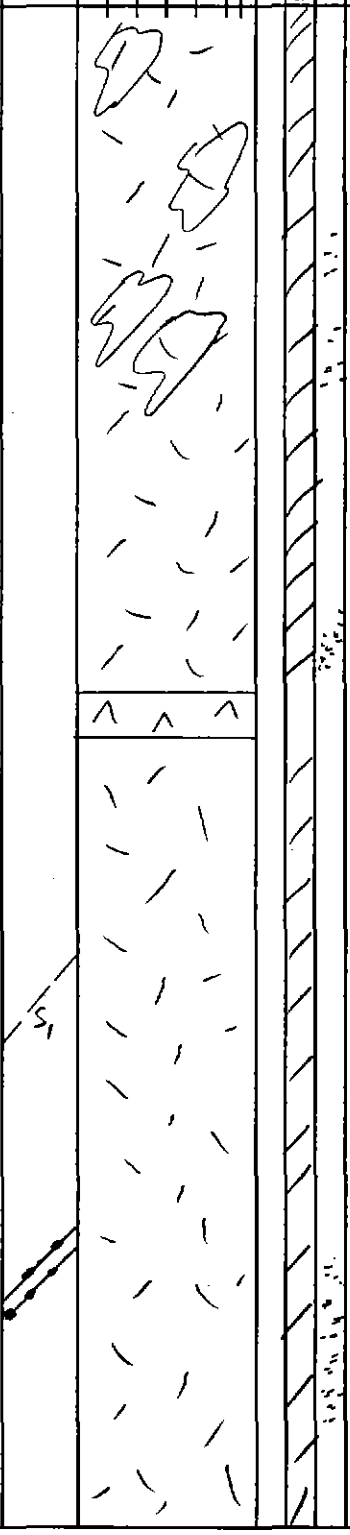
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR 012

SHEET 15 OF 25

—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	⟋	Narrow vein
▽△	Breccia	*	Visible gold
▩	Broken core		

PROJECT :
PROSPECT :
DATE :
LOGGED BY :



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL. SER. PY.	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
281								
282								
283								
284								
285								
286							LRQ	
287								
288								
289						289.0 - 289.6 andesite dyke	IAF	
290						289.6 – 332.2		
291								
292								
293			S1			S1 to CA 40°		
294								
295							LRQ	
296								
297						thin andesite dykes		
298								
299								

REMARKS

RGC EXPLORATION PTY LTD

DRILL HOLE No 6AR012

SHEET 16 OF 25

——	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿∿	Fault, Shear	↘	Narrow vein
△▽	Breccia	*	Visible gold
▩	Broken core		

PROJECT :

PROSPECT :

DATE :

LOGGED BY :

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL.	SER.	PY.	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
301						▨				
302						▨				
303						▨				
304						▨				
305			60 S1			▨		massive quartz phyric rhyolite lava, weakly sericitic, weakly foliated		
306						▨				
307						▨				
308						▨				
309						▨				
310						▨			LRQ	
311			60 S1			▨				
312						▨				
313						▨				
314						▨				
315			60 S1			▨				
316						▨				
317						▨				
318						▨				
319						▨				

REMARKS

RGC EXPLORATION PTY LTD

——	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
▽△	Breccia	*	Visible gold
▩	Broken core		

DRILL HOLE No 6AR012

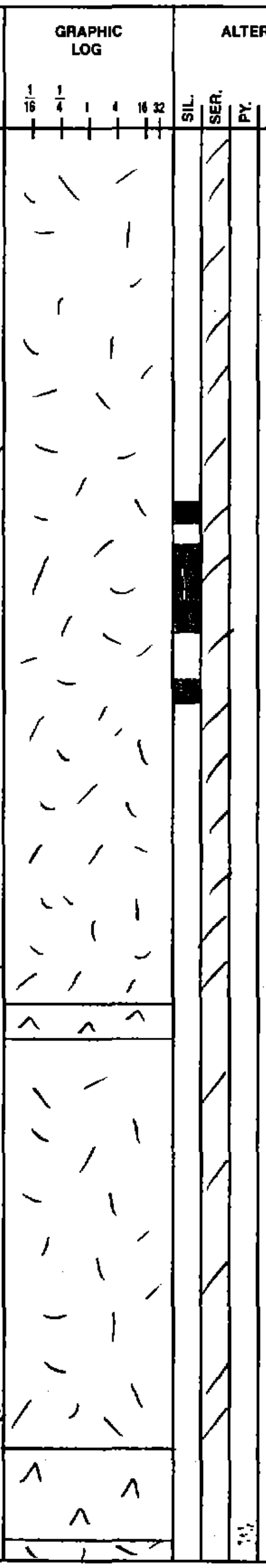
SHEET 17 **OF** 25

PROJECT :

PROSPECT :

DATE :

LOGGED BY :



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
321						
322						
323						
324						
325			S_1	S_1 to CA 35°		
326						
327				irregular quartz-chlorite-carbonate veins	LRQ	
328						
329						
330						
331						
332			40 CONTACT	332·2 – 332·7 andesite dyke	IAF	
333				332·7 – 338·4		
334						
335				rhyolite lava		
336					LRQ	
337						
338			CONTACT 45			
339				338·4 – 339·7 andesite dyke	IAF	

REMARKS

RGC EXPLORATION PTY LTD

DRILL HOLE No 6AR012

SHEET 18 OF 25

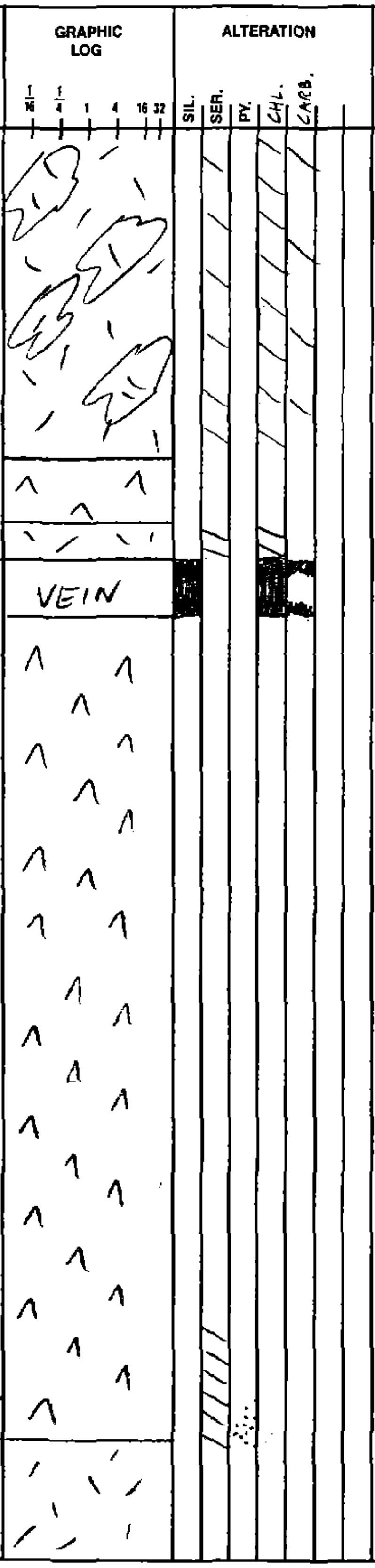
PROJECT :

PROSPECT :

DATE :

LOGGED BY :

- —— Bedding
- ⌴ Cleavage
- ▲ Foliation
- ∿∿ Fault, Shear
- △▽ Breccia
- ▩ Broken core
- ▨ Disseminated
- ■ Massive
- ▨ Pervasive
- ↘ Narrow vein
- * Visible gold



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
				339·7 - 344·6		
341				rhyolite, fragmental texture		
342			40 S1			
343					LRQ	
344						
345				334·6 - 345·5 andesite dyke	IAF	
346				345·5 - 346·0 rhyolite 346·0 - 346·8 qtz - chl - carb vein	LRQ VEIN	
347				346·8 - 358·3		
348				rhydite		
349						
350			S1	S1 to CA 45°		
351						
352						
353					IAF	
354						
355						
356						
357						
358			40 CONTACT			
359				358·3 - 387·2 massive rhyolite	LRQ	

REMARKS

723064

RGC EXPLORATION PTY LTD

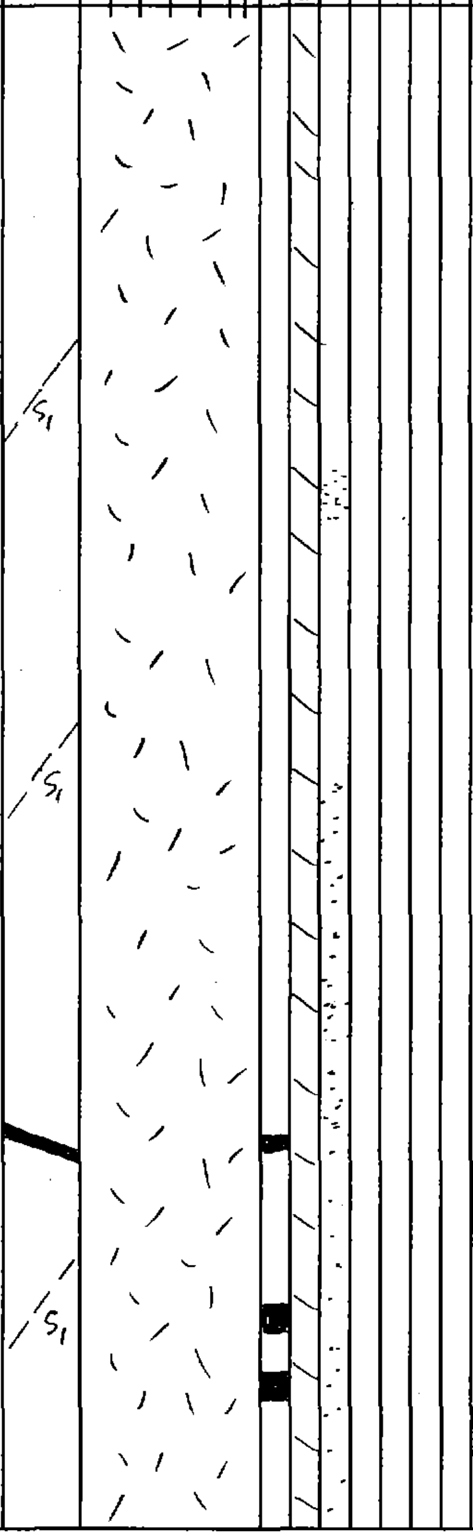
DRILL HOLE No GAR 012

SHEET 19 OF 25

Symbol	Legend	Symbol	Legend
—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	⁄	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S.W.H

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION (SIL. SER. PY.)	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
361								
362								
363						massive rhyolite lava		
364						sericitic,		
365			S₁			spaced cleavage with distinctive green sericite in bands at ~2 cm spacings		
366						S_1 to CA 35°		
367								
368								
369								
370			S₁					
371							LRQ	
372								
373								
374								
375								
376								
377			S₁					
378								
379								



REMARKS

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR012

SHEET 20 OF 25

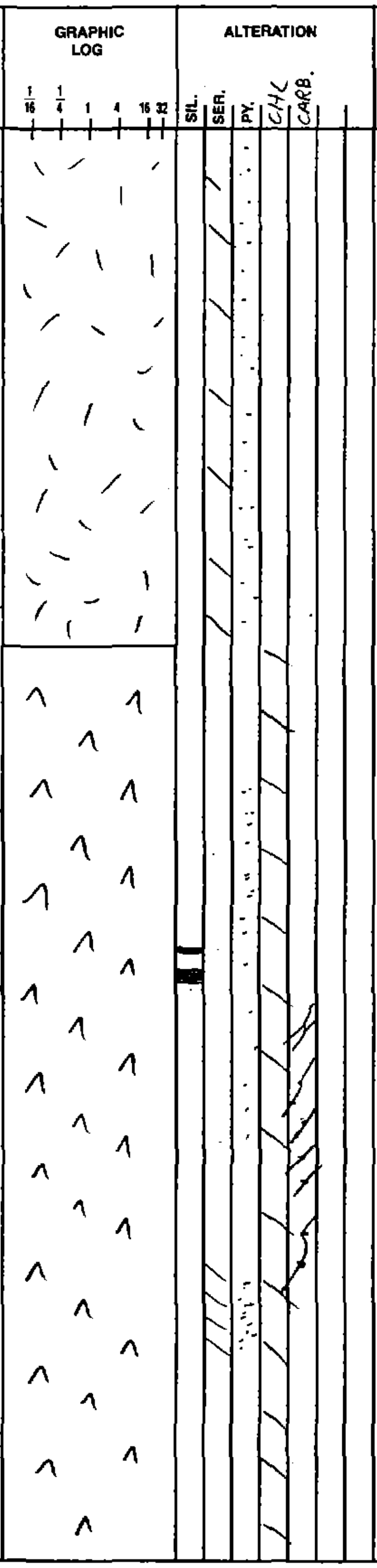
PROJECT : TAS BASE METALS

PROSPECT : GARFIELD

DATE : 4/11/95

LOGGED BY : S.W.H

- —— Bedding
- ⊔ Cleavage
- ▲ Foliation
- ∿∿ Fault, Shear
- ▵▿ Breccia
- ▩ Broken core
- ▤ Disseminated
- ■ Massive
- ▨ Pervasive
- ↘ Narrow vein
- * Visible gold



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
381						
382						
383				S1 to CA 35°		
384			S1		LRQ	
385						
386						
387				irregular contact		
388				387·2 — 432·5 massive foliated andesite		
389						
390			S1			
391			VEIN			
392						
393						
394				carbonate veins	IAF	
395						
396						
397						
398						
399						

REMARKS

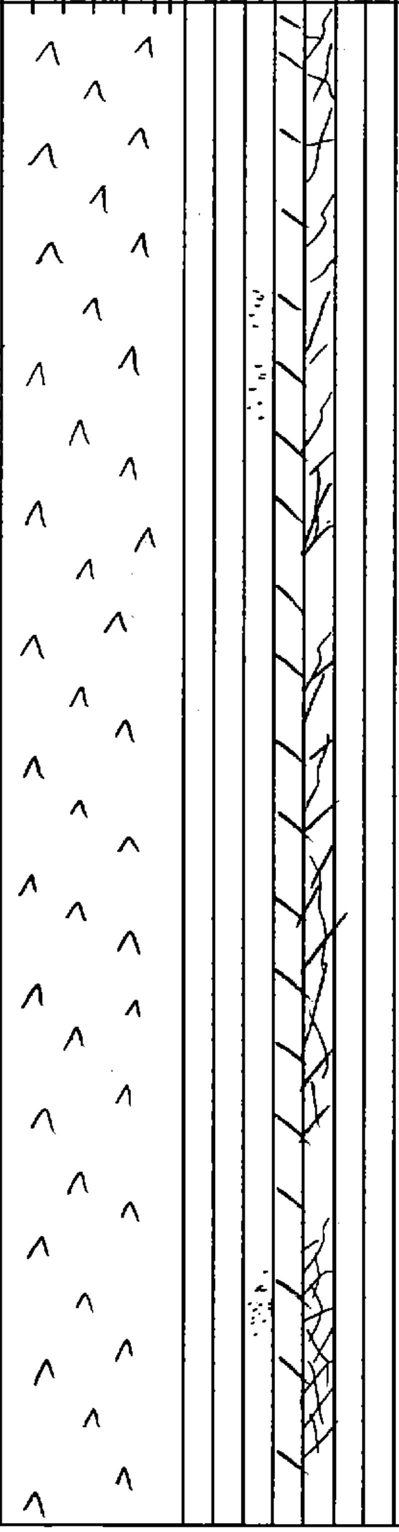
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR012

SHEET 21 OF 25

— Bedding
⊔ Cleavage
▲ Foliation
∿ Fault, Shear
△ Breccia
▩ Broken core
▨ Disseminated
■ Massive
▨ Pervasive
↘ Narrow vein
* Visible gold

PROJECT :	TAS BASE METALS
PROSPECT :	GARFIELD
DATE :	4/11/95
LOGGED BY :	S.W.H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
401								
402								
403								
404								
405			S_1			S_1 to CA 45°		
406								
407						abundant ferroan carbonate veins		
408								
409								
410			S_1					
411								
412								
413								
414								
415			S_1					
416								
417								
418								
419								

REMARKS

723067

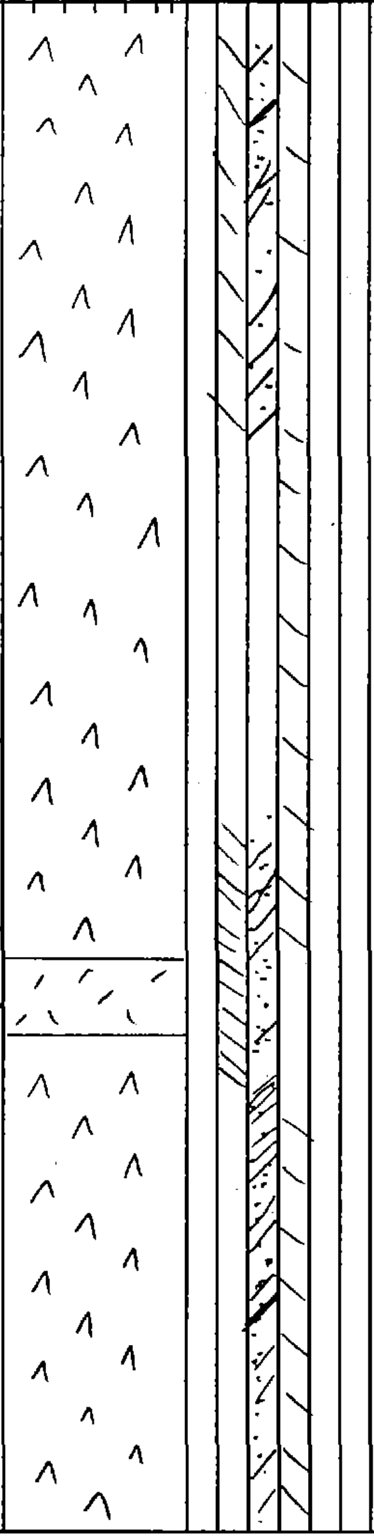
RGC EXPLORATION PTY LTD

DRILL HOLE No 6AR012

SHEET 22 **OF** 25

—	Bedding
⊔	Cleavage
▲	Foliation
~	Fault, Shear
▵	Breccia
▩	Broken core
▒	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S. W. H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
421								
422						Zone of pyrite veining* with minor chalcopyrite		
423								
424								
425			S_1			S_1 to CA 45°		
426								
427							IAF	
428								
429								
430			S_1					
431								
432								
433						432.5 - 433.5 rhyolite	LRQ	
434						433.5 - 451.2		
435								
436								
437								
438								
439								

REMARKS

723068

RGC EXPLORATION PTY LTD

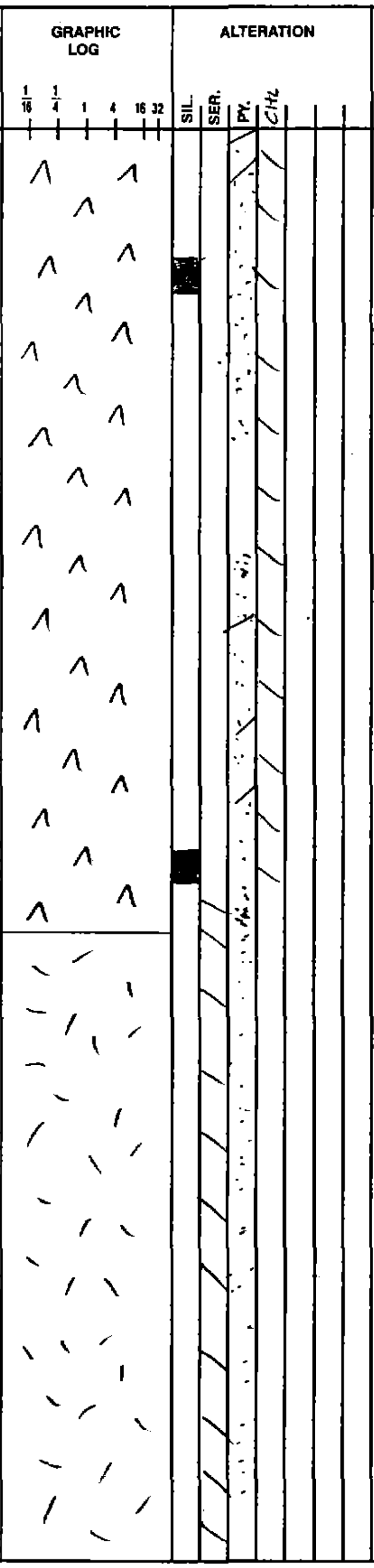
DRILL HOLE No 6AR012

SHEET 23 OF 25

Bedding	▨ Disseminated
Cleavage	■ Massive
Foliation	▨ Pervasive
Fault, Shear	Narrow vein
Breccia	* Visible gold
▩ Broken core	

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S.W.H

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
441								
442			VEIN					
443								
444								
445			S1			S_1 to CA 40°		
446							IAF	
447								
448								
449								
450			VEIN					
451								
452						451·2 – 482·0		
453								
454								
455			S1					
456							LRQ	
457								
458								
459								



REMARKS

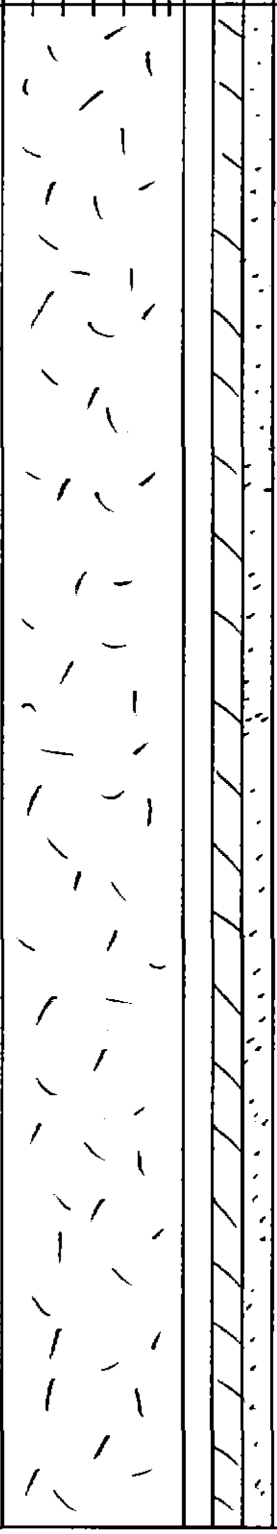
RGC EXPLORATION PTY LTD

DRILL HOLE No GAR012

SHEET 24 **OF** 25

—	Bedding	░	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
〰	Fault, Shear		Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S.W.H



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL. SER. PY.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
461								
462								
463								
464								
465			S1					
466								
467								
468								
469								
470			S1					
471							LRQ	
472								
473								
474								
475			S1					
476								
477								
478								
479								

REMARKS

723070

RGC EXPLORATION PTY LTD

DRILL HOLE No GAR012

SHEET 25 **OF** 25

―	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
―▲―	Foliation	▨	Pervasive
∿∿	Fault, Shear	↘	Narrow vein
△▽	Breccia	*	Visible gold
▩	Broken core		

PROJECT : TAS BASE METALS
PROSPECT : GARFIELD
DATE : 4/11/95
LOGGED BY : S. U. H

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL.	SER.	PY.	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
481										
482										
								482.0 E.O.H.		

REMARKS

APPENDIX 4

Drill Log for hole PEN001

723073

HOLE NO. :	PEN001
STATE	: EL102/87

ULV. PRESS

GOLD FIELDS EXPLORATION PTY. LIMITED
DRILL CORE RECORD

PROJECT	Queenstown 102/87
DESIGNED BY	MV+SH
LOGGED BY	MV+SH
COMMENCED	
COMPLETED	

PURPOSE

To test for "Garfield style" mineralisation in the strongly magnetic Penghana Andesite. The hole was targeted at the main magnetic anomaly (63275 nT) and associated soil anomaly of 214 ppm Cu, 122 ppm Pb and 290 ppm Zn.

LOG SUMMARY

GENERAL COMMENTS

0– 40·5 YOLANDE RIVER SEQUENCE
40·5– 229·7 PENGHANA ANDESITE
229·7–272·1(EOH) YOLANDE RIVER SEQUENCE

ASSAY SUMMARY

INTERVAL														COMMENTS
From	To													
TWO INTERVALS		ASSAYED	60·0 – 93·0m	AND	162·0 – 171·0 m.									
BEST INTERVAL		60·0 – 61·0		1m at	17000 ppm Cu,		6200ppm Pb		+ 25 ppm Ag					

LOCATION

NORTHING	5344222
EASTING	379303
R.L.	309
GRID	
LENGTH	272·2

HOLE CONDITION

SIZE	
Hole Size	Depth

SIGNIFICANT CORE LOSS INTERVALS		
From	To	% Lost

POOR GROUND CONDITION ZONES		
From	To	Condition

HOLE CONDITIONS AFTER COMPLETION

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY			INTERVAL			VERTICAL		HORIZONTAL		SURVEY			INTERVAL			VERTICAL		HORIZONTAL	
Depth	Bearing	Dip	From	To	Distance	D.Sin.Dip	R.L.	D.Cos.Dip	Prog.Total	Depth	Bearing	Dip	From	To	Distance	D.Sin.Dip	R.L.	D.Cos.Dip	Prog.Total
0	270	-55	0	15	15	12·29	12·29	8·60	8·60										
30m	270	-55	15	45															
60	272	-54	45	75															
90	270	-54	75	105															
120	266	-53·5	105	135															
150	267	-53	135	165															
180	269	-52·3	165	195															
210	268	-51·7	195	225															
240	264	-50·7	225	245															
270	263	-50	265	270															

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001 (SUMMARY)

SHEET 1 **OF** 2

PROJECT	:	PENGHANA
PROSPECT	:	QUEENSTOWN EL 102/87
DATE	:	MARCH - APRIL 1995
LOGGED BY	:	MICHAEL VICARY / SCOTT HALLEY

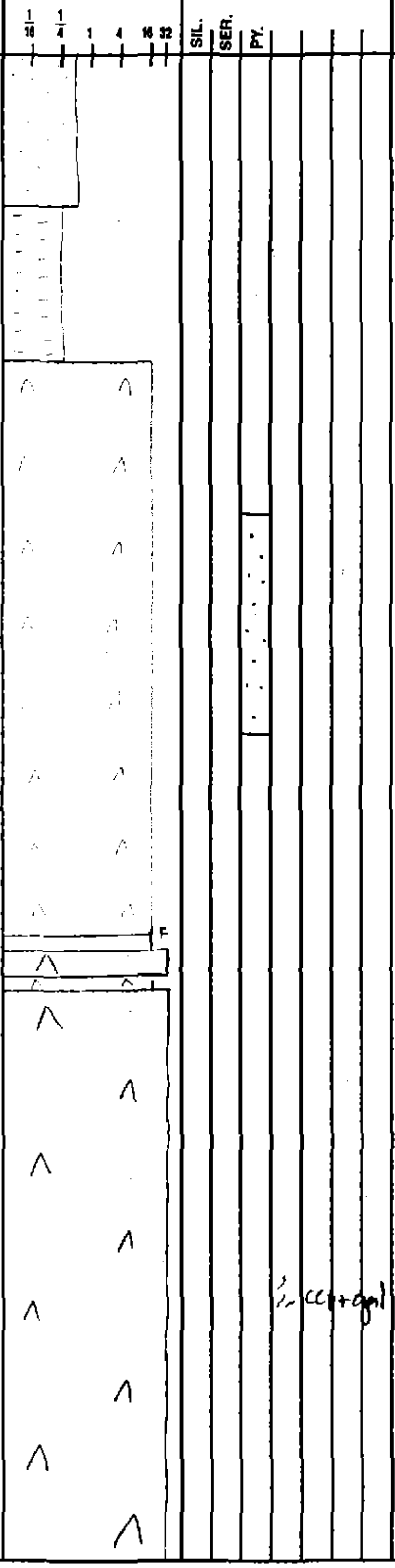
—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

HOLE DEPTH | SAMPLE No PREFIX | ASSAY RESULTS | STRUCT. | GRAPHIC LOG | ALTERATION | GEOLOGY NOTES | SUMMARY

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

ASSAYED (approx. 60–93)

ASSAYED (approx. 163–172)



GEOLOGY NOTES

0-20.0
grey-cream f-m gr feldspar phyric ashy volcaniclastic sst

20.0-40.5
grey-cream ashy volcaniclastic siltstone

40.5-119.0
Equigranular Andesite.

60.30-60.95 Qtz-carb-chl-epidote vein with 5% chalcopyrite, galena and pyrite

60.30-90.0 Sparse cubes of pyrite, up to 1.5 cm. Associated with pink albite alteration.

116.8-117.3 FAULT
119.0-122.1 feldspar phyric andesite
122.1-122.3 FAULT
123.8-229.7

feldspar-hornblende phyric porphyritic andesite

SUMMARY ROCK ALTERATION

Ꞓys — VDFF / VD_A

Ꞓa — LA_#

FALT → LA-
LAF
FALT → LA-

Ꞓa — LAH-

REMARKS

723074

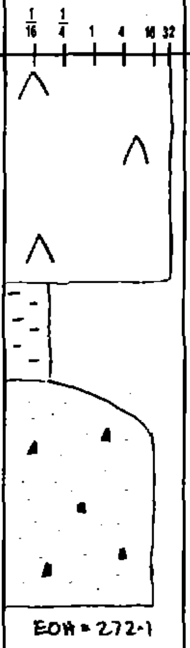
RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001 (SUMMARY)

SHEET 2 **OF** 2

—	Bedding
⊔	Cleavage
▲	Foliation
〰	Fault, Shear
⁂	Breccia
▩	Broken core
░	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold

PROJECT	: PENGHANA
PROSPECT	: QUEENSTOWN EL 102/87
DATE	: MARCH – APRIL 1995
LOGGED BY	: MICHAEL VICARY / SCOTT HALLEY



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	ALTERATION SIL.	SER.	PY.	GEOLOGY NOTES	SUMMARY	ROCK	ALTERATION
(200)								Єq	LAH–	
210										
220										
230							229.7 - 242.5 Grey siltstone	ЄUS	VR_F	
240							242.5 - 272.0 Crystal rich volcaniclastic sandstone	ЄUSM	VRQM	
250										
260										
270										
280										
290										
(300)										

REMARKS

723075

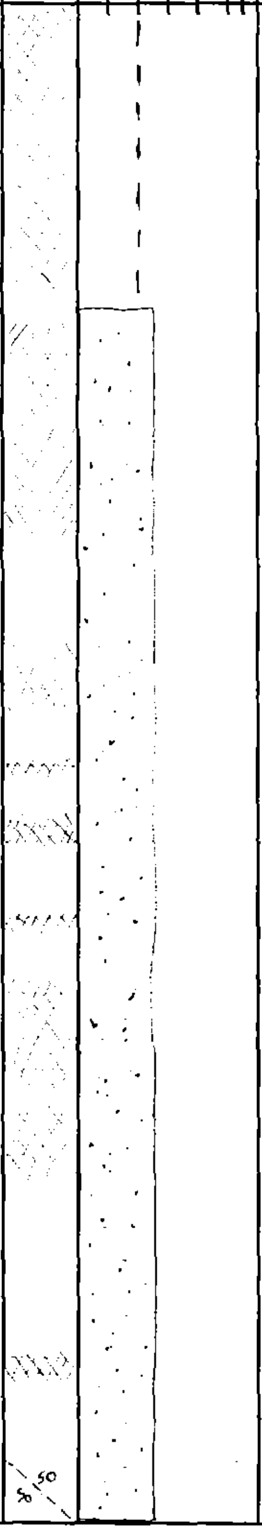
RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001

SHEET 1 OF 14

PROJECT	: QUEENSTOWN 102/87
PROSPECT	: PENGHANA
DATE	: MARCH- APRIL 1995
LOGGED BY	: MICHAEL VICARY

- — Bedding
- ⌴ Cleavage
- ▲ Foliation
- 〰 Fault, Shear
- △ Breccia
- ▩ Broken core
- ▒ Disseminated
- ■ Massive
- ▨ Pervasive
- ↘ Narrow vein
- * Visible gold



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION SIL. SER. PY. Chl Carb	GEOLOGY NOTES	SUMMARY ROCK	ALTERATION
1						0-4m mud 95% Core loss (chips of VOFF)		
2								
3								
4						4- ±20m well sorted, massive poorly bedded grey- cream f-m gr feldspar phyric, ashy volcaniclastic sandstone minor vughy veins + some blk liesegane Commonly well fractured (broken zones indicated)		
5								
6								
7								
8								
9								
(10)								
11							VDFF	S - 4
12								
13								
14								
15								
16								
17								
18								
19								
(20)								

REMARKS

723076

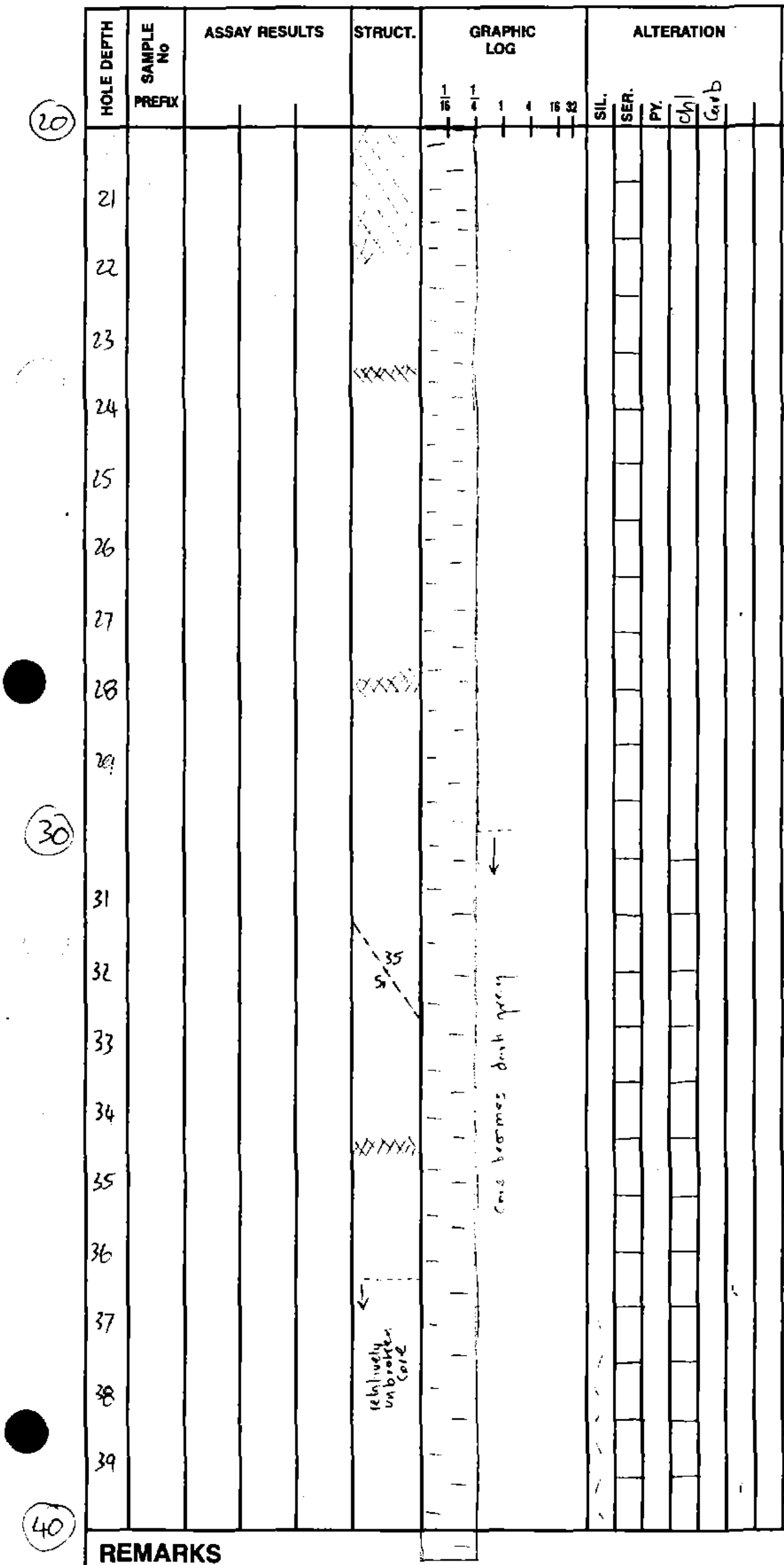
RGC EXPLORATION PTY LTD

— Bedding
⊔ Cleavage
▲ Foliation
〰 Fault, Shear
△ Breccia
▩ Broken core
░ Disseminated
■ Massive
▨ Pervasive
↘ Narrow vein
* Visible gold

DRILL HOLE No PEN 001
SHEET 2 OF 14

PROJECT :	QUEENSTOWN 102/87
PROSPECT :	PENGHANA
DATE :	MARCH - APRIL 1995
LOGGED BY :	MICHAEL VICARY

HOLE DEPTH | SAMPLE No PREFIX | ASSAY RESULTS | STRUCT. | GRAPHIC LOG | ALTERATION | GEOLOGY NOTES | SUMMARY



GEOLOGY NOTES

20- 40·5
cream-grey ashy volcaniclastic siltstone. Commonly vughy where veins have been leached
Trace pyr on joint surfaces

36·6-40·5
minor Qtz microviens

SUMMARY

ROCK	ALTERATION
VD-A	S--4
	SO--4

REMARKS

723077

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001

SHEET 3 **OF** 14

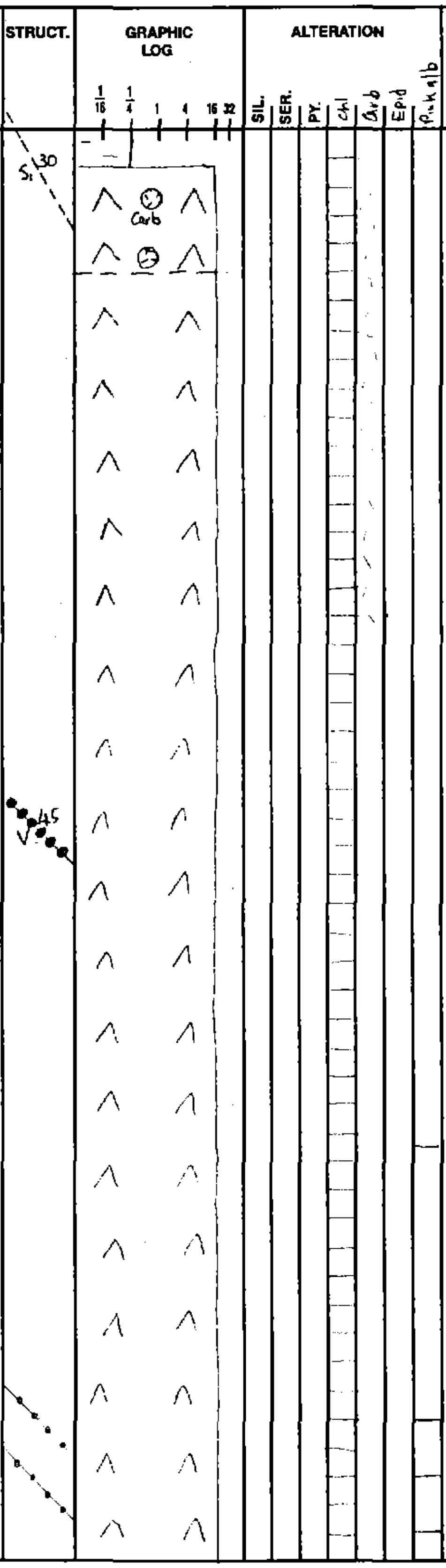
Symbol	Legend	Symbol	Legend
—	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿∿	Fault, Shear	↘	Narrow vein
△▽	Breccia	*	Visible gold
▩	Broken core		

PROJECT : QUEENSTOWN 102/87

PROSPECT : PENGHANA

DATE : MARCH - APRIL 1995

LOGGED BY : MICHAEL VICARY



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
(40)				VO-A	SC-4
41			40·5 – 117·55 m Equigranular Andesite Amygdaloidal texture 40·5 - 42·0 Upper contact chl surface joint - maybe local fault. Andesite is very uniform and massive. Sub mm feldspar + chl pseudomorphed ferromagnesian phases are evident in some areas.		
42					
43					
44					
45					
46					
47					
48					
49					
(50)			6cm Vein Qtz-Carb-epid - chl (Note chl = blue green asbestoslike mineral		
51				LA-E	O-S
52					
53					
54					
55					
56					
57			57·5 – 61·5 regular set of Qtz carb-epid-chl veins 1mm to 3cm wide at 45° to CA.		
58					
59					
(60)					

REMARKS

723078

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001

SHEET 4 OF 14

Legend		Legend	
——	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
▵	Breccia	*	Visible gold
▩	Broken core		

PROJECT : QUEENSTOWN 102/87
PROSPECT : PENGHANA
DATE : MARCH - APRIL 1995
LOGGED BY : MICHAEL VICARY

HOLE DEPTH	SAMPLE No PREFIX T3~~86~~	ASSAY RESULTS Cu	Pb	Zn	STRUCT.
(60)	39 Δ	17000	6200	115 *	
61	41	211	328	183 *	V45 45 V
62	62	221	64	267	
63	43	106	24	184	
64	44	206	19	167	
65	45	123	29	91	
66	46	141	90	67	
67	47	197	53	70	
68	48	246	46	174	
69	49	335	66	406	
(70)	50	205	82	153	
71	51	102	63	105	
72	52	72	54	52	
73	53	51	22	45	
74	54	112	42	123	
75	55	137	8	159	
76	56	153	8	179	
77	57	135	8	171	
78	58	220	80	144	
79	59	143	39	150	
(80)					

GRAPHIC LOG: 1/16 1/4 1 4 16 32

ALTERATION: SIL. SER. PY. Chl Carb Epid Pink Alt.

GEOLOGY NOTES

60·30-60·95
Major Qtz-carb-chl-epidote vein, with visable chalcopyrite, galena + pyrite *
sulphides present in epidote selvage at lower contact of vein.

61·8 1cm wide Carb-epid
visible pyr-ccp

SUMMARY
ROCK: LA-E
ALTERATION: AO-S

REMARKS * vein c̄ Pyr ± ccp ± gal Δ - SAMPLE T37839 = 25 g/t Ag
◆ Pyr cube

723079

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001

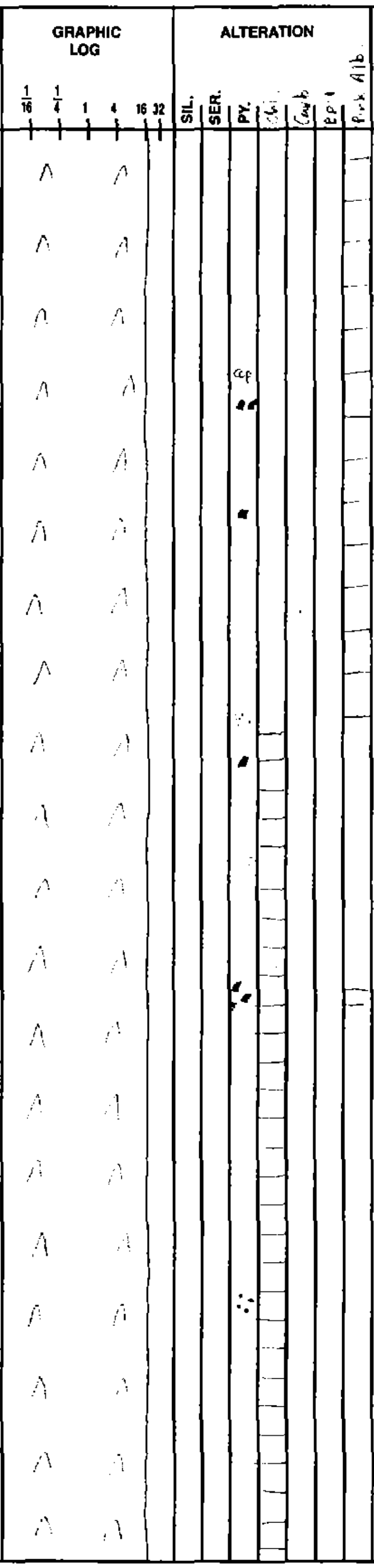
SHEET 5 OF 14

Bedding	Disseminated
Cleavage	Massive
Foliation	Pervasive
Fault, Shear	Narrow vein
Breccia	* Visible gold
Broken core	

PROJECT	: QUEENSTOWN 102/87
PROSPECT	: PENGHANA
DATE	: MARCH - APRIL 1995
LOGGED BY	: MICHAEL VICARY

(80)

HOLE DEPTH	SAMPLE No PREFIX T586-	ASSAY RESULTS Cu	Pb	Zn	STRUCT.	SUMMARY ROCK	ALTERATION
81	61	149	36	104			
82	62	513.	29	115			
83	63	188	39	136			
84	64	106	32	138			
85	65	55	25	154			AO-5
86	66	124	29	120			
87	67	197	52	116			
88	68	118	25	150	F 20		
89	69	154	25	369			
(90)	70	133	20	216		L.A.E	
91	71	38	35	195			
92	72	30	29	222			
93	73	117	39	155			
94							O-5
95							
96							
97							
98							
99							
(100)							



GEOLOGY NOTES

91.9-92.4 irregular Carb-epid-pyr vein
+ pink albite selvage.

93 - 116
Numerous Carb-Epid-chl-hm
veins + microveins.

REMARKS

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001

SHEET 6 **OF** 14

—	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
〰	Fault, Shear	↘	Narrow vein
▽	Breccia	*	Visible gold
▩	Broken core		

PROJECT	: Queenstown 102/87
PROSPECT	: Penghana
DATE	: March - April 1995
LOGGED BY	: Michael Vicary

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG (1/16, 1/4, 1, 4, 16, 32)	ALTERATION (SIL., SER., PY., Chl, Carb, Epid, Pink Alb)	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
(100)								
101								
102						*		
103								
104								
105								
106								
107								
108								
109							LA-E	O--S
(110)								
111								
112								
113								
114								
115								
116								A-
117			F60	FAULT		116·8 - 117 3 Fault	FAULT LA_E	A- A
118			C 50			117 55 - 117·8	LAF_ LA-E	O--S
119			C 25				LAF-	
(120)								

REMARKS

723081

RGC EXPLORATION PTY LTD

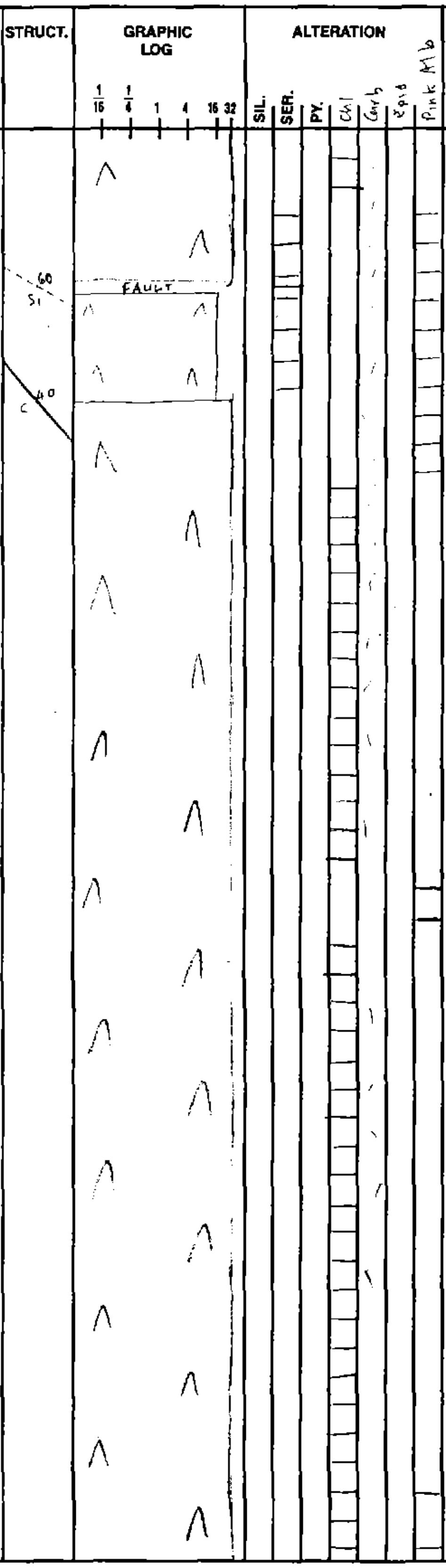
DRILL HOLE No PEN001

SHEET 7 OF 14

— Bedding	▨ Disseminated
⊔ Cleavage	■ Massive
▲ Foliation	▨ Pervasive
∿ Fault, Shear	↘ Narrow vein
Breccia	* Visible gold
▩ Broken core	

PROJECT :	QUEENSTOWN 102/87
PROSPECT :	PENGANNA
DATE :	MARCH - APRIL 1995
LOGGED BY :	MICHAEL VICARY

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG	ALTERATION	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
120								0--5
121							LAF-	
122			60 S1	FAULT		122·1-122·3 fault	FALT	
123						122·3-123·8 Pink Albite altered equigranular andesite	LA-E	A--5
124			40 C			123·8- 229·7		
125						feldspar-hornblende phyric porphyritic andesite.		
126								
127								0--5
128								
129								
130								
131								AO..11
132							LAH-	
133								
134								
135								0--5
136								
137								
138								
139								
140								



REMARKS

723082

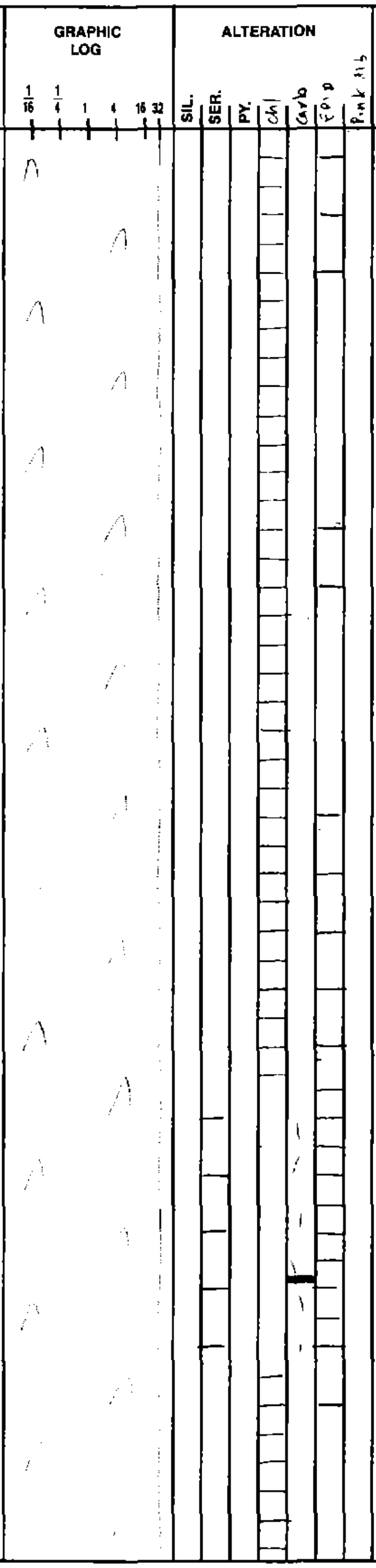
RGC EXPLORATION PTY LTD

DRILL HOLE No PEN001

SHEET 8 OF 14

PROJECT :	QUEENSTOWN 102187
PROSPECT :	PENGHANA
DATE :	MARCH - APRIL 1995
LOGGED BY :	MICHAEL VICARY

———	Bedding	▒	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
〰	Fault, Shear	↘	Narrow vein
▵	Breccia	*	Visible gold
▩	Broken core		



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
140						
141						
142						
143						
144						
145						O-5
146						
147						
148						
149						
150						
151					LAH-	AO-5
152						
153						
154						
155						ASC6
156			45			
157						
158						OC-5
159						
160						

REMARKS

723083

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN 001

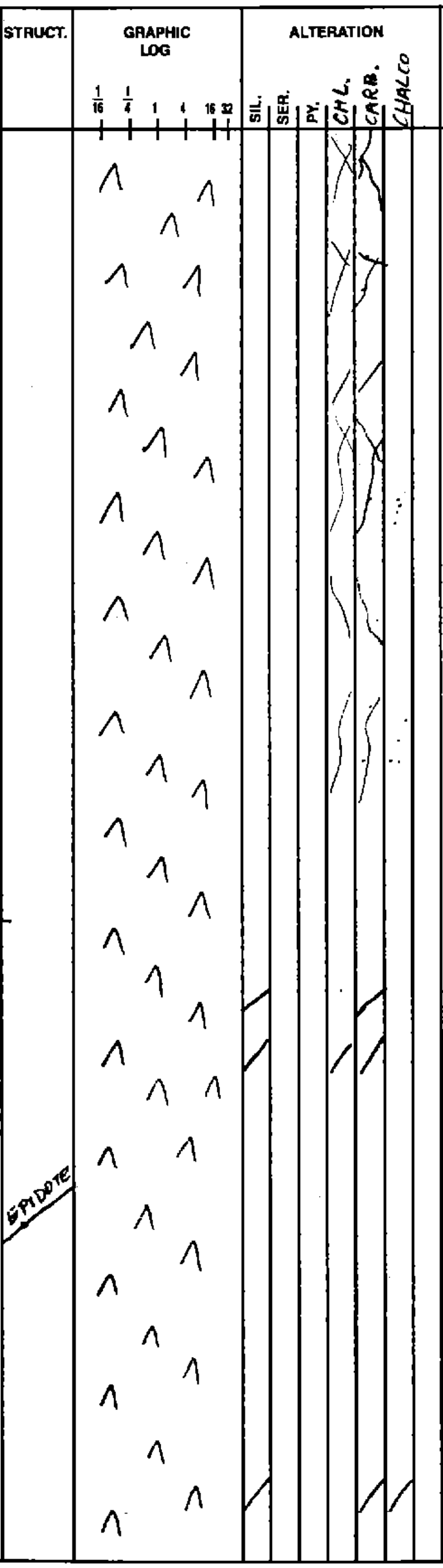
SHEET 9 **OF** 14

PROJECT	QUEENSTOWN 102/87
PROSPECT	PENGHANA
DATE	MARCH - APRIL 1995
LOGGED BY	SCOTT HALLEY

—	Bedding
⌴	Cleavage
▲	Foliation
〰	Fault, Shear
▵	Breccia
▩	Broken core
░	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold

(160)

HOLE DEPTH	SAMPLE No PREFIX T586--	ASSAY RESULTS Cu	Pb	Zn
161				
162	74	134	146	283
163	75	137	463	329
164	76	215	126	228
165	77	230	205	242
166	78	229	61	232
167	79	77	29	252
168	81	172	60	410
169	82	514	1859	529
(170)	83	124	696	471
171				
172				
173				
174				
175				
176				
177				
178				
179				
(180)				



GEOLOGY NOTES

ndwork of fine carbonate—chlorite veins with traces of chalcopyrite and galena.

SUMMARY

ROCK	ALTERATION
IAH	OC_5
	OC_3

REMARKS

723084

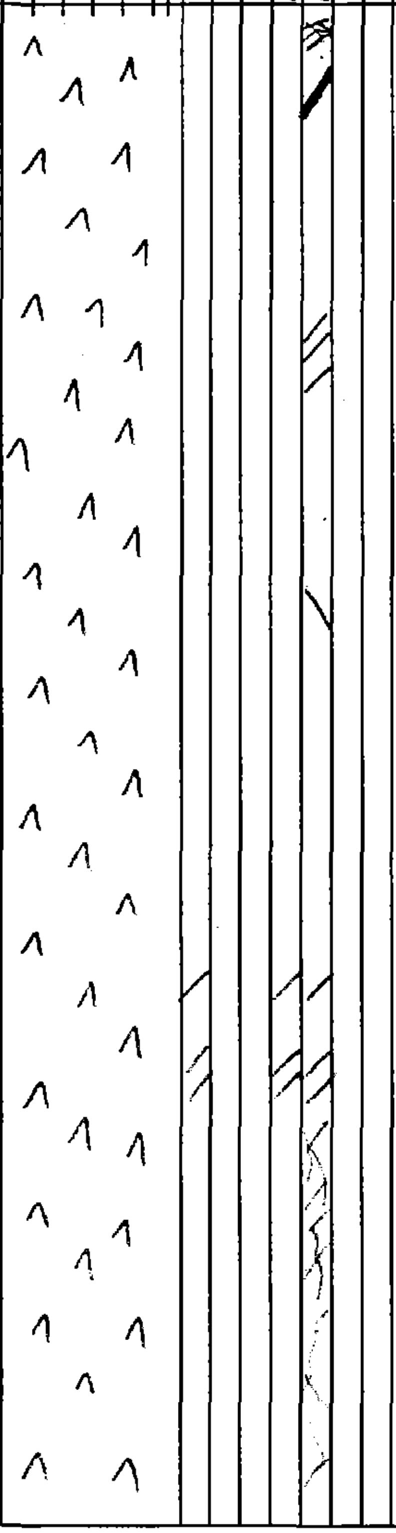
RGC EXPLORATION PTY LTD

DRILL HOLE No PEN 001

SHEET 10 OF 14

PROJECT	:	QUEENSTOWN 102/87
PROSPECT	:	PENGHANA
DATE	:	MARCH - APRIL 1995
LOGGED BY	:	SCOTT HALLEY

- Bedding
- Cleavage
- Foliation
- Fault, Shear
- Breccia
- Broken core
- Disseminated
- Massive
- Pervasive
- Narrow vein
- * Visible gold



HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG $\frac{1}{16}$ $\frac{1}{4}$ 1 4 16 32	ALTERATION SIL. SER. PY. CHL CARB.	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
180								
181								AC-5
182								
183								OC_3
184								
185								
186								
187								
188			EPIDOTE					
189								
190							IAH	
191								
192								
193								
194								
195								
196						Calcite veinlets		AOC 3
197								
198								
199								
200								

REMARKS

723085

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN 001

SHEET 11 **OF** 14

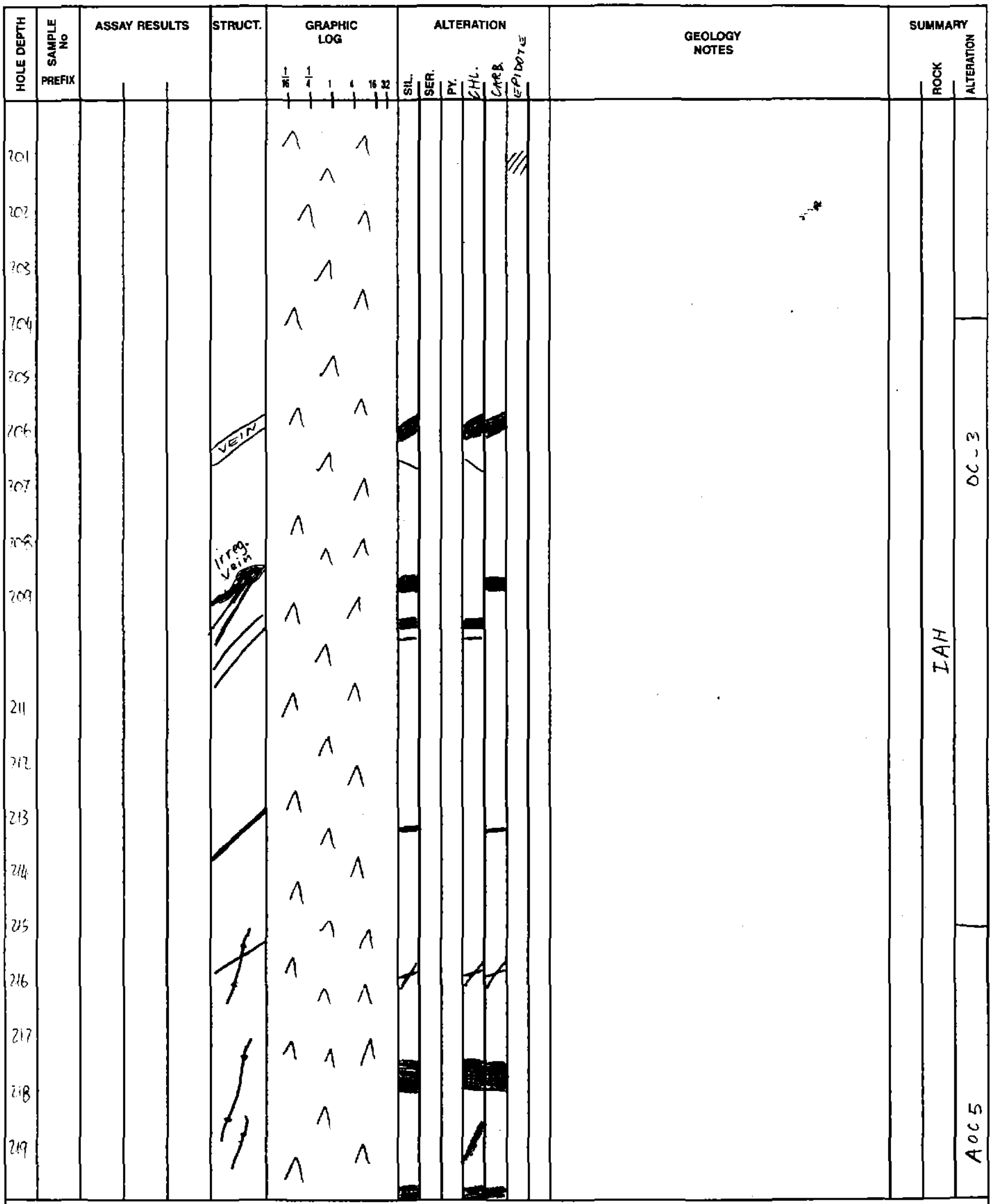
- ── Bedding
- └┘ Cleavage
- ─▲─ Foliation
- ∿∿ Fault, Shear
- △▽△ Breccia
- ▩ Broken core
- ░ Disseminated
- ■ Massive
- ▨ Pervasive
- ↘ Narrow vein
- * Visible gold

PROJECT :	QUEENSTOWN 102/87
PROSPECT :	PENGHANA
DATE :	MARCH - APRIL 1995
LOGGED BY :	SCOTT HALLEY

(200)

(210)

(220)



REMARKS

723066

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN 001

SHEET 12 **OF** 14

—	Bedding	▨	Disseminated
⊔	Cleavage	■	Massive
▲	Foliation	▨	Pervasive
∿	Fault, Shear	↘	Narrow vein
△	Breccia	*	Visible gold
▩	Broken core		

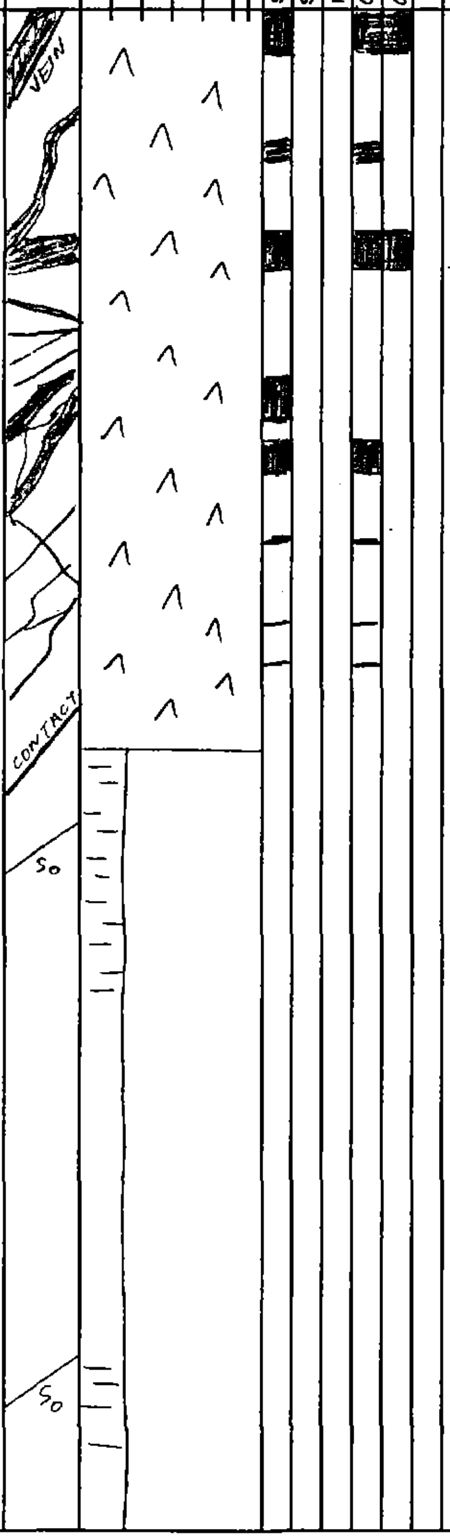
PROJECT : QUEENSTOWN 102/87

PROSPECT : PENGHANA

DATE : MARCH - APRIL 1995

LOGGED BY : SCOTT HALLEY

HOLE DEPTH | SAMPLE No PREFIX | ASSAY RESULTS | STRUCT. | GRAPHIC LOG $\frac{1}{16}$ $\frac{1}{4}$ 1 4 16 32 | ALTERATION SIL. SER. PY. CHL CARB | GEOLOGY NOTES | SUMMARY ROCK ALTERATION



HOLE DEPTH	GEOLOGY NOTES	SUMMARY	ROCK	ALTERATION
220				
221				
222				
223	zone of thick quartz-chlorite-carbonate veins			
224				
225		Eg	IAH	
226				
227				
228				
229				
230	Sharp planar intrusive contact 40° CA. 229.7 — 242.5 pale grey siltstone, massive to weakly stratified So to CA 55°			
231				
232				
233				
234				
235		Eys	VR-F	S
236				
237				
238	So to CA 55°			
239				
240				

REMARKS

723087

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN 001

SHEET 13 OF 14

Bedding	Disseminated
Cleavage	Massive
Foliation	Pervasive
Fault, Shear	Narrow vein
Breccia	* Visible gold
Broken core	

PROJECT : QUEENSTOWN 102/87
PROSPECT : PENGHANA
DATE : MARCH – APRIL 1995
LOGGED BY : SCOTT HALLEY

HOLE DEPTH	SAMPLE No PREFIX	ASSAY RESULTS	STRUCT.	GRAPHIC LOG 1/16 1/4 1 4 16 32	ALTERATION SIL. SER. PY. ALBITE	GEOLOGY NOTES	SUMMARY ROCK	SUMMARY ALTERATION
(240)								
241								
242								
243					SER. ▨	242·5 – 272·0 crystal rich volcaniclastic with 5 to 10% lithic fragments (mostly rhyolite lava clasts). Pale, bleached colour where sericitized, pink where albitized, otherwise dark grey		
244					SER. ▨			
245					SER. ▨			
246					SER. ▨			
247					SER. ▨			S-3
248					SER. ▨			
249					SER. ▨			
(250)					SER. ▨			
251					SER. ▨		VRQM	
252								
253								
254								U
255								
256					ALBITE ▨			
257					ALBITE ▨			
258					ALBITE ▨			A-3
259					ALBITE ▨			
(260)								

REMARKS

723088

RGC EXPLORATION PTY LTD

DRILL HOLE No PEN 001

SHEET 14 OF 14

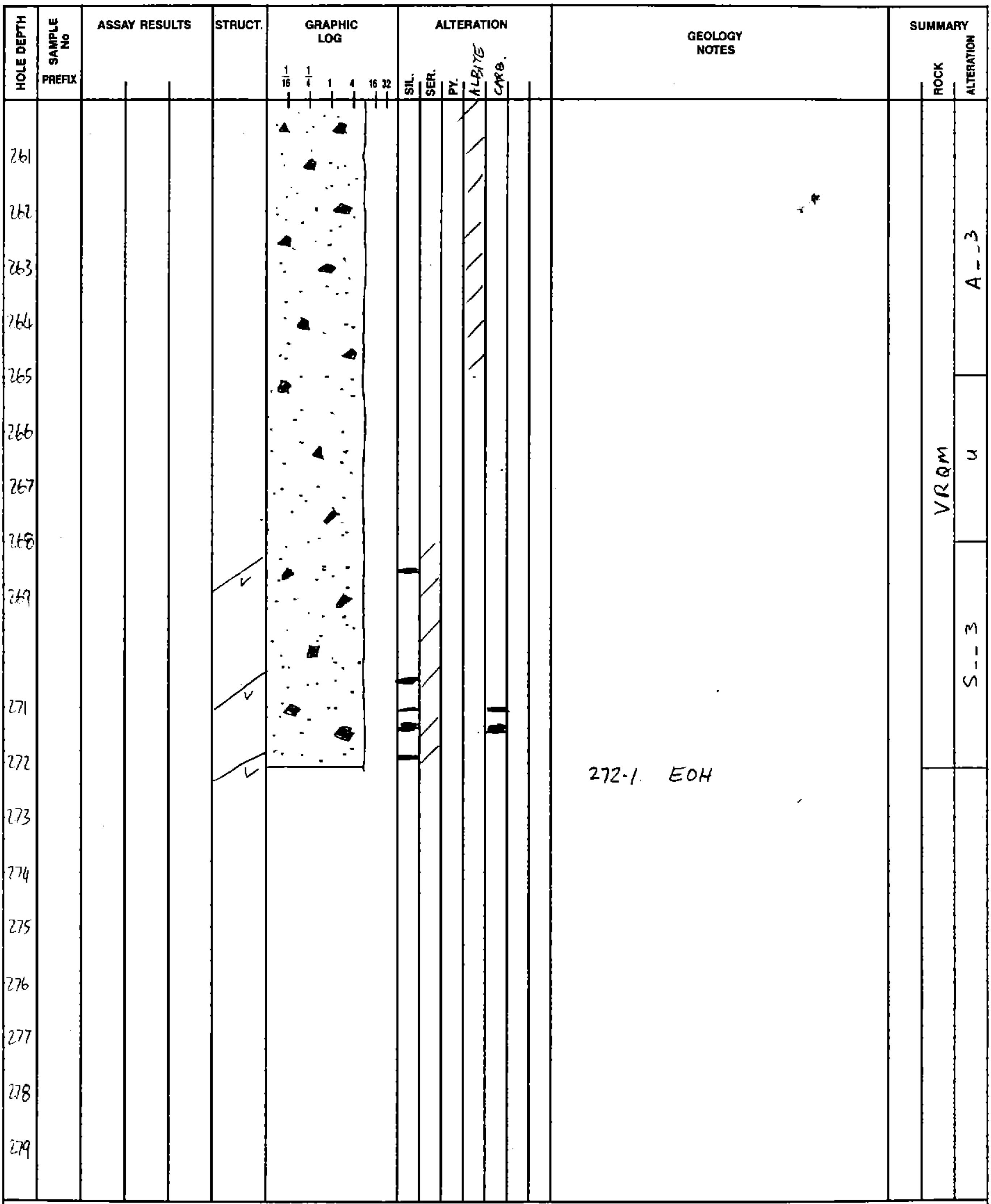
——	Bedding
⊔	Cleavage
▲	Foliation
〰	Fault, Shear
∆	Breccia
▩	Broken core
░	Disseminated
■	Massive
▨	Pervasive
↘	Narrow vein
*	Visible gold

PROJECT : QUEENSTOWN 102/87

PROSPECT : PENGHANA

DATE : MARCH - APRIL 1995

LOGGED BY : SCOTT HALLEY



272·1 EOH

REMARKS

723089

APPENDIX 5

Drill Core Assay Results

RGC Exploration Pty Ltd
GEOCHEM Data Management System
Project: DRILL HOLES

Sample	hole number	depth from	depth to	ANALAB Pb ppm GA140	ANALAB Pb_2 ppm GA10	ANALAB Zn ppm GA140	ANALAB Zn_2 ppm GA10	ANALAB Ag ppm GA101	ANALAB Ag2_a ppm GA1	ANALAB Au ppm GG309	ANALAB Au(s) ppm GG3	ANALAB Au(r) ppm GG3	ANALAB Cu ppm GA140	ANALAB Cu_2 ppm GA10
38684	GAR007	1.00	3.00	-5.000		98.000		-2.000		-0.008			15.000	
38685	GAR007	3.00	4.00	-5.000		162.000		-2.000		-0.008			24.000	
38686	GAR007	4.00	5.00	15.000		145.000		-2.000		-0.008			44.000	
38687	GAR007	5.00	6.00	8.000		140.000		-2.000		-0.008			71.000	
38688	GAR007	6.00	7.00	16.000		96.000		-2.000		-0.008			20.000	
38689	GAR007	7.00	8.00	7.000		91.000		-2.000		-0.008			36.000	
38690	GAR007	8.00	9.00	14.000		67.000		-2.000		-0.008			11.000	
38691	GAR007	9.00	10.00	32.000		24.000		-2.000		-0.008			13.000	
38692	GAR007	10.00	11.00	14.000		30.000		-2.000		-0.008			13.000	
38693	GAR007	11.00	12.00	25.000		43.000		-2.000		-0.008			28.000	
38694	GAR007	12.00	13.00	19.000		39.000		-2.000		-0.008			36.000	
38695	GAR007	13.00	14.00	119.000		103.000		-2.000		-0.008		-0.008	128.000	
38696	GAR007	14.00	15.00	27.000		70.000		-2.000		-0.008			43.000	
38697	GAR007	15.00	16.00	5.000		58.000		-2.000		-0.008			16.000	
38698	GAR007	16.00	17.00	24.000		62.000		-2.000		-0.008			167.000	
38699	GAR007	17.00	18.00	9.000		43.000		-2.000		0.010			281.000	
38701	GAR007	18.00	19.00	8.000		35.000		-2.000		0.020	0.015		1204.000	
38702	GAR007	19.00	20.00	17.000		121.000		-2.000		0.009			619.000	
38703	GAR007	20.00	21.00	6.000		83.000		-2.000		0.009			285.000	
38704	GAR007	21.00	22.00	13.000		76.000		-2.000		0.010			159.000	
38705	GAR007	22.00	23.00	8.000		90.000		-2.000		0.014		0.018	621.000	
38706	GAR007	23.00	24.00	-5.000		92.000		-2.000		0.013			648.000	
38707	GAR007	24.00	25.00	17.000		98.000		-2.000		0.012			247.000	
38708	GAR007	25.00	26.00	8.000		88.000		-2.000		0.008			248.000	
38709	GAR007	26.00	27.00	9.000		105.000		-2.000		-0.008			246.000	
38710	GAR007	27.00	28.00	9.000		63.000		-2.000		0.008			253.000	
38711	GAR007	28.00	29.00	-5.000		42.000		-2.000		-0.008			164.000	
38712	GAR007	29.00	30.00	16.000		47.000		-2.000		-0.008			288.000	
38713	GAR007	30.00	31.00	10.000		85.000		-2.000		0.013			690.000	
38714	GAR007	31.00	32.00	9.000		113.000		-2.000		0.023	0.031		846.000	
38715	GAR007	32.00	33.00	9.000		97.000		-2.000		0.008			592.000	
38716	GAR007	33.00	34.00	10.000		119.000		-2.000		0.010			2214.000	
38717	GAR007	34.00	35.00	6.000		95.000		-2.000		0.015			645.000	
38718	GAR007	35.00	36.00	-5.000		120.000		-2.000		-0.008			304.000	
38719	GAR007	36.00	37.00	-5.000		96.000		-2.000		0.014			532.000	
38721	GAR007	37.00	38.00	9.000		109.000		-2.000		0.019			730.000	
38722	GAR007	38.00	39.00	-5.000		80.000		-2.000		-0.008			216.000	
38723	GAR007	39.00	40.15	17.000		27.000		-2.000		-0.008			421.000	

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	0.000	0.000	0.000	0.000	2.000	10.000	0.008	0.008	0.008	0.000	0.000
Method:	GA140	GA104	GA140	GA104	GA101	GA104	GG309	GG309	GG309	GA140	GA104

723091

RGC Exploration Pty Ltd
GEOCHEM Data Management System
Project: DRILL HOLES

Sample	hole number	depth from	depth to	ANALAB Pb ppm GA140	ANALAB Pb_2 ppm GA10	ANALAB Zn ppm GA140	ANALAB Zn_2 ppm GA10	ANALAB Ag ppm GA101	ANALAB Ag2_a ppm GA1	ANALAB Au ppm GG309	ANALAB Au(s) ppm GG3	ANALAB Au(r) ppm GG3	ANALAB Cu ppm GA140	ANALAB Cu_2 ppm GA10
38724	GAR008		2.00	5.000		53.000		-2.000		0.008			1466.000	
38725	GAR008	2.00	3.00	6.000		55.000		-2.000		0.010			1765.000	
38726	GAR008	3.00	4.00	-5.000		48.000		-2.000		0.008			1306.000	
38727	GAR008	4.00	5.00	5.000		54.000		-2.000		-0.008			377.000	
38728	GAR008	5.00	6.00	-5.000		52.000		-2.000		0.010			1126.000	
38729	GAR008	6.00	7.00	-5.000		50.000		-2.000		-0.008			255.000	
38730	GAR008	7.00	8.00	-5.000		44.000		-2.000		0.028	0.028	0.027	890.000	
38731	GAR008	8.00	9.00	-5.000		39.000		-2.000		0.012			1080.000	
38732	GAR008	9.00	10.00	-5.000		49.000		-2.000		0.010			784.000	
38733	GAR008	10.00	11.00	-5.000		47.000		-2.000		0.010			921.000	
38734	GAR008	11.00	12.00	-5.000		40.000		-2.000		0.034			3250.000	
38735	GAR008	12.00	13.00	-5.000		39.000		-2.000		0.079			3802.000	
38736	GAR008	13.00	14.00	-5.000		45.000		-2.000		0.080			3631.000	
38737	GAR008	14.00	15.00	-5.000		40.000		-2.000		0.031			1352.000	
38738	GAR008	15.00	16.00	6.000		45.000		-2.000		0.045			1829.000	
38739	GAR008	16.00	17.00	396.000		752.000		-2.000		0.061			3261.000	
38741	GAR008	17.00	18.00	65.000		122.000		-2.000		0.080			2317.000	
38742	GAR008	18.00	19.00	-5.000		81.000		-2.000		0.073			3552.000	
38743	GAR008	19.00	20.00	5.000		90.000		-2.000		0.037			1410.000	
38744	GAR008	20.00	21.00	5.000		69.000		-2.000		0.095			5346.000	
38745	GAR008	21.00	22.00	6.000		93.000		-2.000		0.043		0.040	1619.000	
38746	GAR008	22.00	23.00	15.000		64.000		-2.000		0.034			713.000	
38747	GAR008	23.00	24.00	7.000		58.000		-2.000		0.049			1195.000	
38748	GAR008	24.00	25.00	6.000		56.000		-2.000		0.071			2563.000	
38749	GAR008	25.00	26.00	7.000		69.000		-2.000		0.068			2511.000	
38750	GAR008	26.00	27.00	10.000		60.000		-2.000		0.030			1604.000	
38751	GAR008	27.00	28.00	-5.000		66.000		-2.000		0.051			1599.000	
38752	GAR008	28.00	29.00	-5.000		59.000		-2.000		0.025			766.000	
38753	GAR008	29.00	30.00	-5.000		57.000		-2.000		0.045			1111.000	
38754	GAR008	30.00	31.00	-5.000		75.000		-2.000		0.049			1449.000	
38755	GAR008	31.00	32.00	-5.000		70.000		-2.000		0.070		0.080	2701.000	
38756	GAR008	32.00	33.00	7.000		100.000		-2.000		0.071	0.082		2723.000	
38757	GAR008	33.00	34.00	-5.000		55.000		-2.000		0.051			2219.000	
38758	GAR008	34.00	35.00	-5.000		47.000		-2.000		0.065			3396.000	
38759	GAR008	35.00	36.00	-5.000		40.000		-2.000		0.165			5057.000	
38761	GAR008	36.00	37.00	9.000		70.000		-2.000		0.072			4805.000	
38762	GAR008	37.00	38.00	10.000		47.000		-2.000		0.070			2463.000	
38763	GAR008	38.00	39.00	9.000		43.000		-2.000		0.035			328.000	
38764	GAR008	39.00	39.80	8.000		54.000		-2.000		0.042			940.000	

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	0.000	0.000	0.000	0.000	2.000	10.000	0.008	0.008	0.008	0.000	0.000
Method:	GA140	GA104	GA140	GA104	GA101	GA104	GG309	GG309	GG309	GA140	GA104

Sample	hole number	depth from	depth to	ANALAB Pb ppm GA140	ANALAB Pb_2 ppm GA10	ANALAB Zn ppm GA140	ANALAB Zn_2 ppm GA10	ANALAB Ag ppm GA101	ANALAB Ag2_a ppm GA1	ANALAB Au ppm GG309	ANALAB Au(s) ppm GG3	ANALAB Au(r) ppm GG3	ANALAB Cu ppm GA140	ANALAB Cu_2 ppm GA10
38765	GAR009	3.00	13.00	40.000		232.000		-2.000		-0.008			626.000	
38766	GAR009	13.00	14.00	-5.000		95.000		-2.000		-0.008			417.000	
38767	GAR009	14.00	15.00	12.000		103.000		-2.000		-0.008			210.000	
38768	GAR009	15.00	16.00	17.000		88.000		-2.000		-0.008			237.000	
38769	GAR009	16.00	17.00	-5.000		74.000		-2.000		-0.008			236.000	
38770	GAR009	17.00	18.00	5.000		70.000		-2.000		-0.008		-0.008	213.000	
38771	GAR009	18.00	19.00	-5.000		71.000		-2.000		-0.008	-0.008		99.000	
38772	GAR009	19.00	20.00	9.000		77.000		-2.000		-0.008			376.000	
38773	GAR009	20.00	21.00	-5.000		64.000		-2.000		-0.008			129.000	
38774	GAR009	21.00	22.00	-5.000		60.000		-2.000		-0.008			163.000	
38775	GAR009	22.00	23.00	-5.000		63.000		-2.000		-0.008			393.000	
38776	GAR009	23.00	24.00	-5.000		52.000		-2.000		-0.008			316.000	
38777	GAR009	24.00	25.00	-5.000		58.000		-2.000		-0.008			265.000	
38778	GAR009	25.00	26.00	-5.000		56.000		-2.000		-0.008			645.000	
38779	GAR009	26.00	27.00	-5.000		52.000		-2.000		-0.008			350.000	
38781	GAR009	27.00	28.00	18.000		101.000		-2.000		-0.008			607.000	
38782	GAR009	28.00	29.00	13.000		75.000		-2.000		-0.008			506.000	
38783	GAR009	29.00	30.00	-5.000		80.000		-2.000		-0.008			292.000	
38784	GAR009	30.00	31.00	-5.000		66.000		-2.000		-0.008			69.000	
38785	GAR009	31.00	32.00	6.000		69.000		-2.000		0.011			284.000	
38786	GAR009	32.00	33.00	-5.000		57.000		-2.000		0.048			804.000	
38787	GAR009	33.00	34.00	9.000		52.000		-2.000		0.063			1054.000	
38788	GAR009	34.00	35.00	21.000		72.000		-2.000		0.009			1656.000	
38789	GAR009	35.00	36.00	6.000		58.000		-2.000		0.017			955.000	
38790	GAR009	36.00	37.00	14.000		63.000		-2.000		0.023			1471.000	
38791	GAR009	37.00	38.00	6.000		85.000		-2.000		0.038			2975.000	
38792	GAR009	38.00	39.00	-5.000		70.000		-2.000		0.019			3294.000	
38793	GAR009	39.00	40.00	-5.000		79.000		-2.000		0.022			413.000	
38794	GAR009	40.00	41.00	-5.000		60.000		-2.000		0.033			1891.000	

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	0.000	0.000	0.000	0.000	2.000	10.000	0.008	0.008	0.008	0.000	0.000
Method:	GA140	GA104	GA140	GA104	GA101	GA104	GG309	GG309	GG309	GA140	GA104

RGC Exploration Pty Ltd
GEOCHEM Data Management System
Project: DRILL HOLES

Sample	hole number	depth from	depth to	ANALAB Pb ppm GA140	ANALAB Pb_2 ppm GA10	ANALAB Zn ppm GA140	ANALAB Zn_2 ppm GA10	ANALAB Ag ppm GA101	ANALAB Ag2_a ppm GA1	ANALAB Au ppm GG309	ANALAB Au(s) ppm GG3	ANALAB Au(r) ppm GG3	ANALAB Cu ppm GA140	ANALAB Cu_2 ppm GA10
38795	GAR010	1.00	2.00	10.000		163.000		-2.000		-0.008		-0.008	164.000	
38796	GAR010	2.00	3.00	17.000		102.000		-2.000		-0.008			502.000	
38797	GAR010	3.00	4.00	18.000		122.000		-2.000		-0.008			302.000	
38798	GAR010	4.00	5.00	20.000		116.000		-2.000		-0.008			1766.000	
38799	GAR010	5.00	6.00	19.000		157.000		-2.000		-0.008	-0.008		3368.000	
38801	GAR010	6.00	7.00	20.000		159.000		-2.000		-0.008			4223.000	
38802	GAR010	7.00	8.00	23.000		137.000		-2.000		-0.008			3502.000	
38803	GAR010	8.00	9.00	14.000		143.000		-2.000		-0.008			1928.000	
38804	GAR010	9.00	10.00	12.000		131.000		-2.000		-0.008			2262.000	
38805	GAR010	10.00	11.00	36.000		110.000		-2.000		-0.008		-0.008	1296.000	
38806	GAR010	11.00	12.00	16.000		140.000		-2.000		-0.008			1597.000	
38807	GAR010	12.00	13.00	15.000		56.000		-2.000		-0.008			1137.000	
38808	GAR010	13.00	14.00	10.000		102.000		-2.000		-0.008			892.000	
38809	GAR010	14.00	15.00	7.000		101.000		-2.000		-0.008			1163.000	
38810	GAR010	15.00	16.00	-5.000		16.000		-2.000		-0.008			198.000	
38811	GAR010	16.00	17.00	6.000		15.000		-2.000		-0.008			411.000	
38812	GAR010	17.00	18.00	-5.000		21.000		-2.000		-0.008			170.000	
38813	GAR010	18.00	19.00	-5.000		20.000		-2.000		-0.008			184.000	
38814	GAR010	19.00	20.00	13.000		15.000		-2.000		-0.008			112.000	
38815	GAR010	20.00	21.00	-5.000		25.000		-2.000		0.012			1395.000	
38816	GAR010	21.00	22.00	-5.000		164.000		-2.000		-0.008			1918.000	
38817	GAR010	22.00	23.00	-5.000		117.000		-2.000		0.013	0.017		1299.000	
38818	GAR010	23.00	24.00	-5.000		73.000		-2.000		0.039			6081.000	
38819	GAR010	24.00	25.00	-5.000		59.000		-2.000		0.033			2316.000	
38821	GAR010	25.00	26.00	36.000		87.000		-2.000		0.009			3244.000	
38822	GAR010	26.00	27.00	-5.000		96.000		-2.000		0.020			2295.000	
38823	GAR010	27.00	28.00	-5.000		68.000		-2.000		0.029			1437.000	
38824	GAR010	28.00	29.00	-5.000		73.000		-2.000		0.016			2758.000	
38825	GAR010	29.00	30.00	-5.000		90.000		-2.000		-0.008	-0.008		427.000	
38826	GAR010	30.00	31.00	-5.000		61.000		-2.000		-0.008			944.000	
38827	GAR010	31.00	32.00	-5.000		82.000		-2.000		-0.008			2301.000	
38828	GAR010	32.00	33.00	-5.000		52.000		-2.000		0.037			2000.000	
38829	GAR010	33.00	34.00	-5.000		68.000		-2.000		0.031			2335.000	
38830	GAR010	34.00	35.00	6.000		56.000		-2.000		0.068		0.073	2927.000	
38831	GAR010	35.00	36.00	-5.000		51.000		-2.000		0.036			1338.000	
38832	GAR010	36.00	37.00	-5.000		65.000		-2.000		0.034			677.000	
38833	GAR010	37.00	38.00	-5.000		64.000		-2.000		0.018			681.000	
38834	GAR010	38.00	39.00	-5.000		54.000		-2.000		0.031			1533.000	
38835	GAR010	39.00	40.00	-5.000		49.000		-2.000		0.020			1942.000	

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	0.000	0.000	0.000	0.000	2.000	10.000	0.008	0.008	0.008	0.000	0.000
Method:	GA140	GA104	GA140	GA104	GA101	GA104	GG309	GG309	GG309	GA140	GA104

RGC Exploration Pty Ltd
GEOCHEM Data Management System
Project: DRILL HOLES

Sample	hole number	depth from	depth to	ANALAB Pb ppm GA140	ANALAB Pb_2 ppm GA10	ANALAB Zn ppm GA140	ANALAB Zn_2 ppm GA10	ANALAB Ag ppm GA101	ANALAB Ag2_a ppm GA1	ANALAB Au ppm GG309	ANALAB Au(s) ppm GG3	ANALAB Au(r) ppm GG3	ANALAB Cu ppm GA140	ANALAB Cu_2 ppm GA10
38836	GAR011		1.00	5.000		50.000		-2.000		0.050			2325.000	
38837	GAR011	1.00	2.00	-5.000		15.000		-2.000		-0.008			30.000	
38838	GAR011	2.00	3.00	17.000		104.000		-2.000		0.013			90.000	
38839	GAR011	3.00	4.00	11.000		148.000		-2.000		0.010			85.000	
38841	GAR011	4.00	5.00	5.000		125.000		-2.000		0.028			116.000	
38842	GAR011	5.00	6.00	6.000		104.000		-2.000		-0.008			338.000	
38843	GAR011	6.00	7.00	-5.000		92.000		-2.000		0.029			2947.000	
38844	GAR011	7.00	8.00	-5.000		64.000		-2.000		-0.008			391.000	
38845	GAR011	8.00	9.00	-5.000		84.000		-2.000		0.024		0.031	660.000	
38846	GAR011	9.00	10.00	-5.000		62.000		-2.000		0.023			1214.000	
38847	GAR011	10.00	11.00	-5.000		77.000		-2.000		0.036			2962.000	
38848	GAR011	11.00	12.00	-5.000		45.000		-2.000		0.052			2326.000	
38849	GAR011	12.00	13.00	-5.000		61.000		-2.000		0.054			2659.000	
38850	GAR011	13.00	14.00	-5.000		59.000		-2.000		0.043			5699.000	
38851	GAR011	14.00	15.00	-5.000		62.000		-2.000		0.013			1360.000	
38852	GAR011	15.00	16.00	-5.000		52.000		-2.000		0.010			1082.000	
38853	GAR011	16.00	17.00	-5.000		51.000		-2.000		-0.008	-0.008		1295.000	
38854	GAR011	17.00	18.00	-5.000		60.000		-2.000		-0.008			863.000	
38855	GAR011	18.00	19.00	-5.000		61.000		-2.000		-0.008		-0.008	817.000	
38856	GAR011	19.00	20.00	-5.000		53.000		-2.000		0.015			474.000	
38857	GAR011	20.00	21.00	-5.000		60.000		-2.000		0.012			638.000	
38858	GAR011	21.00	22.00	-5.000		67.000		-2.000		0.013	-0.008		1129.000	
38859	GAR011	22.00	23.00	9.000		80.000		-2.000		-0.008			1906.000	
38861	GAR011	23.00	24.00	42.000		113.000		-2.000		0.010			1842.000	
38862	GAR011	24.00	25.00	7.000		106.000		-2.000		0.014			2535.000	
38863	GAR011	25.00	26.00	-5.000		117.000		-2.000		-0.008			480.000	
38864	GAR011	26.00	27.00	-5.000		113.000		-2.000		-0.008			504.000	
38865	GAR011	27.00	28.00	-5.000		74.000		-2.000		0.014			2000.000	
38866	GAR011	28.00	29.00	-5.000		81.000		-2.000		0.017			2603.000	
38867	GAR011	29.00	30.00	7.000		56.000		-2.000		0.012			2012.000	
38868	GAR011	30.00	31.00	9.000		59.000		-2.000		0.010			1468.000	
38869	GAR011	31.00	32.00	-5.000		52.000		-2.000		0.012			1285.000	
38870	GAR011	32.00	33.00	9.000		80.000		-2.000		0.017		0.017	4631.000	
38871	GAR011	33.00	34.00	8.000		88.000		-2.000		0.019	0.011		2132.000	
38872	GAR011	34.00	35.00	5.000		76.000		-2.000		0.021			2123.000	
38873	GAR011	35.00	36.00	-5.000		81.000		-2.000		0.019			507.000	
38874	GAR011	36.00	37.00	-5.000		78.000		-2.000		0.017			599.000	
38875	GAR011	37.00	38.00	12.000		84.000		-2.000		0.037			1234.000	
38876	GAR011	38.00	39.00	7.000		91.000		-2.000		0.013			183.000	
38877	GAR011	39.00	40.00	7.000		90.000		-2.000		-0.008			414.000	
38878	TYN010	125.00	126.00	26.000		244.000		-2.000					37.000	
Laboratory:				ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:				0.000	0.000	0.000	0.000	2.000	10.000	0.008	0.008	0.008	0.000	0.000
Method:				GA140	GA104	GA140	GA104	GA101	GA104	GG309	GG309	GG309	GA140	GA104

SPLIT CORE ASSAYS FROM DRILL HOLE GAR012									
SAMPLE	FROM	TO	CU_A	PB_A	ZN_A	AG_A	AU_A	AUR_G	AUS_G
37859	410	411	311	3	113	-2	-0.008	0	0
37861	411	412	338	143	142	-2	-0.008	0	0
37862	412	413	218	30	109	-2	-0.008	0	0
37863	413	414	170	-3	97	-2	-0.008	0	0
37864	414	415	326	72	78	-2	-0.008	0.014	0
37865	415	416	400	-3	131	-2	-0.008	0	0
37866	416	417	396	3	82	-2	0.023	0	0
37867	417	418	316	20	73	-2	0.015	0	0
37868	418	419	566	5	79	-2	0.011	0	0
37869	419	420	580	6	62	-2	-0.008	0	-0.008
37870	420	421	500	6	68	-2	0.013	0	0
37871	421	422	3483	-3	52	-2	0.033	0	0
37872	422	423	616	-3	52	-2	-0.008	0	0
37873	423	424	4398	-3	60	-2	0.037	0	0
37874	424	425	1324	5	60	-2	0.01	0.018	0
37875	425	426	1134	3	52	-2	-0.008	0	0
37876	426	427	139	6	53	-2	-0.008	0	0
37877	427	428	468	-3	71	-2	0.031	0	0
37879	429	430	117	11	67	-2	-0.008	0	0
37881	430	431	324	4	101	-2	0.018	0	0
37882	431	432	283	-3	109	-2	0.01	0	0
37883	432	433	267	8	50	-2	0.016	0	0
37884	433	434	542	5	16	-2	0.02	0	0.02
37885	434	435	777	-3	33	-2	0.024	0	0
37886	435	436	299	-3	52	-2	0.014	0	0
37887	436	437	244	-3	56	-2	0.013	0	0
37888	437	438	353	-3	47	-2	0.014	0	0
37889	438	439	901	-3	40	-2	0.013	0.022	0
37890	439	440	932	-3	39	-2	0.018	0	0
37891	440	441	373	-3	47	-2	0.01	0	0
37892	441	442	869	-3	62	-2	0.015	0	0
37893	442	443	284	-3	65	-2	0.011	0	0
37894	443	444	266	-3	80	-2	0.01	0	0
37895	444	445	367	-3	87	-2	0.012	0	0
37896	445	446	290	-3	75	-2	0.016	0	0
37897	446	447	407	3	54	-2	0.038	0	0
37898	447	448	377	-3	54	-2	0.013	0	0
37899	448	449	2301	-3	53	-2	0.032	0.033	0
38001	449	450	248	-3	64	-2	-0.008	0	0
38002	450	451	466	-3	105	-2	0.014	0	0
38003	451	452	2508	-3	20	-2	0.032	0	0
38004	452	453	2478	-3	18	-2	0.023	0	0
38005	453	454	717	4	10	-2	0.016	0	0
38006	454	455	160	7	7	-2	0.01	0	0
Laboratory			Analabs	Analabs	Analabs	Analabs	Analabs	Analabs	Analabs
Method			GA101	GA101	GA101	GA101	GG309	GG309	GG309
Detection			4	3	4	2	0.008	0.008	0.008
Units	metres	metres	ppm	ppm	ppm	ppm	ppm	ppm	ppm

SPLIT CORE ASSAYS FROM HOLE PEN001							
SAMPLE	FROM	TO	CU_A	PB_A	ZN_A	AG_A	AU_G
38639	60	61	17000	6200	115	25	0.017
38641	61	62	211	328	183	-2	0.028
38642	62	63	221	64	267	-2	-0.008
38643	63	64	106	24	184	-2	-0.008
38644	64	65	206	19	167	-2	-0.008
38645	65	66	123	29	91	-2	-0.008
38646	66	67	141	90	67	-2	0.016
38647	67	68	197	53	70	-2	0.024
38648	68	69	246	46	174	-2	-0.008
38649	69	70	335	66	406	-2	0.014
38650	70	71	205	82	153	-2	-0.008
38651	71	72	102	63	105	-2	-0.008
38652	72	73	72	54	52	-2	-0.008
38653	73	74	51	22	45	-2	-0.008
38654	74	75	112	42	123	-2	-0.008
38655	75	76	137	8	159	-2	0.032
38656	76	77	153	8	179	-2	-0.008
38657	77	78	135	8	171	-2	-0.008
38658	78	79	220	80	144	-2	0.015
38659	79	80	143	39	150	-2	0.01
38661	80	81	149	36	104	-2	-0.008
38662	81	82	513	29	115	-2	0.011
38663	82	83	188	39	136	-2	0.04
38664	83	84	106	32	138	-2	0.017
38665	84	85	55	25	154	-2	-0.008
38666	85	86	124	29	120	-2	-0.008
38667	86	87	197	52	116	-2	-0.008
38668	87	88.2	118	25	150	-2	0.009
38669	88.2	89	154	25	369	-2	-0.008
38670	89	90	133	20	216	-2	0.009
38671	90	91	38	35	195	-2	-0.008
38672	91	92	30	29	222	-2	-0.008
38673	92	93	117	39	155	-2	-0.008
38674	162	163	134	146	283	-2	-0.008
38675	163	164	137	463	329	-2	-0.008
38676	164	165	215	126	228	-2	-0.008
38677	165	166	230	205	242	-2	-0.008
38678	166	167	229	61	232	-2	-0.008
38679	167	168	77	29	252	-2	-0.008
38681	168	169	172	60	410	-2	-0.008
38682	169	170	514	1859	529	-2	-0.008
38683	170	171	124	696	471	-2	-0.008
Laboratory			Analabs	Analabs	Analabs	Analabs	Analabs
Method			GA140	GA140	GA140	GA140	GG309
Units			ppm	ppm	ppm	ppm	ppm

APPENDIX 6

Slate Spur Soil Geochemistry Results

SLATE SPUR SOIL GEOCHEMISTRY

SAMPLE	GEAST	GNORTH	SAM_TYPE	CU_A	PB_A	ZN_A	AG_A	AU_G
36747	81500	319600	SOIL	5	-5	26	-2	-0.008
36748	81475	319600	SOIL	7	-5	15	-2	-0.008
36749	81450	319600	SOIL	8	-5	22	-2	-0.008
36750	81425	319600	SOIL	8	-5	17	-2	-0.008
36751	81400	319600	SOIL/RC	-4	-5	47	-2	-0.008
36752	81375	319600	SOIL	6	-5	25	-2	-0.008
36753	81350	319600	SOIL	14	37	66	-2	-0.008
36754	81325	319600	SOIL	10	9	23	-2	-0.008
36755	81300	319600	SOIL	-4	-5	35	-2	-0.008
36756	81275	319600	SOIL	-4	21	29	-2	-0.008
36757	81250	319600	SOIL	4	11	34	-2	-0.008
36758	81225	319600	SOIL	7	5	17	-2	0.06
36759	81200	319600	SOIL	6	14	14	-2	-0.008
36760	81175	319600	SOIL	6	17	20	-2	-0.008
36761	81150	319600	SOIL	4	-5	25	-2	-0.008
36762	81125	319600	SOIL	5	-5	16	-2	-0.008
36763	81100	319600	SOIL/RC	4	18	32	-2	-0.008
36764	81075	319600	SOIL/RC	4	-5	24	-2	-0.008
36765	81050	319600	SOIL/RC	4	-5	30	-2	-0.008
36766	81025	319600	SOIL/RC	4	-5	36	-2	-0.008
36767	81000	319600	SOIL/RC	7	7	32	-2	-0.008
36768	80975	319600	SOIL/RC	7	11	82	-2	-0.008
36769	80950	319600	SOIL/RC	6	-5	22	-2	-0.008
36770	80925	319600	SOIL/RC	5	7	38	-2	-0.008
36771	80900	319600	SOIL/RC	6	11	35	-2	-0.008
36772	81375	319800	SOIL/RC	6	55	69	-2	-0.008
36773	81325	319800	SOIL	6	-5	32	-2	-0.008
36774	81275	319800	SOIL	4	-5	33	-2	-0.008
36775	81225	319800	SOIL	6	5	25	-2	-0.008
36776	81175	319800	SOIL	-4	-5	31	-2	-0.008
36777	81125	319800	SOIL/RC	4	8	76	-2	-0.008
36778	81075	319800	SOIL	5	10	24	-2	-0.008
36779	81025	319800	SOIL	7	8	42	-2	-0.008
36783	81350	320000	SOIL/RC	17	15	38	-2	-0.008
36784	81325	320000	SOIL/RC	-4	-5	24	-2	-0.008
36785	81300	320000	SOIL	5	-5	28	-2	-0.008
36786	81275	320000	SOIL/RC	4	-5	26	-2	-0.008
36787	81250	320000	SOIL/RC	4	-5	20	-2	-0.008
36788	81225	320000	SOIL/RC	7	5	40	-2	-0.008
36789	81200	320000	SOIL	7	-5	43	-2	-0.008
36790	81175	320000	SOIL	6	-5	45	-2	-0.008
36791	81150	320000	SOIL/RC	4	-5	40	-2	-0.008
36792	81125	320000	SOIL	8	-5	41	-2	-0.008
36793	81100	320000	SOIL/RC	6	-5	30	-2	-0.008
36794	81075	320000	SOIL	6	9	47	-2	-0.008
36795	81050	320000	SOIL/RC	-4	-5	55	-2	-0.008
36796	81025	320000	SOIL	4	5	33	-2	0.022
36797	81000	320000	SOIL	13	7	25	-2	-0.008
36798	80975	320000	SOIL/RC	7	21	287	-2	-0.008
36799	80950	320000	SOIL/RC	65	-5	130	-2	-0.008
36800	80925	320000	SOIL/RC	6	15	46	-2	-0.008
47209	80900	320000	SOIL/RC	7	15	71	-2	-0.008
47210	80875	320000	SOIL	11	15	16	-2	-0.008
47211	80850	320000	SOIL	36	49	31	-2	-0.008
47212	80825	320000	SOIL	27	65	40	-2	-0.008
47214	81375	320200	SOIL	7	5	24	-2	-0.008
47215	81325	320200	SOIL/RC	4	-5	45	-2	-0.008
47216	81275	320200	SOIL/RC	9	-5	39	-2	-0.008
47217	81225	320200	SOIL	6	5	44	-2	-0.008
47218	81175	320200	SOIL	5	-5	60	-2	-0.008

SLATE SPUR SOIL GEOCHEMISTRY

SAMPLE	GEAST	GNORTH	SAM_TYPE	CU_A	PB_A	ZN_A	AG_A	AU_G
47219	81125	320200	SOIL	4	-5	47	-2	-0.008
47220	81075	320200	SOIL/RC	5	-5	44	-2	-0.008
47221	81025	320200	SOIL/RC	5	-5	57	-2	-0.008
47222	80975	320200	SOIL/RC	4	86	296	-2	-0.008
47223	80925	320200	SOIL	6	10	24	-2	-0.008
47224	80875	320200	SOIL	6	33	17	-2	-0.008
47225	80825	320200	SOIL	11	54	37	-2	-0.008
47226	80775	320200	SOIL	5	5	21	-2	-0.008
47227	81150	320400	SOIL	10	13	20	-2	-0.008
47228	81125	320400	SOIL/RC	-4	-5	73	-2	-0.008
47229	81100	320400	SOIL/RC	-4	-5	34	-2	-0.008
47230	81075	320400	SOIL	5	6	44	-2	0.013
47231	81050	320400	SOIL/RC	-4	12	59	-2	-0.008
47232	81025	320400	SOIL/RC	5	7	27	-2	-0.008
47233	81000	320400	SOIL	7	7	41	-2	-0.008
47234	80975	320400	SOIL	6	7	34	-2	-0.008
47235	80950	320400	SOIL	4	46	86	-2	-0.008
47236	80925	320400	SOIL	6	23	35	-2	-0.008
47237	80900	320400	SOIL/RC	-4	8	55	-2	-0.008
47238	80875	320400	SOIL	5	10	23	-2	-0.008
47239	80850	320400	SOIL	-4	8	18	-2	-0.008
47240	80825	320400	SOIL	5	9	12	-2	-0.008
47241	80800	320400	SOIL	4	8	11	-2	-0.008
47242	80775	320400	SOIL	7	15	21	-2	-0.008
47243	80750	320400	SOIL	6	8	23	-2	-0.008
47244	80725	320400	SOIL	7	10	15	-2	-0.008
47245	80700	320400	SOIL	8	16	21	-2	-0.008
47246	81075	320600	SOIL/RC	-4	-5	36	-2	-0.008
47247	81025	320600	SOIL/RC	-4	14	102	-2	-0.008
47248	80975	320600	SOIL/RC	-4	-5	19	-2	-0.008
47249	80925	320600	SOIL/RC	-4	7	27	-2	-0.008
47250	80875	320600	SOIL	6	21	41	-2	-0.008
47251	80825	320600	SOIL	5	19	22	-2	-0.008
47252	80775	320600	SOIL	4	9	17	-2	-0.008
47253	80725	320600	SOIL/RC	4	10	44	-2	-0.008
47255	81050	320800	SOIL	8	20	62	-2	-0.008
47256	81025	320800	SOIL	7	20	30	-2	-0.008
47257	81000	320800	SOIL	7	12	19	-2	-0.008
47258	80975	320800	SOIL/RC	-4	-5	18	-2	-0.008
47259	80950	320800	SOIL	7	10	22	-2	-0.008
47260	80925	320800	SOIL	8	14	24	-2	-0.008
47261	80900	320800	SOIL	5	8	30	-2	-0.008
47262	80875	320800	SOIL	4	10	14	-2	-0.008
47263	80850	320800	SOIL/RC	-4	8	16	-2	-0.008
47264	80825	320800	SOIL	5	20	43	-2	-0.008
47265	80800	320800	SOIL	5	16	30	-2	-0.008
47266	80775	320800	SOIL	4	17	40	-2	-0.008
47267	80750	320800	SOIL	6	14	22	-2	-0.008
47268	80725	320800	SOIL	7	20	15	-2	-0.008
47269	80700	320800	SOIL	6	28	33	-2	-0.008
47270	80675	320800	SOIL	11	46	28	-2	-0.008
47271	80650	320800	SOIL	8	42	22	-2	-0.008
47272	81125	321000	SOIL	6	-5	41	-2	-0.008
47273	81075	321000	SOIL	7	9	24	-2	-0.008
47274	81025	321000	SOIL	5	9	26	-2	-0.008
47275	80975	321000	SOIL	7	7	22	-2	-0.008
47276	80925	321000	SOIL	5	8	19	-2	-0.008
47277	80875	321000	SOIL/RC	-4	-5	16	-2	-0.008
47278	80825	321000	SOIL	10	117	36	-2	-0.008
47279	80775	321000	SOIL/RC	15	172	21	-2	-0.008

SLATE SPUR SOIL GEOCHEMISTRY

SAMPLE	GEAST	GNORTH	SAM_TYPE	CU_A	PB_A	ZN_A	AG_A	AU_G
47280	80725	321000	SOIL/RC	4	-5	11	-2	-0.008
47281	80675	321000	SOIL	6	8	14	-2	-0.008
47282	81000	321200	SOIL	6	8	41	-2	-0.008
47283	80975	321200	SOIL/RC	5	6	31	-2	-0.008
47284	80950	321200	SOIL	7	9	26	-2	-0.008
47285	80925	321200	SOIL	6	8	30	-2	-0.008
47286	80900	321200	SOIL	6	5	26	-2	-0.008
47287	80875	321200	SOIL	6	-5	35	-2	-0.008
47288	80850	321200	SOIL/RC	-4	5	25	-2	-0.008
47289	80825	321200	SOIL/RC	4	-5	21	-2	-0.008
47290	80800	321200	SOIL/RC	-4	14	28	-2	-0.008
47291	80775	321200	SOIL	6	6	14	-2	-0.008
47292	80750	321200	SOIL	5	8	20	-2	-0.008
47293	80725	321200	SOIL	5	-5	19	-2	-0.008
47294	80700	321200	SOIL	5	5	6	-2	-0.008
47295	80675	321200	SOIL/RC	-4	23	-4	-2	-0.008
47296	80650	321200	SOIL	4	-5	-4	-2	-0.008
47297	80625	321200	SOIL	4	-5	-4	-2	-0.008
47298	80600	321200	SOIL	5	-5	5	-2	-0.008
47299	81075	321400	SOIL	4	-5	16	-2	-0.008
47300	81025	321400	SOIL	-4	-5	12	-2	-0.008
47401	80975	321400	SOIL/RC	-4	11	11	-2	-0.008
47402	80925	321400	SOIL	5	7	20	-2	-0.008
47403	80875	321400	SOIL	5	6	22	-2	-0.008
47404	80825	321400	SOIL/RC	4	6	15	-2	-0.008
47405	80775	321400	SOIL	-4	-5	16	-2	-0.008
47406	80725	321400	SOIL	7	20	31	-2	-0.008
47407	80675	321400	SOIL	5	-5	6	-2	-0.008
47408	80625	321400	SOIL	6	12	10	-2	0.034
47409	80575	321400	SOIL	4	7	9	-2	-0.008
47410	80525	321400	SOIL	4	10	6	-2	-0.008
Laboratory				Analabs	Analabs	Analabs	Analabs	Analabs
Method				GA101	GA101	GA101	GA101	GG309
Detecton Limit				4	5	4	2	0.008
Units	Metres	Metres		ppm	ppm	ppm	ppm	ppm

APPENDIX 7

DHEM Survey at Garfield Prospect

723103

RGC EXPLORATION

ACN 001 426 946

DOWNHOLE TEM SURVEYS

GARFIELD

A REPORT ON

DOWNHOLE THREE COMPONENT TEM SURVEYS

CONDUCTED AT

GARFIELD, TASMANIA

Vol 1 of 1

HELD BY:

MANAGER & OPERATOR:

AUTHOR(s): Sam Roberts

19 December, 1995

PROSPECTS: Garfield

MAP SHEETS: **1:250,000:** **1:100,000:**

GEOGRAPHIC COORDS **Min East:** **Max East:**
Min North: **Max North:**

COMMODITY(s):

KEY WORDS:

Distribution:

- **RGC Exploration Information Centre Reference:**
- **RGC Exploration Zeehan**
-

Introduction

In November 1995 three component downhole transient electromagnetic (TEM) surveys were conducted at the Garfield prospect.

The Garfield prospect is located approximately 20km south-west of Queenstown on the West Coast of Tasmania. Access to the prospect is by helicopter or foot only.

The surveys were conducted by Outer-Rim Exploration Services using a Crone Pulse EM system. Each drill hole was surveyed with a Z component and XY component probes. This system allows accurate directional information to be determined for a target with the use of only one transmitter loop and as such is ideal for Tasmania where loop set-up costs are high.

The probes measure the X, Y and Z components of the EM signal. The Z (axial) component is in the direction of the drill hole. The X and Y components are corrected for the rotation of the probe so that they are both orthogonal to the drill hole. The rotation correction was performed using a orientation device.

The downhole TEM system has the capability to detect targets as far away as 200 metres from the drill hole and to depths of 2500 metres.

Four holes were surveyed. Each hole was surveyed using a single transmitter loop. X, Y and Z components were recorded at 10 metre intervals and 5 metre intervals over specific areas of interest. The transmitter loop locations were designed to use topography to maximise the amplitude of the coupling of the primary signal, down-hole, to a dipping conductor.

Plots of all results at a variety of scales are provided.

Results

No anomalies of interest were detected.

Hole GAR-004

Collar : 379778E 5324254N
Loop : 500m X 600m

1.	379640E	5324455N
2.	379950E	5323980N
3.	379530E	5323670N
4.	379405E	5323885N
5.	379370E	5324070N
6.	379380E	5324250N

The hole was surveyed to a depth of 260 metres. A 500 X 600 metre transmitter loop was used. The hole lies just outside the northern edge of the loop in steep terrain.

No anomalies were detected.

Hole GAR-005

Collar : 379499E 5324143N
Loop : 500m X 600m, See hole GAR-004 for loop position.

The hole was surveyed to a depth of 235 metres. A 500 X 600 metre transmitter loop was used.

No anomalies were detected.

Hole GAR-006

Collar : 379782E 5324966N
Loop : 500m X 400m

1.	379750E	5325135N
2.	379970E	5324830N
3.	379580E	5324530N
4.	379360E	5324855N

The hole was surveyed to a depth of 260 metres. A 500 X 400 metre transmitter loop was used.

No anomalies were detected.

Hole GAR-012

Collar : 379827E 5324637N
Loop : 400m X 400m

1.	379820E	5324830N
2.	380040E	5324540N
3.	379725E	5324320N
4.	379520E	5324625N

The hole was surveyed to a depth of 480 metres. A 400 X 400 metre transmitter loop was used.

No anomalies were detected.

Conclusions

1. No anomalies of interest were detected in any of the Garfield drill holes.
2. No follow-up TEM surveying is recommended.

References

Outer Rim Exploration Services, "Garfield Borehole PEM Survey" December 1995. RGC Exploration Internal Report Vols 1&2.

PLOTS

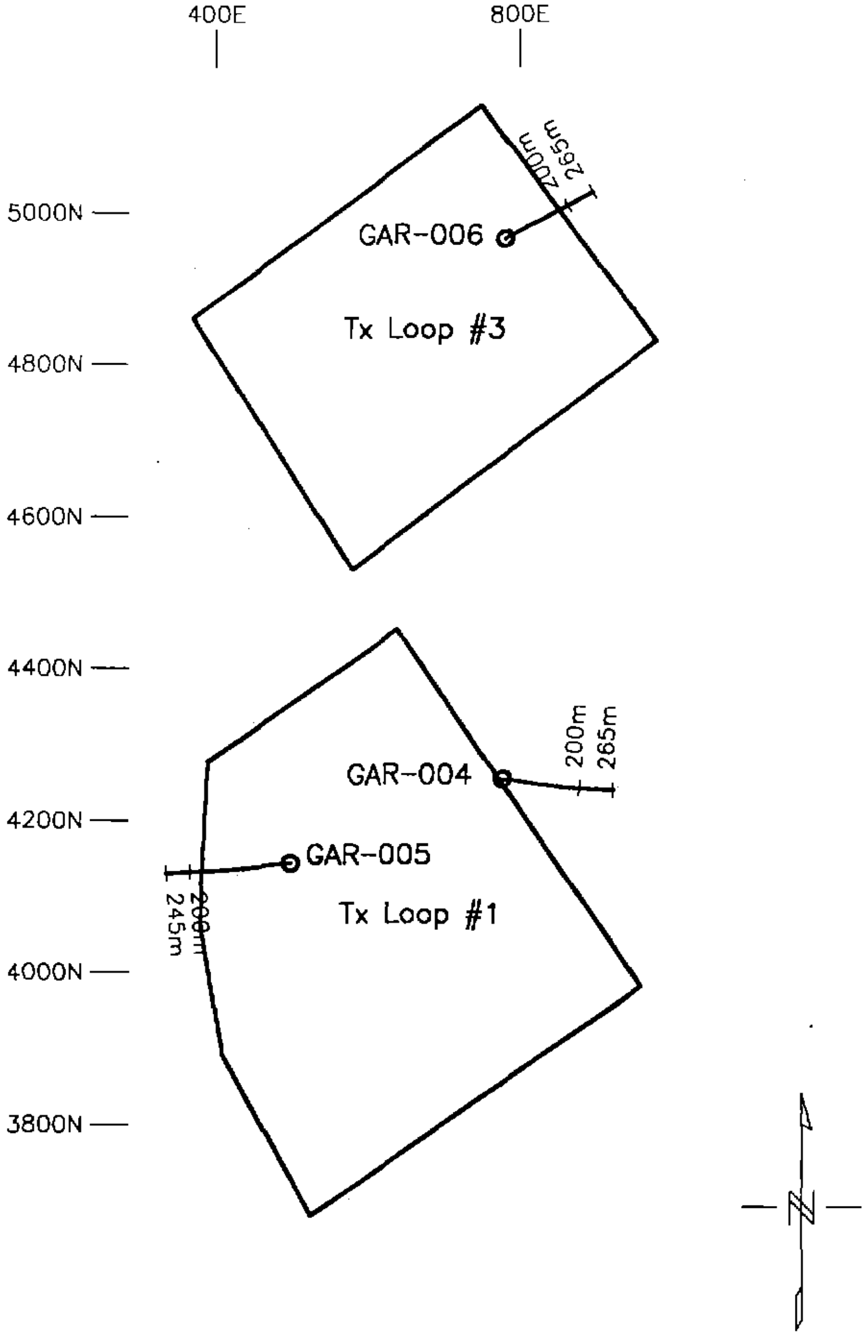
723107

CONTENTS

CONTENTS

Plan No.	Plan Type	ID.	Description	Scale
46	Profile	GAR-006	Total Field plot	1:2000
47	Plan	GAR-012	Hole Location plan	1:5000
48	Section		Primary Field plot	1:5000
49	Header	GAR-012	Header information	N/A
50	Profile	#2	Z - Log plot	1:2500
51			- Linear, Ch1-10, 1:200	1:2500
52			- Linear, Ch10-15, 1:5	1:2500
53			- Linear, Ch15-20, 1:2	1:2500
54			X - Log plot	1:2500
55			- Linear, Ch1-10, 1:200	1:2500
56			- Linear, Ch10-15, 1:5	1:2500
57			- Linear, Ch15-20, 1:2	1:2500
58			Y - Log plot	1:2500
59			- Linear, Ch1-10, 1:200	1:2500
60			- Linear, Ch10-15, 1:5	1:2500
61			- Linear, Ch15-20, 1:2	1:2500
62			Total Field plot	1:2500

723109



5 cm

Scale 1:10000

250 0

(meters)

RGC Exploration

Garfield

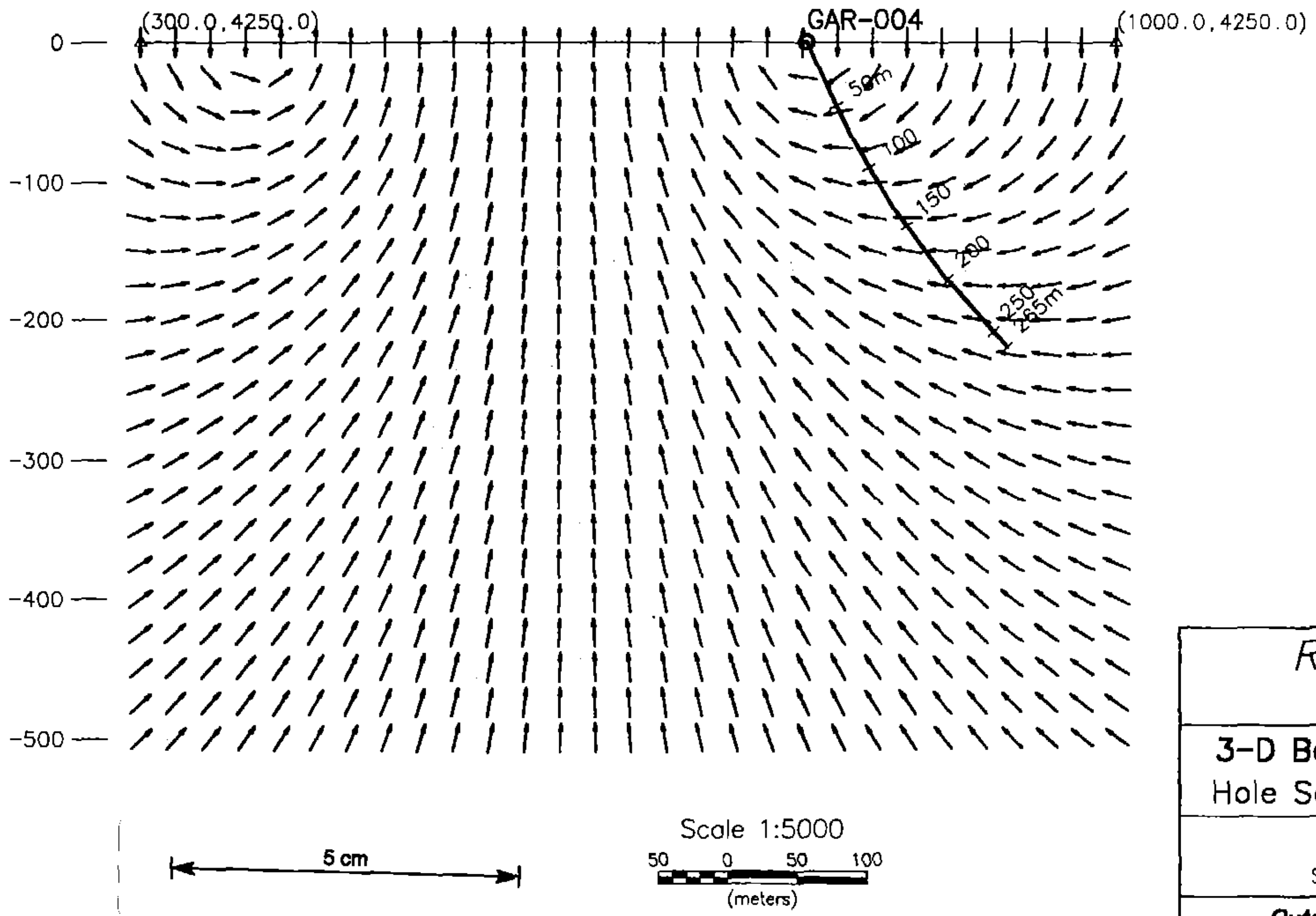
3-D Borehole Pulse EM Survey

Borehole & Loop Location Map

Hole: GAR-004,5 & 6

Survey Date: Nov 18/22, 1995

Outer-Rim Exploration Services



RGC Exploration

Garfield

3-D Borehole Pulse EM Survey

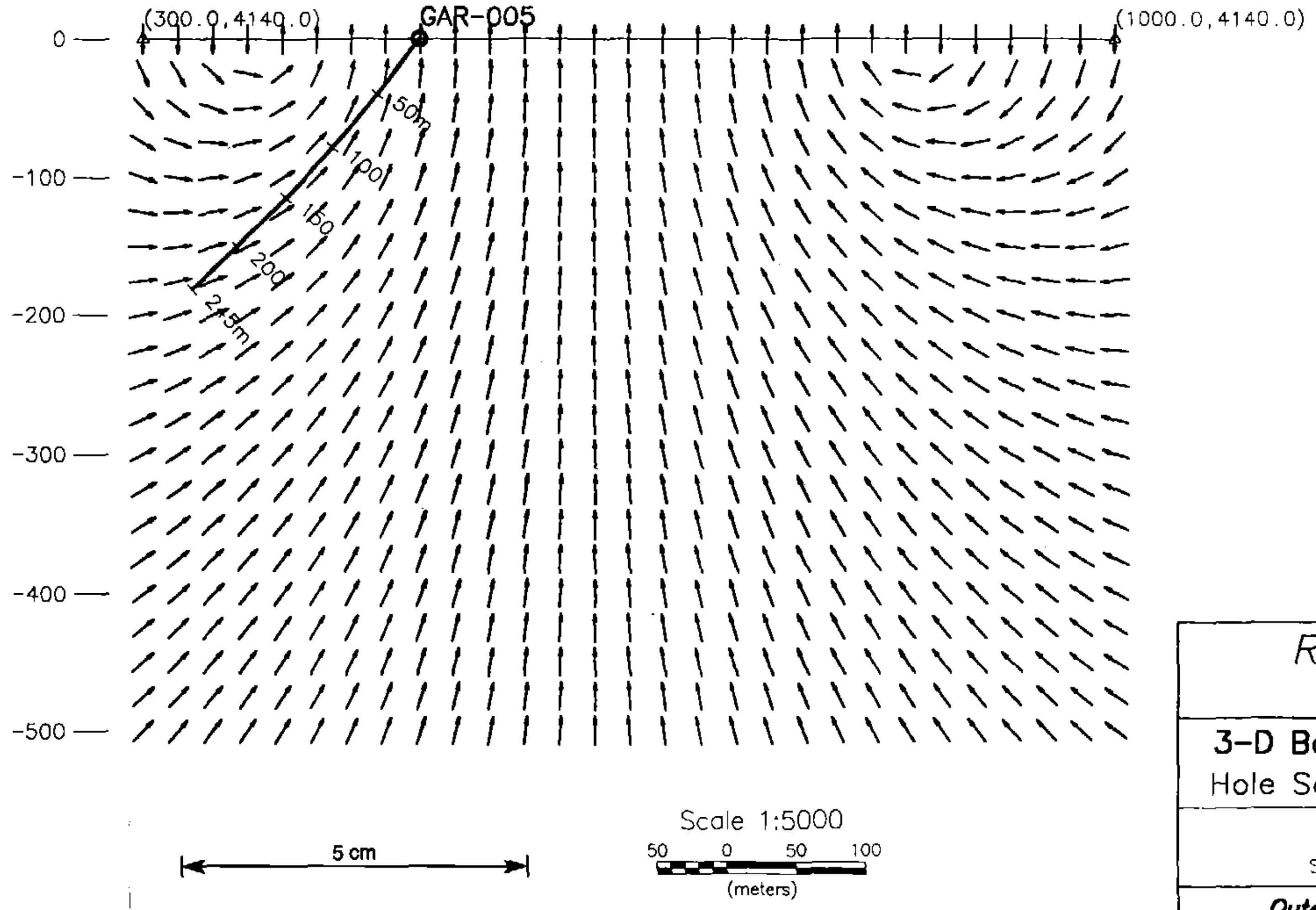
Hole Section with Primary Field

Hole: GAR-004

Survey Date: Nov 19, 1995

Outer-Rim Exploration Services

723110



RGC Exploration

Garfield

3-D Borehole Pulse EM Survey

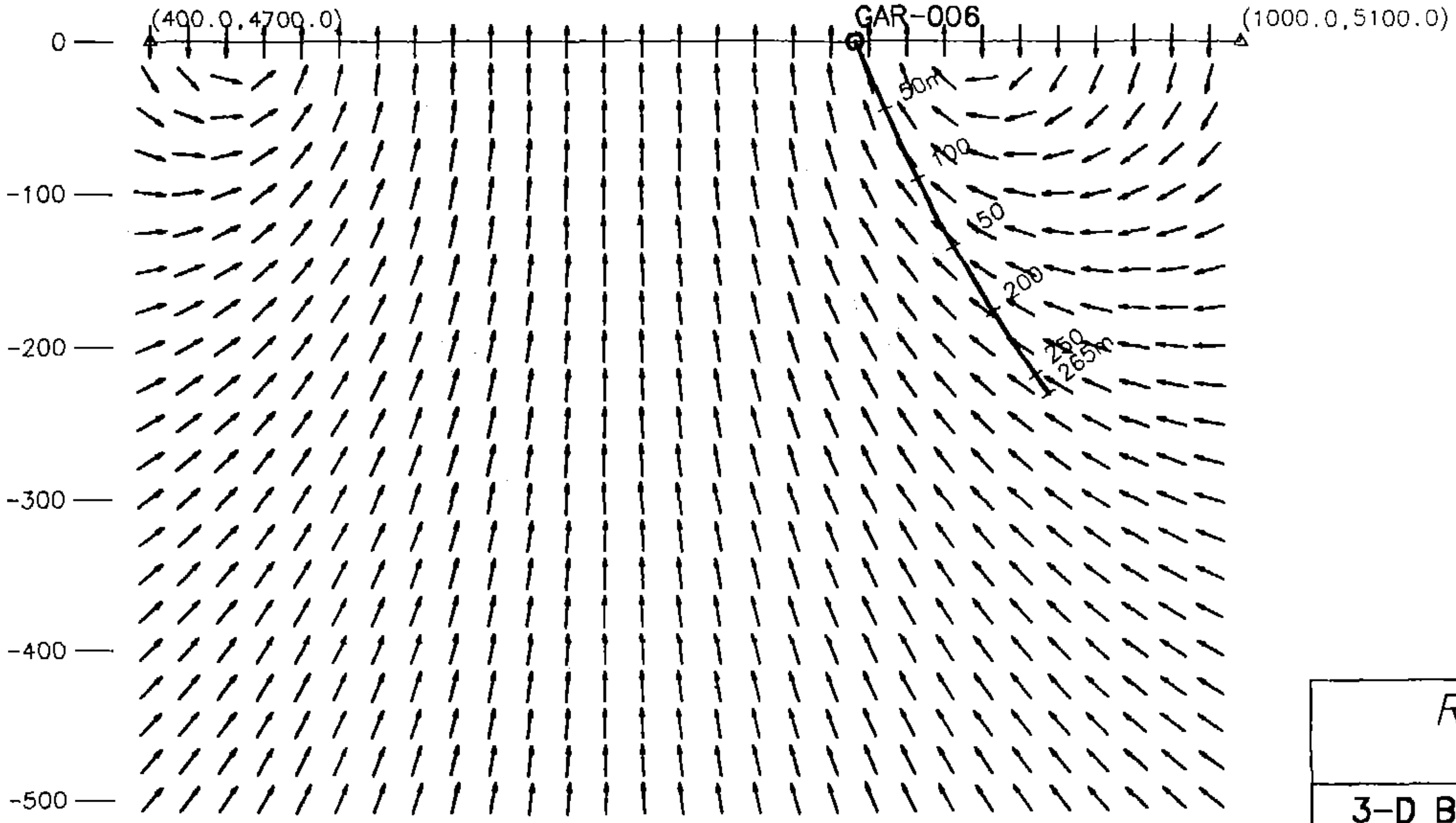
Hole Section with Primary Field

Hole: GAR-005

Survey Date: Nov 18, 1995

Outer-Rim Exploration Services

723111



5 cm

Scale 1:5000

50 0 50 100

(meters)

RGC Exploration

Garfield

3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: GAR-006

Survey Date: Nov 22, 1995

Outer-Rim Exploration Services

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 19, 1995
Time Base : 20.00 ms
Ramp Time : 1.00 ms
Channels: 20
Sync Type : Cable
Loop Size : 500m X 600m
Current : 8 Amps

Hole : GAR-004
Tx Loop : #1
File name : G4Z.PEM
Readings: 27
Stn Units : Metric
Coil Area : 6500 sq m
Polarity : +
Receiver : Digital #108
Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 525m, 3680m, 0m
2. 960m, 3980m, 0m
3. 640m, 4450m, 0m
4. 390m, 4275m, 0m
5. 380m, 4065m, 0m
6. 410m, 3890m, 0m

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

1. 778m, 4254m, 0m
2. 100deg, 64.7deg, 45m
3. 99deg, 63.3deg, 30m
4. 98deg, 60.3deg, 30m
5. 96.5deg, 58.3deg, 30m
6. 96deg, 54.8deg, 30m
7. 94.5deg, 52.5deg, 30m
8. 94deg, 49.6deg, 30m
9. 92deg, 47.5deg, 30m
10. 92deg, 46.2deg, 10m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	563
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

General Comments

Very steep terrain, Garfield River runs through middle of loop.
NB. Hole is 7m outside of loop.

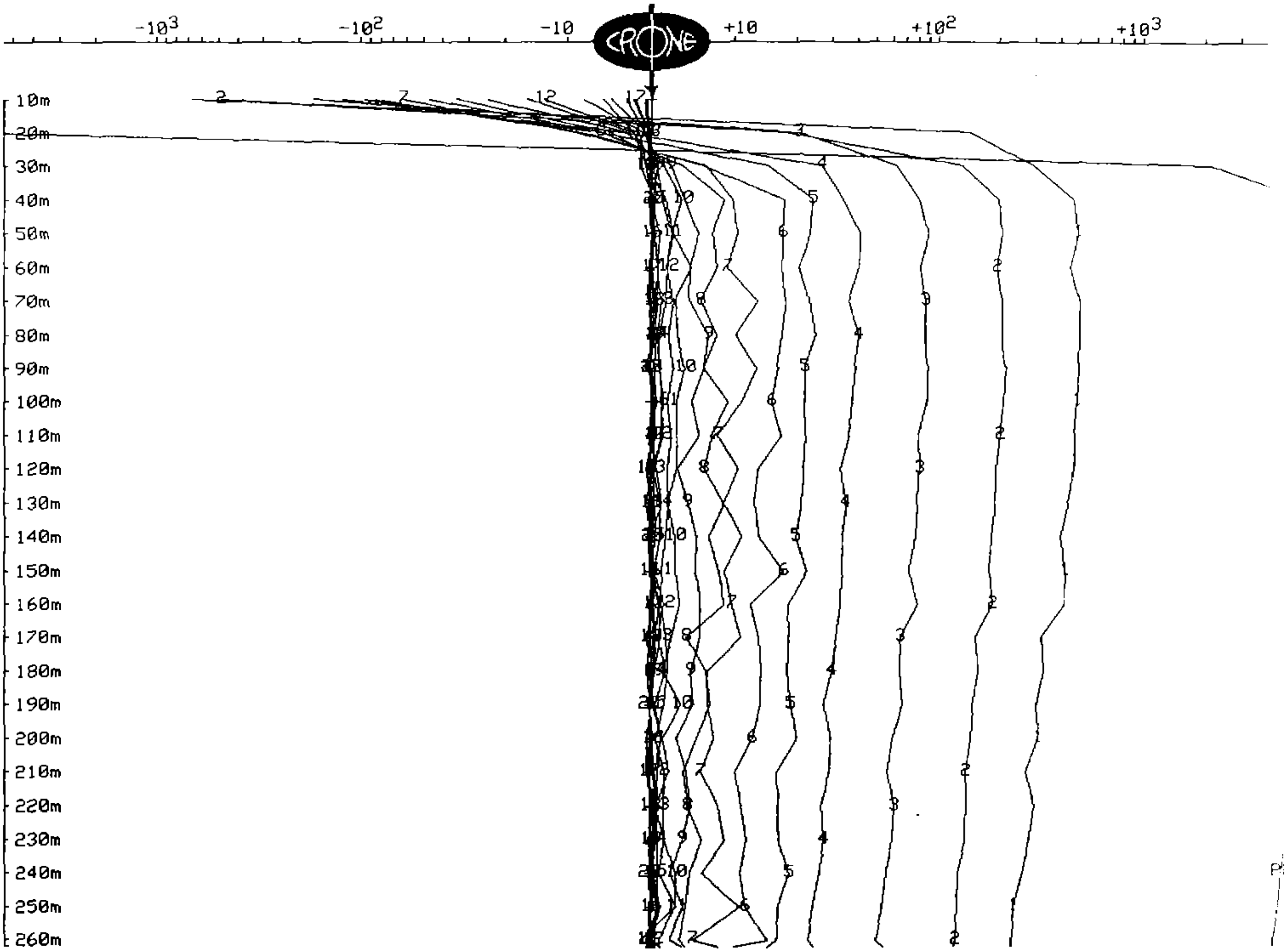
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 19, 1995

Hole : GAR-004
Tx Loop : #1
File name : G4Z.PEM

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

Scale: 1:2000



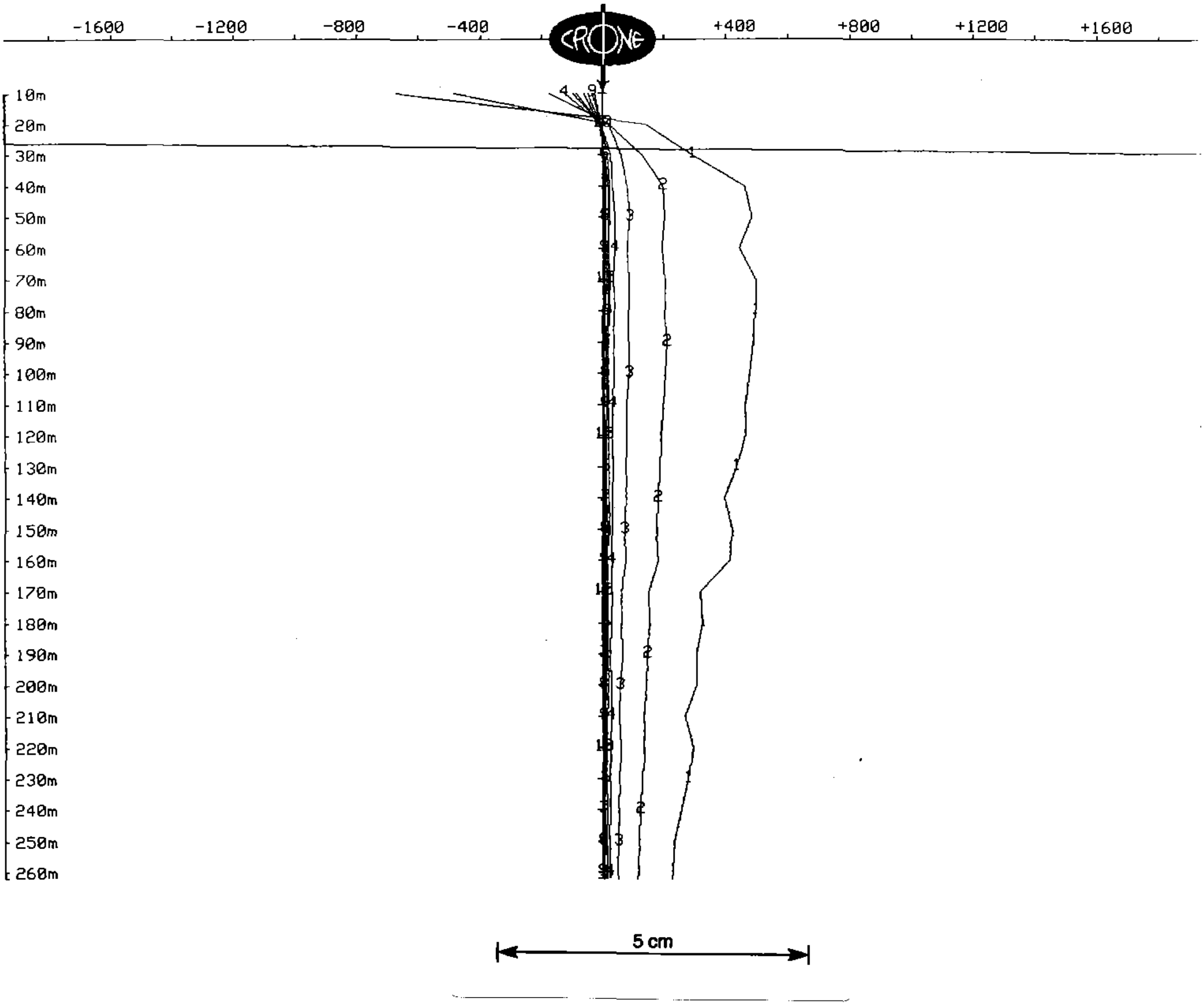
5 cm

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-004
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 19, 1995	File name	: G4Z.PEM

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

Scale: 1:2000 Unit Scale: 1cm = 200 nT/s



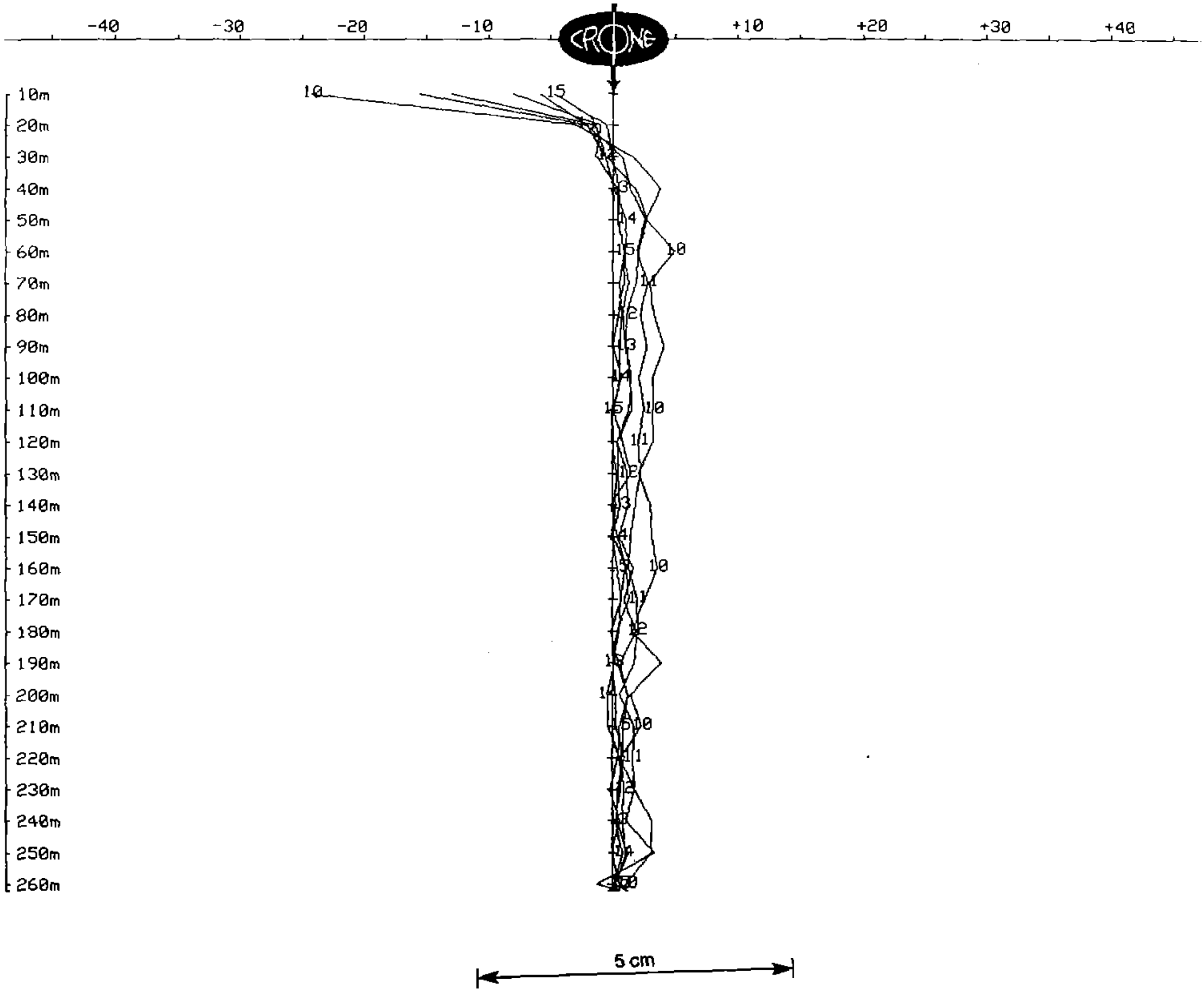
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-004
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 19, 1995	File name	: G4Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 5 nT/



723117

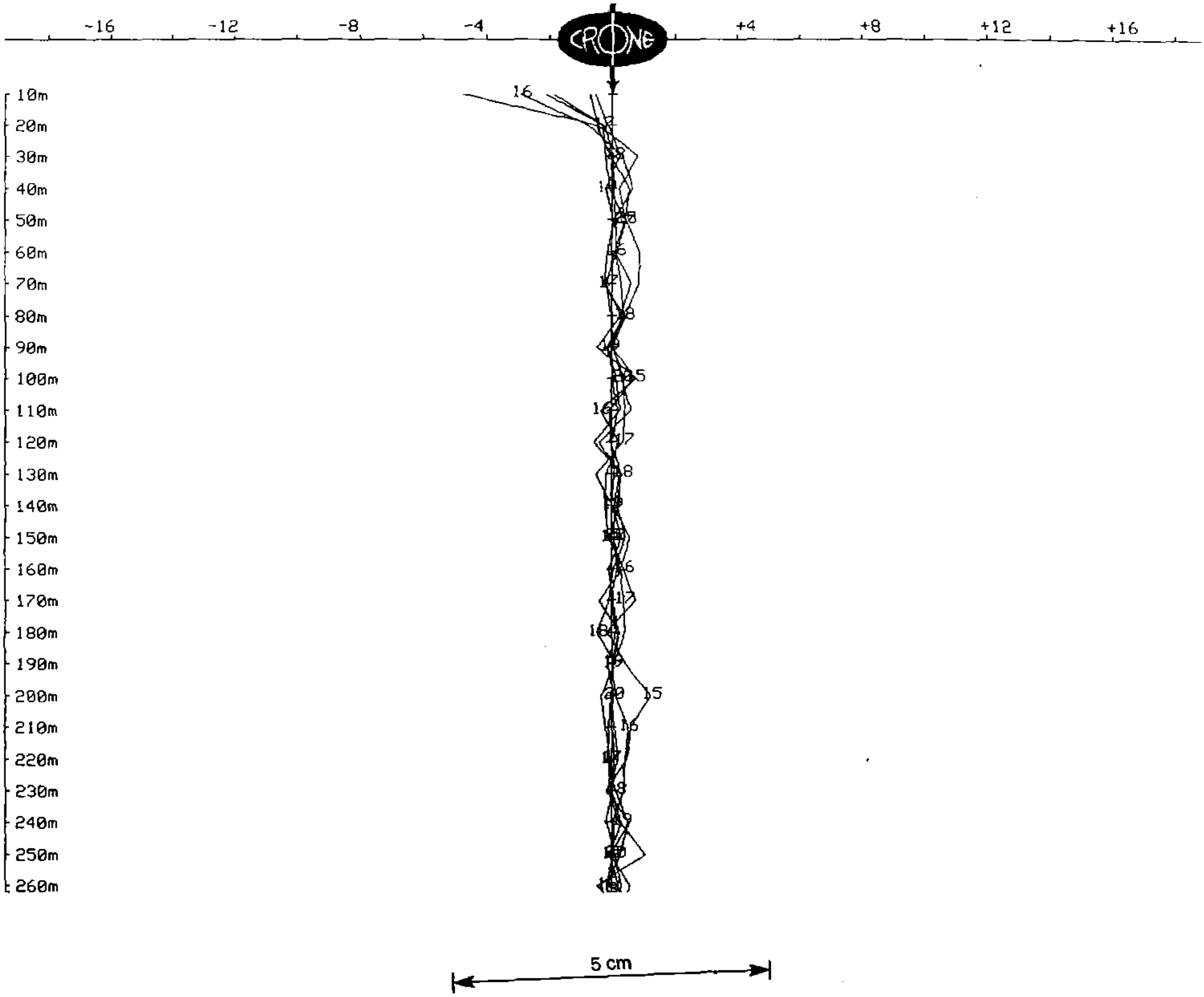
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-004
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 19, 1995	File name	: G4Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

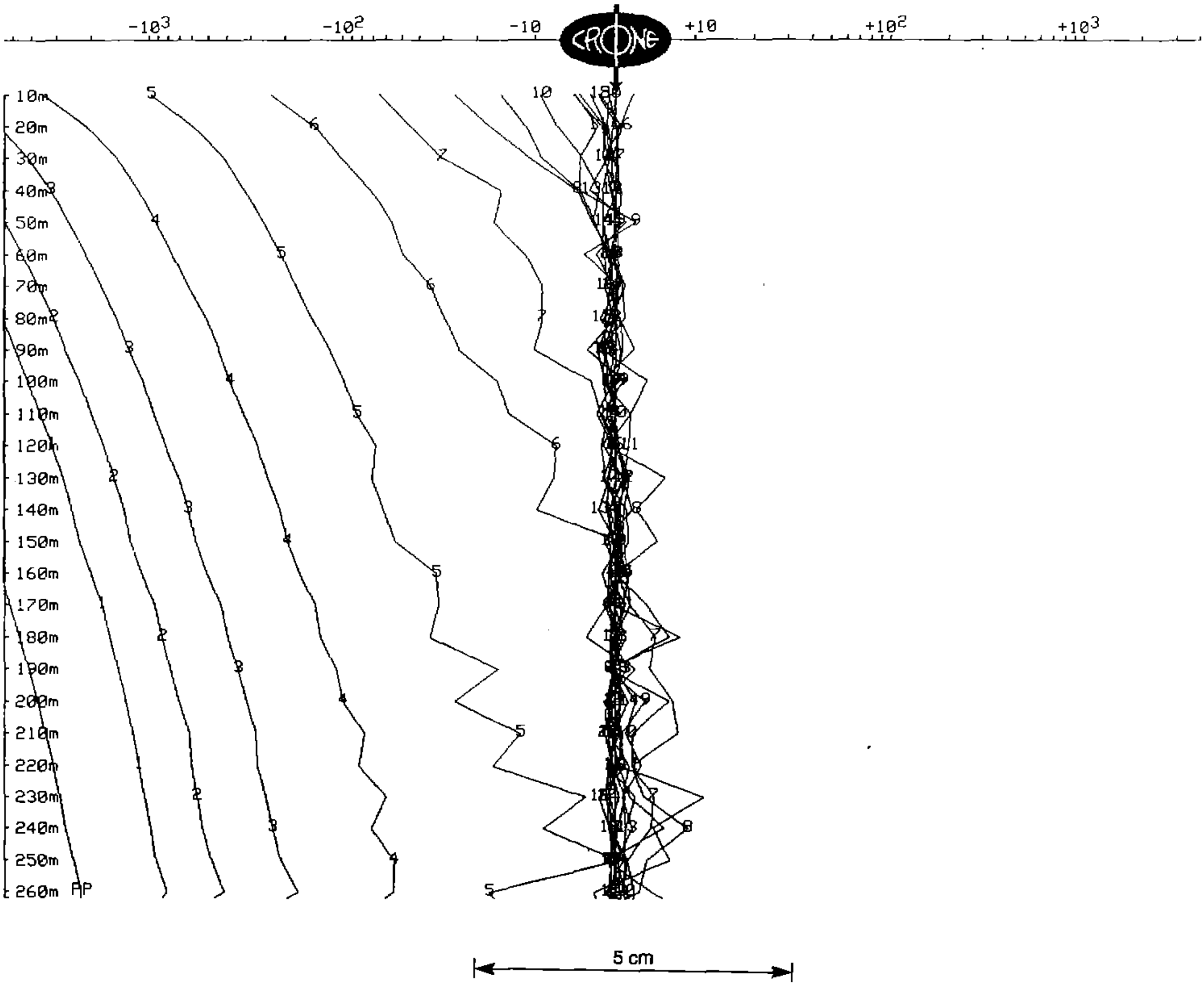
Unit Scale: 1cm = 2 nT/



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-004
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 19, 1995	File name	: G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:2000



723119

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

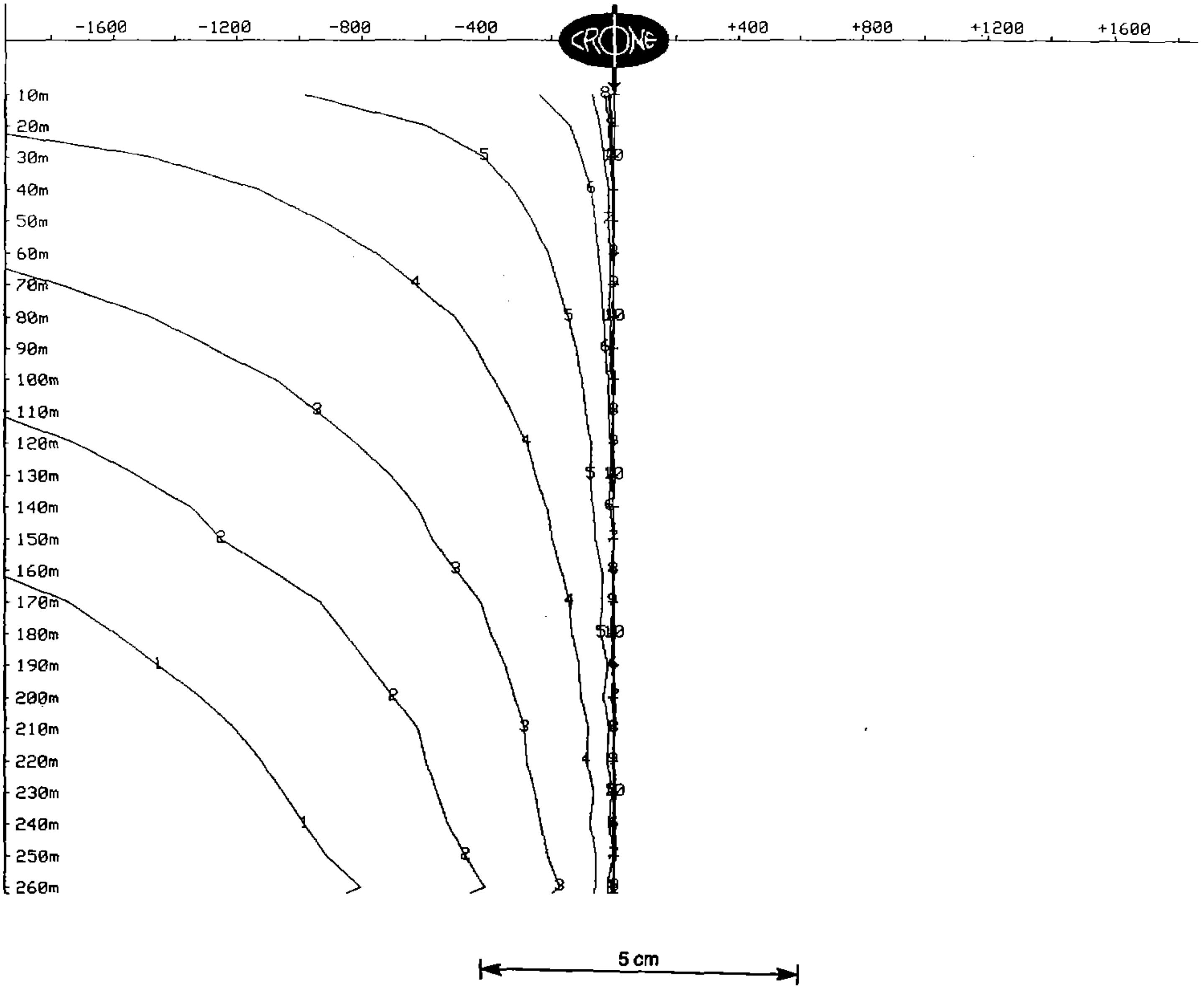
Client : RGC Exploration
Grid : Garfield
Date : Nov 19, 1995

Hole : GAR-004
Tx Loop : #1
File name : G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000

Unit Scale: 1cm = 200 nT



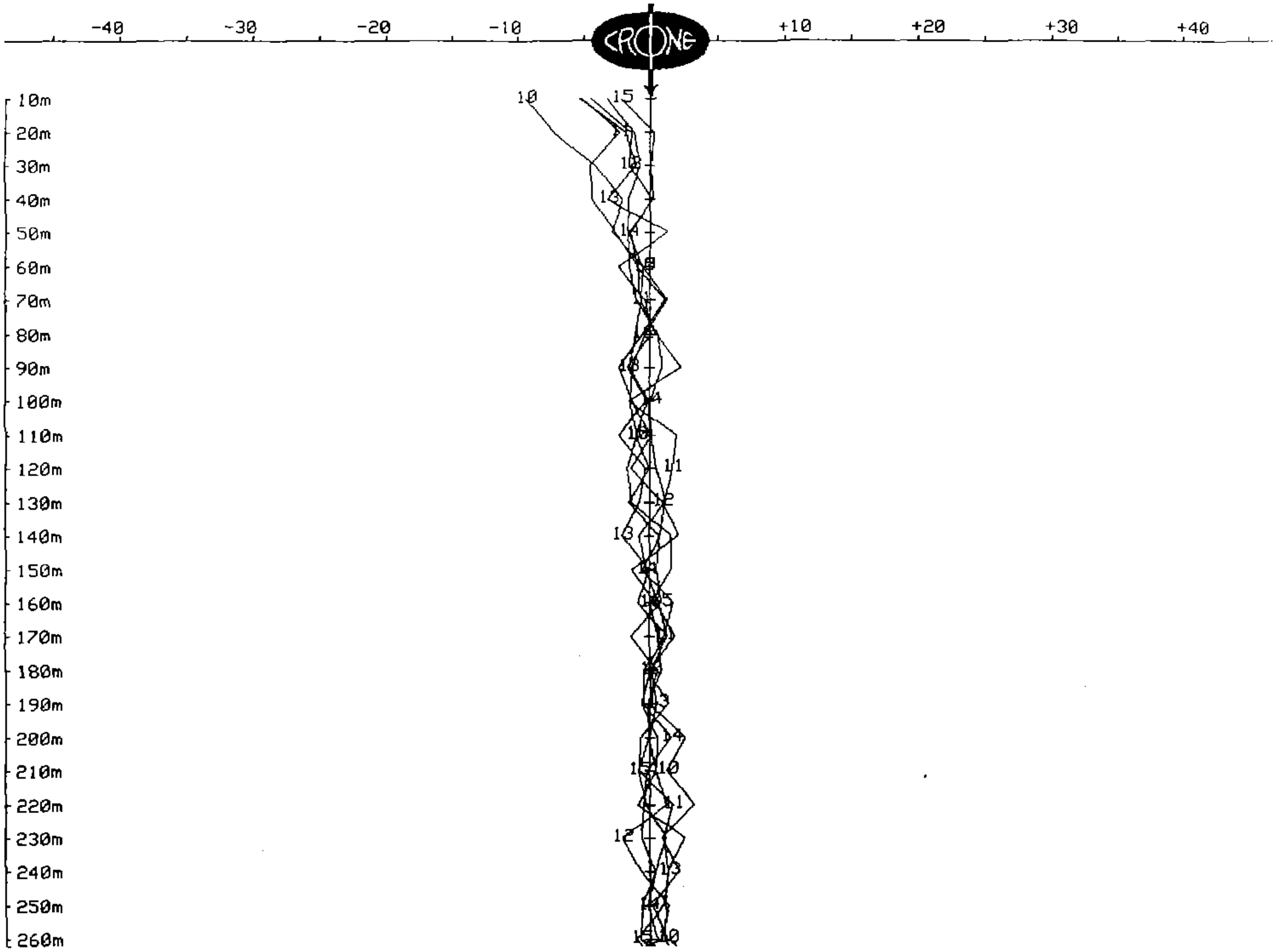
723120

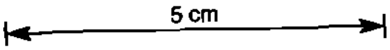
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	:	RGC Exploration	Hole	:	GAR-004
Grid	:	Garfield	Tx Loop	:	#1
Date	:	Nov 19, 1995	File name	:	G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2000 Unit Scale: 1cm = 5 nT/





723121

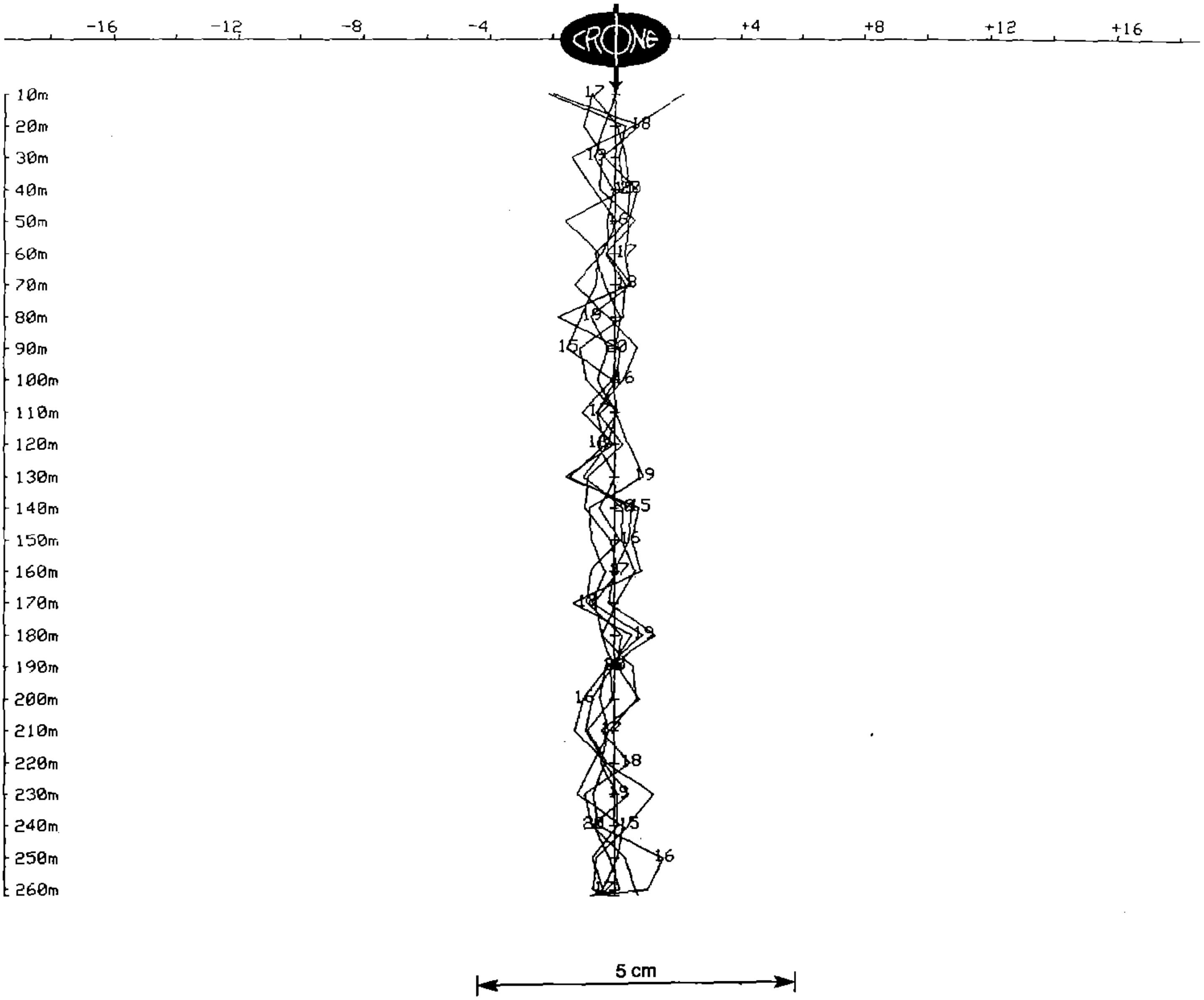
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 19, 1995
Hole : GAR-004
Tx Loop : #1
File name : G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 2 nT/



723122

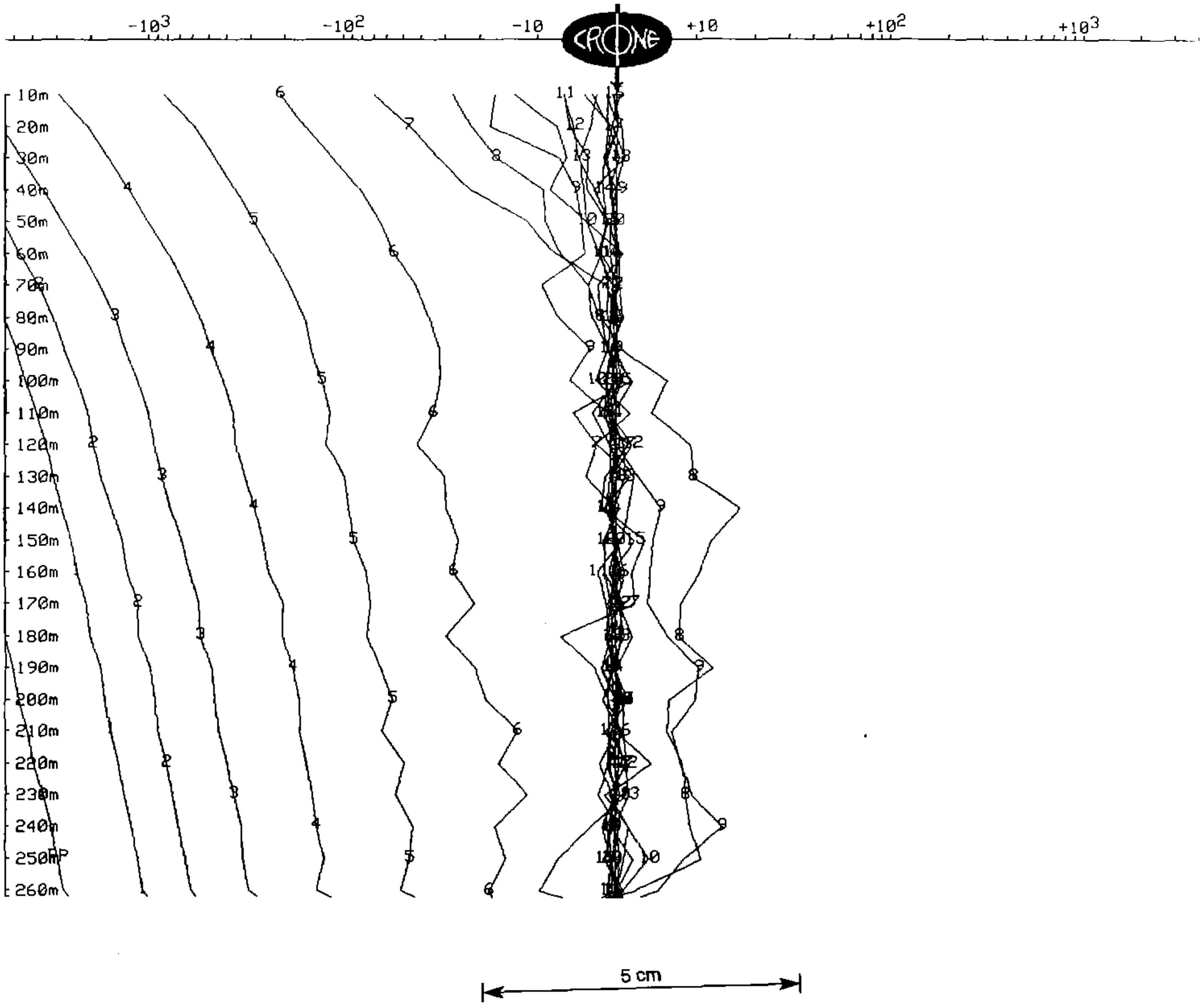
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 19, 1995

Hole : GAR-004
Tx Loop : #1
File name : G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000



723123

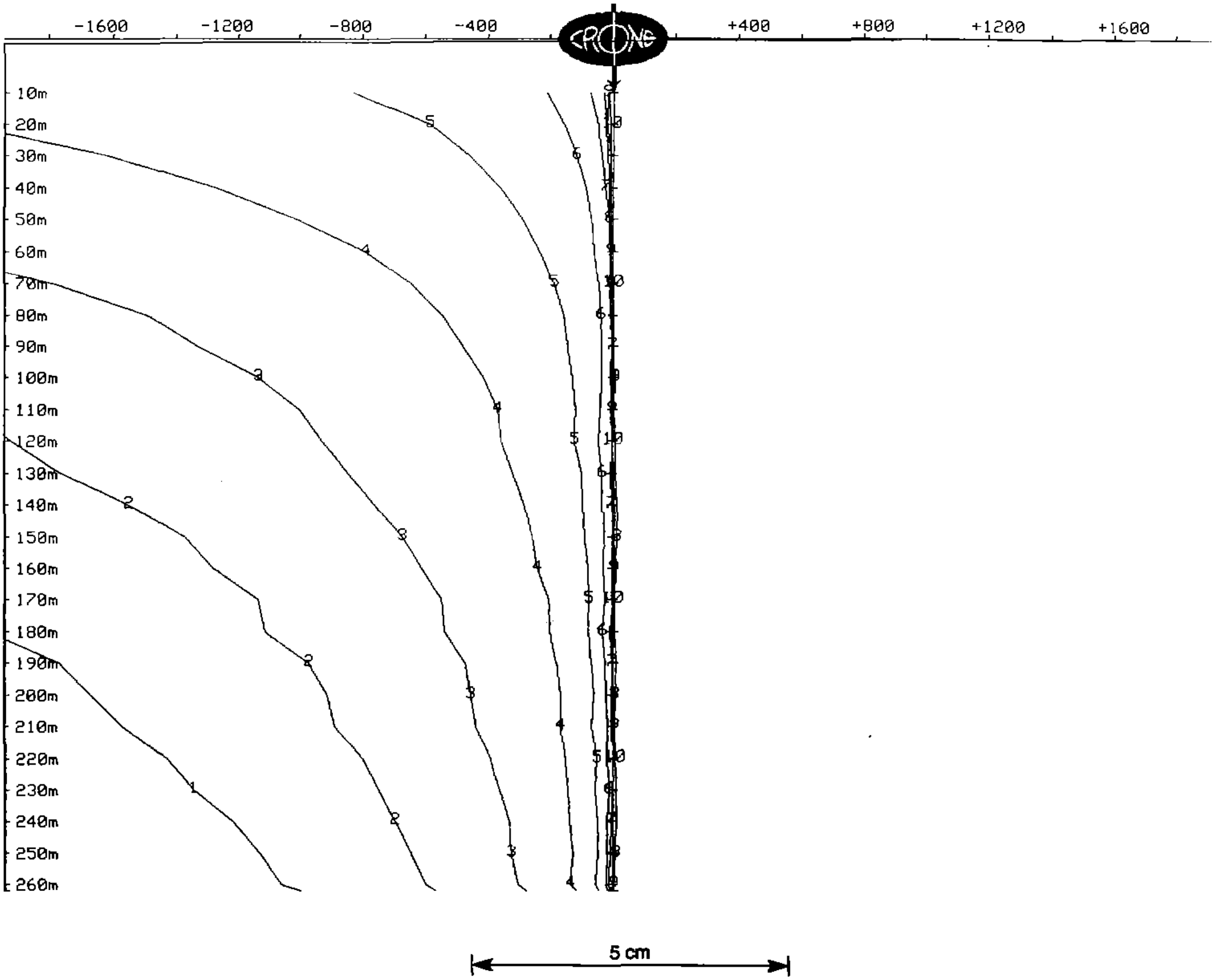
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration		Hole	:	GAR-004
Grid	: Garfield		Tx Loop	:	#1
Date	: Nov 19, 1995		File name	:	G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000

Unit Scale: 1cm = 200 nT/



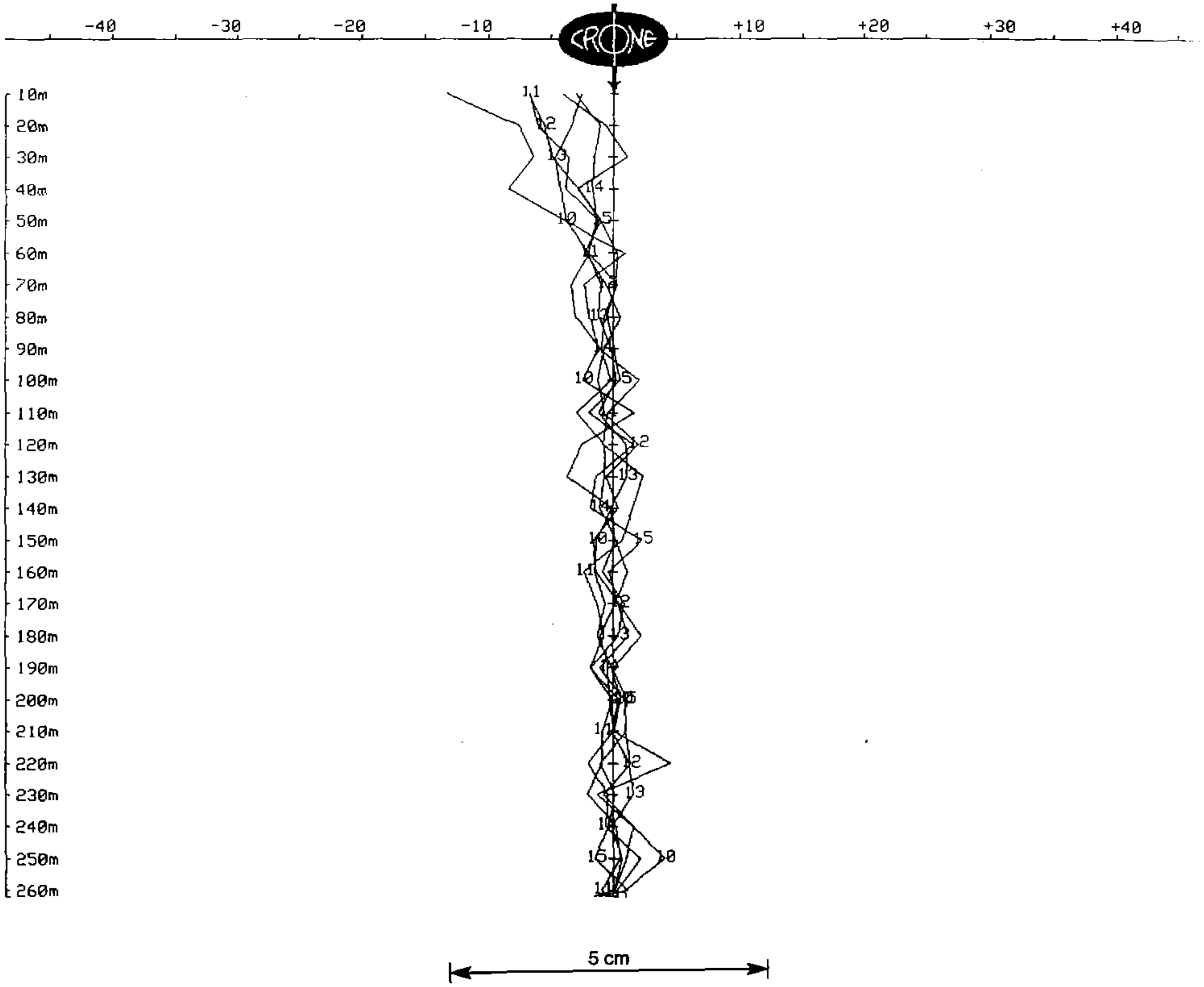
723124

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-004
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 19, 1995	File name	: G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2000
Unit Scale: 1cm = 5 nT,



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

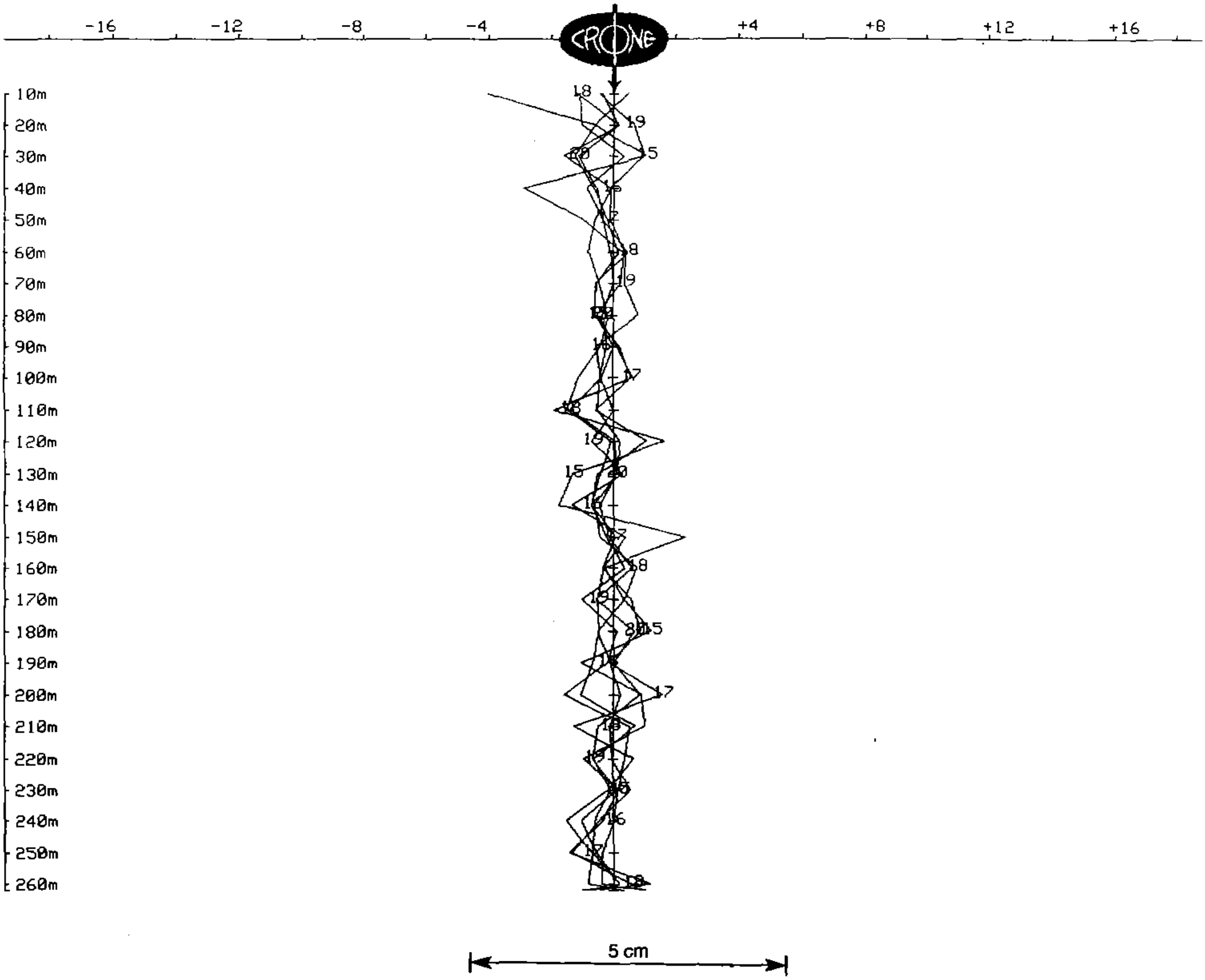
Client : RGC Exploration
Grid : Garfield
Date : Nov 19, 1995

Hole : GAR-004
Tx Loop : #1
File name : G4XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 2 nT/



723126

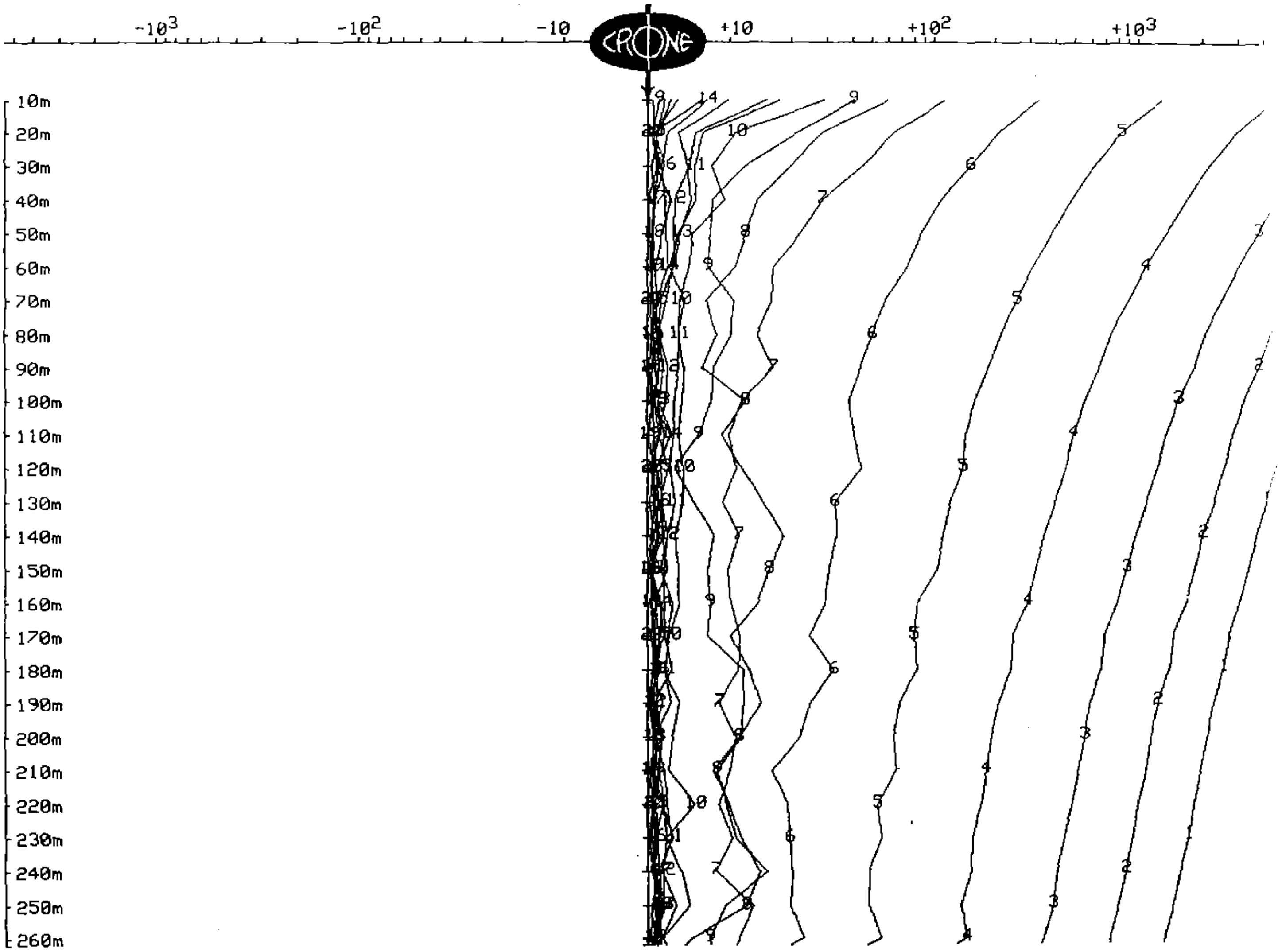
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

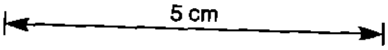
Client : RGC Exploration
Grid : Garfield
Date : Nov 19, 1995

Hole : GAR-004
Tx Loop : #1
File name : G4XYZ.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 20 channels

Scale: 1:2000





OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : **Garfield**
Date : Nov 18, 1995
Time Base : 20.00 ms
Ramp Time : 1.00 ms
Channels: 20
Sync Type : Cable
Loop Size : 500m X 600m
Current : 8 Amps

Hole : GAR-005
Tx Loop : **#1**
File name : G5Z.PEM
Readings: 24
Stn Units : Metric
Coil Area : 6500 sq m
Polarity : +
Receiver : Digital #108
Operator : Kent Honner

Loop Coordinates (X,Y,Z)
1. 525m, 3680m, 0m
2. 960m, 3980m, 0m
3. 640m, 4450m, 0m
4. 390m, 4275m, 0m
5. 380m, 4065m, 0m
6. 410m, 3890m, 0m

Hole Coordinates (X,Y,Z) or (Azimuth,Dip,Length)
1. 499m, 4143m, 0m
2. 264deg, 53deg, 45m
3. 264deg, 51deg, 30m
4. 264.5deg, 48.4deg, 30m
5. 264.5deg, 47deg, 30m
6. 266deg, 45.7deg, 30m
7. 267.1deg, 44.8deg, 30m
8. 267deg, 44.8deg, 30m
9. 267deg, 42.8deg, 20m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	565
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

General Comments

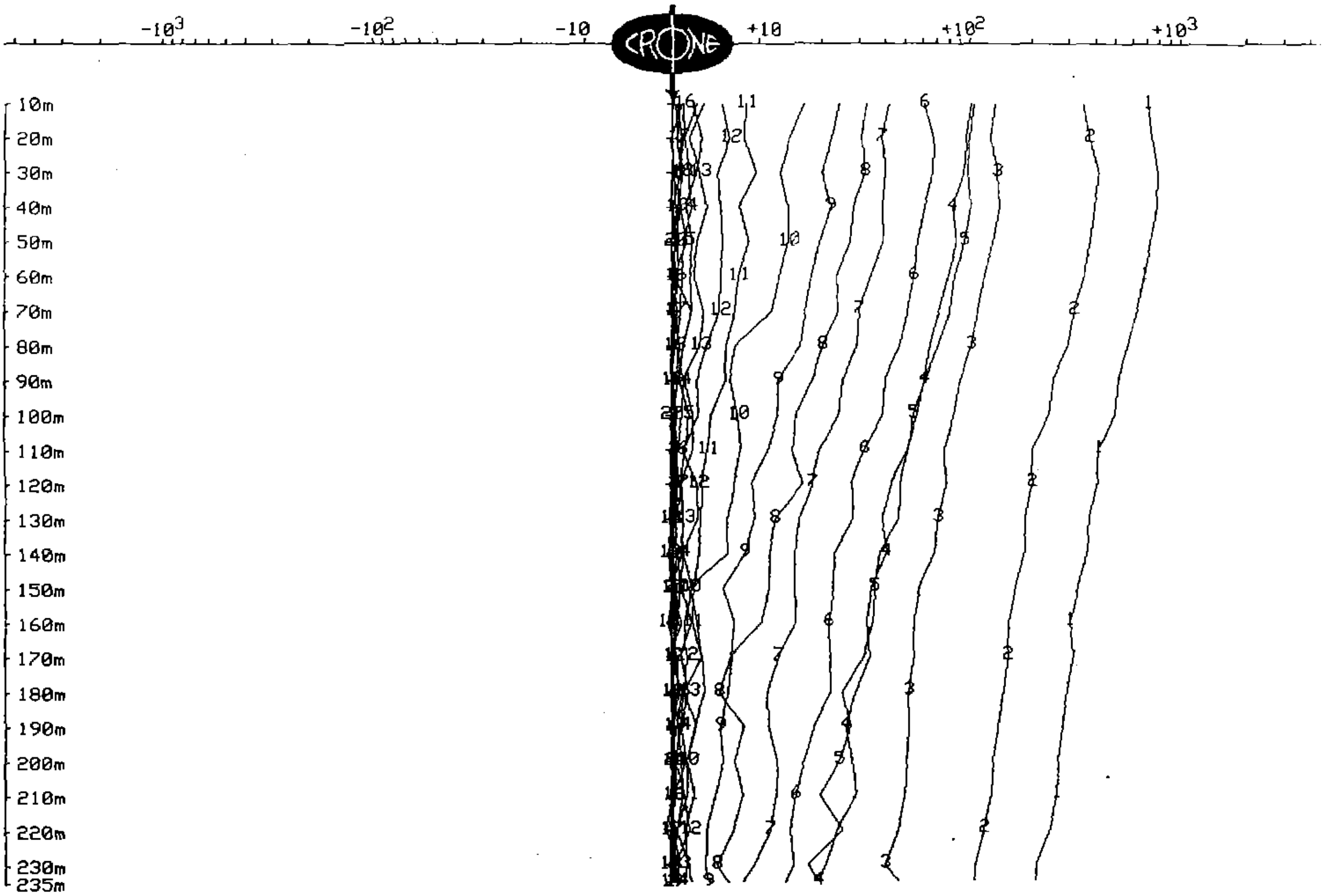
Terrain is very steep, Garfield River runs through middle of loop

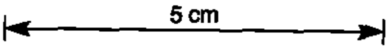
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	:	RGC Exploration	Hole	:	GAR-005
Grid	:	Garfield	Tx Loop	:	#1
Date	:	Nov 18, 1995	File name	:	G5Z.PEM

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

Scale: 1:2000





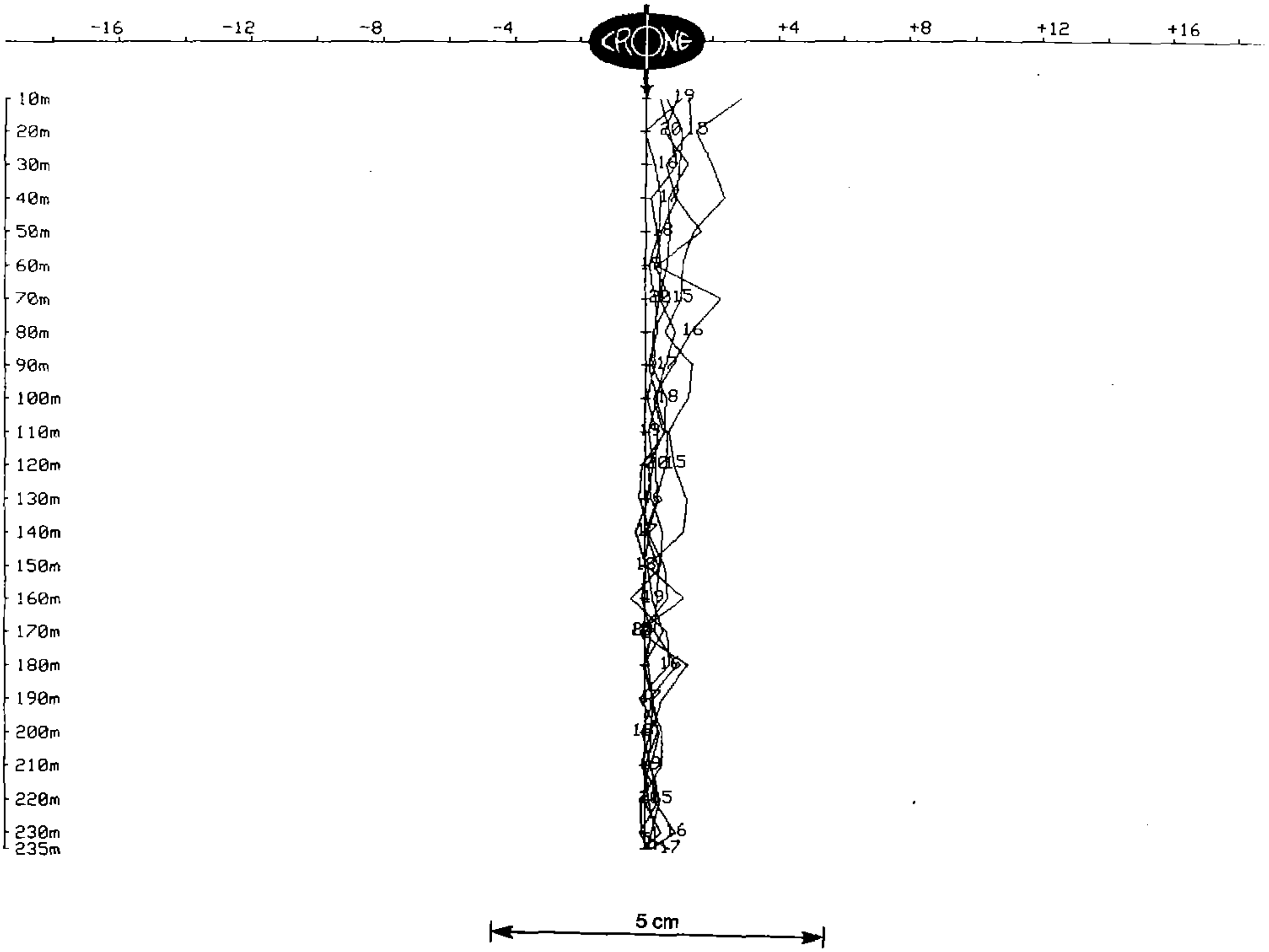
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 18, 1995
Hole : GAR-005
Tx Loop : #1
File name : G5Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 2 nT/



723130

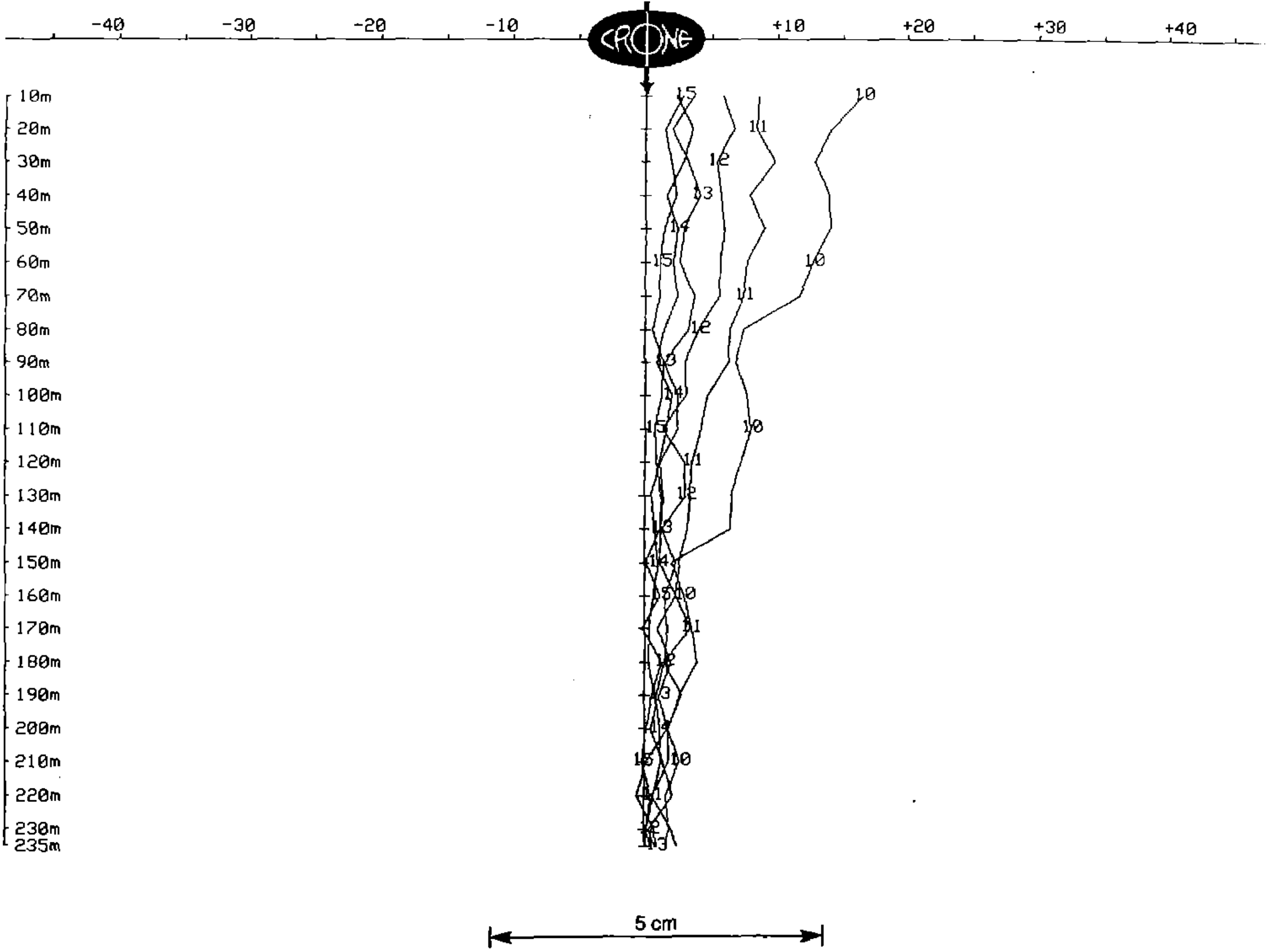
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-005
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 18, 1995	File name	: G5Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 5 nT/

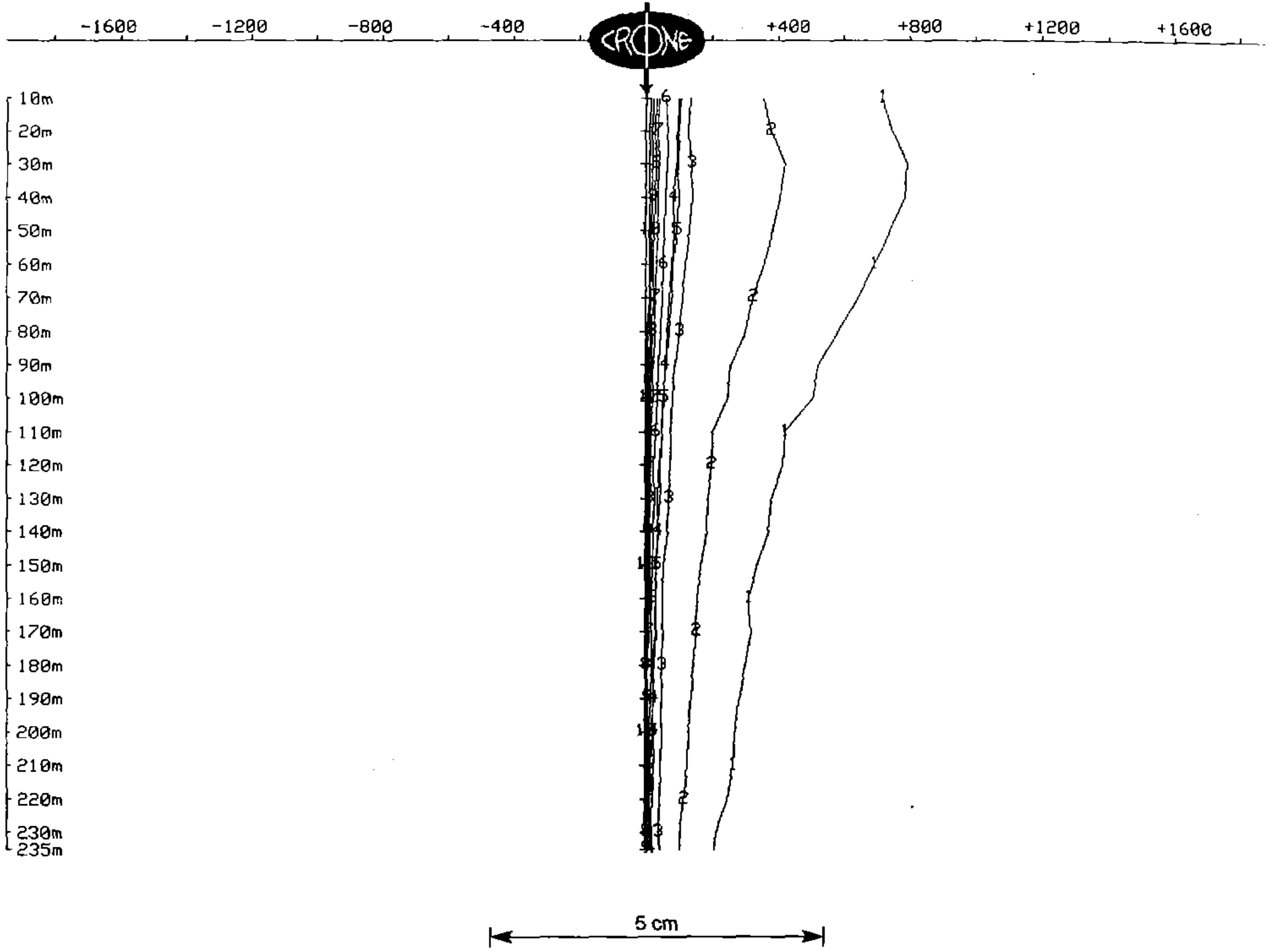


OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-005
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 18, 1995	File name	: G5Z.PEM

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

Scale: 1:2000 Unit Scale: 1cm = 200 nT/



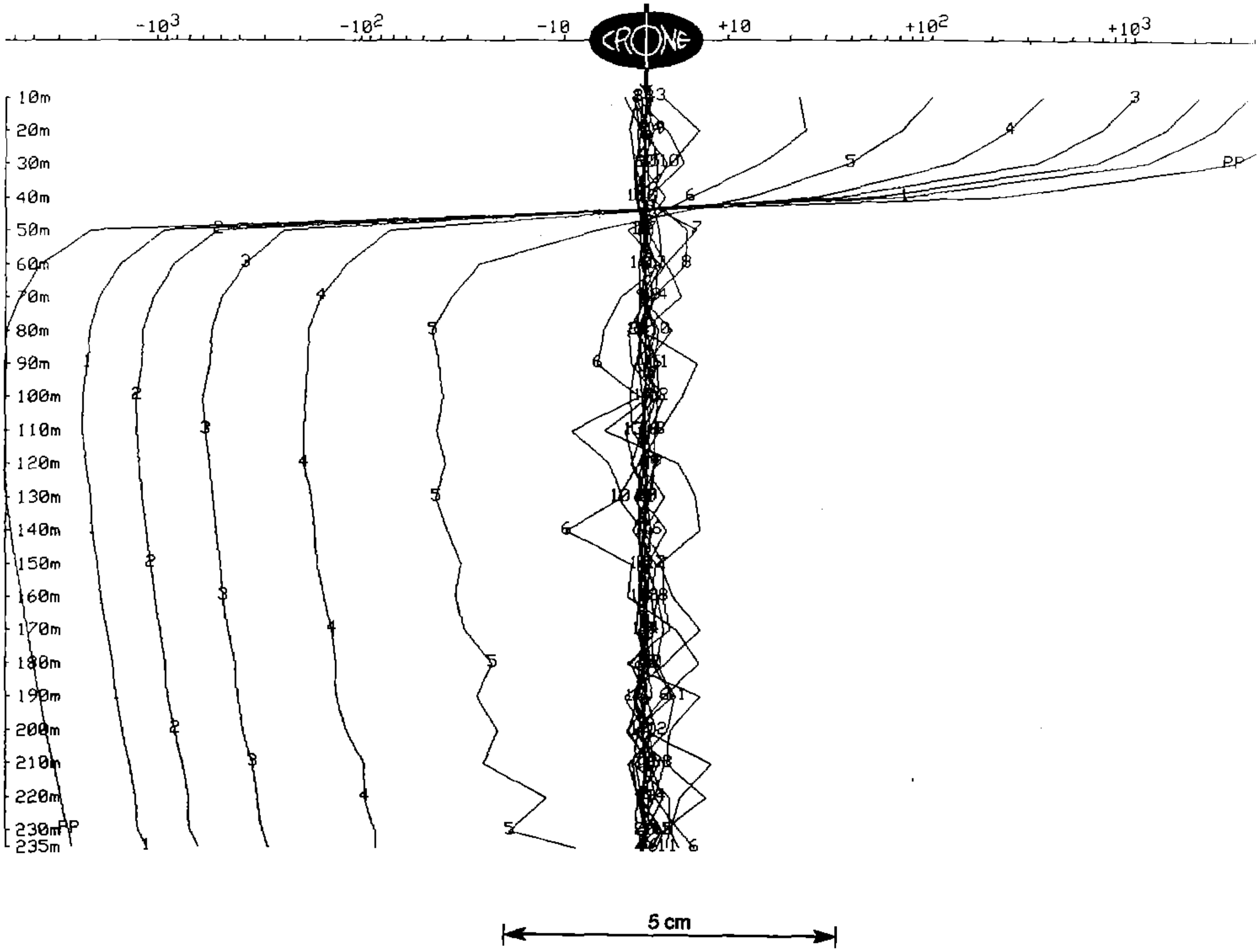
723132

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 18, 1995

Hole : GAR-005
Tx Loop : #1
File name : G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:2000



723133

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

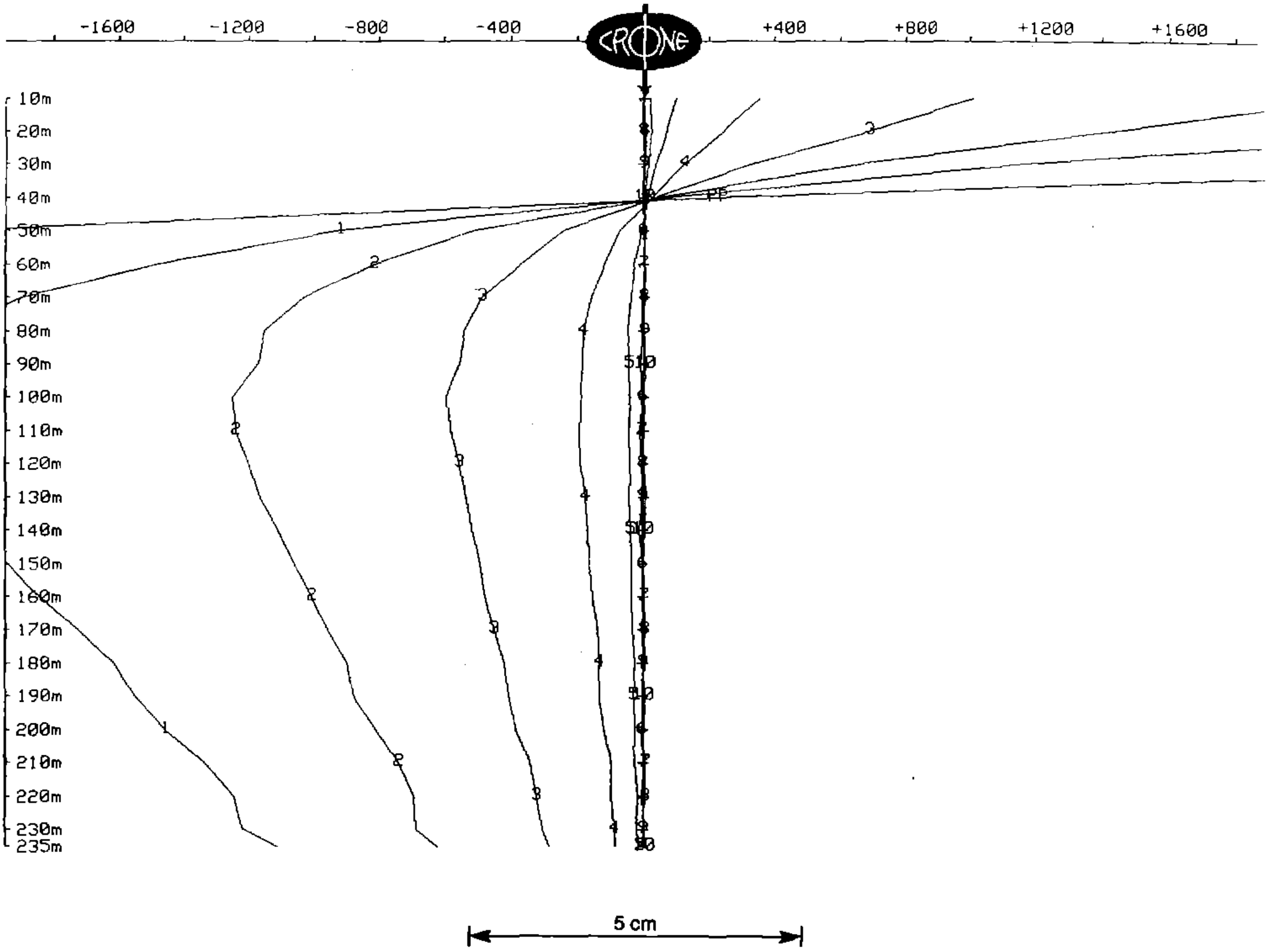
Client : RGC Exploration
Grid : Garfield
Date : Nov 18, 1995

Hole : GAR-005
Tx Loop : #1
File name : G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000

Unit Scale: 1cm = 200 nT/



723134

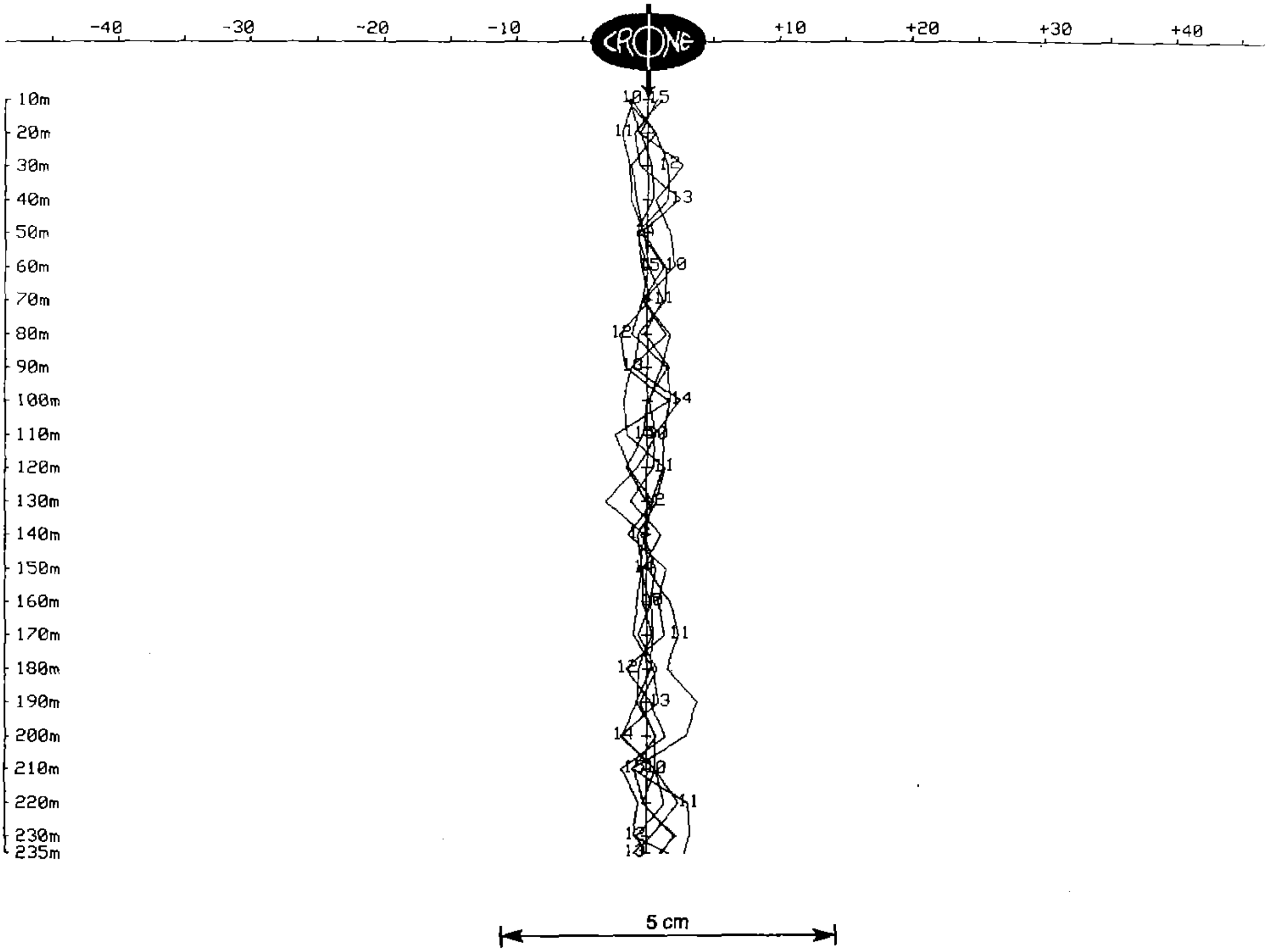
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-005
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 18, 1995	File name	: G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 5 nT/



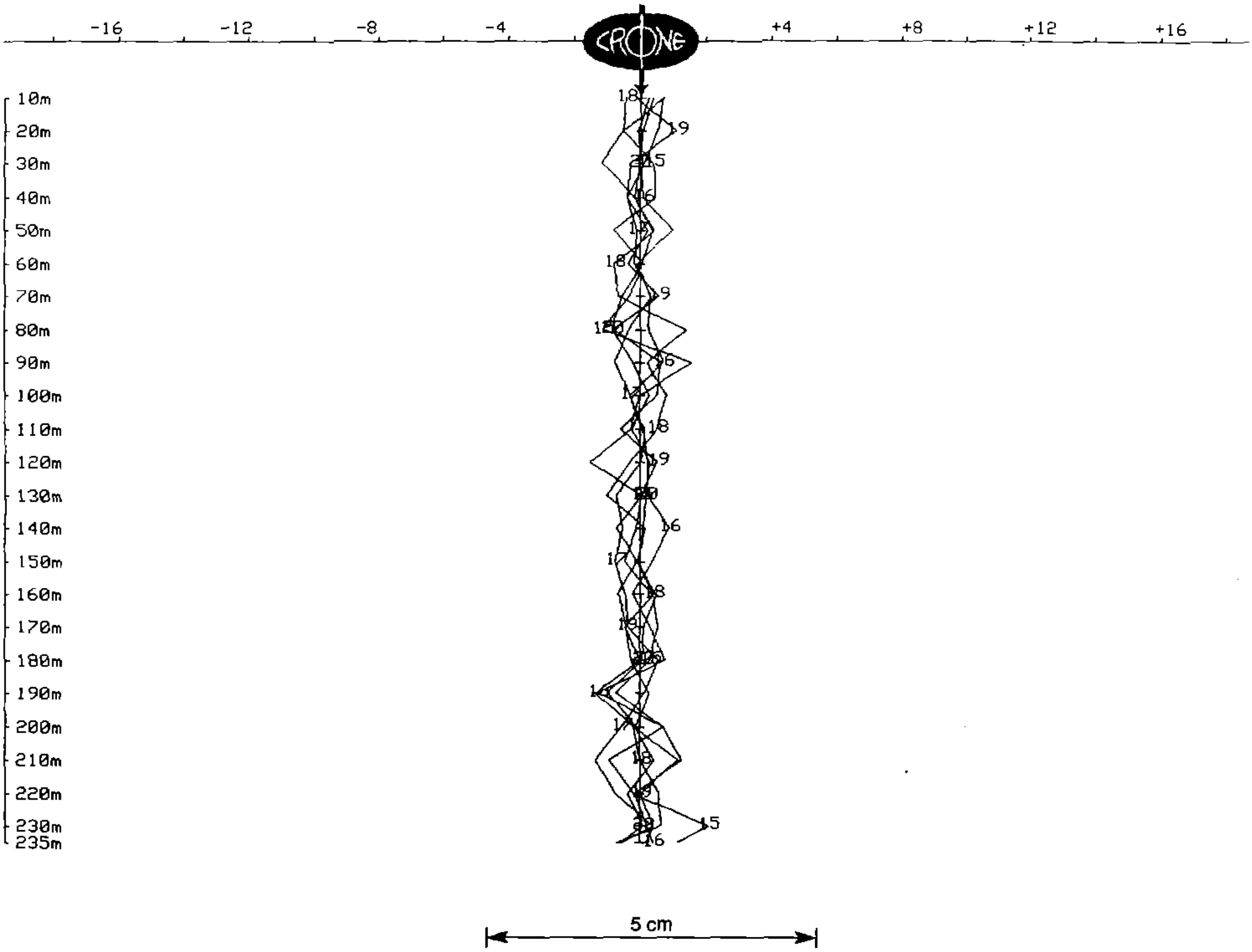
723135

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-005
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 18, 1995	File name	: G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

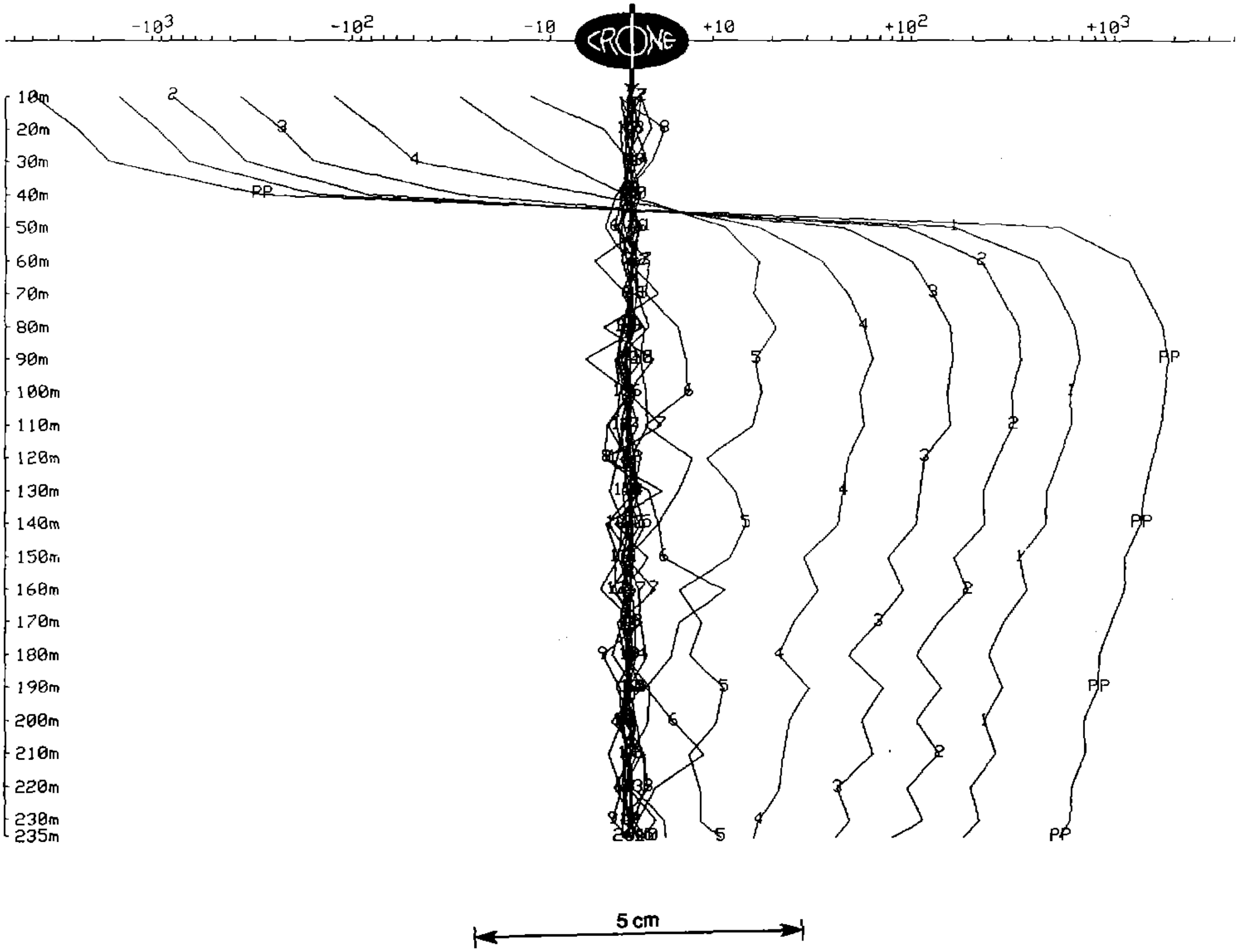
Scale: 1:2000 Unit Scale: 1cm = 2 nT/



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 18, 1995
Hole : GAR-005
Tx Loop : #1
File name : G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP
Scale: 1:2000



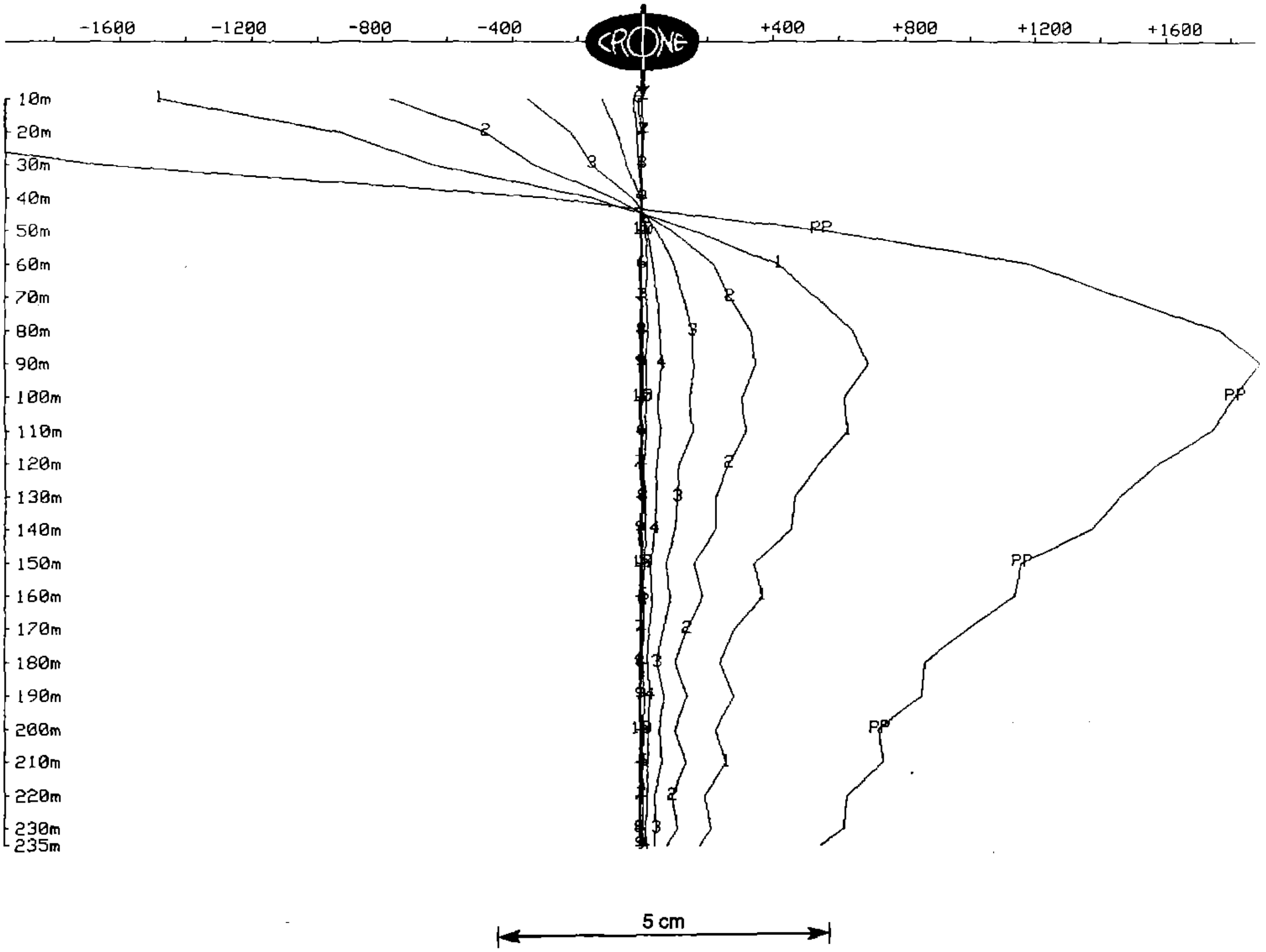
723137

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-005
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 18, 1995	File name	: G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000 Unit Scale: 1cm = 200 nT/



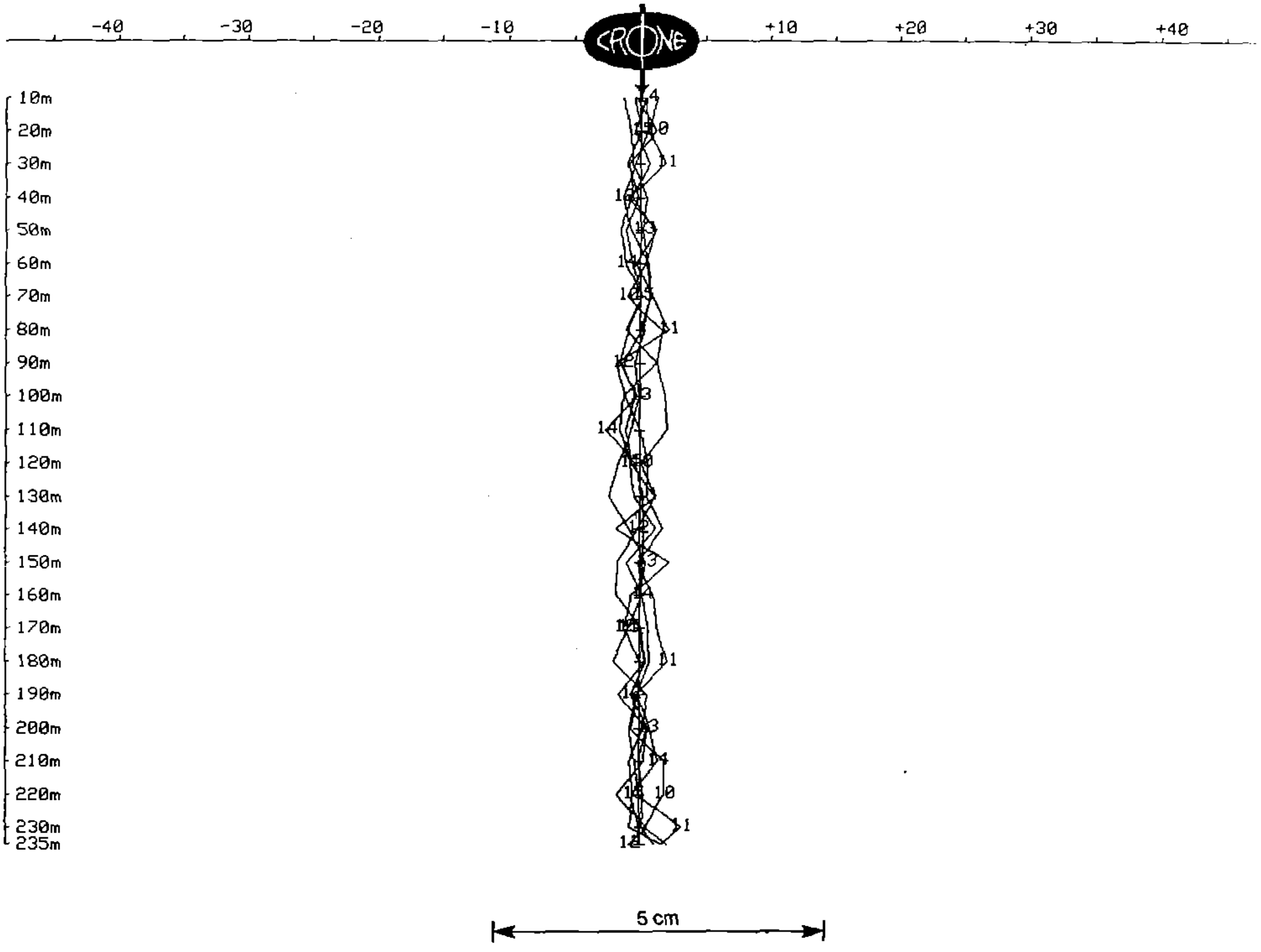
723138

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	:	RGC Exploration	Hole	:	GAR-005
Grid	:	Garfield	Tx Loop	:	#1
Date	:	Nov 18, 1995	File name	:	G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2000 Unit Scale: 1cm = 5 nT/



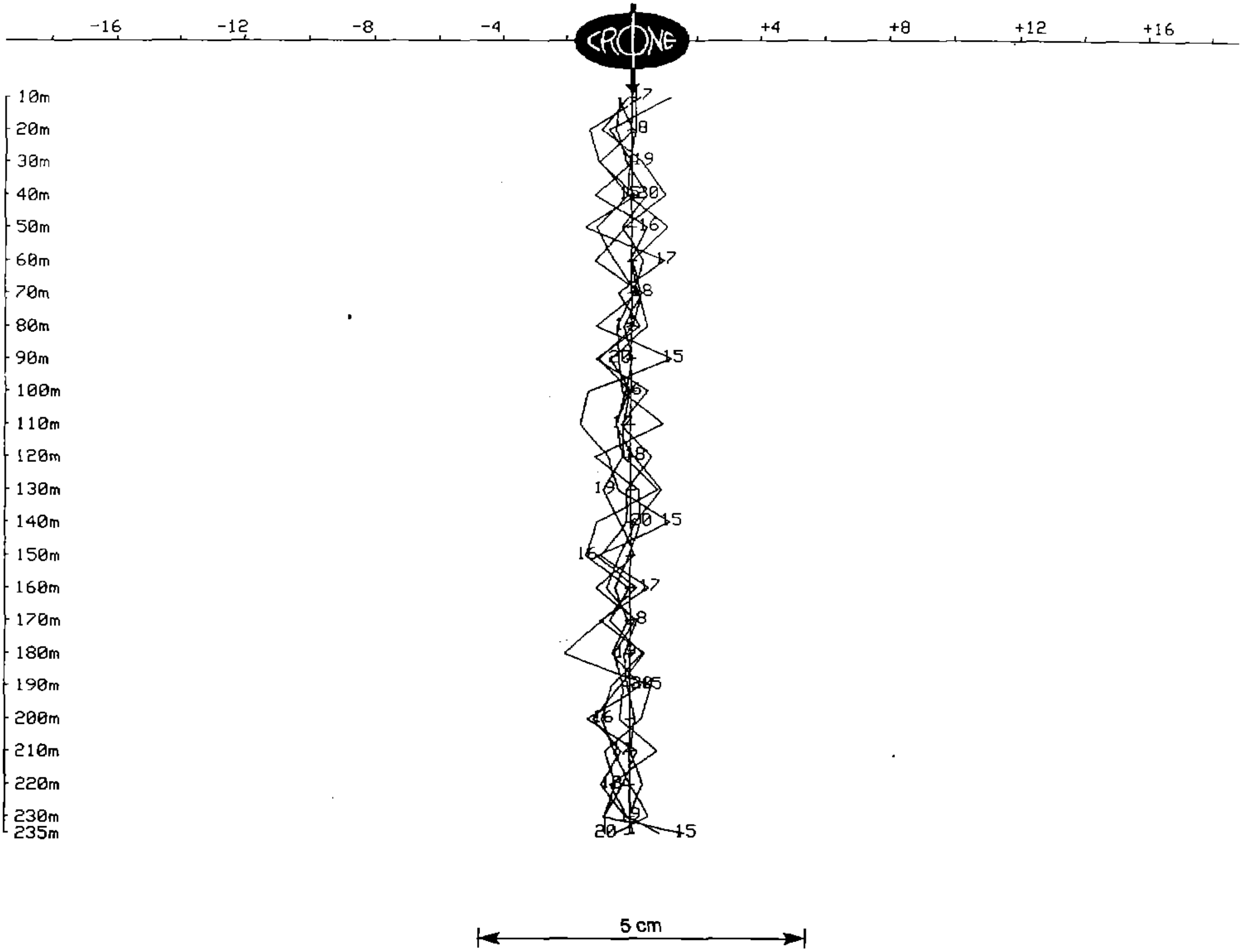
723139

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-005
Grid	: Garfield	Tx Loop	: #1
Date	: Nov 18, 1995	File name	: G5XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2000 Unit Scale: 1cm = 2 nT/



723140

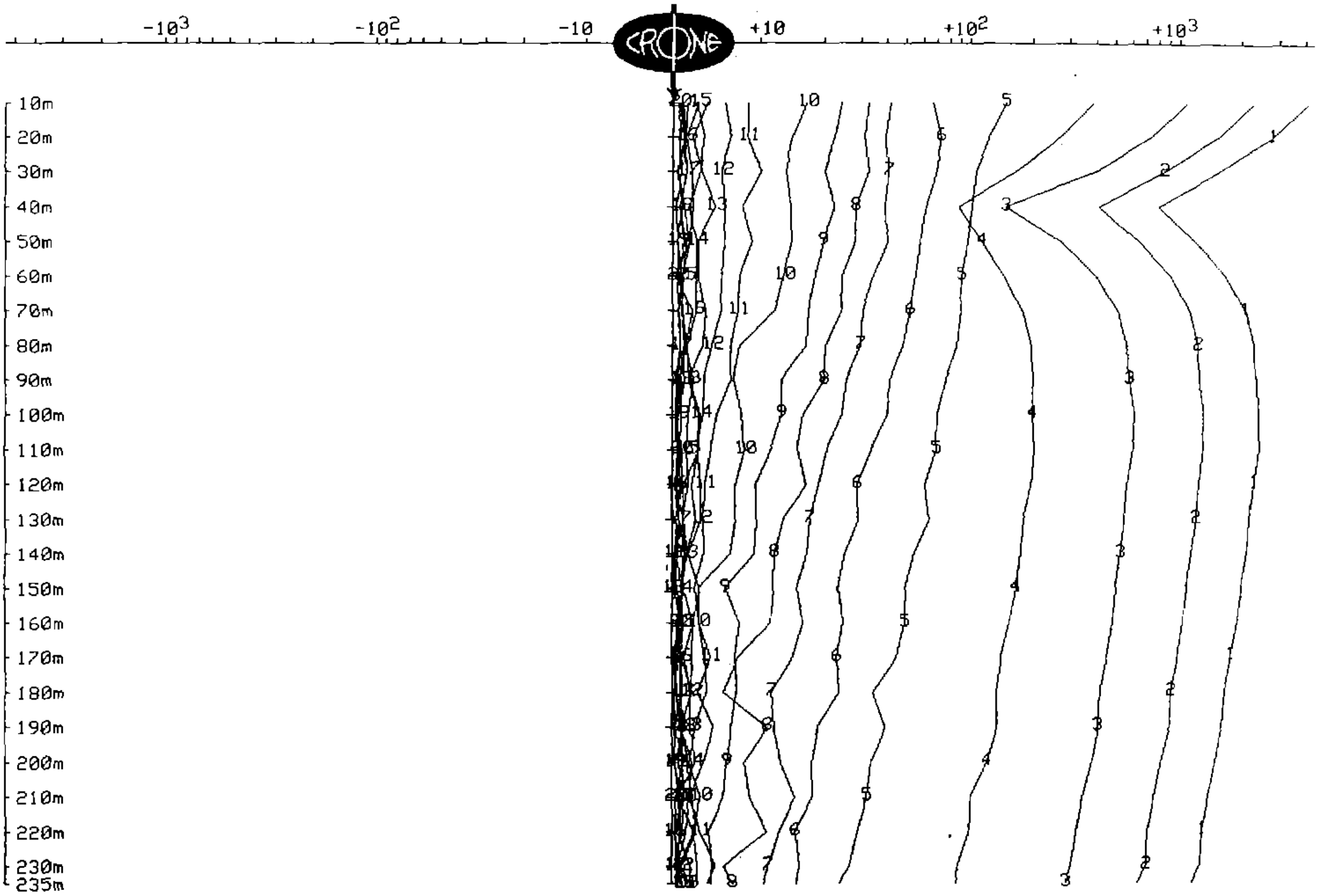
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

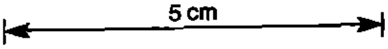
Client : RGC Exploration
Grid : Garfield
Date : Nov 18, 1995

Hole : GAR-005
Tx Loop : #1
File name : G5XYZ.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 20 channels

Scale: 1:2000





OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : **Garfield**
Date : Nov 22, 1995
Time Base : 20.00 ms
Ramp Time : 1.00 ms
Channels: 20
Sync Type : Cable
Loop Size : 500m X 400m
Current : 8 Amps

Hole : GAR-006
Tx Loop : **#3**
File name : G6Z.PEM
Readings: 26
Stn Units : Metric
Coil Area : 6500 sq m
Polarity : +
Receiver : Digital #108
Operator : Kent Honner

Loop Coordinates (X,Y,Z)

1. 580m, 4530m, 0m
2. 980m, 4830m, 0m
3. 750m, 5140m, 0m
4. 370m, 4860m, 0m

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

1. 782m, 4966m, 0m
2. 63deg, 66deg, 45m
3. 62.5deg, 65.3deg, 30m
4. 62.5deg, 62.9deg, 30m
5. 62deg, 62.4deg, 30m
6. 61.5deg, 59.5deg, 30m
7. 61.5deg, 58.8deg, 30m
8. 61deg, 57.2deg, 30m
9. 61deg, 54.8deg, 30m
10. 61.5deg, 53.2deg, 10m

Channel Times (usec)

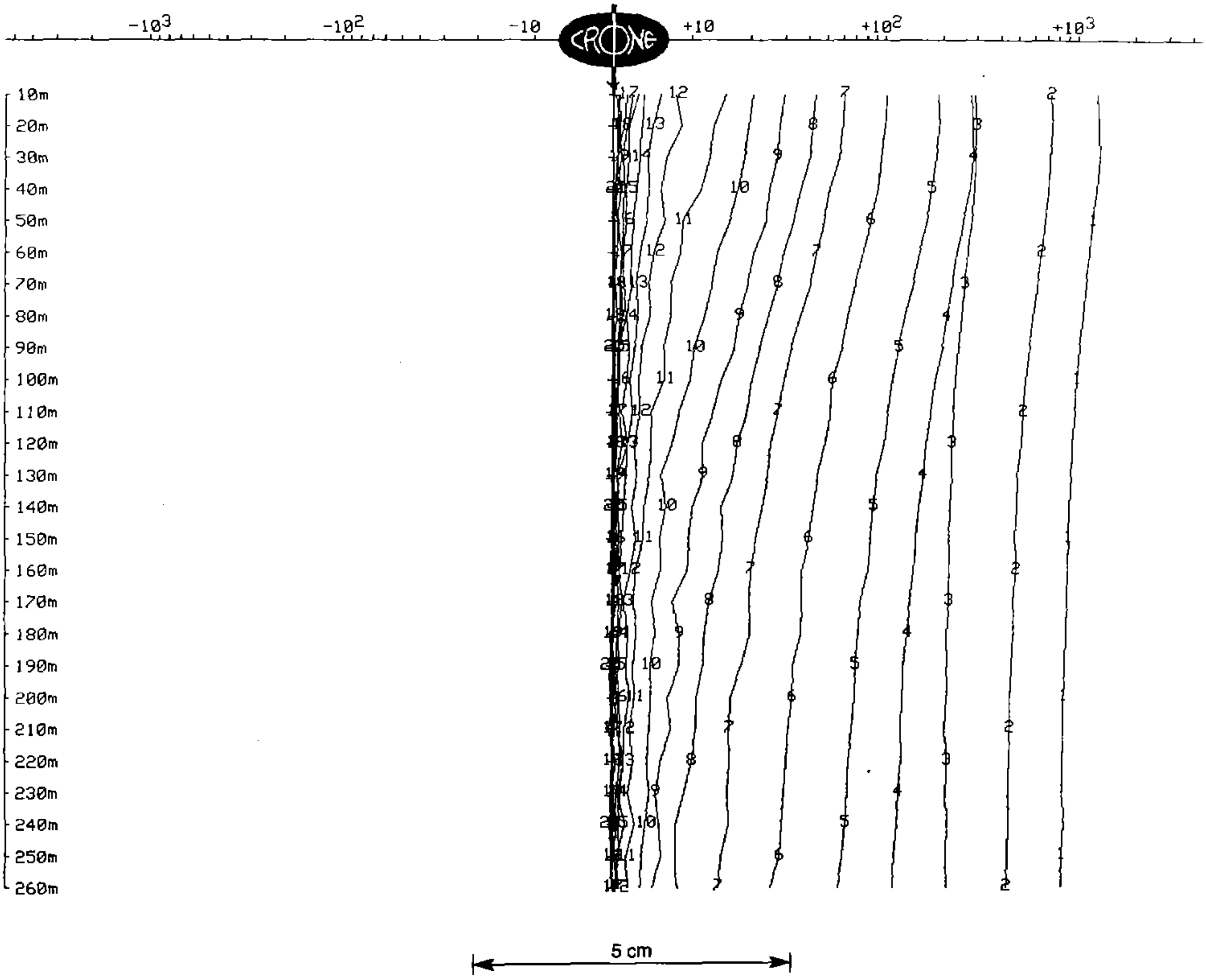
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	565
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-006
Grid	: Garfield	Tx Loop	: #3
Date	: Nov 22, 1995	File name	: G6Z.PEM

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

Scale: 1:2000



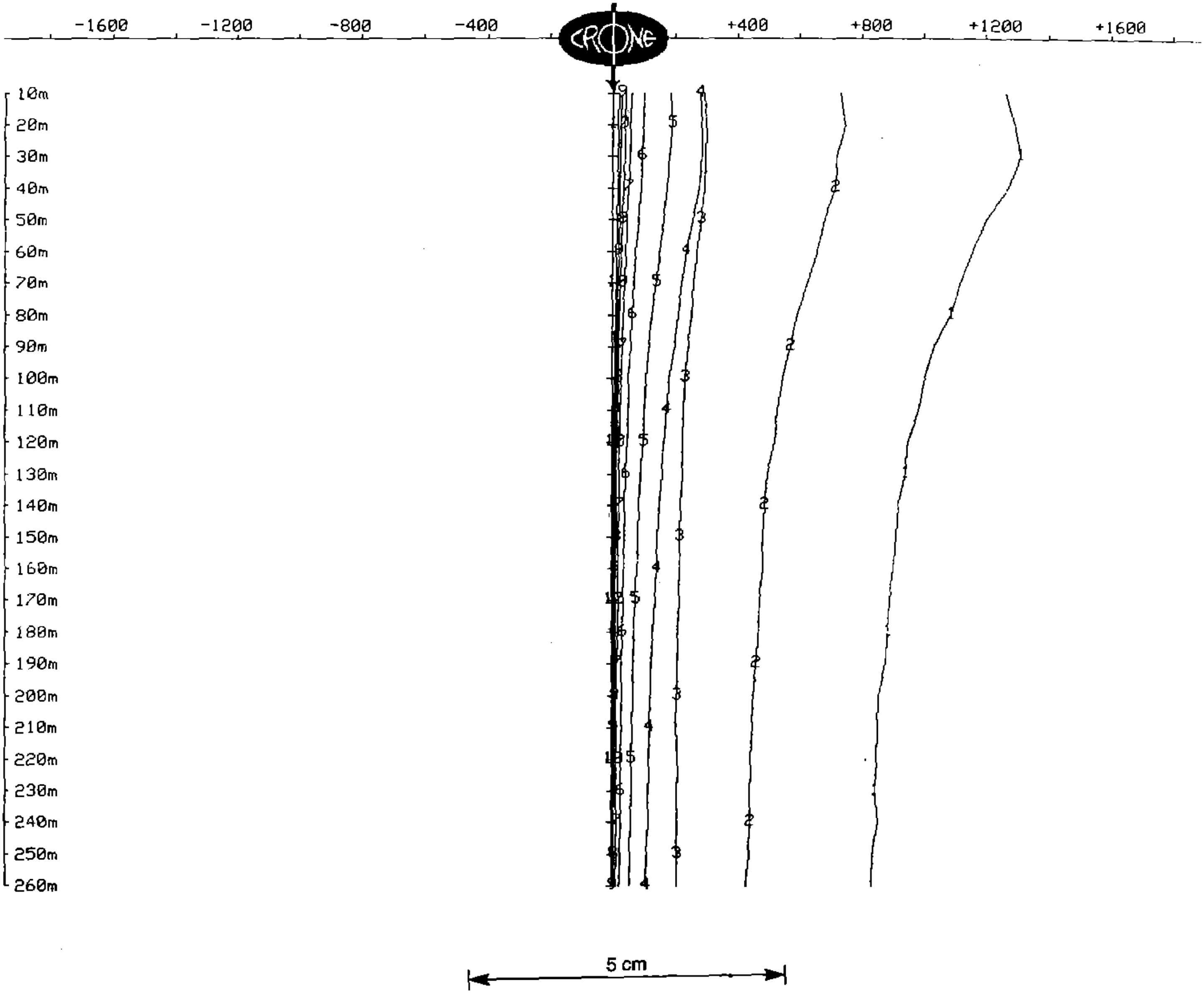
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-006
Grid	: Garfield	Tx Loop	: #3
Date	: Nov 22, 1995	File name	: G6Z.PEM

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

Scale: 1:2000

Unit Scale: 1cm = 200 nT/



723144

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

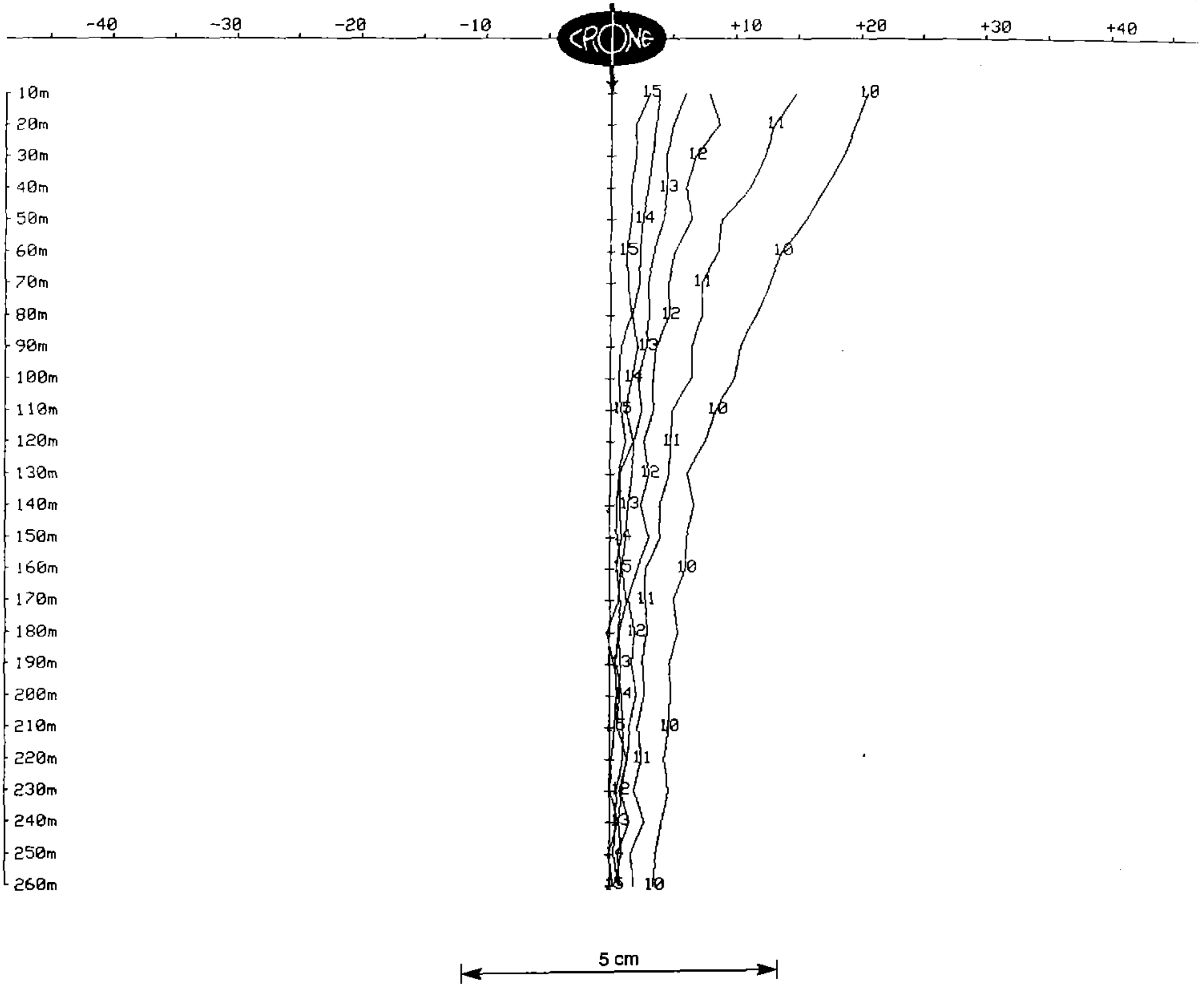
Client : RGC Exploration
Grid : Garfield
Date : Nov 22, 1995

Hole : GAR-006
Tx Loop : #3
File name : G6Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 5 nT



723145

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

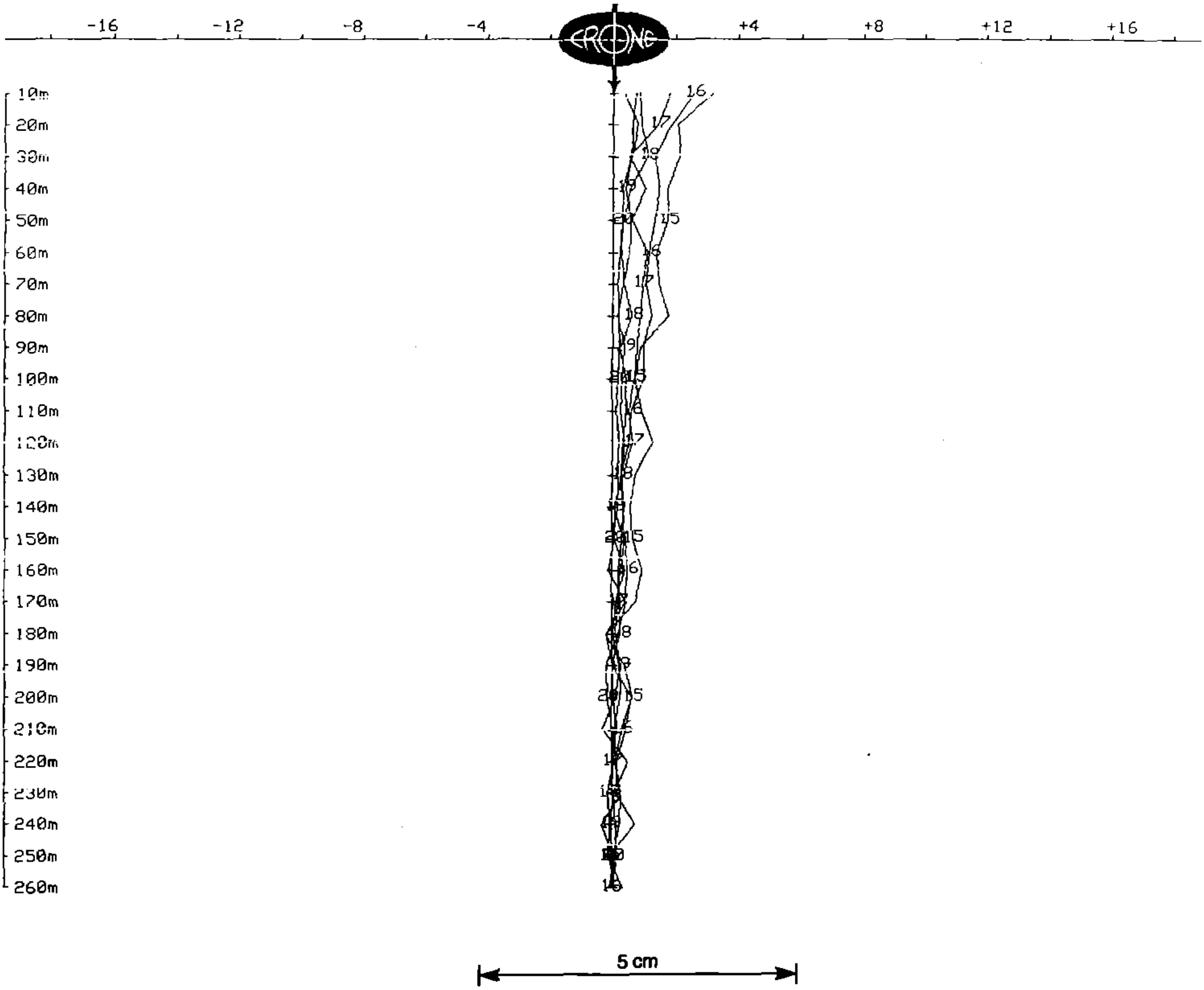
Client : RGC Exploration
Grid : Garfield
Date : Nov 22, 1995

Hole : GAR-006
Tx Loop : #3
File name : G6Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 2 nT/



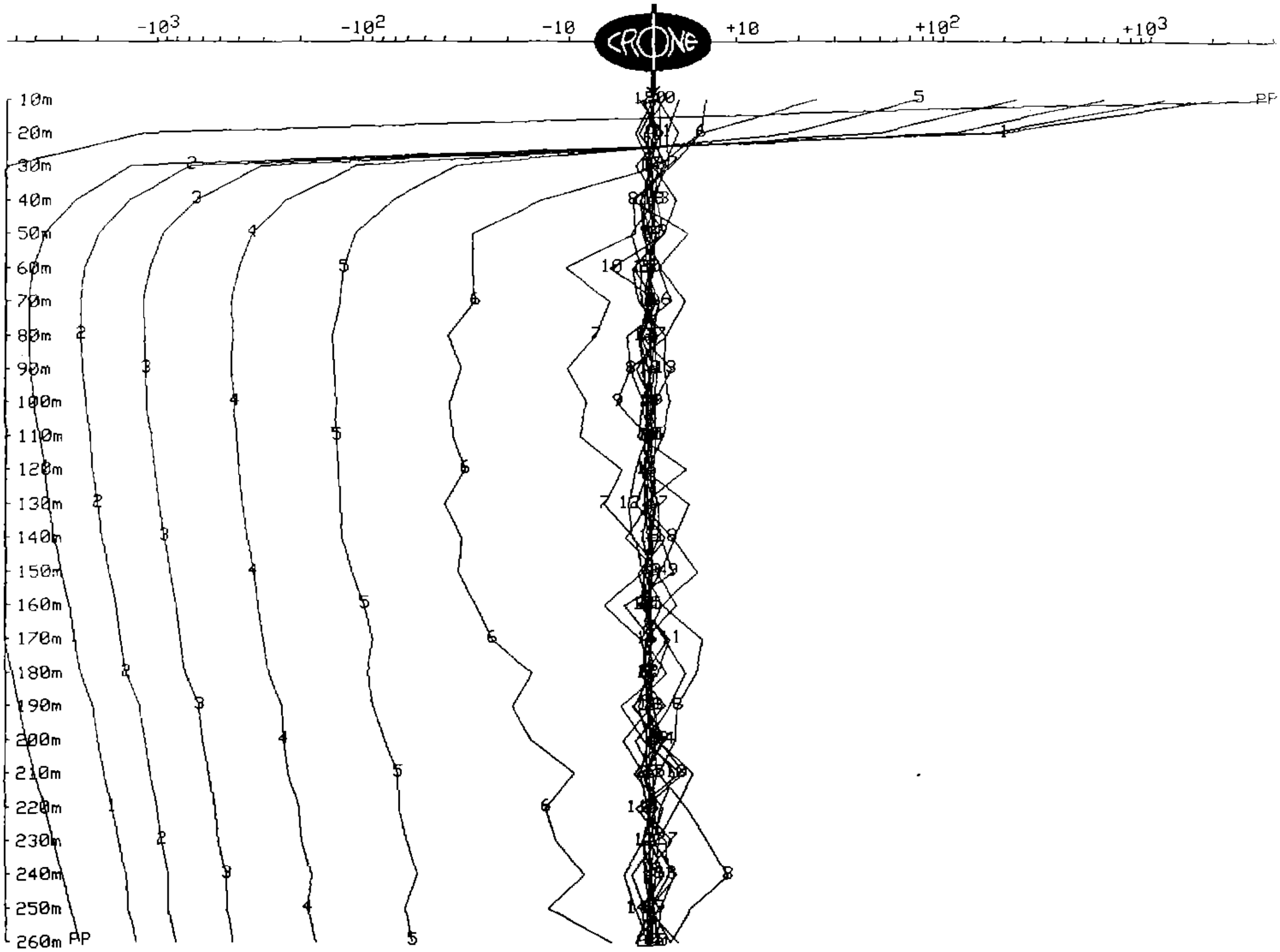
723146

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-006
Grid	: Garfield	Tx Loop	: #3
Date	: Nov 22, 1995	File name	: G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000



5 cm

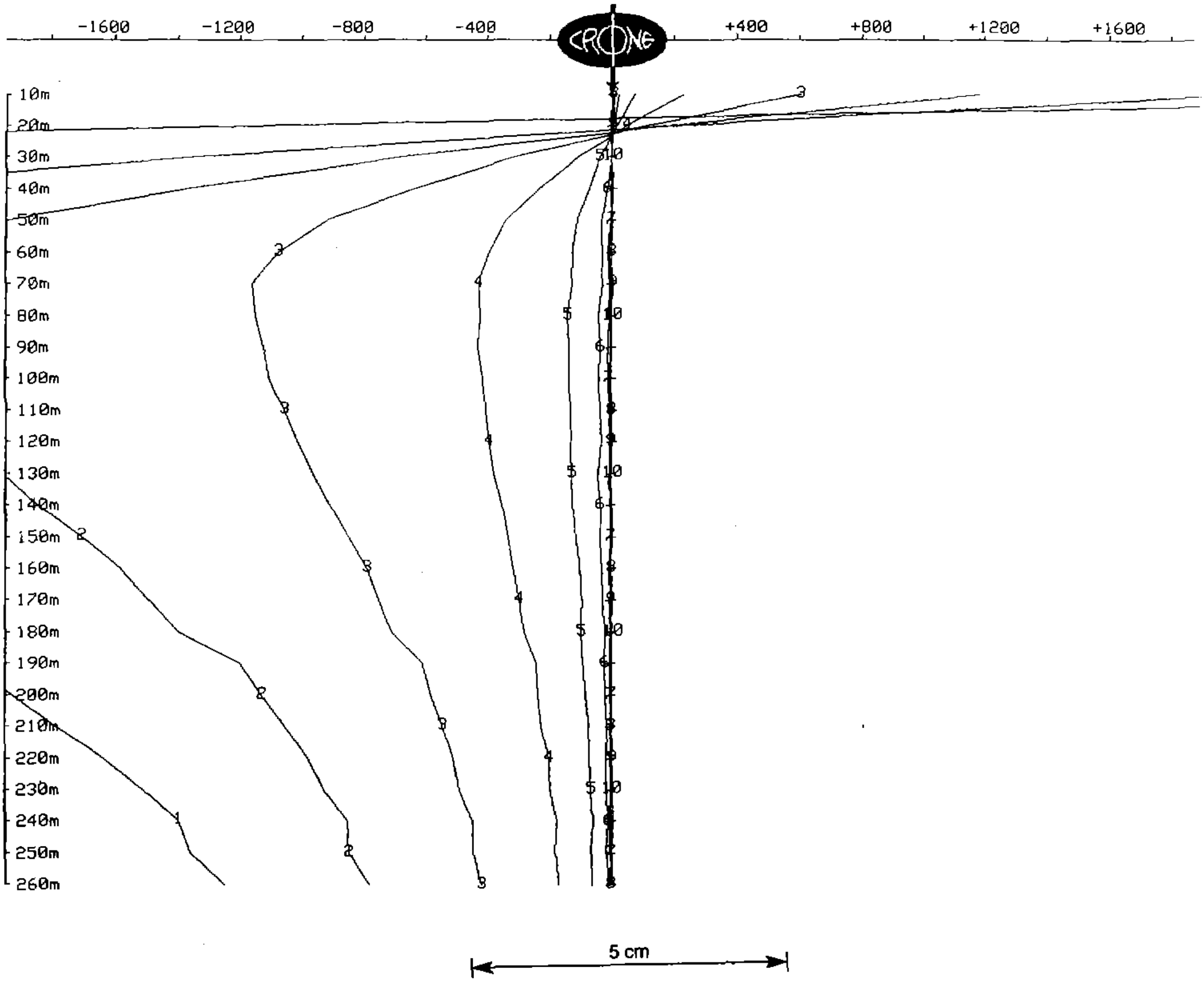
723147

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 22, 1995

Hole : GAR-006
Tx Loop : #3
File name : G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP
Scale: 1:2000
Unit Scale: 1cm = 200 nT/



723148

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

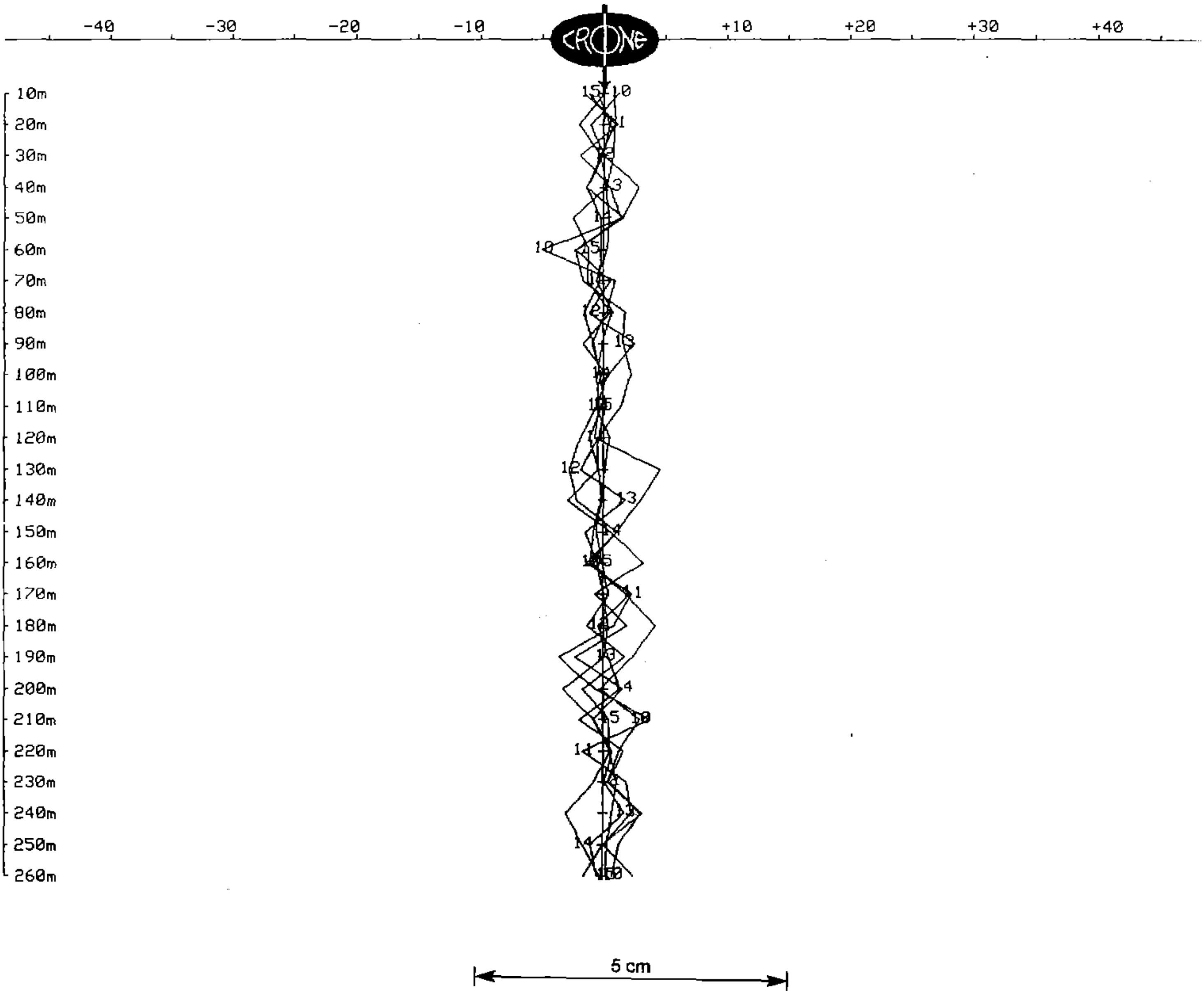
Client : RGC Exploration
Grid : Garfield
Date : Nov 22, 1995

Hole : GAR-006
Tx Loop : #3
File name : G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 5 nT/s



723149

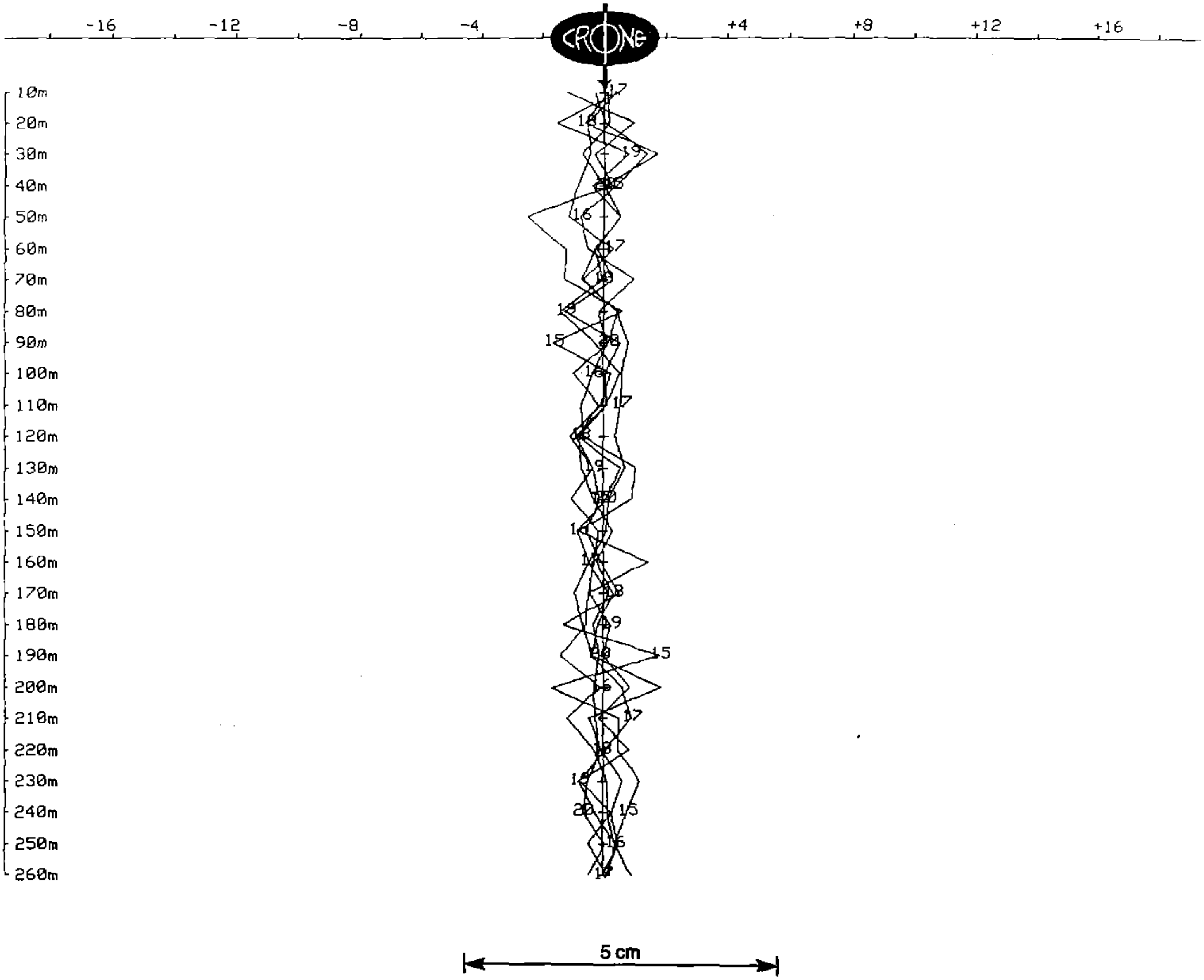
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-006
Grid	: Garfield	Tx Loop	: #3
Date	: Nov 22, 1995	File name	: G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 2 nT/s



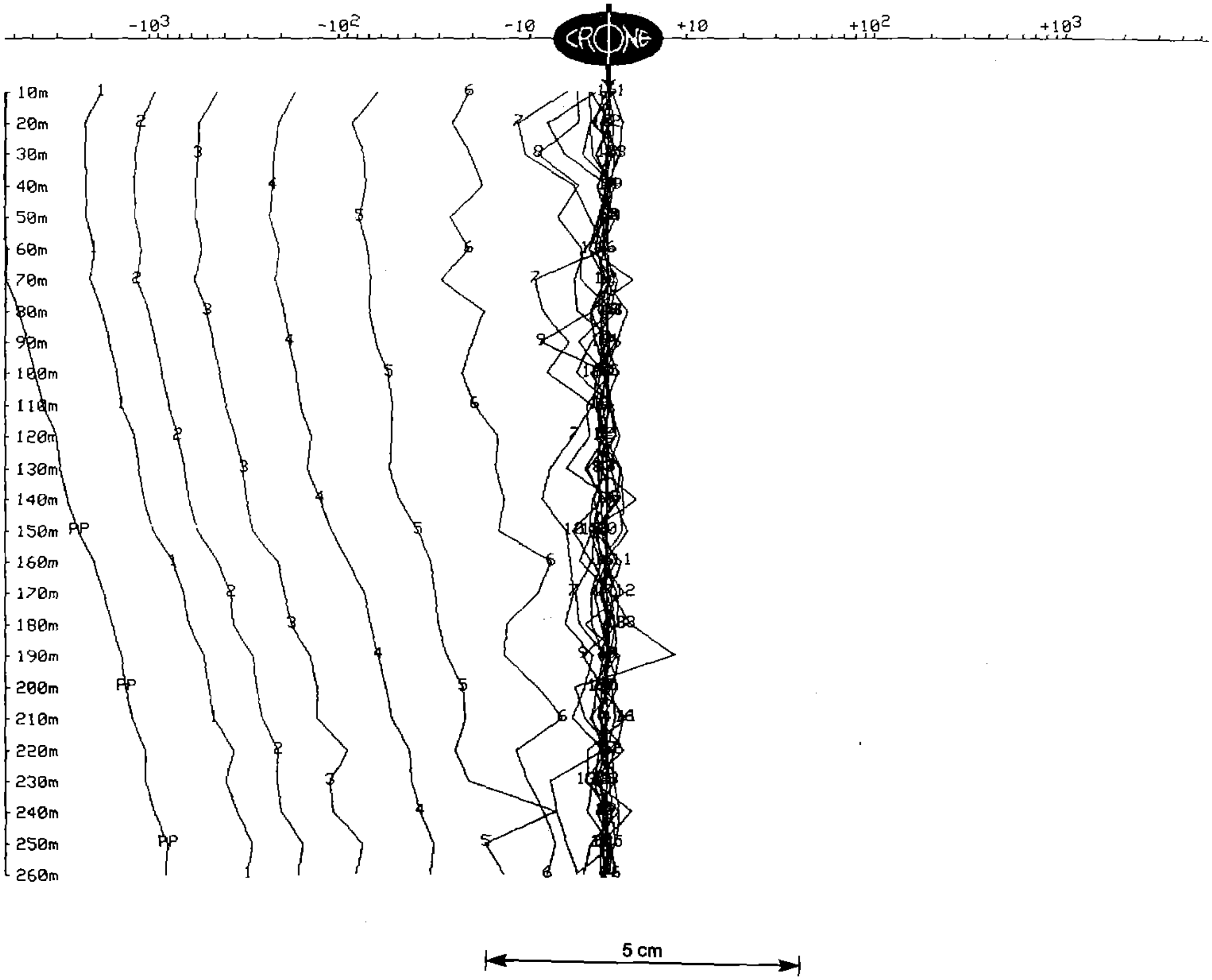
723150

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-006
Grid	: Garfield	Tx Loop	: #3
Date	: Nov 22, 1995	File name	: G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000

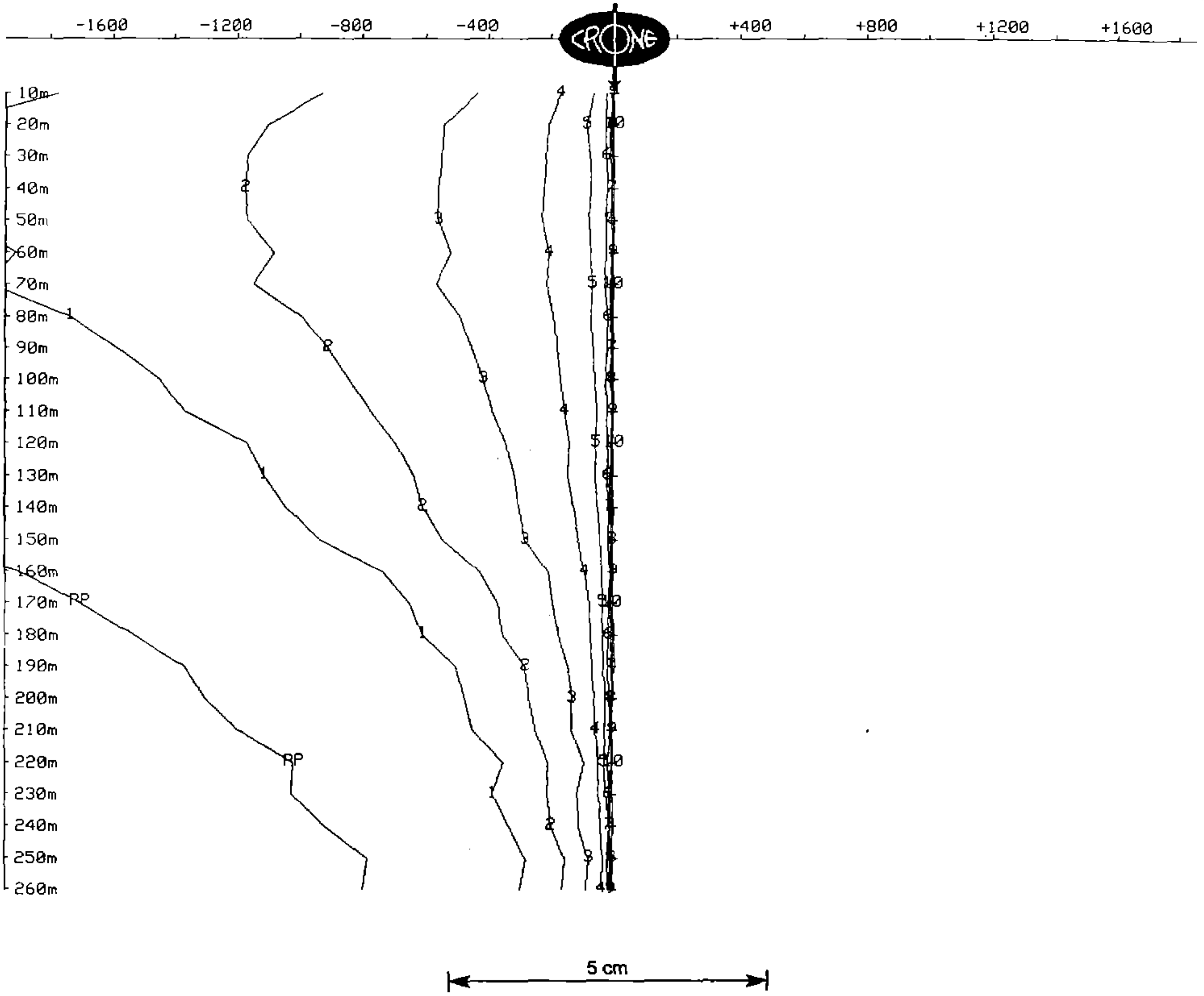


OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-006
Grid	: Garfield	Tx Loop	: #3
Date	: Nov 22, 1995	File name	: G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000
Unit Scale: 1cm = 200 nT

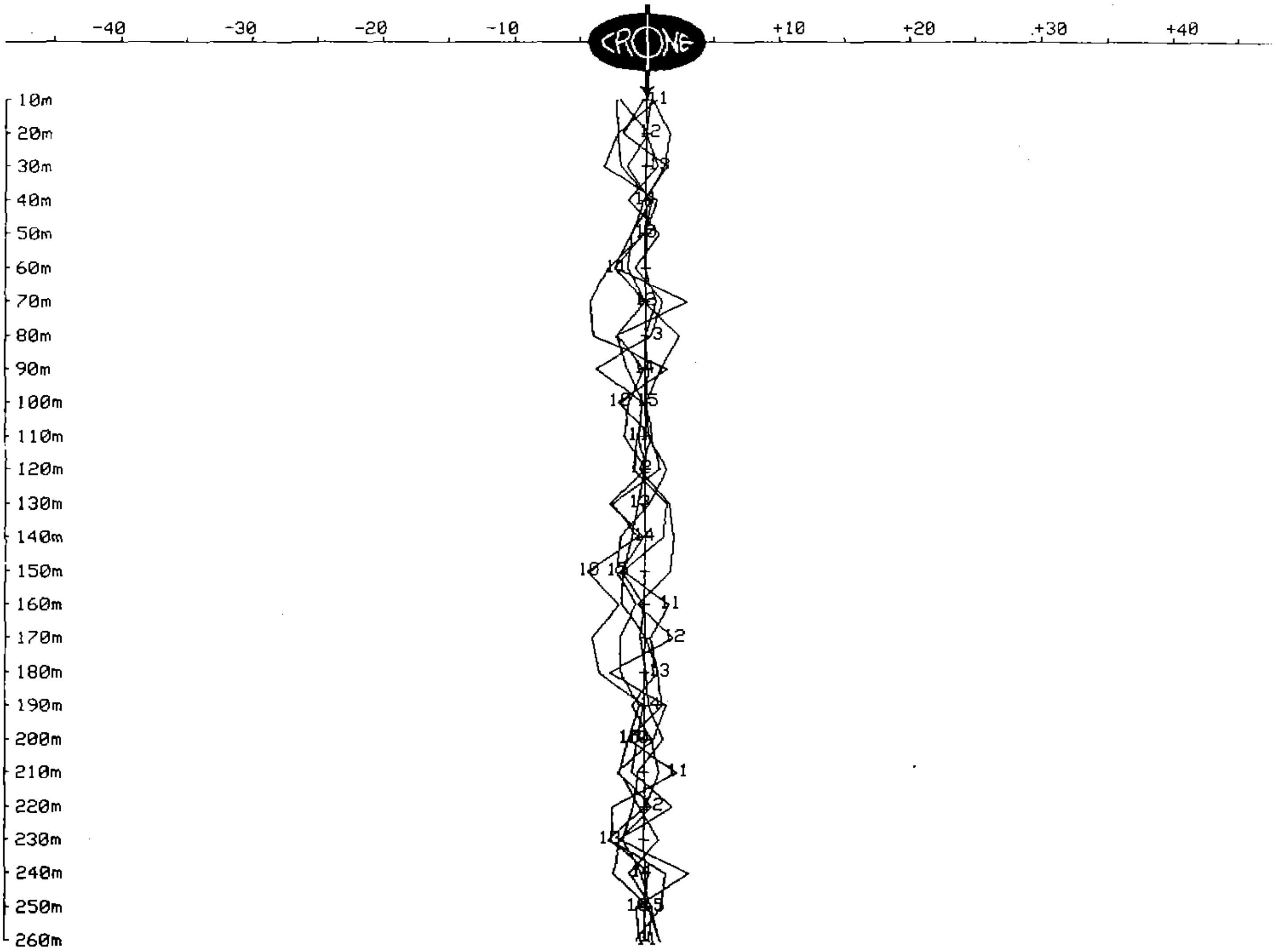


723152

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 22, 1995
Hole : GAR-006
Tx Loop : #3
File name : G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels
Scale: 1:2000
Unit Scale: 1cm = 5 nT/



5 cm

723153

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

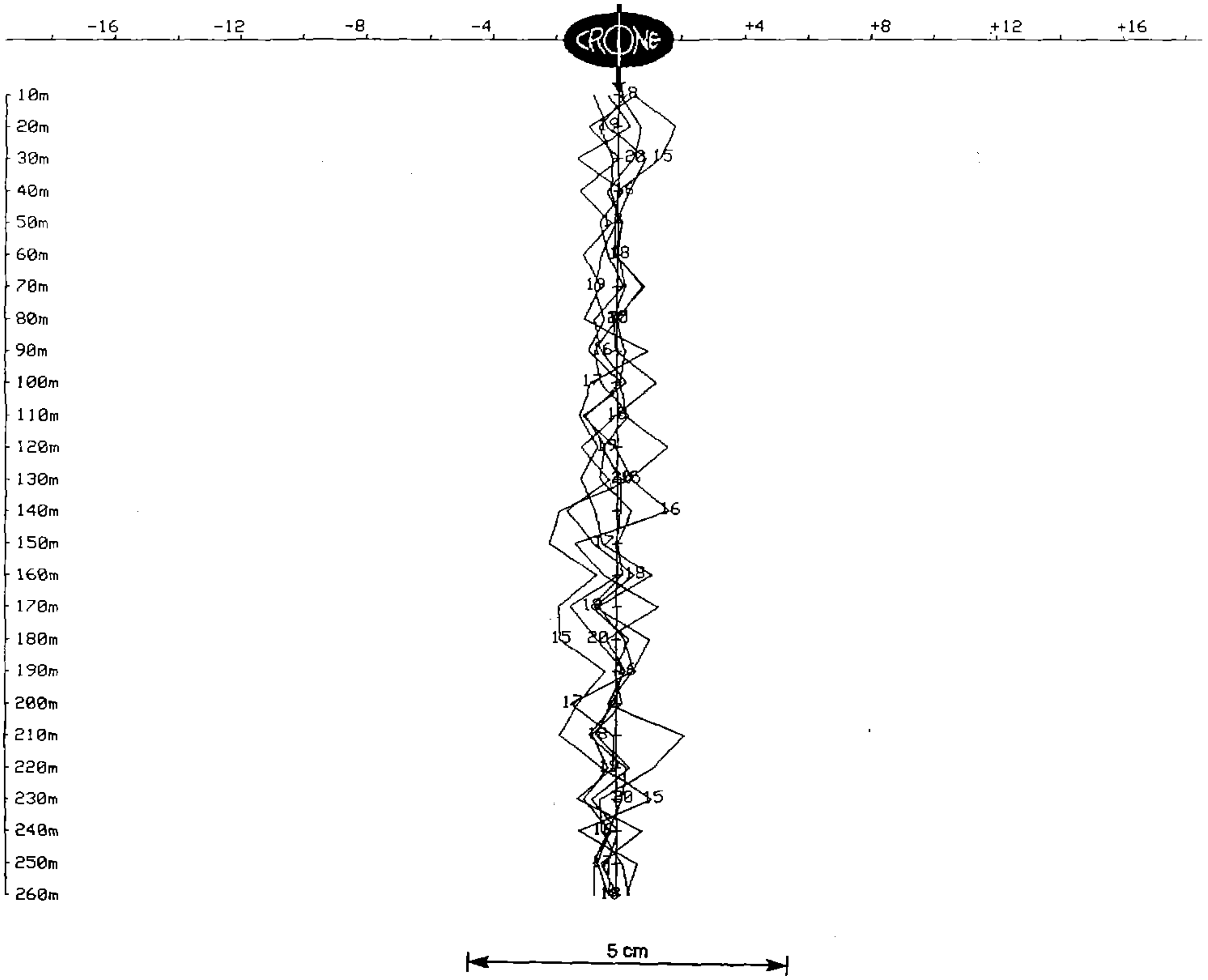
Client : RGC Exploration
Grid : Garfield
Date : Nov 22, 1995

Hole : GAR-006
Tx Loop : #3
File name : G6XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 2 nT



723154

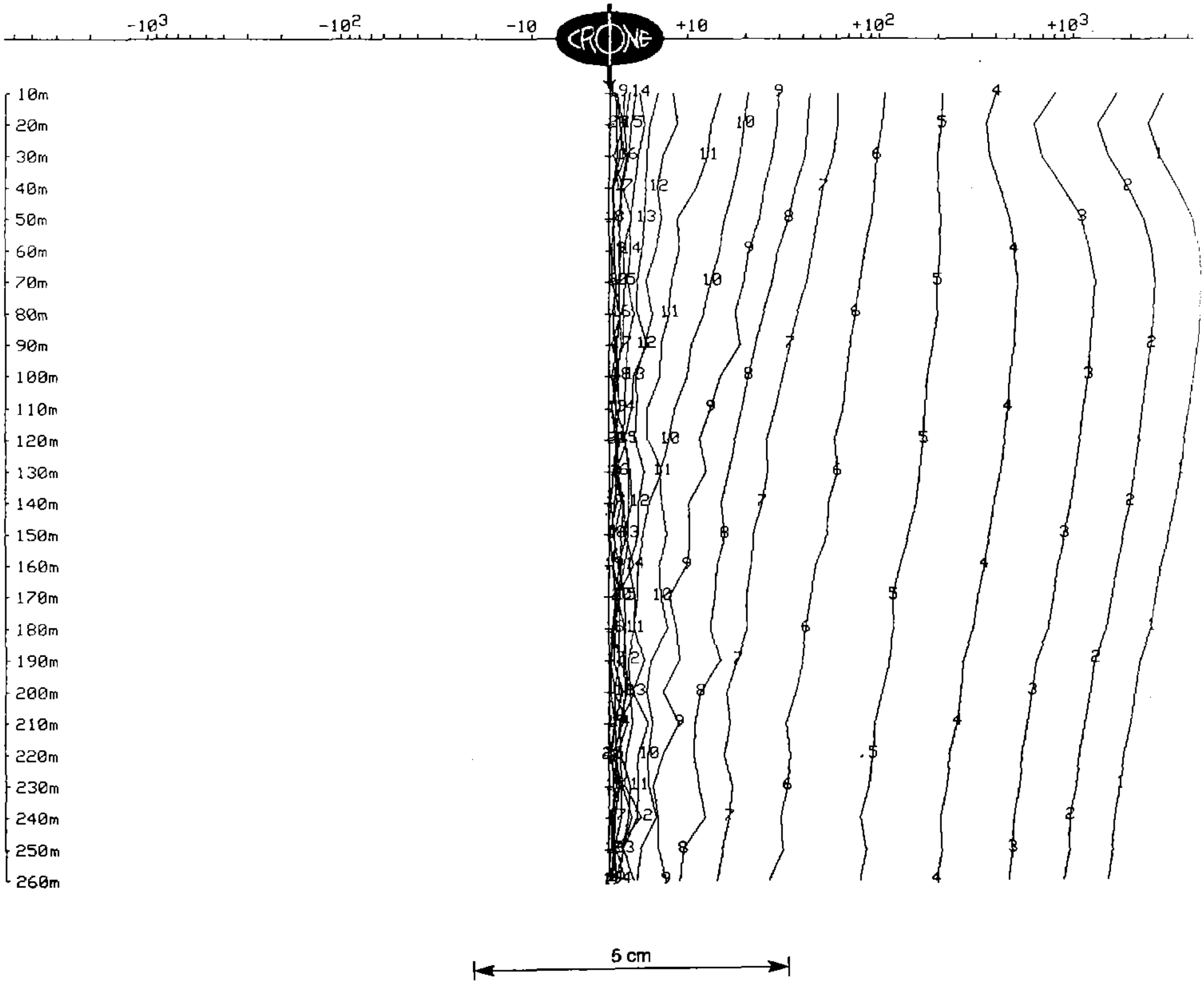
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

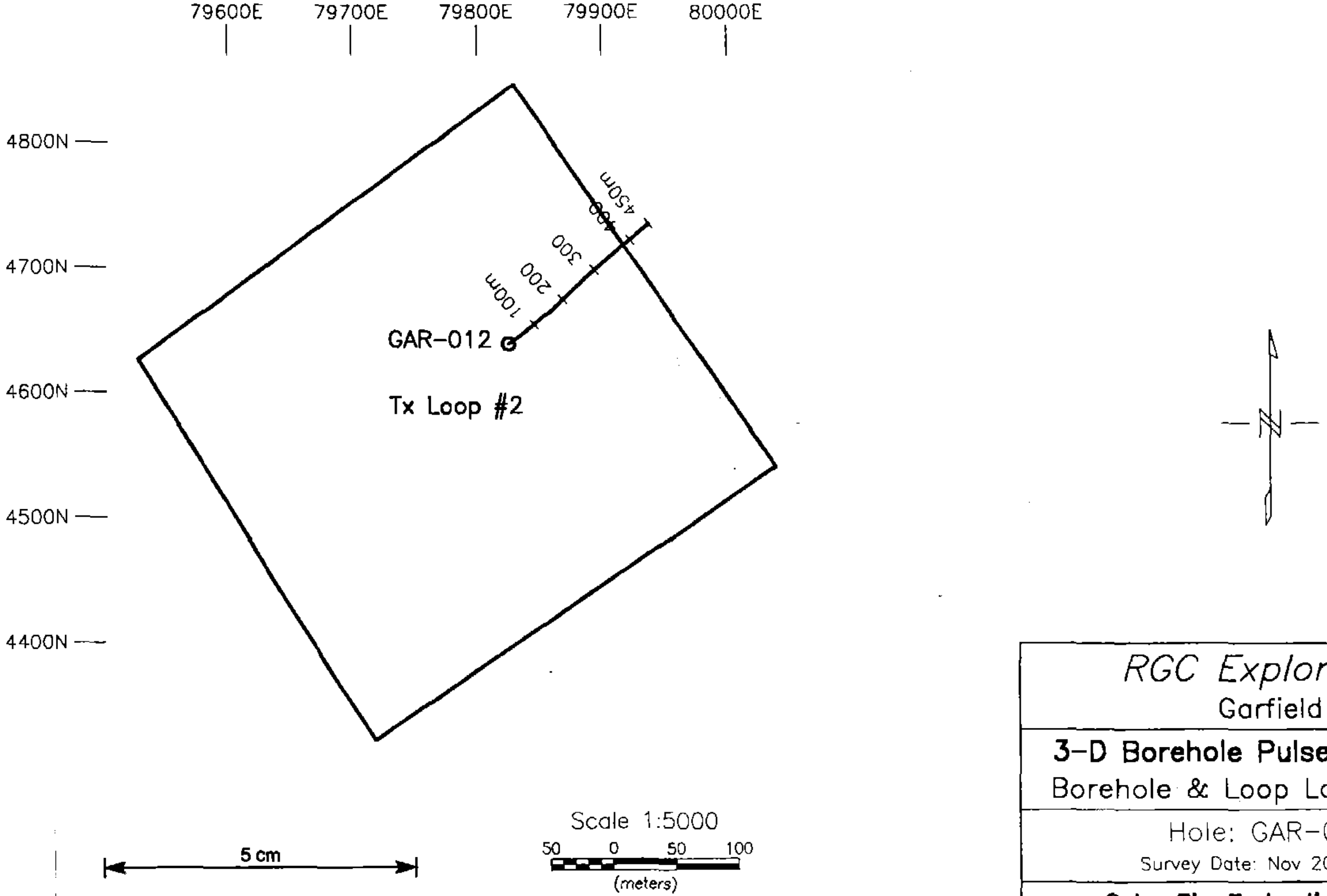
Client : RGC Exploration
Grid : Garfield
Date : Nov 22, 1995

Hole : GAR-006
Tx Loop : #3
File name : G6XYZ.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 20 channels

Scale: 1:2000



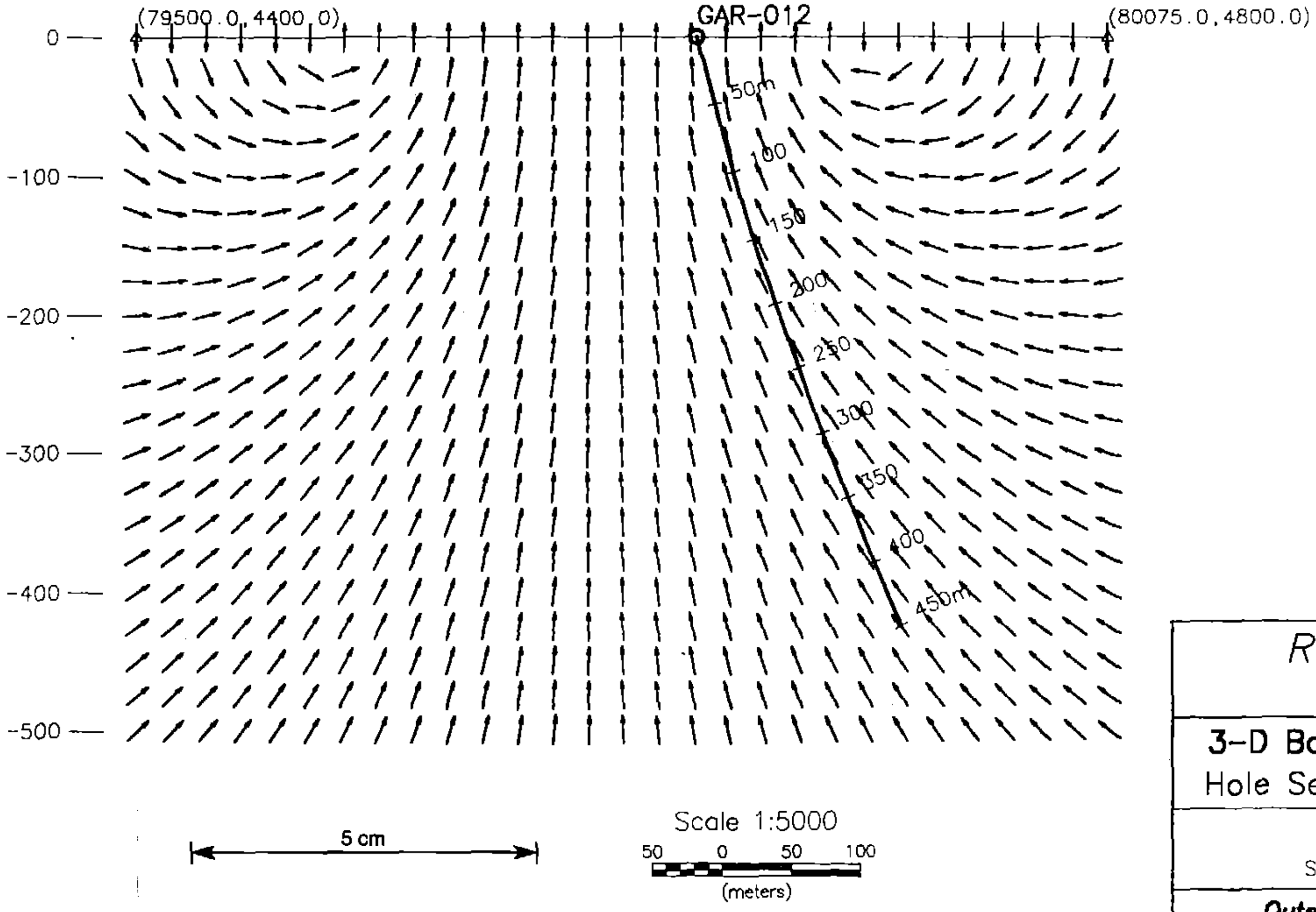


RGC Exploration
Garfield

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

Hole: GAR-012
Survey Date: Nov 20, 1995

Outer-Rim Exploration Services



RGC Exploration
Garfield

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

Hole: GAR-012
Survey Date: Nov 20, 1995

Outer-Rim Exploration Services

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Garfield
Date : Nov 20, 1995
Time Base : 20.00 ms
Ramp Time : 1.00 ms
Channels: 20
Sync Type : Cable
Loop Size : 400m X 400m
Current : 10 Amps

Hole : GAR-012
Tx Loop : #2
File name : G12Z.PEM
Readings: 49
Stn Units : Metric
Coil Area : 6500 sq m
Polarity : +
Receiver : Digital #108
Operator : Kent Honner

Loop Coordinates (X,Y,Z)
1. 79720m, 4320m, 0m
2. 80040m, 4540m, 0m
3. 79830m, 4845m, 0m
4. 79530m, 4625m, 0m

Hole Coordinates (X,Y,Z) or (Azimuth,Dip,Length)
1. 79827m, 4637m, 0m
2. 56deg, 75.8deg, 15m
3. 54deg, 75.4deg, 30m
4. 52deg, 75deg, 30m
5. 50deg, 74deg, 30m
6. 49deg, 73deg, 30m
7. 48deg, 72.1deg, 30m
8. 47deg, 71.1deg, 30m
9. 47deg, 70deg, 90m
10. 47deg, 68.8deg, 30m
11. 50deg, 68.3deg, 60m
12. 51deg, 67.8deg, 30m
13. 49deg, 67.1deg, 30m
14. 51deg, 66.2deg, 15m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	565
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

General Comments

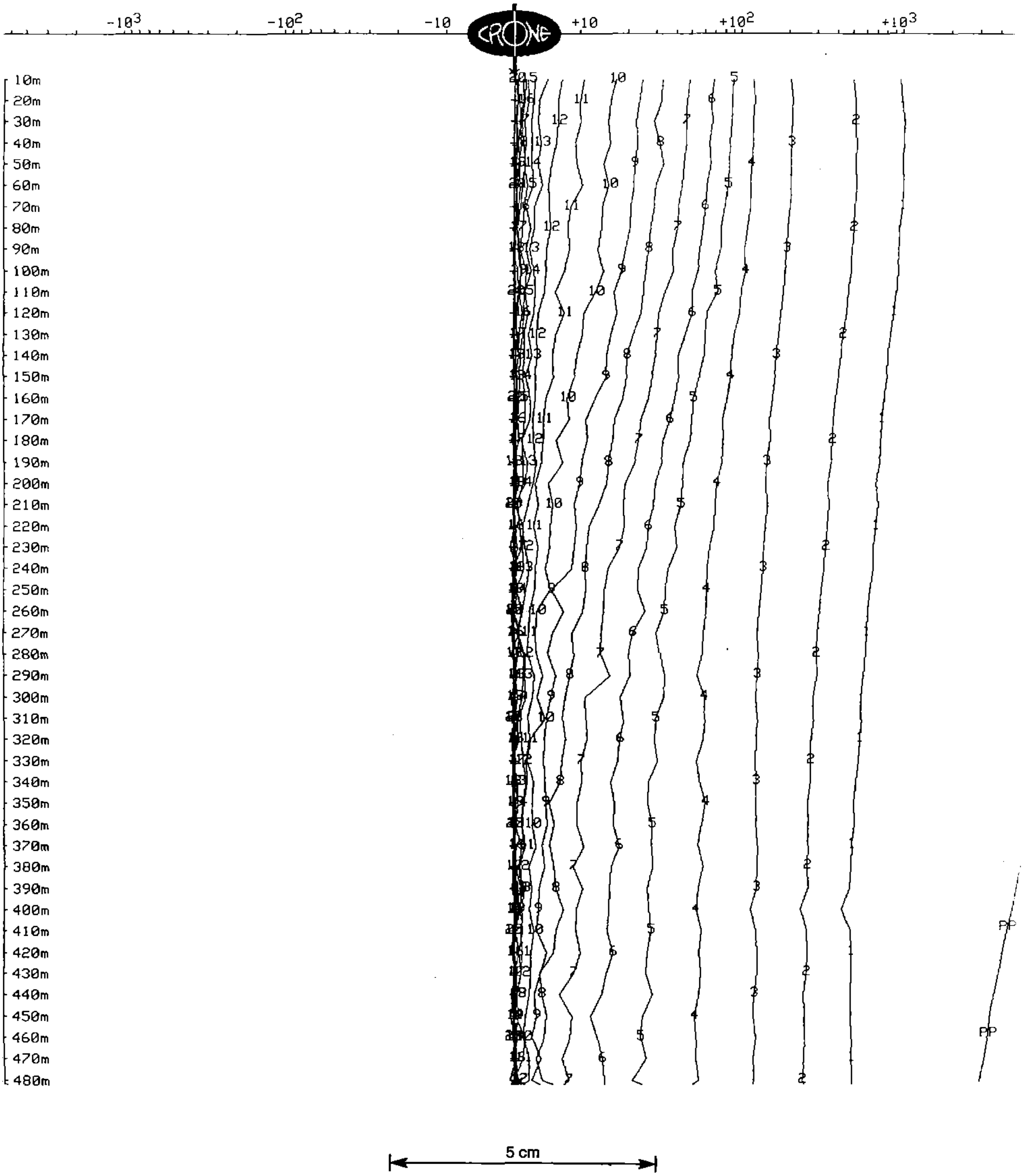
Very steep terrain, loop geometry affected.
Camp generator inside loop.

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 20, 1995	File name	: G12Z.PEM

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

Scale: 1:2500



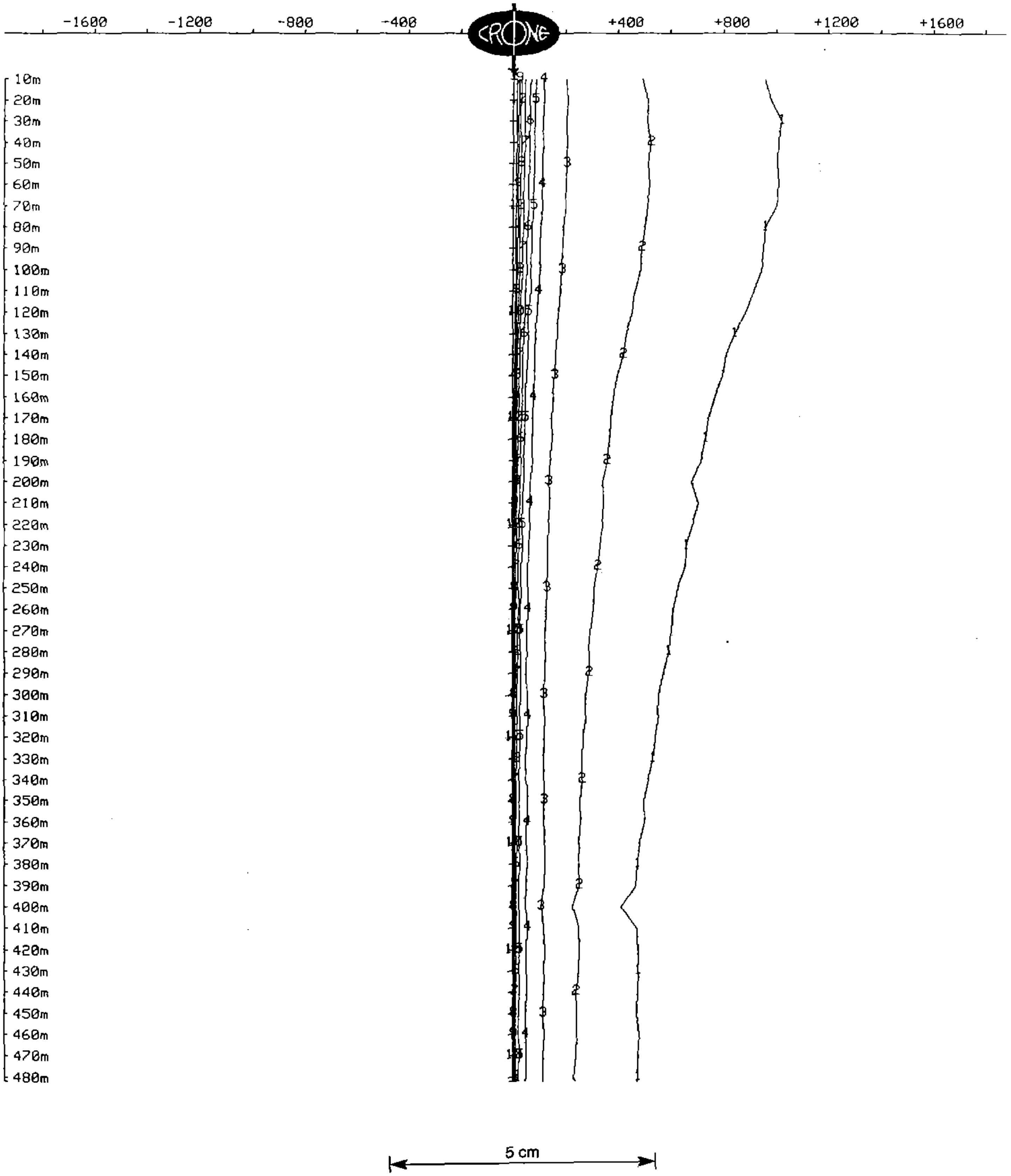
723159

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	:	RGC Exploration	Hole	:	GAR-012
Grid	:	Garfield	Tx Loop	:	#2
Date	:	Nov 20, 1995	File name	:	G12Z.PEM

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

Scale: 1:2500 Unit Scale: 1cm = 200 nT/



723160

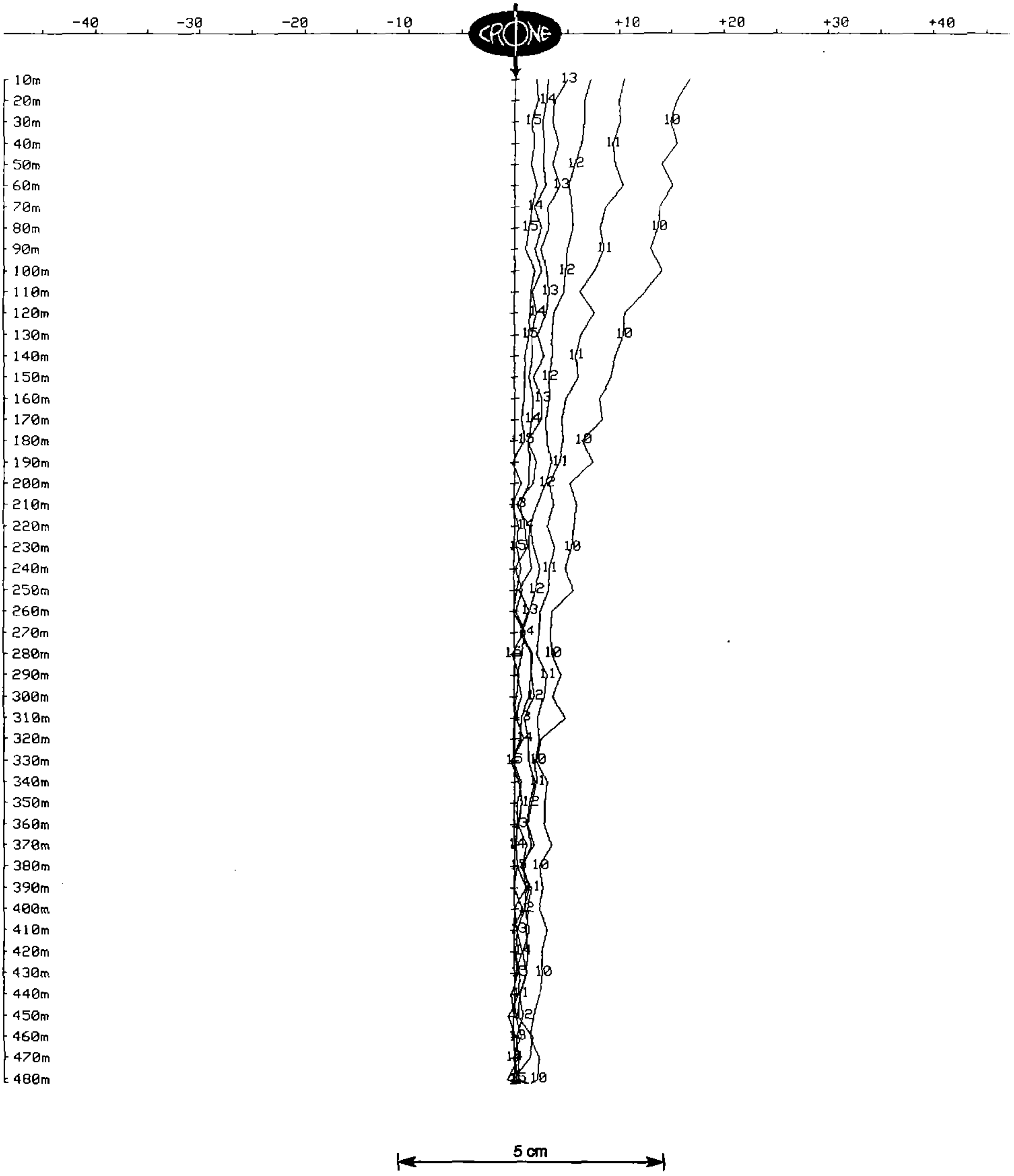
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 20, 1995	File name	: G12Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2500

Unit Scale: 1cm = 5 nT/



723161

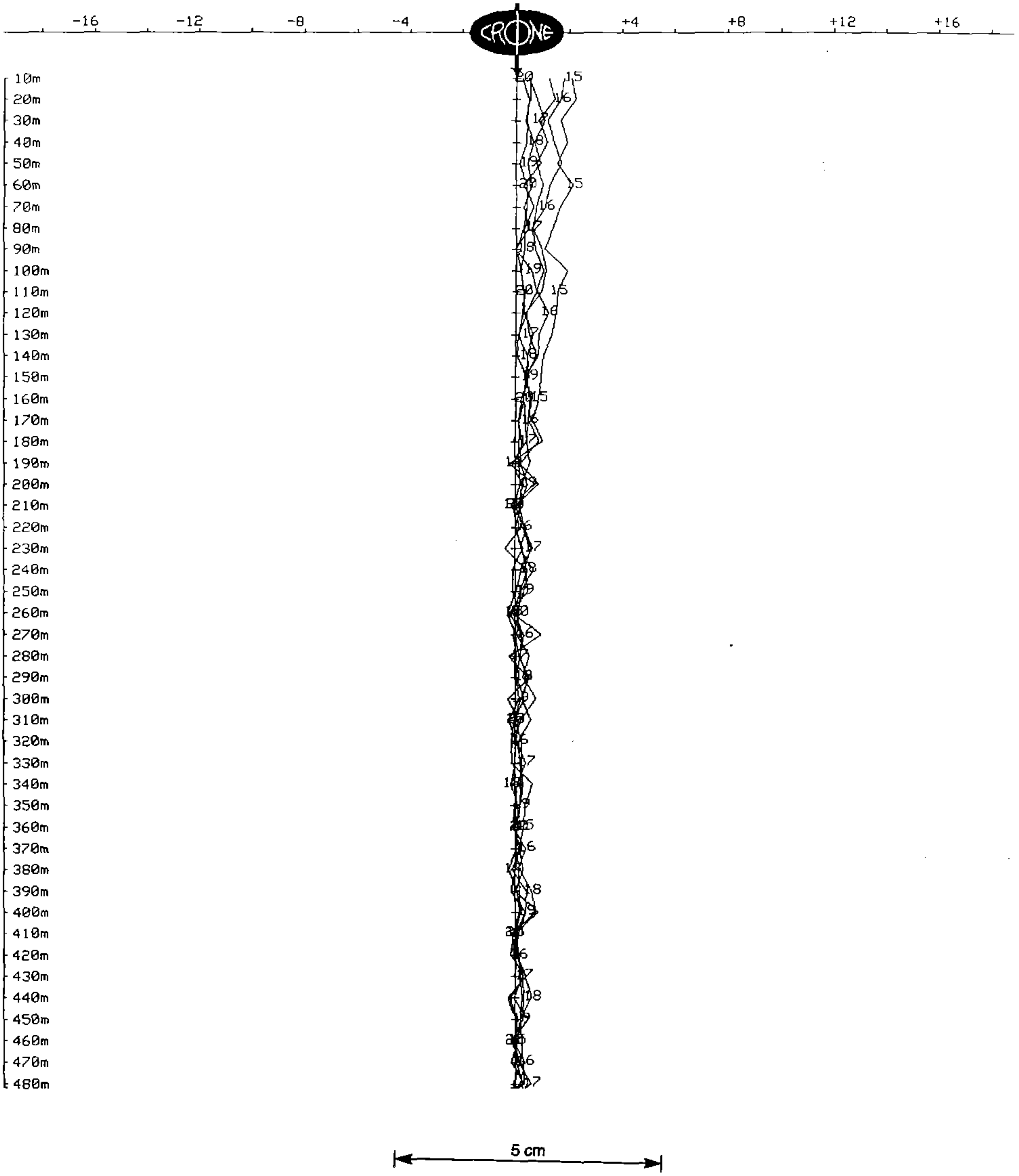
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 20, 1995	File name	: G12Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2500

Unit Scale: 1cm = 2 nT/



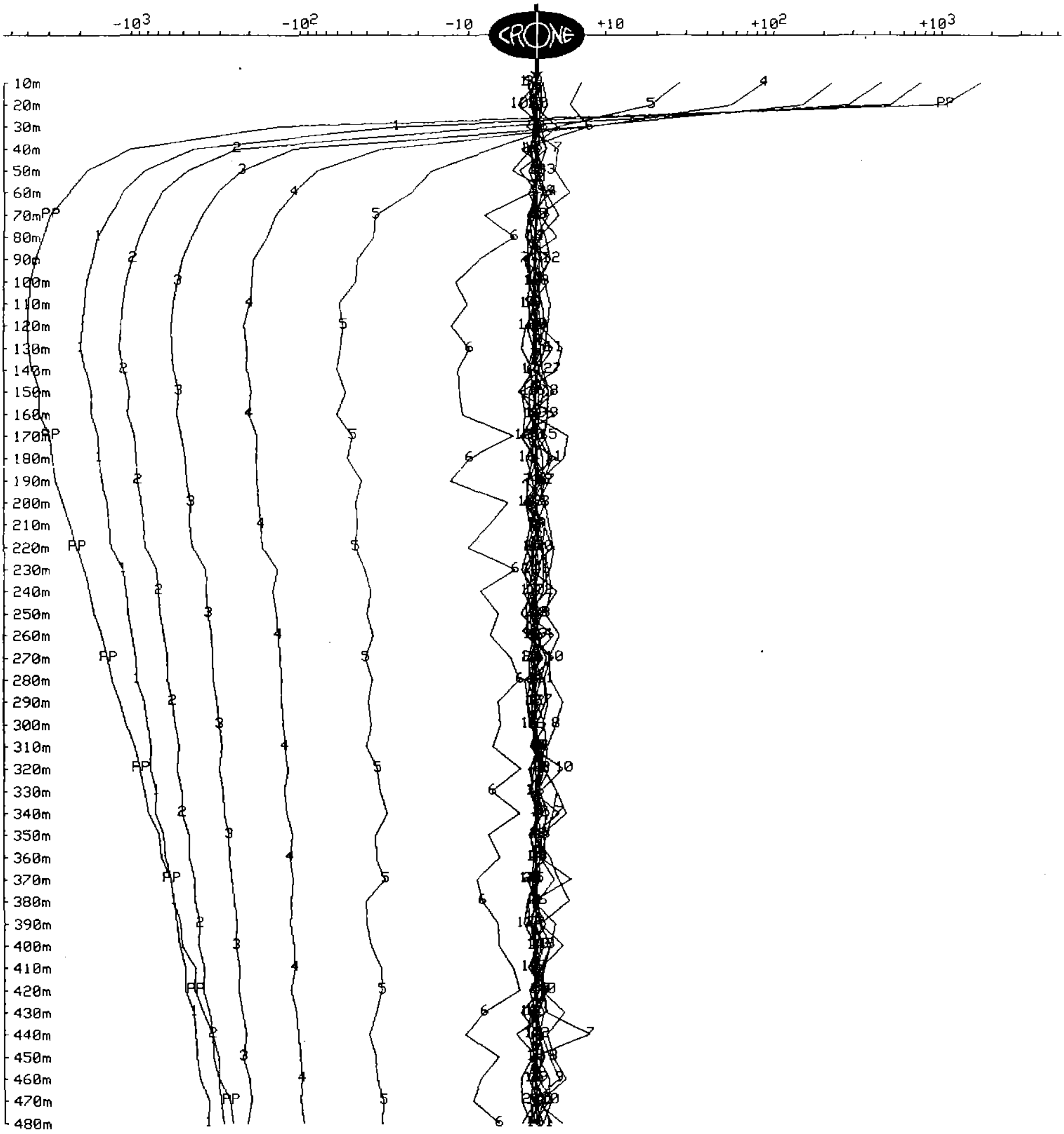
723162

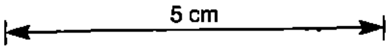
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 21, 1995	File name	: G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2500





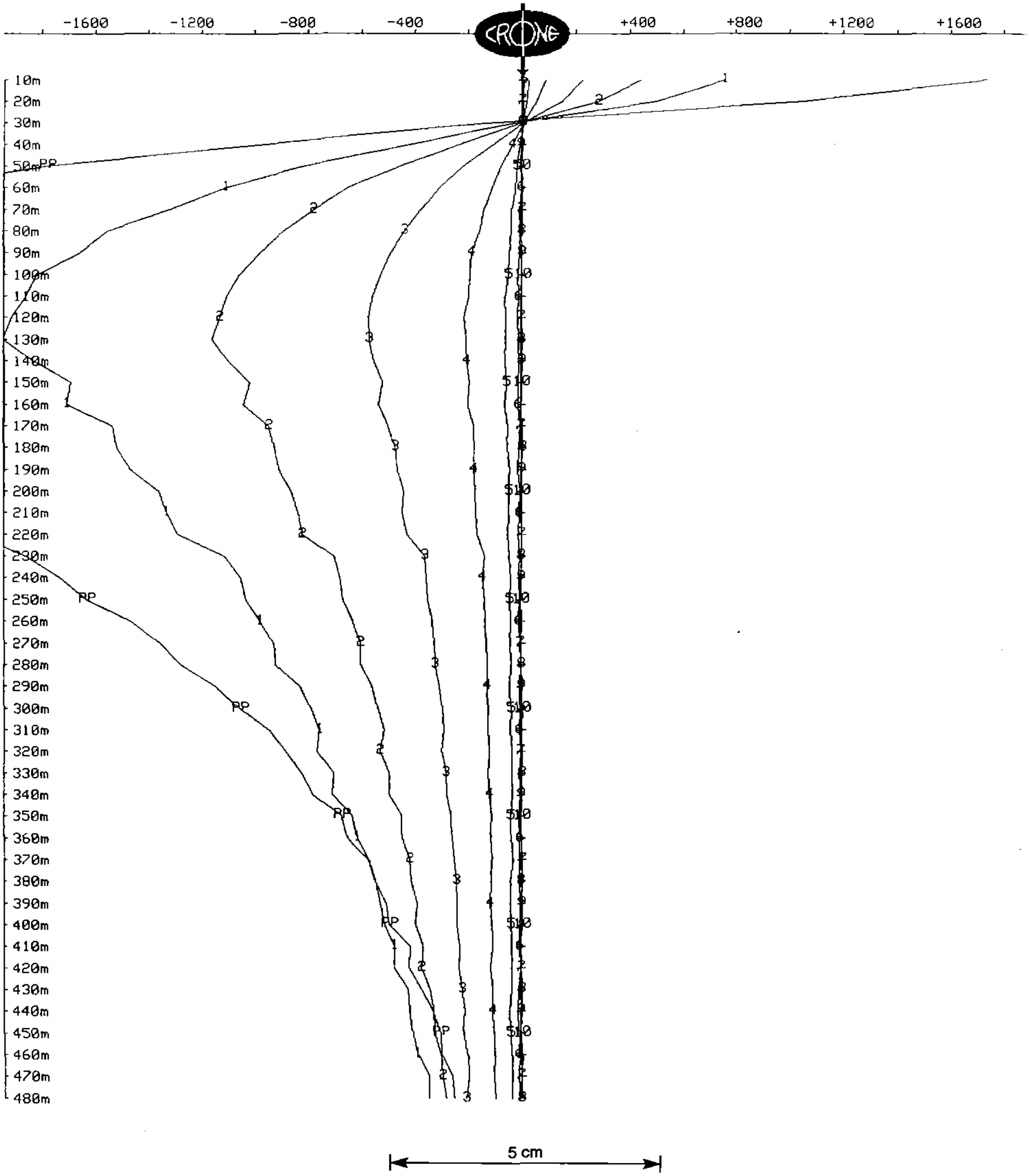
723163

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	:	RGC Exploration	Hole	:	GAR-012
Grid	:	Garfield	Tx Loop	:	#2
Date	:	Nov 21, 1995	File name	:	G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2500 Unit Scale: 1cm = 200 nT/



723164

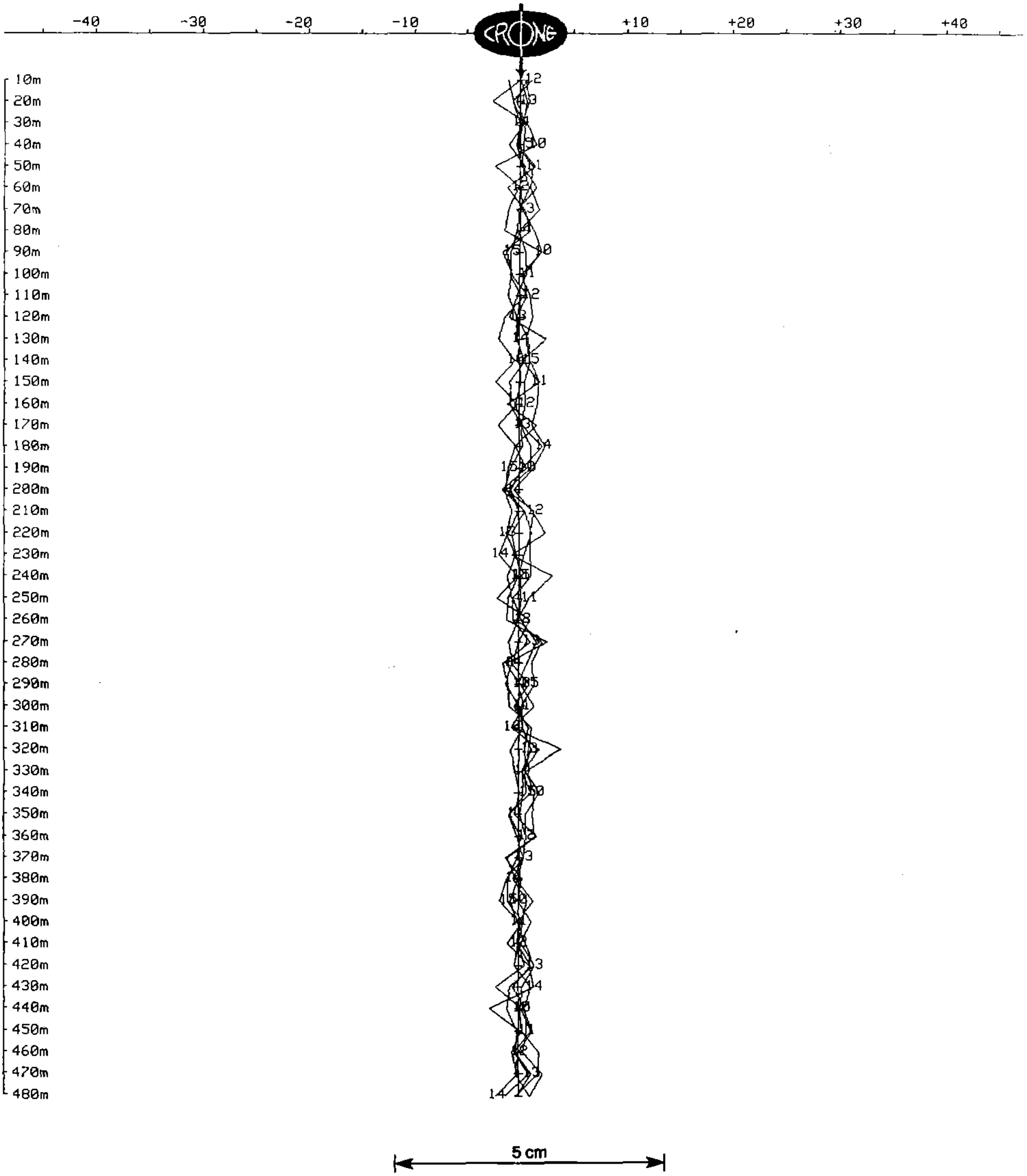
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 21, 1995	File name	: G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2500

Unit Scale: 1cm = 5 nT/



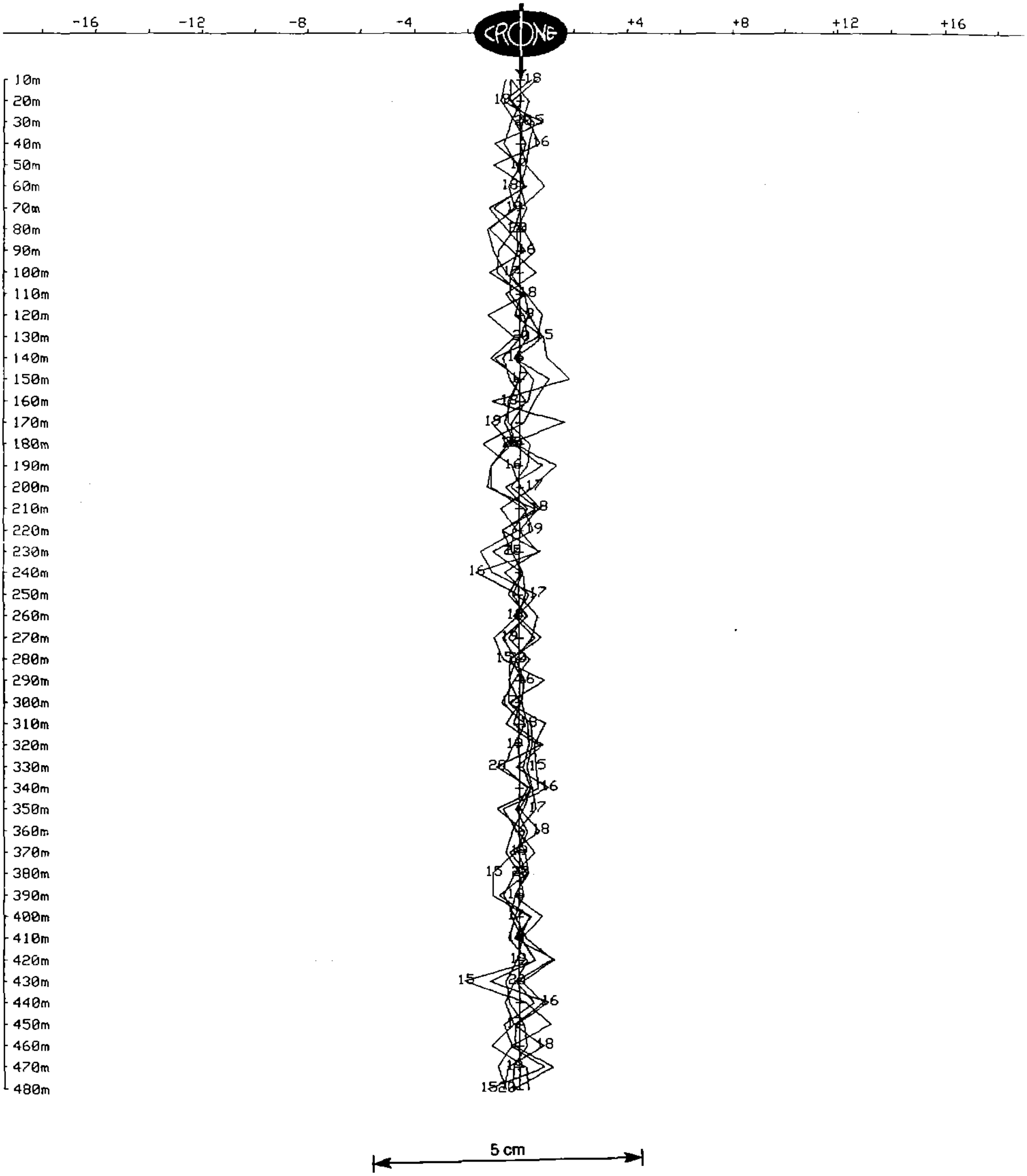
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 21, 1995	File name	: G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2500

Unit Scale: 1cm = 2 nT/

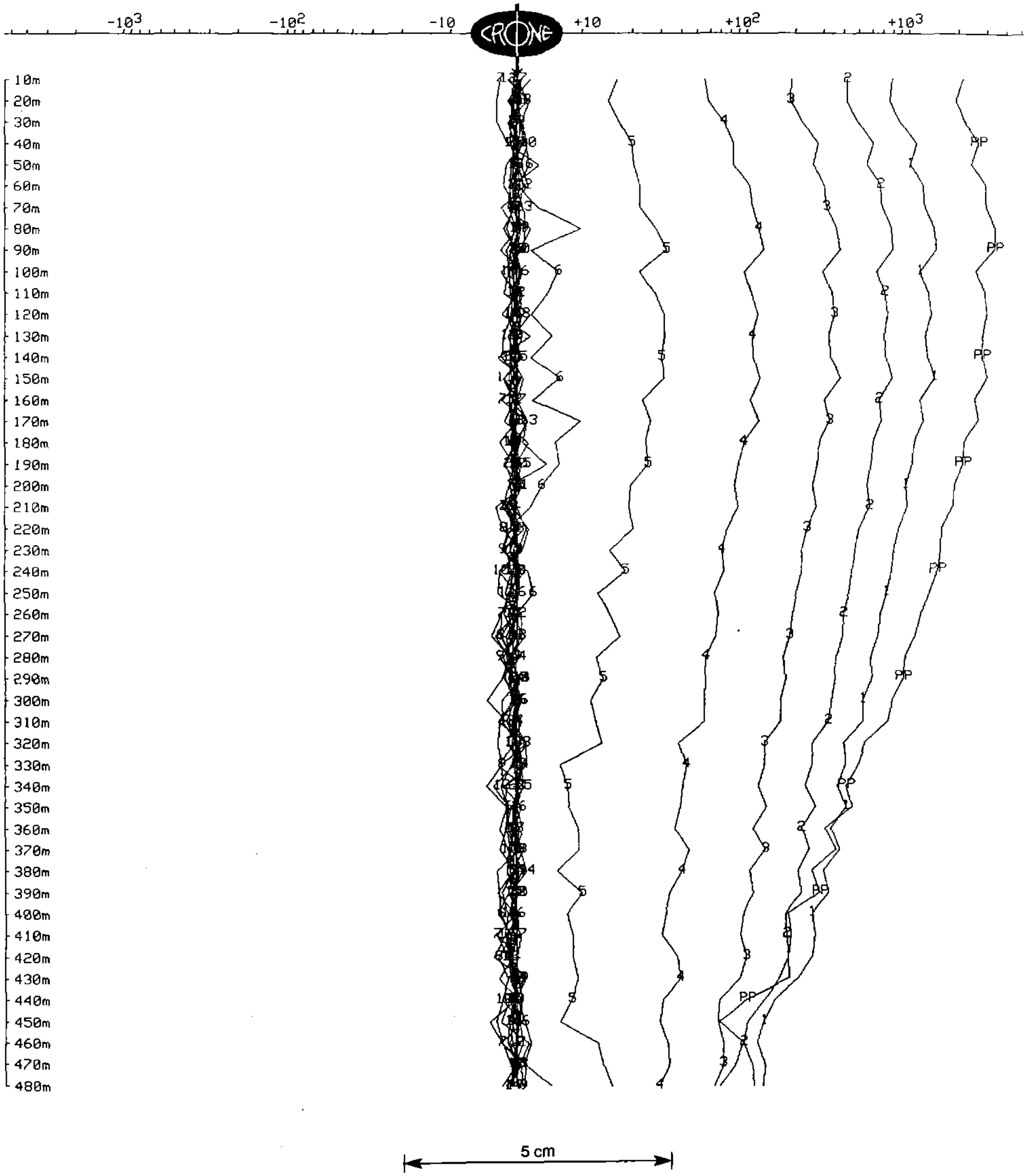


OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 21, 1995	File name	: G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2500

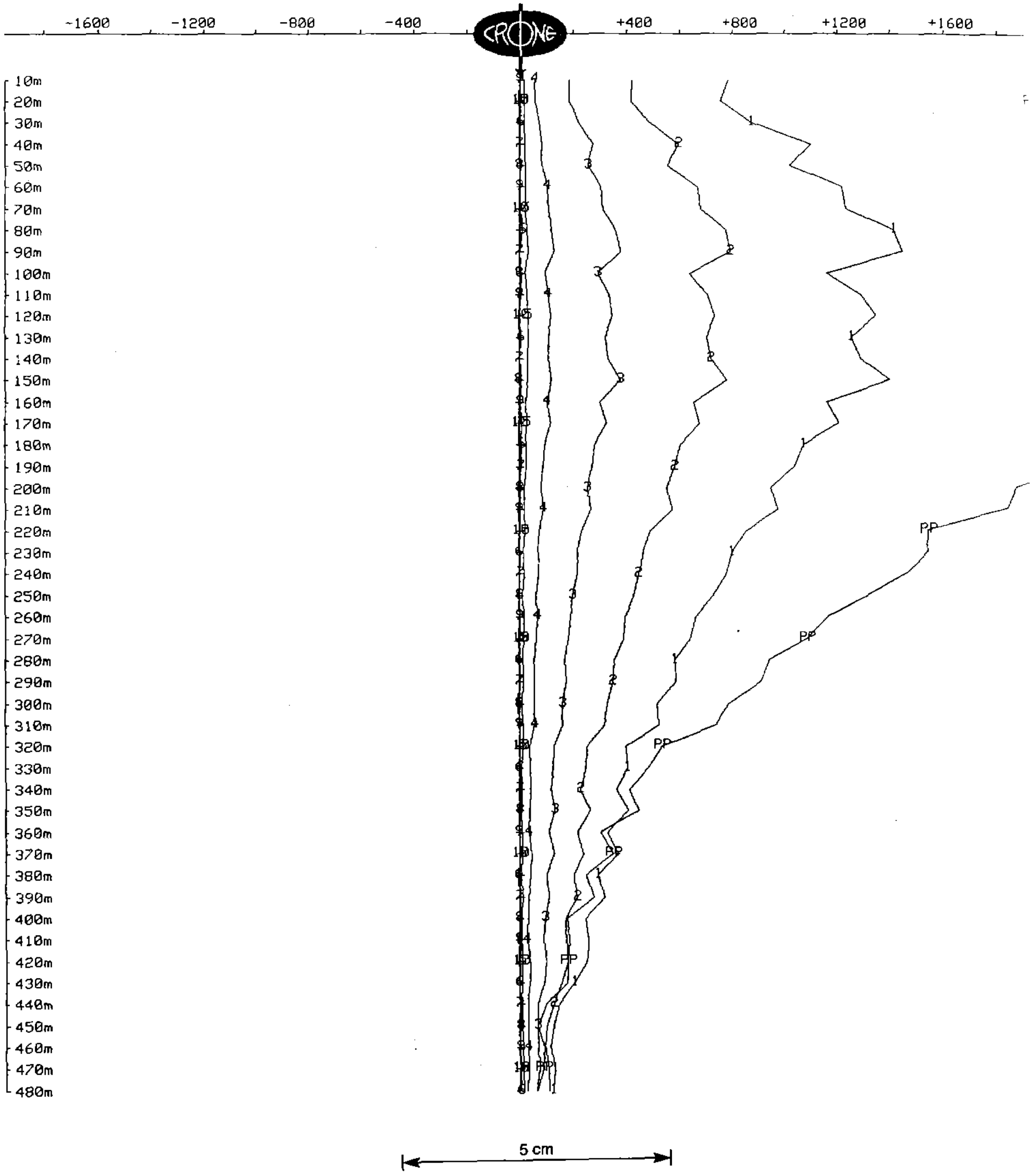


723167

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 21, 1995	File name	: G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP
Scale: 1:2500 Unit Scale: 1cm = 200 nT/

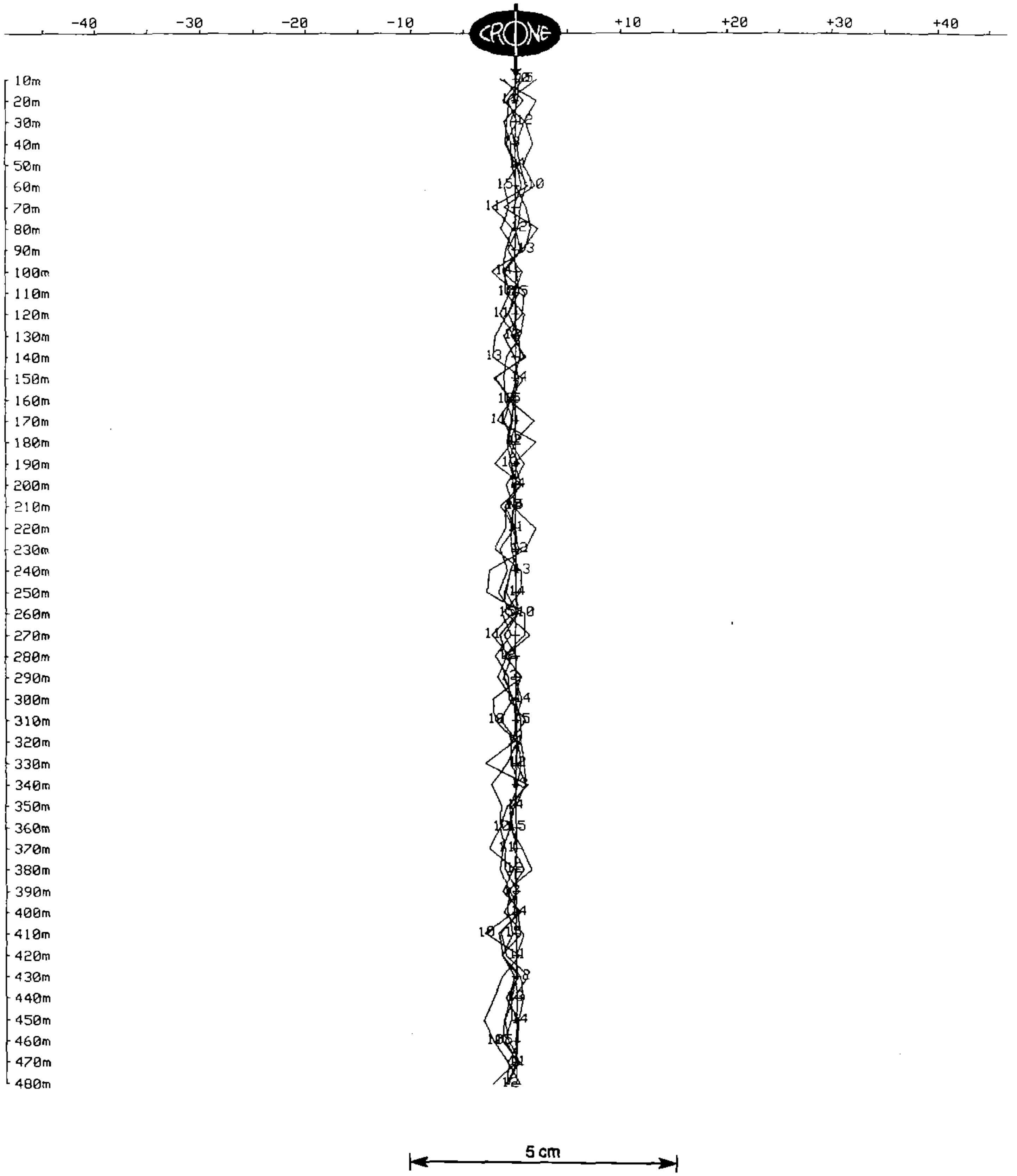


OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: GAR-012
Grid	: Garfield	Tx Loop	: #2
Date	: Nov 21, 1995	File name	: G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2500 Unit Scale: 1cm = 5 nT/



723169

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

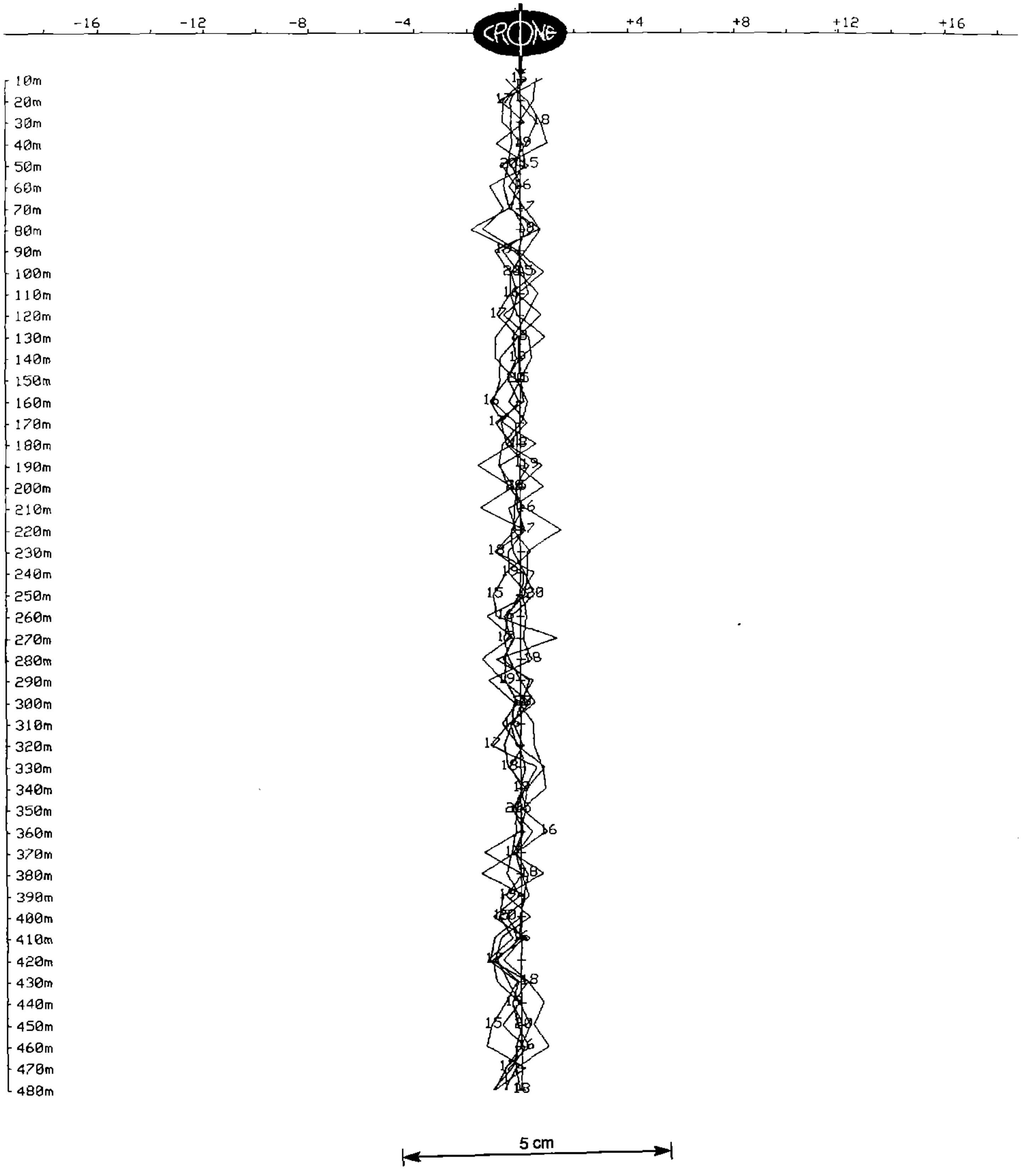
Client : RGC Exploration
Grid : Garfield
Date : Nov 21, 1995

Hole : GAR-012
Tx Loop : #2
File name : G12XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2500

Unit Scale: 1cm = 2 nT/



723170

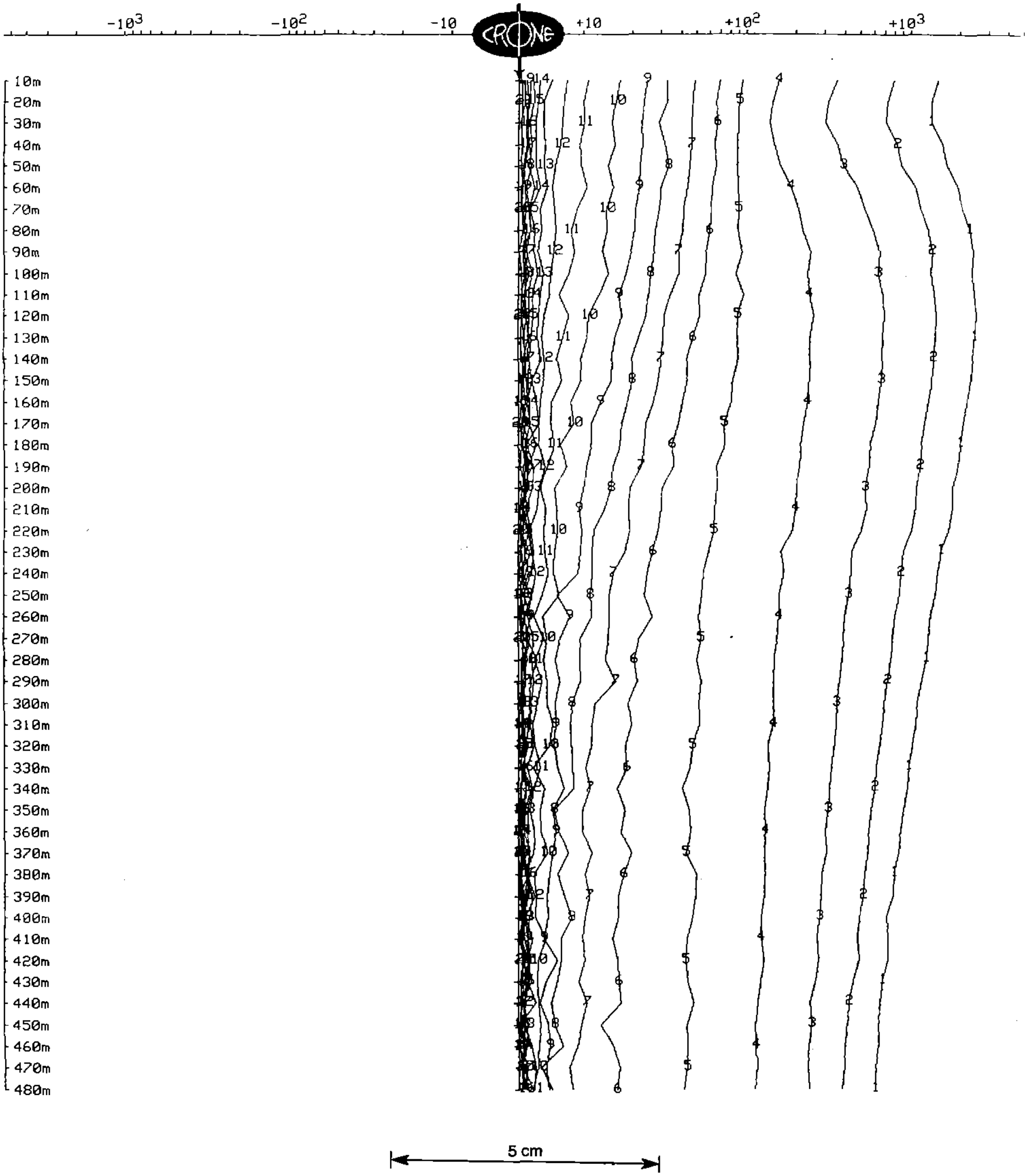
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : **Garfield**
Date : Nov 21, 1995

Hole : GAR-012
Tx Loop : #2
File name : G12XYZ.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 20 channels

Scale: 1:2500



APPENDIX 8

DHEM Survey at Penghana

723172

RGC EXPLORATION

ACN 001 426 946

DOWNHOLE TEM SURVEYS

BASIN LAKE, PENGHANA

A REPORT ON

DOWNHOLE THREE COMPONENT TEM SURVEYS

CONDUCTED AT

BASIN LAKE AND PENGAHANA

Vol 1 of 1

HELD BY:

MANAGER & OPERATOR:

AUTHOR(s): Sam Roberts

5 December, 1995

PROSPECTS: Basin Lake, Tyndall Range, Penghana

MAP SHEETS:	**1:250,000:**	**1:100,000:**
GEOGRAPHIC COORDS	**Min East:** **Min North:**	**Max East:** **Max North:**

COMMODITY(s):

KEY WORDS:

Distribution:

- o **RGC Exploration Information Centre Reference:**
- o **RGC Exploration Zeehan**
- o

Introduction

In October - November 1995 three component downhole transient electromagnetic (TEM) surveys were conducted at the Basin Lake and Penghana prospects. The prospects are located on the West coast of Tasmania. The Basin Lake prospect is located in the Tyndall range approximately fifteen kilometres north of Queenstown. The Penghana prospect is located approximately five kilometres north west of Queenstown.

The surveys were conducted by Outer-Rim Exploration Services using a Crone Pulse EM system. Each drill hole was surveyed with a Z component and XY component probes. This system allows accurate directional information to be determined for a target with the use of only one transmitter loop and as such is ideal for Tasmania where loop set-up costs are high.

The probes measure the X, Y and Z components of the EM signal.The Z (axial) component is in the direction of the drill hole. The X and Y components are corrected for the rotation of the probe so that they are both orthogonal to the drill hole. The rotation correction was performed using a orientation device.

The downhole TEM system has the capability to detect targets as far away as 200 metres from the drill hole and to depths of 2500 metres.

Four holes were surveyed at Basin Lake and one hole was surveyed at Penghana. Each hole was surveyed using a single transmitter loop. X, Y and Z components were recorded at 10 metre intervals and 5 metre intervals over specific areas of interest. The transmitter loop locations were designed to use topography to maximise the amplitude of the coupling of the primary signal, down-hole, to a dipping conductor.

Hole TYN008 at Basin Lake was found to be blocked at 30 metres depth and consequently was not surveyed.

Plots of all results at a variety of scales are provided.

Results

No anomalies of interest were detected. The data was affected by power line noise which expressed itself in the late time channels as random noise fluctuations.

Hole TYN009

Collar : 381153E 5356651N
Loop : 400m X 400m : 380900E - 381300E , 5355400N - 5355800N

The hole was surveyed to a depth of 470 metres. A 400 X 400 metre transmitter loop was used. Two power lines traverse the loop in a north-south direction.

No anomalies were detected.

Hole TYN010

Collar : 380810E 5351947N
Loop : 400m X 360m : 380500E - 380900E , 5351700N - 5352060N

The hole was surveyed to a depth of 215 metres. A 400 X 360 metre transmitter loop was used. The loop is adjacent to power lines.

No anomalies were detected.

Hole TYN011

Collar : 381001E 5353347N
Loop : 400m X 500m : 380700E - 381100E , 5353200N - 5353700N

The hole was surveyed to a depth of 488 metres. A 400 X 500 metre transmitter loop was used. Three power lines traverse the loop in a north-south direction.

An anomaly was detected between 45 and 105 metres. It has been interpreted as an in-hole response and is attributed to black pyritic siltstone occuring at that depth. No other anomalies of interest were detected.

Hole TYN012

Collar : 380917E 5353320N
Loop : 400m X 400m : 380600E - 381000E , 5352060N - 5352460N

The hole was surveyed to a depth of 360 metres. A 400 X 400 metre transmitter loop was used. Three power lines traverse the loop in a north-south direction.

No anomalies were detected.

Hole PEN001

Collar : 379303E 5344222N
Loop : 400m X 400m : 379200E - 379600E , 5344000N - 5344400N

The hole was surveyed to a depth of 269 metres. A 400 X 400 metre transmitter loop was used. Four power lines traverse the loop in a east-west direction.

No anomalies were detected.

Conclusions

1. No anomalies of interest were detected in any of the Basin Lake drill holes or the Penghana drill hole.
2. All surveys were affected by power line noise which affected the late channels.
3. No follow-up TEM surveying is recommended.

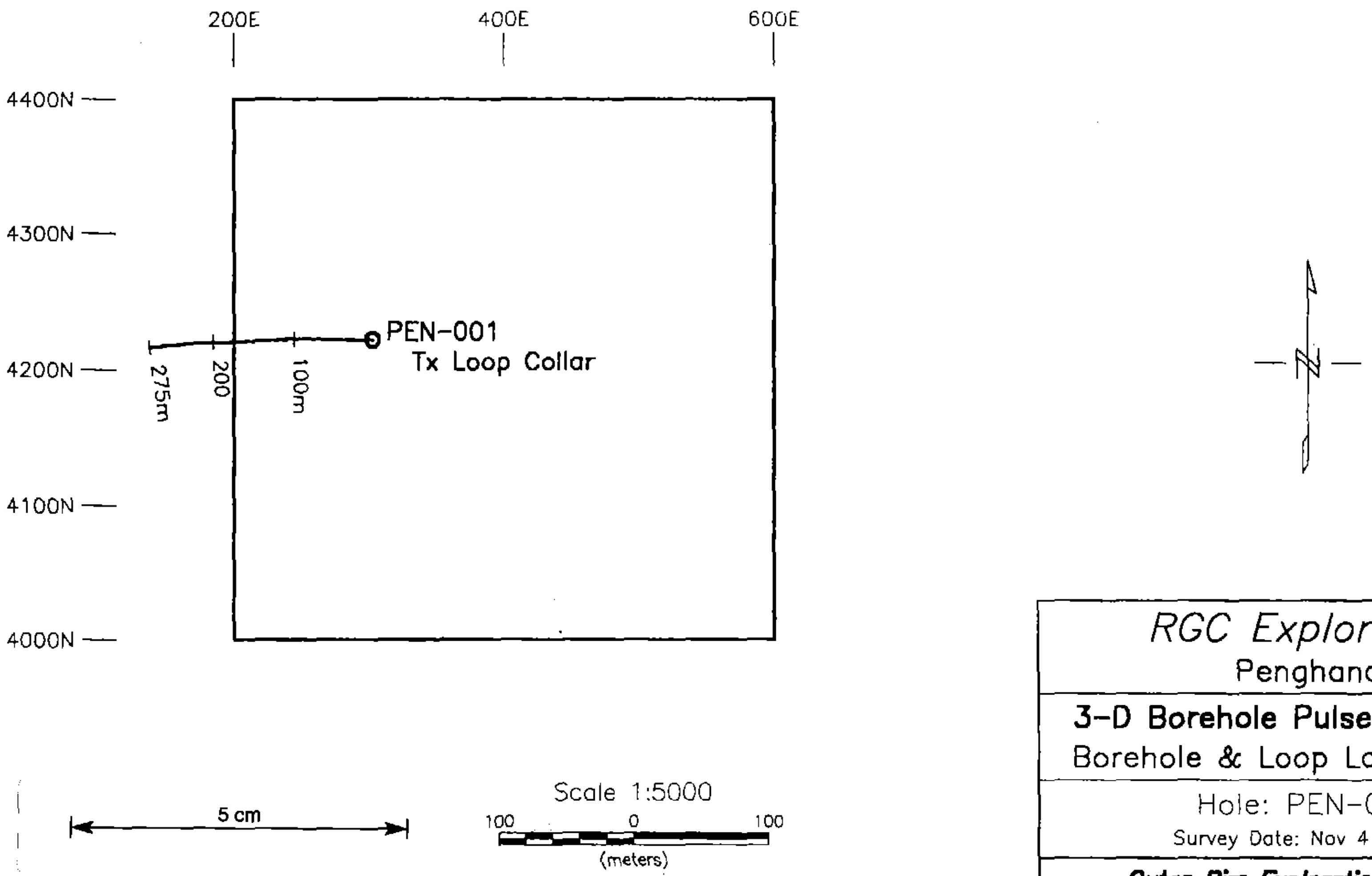
References

Outer Rim Exploration Services, "Basin Lake and Penghana" December 1995. RGC Exploration Internal Report Vols 1&2.

PLOTS

CONTENTS

OMITTED



RGC Exploration

Penghana

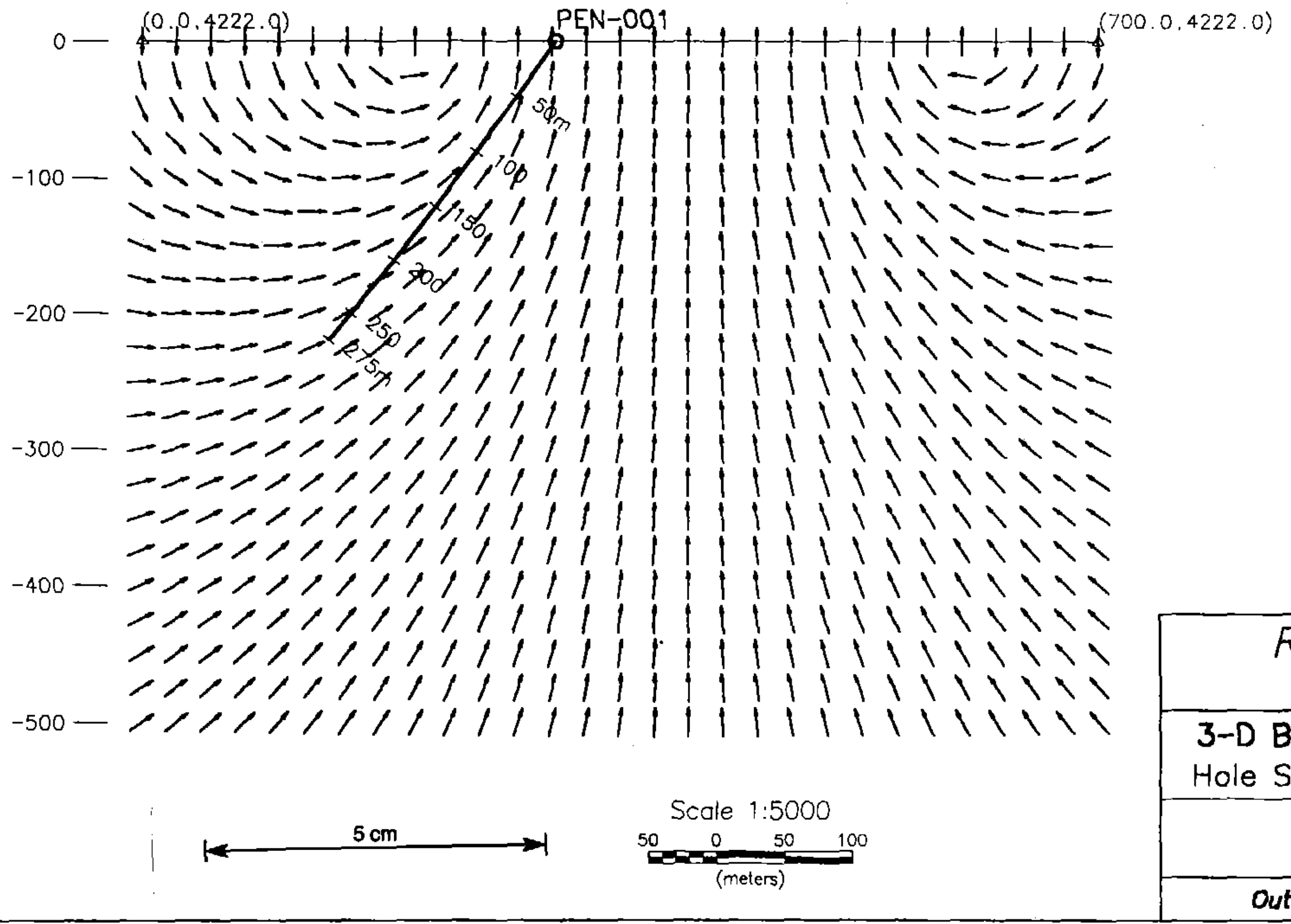
3-D Borehole Pulse EM Survey

Borehole & Loop Location Map

Hole: PEN-001

Survey Date: Nov 4, 1995

Outer-Rim Exploration Services



RGC Exploration
Penghana

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

Hole: PEN-001
Survey Date: Nov 4, 1995

Outer-Rim Exploration Services

123458

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Penghana
Date : Nov 4, 1995
Time Base : 20.00 ms
Ramp Time : 1.00 ms
Channels: 20
Sync Type : Cable
Loop Size : 400m X 400m
Current : 10 Amps

Hole : PEN-001
Tx Loop : Collar
File name : PEN1Z.PEM
Readings: 27
Stn Units : Metric
Coil Area : 6500 sq m
Polarity : +
Receiver : Digital #108
Operator : Kent Honner

Loop Coordinates (X,Y,Z)
1. 200m, 4000m, 0m
2. 600m, 4000m, 0m
3. 600m, 4400m, 0m
4. 200m, 4400m, 0m

Hole Coordinates (X,Y,Z) or (Azimuth,Dip,Length)
1. 303m, 4222m, 0m
2. 270deg, 55deg, 45m
3. 272deg, 54deg, 30m
4. 270deg, 54deg, 30m
5. 266deg, 53.5deg, 30m
6. 267deg, 53deg, 30m
7. 269deg, 52.3deg, 30m
8. 268deg, 51.7deg, 30m
9. 264deg, 50.7deg, 30m
10. 263deg, 50deg, 20m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	565
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

General Comments

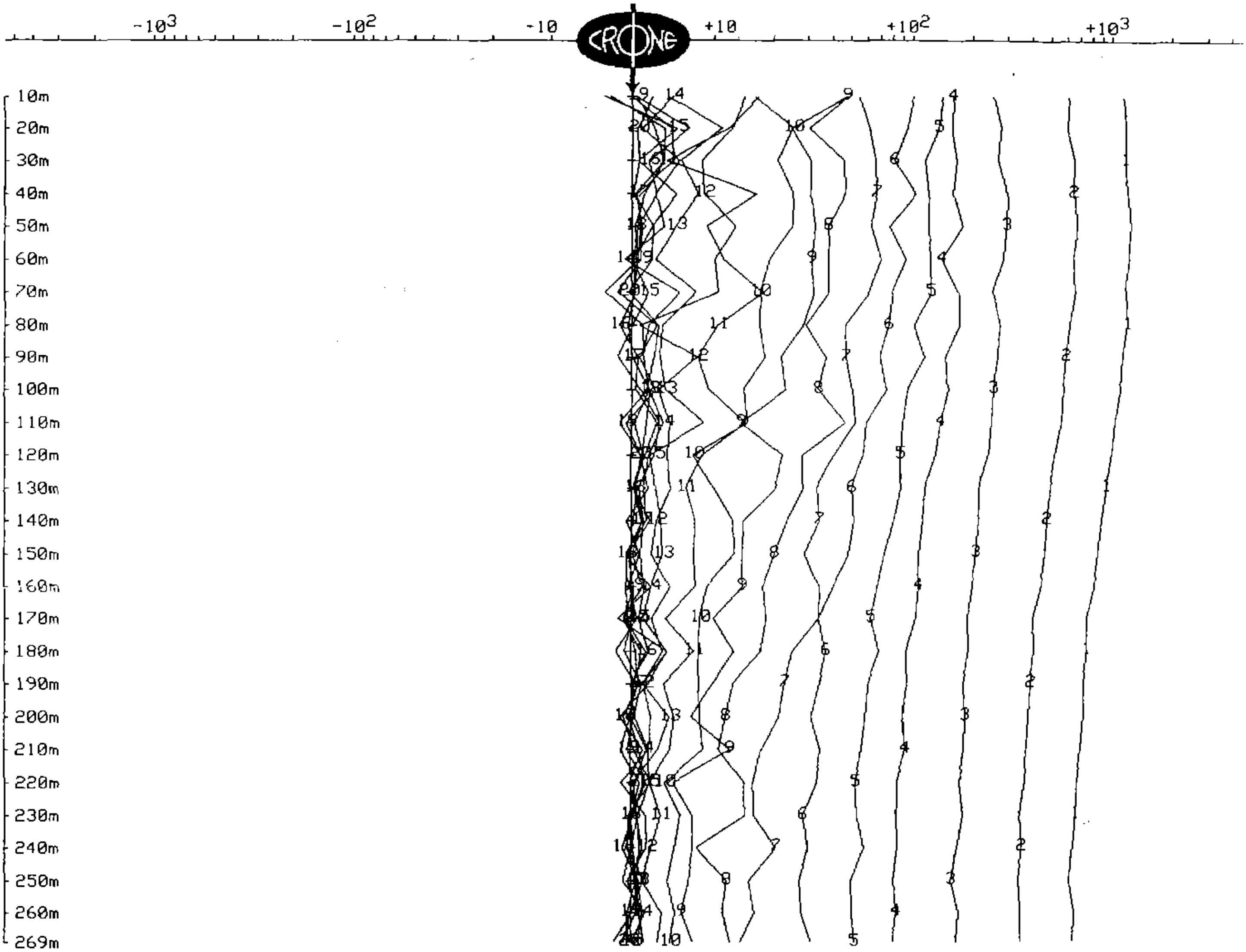
Four very large powerlines run E-W through the loop.

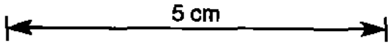
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: PEN-001
Grid	: Penghana	Tx Loop	: Collar
Date	: Nov 4, 1995	File name	: PEN1Z.PEM

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

Scale: 1:2000





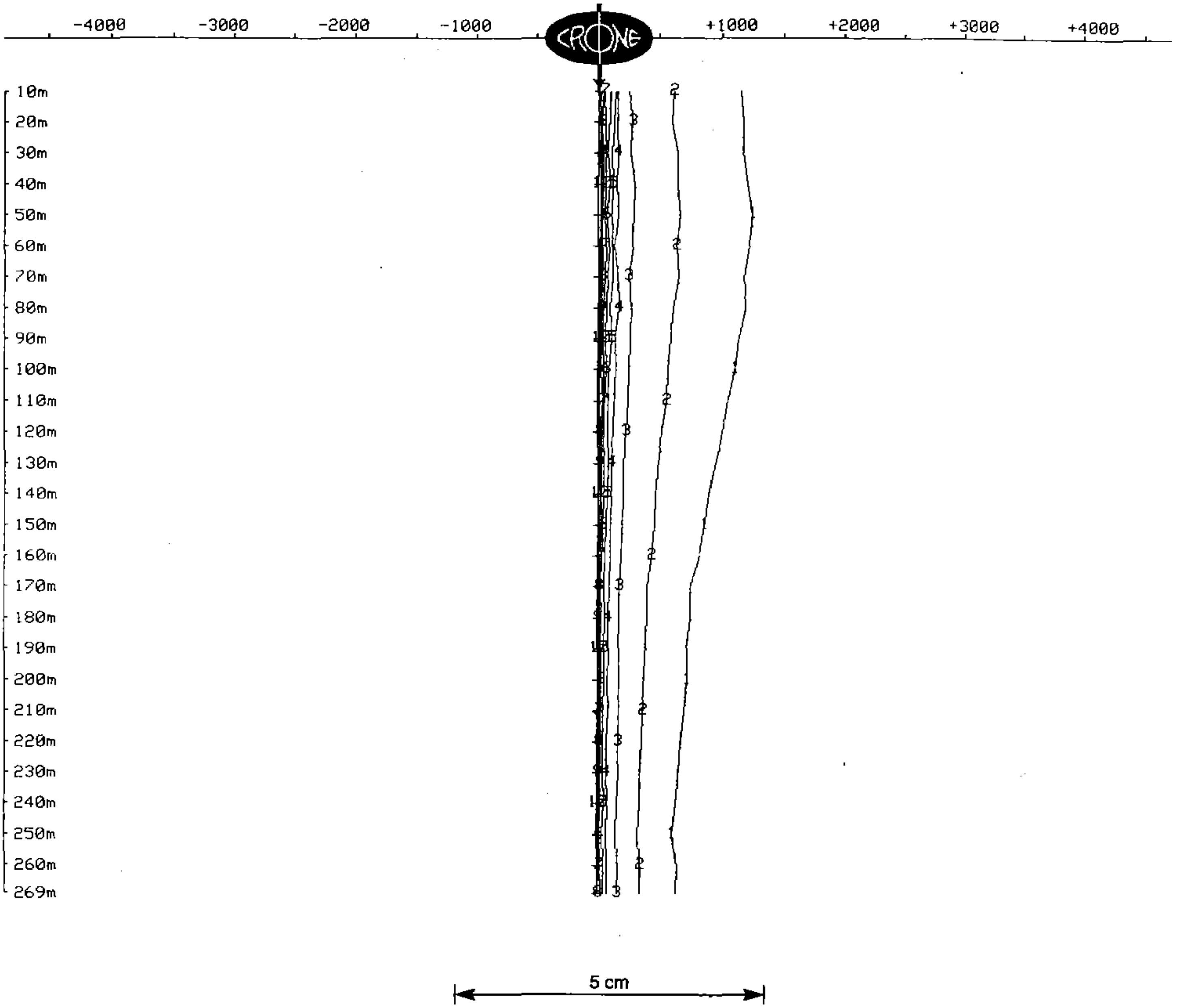
723181

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration		Hole	:	PEN-001
Grid	: Penghana		Tx Loop	:	Collar
Date	: Nov 4, 1995		File name	:	PEN1Z.PEM

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

Scale: 1:2000 Unit Scale: 1cm = 500 nT/



723182

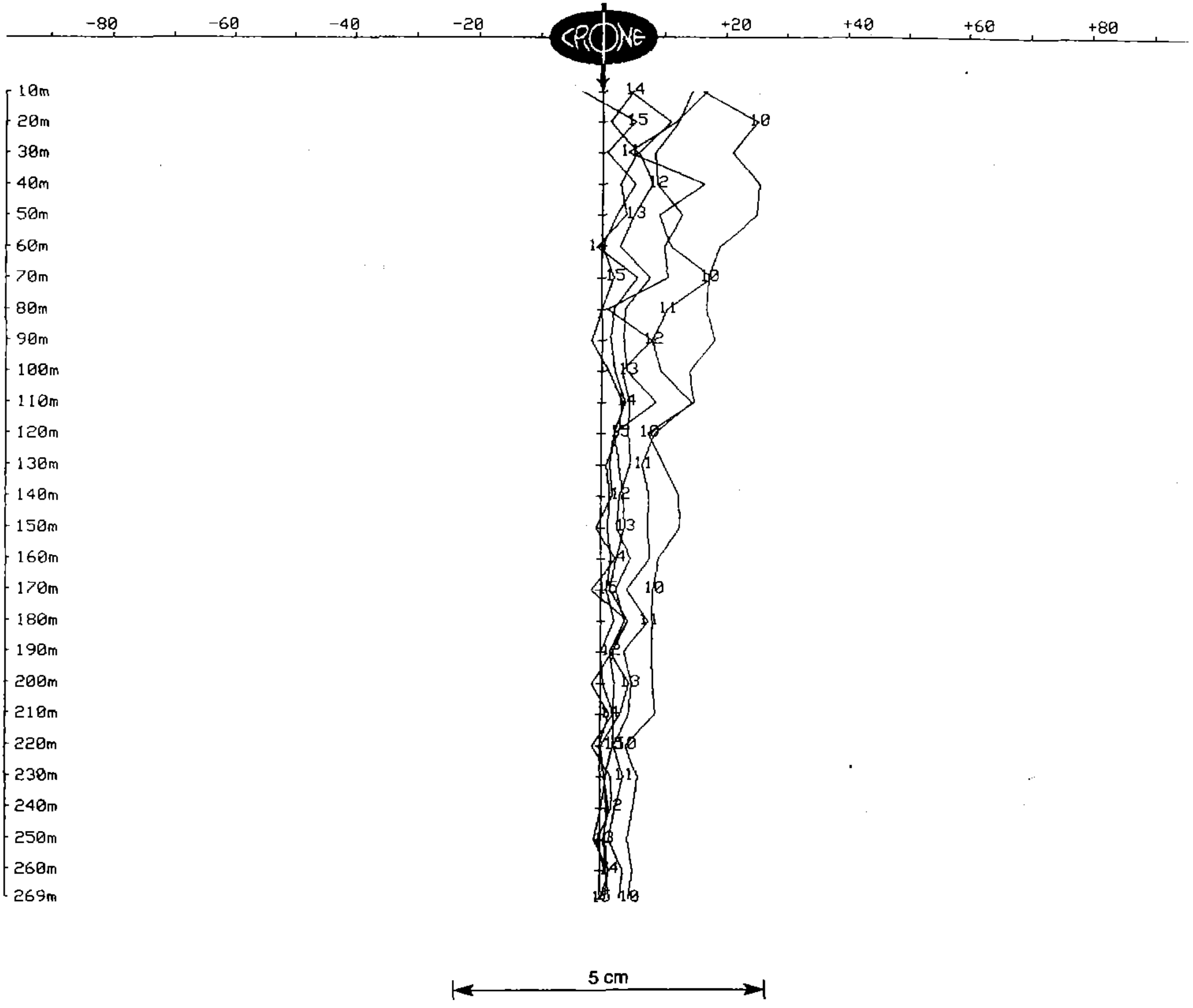
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: PEN-001
Grid	: Penghana	Tx Loop	: Collar
Date	: Nov 4, 1995	File name	: PEN1Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 10 nT/



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

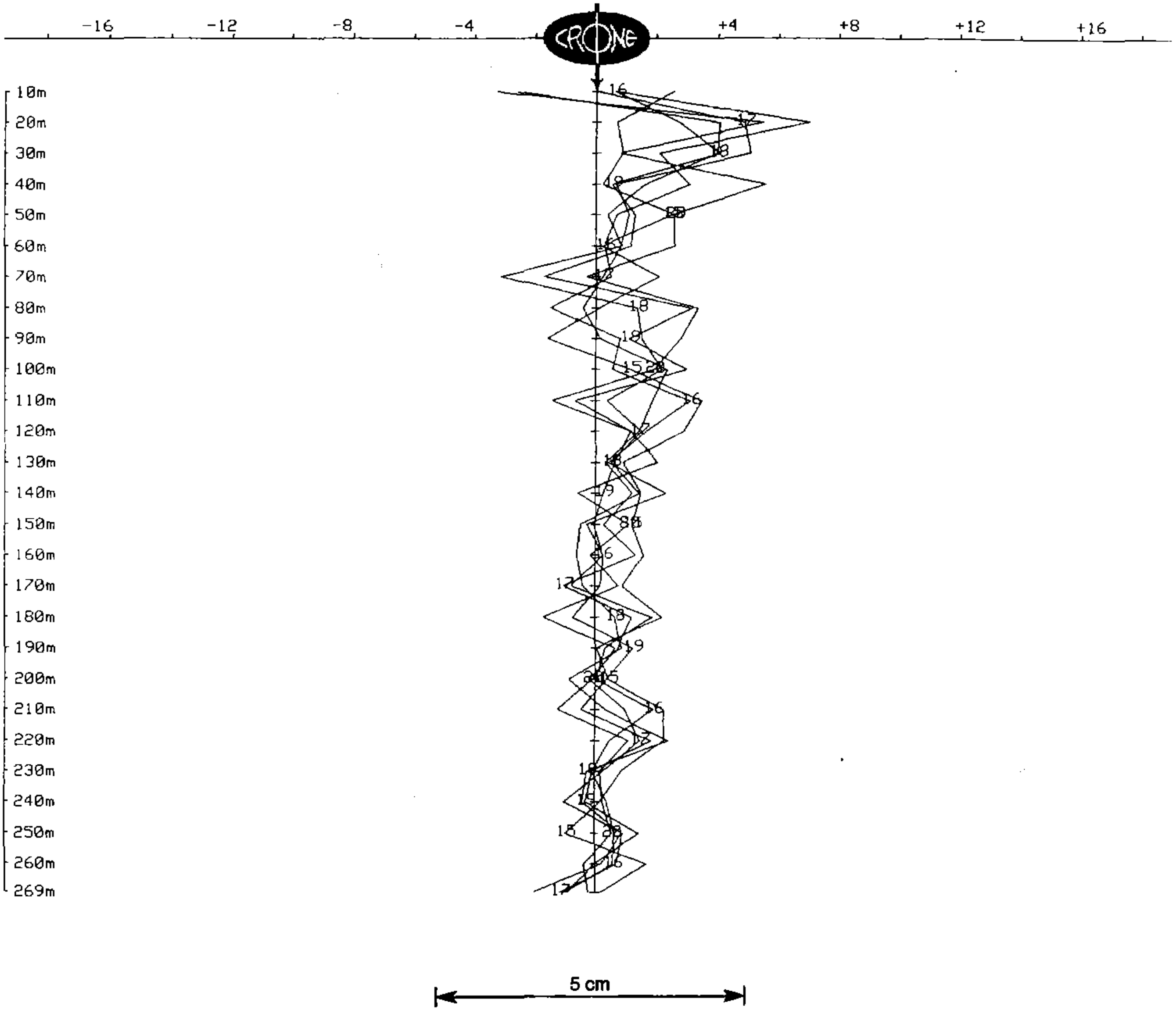
Client : **RGC Exploration**
Grid : **Penghana**
Date : Nov 4, 1995

Hole : PEN-001
Tx Loop : **Collar**
File name : PEN1Z.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 2 nT/



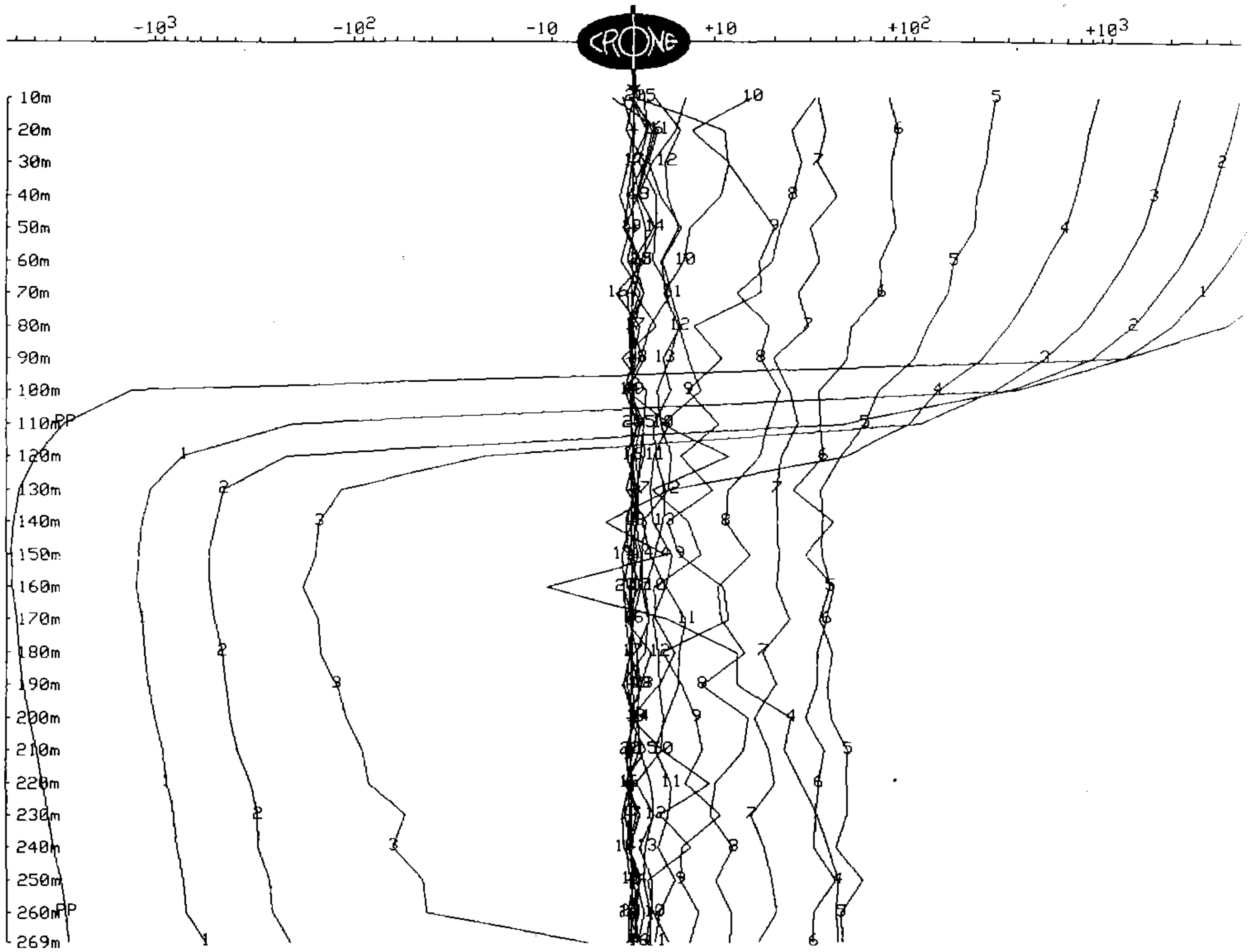
723184

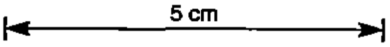
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: PEN-001
Grid	: Penghana	Tx Loop	: Collar
Date	: Nov 4, 1995	File name	: PEN1XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000





723185

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Penghana
Date : Nov 4, 1995
Hole : PEN-001
Tx Loop : Collar
File name : PEN1XY.PEM

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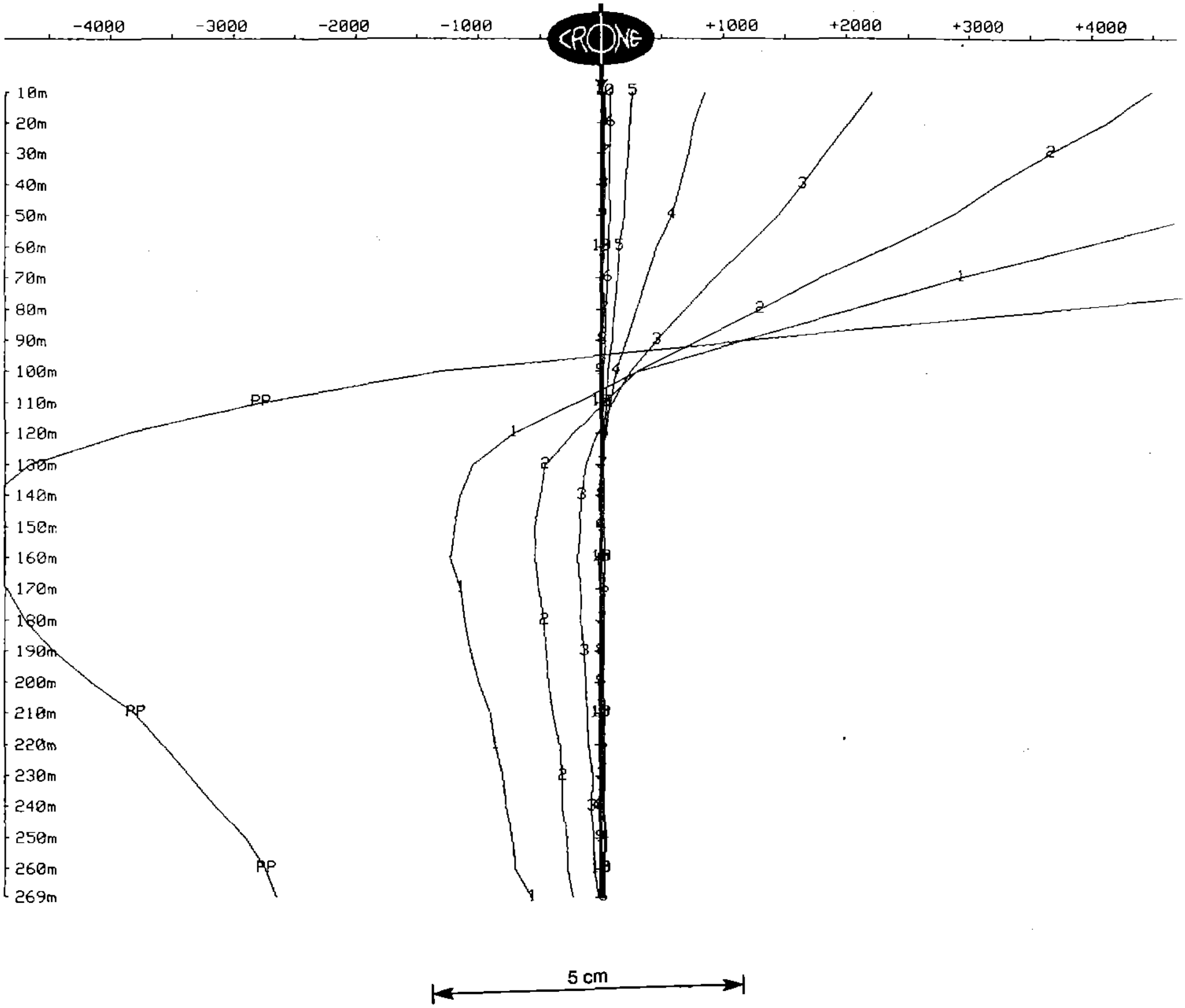
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000

Unit Scale: 1cm = 500 nT/



723186

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Penghana
Date : Nov 4, 1995

Hole : PEN-001
Tx Loop : Collar
File name : PEN1XY.PEM

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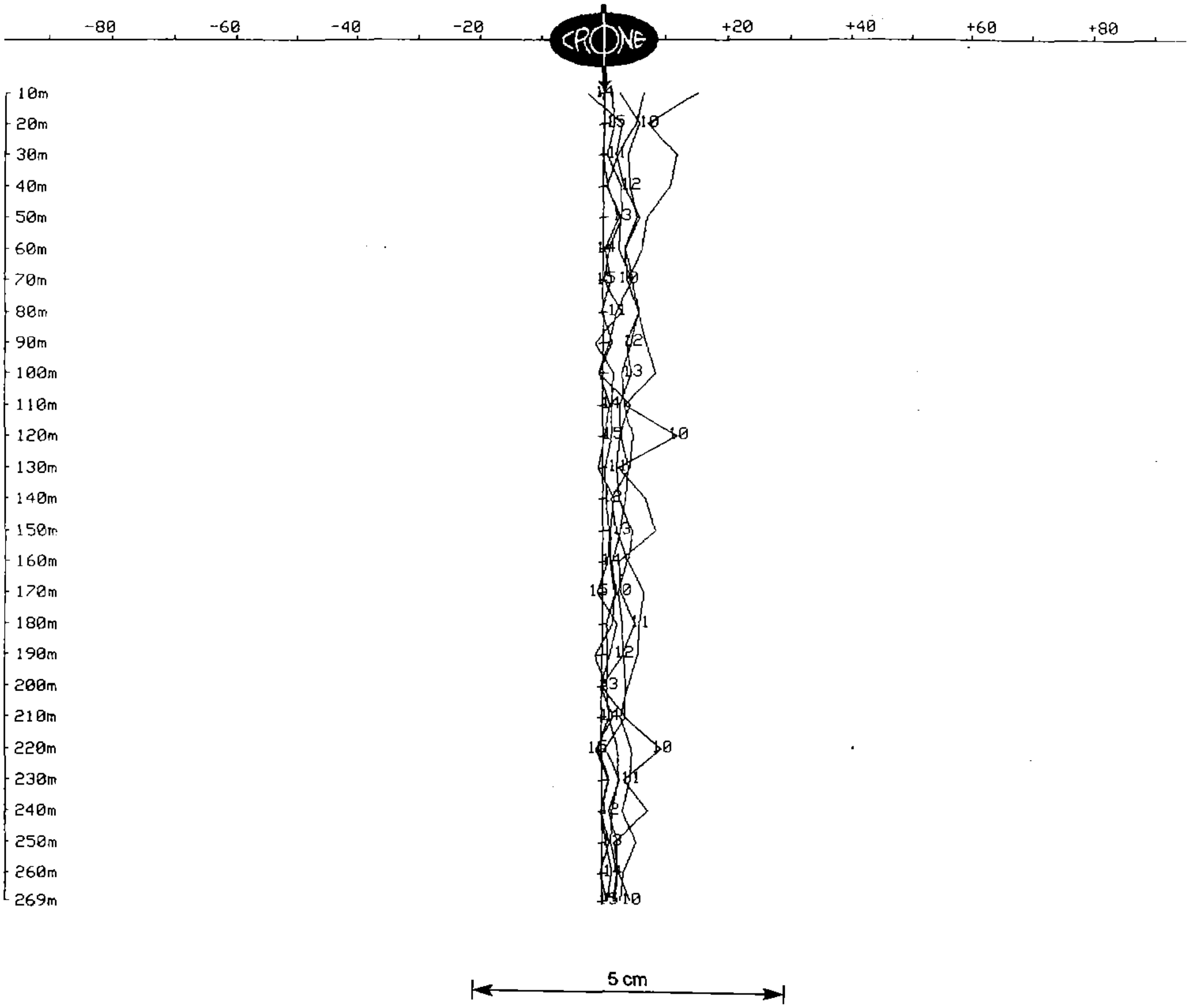
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:2000

Unit Scale: 1cm = 10 nT/



723187

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: PEN-001
Grid	: Penghana	Tx Loop	: Collar
Date	: Nov 4, 1995	File name	: PEN1XY.PEM

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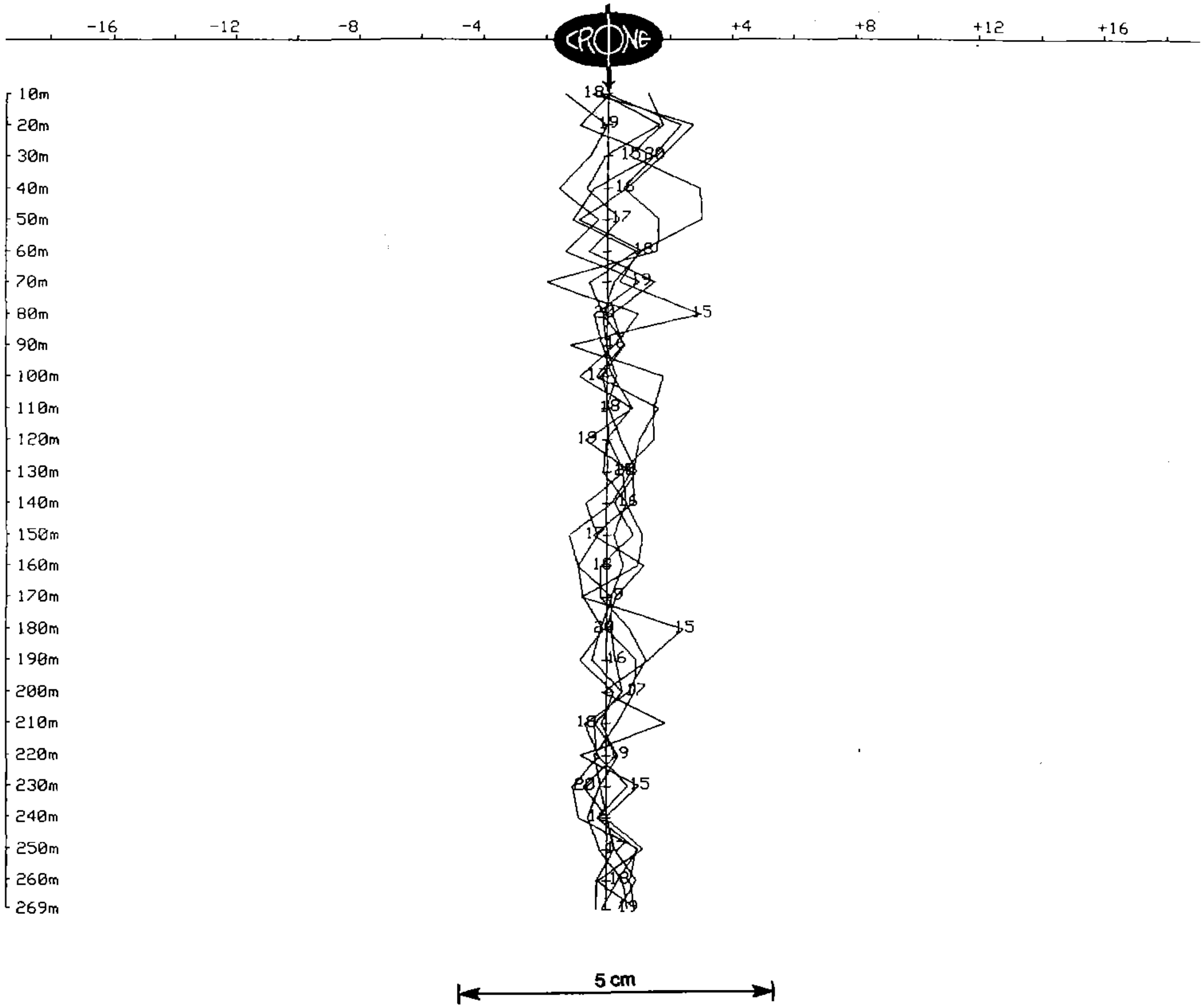
Scale: 1:2000 Unit Scale: 1cm = 2 nT/



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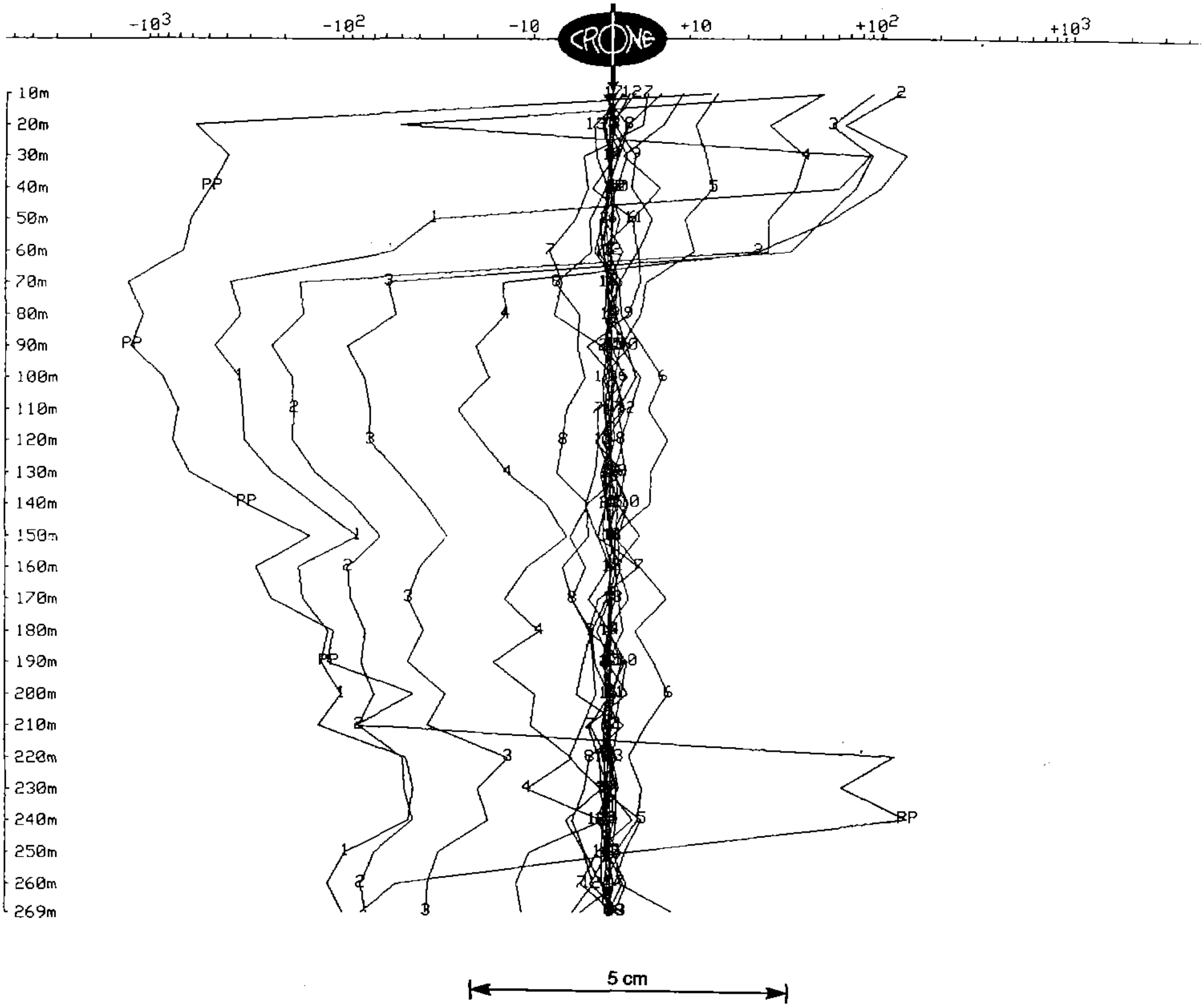
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: PEN-001
Grid	: Penghana	Tx Loop	: Collar
Date	: Nov 4, 1995	File name	: PEN1XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: PEN-001
Grid	: Penghana	Tx Loop	: Collar
Date	: Nov 4, 1995	File name	: PEN1XY.PEM

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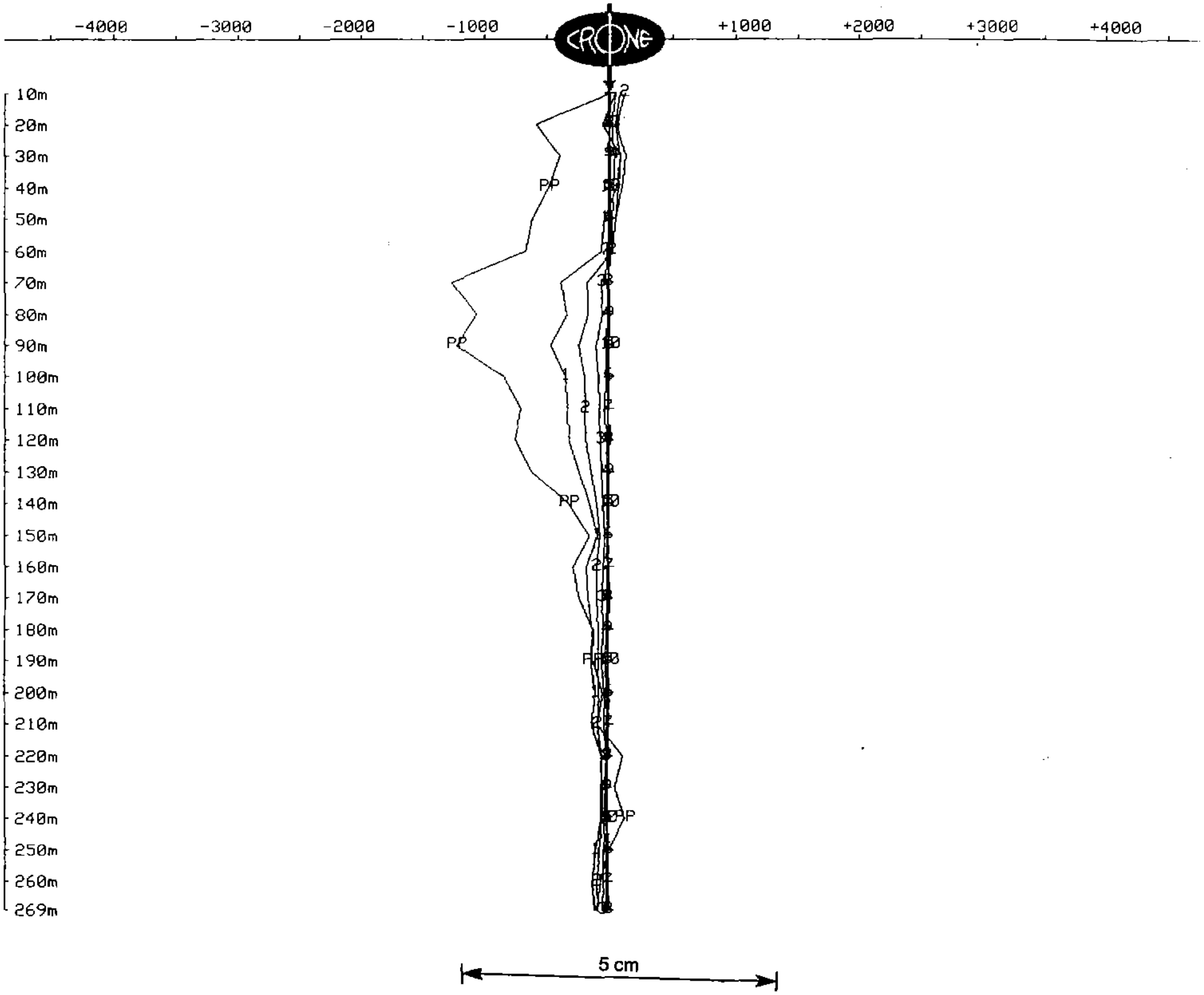
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:2000
Unit Scale: 1cm = 500 nT/



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Penghana
Date : Nov 4, 1995

Hole : PEN-001
Tx Loop : Collar
File name : PEN1XY.PEM

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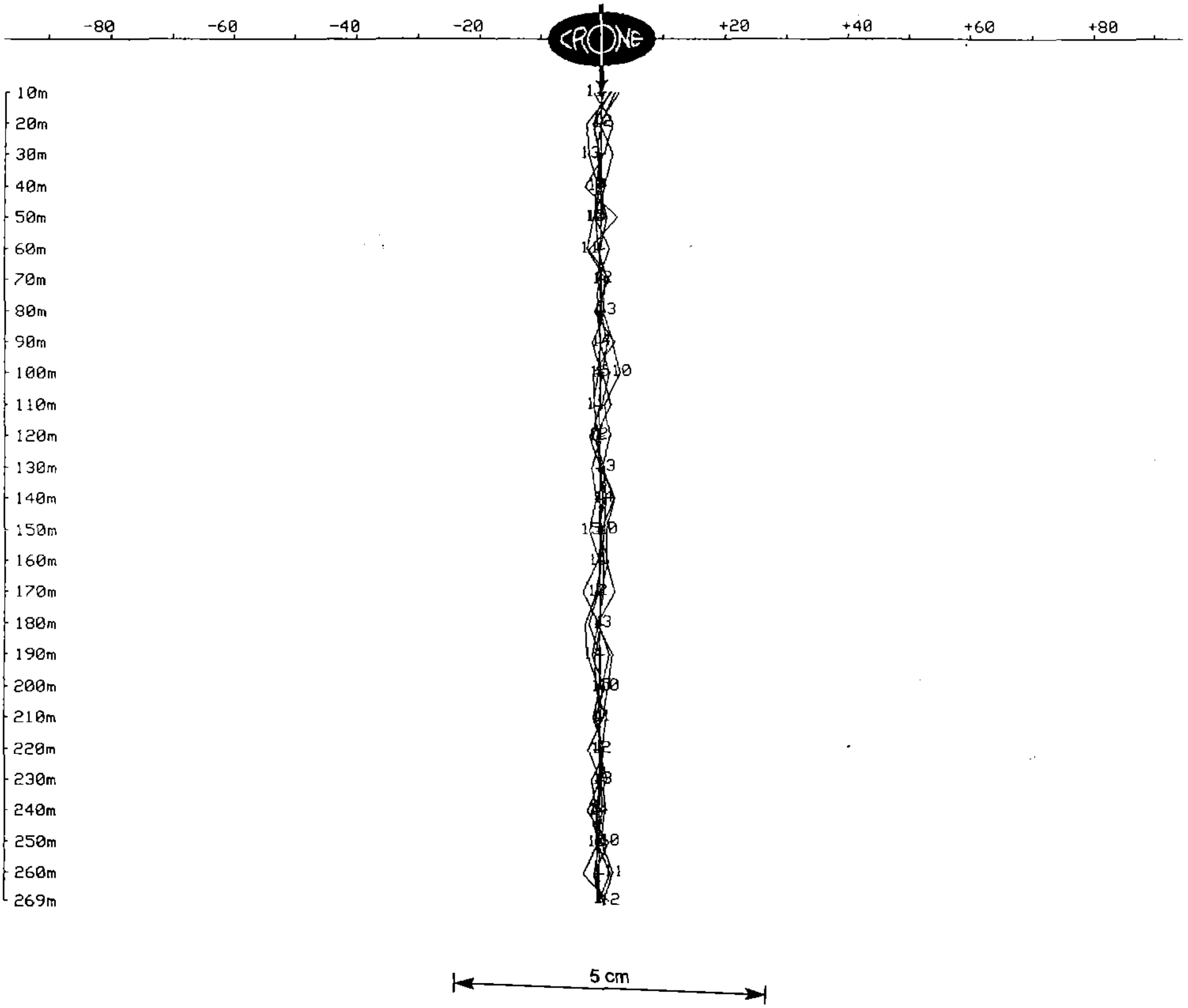
Scale: 1:2000

Unit Scale: 1cm = 10 nT/

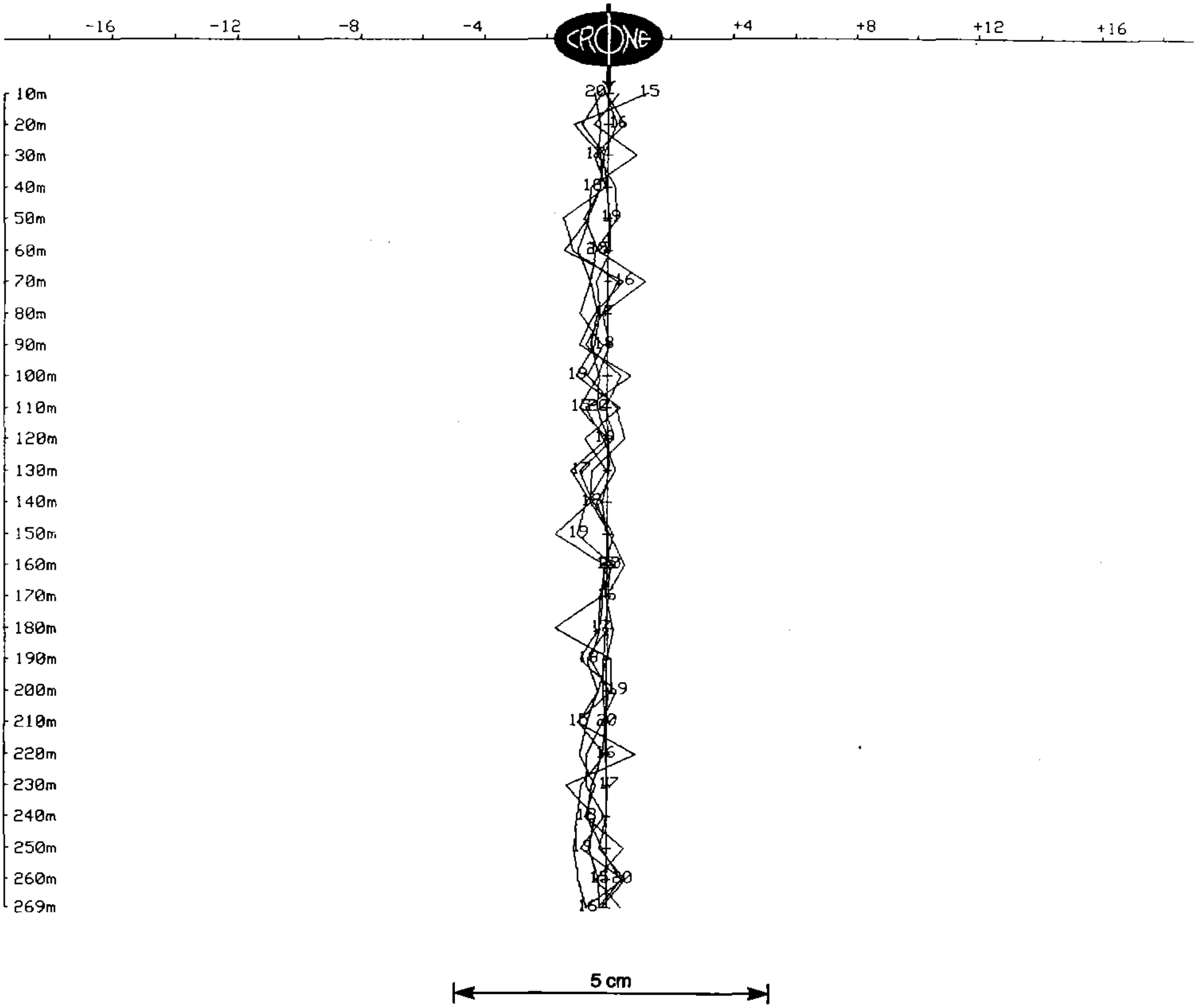


OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: RGC Exploration	Hole	: PEN-001
Grid	: Penghana	Tx Loop	: Collar
Date	: Nov 4, 1995	File name	: PEN1XY.PEM

Data Corrected for Probe Rotation using Orientation Tool #2
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:2000 Unit Scale: 1cm = 2 nT/



723192

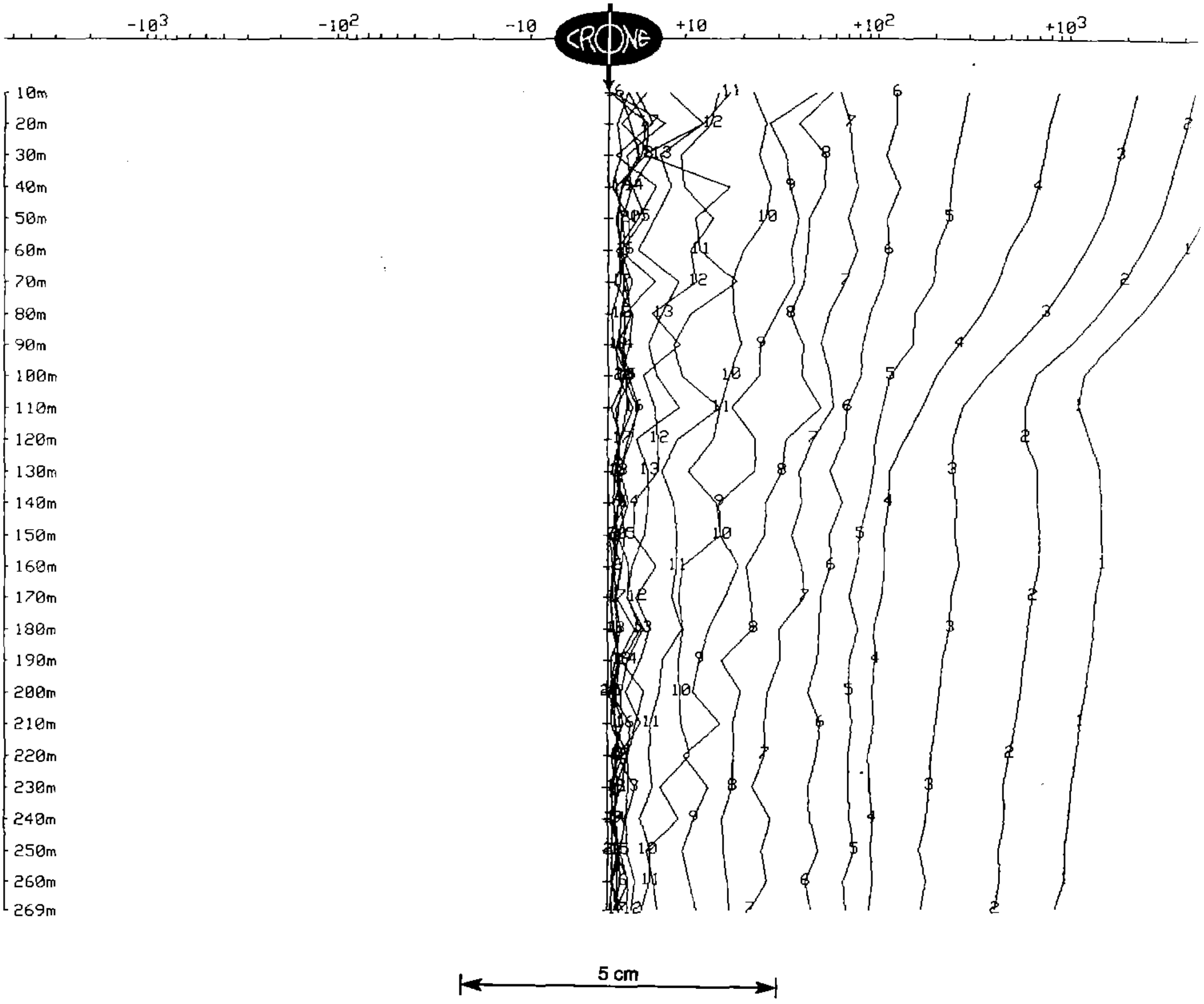
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client : RGC Exploration
Grid : Penghana
Date : Nov 4, 1995

Hole : PEN-001
Tx Loop : Collar
File name : PEN1XYZ.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 20 channels

Scale: 1:2000



APPENDIX 9

IP Survey at Garfield Prospect

723194

RGC EXPLORATION

ACN 001 426 946

GARFIELD, TASMANIA

A GEOPHYSICAL INTERPRETATION
OF
INDUCED POLARISATION SURVEYS, OCTOBER 1995

Vol 1 of 1

AUTHOR(s): Sam Roberts

7 November, 1995

PROSPECTS: Garfield, Thomas Currie, Tasmania

KEY WORDS: Garfield, Induced Polarisation, Gradient Array, Dipole-Dipole Array

Distribution:

- **RGC Exploration Information Centre Reference:**
- **Zeehan Exploration Office**

Summary and Conclusions

- Gradient array Induced Polarisation surveys were conducted at the Garfield prospect. Five (5) lines were surveyed with 50 metre dipoles at 25 metre intervals at the Garfield grid, see Plans 3 and 4. Two (2) lines were surveyed at the Thomas Currie grid with the same parameters, see Plan 2.

- Two dipole-dipole array IP spreads were surveyed at the Garfield grid on lines 2800N and 3000N. A 100 metre dipole was used, see Plans 6 and 7.

- The dipole-dipole data was modelled using two dimensional IP modelling techniques which incorporated the effects of topography, see Plans 8 and 9.

- A chargeability anomaly was detected at the Thomas Currie grid that was open to the south, north and east. Recommendations have been made to extend the coverage of the gradient array survey at the Thomas Currie grid.

- The chargeability anomaly detected in the previous 1993 gradient array IP survey was found to extend to the north (anomalies CH3 and CH4, see Plan 5). The anomaly is still open to the north. Recommendations have been made to extend the gradient array survey to the north to find the northern limit of the chargeability anomaly.

- A new chargeability anomaly was detected at the Garfield grid which is open to the north (anomaly CH2, see Plan 5).

- The dipole-dipole data was difficult to model because of the number of interacting chargeable sources and the effects of topography. The chargeability anomaly CH4 (see Plan 5) was not readily explained by the dipole-dipole modelling.

- Additional dipole-dipole spreads are recommended to the west to improve our modelling of the geometry of the new chargeable sources.

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Plan 1	Garfield Gradient Array Profiles 1:2,500 Chargeability and Apparent Resistivity
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Plan 4	Garfield Gradient Array Colour Image 1:2,500 Chargeability
Plan 5	Garfield Gradient Array Interpretation 1:2500
Plan 6	Garfield Dipole-Dipole Array Pseudosection 1:5,000 Line 2800N, Apparent Resistivity and Chargeability
Plan 7	Garfield Dipole-Dipole Array Pseudosection 1:5,000 Line 3000N, Apparent Resistivity and Chargeability
Plan 8	Garfield Dipole-Dipole Array Interpretation 1:5,000 Line 2800N Modelled Depth Section and IP Pseudosections
Plan 9	Garfield Dipole-Dipole Array Interpretation 1:5,000 Line 3000N Modelled Depth Section and IP Pseudosections

Introduction

RGC Exploration Pty Limited undertook gradient array and dipole-dipole array induced polarisation surveys at the Garfield prospect in September and October 1995.

The Garfield prospect is located approximately 20km south-west of Queenstown on the West Coast of Tasmania. Access to the prospect is by helicopter or foot only.

Gradient array IP surveys were conducted at the Garfield prospect on the Garfield and Thomas Currie grids. In addition, two dipole-dipole arrays were surveyed on lines 2800N and 3000N of the Garfield grid. The work was designed to test the northern extension of a gradient array chargeability anomaly which had been detected in a previous survey conducted by Geoterrex in December 1993.

The IP survey was conducted by Quadrant Geophysics using a Scintrex IPR12 receiver and Zonge GGT-2.5 2.5kw two second time domain transmitter. The gradient array survey used a 50 metre receiver dipole and data was recorded at half the receiver dipole length, 25 metres. Two grids were surveyed as summarised below.

Garfield : Transmitter Electrodes : Line 3000N, 1500E, 3000E

Line 2800N	1825E - 2475E
Line 2900N	1825E - 2550E
Line 3000N	1825E - 2600E
Line 3100N	1825E - 2575E
Line 3200N	1825E - 2600E

Thomas Currie : Transmitter Electrodes :2700N, 2400E, 3800E (uncertain)

Line 2600N	2825E - 3375E
Line 2800N	2825E - 3375E

The data is presented as images and profiles, see Plans 1 to 4 inclusive.

A survey using 100 metre dipole-dipole arrays was conducted on lines 2800N and 3000N to test for the source of a chargeability anomaly detected by the gradient array survey. The data is presented as pseudosections of apparent resistivity and chargeability, see Plans 6 and 7.

The IP/Resistivity data has not been located to true geographical location and consequently location errors of up to 25 metres may be present in the data. The data should be positioned by the geological plan (not accompanying this report) which shows the true location of the grid lines.

The surveys were undertaken as a part of RGC's base metal exploration program in Western Tasmania. This report presents an interpretation of the IP/Resistivity data.

Gradient Array Interpretation

An interpretation of the Garfield grid gradient array data is provided, see Plan 5.

The apparent resistivity data shows a north-south trend and appears to discriminate between a number of north-south trending highly resistive units. These high apparent resistivity zones are labelled RH2 to RH4. RH4 is flanked to the east by a low apparent resistivity zone, RL1. Another high apparent resistivity zone, RH5, is located to the east of RL1.

To the east of zone RH5 the rocks are of low to moderate apparent resistivity. Some structure is still detectable and has been expressed as low apparent resistivity zones RL2 and RL3.

To the west of zone RH2 is a high apparent resistivity anomaly in the north west corner of the grid, RH1.

Note that the apparent resistivity data will be affected by topography. We expect to see high apparent resistivity anomalies in valleys and low apparent resistivity anomalies on hills. The data does show some correlation with topography however, I think there is no doubt that the apparent resistivity highs and lows we have observed are primarily caused by real geological features.

The chargeability data shows a similar north-south trend and chargeability anomalies appear to be well correlated with both high apparent resistivity and low apparent resistivity zones, usually occurring on the flanks of these anomalies.

The primary target lies between 2000E and 2250E and is labelled CH3 and CH4 on the interpretation plan (5). The survey has not closed off the northern extent of this chargeability anomaly. A structure has been interpreted between CH3 and CH4 to explain the change in character of the anomaly. The chargeability anomalies are associated with the apparent resistivity high RH4 and also with apparent resistivity low RL1.

A second chargeability anomaly has been detected to the west of the main target and is labelled CH2 on the interpretation plan. The anomaly extends from 1800E 2800N and strikes north-east to the northern edge of the survey area. The anomaly is open to the northt although it does appear to be weakening. It occurs on the western flank of the high apparent resistivity anomaly RH2.

A third chargeability anomaly, CH1, was detected on the western edge of line 3200N. The anomaly is associated with the high apparent resistivity anomaly RH1.

A number of other less significant chargeability trends occur in association with resistivity trends in the east. Anomalies CH5 and CH6 occur on the flanks of high apparent resistivity anomaly RH5 and a well defined high chargeability anomaly, CH7, occurs on the eastern flank of low apparent resistivity anomaly RL2.

Unfortunately only two lines of data were surveyed at the Thomas Currie grid and so no detailed interpretation of the data can be undertaken. However the following observations can be made.

- There is general increase in apparent resistivity to the west and correlatable apparent resistivity highs occur at 2900E and 2800E.
- Chargeability increases markedly to the east.
- A discrete 6ms chargeability anomaly occurs on line 2600N at 3200E. It does not appear to be correlated with any similar anomaly on line 2800N.
- A large 8ms chargeability anomaly occurs on line 2800N and 3350E. The anomaly is unclosed to the east and hence the width of the anomaly is unknown. The strike length of the anomaly is also unknown.

Dipole-Dipole Array Interpretation

The dipole-dipole IP/Resistivity data has been difficult to interpret due to the complex interactions between what appear to be a number of discrete bodies of varying resistivity and chargeability and also because of the interfering effects of topography which primarily affects the resistivity interpretation.

Line 2800N

The apparent resistivity and chargeability pseudosections are presented, see Plan 6, and a depth section interpretation, see Plan 8.

The model was developed using RSXIP2D which is a two dimensional IP modelling program. Two dimensional topographic effects were included in the model. The model is moderately reliable only to a depth of 200 metres below the surface.

The apparent resistivity data shows two high apparent resistivity anomalies to the west and low apparent resistivity to the east. These are partially explained by topography. The dipole-dipole apparent resistivity data is broadly supported by the gradient array apparent resistivity results.

The chargeability data shows a complex interaction of anomalies from at least three sources. A deep negative anomaly at 2200E complicates the picture and remains only partially explained by modelling.

The apparent resistivity anomalies were explained by a low resistivity (1000 ohm-m) body east of 2250E (D1E) and two high resistivity bodies (5000 ohm-m) centred at 1700E (D1C,D1B) and 2150E (D1D). Both high resistivity bodies are associated with elevated chargeabilities.

The chargeability anomalies were explained by a shallow west dipping low resistivity (1000 ohm-m) high chargeability (20%) body at 2050E (D1A) and a shallow high resistivity (5000 ohm-m) high chargeability (25%) body at 1850E (D1B). The interaction between these two bodies partially explains the low chargeability anomaly at 2200E.

The chargeability anomalies detected in the gradient array survey and labelled CH3 and CH4 on Plan 5 do not appear to be clearly explained by the dipole-dipole interpretation. They are partially explained by body D1A at 2050E - however it is likely that the deeper body D1D is also contributing to the chargeability anomaly. Anomaly CH2 has been explained by body D1C.

Line 3000N

The apparent resistivity and chargeability pseudosections are presented, see Plan 7, and a depth section interpretation, see Plan 9.

The apparent resistivity data shows a strong high to the west and a confusing interaction of high and low resistivity anomalies to the east.

The chargeability data shows a strong high to the west. To the east there is a strong high that only shows half the expected response as well as at least one other high response. A strong negative at 2300E is confusing the picture.

The apparent resistivity anomalies were explained to the east by an outcropping low resistivity (500 ohm-m) body to the east of 2400E (D2E,D2A) underlain by a high resistivity (5000 ohm-m) body (D2D). To the west, a steeply dipping high resistivity (8000 ohm-m) body (D2C) explains the strong apparent resistivity anomaly. These results correlate well with the gradient array data. Body D2C is broadly coincident with gradient array resistivity anomaly RH2 and body D2E is coincident with low resistivity anomalies RL2 and RL3.

The chargeability anomalies are explained by a west dipping shallow body (D2A) at 2400E, a steeply dipping body (D2B) at 2100E and body D2C. Body D2B is coincident with the anomaly CH4 detected in the gradient array survey. Body D2A may correlate with gradient array chargeability anomaly CH7. Anomaly CH2 does not appear to have been explained by the dipole-dipole survey.

Recommendations

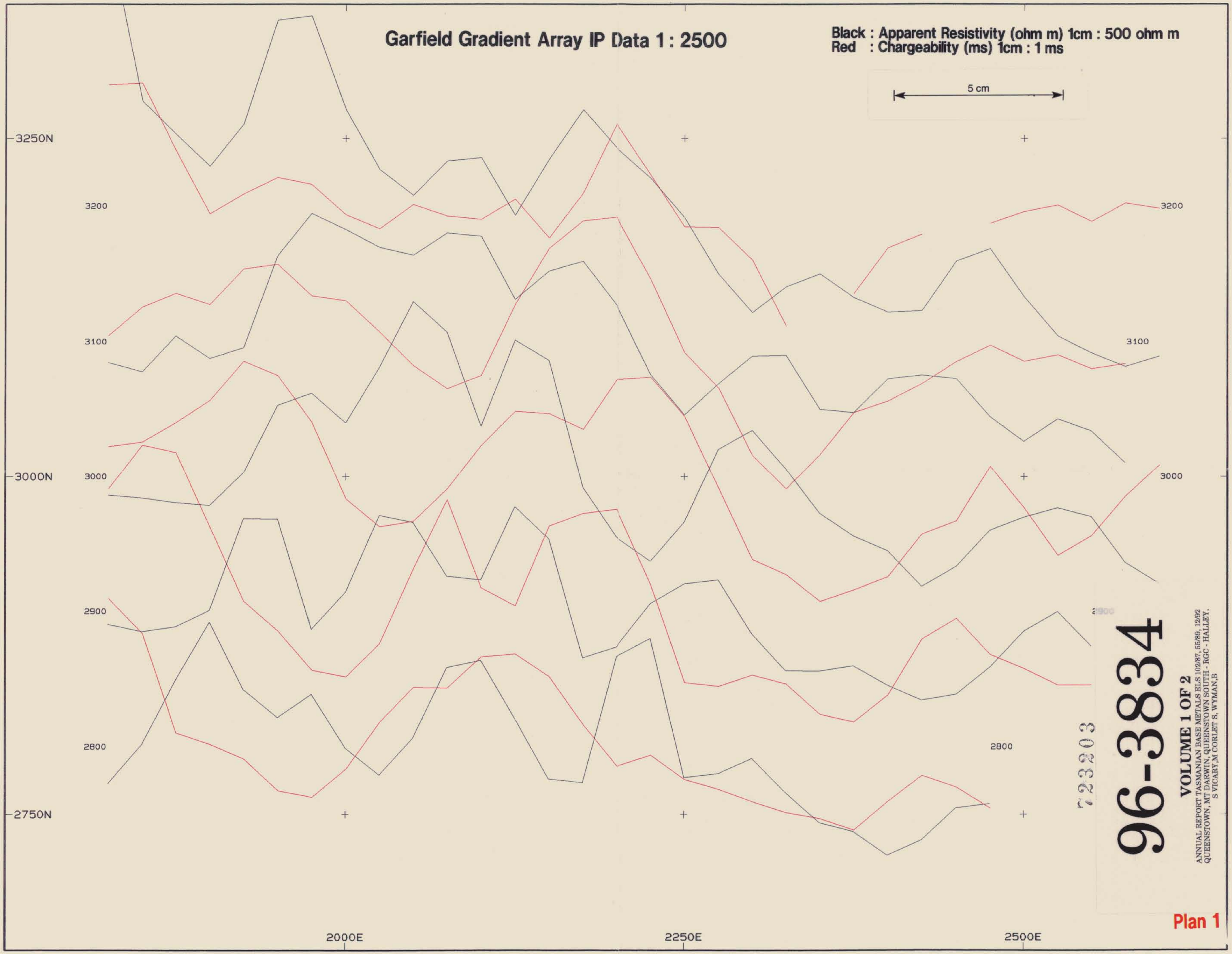
1. The existing Garfield grid gradient array IP coverage ought to be extended to the north and to the west to test the extent of chargeability anomalies CH4 and CH1.
2. The Thomas Currie grid ought to be infilled with gradient array IP at 100 metre line spacing and extended to the south, north and east to test the extent of the chargeability anomaly detected on line 2800N.
3. Additional dipole-dipole array IP ought to be conducted at the Garfield grid to improve the model of bodies D1C and D2C.
4. Body D2B ought to be tested by an easterly dipping drill hole collared at approximately 2050E.

References

Mudge, S.T; Roberts, S.S.J 'Interpretation of Ground Magnetic and Induced Polarisation data' RGC Exploration 1993.

Garfield Gradient Array IP Data 1 : 2500

Black : Apparent Resistivity (ohm m) 1cm : 500 ohm m
Red : Chargeability (ms) 1cm : 1 ms



Plan 1

Thomas Currie Gradient Array IP Data 1 : 2500

96-3834

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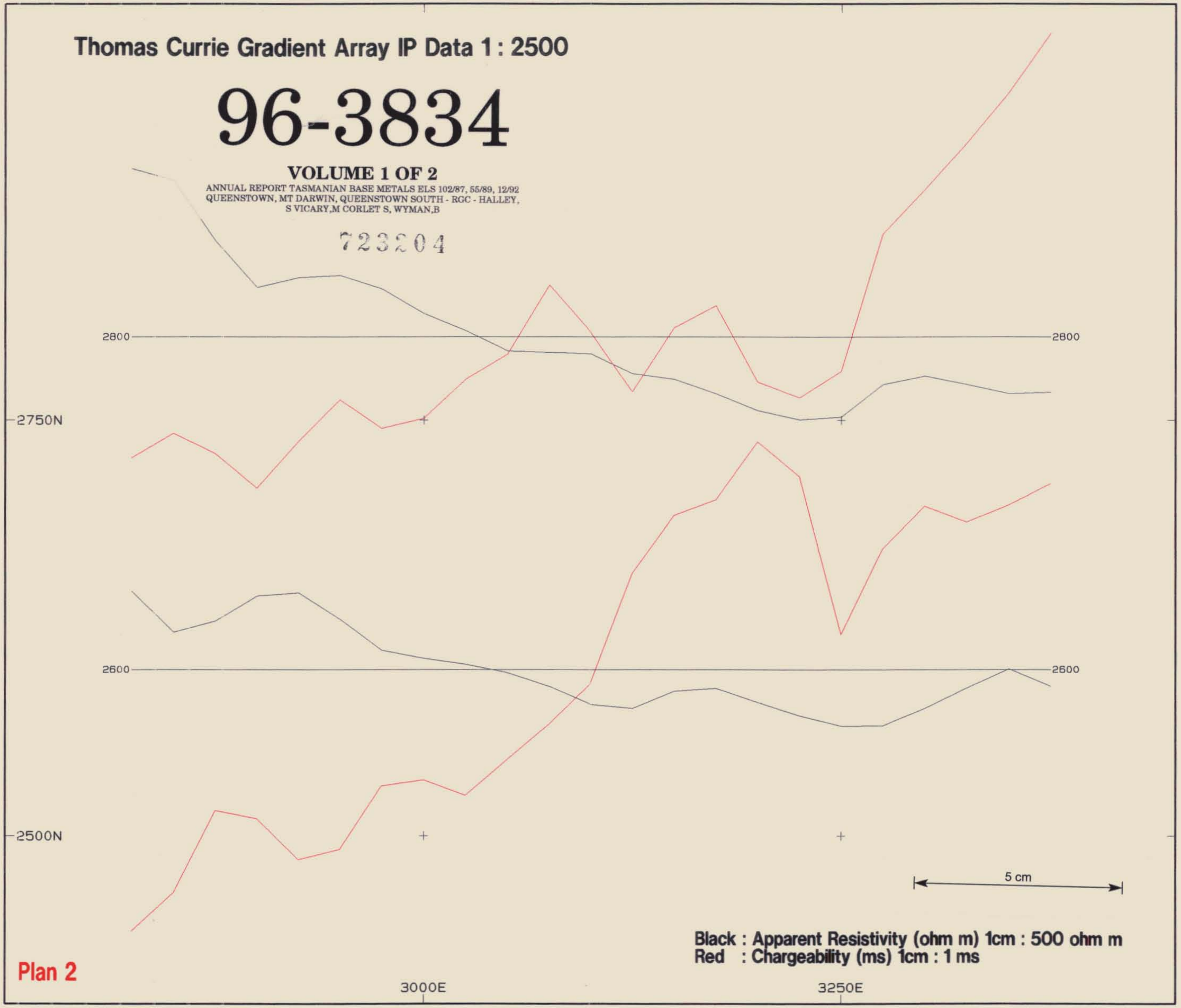
ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

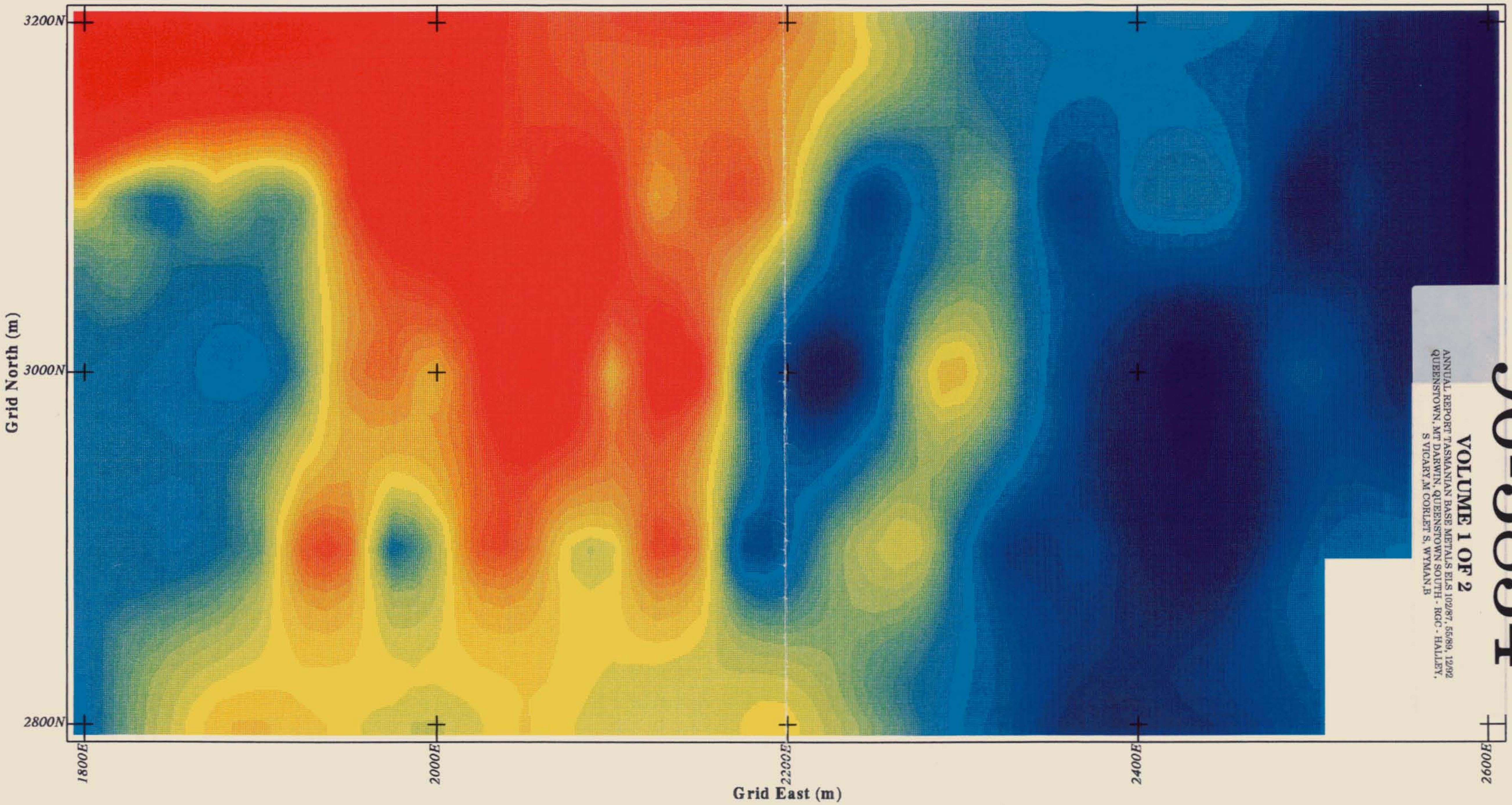
723204



Black : Apparent Resistivity (ohm m) 1cm : 500 ohm m
Red : Chargeability (ms) 1cm : 1 ms

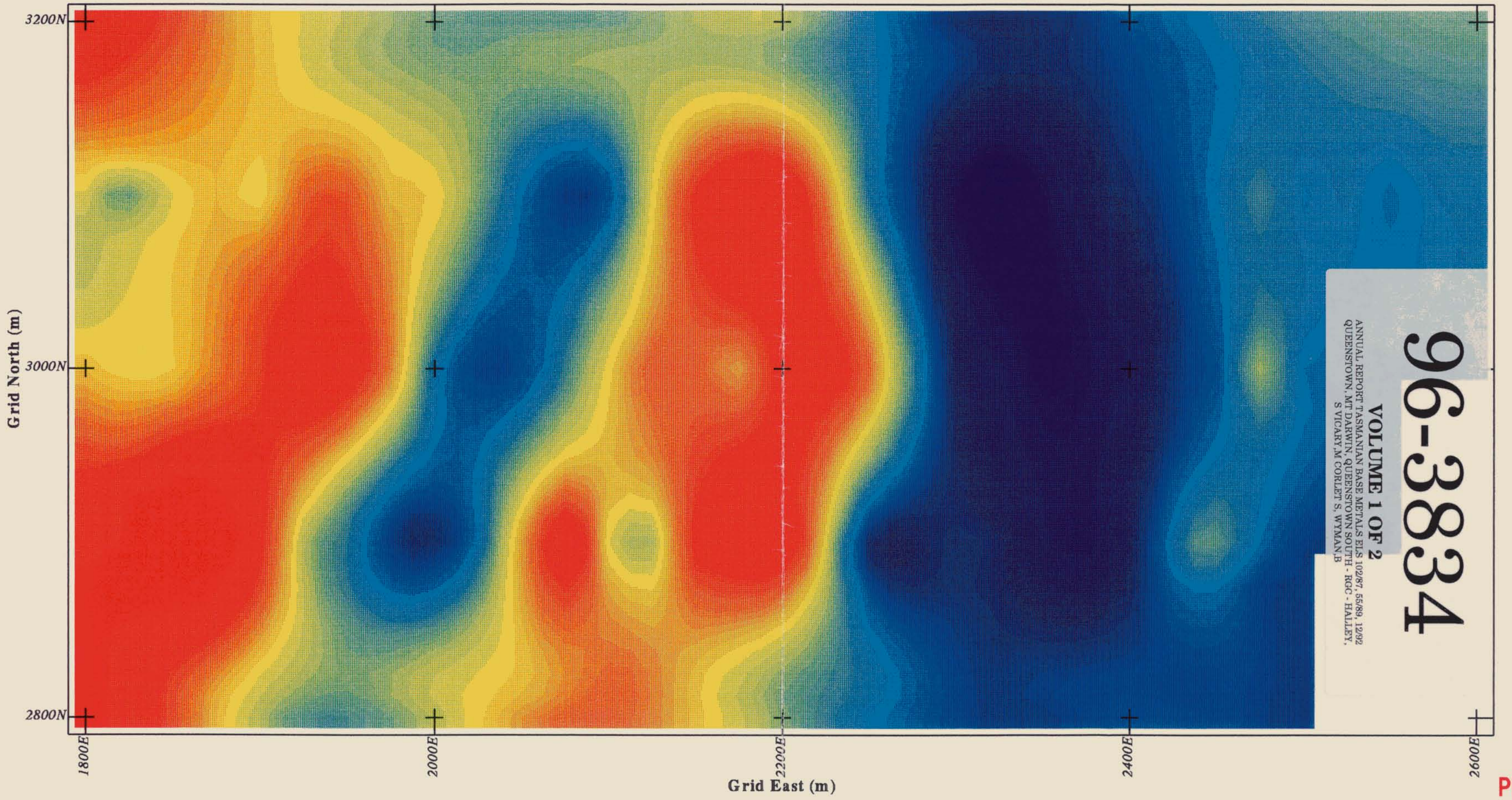
Plan 2

Garfield Gradient Array - Apparent Resistivity Ohm-m

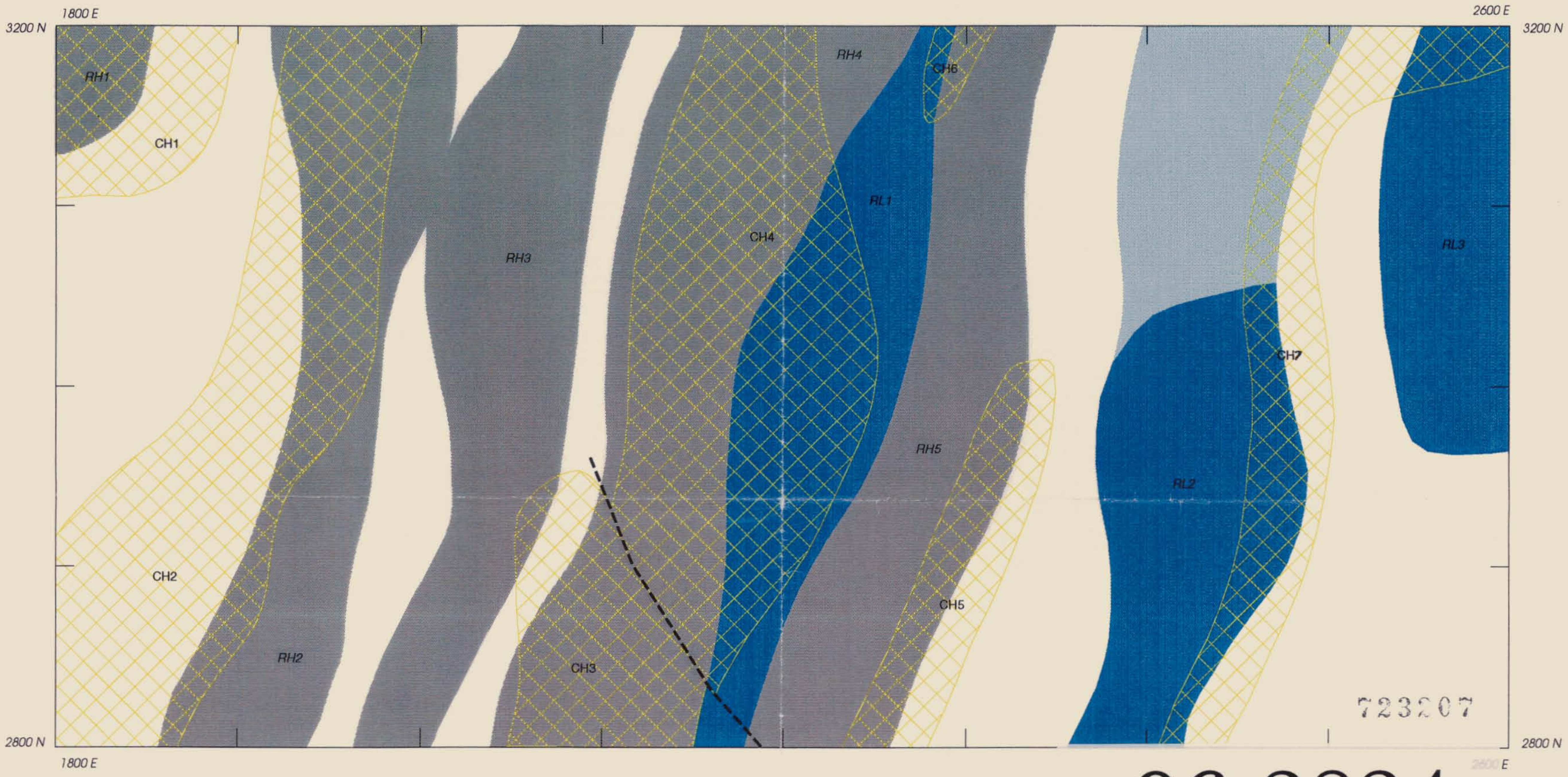


Plan 3

Garfield Gradient Array - Chargeability (ms)



Plan 4



96-3834

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ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

▨	Resistivity High
▨	Resistivity medium
▨	Resistivity Low
▨	Chargeability High

5 cm

RGC EXPLORATION

GOLDFIELDS
EXPLORATION

A member of the Renison Goldfields Consolidated Group

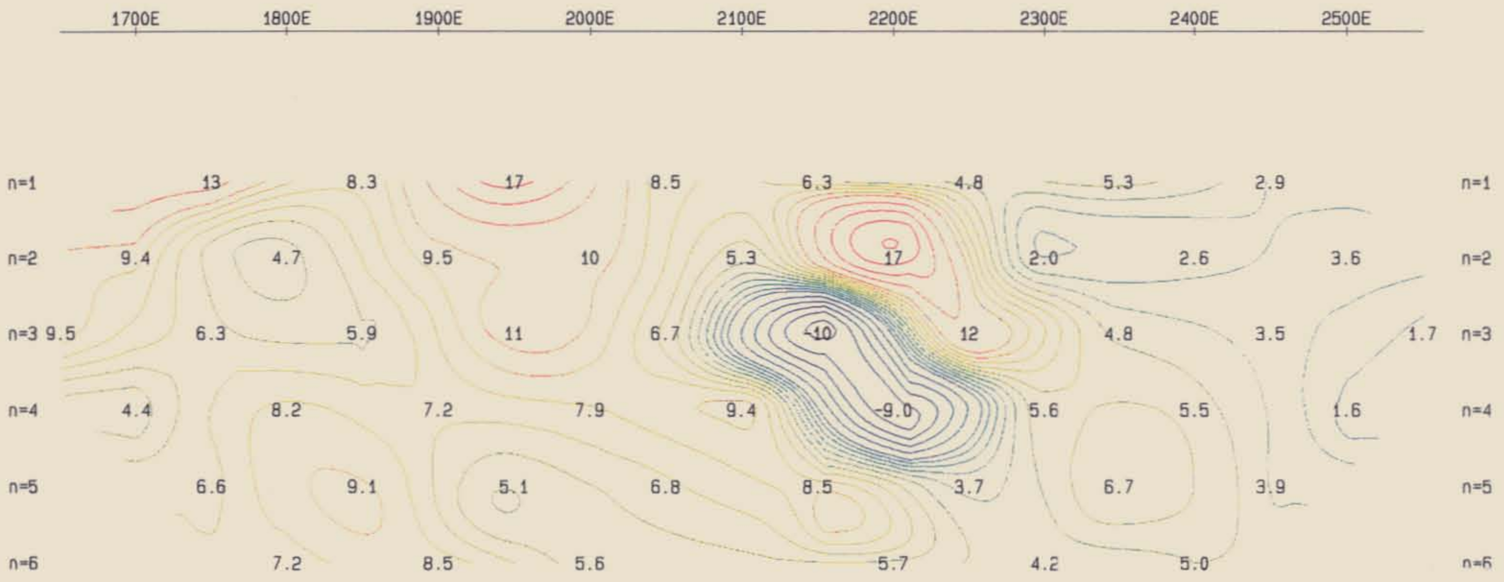
GARFIELD PROJECT

**GRADIENT ARRAY IP
INTERPRETATION**

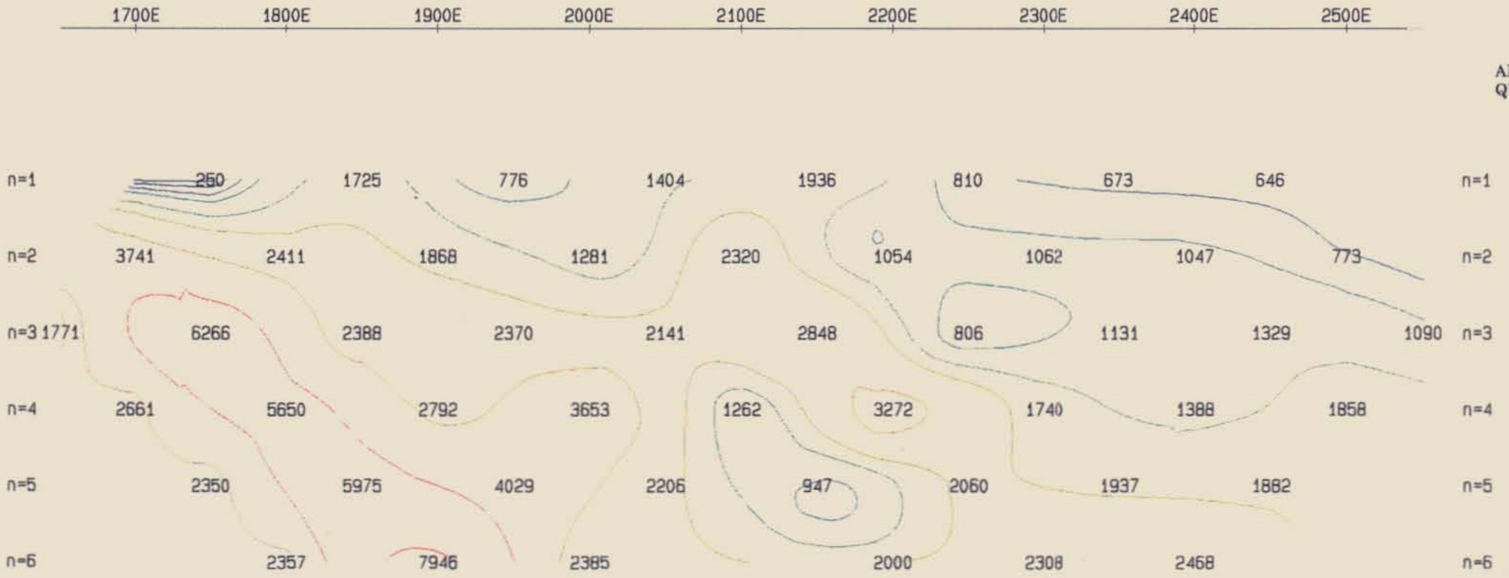
Reference Files : Topography : XX : XX Geology : XX Grid : XX Aeromag : XX Tenement : XX	Compiled : S.R.	Date : Nov 1995	Scale : 1 : 2500
	Drawn : J.S.	Revision Date : -	A.M.G. Zone : local
	Drawing Path : I:\austgold\tas\garfield\aeromag		Drawing Name : 2301a001.dgn

Plan 5

CHARGEABILITY (ms)

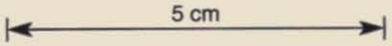


APPARENT RESISTIVITY (ohm/m)



LINE 2800N

723208



DATA ACQUISITION PARAMETERS

Transmitter :	Zonge GGT-2.5
Receiver :	Scintrex IPR12
Method :	TIME DOMAIN
Frequency :	0.125 Hz

96-3834

VOLUME 1 OF 2

ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

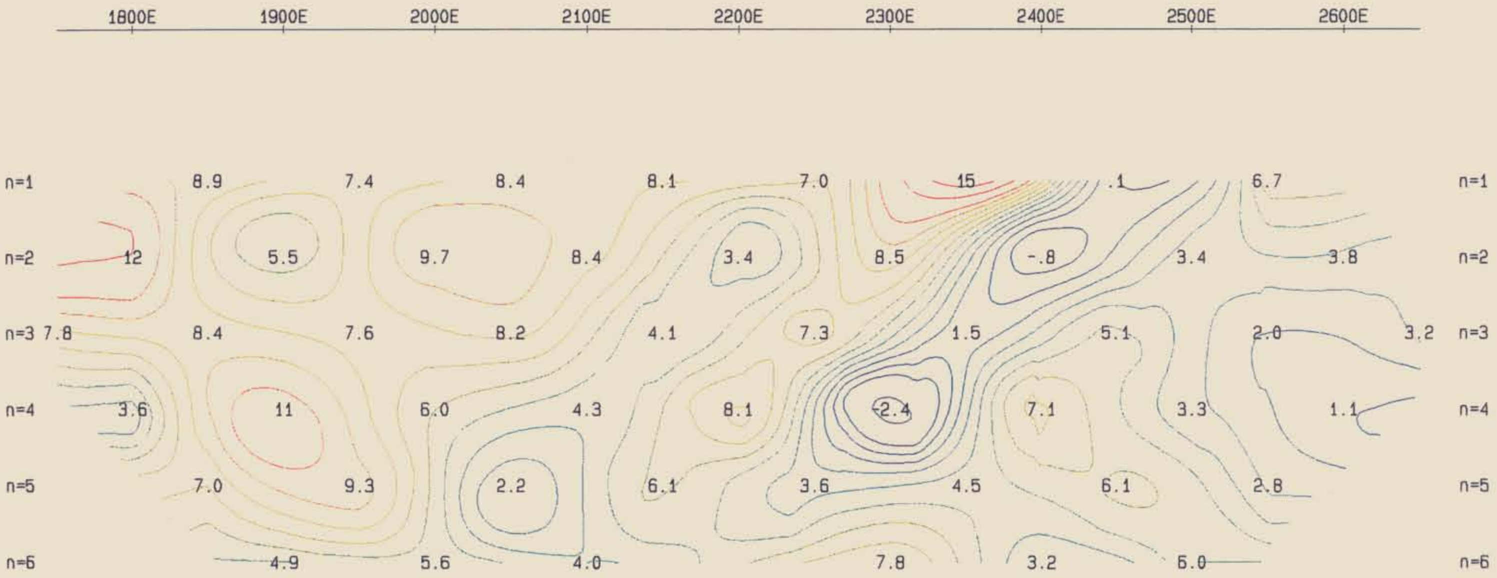
Plan 6

Scale 1 : 5000

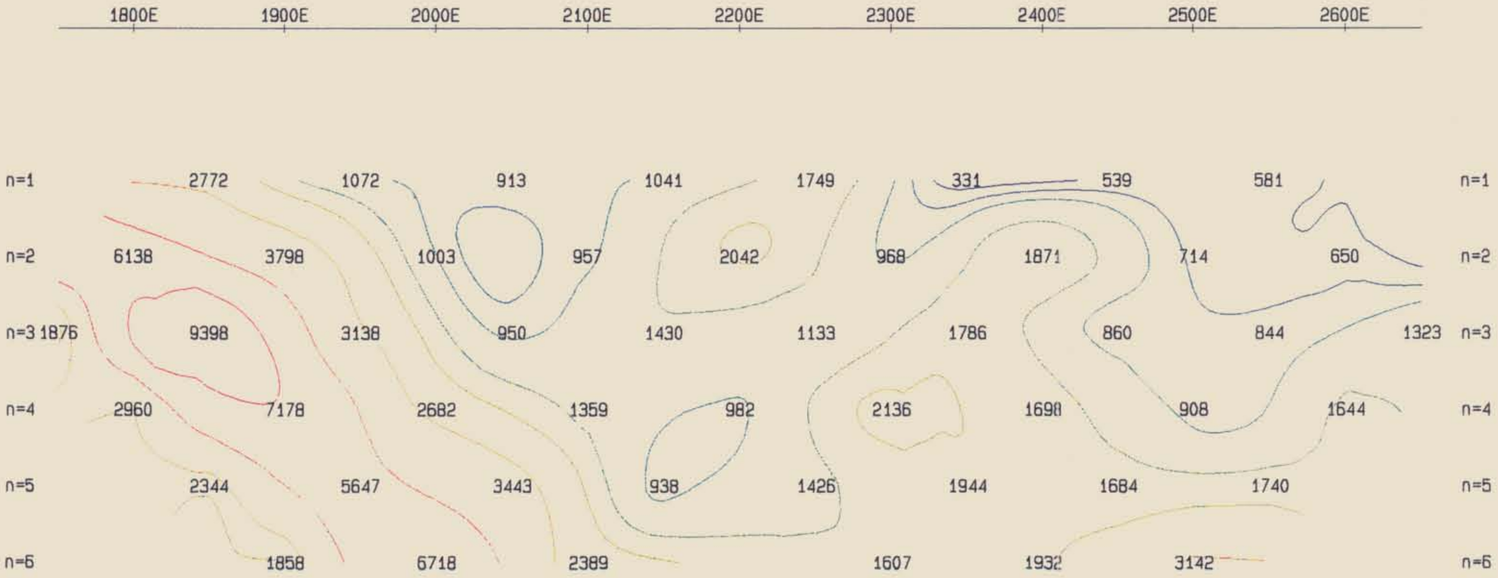
RGC EXPLORATION PTY LIMITED
INDUCED POLARISATION SURVEY
DIPOLE-DIPOLE ARRAY
GARFIELD
TASMANIA OCT 1995

DIPOLE : 100m SPREAD : 1

CHARGEABILITY (ms)



APPARENT RESISTIVITY (ohm/m)



LINE 3000N

723209

5 cm

DATA ACQUISITION PARAMETERS

Transmitter :	Zonge GGT-2.5
Receiver :	Scintrex IPR12
Method :	TIME DOMAIN
Frequency :	0.125 Hz

96-3834

VOLUME 1 OF 2

ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

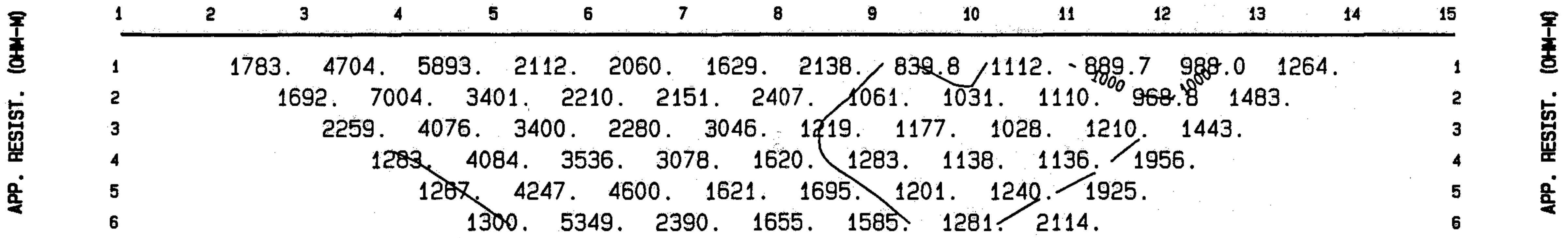
Plan 7

Scale 1 : 5000

RGC EXPLORATION PTY LIMITED

INDUCED POLARISATION SURVEY
DIPOLE-DIPOLE ARRAY
GARFIELD
TASMANIA OCT 1995

DIPOLE : 100m SPREAD : 2



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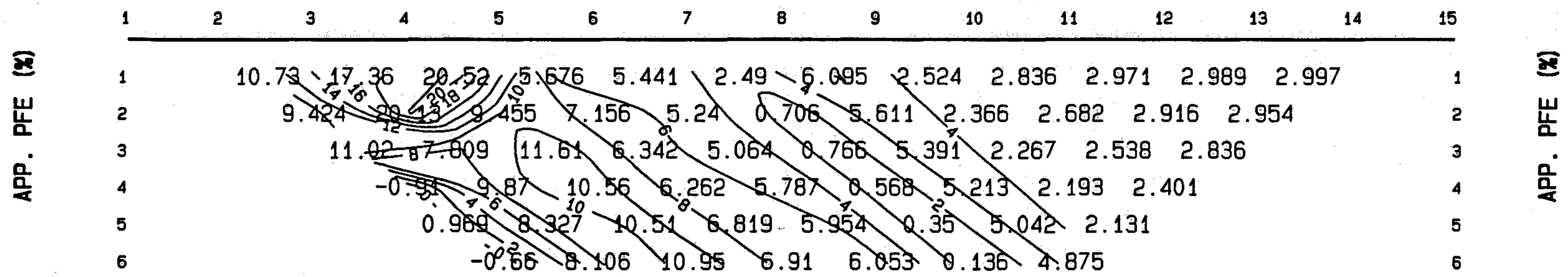
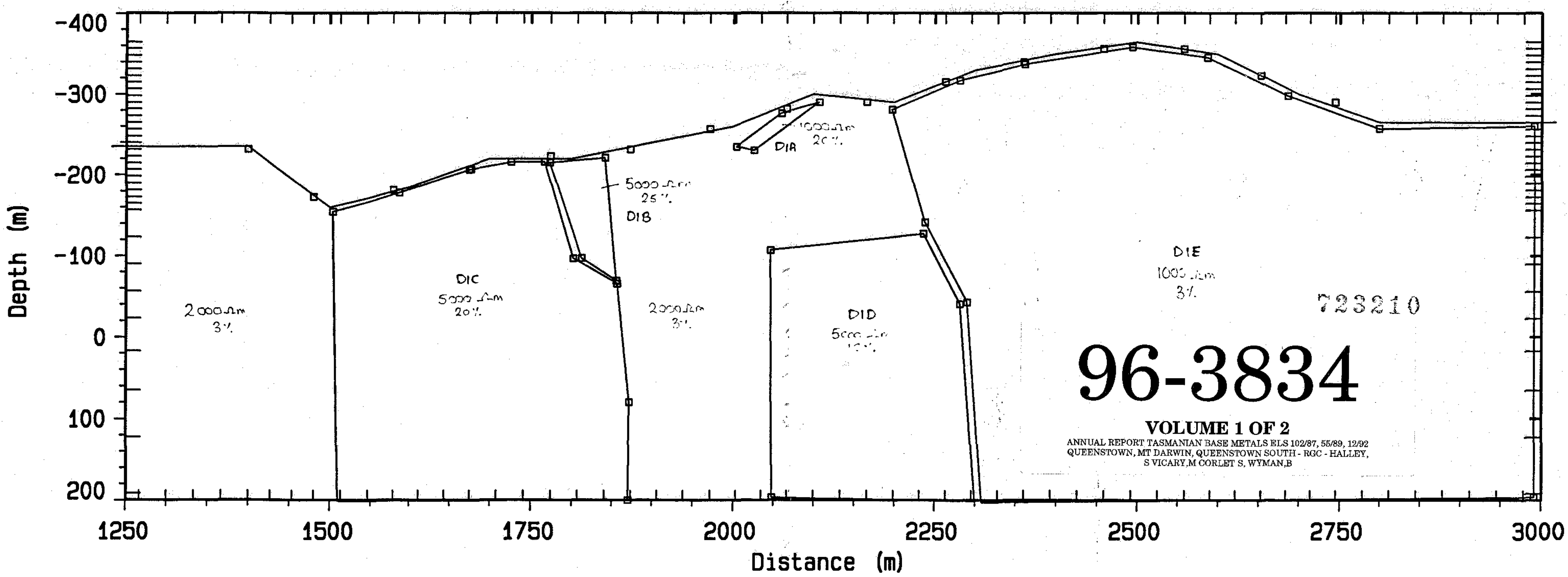
2	1692.	7004.	3401.	2210.	2151.	2407.	1061.	1031.	1110.	968.8	1483.	
3	2259.	4076.	3400.	2280.	3046.	1219.	1177.	1028.	1210.	1443.		
4	1283.	4084.	3536.	3078.	1620.	1283.	1138.	1136.	1956.			
5	1287.	4247.	4600.	1621.	1695.	1201.	1240.	1925.				
6	1300.	5349.	2390.	1655.	1585.	1281.	2114.					



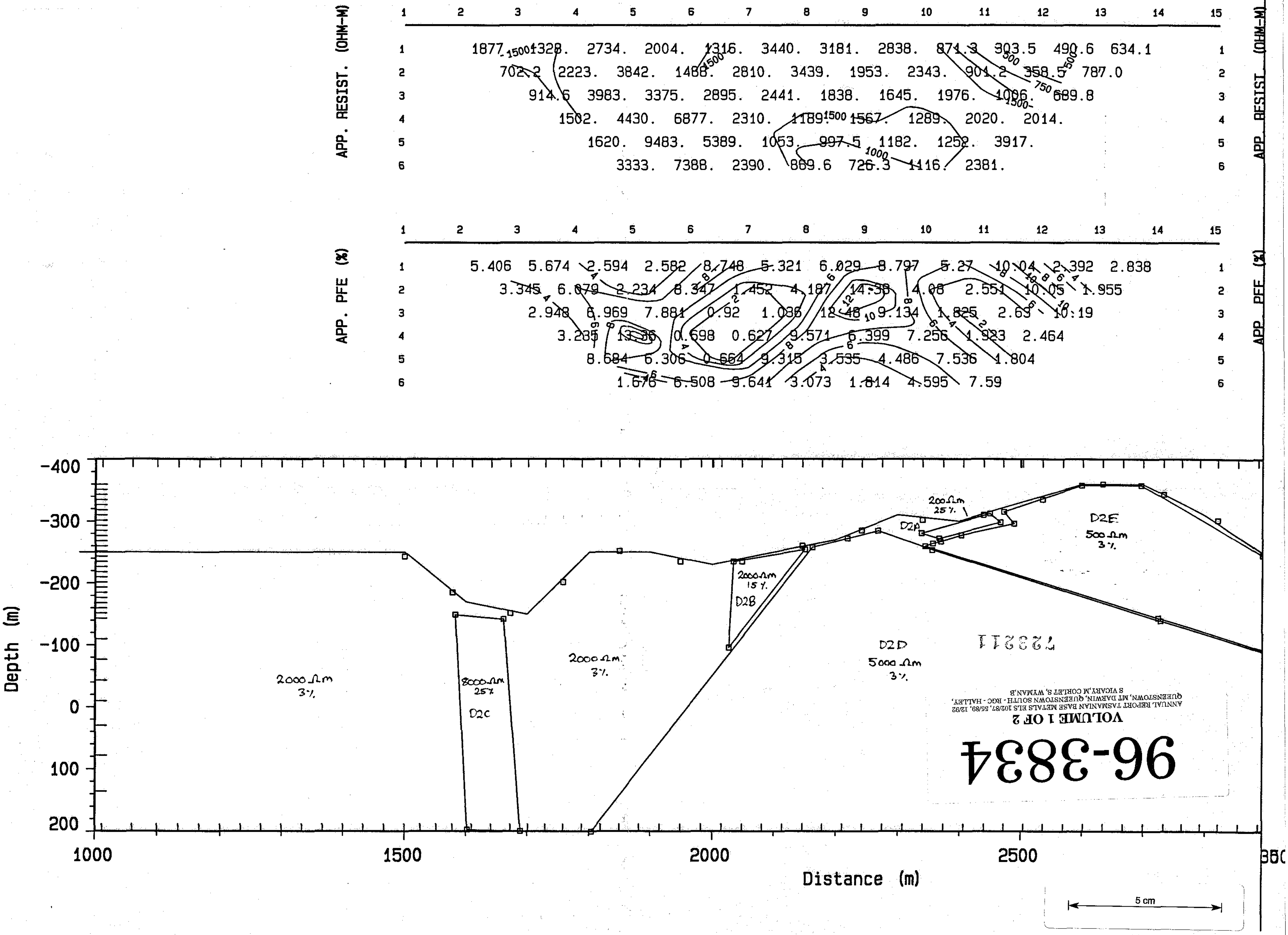
1	10.73	17.36	20.52	5.676	5.441	2.49	6.095	2.524	2.836	2.971	2.989	2.997
2	9.424	20.13	9.455	7.156	5.24	0.706	5.611	2.366	2.682	2.916	2.954	
3	11.02	7.809	11.61	6.342	5.064	0.766	5.391	2.267	2.538	2.836		
4	-0.91	9.87	10.56	6.262	5.787	0.568	5.213	2.193	2.401			
5	0.969	8.327	10.51	6.819	5.954	0.35	5.042	2.131				
6	-0.66	8.106	10.95	6.91	6.053	0.136	4.875					



5 cm

Plan 8

for: RGC Exploration Pty Ltd	Garfield Tasmania Line 2800N
by: RGC EXPLORATION PTY. LTD.	
Data Set: GF2800N	Date: Oct 1995
Array: Dipole-Dipole	a-Spacing: 100.
Grid (x by z):	91 by 43



Garfield Tasmania IP Interpretation
Line 3000N 1:5,000 Plan 9

APPENDIX 10

IP Survey at Mountain Maid Prospect

723213

RGC EXPLORATION

ACN 001 426 946

MOUNTAIN MAID, TASMANIA

A GEOPHYSICAL INTERPRETATION
OF
INDUCED POLARISATION SURVEYS, OCTOBER 1995

Vol 1 of 1

AUTHOR(s): Sam Roberts

7 November, 1995

PROSPECTS: Mountain Maid, Mt Huxley, Tasmania

KEY WORDS: Mountain Maid, Induced Polarisation, Gradient Array, Dipole-Dipole Array

Distribution:

- **RGC Exploration Information Centre Reference:**
- **Zeehan Exploration Office**

Summary and Conclusions

- A gradient array induced polarisation survey was conducted at the Mountain Maid prospect. Seven (7) lines were surveyed with 50 metre dipoles at 25 metre intervals.
- A dipole-dipole array IP spread was surveyed on line 7100N. A 100 metre dipole was used.
- The dipole-dipole data was modelled using two dimensional IP modelling techniques which incorporated the effects of topography, see Plan 6
- The target chargeability anomaly CH4, see Plan 4, was detected and is open to the north. Another anomaly, CH1, is open to the north and west. Recommendations have been made to extend the gradient array IP coverage to the north and west.
- The chargeability anomaly CH4 was explained by body D1A, see Plan 6. A recommendation has been made to drill test body D1A. Further recommendations have been made to survey additional dipole-dipole IP spreads north and south of line 7100N to more accurately determine the shape of the chargeable body.

Contents

List of Plans

Introduction

RGC Exploration Pty Limited undertook gradient array and dipole-dipole array Induced Polarisation/ Resistivity surveys at the Mountain Maid prospect in October 1995.

The Mountain Maid prospect is located approximately 5km south-west of Queenstown on the West Coast of Tasmania. Access to the prospect is by four wheel drive track.

A gradient array IP survey was conducted at the Mountain Maid prospect. In addition a single spread dipole-dipole array IP survey was undertaken on line 7100N. The work was designed to test the extent of a chargeability anomaly which had been detected by previous survey work.

The IP survey was conducted by Quadrant Geophysics using a Scintrex IPR12 receiver and Zonge GGT-2.5 2.5kw two second time domain transmitter. The gradient array survey used a 50 metre receiver dipole and data was recorded at half the receiver dipole length, 25 metres. The lines surveyed are summarised below.

Mountain Maid : Transmitter Electrodes : Line 7100N, 4000E, 5200E

Line 6800N	4125E - 4675E
Line 6900N	4125E - 4675E
Line 7000N	4125E - 4675E
Line 7100N	4125E - 4675E
Line 7200N	4125E - 4675E
Line 7300N	4125E - 4625E
Line 7400N	4100E - 4600E

The data is presented as images and profiles, see Plans 1, 2 and 3. An interpretation plan is provided, see Plan 4.

A survey using a 100 metre dipole-dipole array was conducted on line 7100N to test for the source of the chargeability anomaly detected by the gradient array IP survey. The data is presented as pseudosections of apparent resistivity and chargeability, see Plan 5.

The IP/Resistivity data has not been located to true geographical location and consequently location errors of up to 25 metres may be present in the data. The data should be positioned by the geological plan (not accompanying this report) which shows the true location of the grid lines.

The surveys were undertaken as a part of RGC's base metal exploration program in Western Tasmania. This report presents an interpretation of the IP/Resistivity data.

Gradient Array Interpretation

An interpretation of the Mountain Maid gradient array IP data is provided, see Plan 4.

The apparent resistivity data exhibits a north-south trend. The dominant features are an apparent resistivity high trending north south at about 4600E and apparent resistivity lows at 4400E and 4300E. To the west isolated apparent resistivity highs are detectable as well as a less prominent north-south trending apparent resistivity high.

Note that the apparent resistivity data will be affected by topography. We expect to see high apparent resistivity anomalies in valleys and low apparent resistivity anomalies on hills. The apparent resistivity highs and lows we have observed are caused primarily by real geological features.

The chargeability data shows a similar directional trend. There are two main features - a prominent positive anomaly at about 4500E and a weaker, parallel anomaly at 4300E. The chargeability and apparent resistivity data do not appear to be well correlated.

The two high resistivity trends are labelled RH2 and RH6, see Plan 4. Other high resistivity anomalies include RH1 at 4100E, RH3, RH4 and RH5 at about 4300E and RH7 at 4700E. It is possible that RH3, RH4 and RH5 are a part of the same geological structure.

The primary target is chargeability anomaly CH4. The anomaly strikes NNW and appears to be split into separate components to the south and north. The anomaly is open to the north and south although it is weakening in both directions. A parallel anomaly, CH3, is continuous from north to south and is open in both directions. It represents a much smaller target than CH4.

To the north west, anomaly CH1 is open to the west and north. Finally a small anomaly, CH2, is detectable in the south west of the survey grid.

723219

Dipole-Dipole Array Interpretation

The dipole-dipole data is fairly straightforward. There is a single dominant chargeability anomaly and a number of interacting apparent resistivity anomalies.

Line 7100N

The apparent resistivity and chargeability pseudosections are provided, see Plan 5, and a depth section interpretation, see Plan 6.

The model was developed using RSXIP2D which is a two dimensional IP modelling program. Two dimensional topographic effects were included in the model. The model is moderately reliable only to a depth of 200 metres below the surface.

The apparent resistivity data shows high apparent resistivities to the west of 4200E, low apparent resistivity anomalies at 4200E and 4500E and high apparent resistivity anomalies between. These anomalies are partly explained by topography. The low apparent resistivity anomalies have been explained by easterly dipping bodies (1000 ohm-m) labelled D1A and D1C, see Plan 6. They lie within resistive rock (5000 ohm-m) represented by body D1B.

Body D1A explains the chargeability anomaly at approximately 4500E. The body dips to the east at approximately 75 degrees.

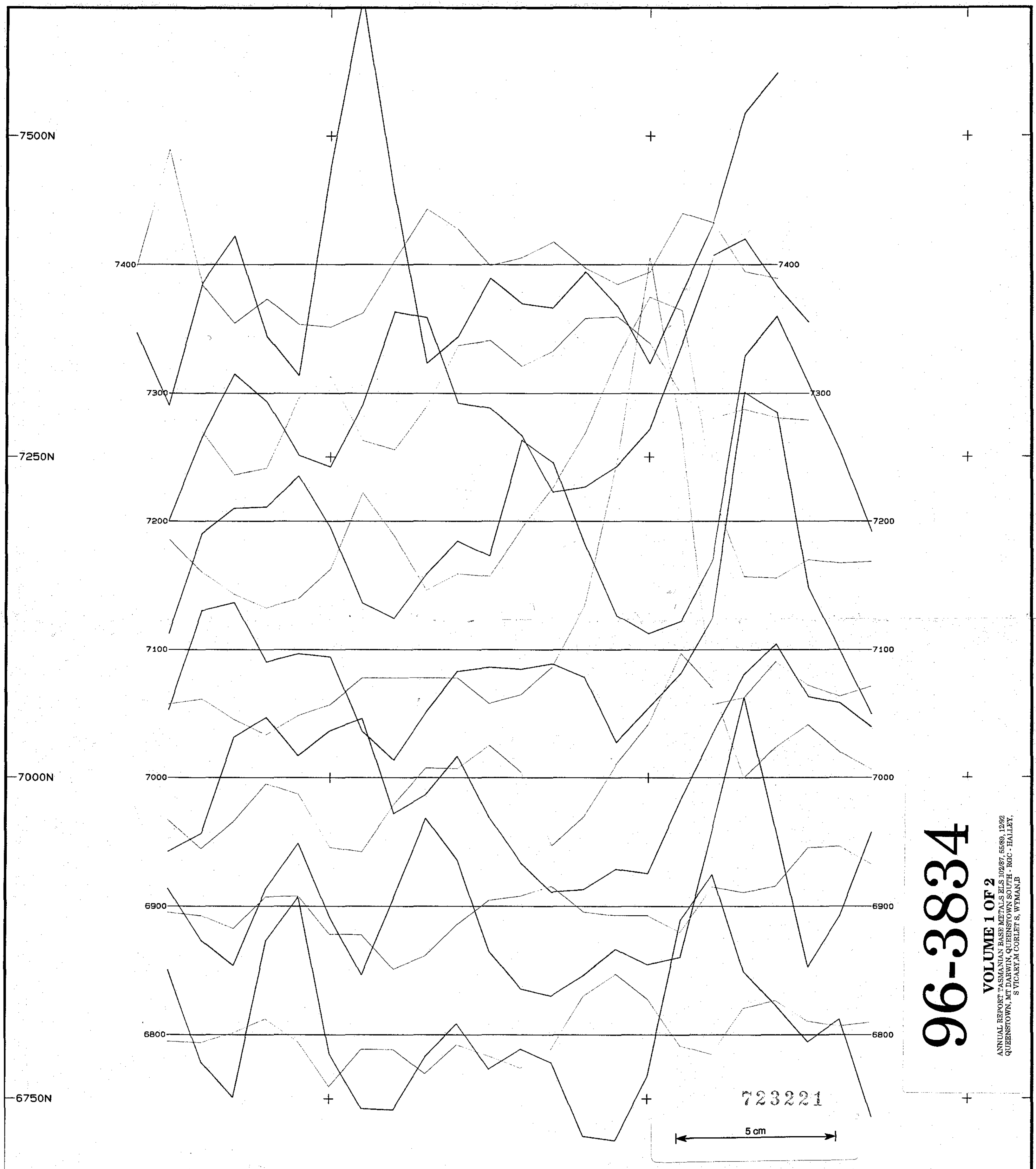
Body D1A explains the chargeability anomaly CH4 observed in the gradient array IP data. The apparent resistivity data does not appear to closely correlate with the gradient array apparent resistivity data.

Recommendations

1. The existing gradient array coverage ought to be extended to the north and to the north west to test the extent of anomalies CH1 and CH4.

2. Additional dipole-dipole array IP surveys be conducted to the north and south of line 7100N to further our knowledge of the geometry of the chargeable body.

3. Body D1A ought to be tested with a westerly dipping drill hole collared at about 4500E.



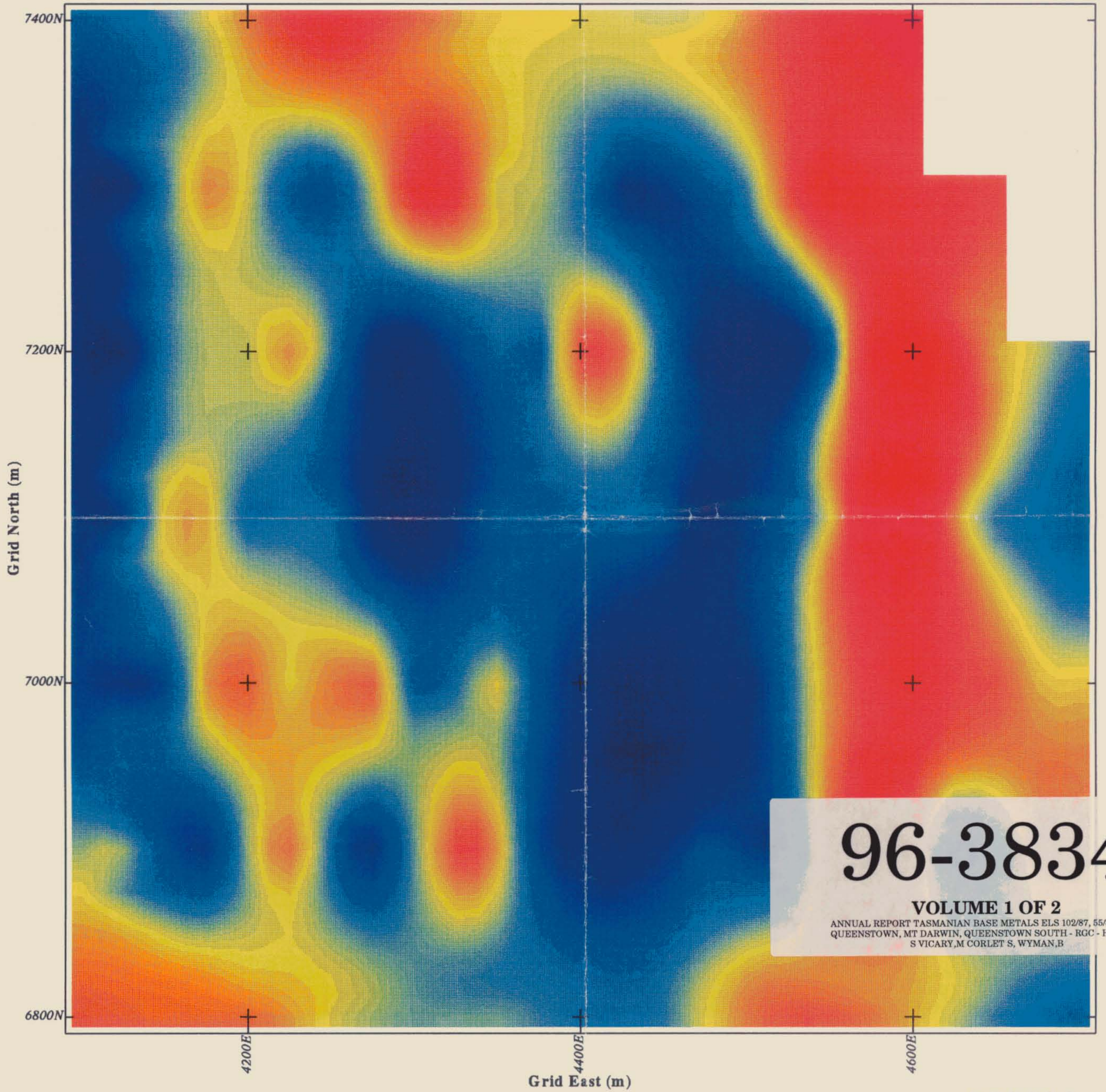
Mountain Maid Gradient Array IP 1 : 2,500

Apparent Resistivity 1cm : 500 ohm-m (Black)
Apparent Chargeability 1cm : 1 ms (Red)

Plan 1

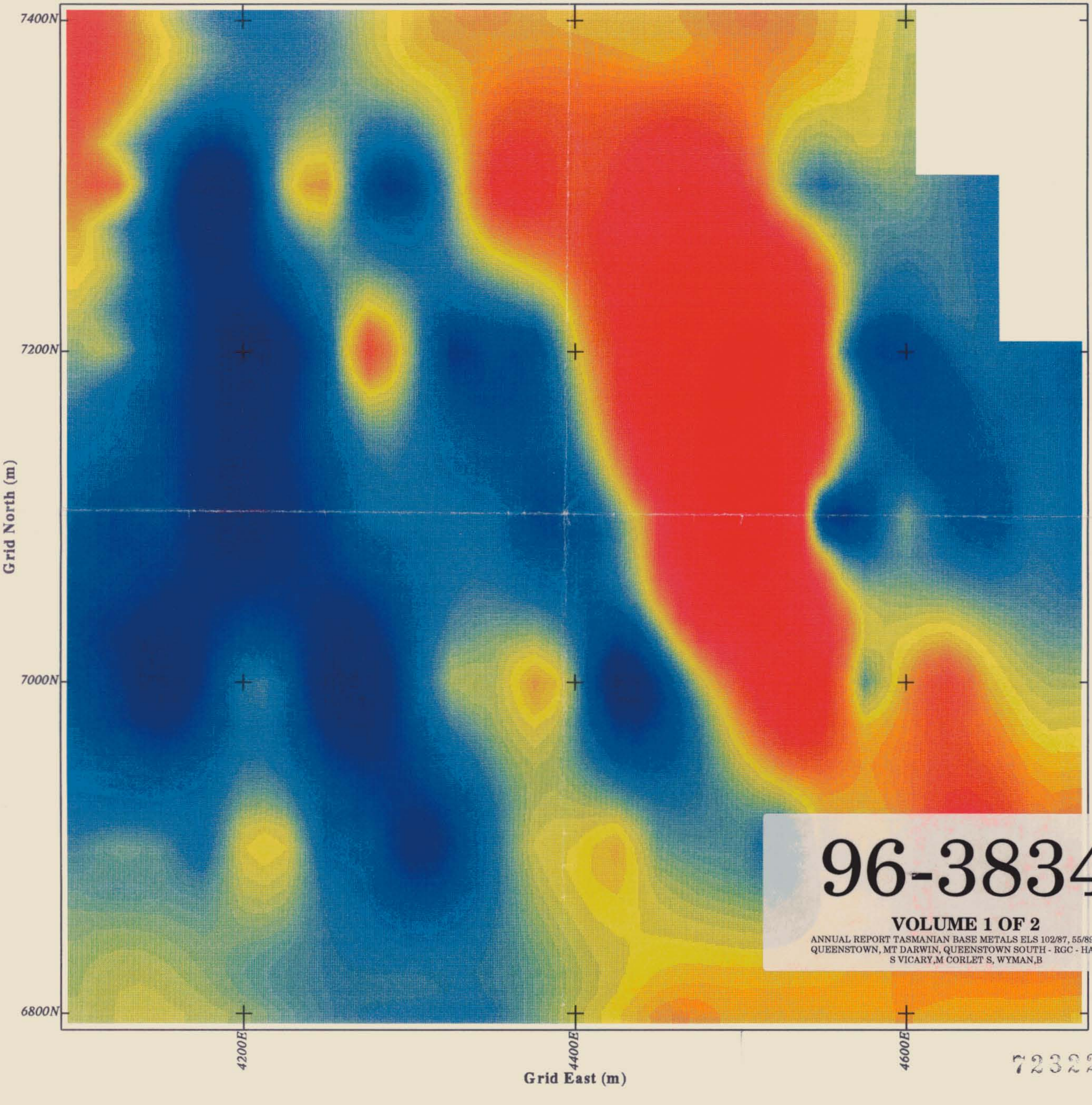
723221

Mountain Maid Gradient Array - Apparent Resistivity (ohm-m)

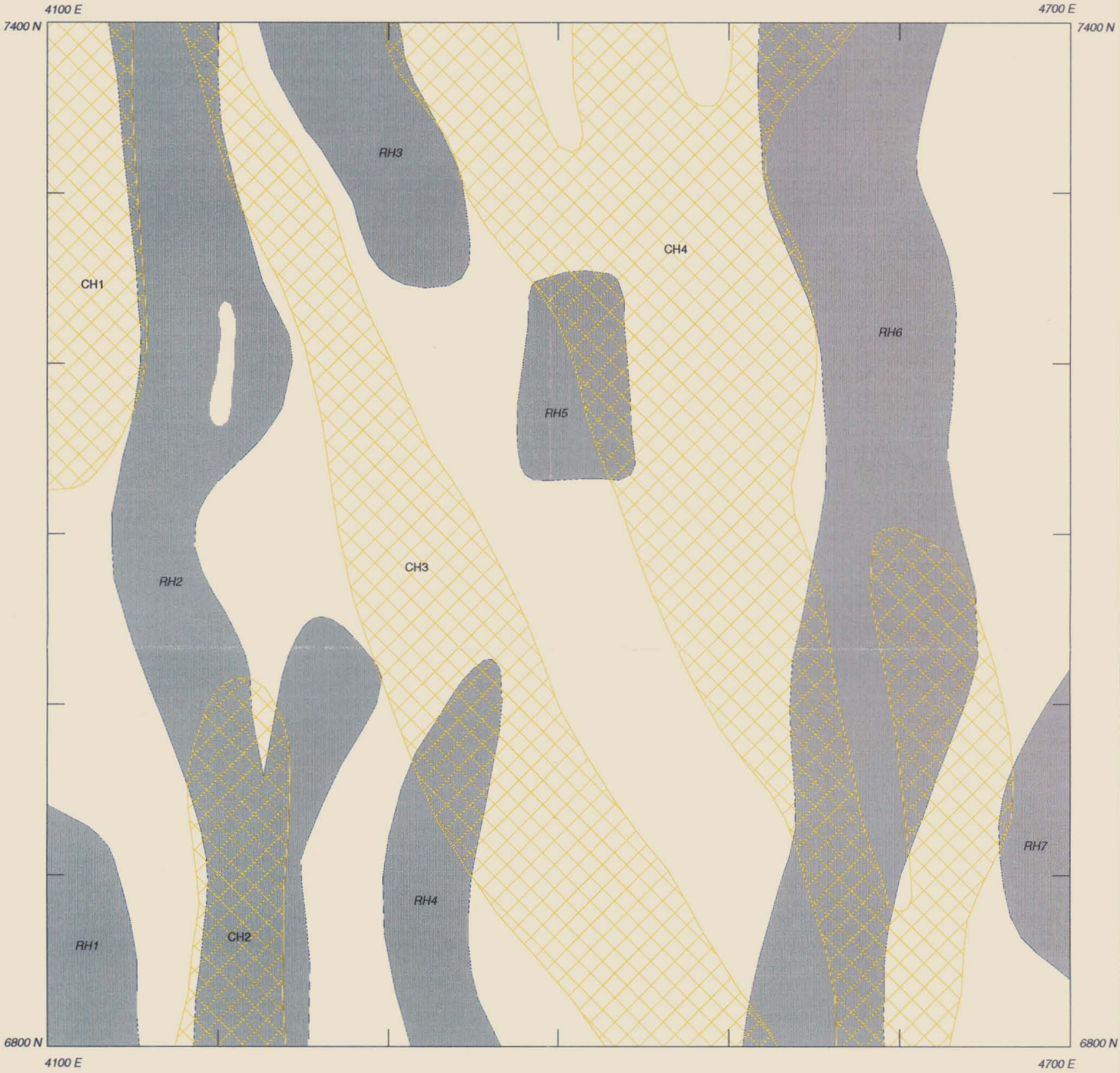


Plan 2

Mountain Maid Gradient Array - Chargeability (ms)



Plan 3



96-3834

VOLUME 1 OF 2

ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

▨ — *High Chargeability*

▩ — *High Resistivity*

5 cm

RGC EXPLORATION

GOLDFIELDS EXPLORATION

A member of the Renison Goldfields Consolidated Group

MOUNTAIN MAID PROJECT

GRADIENT ARRAY IP
INTERPRETATION

Reference Files : Topography : XX : XX Geology : XX Grid : XX Aeromag : XX Tenement : XX	**Compiled :** S.R.	**Date :** Nov 95	**Scale :** 1 : 2500
	Drawn : J.S.	**Revision Date :** --	**A.M.G. Zone :** local
	Drawing Path : i:\austgold\tas\garfield\aeromag		**Drawing Name :** 2301a002.dgn

Plan 4

723224

5 cm

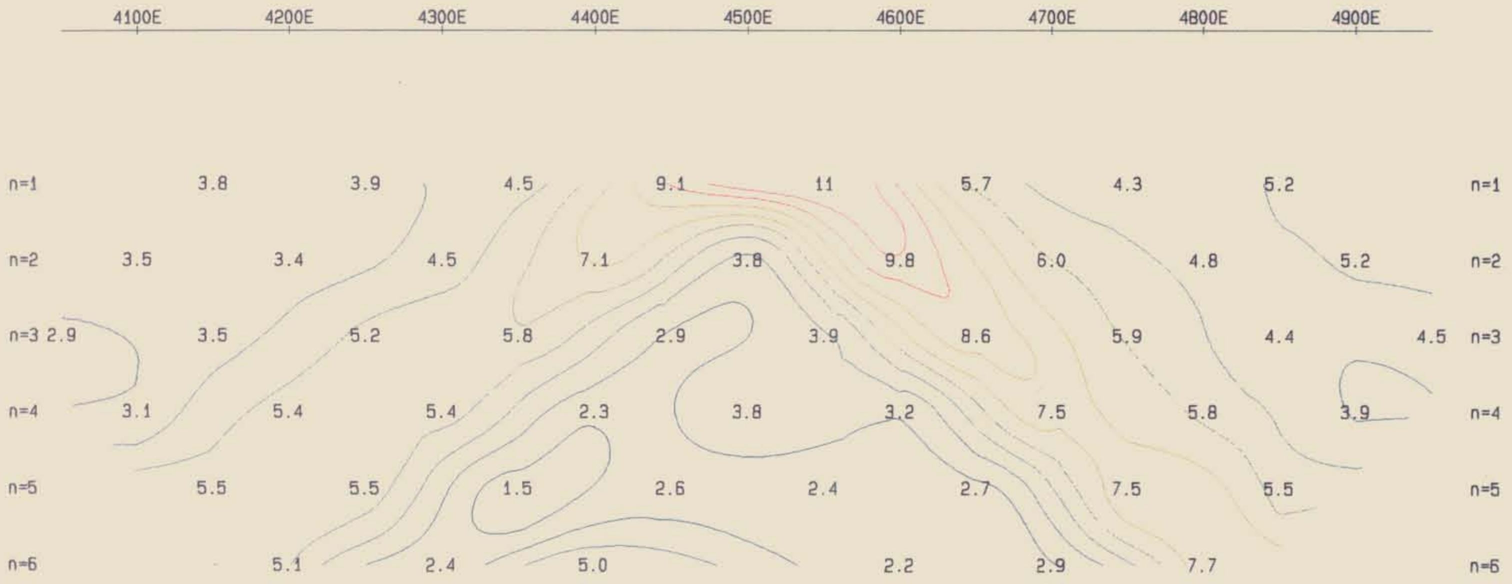
LINE 7100N

723225

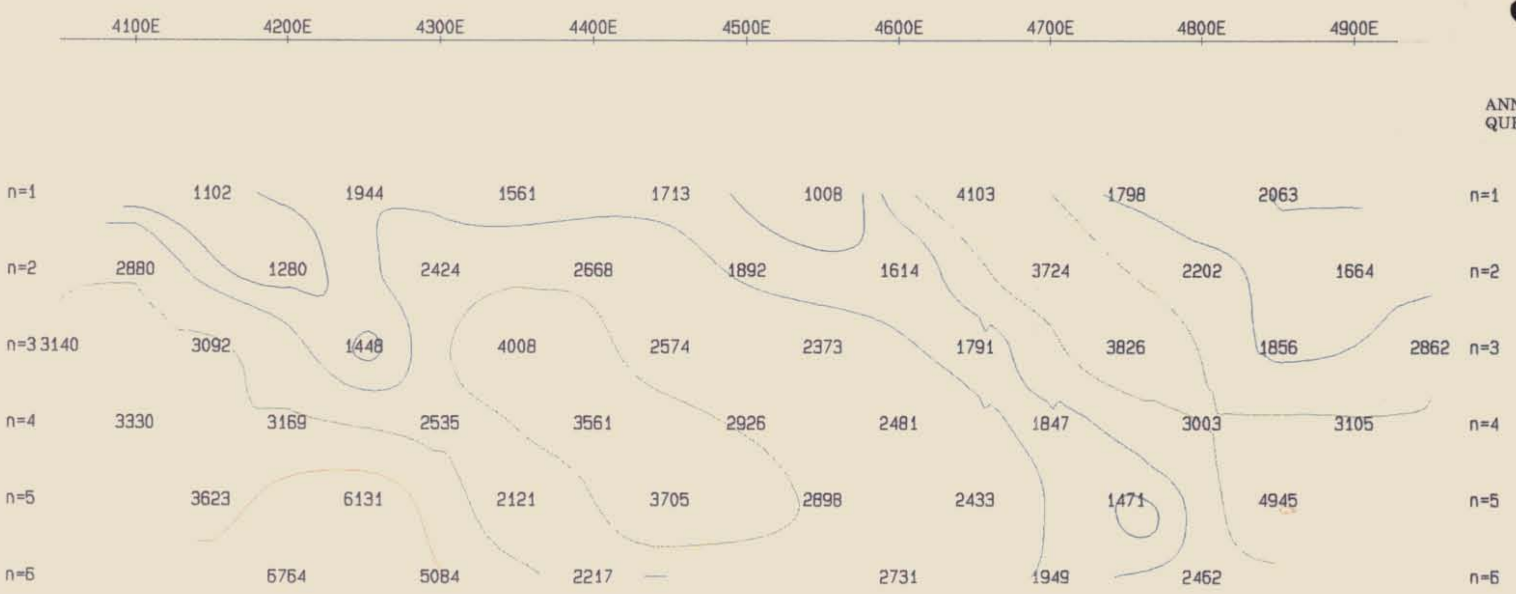
DATA ACQUISITION PARAMETERS

Transmitter :	Zonge GGT-2.5
Receiver :	Scintrex IPR12
Method :	TIME DOMAIN
Frequency :	0.125 Hz

CHARGEABILITY (ms)



APPARENT RESISTIVITY (ohm/m)



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VOLUME 1 OF 2

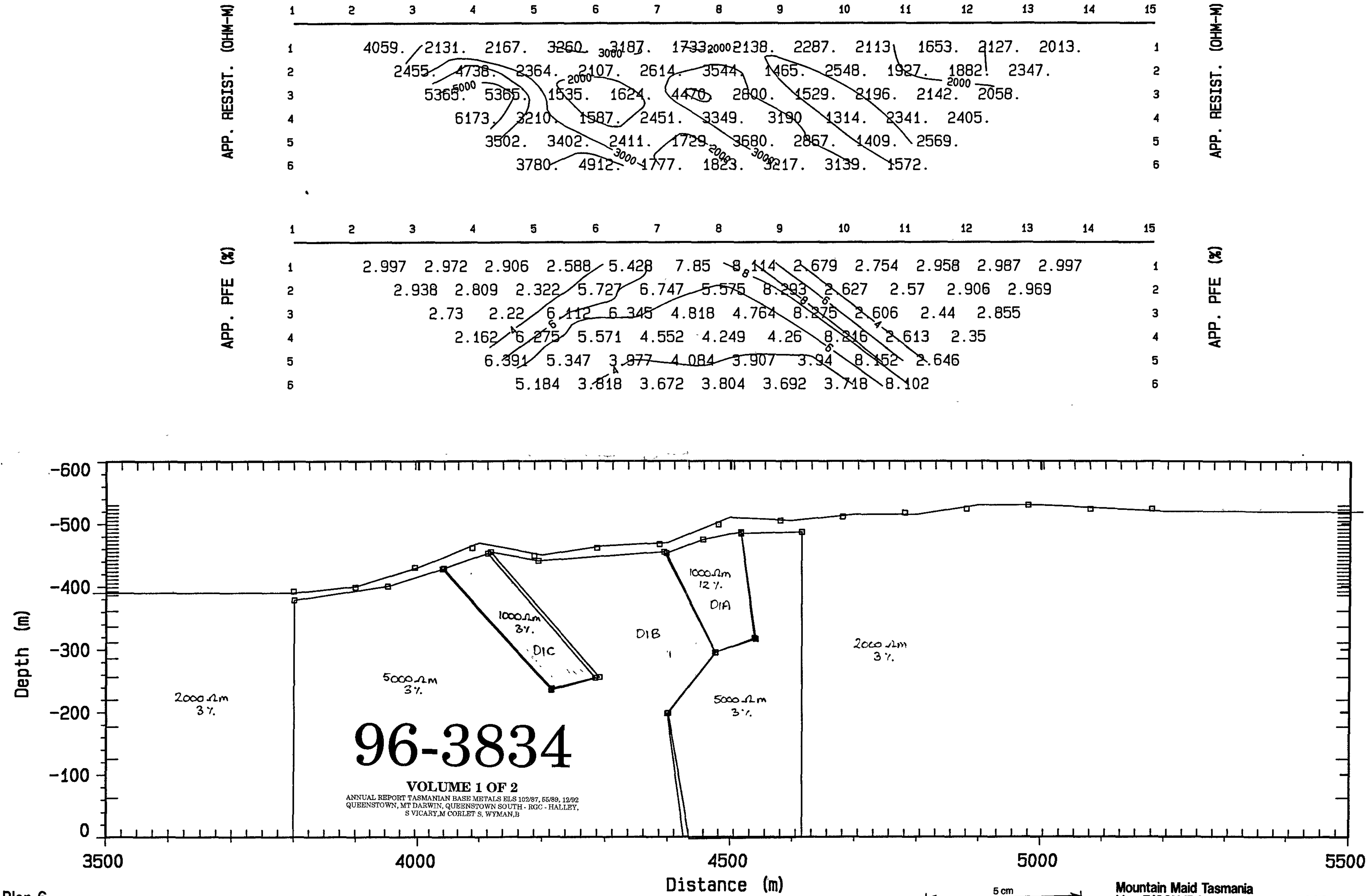
ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

Plan 5

Scale 1 : 5000

RGC EXPLORATION PTY LIMITED
INDUCED POLARISATION SURVEY
DIPOLE-DIPOLE ARRAY
MOUNTAIN MAID
MT HUXLEY TASMANIA

DIPOLE : 100m	SPREAD : 1
DRAWN BY : S. Roberts	OBSERVER : Quadrant



Plan 6

Mountain Maid Tasmania
Line 7100N IP Interpretation 1 : 5,000

APPENDIX 11

Mountain Maid Report

723228

RGC EXPLORATION

REPORT

TASMANIAN BASE METALS PROJECT

EL 2/92

MOUNTAIN MAID

Vol 1 of 1

HELD BY: RGC EXPLORATION

MANAGER & OPERATOR: RGC EXPLORATION

AUTHOR: SUE CORLETT

11 August 1995

PROSPECTS: MOUNTAIN MAID

MAP SHEETS:	**1:25,000: OWEN**	
GEOGRAPHIC COORDS	**Min East:382500mE** **Min North: 5333500mN**	**Max East: 384500mE** **Max North: 533600mN**

COMMODITY(s): Cu, Au

KEY WORDS: Mountain Maid, Central Volcanic Complex, Silica - pyrite alteration

Distribution:

- **RGC Exploration - Zeehan**

SUMMARY

Geological mapping over the Mountain Maid prospect has outlined a 200m by 300m area of alteration that also features a weakly anomalous gold response. Previous exploration defined a significant zone of elevated chargeability 50m by 30ms based on a single line of IP (BHP, 1990). It is recommended that five further lines of gradient array IP are carried out at 200 metre intervals across the prospect in order to fully evaluate size and potential magnitude of the mineralised zone (plan 3). Areas of significant chargeability should be followed up by dipole-dipole IP and further tested by drilling.

CONTENTS

LIST OF PLANS AND FIGURES

LIST OF APPENDICES

1. INTRODUCTION

Mountain Maid comprises minor gold workings within intense silica, pyrophyllite (?) and pyrite altered volcanics of the Central Volcanic Complex. These workings lie within a zone of high chargeability (50m by 30ms) that was outlined by a single line of IP (BHP, 1990). Detailed geological mapping and rock chip sampling was carried out at Mountain Maid to evaluate the extent of alteration and potential mineralisation. Gold results are anomalous over the prospect area (averaging 0.09ppm) and define a 200 by 300m area of interest. Further gradient array IP work is warranted to elucidate size and potential magnitude of the mineralised zone. Dipole-dipole IP will be carried out over significant lines.

Mountain Maid contained in EL 102/87 and located on the northern flanks of Mt. Huxley and may be accessed by a good 4WD track from the South Queenstown Road. The area is lightly vegetated by button grass and typically displays abundant outcrop. Creeks are heavily enshrouded by bauera. The entire prospect area has been infected by phytophthora, although at this stage infection appears to be restricted to a 300 by 500m zone.

2. PREVIOUS EXPLORATION

Initial prospecting for gold was carried out in the late 1890's and resulted in the excavation of a trench and a small tunnel driven for 150ft in "siliceous felsic schist" (Twelvetrees, 1904). Only the trench has been located. Modern exploration has been conducted by the Mt. Lyell Mining and Railway Company and BHP:

1966 (Mt. Lyell Mining and Railway Company)
A stream sediment survey resulted in the identification of copper enrichment along the Roaring Meg grid.

1972 (Mt. Lyell Mining and Railway Company)
The "Old Huxley Grid" was soil sampled and covered with ground magnetics. No significant anomalies were observed.

1975 (Mt. Lyell Mining and Railway Company)
Systematic rock chip sampling was carried out at Mountain Maid and analysed for base metals only. No results were anomalous.

1982 (Mt. Lyell Mining and Railway Company)
Grid was covered by DIGHEM and no significant anomalies were observed. Stream sediment sampling was carried out, no anomalies were attributed to Mountain Maid.

1990 (BHP)
A single line of IP was conducted over Mountain Maid and a chargeability anomaly of 50m by 30ms was detected.

1991 (BHP)

Rock chip sampling over Mountain Maid was conducted in order to narrow the source of a 2.5km drainage anomaly from suspected alluvial workings. A result of 5m at 2.18g/t was reported from the trench.

3. WORK DONE

The work completed at the Mountain Maid prospect in 1995 consisted of the following:-

1) Geological Mapping at 1: 2 500 Scale and
2) 48 Rock chips were collected. They were analysed by Analabs for Cu, Pb, ZN, and Mn by AAS, Au by fire assay and Ba by XRF.

4. GEOLOGY

Mountain Maid lies within a package of Central Volcanic Complex lavas and volcaniclastics that may be subdivided into four geological units (see fact and interpretive maps on plans 1 and 2). Most rocks trend NNW (S1) and dip at 80 degrees to the west:

Feldspar phyric dacitic lavas (Cdl)

The most extensive unit in the prospect area comprises feldspar phyric dacitic lavas that commonly feature coarse pink feldspar phenocrysts. They occur as coherent lavas that are almost always spherulitic and often flow banded. Intensely spherulitic vitric lavas (?dacitic ignimbrites) occur within this sequence and may suggest a component of subaerial genesis. Grading within some lava flows can be observed; illustrated by basal coherent lavas that grade upward to spherulitic flow tops. These indicate a younging direction to the east. The composition of these lavas tend to rhyolitic compositions in the south west of the mapping area (Clr-d). Hydrothermal brecciation has resulted in abundant "jig saw fit" clast supported breccias with an imposed siliceous matrix (average clast size is 3 - 5cm).

Brecciated dacitic lavas (Cdb)

This unit forms a rubbly, monomict autobrecciated lava of dacitic composition that is typically laterally discontinuous and commonly interfingers with dacitic lavas and volcaniclastic sediments. Clasts are often cherty and usually feature feldspar phyric and spherulitic textures. Although the thickest occurrence of these breccias is in the north east, breccias in the Mountain Maid Prospect area often outcrop as one to fifty metre wide bodies. Weak hematite/limonite alteration after chlorite/?pyrite is almost ubiquitous with these breccias.

Rhyolitic lavas (Crl)

Equigranular, fine grained quartz phyric rhyolitic lavas are restricted to the south west corner of the mapping area. They commonly feature flow banding.

Volcaniclastic sediments (Cvs)
Fine grained cherty siltstones form the bulk of rocks in the Mountain Maid area and typically interfinger with autobrecciated dacitic lavas. Laminated mudstones, cherty siltstones (variably hematitic) and tuffaceous volcaniclastic sandstones occur interspersed within the lava dominated package. Volcaniclastic sediments comprise < 5% of rocks in the mapping area.

5. ALTERATION

The Mountain Maid prospect area comprises fine grained siliceous sediments interbedded with dacitic breccias and occasional unaltered lenses of feldspar phyric dacite lava.

Four types of alteration have been observed:

(1) Silica, pyrophyllite and pyrite form the most intense alteration phase and are associated with mineralisation. These rocks commonly feature intensely silicified breccia clasts within a pyrophyllite/pyrite/silica matrix and suggest at least two phases of alteration have occurred.

(2) Silica and pyrite - pervasive silicification with 1-2% pyrite.

(3) Hematite/limonite after ?chlorite/pyrite - hematitic alteration of weakly chloritised and/or pyritised sediments and brecciated dacitic lavas. It is difficult to determine what is primary and secondary in this form of alteration.

(4) Hematite and silica alteration - a small area of brecciated siliceous hematitic clasts occur along strike from the main alteration zone.

The bulk of rocks in the mapping area remain unaltered and the zone of interest at Mountain Maid is restricted to a 200 by 400m area.

6. GEOCHEMISTRY

In all, 15 rock chip samples were collected from the Mountain Maid area during mapping and an additional 33 were taken across the principal zone of interest. Results are presented in Appendix 1.

All samples were elevated in gold with a maximum value of 0.31ppm from the trench, and an average gold content of 0.09ppm. Maximum gold values are attributable to alteration types (1) pyrophyllite, pyrite and silica and (3) hematite/limonite after ?chlorite/pyrite. Samples with intense silicification and 1-2% pyrite, returned low to non-detectable Au values.

Significant amounts of barium were detected in three samples from across the prospect (>3300ppm). All base metal values were negligible.

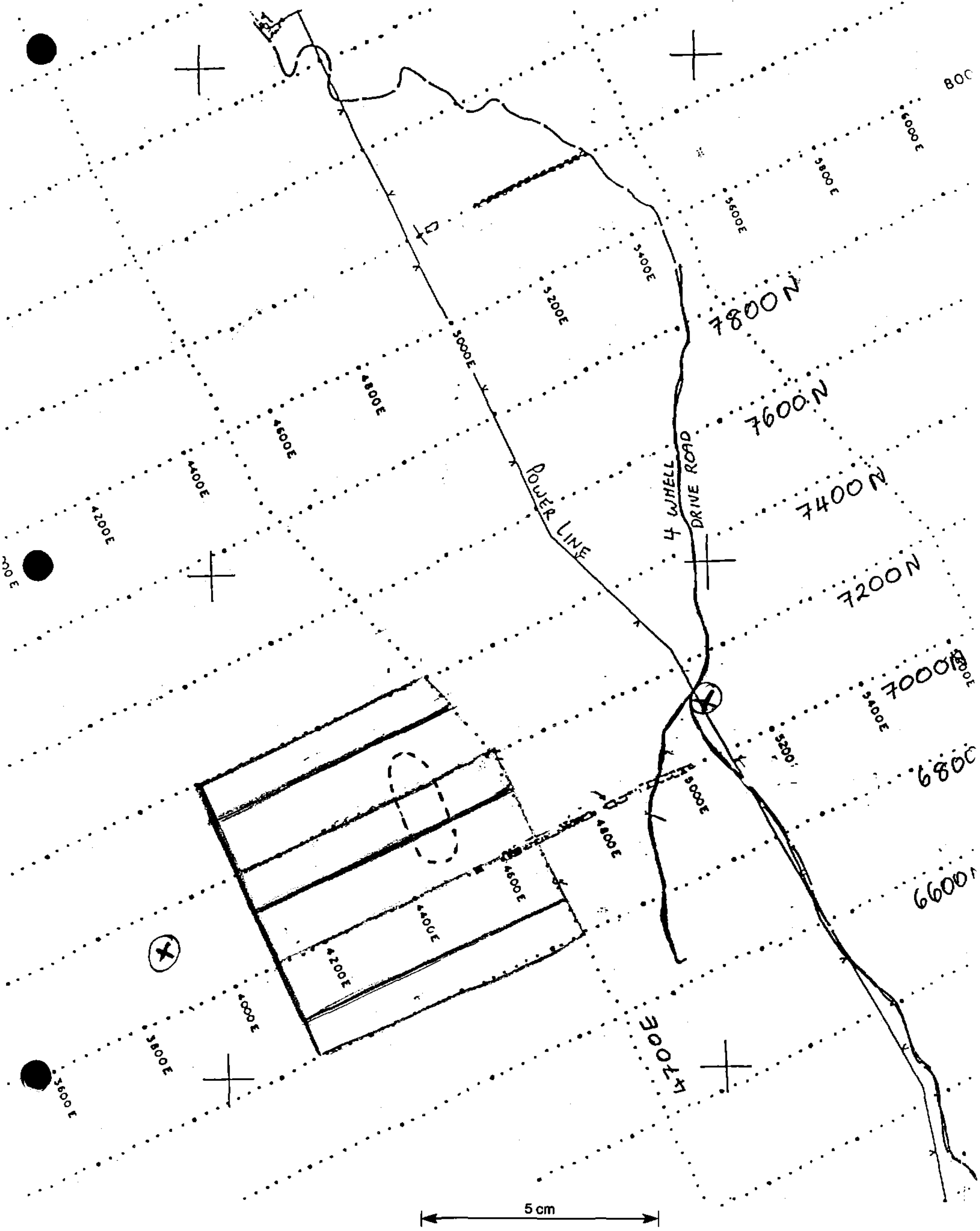
7. RECOMMENDATIONS.

Geological mapping over Mountain Maid has outlined a 200m by 300m area of alteration that also features a weakly anomalous gold response. Previous exploration defined a significant zone of elevated chargeability 50m by 30ms based on a single line of IP (BHP, 1990). It is recommended that five further lines of gradient array IP are carried out at 200 metre intervals across the prospect in order to fully evaluate size and potential magnitude of the mineralised zone (plan 3). Areas of significant chargeability should be followed up by dipole-dipole IP and further tested by drilling.

723235

PROPOSED IP SURVEY

-- appoximate phylophthora infechon zone
— lines to be cleaned up.
▬ lines to be cut.
1:10,000 - FIGURE 1.



723236

APPENDIX 1 -Rock Chip Assays

RGC Exploration Pty Ltd
GEOCHEM Data Management System
Project: TASMANIA

Sample	Project Name	True easting	True northing	Cu ppm ANALAB GA140	Pb ppm ANALAB GA140	Zn ppm ANALAB GA140	Ag ppm ANALAB GA140	ANALAB Mn ppm GA140	Au ppm ANALAB 309	Au(r) ppm ANALAB GG3	Au(s) ppm ANALAB GG3	Ba ppm ANALAB 401	ANALAB Ba2_x % GX404
46901	MTMAID	383427.92	5334541.19	152.000	39.000	26.000	-2.000	9.000	0.010			329.000	
46902	MTMAID	383924.61	5334700.91	5.000	70.000	28.000	-2.000	46.000	0.012			274.000	
46903	MTMAID	383428.25	5334480.31	81.000	-5.000	34.000	4.000	24.000	0.311			3560.000	
46904	MTMAID	383424.93	5334479.18	46.000	34.000	11.000	2.000	21.000	0.158			667.000	
46905	MTMAID	383446.31	5334453.40	16.000	19.000	10.000	-2.000	47.000	0.012			109.000	
46906	MTMAID	383428.69	5334525.01	176.000	40.000	25.000	2.000	17.000	0.079			3460.000	
46907	MTMAID	383438.75	5334490.43	24.000	22.000	21.000	-2.000	13.000	0.010			666.000	
46908	MTMAID	383452.01	5334494.95	6.000	14.000	32.000	2.000	13.000	0.012			678.000	
46909	MTMAID	383441.97	5334471.98	79.000	39.000	11.000	4.000	33.000	0.011			133.000	
46910	MTMAID	383422.28	5334477.76	139.000	68.000	27.000	5.000	26.000	0.213			406.000	
46911	MTMAID	383438.27	5334439.90	12.000	29.000	18.000	-2.000	23.000	0.012			1190.000	
46912	MTMAID	383452.90	5334439.62	10.000	36.000	54.000	-2.000	34.000	0.013			1140.000	
46913	MTMAID	383424.18	5334359.35	11.000	22.000	17.000	-2.000	28.000	0.010		0.009	1510.000	
46914	MTMAID	383400.16	5334371.01	9.000	13.000	15.000	-2.000	28.000	-0.006			798.000	
46915	MTMAID	383404.53	5334481.12	6.000	-5.000	26.000	2.000	20.000	0.101			148.000	
46917	MTMAID	383405.41	5334537.05	22.000	37.000	11.000	2.000	26.000	0.070			258.000	
46918	MTMAID	383412.55	5334508.65	4.000	-5.000	13.000	-2.000	19.000	0.010			947.000	
46919	MTMAID	383418.81	5334499.16	60.000	25.000	12.000	2.000	35.000	0.009			233.000	
46920	MTMAID	383418.19	5334482.39	7.000	67.000	156.000	2.000	45.000	0.010			952.000	
46921	MTMAID	383408.66	5334526.95	160.000	36.000	25.000	3.000	9.000	0.096	0.087	0.090	3300.000	
46922	MTMAID	383407.37	5334520.51	20.000	50.000	53.000	2.000	8.000	0.015			742.000	
46923	MTMAID	383413.99	5334513.24	9.000	8.000	27.000	-2.000	13.000	0.016			1270.000	
46925	MTMAID	383411.88	5334486.85	73.000	32.000	46.000	2.000	23.000	0.195			781.000	
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46928	MTMAID	383418.43	5334478.99	10.000	18.000	17.000	2.000	19.000	0.009			1030.000	
46929	MTMAID	383386.25	5334496.95	8.000	61.000	34.000	-2.000	20.000	0.067			777.000	
46930	MTMAID	383402.68	5334503.64	7.000	10.000	18.000	-2.000	35.000	0.011			1250.000	
46931	MTMAID	383406.12	5334475.59	8.000	7.000	115.000	-2.000	17.000	0.009			592.000	
46932	MTMAID	383401.53	5334476.52	11.000	28.000	32.000	-2.000	37.000	-0.008			1140.000	
46934	MTMAID	383436.09	5334467.66	21.000	96.000	215.000	-2.000	20.000	0.009			588.000	
46935	MTMAID	383420.51	5334399.37	19.000	43.000	72.000	-2.000	10.000	-0.008			1020.000	
46936	MTMAID	383411.72	5334399.61	18.000	21.000	10.000	-2.000	16.000	0.008	0.012		4600.000	
46937	MTMAID	383359.87	5334364.09	13.000	12.000	20.000	-2.000	20.000	0.009			539.000	
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46941	MTMAID	383397.55	5334430.54	13.000	12.000	5.000	-2.000	15.000	0.008			431.000	
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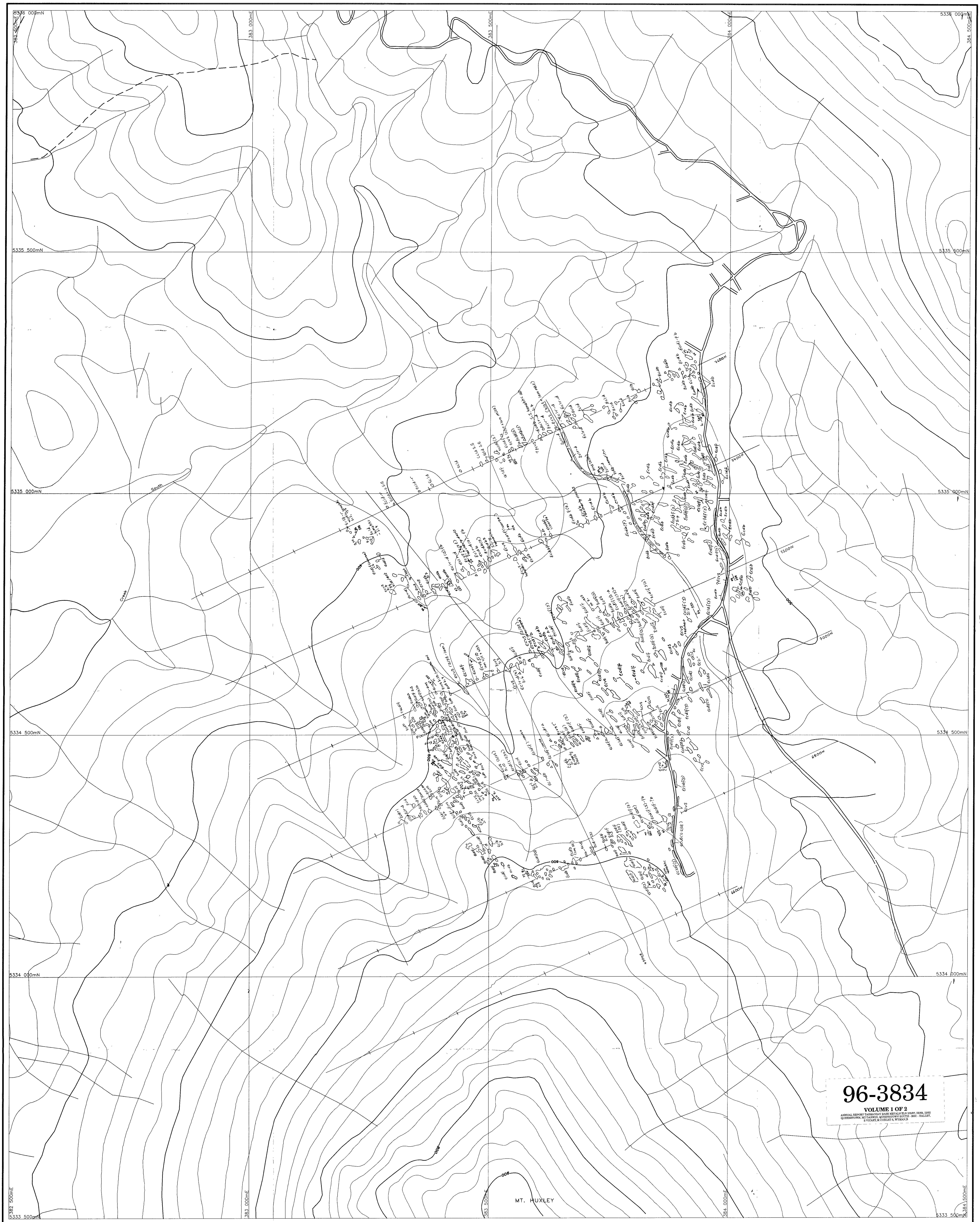
46943	MTMAID	383379.03	5334382.03	13.000	5.000	65.000	-2.000	35.000	0.008		-0.008	459.000	
46944	MTMAID	383401.68	5334397.84	10.000	7.000	26.000	-2.000	26.000	-0.008			869.000	
46945	MTMAID	383436.35	5334451.19	12.000	-5.000	-4.000	-2.000	29.000	-0.008			2820.000	
46946	MTMAID	383430.00	5334472.27	30.000	29.000	483.000	-2.000	322.000	0.009	0.019		971.000	
46947	MTMAID	383415.62	5334479.79	11.000	5.000	11.000	-2.000	19.000	-0.008			1240.000	
46948	MTMAID	383404.51	5334484.37	30.000	23.000	20.000	-2.000	18.000	0.140				10500.000
46949	MTMAID	383734.26	5334516.61	24.000	119.000	77.000	-2.000	512.000	0.008			422.000	
46950	MTMAID	383744.97	5334514.03	22.000	10.000	17.000	-2.000	42.000	0.013			445.000	
Laboratory:				ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:				5.000	5.000	5.000	0.500	3.000	0.008	0.008	0.008	1.000	0.000
Method:								GA140					GX404



LEGEND

CAMBRIAN Єcdlf - feldspar phyric dacite, commonly features coarse pink phenocrysts. occurs as coherent, flow banded lavas that are typically spherulitic (shown - s) and rarely vitric.

Єcdb - monomict, rubbly autobrecciated dacite lavas, laterally discontinuous horizons that interfinger with dacitic lavas and volcaniclastic sediments Clasts commonly feature feldspar phyric and spherulitic textures

Єclr - equigranular, quartz phyric rhyolite lavas Common flow banding (shown fb) and spherulitic textures. Composition tends to dacite (Єcr-d)

Єcvs - Interbedded siltstones / laminated mudstone, tuffaceous volcaniclastic sandstone, conglomerate comprising clasts of chert (variably hematitic), dacite and sandstone in fine grained matrix (clast supported)

○ outcrop
◌ subcrop
△ hydrothermal brecciation
s Spherulitic
fb flow banded

SHEET LAYOUT

SHEET 1
SHEET 2 ■
SHEET 3 C
A B SHEET 4 C D
A SHEET 5

723238

RGC EXPLORATION PTY. LIMITED

GEOLOGIST	S CORLETT
DRAWN	M.WALTER
DATE	MAR. 1995
CHECKED	
1:25000 REF	

GARFIELD PROSPECT E.L. 102/87 & 55/89

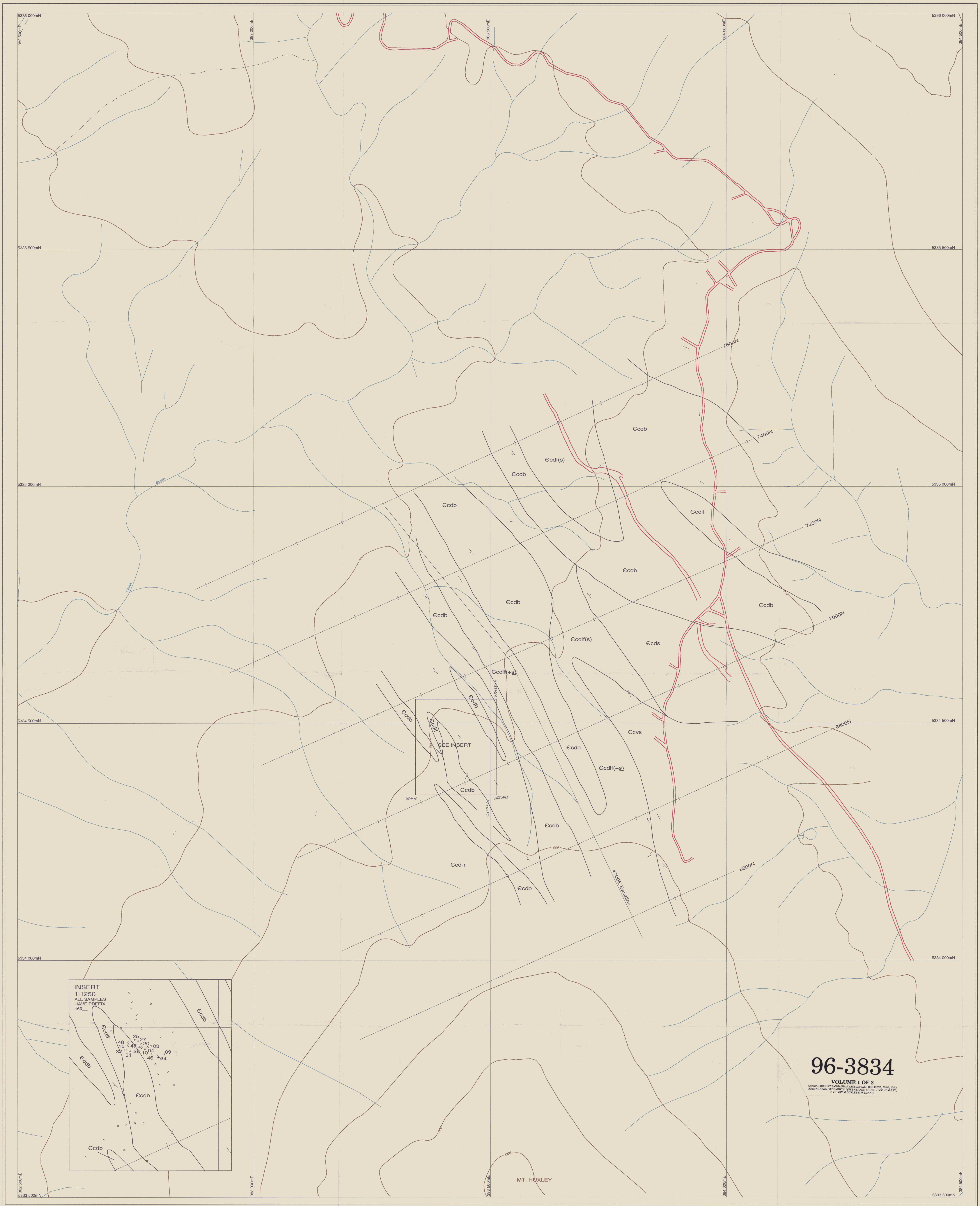
FACT GEOLOGY

5 cm

DRAWING ID 5532/199
FILENAME HUXLEY

SCALE 1:2500

PLAN 1



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VOLUME 1 OF 2

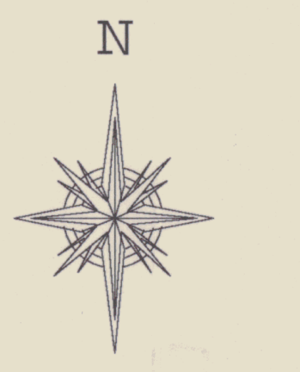
ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

LEGEND

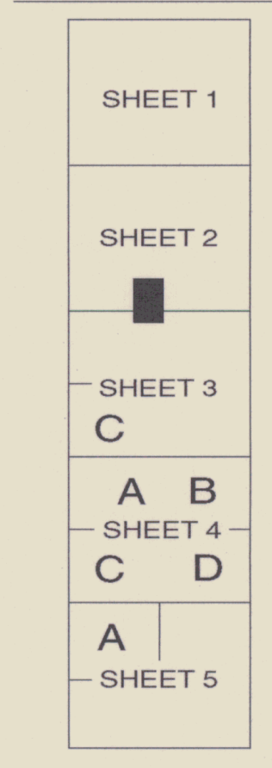
CAMBRIAN CENTRAL VOLCANIC COMPLEX

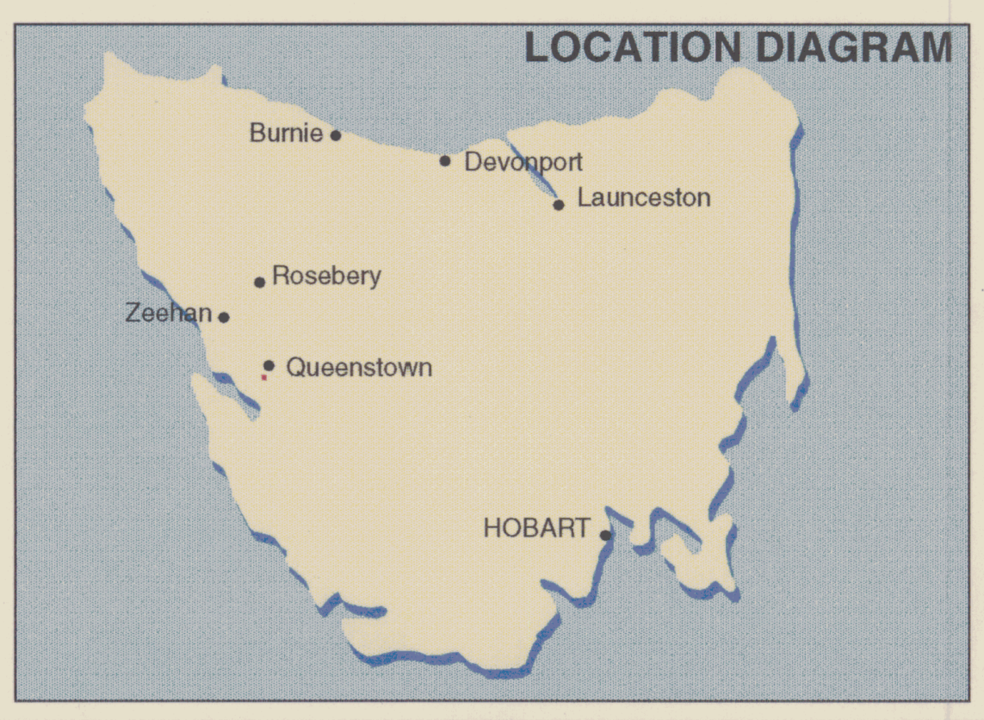
Єcdlf	Feldspar phyric dacite with common coarse pink feldspar phenocrysts - Occurs coherent spherulitic flowbanded lavas and intensely spherulitic vitric (?)lavas.
Єcdb	Monomict autobrecciated dacitic lavas; laterally discontinuous horizons that interfinger with dacitic lavas and volcaniclastic sediments. Clasts commonly feature feldspar phyric and spherulitic textures.
Єclr	Equigranular, quartz phyric rhyolitic lavas. Common flowbanding, rare spherulitic textures. Composition trends to dacite, shown Ccd-r
Єcvs	Interbedded siltstone/laminated mudstone, tuffaceous volcaniclastic sandstone, conglomerate(<pebble size); including hematitic chert.

———	Geological Boundary
— —	Inferred Geological Boundary



SHEET LAYOUT





5 cm

RGC EXPLORATION

723239

Member of the Renison Goldfields Consolidated Group

TASMANIA BASE - METALS

MOUNTAIN MAID PROSPECT E.L. 102/87
GEOLOGICAL INTERPRETATION & SAMPLE PLAN

Geology :-
Topography :-
Aeromag :-
Soils samples :-
Drilling :-
Tenement :-
Amg Grid :-

Geologist : S.Corlett	Date : March 1995	Scale : 1 : 2500	
Drawn : M.Walter	Revision Date : Jan. 1996	1:25,000 Ref. Map	
Drawing Path : D:\ms-draft\garfield\		Drawing Name : 2309b217.dgn	PLAN 2

APPENDIX 12

Jukes Pty Report

723241

RGC EXPLORATION

REPORT

TASMANIAN BASE METALS PROJECT

EL 2/92

JUKES PROPRIETARY

Vol 1 of 1

HELD BY: RGC EXPLORATION

MANAGER & OPERATOR: RGC EXPLORATION

AUTHOR: SUE CORLETT

11 August 1995

PROSPECTS: JUKES PROPRIETARY

MAP SHEETS:	**1:25,000: OWEN**	
GEOGRAPHIC COORDS	**Min East:375000mE** **Min North: 5328000mN**	**Max East: 381000mE** **Max North: 5337000mN**

COMMODITY(s): Cu, Au

KEY WORDS: Jukes Proprietary, Central Volcanic Complex, Eastern Sequence, chlorite, potassium feldspar

Distribution:

- **RGC Exploration - Zeehan**

SUMMARY

Jukes Proprietary comprises a series of copper workings situated within intensely chloritised volcanics of the Central Volcanic Complex and lower Eastern Group. In the early 1980's exploration interest in Jukes was revitalised by the realisation that significant gold grades were associated with the copper mineralisation. Five diamond drill holes were carried out proximal to old workings and results from four were discouraging. Although striking chargeability and resistivity anomalies were isolated north of the zone of principal historic interest, they remain untested.

Recent data collected in a regional helimag survey reveals a strong magnetic anomaly that lies juxtaposed to the extreme chargeability high. Detailed mapping has outlined an extensive area of intense potassic alteration with subordinate chlorite, magnetite and minor sulphides. These features are located to the north of previous exploration activity and may suggest the focus of a porphyry Cu-Au system remains untested at depth. A drill hole is proposed to evaluate this potential.

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1. INTRODUCTION

Jukes Proprietary is located on the northern flanks of Mt. Jukes above the King River gorge and to the west of the East Jukes Spur. The area encompasses five old copper prospects, of which Jukes Proprietary and King Jukes are the most significant workings. The Jukes Prospect is contained within E.L.2/92 and has an exclusion zone of 200m radius around the King Power Tunnel at approximately 400m depth (Figure 1).

Access to Jukes is from the South Queenstown Road, where it transects not only the exploration license but also the principal zone of previous mining and exploration interest. The prospect area covers steeply dipping terrain that has been dissected by creeks, waterfalls and cliffs (drops can be up to 200m). The EL is characterised by extensive exposure of outcrop and subcrop in the south and west of the mapping area. Lightly vegetated button grass plains with subcrop is typical of the western segment of the mapping area. Baeura growth increases with density toward the King River in the north. A grid was established in 1981 for 13 lines at 100m intervals (50m over Jukes workings) and is passable for most of the prospect area.

Mapping at 1:2500 was completed in July 1995 and a drill hole has been planned to test potential for significant mineralisation to the north of previous exploration activity.

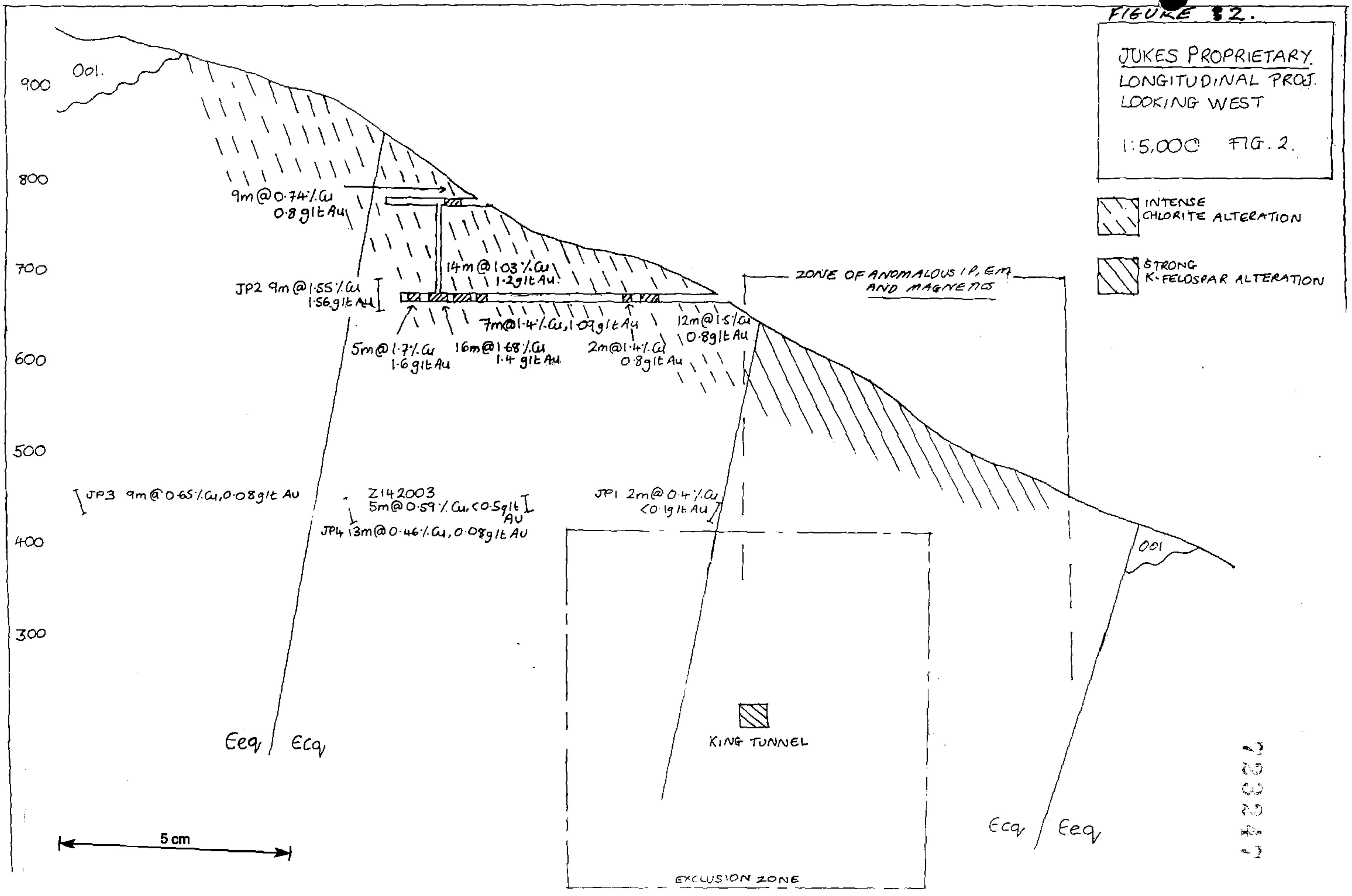
2. PREVIOUS EXPLORATION

Exploration was conducted by Mt.Lyell Mining and Railway Company from 1981 (Table1). Geological mapping, adit sampling, rock chip and soil programs together with IP, ground mag and ground EM surveys were carried over a 1000 by 800m area. Exploration activity has centred upon evaluating the potential at Jukes Proprietary workings and five holes have been drilled to test the down dip extension of the mineralisation (Figure 2). Table 1 summarises all previous work carried out over the prospect area.

Table 1. Previous Work at Jukes Pty.

YEAR	COMPANY	ACTIVITY	RESULTS
1897-1903	Prospectors	3 adits, numerous tunnels and trenches	small scale mine production
1901-18	Mt. Lyell	evaluation of workings by rock chip sampling	not known
1953-56	Mt. Lyell	re-investigation of old workings	? J.V. partner sought
1956-62	Mt. Lyell /E.Z joint venture	mapping, ground mag., adit sampling.	not known
1964	US Metal Refining Co.	mapping, adit sampling, SP	not known
1965-72	BHP	ground mag., rock chip sampling of adits	not known
1972-74	International Nickel and BHP J.V	air borne EM, magnetics, dipole-dipole IP, mapping, sampling, drilling	Z142003 6m @ 0.59% Cu and 2.7 g/t Au.
1976	Mt Lyell	(EL 21/76; 1978 EL 9/66)	not known
1980-81	Mt. Lyell (EL9/66)	dump sampling	12.1%Cu, 9.4 g/t au, 7.3%Cu, 9.0g/t Au
1981-82	Mt.Lyell (EL9/66)	mapping, adit, rock chip and soil sampling, 13 lines gridded at 50 and/or 100m, ground mag and EM, gradient array and dipole-dipole IP, drilling of JP1 and JP2	co-incident IP and mag anomalies with weak EM response RC results anom. near adits, JP1 2m@0.53%Cu, JP2 13.4m @1.6%Cu, 1.6 g/t Au.
1983-84	Mt.Lyell (EL9/66)	drilling of JP3	JP3 12m @ 0.65% Cu, 0.8g/t au
1986-87	Mt.Lyell (EL9/66)	sampling along Jukes Road, drilling of JP4 below JP2	JP4 2m @).1%Cu, 0.73g/t au
1991	CODES, Doyle	honours thesis	
1995	CODES, Wyman	mapping and sampling	whole rock analyses

FIGURE 2.


JUKES PROPRIETARY.
LONGITUDINAL PROJ.
LOOKING WEST
1:5,000 FIG. 2.
INTENSE CHLORITE ALTERATION
STRONG K-FELDSPAR ALTERATION
900
800
700
600
500
400
300
O01.
9m@0.74%Cu 0.8g/t Au
14m@1.03%Cu 1.2g/t Au.
JP2 9m@1.55%Cu 1.56g/t Au
5m@1.7%Cu 1.6g/t Au
16m@1.68%Cu 1.4 g/t Au
7m@1.4%Cu, 1.09g/t Au
2m@1.4%Cu 0.8g/t Au
12m@1.5%Cu 0.8g/t Au
ZONE OF ANOMALOUS IP, EM AND MAGNETICS
JP3 9m@0.65%Cu, 0.08g/t AU
Z142003 5m@0.59%Cu, <0.5g/t AU
JP4 13m@0.46%Cu, 0.08g/t AU
JP1 2m@0.4%Cu <0.1g/t AU
O01
KING TUNNEL
EXCLUSION ZONE
Eeq
Ecq
Ecq
Eeq
5 cm

3. GEOLOGY

3.1 Geological Mapping

Detailed mapping has been carried out at 1:2500 over the prospect (Figure 3).The Jukes Proprietary area is bound to the west by columnar jointed feldspar phyric spherulitic lavas of the Central Volcanic Complex. These pass conformably into quartz and feldspar phyric and non-phyric spherulitic rhyolitic lavas and volcaniclastic sediments of the Central Complex. Intense chlorite alteration occurs along a faulted contact with quartz phyric lavas of the Eastern Sequence. These rocks have been unconformably overlain by the Jukes Breccia and Owen Conglomerate in the south west and are truncated by a faulted contact against Owen Conglomerate in the north east.

3.2 Central Volcanic Complex

The dominant lithologies at Jukes are feldspar phyric dacites and quartz and/or feldspar phyric and non-phyric rhyolites. The feldspar phyric dacites dominate the western portion of the mapping area and are broadly separated from the rhyolitic rocks by a diffuse north-south running zone (Figure 3). Columnar jointing, flow banding and the absence of distinctly pyroclastic textures suggest that the bulk of these rocks were extruded as lavas. Devitrification textures are featured by most volcanics and comprise micropoikilitic quartz and spherules (0.5mm to 0.5cm). Coarsely quartz phyric units occur within this package and may represent subvolcanic intrusions. The contacts between these texturally distinct units are both sharp and diffuse.

Feldspar phyric dacite

Feldspar phyric dacites out crop to the west of Jukes Proprietary (shown Ecdf). They occur as coherent lavas that are typically spherulitic, commonly flow banded and columnar jointed. Coarse pink feldspar phenocrysts can be observed in unaltered dacites to the north west of the mapping area. The bulk of these rocks are unaltered and appear to be analogous to unaltered feldspar phyric spherulitic flow banded dacites at the Mountain Maid prospect, located on the lower flanks of Mt. Huxley. Rare lenses of chlorite/limonite occur within this lava package (0.5m by 3m).

Quartz and/or Feldspar Phyric and Non-phyric Rhyolite

The bulk of rocks to the east comprise quartz and/or feldspar phyric lavas that have been variably altered by potassium feldspar, magnetite, chlorite and pyrite (shown Ecq, Ecf, Ecq-f). Hydrothermal brecciation is a common feature of this unit. Quartz phyric lavas are variably porphyritic with crystals ranging from (0.5mm to 0.5cm - shown Ecq-p). Feldspars are mainly altered to sericite and chlorite. Flow banding is commonly observed and spherulitic textures are extensively developed. Non-phyric rhyolite occurs through out the sequence and commonly exhibit pervasive chlorite alteration (shown Ecq-a)

Volcaniclastic sediments

A discontinuous lense of sandstone, cherty siltstone and sericitised polymict conglomerate occurs at the top of the Central Volcanic Complex (shown Eclv, Ecs/st).The conglomerate consists of sub-rounded fragments supported by a fine grained strongly chloritic and sericitc matrix. Siltstone forms inter layering within the conglomerate unit (band of up to 0.5m) and heterogeneous silicification has occurred. These sediments are best exposed at the north east faulted contact against Owen Conglomerate.

Volcanic Breccias

(1) Rubbly monomict clast supported breccias comprising clasts of feldspar phyric dacite outcrop in the north and south as laterally discontinuous bodies (shown Ecdf-b). These are reminiscent of autobrecciated lavas at Mountain Maid, clasts at Jukes are cherty and hematitic altered.

(2) A clast supported monomict volcanic breccia outcrops in both the King River Power tunnel and Jukes Road. The breccia contains >50% angular rhyolitic clasts that average 0.2cm to 20cm (commonly featuring curviplanar clast boundaries - ?hyaloclastite) in a fine grained quartz rich matrix. Clasts comprise quartz phyric rhyolite. A striking feature these breccias is the intense k-feldspar alteration of the clasts and pervasive chloritisation of the matrix. Pyrite and chalcopyrite (~1%) is contained in both clasts and matrix.

(3) A polymict, matrix supported unit with angular clasts (1-15cm) of feldspar phyric rhyolite, non-phyric rhyolite, coarsely porphyritic quartz phyric rhyolite and chert occur aside Jukes Proprietary Creek in the west of the prospect area (shown Ecvb). Clasts feature strong potassium feldspar alteration with a strongly chloritised and weakly potassic altered granular matrix.

Porphyritic Intrusives

The most significant intrusive is located to the west of King Jukes No.1 - 2 adits, at the diffuse contact between feldspar phyric dactite and rhyolite lavas (shown Ecqp). This rock features coarse porphyritic quartz phenocrysts within fine grained intensely chloritised groundmass. At King Jukes, the intrusive body extends for up to 250m and has an average thickness of 10m. Several similar small satellite?intrusive bodies occur as discontinuous pods (< 2m in width with lengths of >40m). They are characterised by highly irregular boundaries that appear to interfinger with the country rock.

3.3 Eastern Sequence

The Eastern Sequence (?Tyndall Group equivalent) occupies the eastern part of the mapping area over a faulted contact with the Central Volcanic Complex. They comprise rhyolites and volcaniclastics.

Rhyolite

The Eastern Sequence at Jukes is represented by massive quartz and feldspar phyric rhyolite (shown Eeq and Eef). Phenocrysts average 0.2cm and either quartz or feldspar is dominant to the exclusion of the other. These are generally weakly altered by silica, sericite and chlorite.

Epiclastics

In the east, medium to coarse grained quartz rich sandstone are overlain by and interspersed with laterally discontinuous lenses of polymict conglomerate (shown Eee). The matrix is fine grained, chloritic and supports 30% sub-angular clasts (0.2cm to 4cm) of rhyolite, chert and sandstone. Graded bedding suggests that this unit is younging toward the east.

3.4 Jukes and Owen Conglomerates

The Jukes Conglomerate (shown Ooj) unconformably overlies the Eastern Sequence and the Central Volcanic Complex. The conglomerate is matrix supported and consists of sub-angular and sub-rounded clasts (0.5cm to 25cm) that comprise silicified volcanics, quartz and feldspar phyric and non-phyric clasts, hematite and quartz. The matrix is fine grained and typically hematitic and siliceous. Hematitic sandstone commonly from interbedded lenses (0.5m by 1-2m). This unit forms a discontinuous body below the Owen Conglomerate.

The Owen Conglomerate forms a coarse grained pebble rich conglomerate with thin sandstone and pebble rich horizons (shown Ool). The clasts are well rounded and comprise quartz, quartzite and chert.

3.5 King River Tunnel

In addition to surface mapping, re-logging of samples collected from the King River Power tunnel was conducted (Appendix 1, Figure 1). The Mines Department collected samples at five metre intervals in an area that was restricted to below the principal alteration zone of the Jukes workings (re. Geoff Green, 1988). The bulk of rocks were quartz phyric and non-phyric granular rhyolite and feldspar phyric dacite (Figure 2). A monomict matrix supported breccia comprising 40% angular rhyolite clasts is similar to the Jukes Road breccia. However, whilst clasts were intensely k-feldspar altered with <1% chalcopyite, the fine grained matrix featured strongly potassic rather than chloritic alteration.

4. ALTERATION

Alteration across the prospect is heterogeneous and further complicated by both the permeability of host rocks and overprinting of successive alteration phases. Alteration generally increases with intensity toward the east and to the south, where it is strongest along the faulted contact against the Eastern Sequence and the unconformable contact with Jukes and Owen Conglomerate. Alteration is described on a scale of 1 to 10 (greatest intensity) and qualified by percentage of sulphides and nature of veining and hydrothermal brecciation (Figures 1 and 3). There are four dominant alteration phases:

- k-feldspar+ -mag+-pyrite
- chlorite-k-feldspar +-mag+-pyrite
- chlorite+-pyrite
- sericite + carbonate

(1) Potassic alteration is pervasive across most of the prospect area. Alteration is weak in the west and increases with intensity toward the fault bound contact with the Eastern Sequence in the north east. A strong association between k-feldspar and magnetite can be observed across the entire prospect area. Magnetite (+-pyrite) occurs as veins (generally 1-4%), disseminations (2-5%), matrix infill material and as vesicular and voluminous bodies that intrude the k-feldspar altered volcanics in the east (comprising >60% magnetite). Pyrite is commonly disseminated within the k-feldspar alteration.

Intense k-feldspar altered clasts within a weaker potassic altered matrix suggests at least two phases of potassic alteration have occurred (King Tunnel breccia). In addition, intense k-spar altered clasts in a chloritic matrix suggests at least one phase of potassic alteration preceded chloritisation (Jukes Road breccia).

(2) K-feldspar and chlorite alteration occur together in the central part of the prospect area. Chlorite occurs as disseminations, bifurcating stringers and as veins. Sulphides are usually associated with both alteration phases whilst magnetite only occurs in significant amounts where potassic alteration is dominant. The Comstock workings, located on the north east faulted contact between the Central Volcanics and the Eastern Sequence, reveal a pod of intensely chloritic/pyritic rhyolites within pervasive k-spar/chlorite altered rocks that have been destructively brecciated by magnetite.

(3) Intense chlorite alteration occurs as a corridor along the south east fault contact and at the southernmost unconformable contact with the Jukes breccia and Owen Conglomerate. Alteration is pervasive and associated with 1-5% disseminated pyrite and chalcopyrite. Intense chlorite alteration is ubiquitous with subvolcanic quartz porphyry intrusions and peripheral alteration often includes tourmaline (King Jukes).

(4) Sericite alteration is found with both alteration phases but has little influence of fabric development in the Jukes rhyolites. Sericite commonly occurs with silicification and weak chlorite alteration in the lower Eastern Sequence. Carbonate alteration is widespread and occurs as veins, disseminations and as matrix infill to breccias. Dolomite and siderite occur in addition to calcite.

5. MINERALISATION

Ore minerals at Jukes comprise pyrite, chalcocite and chalcopyite. Most altered rocks carry 1% sulphides, however intensely chloritised rocks carry 5-15%. In the King Tunnel, traceable pyrite and/or chalcopyrite occurs in most samples but does not exceed 5%. All significant known mineralisation at Jukes has been associated with intense chlorite alteration. The nature of sulphide distribution varies according to:

(1) pyrite and chalcopyrite disseminations and veins associated with potassic alteration
(2) pyrite and chalcopyrite disseminations and veins within intensely chloritic rocks (Jukes Pty, Comstock and King Jukes workings)
(3) pyrite/magnetite veins and bodies that brecciate and transect intensely k-spar altered rocks
(4) chalcocite/chalcopyrite and pyrite stringers and disseminations within brecciated fault zones
(5) "fault breccias with malachite and native copper" in Jukes Pty adit 3

6. GEOCHEMISTRY

Extensive geochemical exploration has been carried out. This includes:

(1) Rock chip and soil geochemistry (Mt. Lyell, 1981) revealed elevated copper values proximal to old workings and a broadly anomalous zone to the north (maximum values of 6700ppm, with an average of 100-200ppm on a background of <20ppm). This anomalous northern area was co-incident with elevated gold values from 0.5 to 1.8g/t. A maximum grade of 10.5g/t Au was returned from a rock chip samples in the north.

(2) adit sampling returned sub-economic grades, with the best results at:-

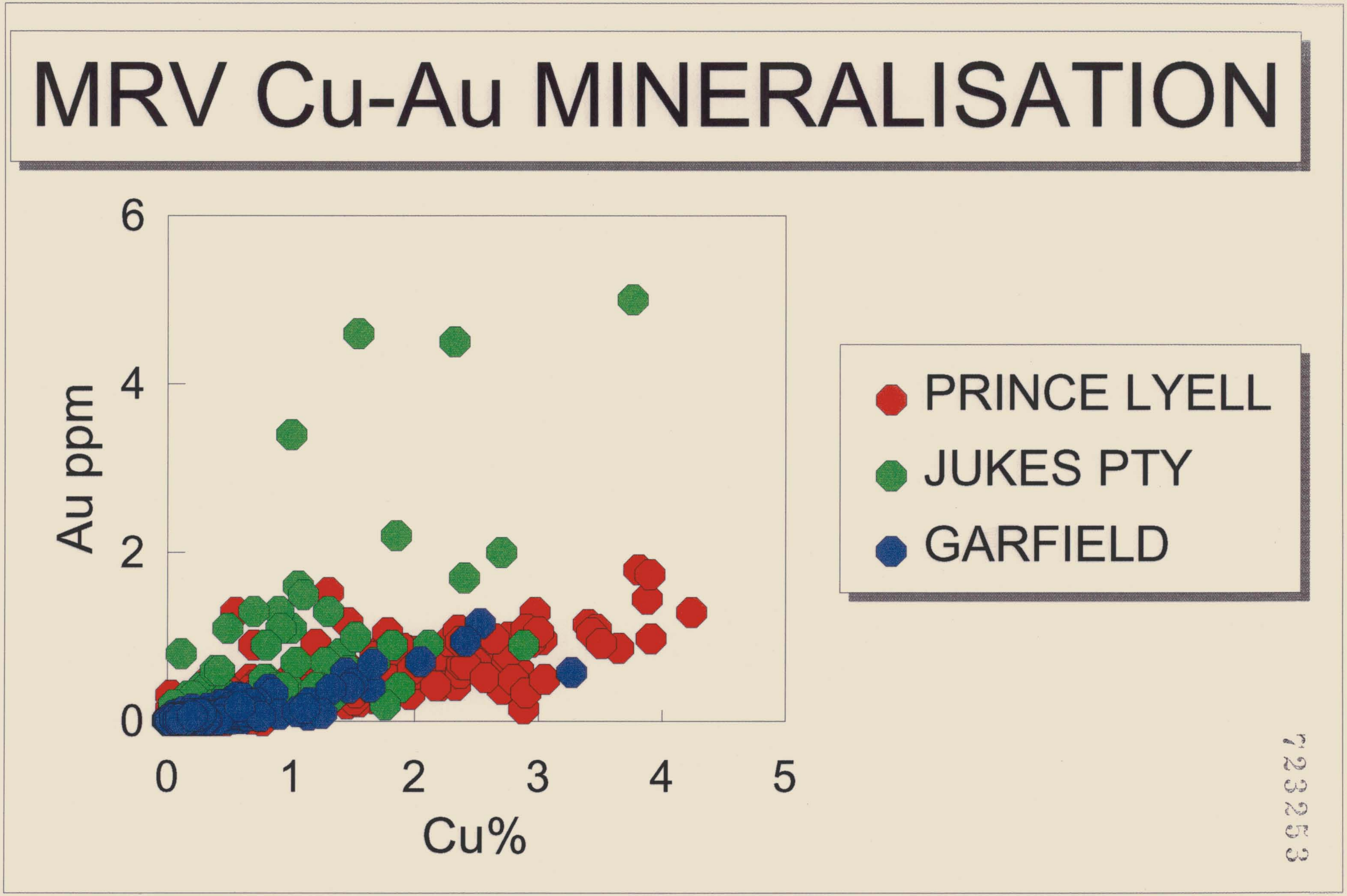
- 2-4m at 5.68% Cu and 5.8 g/t Au
- 5m at 1.6 g/t Au and 1.7% Cu
- 16m at 1.4 g/t Au and 1.7% Cu
- 14m at 1.03% Cu and 1.2 g/t Au
- 9m at 1.55% Cu and 1.56 g/t Au

The most striking feature of these results is the relationship between copper and gold grades. Figure 4 illustrates that whilst numbers are dispersed, there is a broad 1:1 relationship between the grade of copper and gold.

(3) rock chip results from the King River Power Tunnel were low in both gold and base metals.

(4) channel sampling along Jukes Road was carried out by CODES Key Centre. A 360m wide zone was found host up to 10% Cu in narrow structures against a background of 1000ppm. Whole rock analyses were also conducted (Appendix 2) and these results have been re-evaluated using GAS. Figure 5 outlines broad lithological

FIGURE 4


MRV Cu-Au MINERALISATION
6
4
2
0
Au ppm
0
1
2
3
4
5
Cu%
PRINCE LYELL
JUKES PTY
GARFIELD

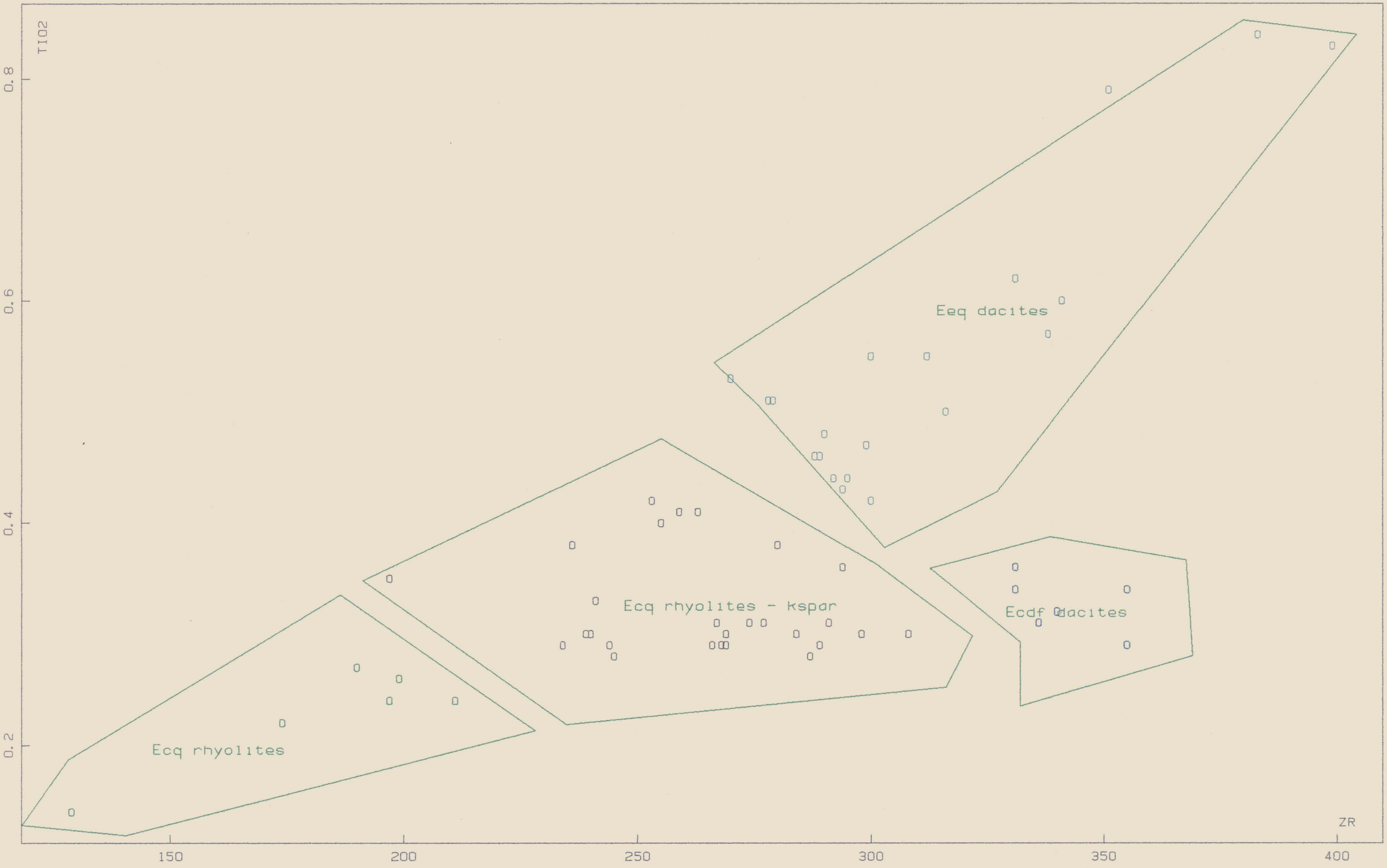


FIGURE 5.

garth 02/08/95 All data

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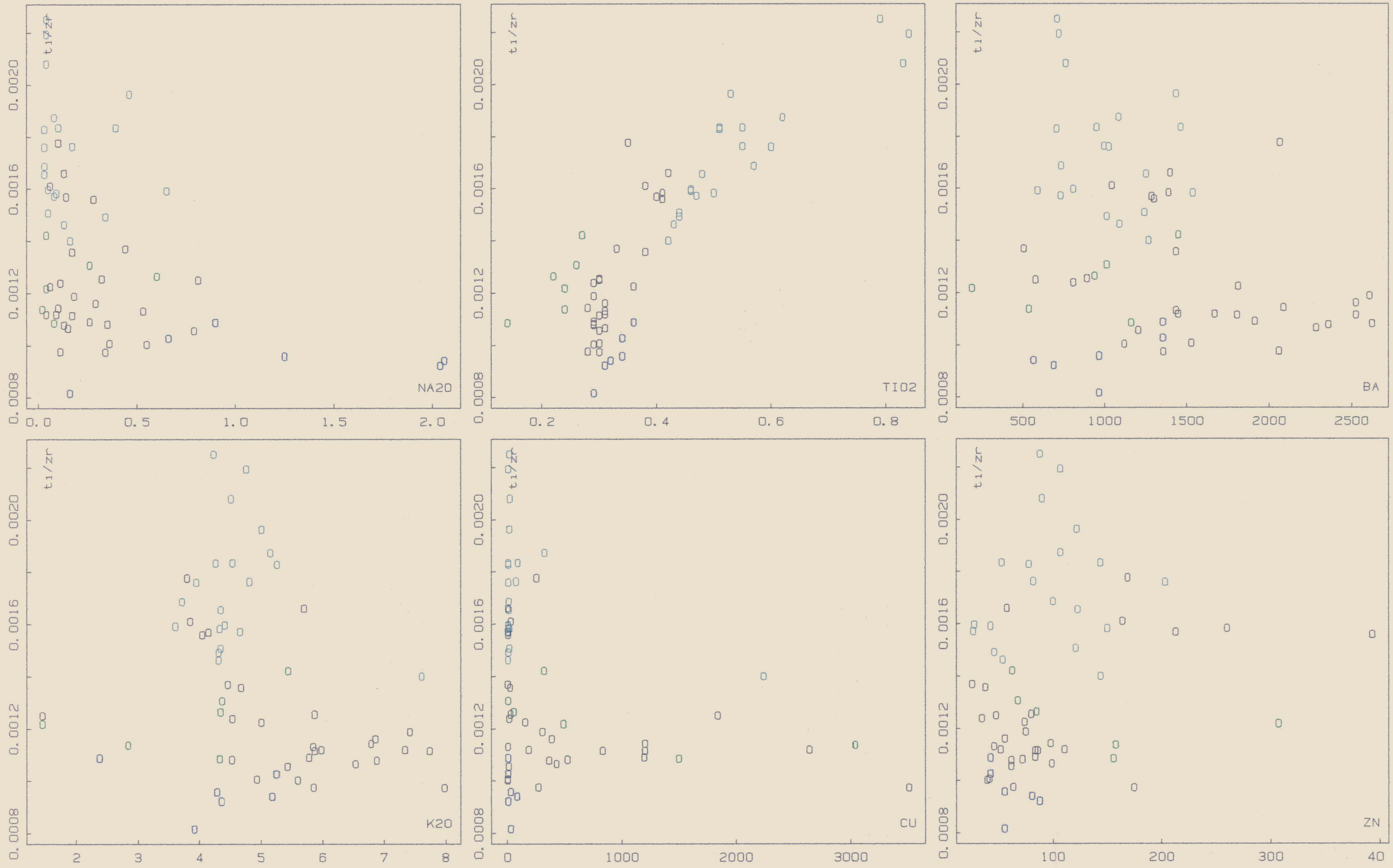


FIGURE 6.

garth 02/08/95 All data

Tue Jan 9 16:55:56 1996

domains based upon Ti/Zr content. The bulk of rocks plot in the rhyolitic Ecq field and there are two populations of dacite - Eeq and Ecdf. Figure 6 shows elevated potassium in quartz phyric rhyolite and relative depletion of Na2O. Unaltered feldspar phyric Ecdf dacites remain elevated in their Na2O content. Ba distribution appears analogous to that of potassium, whilst elevated copper occurs in both potassic and chloritic rhyolites. These samples havebeen re-analysed by RGC for a suite of elements by Neutron Activation Analysis (see Appendix 2).

7. GEOPHYSICS

Jukes has been extensively evaluated by a number of geophysical techniques. The most systematic series of surveys was carried out by Mt. Lyell (1981), where conductivity, resistivity, ground EM and ground magnetic anomalies were found to be coincident. Helimag has recently been flown by RGC as part of a regional campaign.

7.1 Helimag Results

In February 1995, a regional helimag program was carried out across all RGC leases in Western Tasmania. The survey was carried out by Universal Tracking Systems (UTS) with a line spacing of 100m and a ground clearance of 30m. The system employed a stringer mounted sensor attached to the front of the helicopter and utilised a GPS navigation system. GPS base stations connected to UHF radio beacons communicated with the helicopter to provide time corrected differential GPS locations for the survey. The location accuracy was +/-3m and the frequency of the data collection was equivalent to one reading every 3m. The data has been presented as a series of magnetic contour plans at 1:10,000.

Whilst significant magnetite bearing breccias occur to the east of the anomaly and magnetite can be found as veins and disseminations through out the altered volcanic packages, the shape and profile of the magnetic anomaly suggests it is related to a deeper magnetic response that has no surface expression (?Cambrian granite).

7.2 Anomalous Results

A review of previous geophysical results has outlined a series of broadly coincident anomalies that lie to the north of previous mining and exploration interest.

(1) Gradient array IP - a 9.2 line km gradient array IP surveys was carried out by Scintrex in 1982. Dipole spacing and station interval were 20m and Scintrex IPR-8 receivers were used. Two zones of anomalous chargeabilities were identified (>30mv/v) against a background of 10mv/v. One zone overlies the King Jukes quartz porphyry and the other trends west of north from 500N/1210E to 800N/1050E with a maximum values of 65.8mv/v. The lowest resistivity anomalies were coincident with the maximum chargeabilities.

(2) Dipole-dipole IP followed up anomalies on line 700N and to line 300N (over the known mineralisation at Jukes Pty). Both set ups recorded to n=6 using dipole spacings of 40m. Figure 7 shows the resistivity and chareability pseudo sections for line 700N. The 700N spread covered the strongest gradient array IP response at 1100E. The pseudo sections suggest that the source of the response occurs at surface and is both chargeable and conductive (Comstock No.1 workings). A broad resistivity low is associated with this anomaly at depth. Line 300N show comparatively weaker responses in both chargeability and resistivity.

(3) Ground EM - was carried out using a "Genie" SE-88 with 50 and 100m coil separations and 20m station intervals (10m station intervals over anomalous areas). An anomaly was identified on line 700N, and although weak, corresponds to the resistivity low defined by the gradient array and dipole-dipole IP. No significant responses were recorded over the Jukes workings.

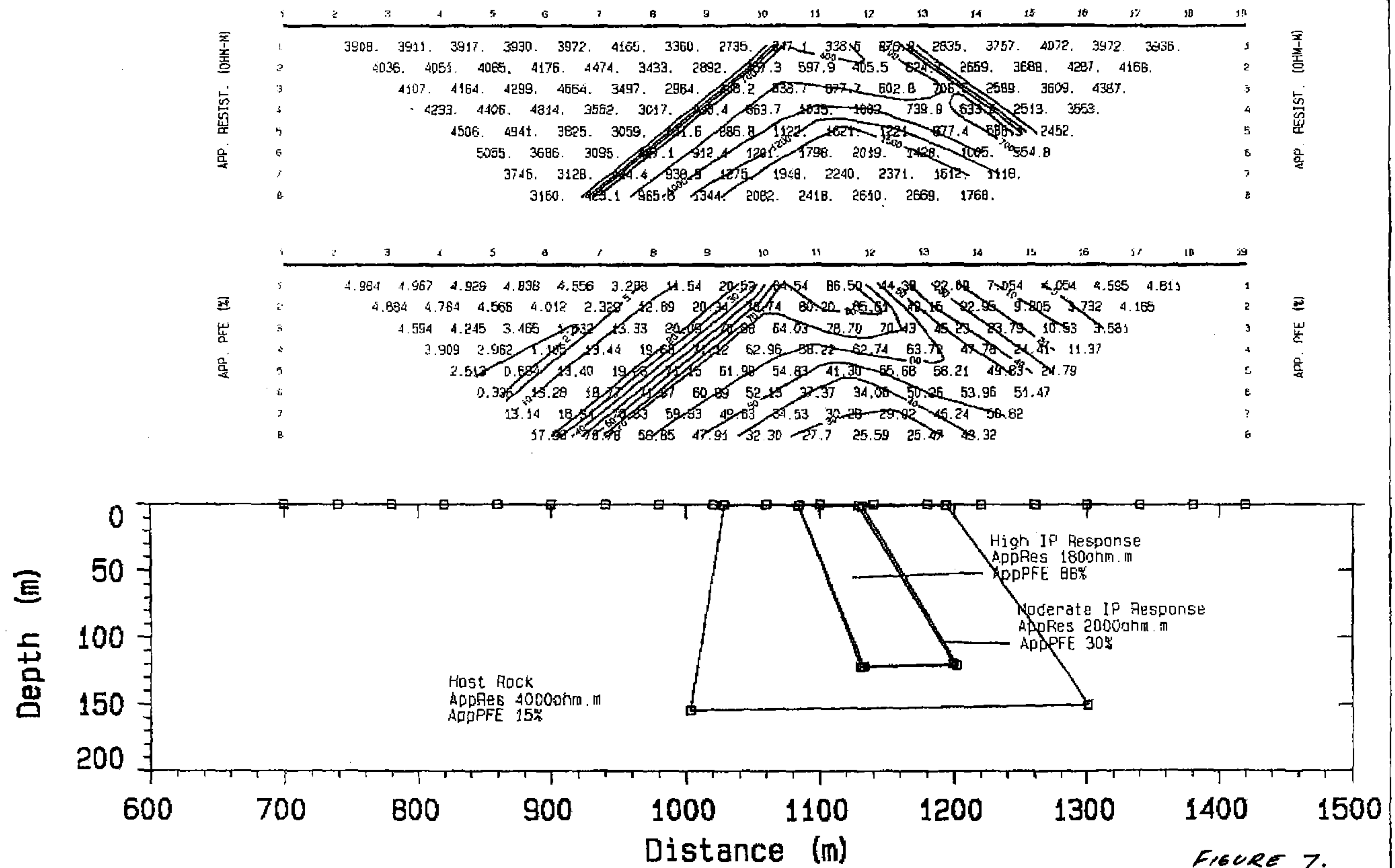


FIGURE 7.

for: RGC	1982 IP SURVEY
by: RGC EXPLORATION PTY. LTD.	JUKES LTD GRID LINE 700
Data Set: JUKES700 · Date: 7/8/95	
Array: Dipole-Dipole · a-Spacing: 40.0	Grid (x by z): 121 by 20

8. RECOMMENDATIONS

There are eight salient features of Jukes Proprietary:

(1) the capacity for system to carry elevated grades of copper and gold.
(2) a broadly proportional 1:1 Cu:Au relationship.
(3) a zone of untested elevated copper and gold rockchip geochemistry that overlies three co-incident geophysical anomalies.
(4) a strongly chargeable anomaly that overlies a weakly resistant zone.
(5) a magnetic high that is offset from the chargeabilty anomaly, possibly reflecting alteration zonation.
(6) the presence of elevated molybdenum, scheelite and magnetite - indicative of a porphyry environment.
(7) intense potassic alteration that, in classic porphyry systems, commonly lies peripheral to the mineralised propylitic core (?evidenced at Jukes Pty and Jukes Comstock where propylitic alteration/mineralisation lies in faulted contacts).
(8) untested potential north of previous mining and exploration interest.

A single drill hole is proposed to further evaluate these anomalous results. JP5 will be collared at 5331404mN , 383 582 mE and drilled at 60 degrees to 250, aiming to intercept the principal IP anomaly at 80 to 140 and extend 300m toward the magnetic feature.

APPENDIX 1 - King River Tunnel Samples

KING RIVER TUNNEL SAMPLES

Sample	Distance	Rock	Alteration	Comments
400501	1940-1945	Ecq	K1,C3,Se3	weak chlorite and sericte altered q phyric rhyolite
400503	1950-1955	Ecq	K10,C3,Si2	intense k-spar altered q-phyric rhyolite with q and q-chl vns
400504	1955-1960	Ecq	K7,C5,Si3	pervasive k-spar rhyo., chl replacement of feldspars
400505	1960-1965	Ecq-f	K2,C6,1% cb vns	mod. chl altered rhyo. 1% py
400506	1965-1970	Ecq-a	C5, 5% sid vns	non-phyric rhyo. "jig saw fit" breccia defined by siderite vein
400507	1970-1975	Ecq	C2, <1% sid vns	q phyric rhyo. wk chl atn
400509	1980-1985	Ecqb	K8,C3,Se4,py<1%	q phyric rhyo. breccia (Hyaloclastite), cpy in k-spar alt clast
400510	1985-1990	Ecq	K5,C4,Se4,<1%py	q,py,calcite,chl vn rimmed by k-spar;non phyric rhyo
400511	1990-1995	Ecqb	K6,C6,cb vns 2%, sx<1%	q phyric hyaloclastite breccia, py in chlorite
400512	1995-2000	Ecqb	K6,C6	q vns parallel (dilational txt)
400513	2000-2005	Ecq	K8,C3, q vn2%, tr py	intense k-spar q phyric rhyolite
400515	2010-2015	Ecqb-a	K8,C4 ,tr py	intense k-spar q phyric rhyolitic breccia
400517	2020-2025	Ecq-f	K9,C3,py1%,mg vns 4%,cb vns 3%	intense k-spar q-f phyric rhyo; specular hem 1%
400518	2025-2030	Ecq	K9,C3,mg vns 10%, py 1%, Se2	intense k-spar q-f phyric rhyo; massive mg vns
400520	2035-2040	Ecq-a	K3,C6,py,1%	weak k-spar non phyric rhyolite
400522	2045-2050	Ecq	K4,C1,Si5, tr py	mod. silicification, q phyric rhyolite
400523	2050-2055	Ecq	K6,C4, tr py	k-spar , q phyric rholite
400524	2055-2060	Ecq-a	K6,C6, tr py	non-phyric rhyolite
400525	2060-2065	Ecq	K6,C7,py 1-2%, mg >3%	dissem. mg in q phyric rhyolite
400527	2070-2075	Ecq	K9, C4, py 1%,mg >5%	dissm. and vn magnetite, intense k-spar
400528	2075-2080	Ecq	K7,C2	q phyric rhyolite
400529	2080-2085	Ecq	K8,C4, py3%, mg vns 5%	mag vns unrelated to py distribution
400530	2085-2090	Ecf	K7,C3, tr py	feldspar phyric rhyolite (dacite?)
400531	2090-2095	Ecq	K10,4%mg vns,2%mg/py vns	mg/py vns cont. 60%py;assayed at 25ppm Mo
400532	2095-2100	Ecq	K10, 30% mg vns, 1% py	intense kspar altered rhyolite, brecciated by mg
400533	2100-2105	Ecq	K8,C2,Si5, 2% py	replacement of dilational qvns by k-spar
400534	2105-2110	Ecq	K7, C5, 1%py, <1% mg vns	weak silicification
400535	2110-2115	Ecq	K8,C3,py<1%, mg vns 3%	q phyric rhyolite
400537	2120-2125	Ecq	K3,C7,cpy<1%, py<1%	k-spar altered rhyolite
400538	2125-2130	Ecq	K3,C5,Si2, tr py	q phyric rhyolite
400539	2130-2135	Ecq	K4,C7, py 1%	mod chloritised q phyric rhyolite
400540	2135-2140	Ecq	K3,C5, tr py	weakly altered rhyolite
400541	2140-2145	Ecq	K7,C2, tr py	chloritised fractures
400542	2145-2150	Ecqb	K6,C4, tr py	K8 clasts in K6 matrix (hyaloclastite breccia?)
400543	2150-2160	Ecq	K9,C5,py 3%, tr mg?	pyrite restricted to chlorite alteration
400544	2155-2160	Ecq	K9,C4,py 1%	q phyric rhyolite
400545	2160-2165	Ecq	K8,C3,mg/py vns 2%, mg vns 5%	foliation defined by mag and chl vns
400546	2165-2170	Ecq-a	K9, C3, tr py	kspar non phyric rhyolite
400548	2170-2180	Ecq-a	K9,C6	kspar non phyric rhyolite
400549	2180-2185	Ecq	K1,C4	q phyric rhyolite
400550	2185-2190	Ecq	K9,C1, cb vns 1%, tr py	kspar phyric rhyolite
400551	2190-2195	Ecq-f	K9,C1, tr py	q and f phyric rhyolite, chl replacive of feldspars
400552	2195-2200	Ecq	K2,C3,Si5, 4%py	chloritic q phyric rhyolite
400553	2200-2205	Ecdf	K1,C3,Si3, tr py	f phyric dacite, chl replacive of feldspars
400554	2205-2210	Ecdf	K9,C6, py 1%	q-chlorite vns
400556	2215-2220	Ecdf	K2,C2,py 1%	f phyric dacite, chl replacive of feldspars
400557	2220-2225	Ecdf	K6,C3	f phyric dacite, chl replacive of feldspars
400558	2225-2230	Ecdf	K8,C3,mg 1%	f phyric dacite

400559	2230-2240	Ecdf	K7,C4	f phyric dacite
400560	2235-2240	Ecdf	K7,C4	f phyric dacite
400563	2250-2255	Ecq	K9,C4, mg vns 5%, mg/py vns 5%	5% diss.py and 5% diss mg, k-spar rims to mg/py vns
400564	2255-2260	Ecq	K8,C5,1% py vns	q phyric rhyolite
400565	2260-2265	Ecq	K8,C2, 1% mg vn, tr py	intense kspar q phyric rhyolite
400566	2265-2270	Ecq	K8,C2, 1% mg vn, tr py	intense kspar q phyric rhyolite
400567	2270-2275	Ecdf	K8,C2, mg vns 2%	f phyric dacite
400568	2275-2280	Ecdf	K9,C2, mg vn 1%, py ,1%, cb/q vn 2	f phyric dacite
400569	2280-2285	Ecdf	K8,C2, mg vn 1%	f phyric dacite
400570	2285-2290	Ecdf	K8,C3	f phyric dacite
400571	2290-2295	Ecdf	K8,C3,K8,C3, 1% py	f phyric dacite
400572	2295-2300	Ecdf	K9,C1, tr py	1% pyrite in q/chl vns
400573	*2300-2305*	*Ecdf*	*C6, py 1%*	*chlorite in fractures*
400574	2305-2310	Ecq	K7,C5, py 1%	coarse porphyritic quartz phenocrysts
400575	2310-2315	Ecq	K5,C5, py 1%	q phyric rhyolite
400576	2315-2320	Ecq-a	K5,C1, py<1%	non-phyric rhyolite
400577	2320-2325	Ecq	K4,C5,cb vns<1%	q phyric rhyolite
400579	2330-2335	Ecq-a	C5,K4	non-phyric rhyolite
400582	2345-2350	Ecq	C5,K2	green q phyric rhyolite
400583	2350-2355	Ecdf	C4,K1, tr py	f phyric dacite
400584	2355-2360	Ecdf	C2,K3	f phyric dacite
400585-91	2360-2395	Ecdf	C2,K1, tr sx	wk chl and kspar dacite

APPENDIX 2 - Road Sampling Results (CODES)

Sample Number	Date Collect	Collected By/or Reference	Location	Easting	Northing
10000	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383715.2	5330867
10020	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383708.5	5330887
10040	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383704	5330906
10060	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383696.7	5330925
10080	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383691.4	5330944
10090	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383683	5330962
10100	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383678.9	5330971
10120	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383674.5	5330980
10140	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383664.1	5330997
10160	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383658.9	5331017
10180	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383641.3	5331049
10200	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383626.7	5331062
10212	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383619	5331068
10220	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383612.2	5331074
10240	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383598	5331086
10250	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383589.7	5331090
10260	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383580.1	5331094
10270	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383571.7	5331097
10280	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383561.7	5331101
10290	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383551.8	5331103
10300	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383542.1	5331106
10310	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383532.2	5331108
10318	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383524	5331111
10320	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383521.5	5331111
10330	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383513	5331116
10340	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383504.2	5331121
10350	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383495.6	5331126
10360	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383486.8	5331131
10370	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383478.7	5331135
10375(1)	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383474.4	5331138
10375(2)	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383474.4	5331138
10375(3)	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383474.4	5331138
10380	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383468.3	5331140
10390	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383459.2	5331144
10400	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383450	5331150
10420	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383432.1	5331163
10440	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383418.3	5331178
10460	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383403.7	5331192
10480	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383389	5331205
10500	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383377	5331215
10520	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383360.9	5331220
10540	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383344.2	5331222
10550	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383335.1	5331221
10560	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383326.1	5331220
10580	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383307.1	5331218
10600	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383287	5331215
10620	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383266.8	5331211
10640	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383247.3	5331208
10660	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383227.6	5331207
10680	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383208.6	5331202
10700	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383188.5	5331198

Mount Jukes Rock Chips
Samples Coordinates

Sample Number	Date Collect	Collected By/or Reference	Location	Easting	Northing
10750	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383137.3	5331194
10800	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383079.9	5331208
10850	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383039.6	5331239
10900	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383008.5	5331280
11400	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	382510	5331380
11900	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	382010	5331510
12450	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	381510	5331680
12800	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	381100	5331500
13300	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	380620	5331320
13800	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	380480	5330860
8100	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	5330210	384720
8600	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	5330120	384320
9500	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383923.2	5330444
9550	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383894	5330485
9600	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383863.1	5330524
9650	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383843.9	5330574
9700	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383831.6	5330624
9760	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383821.7	5330673
9770	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383820.5	5330683
9780	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383818.3	5330693
9790	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383815.8	5330702
9800	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383813.9	5330713
9805	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383812	5330722
9820	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383811.4	5330726
9840	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383808.8	5330740
9860	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383800.7	5330756
9880	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383791.5	5330771
9900	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383778.6	5330786
9920	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383764.9	5330801
9940	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383751.4	5330816
9960	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383737.6	5330831
9980	23/01/95	Nathan Duhig and Andrew Jones	Jukes Road	383725.3	5330847

Mount Jukes Road Rock Chips.
Neutron Activation Analyses.

S#	Sb	As	Ba	Br	Ce	Cs	Cr	Co
9550	1.01	1.45	1040	-2	94.3	9.38	114	5.62
9600	1.12	2.54	855	-2	90.3	8.56	53.1	4.17
9650	1.53	4.02	1000	4.94	71.7	4.02	54	2.72
9700	0.6	1.93	1240	-2	99.4	8.52	105	4.83
9760	0.74	2.58	1270	-2	103	7.69	182	14.9
9770	0.74	2.47	1250	-2	102	7.48	72.9	3.95
9780	0.86	2.58	1170	-2	81.7	8.81	80.9	2.82
9790	1.08	3.27	1140	-2	87	7.68	55.7	3.38
9800	1.08	4.21	1400	-2	40.6	7.26	87.2	3.59
9805	1.66	5.7	1100	-2	102	6.51	82.9	2.14
9820	1.05	9.89	980	-2	63.4	8.1	77.9	2.38
9840	0.96	3.21	1190	-2	76	7.68	63.6	3.14
9860	1.15	9.52	956	-2	104	5.77	75	1.94
9880	1.19	2.89	912	-2	134	4.86	35.8	3.04
9900	1.26	3.25	1400	-2	112	4.92	61	5.4
9920	2.92	8.04	674	-2	64.9	6.14	46.6	4.62
9940	1.66	3.26	1290	-2	98.9	3.42	48.5	1.56
9960	2.1	8.54	700	6.17	79.5	4.33	54.2	4.8
9980	2.12	10.1	727	4.38	89.7	5.15	41.4	3.88
10000	1.51	2.98	675	3.63	78.8	5.07	68.3	1.06
10020	1.22	3.32	941	3.18	26.7	2.03	64.7	2.43
10040	1.61	5.64	562	-2	58.6	2.55	57	2.08
10060	2.06	4.31	689	3.16	51.3	3.46	107	1.4
10080	1.37	2.93	940	2.58	75.9	2.9	58.6	2.17
10090	1.7	7.14	1010	2.68	96.1	4.36	105	2.14
10100	1.25	3.95	745	-2	90	3.09	104	1.18
10120	2.36	5.72	1390	-2	84.1	4.07	57.1	4.22
10140	1.97	4.1	1150	-2	69.6	1.85	48.5	15.6
10160	3.03	6.7	564	-2	74.1	3.76	37.5	16.5
10180	2.06	9.53	1970	-2	137	1.24	57.9	39.1
10200	2.17	8.11	1740	-2	106	2.71	85.6	61.1
10212	5.58	70.7	253	-2	94.4	1.06	43.3	1050
10220	2.17	9.59	2210	-2	81.3	1.54	97.2	101
10240	1.82	9.64	2650	-2	117	1.23	111	32.8
10250	1.38	5.58	2740	-2	130	1.26	127	7.95
10260	1.2	3.5	2690	-2	128	1.14	98.7	3.83
10270	1.38	2.8	2860	-2	144	-1	116	7.98
10280	1.26	2.42	2340	-2	142	1.49	66.1	5.13
10290	1.97	13.3	2010	-2	151	1.53	60.9	43.2
10300	2.89	24.1	1410	-2	127	6.29	63.6	5.7
10310	1.47	4.57	1970	-2	112	2.68	47	7.69
10318	5.14	218	295	3.04	52.6	3.76	31.3	543
10320	4.59	239	977	2.13	85	5.41	41.7	107
10330	1.34	4.62	1880	-2	102	3.25	106	3.52
10340	1.41	8.25	1700	-2	113	4.31	97.3	28.7
10350	1.18	2.49	1280	-2	95.4	4.07	93.5	5.76
10360	1.18	10.7	1820	-2	95.7	5.01	77.2	16.4
10370	1.09	2.74	2240	-2	72.1	2.1	91.2	5.58
10375	4.25	22.7	205	-2	15.2	-1	35.9	2.77
10380	2.36	16	1210	-2	54.1	-1	65.7	3.51

Mount Jukes Road Rock Chips.
Neutron Activation Analyses.

S#	Sb	As	Ba	Br	Ce	Cs	Cr	Co
10390	1.15	1.68	3050	-2	158	1.38	152	8.28
10400	2.82	8.91	1640	-2	113	2.12	92.9	14.9
10420	1.24	2	2700	-2	123	1.61	90	3.95
10440	0.95	1.88	2030	-2	107	2.18	102	2.15
10460	1.27	2.63	1560	-2	118	3.05	64.9	2.66
10480	0.86	3.77	2420	-2	130	1.51	98.3	2.64
10500	1.59	3.86	2150	-2	88.9	1.64	88.6	3.61
10520	2.2	9.35	1450	-2	105	2.26	43.9	6.29
10540	2.12	5.91	1330	-2	60.3	2.79	80.7	6.59
10550	2.25	12.8	1020	-2	84.6	3.69	54	9.68
10560	1.19	3.62	1410	-2	104	3.54	62.2	3.33
10580	1.17	1.61	1100	-2	83.4	2.77	38.9	3.23
10600	1.39	2.98	847	-2	116	4.39	67	2.84
10620	1.39	4.59	746	-2	125	6.44	57.9	9.29
10640	1.51	8.92	1400	-2	120	4.6	71.3	3.19
10660	1.19	6.64	1380	-2	121	4.18	72.6	3.45
10680	1.13	13.2	1300	-2	108	4.26	81.3	3.86
10700	1.44	7.34	1110	-2	110	4.83	41.2	2.08
10750	1.01	1.36	891	-2	116	3.43	58.4	2.44
B8600	0.48	-1	298	2.06	115	4.49	62.2	6.29
B9550	0.8	-1	998	-2	97.4	7.97	71.6	5.71
B9700	0.32	1.6	1170	-2	93.9	6.86	77.7	4.83
B9780	0.58	1.39	1000	-2	99.1	6.74	70.7	2.12
B9790	0.74	1.43	1180	-2	50.2	7.98	57.7	2.92
B10090	2.22	3.43	588	-2	175	2.94	79.2	1.59
B10140	2.26	13.4	1160	-2	49.1	1.47	68.6	62.9
B10170	1.91	2.04	525	-2	226	2	59	4.42
B10200	1.81	1.49	2710	-2	120	-1	113	7.07
B10210	2.18	3.56	2190	-2	33.7	-1	79.4	62.8
B10220	1.55	1.74	2400	-2	95.1	1.32	90.6	3.63
B10250	0.96	1.03	2030	-2	138	1.06	78.8	1.9
B10270	1.2	1	2270	-2	118	1.72	103	1.43
B10290	1.09	1.37	2280	-2	191	1.41	111	11.3
B10300	1.22	2.17	1540	-2	121	4.36	77.8	1.52
B10310	1.4	2.08	1770	-2	102	3.24	62.1	2.23
B10330	1.56	3.36	1620	-2	106	3.31	72.3	3.9
B10350	1.3	1.72	1280	-2	105	4.26	60.2	2.9
B10370	1.4	-1	1780	-2	106	3.71	74.8	1.66
B10420	1.11	-1	2150	-2	115	-1	103	-1
B10520	1.84	8.13	1990	-2	88.7	1.82	54.5	7.34
B10550	1.97	6.06	1150	-2	84.9	2.2	50.3	4.69
B10700	1.25	1.27	1120	-2	124	4.63	59	1.91
B10750	0.76	-1	758	-2	94	3.28	67.8	2.36
B10800	0.66	-1	895	-2	121	3.26	75.1	2.81
B10850	0.53	-1	1050	-2	101	2.31	93.3	3.25
B10900	0.95	-1	1670	-2	150	2.02	82.9	2.03
B11900	1.2	7.59	737	2.62	123	1.3	22.3	-1
B12450	0.64	-1	788	-2	129	6.81	83.4	2.24
B12800	1.01	-1	629	-2	162	13	18.9	-1
B13800	0.67	2.15	854	-2	133	7.99	53.3	2.06

Mount Jukes Road Rock Chips.
Neutron Activation Analyses.

S#	Eu	Au	Hf	Ir	Fe	La	Lu	Mo
9550	1.51	-5	7.72	-20	3.09	44.9	0.51	-5
9600	1.37	-5	7.75	-20	3.02	43.1	0.51	-5
9650	1.12	9.8	10.1	-20	5.01	35.9	0.56	-5
9700	1.59	-5	7.26	-20	2.52	54	0.56	-5
9760	1.11	-5	6.87	-20	4.22	42.9	0.4	-5
9770	-0.5	-5	7.35	-20	3.66	22	0.34	-10
9780	0.61	-5	7.65	-20	3.24	22.4	0.42	-5
9790	0.61	5.3	7.99	-20	3.69	21.8	0.38	-5
9800	-0.5	-5	8.2	-20	3.56	19.3	0.42	-10
9805	1.19	-5	7.3	-20	3.78	48.8	0.46	-5
9820	0.84	-5	6.62	-20	5.11	30.2	0.45	-10
9840	1.15	-5	6.93	-20	4.08	34.3	0.48	-5
9860	0.91	-5	5.82	-20	2.72	51.6	0.48	-5
9880	1.7	-5	5.7	-20	2.59	68.4	0.64	-5
9900	1.58	-5	7.39	-20	5.14	58.2	0.52	-5
9920	1.15	7.5	9.07	-20	6.26	30.2	0.52	-5
9940	1.06	8.1	7.14	-20	3.17	48.7	0.51	-5
9960	1.17	-5	9.04	-20	6.37	34.6	0.46	-5
9980	1.85	5.5	9.29	-20	6.83	44.6	0.49	-5
10000	0.99	-5	8.03	-20	1.59	38.8	0.46	-5
10020	0.66	-5	7.64	-20	2.72	18	0.5	-5
10040	1.12	-5	7.37	-20	3.87	24.8	0.47	-5
10060	0.93	-5	7.55	-20	1.81	40.2	0.47	-5
10080	1.1	-5	7.61	-20	2.58	34.7	0.52	-5
10090	1.27	-5	7.58	-20	2.66	48.6	0.57	-5
10100	1.22	-5	6.5	-20	1.69	47.7	0.48	-5
10120	1.21	8.8	5.43	-20	5.35	42.8	0.56	-15
10140	1.62	26.2	4.46	-20	9.55	34.3	0.96	-20
10160	1.48	67.4	5.62	-20	10.4	35.6	1.09	-15
10180	2.59	12.2	5.53	-20	9.61	67.2	0.83	-5
10200	2.47	5.6	7.95	-20	6.09	50.1	0.54	-5
10212	1.51	184	4.75	-20	14.9	41.8	0.83	-10
10220	1.01	63.2	6.74	-20	5.54	38.8	0.67	-10
10240	0.82	26.5	6.64	-20	7.05	55.7	0.72	-40
10250	1.49	22.3	7.23	-20	3.42	66.5	0.65	-15
10260	1.56	18.4	7.25	-20	3.73	63.8	0.68	-15
10270	1.53	20.8	7.02	-20	4.05	70.2	0.63	-15
10280	1.69	6.5	7.09	-20	4.06	71.5	0.7	-10
10290	2.4	47.6	7.27	-20	6.83	78.3	1.52	-30
10300	1.88	8.4	7.26	-20	5.96	63.6	0.76	-40
10310	1.51	5.5	7.78	-20	2.89	56.5	0.64	-10
10318	0.91	2120	3.45	-20	11.1	22.7	0.95	-40
10320	1.46	991	5.21	-20	8.49	39.2	0.9	-40
10330	1.5	9.1	7.18	-20	3.75	50	0.63	-5
10340	1.58	13.4	7.32	-20	3.79	56.2	0.62	-10
10350	1.2	5.4	7.1	-20	3.82	45.7	0.57	-10
10360	1.33	-5	6.72	-20	4.09	47	0.62	-10
10370	1.46	8.6	6.47	-20	2.8	32	2.8	-15
10375	0.73	1530	3.06	-20	7.26	7.45	0.98	-40
10380	1.05	1470	4.4	-20	6.11	24.8	1.13	-40

S#	Eu	Au	Hf	Ir	Fe	La	Lu	Mo
10390	2.19	-5	7.96	-20	3.16	76.4	0.88	-10
10400	1.4	200	6.62	-20	5.38	55.7	0.87	-30
10420	2.08	9.8	7.1	-20	3.52	57.7	0.73	-10
10440	1.56	-5	7.13	-20	2.72	50.6	0.63	-5
10460	1.51	25.2	7.09	-20	2.66	57.2	0.63	-10
10480	1.7	18.8	6.66	-20	2.73	61	0.69	-5
10500	1.13	16.2	7.34	-20	4.52	42.3	0.67	-10
10520	1.74	459	7.98	-20	8.79	48.4	0.78	-10
10540	0.97	748	8.08	-20	8.96	32.9	0.78	-20
10550	1.13	27.4	7.95	-20	7.52	38.3	0.71	-10
10560	1.21	9.6	6.81	-20	3.45	47.4	0.7	-10
10580	0.93	-5	7.86	-20	5.77	37.7	0.62	-5
10600	1.43	-5	6.36	-20	2.41	53.9	0.64	-10
10620	1.65	36.2	7.39	-20	3.68	57.6	0.62	-10
10640	1.07	17.8	7.18	-20	2.03	56	0.61	-5
10660	1.66	6.7	6.8	-20	2.01	56.2	0.6	-5
10680	1.02	-5	6.22	-20	2.33	49.8	0.56	-5
10700	1.3	9.3	6.79	-20	2.6	51.6	0.61	-5
10750	1.18	-5	7	-20	1.94	54.1	0.6	-5
B8600	1.65	-5	7.8	-20	1.8	54.9	0.49	-5
B9550	1.38	-5	7.36	-20	2.84	47.4	0.52	-5
B9700	1.46	-5	6.62	-20	2.5	48.6	0.5	-5
B9780	0.85	-5	7.08	-20	2.7	22.4	0.37	-10
B9790	-0.5	-5	7.65	-20	3.16	32.6	0.34	-5
B10090	2.05	-5	7.37	-20	1.67	80.2	0.44	-5
B10140	1.33	163	3.93	-20	6.91	21.5	1.4	-20
B10170	4.46	28.9	7.27	-20	12.4	110	0.69	-5
B10200	2.92	10.1	8.05	-20	3.05	57.9	0.53	-5
B10210	0.55	31	5.73	-20	12.4	16.8	0.59	-30
B10220	0.73	5.4	6.91	-20	2.19	41.6	0.7	-10
B10250	2.13	-5	7.05	-20	2.38	65.7	0.72	-10
B10270	1.08	-5	7.46	-20	2.86	54.6	0.7	-5
B10290	2.17	-5	6.7	-20	3.46	103	0.78	-15
B10300	1.41	-5	7.17	-20	2.48	57.1	0.61	-5
B10310	1.22	5.5	7.65	-20	3.2	48.4	0.63	-5
B10330	1.46	5.8	7.17	-20	2.61	49.6	0.71	-5
B10350	1.08	-5	6.85	-20	4.64	48.1	0.55	-10
B10370	1.51	-5	7.31	-20	1.98	56.8	0.78	-5
B10420	1.57	-5	7.02	-20	1.09	55.4	0.61	-10
B10520	1.45	5.6	9.66	-20	5.56	39.8	0.54	-5
B10550	1.11	10.2	8.77	-20	8.48	38.6	0.61	-5
B10700	1.25	-5	6.89	-20	2.35	59.5	0.6	-5
B10750	1.18	-5	7.15	-20	2.08	43.1	0.59	-5
B10800	1.54	-5	6.71	-20	2.48	56.7	0.62	-5
B10850	1.19	-5	6.54	-20	1.88	47.8	0.59	-5
B10900	1.55	-5	8.51	-20	1.35	78.4	0.69	-10
B11900	1.47	-5	7.26	-20	2.62	56.6	0.57	-5
B12450	1.52	-5	7.46	-20	2.59	56.9	0.71	-5
B12800	2.26	5.8	7.54	-20	1.65	69.4	0.72	-5
B13800	1.99	-5	7.5	-20	2.3	66.9	0.68	-5

Mount Jukes Road Rock Chips.
Neutron Activation Analyses.

S#	K	Rb	Sm	Sc	Se	Ag	Na	Ta
9550	2.98	137	7.98	13.7	-5	-5	0.197	1.31
9600	3.29	147	7.57	13.4	-5	-5	0.285	1.5
9650	3.31	170	6.28	18.4	-5	-5	0.43	2.34
9700	3.11	145	8.37	9.3	-5	-5	0.207	1.21
9760	3.07	142	6.33	10.2	-5	-5	0.023	-1
9770	2.79	137	2.56	11.1	-5	-5	0.024	1.11
9780	3.48	155	3.75	11.8	-5	-5	0.031	1.49
9790	3.05	151	2.97	12.3	-5	-5	0.027	1.48
9800	3.39	160	2.64	12.3	-5	-5	0.041	1.57
9805	3.2	167	6.77	11.2	-5	-5	0.029	1.88
9820	3.07	165	4.72	9.09	-5	-5	0.049	-1
9840	3.21	161	5.66	9.26	-5	-5	0.115	1.47
9860	3.27	175	6.85	4.77	-5	-5	0.192	1.74
9880	3.4	160	9.17	4.18	-5	-5	0.443	1.86
9900	3.98	169	8.7	11.1	-5	-5	0.35	1.92
9920	3.74	196	5.65	18.5	-5	-5	0.057	1.34
9940	4.57	196	7.2	8.76	-5	-5	0.116	-1
9960	3.39	198	6.2	17.2	-5	-5	0.051	1.95
9980	3.63	180	7.62	17.7	-5	-5	0.034	1.65
10000	3.71	170	5.22	9.13	-5	-5	0.041	1.3
10020	3.4	144	3.35	10.4	-5	-5	0.261	1.38
10040	2.67	139	4.75	9.3	-5	-5	0.489	1.45
10060	3.38	152	6.22	10.4	-5	-5	0.051	1.43
10080	3.4	144	5.99	11.5	-5	-5	0.117	2.01
10090	4.25	176	8.27	12.9	-5	-5	0.098	1.85
10100	3.64	156	8.06	8.75	-5	-5	0.071	1.6
10120	4.29	147	7.06	6.09	-5	-5	0.056	1.25
10140	3.45	107	6.61	4.71	-5	-5	0.041	2.15
10160	2.2	112	6.77	7.45	-5	-5	0.022	-1
10180	2.84	74.4	10.7	9.16	-5	-5	0.042	-1
10200	3.98	134	10.2	18.1	-5	-5	0.044	1.49
10212	0.97	61.2	8.82	7.81	-5	-5	-0.01	1.29
10220	5.19	155	6.75	6.82	-5	-5	0.081	1.38
10240	5.74	154	9.65	7.68	-5	-5	0.126	-1
10250	6.37	158	10.5	6.26	-5	-5	0.122	1.49
10260	6.03	164	10.2	7.61	-5	-5	0.137	-1
10270	6.16	166	11.3	6.62	-5	-5	0.114	1.76
10280	5.54	157	11.7	8.26	-5	-5	0.101	-1
10290	5.05	167	12.8	7.56	-5	-5	0.075	1.13
10300	4.45	163	10.7	7.98	-5	-5	0.056	1
10310	4.99	175	9.41	7.42	-5	-5	0.132	-1
10318	1.13	69	5.94	8.18	9	42.5	0.015	-1
10320	2.67	129	8.12	8.81	-5	25.3	0.058	-1
10330	4.53	165	8.5	7.31	-5	-5	0.088	-1
10340	4.27	165	9.3	7.16	-5	-5	0.128	1.52
10350	3.76	159	7.55	7.36	-5	-5	0.111	-1
10360	4.39	174	8.24	6.96	-5	-5	0.201	-1
10370	5.09	152	6.36	5.53	-5	-5	0.1	-1
10375	0.42	-20	2.14	29.6	-5	-5	0.311	-1
10380	2.26	65	5.1	16.1	-5	-5	0.171	-1

Mount Jukes Road Rock Chips.
Neutron Activation Analyses.

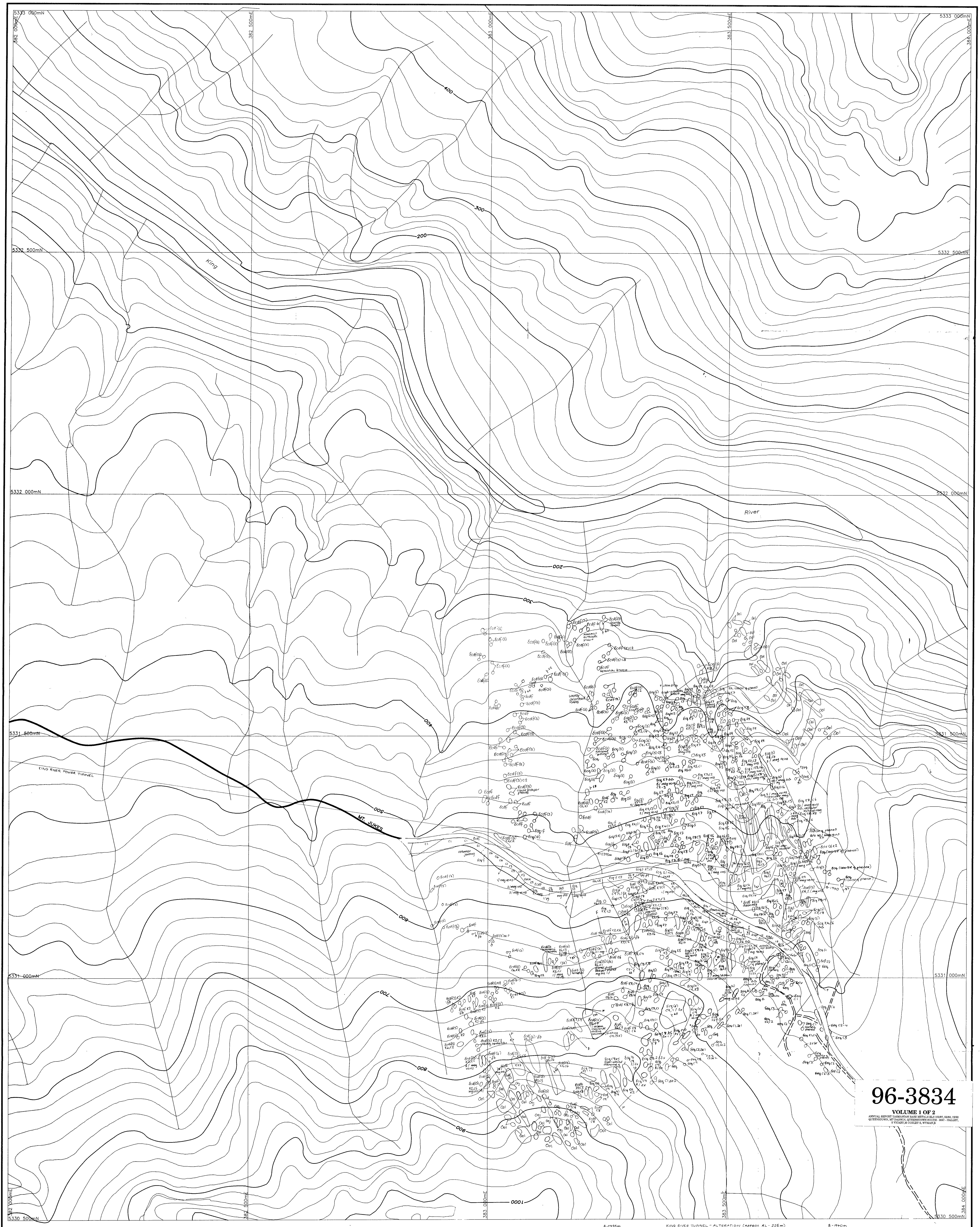
S#	K	Rb	Sm	Sc	Se	Ag	Na	Ta
10390	6.54	212	12	7.54	-5	-5	0.15	1.51
10400	4.64	150	9.22	8.58	-5	-5	0.082	1.78
10420	6.1	181	9.88	7	-5	-5	0.089	2.13
10440	5.49	170	8.53	7.11	-5	-5	0.164	1.73
10460	5.06	188	9.43	6.96	-5	-5	0.122	2.25
10480	6.3	166	10	7.01	-5	-5	0.22	1.96
10500	5.95	166	7.32	9.44	-5	-5	0.125	-1
10520	4.02	145	9.04	12.7	-5	-5	0.06	1.06
10540	3.58	143	6.44	10.6	-5	-5	0.066	1.64
10550	3.69	157	7.28	11.8	-5	-5	0.114	1.52
10560	4.46	153	8.19	6.98	-5	-5	0.238	1.48
10580	3.93	169	7.03	10.6	-5	-5	0.248	1.27
10600	3.96	167	9.14	5.85	-5	-5	0.056	1.07
10620	3.5	173	9.92	8.18	-5	-5	0.117	2.29
10640	4.46	174	9.32	6.76	-5	-5	0.391	1.8
10660	4.14	169	9.34	6.66	-5	-5	0.583	1.93
10680	4.03	158	8.23	6.28	-5	-5	0.399	-1
10700	3.71	174	8.63	6.72	-5	-5	0.266	1.38
10750	2.99	122	9.15	6.87	-5	-5	1.06	1.9
B8600	2.46	125	8.37	12.2	-5	-5	0.018	1.71
B9550	2.75	112	7.73	12.7	-5	-5	1.28	1.79
B9700	2.62	124	8.03	9.26	-5	-5	1.58	2.6
B9780	2.64	121	3.62	10.7	-5	-5	0.024	1.75
B9790	3.13	143	2.1	11	-5	-5	0.026	1.88
B10090	3.84	202	13.8	13.9	-5	-5	0.055	-1
B10140	3.55	102	4.83	3.77	-5	-5	0.049	2.12
B10170	1.84	57.7	19.5	12.4	-5	-5	0.02	3.56
B10200	5.59	135	11.3	16.5	-5	-5	0.075	1.27
B10210	5.07	138	3.07	4.57	-5	-5	0.08	1.31
B10220	6.58	176	7.34	7.07	-5	-5	0.109	1.14
B10250	5.22	150	11.2	7.61	-5	-5	0.658	2.09
B10270	5.59	186	9.3	6.8	-5	-5	0.079	1.82
B10290	5.65	156	14.9	5.98	-5	-5	0.095	-1
B10300	5.31	186	8.98	7.06	-5	-5	0.057	-1
B10310	5.07	197	8.06	7.39	-5	-5	0.07	1.79
B10330	4.43	178	8.67	7.28	-5	-5	0.085	1.4
B10350	3.69	151	7.82	8.7	-5	-5	0.045	-1
B10370	5.39	191	9.88	7.17	-5	-5	0.117	-1
B10420	5.79	180	9.08	7.53	-5	-5	0.062	1.51
B10520	6	181	7.49	13.8	-5	-5	0.093	1.18
B10550	3.81	158	7.23	14.9	-5	-5	0.049	1.06
B10700	3.89	171	9.63	6.86	-5	-5	0.711	1.8
B10750	2.94	111	7.79	5.76	-5	-5	1.69	1.76
B10800	3.37	142	9.61	6.68	-5	-5	1.22	2.53
B10850	3.57	139	8.06	5.84	-5	-5	1.49	1.58
B10900	4.75	171	12.2	7.42	-5	-5	1.81	1.88
B11900	1.73	57.4	9.55	11.9	-5	-5	0.786	2.05
B12450	2.16	109	10.7	10.8	-5	-5	3.02	1.77
B12800	4.31	194	13	12.5	-5	-5	0.029	-1
B13800	2.92	121	11.6	9.29	-5	-5	2.36	2.79

Mount Jukes Road Rock Chips.
Neutron Activation Analyses.

S#	Th	W	U	Yb	Zn
9550	18	-2	3.68	3.4	405
9600	17.7	-2	2.99	3.56	203
9650	15.8	6.94	4.24	3.73	214
9700	20.4	-2	3.84	3.81	440
9760	18	-2	3.82	2.9	331
9770	20.6	-2	5.92	2.2	231
9780	20	3.1	3.79	2.84	183
9790	20.5	-2	4.46	2.67	203
9800	21.8	2.58	6.05	2.89	221
9805	21.6	3.08	3.5	3.18	198
9820	20.2	-2	5.22	3.06	220
9840	21.7	-2	4.21	3.41	295
9860	24.3	-2	3.71	3.34	120
9880	22.7	-2	4.3	4.21	137
9900	19.3	-2	2.31	3.46	206
9920	14.3	7.18	3.61	3.75	194
9940	20.1	3.27	2.99	3.6	110
9960	15.6	12.6	3.28	3.22	160
9980	16.1	8.62	4.15	3.44	160
10000	12.6	3.51	-2	3.11	-100
10020	17.8	5.9	3.43	3.11	114
10040	17.1	12.9	4.43	3.08	113
10060	13.2	-2	-2	3.24	-100
10080	17.8	-2	3.07	3.65	128
10090	21.5	4.17	3.09	3.99	144
10100	18.5	5.58	2.31	3.34	-100
10120	20.6	18.7	9.25	3.7	115
10140	22.2	23.6	13.6	6.55	179
10160	18	38.1	9.54	7.01	194
10180	18.1	29.2	3.59	5.56	223
10200	14.4	26.5	4.11	3.86	135
10212	14.6	189	8.85	6.2	203
10220	19.5	39.2	8.21	4.66	136
10240	19.6	30.2	23.4	4.75	107
10250	20.5	15.1	11.7	4.39	110
10260	21.2	11	10.4	4.46	134
10270	20	17	11.7	4.21	136
10280	21	16.6	8.2	4.46	117
10290	20.5	28.7	17.6	10.4	138
10300	22.2	71.7	20.5	4.94	178
10310	21.2	23.3	5.53	4.26	118
10318	12.2	118	33.8	6.64	-100
10320	16.6	118	39.1	6.3	151
10330	20.5	14	4.94	4.2	155
10340	20.5	20.2	5.68	4.24	140
10350	19.8	20.2	5.63	3.92	154
10360	19.4	23.9	7.26	4.02	124
10370	17.9	24.1	10.1	20.3	-100
10375	9.15	110	24.2	5.55	125
10380	12.5	123	24.5	7.02	114

Mount Jukes Road Rock Chips.
Neutron Activation Analyses.

S#	Th	W	U	Yb	Zn
10390	23	16	5.34	5.51	137
10400	19.5	61.9	19.1	5.87	133
10420	21.4	22.7	6.06	4.83	122
10440	21.2	20.8	4.95	4.07	110
10460	20.8	23.3	5.59	4.18	108
10480	20	26.4	4.7	4.59	124
10500	17.6	33.8	8.25	4.62	156
10520	14	66.4	6.68	5.28	236
10540	13.8	943	14.1	4.84	188
10550	15.3	93.7	6.95	4.69	154
10560	20.2	34.2	5.01	4.23	109
10580	16.7	21.5	4.08	3.81	153
10600	22.9	10.5	6.79	4.31	128
10620	19.1	12.1	5.18	4.11	142
10640	20.9	5.74	4.98	4.14	-100
10660	20.6	7.15	3.37	3.95	104
10680	19.5	4.16	3.96	3.83	108
10700	20.8	3.9	4.89	3.99	117
10750	20.4	2.55	3.97	3.85	118
B8600	18.4	-2	2.28	3.27	218
B9550	16	-2	-2	3.4	425
B9700	17.7	-2	3.27	3.37	474
B9780	19.8	-2	5.62	2.4	224
B9790	19.6	-2	3.58	2.04	221
B10090	14.5	10.9	-2	3.12	-100
B10140	28.1	21.7	13.9	10.1	187
B10170	14.3	30.5	3.21	4.31	276
B10200	14.8	28.7	2.04	3.54	151
B10210	14.8	29.4	15.3	4.02	133
B10220	20.4	17.5	6.21	4.86	-100
B10250	20.7	8.52	5.77	4.23	122
B10270	20.2	20	4.45	4.38	126
B10290	18	18.5	10	4.65	107
B10300	22.1	8.42	4.93	3.98	133
B10310	22.1	22.5	4.73	4.04	124
B10330	21	18.5	4.94	4.65	117
B10350	18.6	16	5.83	3.61	171
B10370	21.4	18.9	3.85	4.95	116
B10420	20.9	14.9	5.77	3.98	-100
B10520	13.3	56.8	2.59	3.45	181
B10550	11.8	28.5	3.5	4.15	170
B10700	21.3	2.5	3.78	4.16	-100
B10750	20.7	-2	3.92	3.86	-100
B10800	20.2	-2	4.7	4.1	115
B10850	20.3	2.67	3.36	3.87	103
B10900	25.2	2.59	5.21	4.48	109
B11900	20.2	-2	3.33	3.89	151
B12450	19.3	-2	3.14	4.78	180
B12800	22.8	-2	2.45	4.98	-100
B13800	20.3	-2	2.39	4.54	140



JUKES - LEGEND

ORDOVICIAN

OOl - grey to pink coarse grained pebble rich conglomerate with thin sandstone and pebble rich horizons The clasts are well rounded and comprise quartz, quartzite and chert (Owen Conglomerate)

OOj - matrix supported conglomerate comprising subrounded clasts of quartz and feldspar phyric clasts, non phyric clasts, silicified volcanics, hematite and chert (Jukes Conglomerate)

CAMBRIAN

EASTERN SEQUENCE

Eef / Eeq - massive quartz and feldspar phyric rhyolite, either quartz or feldspar is dominant to the exclusion of the other

Eee - medium to coarse grained quartz rich sandstone, overlain by and intermixed with discontinuous lenses of polymict conglomerate The matrix is fine grained and supports sub rounded clasts of rhyolite, chert and sandstone

CENTRAL VOLCANIC COMPLEX

Ecq - quartz phyric rhyolite lavas (± feldspar, shown Ecq-f) and lava breccias, variably porphyritic and typically spherulitic (shown - s) The rhyolite lavas are rarely non-phyric (shown Ecq(a)) and feldspar phyric (shown Ecf)

Eclv - volcaniclastic sediments, sandstone siltstone and polymict conglomerates clasts are typically subrounded and comprise rhyolite, chert and sandstone

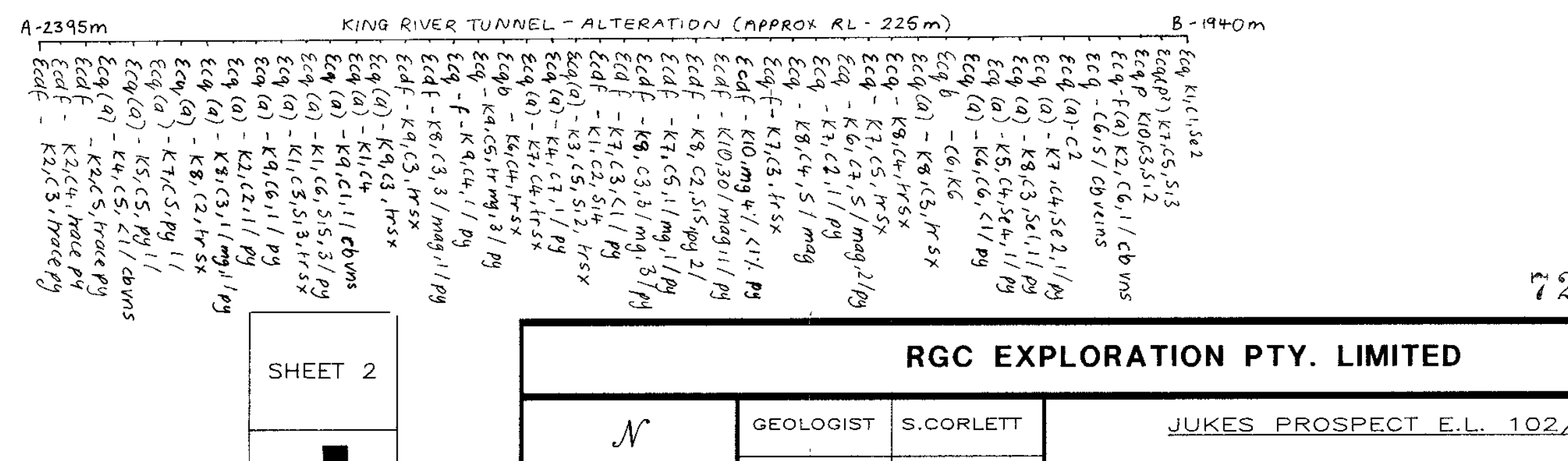
Ecdf - feldspar phyric dacite, typically spherulitic (shown - s), commonly flow banded and columnar jointed Rare lenses of chlorite / limonite occur within this package

Ecdf-b monomict clast supported (autoclastic?) breccia comprising clasts of feldspar phyric, spherulitic dacite, typically outcrops as laterally discontinuous lenses

Ecvb - polymict breccia, matrix supported with angular clasts of feldspar phyric rhyolite, non-phyric rhyolite, coarsely quartz phyric rhyolite and chert

Ecqp - quartz porphyry, coarsely porphyritic quartz phenocrysts with fine grained intensely chloritised groundmass Occurs as discontinuous pods that can interfinger with surrounding country rock

F —— fault
○ outcrop
◌ sub crop
△ hydrothermal brecciation
< strike & dip
S spherulitic
fb flow banded
mg magnetite



SHEET 2
■ SHEET 3 C
A B SHEET 4 C D
A SHEET 5

RGC EXPLORATION PTY. LIMITED

GEOLOGIST	S.CORLETT
DRAWN	M.WALTER
DATE	JULY 1995
CHECKED	
1:25000 REF.	

JUKES PROSPECT E.L. 102/87 & 55/89

FACT GEOLOGY

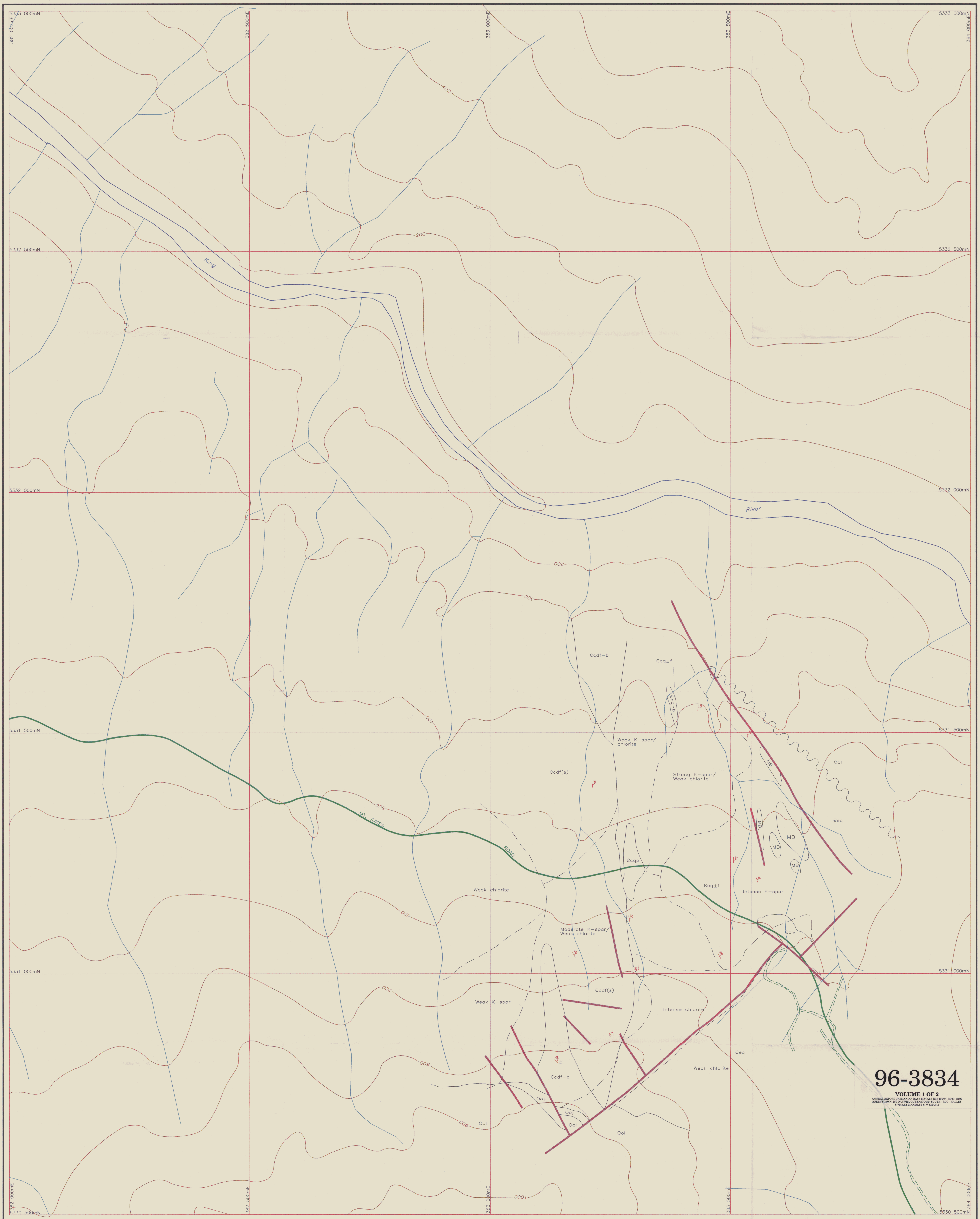
5 cm

DRAWING ID 5532/205

FILENAME: JUKES

SCALE 1:2500

Fig 1



LEGEND

ORDOVICIAN

Ool	Coarse grained pebble rich conglomerate with sandstone and pebble rich horizons. (Owen conglomerate)
Ooj	Matrix supported conglomerate comprising subrounded clasts of quartz and feldspar phyric and non phyric rhyolitic, silicified volcanics, hematite & chert. (Jukes conglomerate)

CAMBRIAN

Ɛef/Ɛeq	Massive quartz and feldspar phyric rhyolite.
Ɛee	Medium to coarse grained quartz rich sandstone.
Ɛcq	Quartz phyric rhyolite lavas(± feldspar).
Ɛclv	Volcaniclastic sandstone, siltstones and polymict conglomerates with interlayed siltstone.
Ɛcdf	Feldspar phyric dacite, typically spherulitic(shown–s), commonly flowbanded and columnar jointed.
Ɛcdf–b	Rubbly monomict clast supported breccias comprising clasts of feldspar phyric dacite.
Ɛcvb	Polymict matrix supported breccia with angular clasts of feldspar phyric rhyolite, non–phyric rhyolite, coarsely porphyrtic quartz phyric rhyolite and chert.
Ɛcqp	Coarsely porphyrtic quartz phnocrysts comprise 60% within a finegrained, intensely chlortised ground mass.

—	Geological Boundary
- -	Inferred Alteration Boundary
▬	Fault
MB	Zone of >60% magnetite

SHEET LAYOUT

SHEET 1
SHEET 2
SHEET 3
C
A B
SHEET 4
C D
A
SHEET 5

723275

RGC EXPLORATION PTY. LIMITED

N

GEOLOGIST	S.CORLETT
DRAWN	M.WALTER
DATE	JULY 1995
CHECKED	
1:25000 REF.	

JUKES PROSPECT E.L. 102/87 & 55/89

GEOLOGICAL INTERPRETATION

5 cm

DRAWING ID: 5532/205
FILENAME: JUKES

SCALE 1:2500

PLAN 3

APPENDIX 13

Helimag Survey Report

UTS GEOPHYSICS PTY LTD

LOGISTICS REPORT

HELICOPTER GEOPHYSICAL SURVEYS

FOR

RGC EXPLORATION PTY LIMITED

QUEENSTOWN AND RENISON MINE AREA

TASMANIA, AUSTRALIA

20 FEBRUARY 1995

723278

CONTENTS

1 GENERAL SURVEY INFORMATION

In February 1995, UTS Geophysics conducted an airborne magnetometer survey of the Queenstown and Renison Mine area in Tasmania for RGC Exploration Pty Limited. This report summarises the logistics, survey parameters and processing details of the survey.

The survey commenced on 29 January 1995 and was completed on 20 February 1995.

UTS Geophysics provided the described survey for the following mining company:

RGC Exploration Pty Limited
A.C.N. 001 426 946
89 Burswood Road
VIC PARK WA 6100

2 GENERAL FLYING SPECIFICATIONS

Helicopter magnetic surveys were flown over six (6) area(s) in Western Tasmania. The base of operations was Queenstown, Tasmania. Flight specifications for each area are shown in the following table.

PROSPECT NAME	LINE SPACING	LINE DIRECTION	TIE LINE SPACING	TIE LINE DIRECTION	SENSOR HEIGHT	SAMPLE DENSITY	TOTAL LINE KM
Basin Lake	100m	090 - 270	-	-	20-30m	3 - 4 m	456
Garfield	100m	090 - 270	-	-	20-30m	3 - 4 m	320
Renison	50m	048 - 228	-	-	20-30m	3 - 4 m	106
Miners Ridge	100m	090 - 270	-	-	20-30m	3 - 4 m	310
Conglomerate Creek	100m	090 - 270	-	-	20-30m	3 - 4 m	100
Mt Jukes	100m	090 - 270	-	-	20-30m	3 - 4 m	180
Tie lines (200m)	-	-	200m	000 - 180	20-30m	3 - 4 m	25
Tie lines (1000m)			1000m	000 - 180	20-30m	3 - 4 m	160
TOTAL							1657

The total number of line kilometres of survey data collected over the survey area(s) specified in the above table was 1923.

The specified sensor height for the magnetic samples is as stated in the above table. This sensor height may be varied where topographic relief or laws pertaining to built up areas do not allow this altitude to be maintained, or where the safety of the helicopter and equipment is endangered.

The coordinate boundaries and associated maps for the survey area(s) flown is detailed in Appendix B.

3 EQUIPMENT USED AND SPECIFICATIONS

The list of geophysical and navigation equipment used for the survey is as follows:

- UTS helicopter based stinger.
- Geometrics G-833 Metastable Helium Magnetometer
- Develco Vector Magnetometer.
- UTS data acquisition system, digital recording and output system.
- RMS Aeromagnetic Automatic Digital Compensator (AADC II).
- UTS navigation and acquisition software.
- Bendix King KRA-10 Radar Altimeter.
- Magnavox MX-9212 Navigation GPS.
- Magnavox MX-9012 Differential GPS.
- UTS LCD pilot navigation display.
- UTS Radios and radio modem communication system.
- Diurnal monitoring magnetometer (Geometrics G-856)

3.1 Aircraft Used

Model:	Aerospatiele Squirrel AS 350B
Registration:	VH-HBA
Operator:	Helicopter Resources Pty Ltd

3.2 UTS Helicopter Based Stinger System

The platform used for data acquisition was the UTS developed, helicopter stinger. The stinger is a carbon fibre, forward mounted boom, fixed beneath the helicopter and extending beyond the front of the aircraft cabin.

All magnetic and positional sensors are mounted within the stinger.

3.3 Magnetics

Total magnetic field data readings for the survey were made using a Geometrics G-833 Helium Magnetometer. This precision sensor has the following specifications:

Model	Geometrics G-833 Metastable Helium Magnetometer
Sample Rate	0.1 Seconds (10Hz)
Sensitivity	0.01nT
Operating Range	20,000nT to 95,000nT
Temperature Range	-20°C to +50°C

3.4 Data Positioning and Flight Navigation

Data positioning and navigation was derived using differential, real-time GPS (Global Positioning System).

A Differential GPS receiver and associated radio data communications were established in the vicinity of the survey area by UTS. Positional corrections from a base reference GPS were transmitted to the aircraft GPS for real-time corrections to the aircraft's GPS derived position.

Differential corrections were recorded at the base station GPS site to allow for post flight correcting of the positions recorded by the aircraft.

The GPS systems used for the survey were:

• Aircraft Navigation GPS Model	Magnavox MX9212
• Satellite Channels Available	12
• Differential Reference GPS Model	Magnavox MX9012
• Satellite Channels Available	12
• Typical Differentially Corrected Accuracy	2-3 metres (horizontal accuracy)

3.5 UTS Data Acquisition System, Digital Recording and Output System

All geophysical and positional information for the survey was recorded using a UTS developed, high speed, precision computer data acquisition system.

Instrument synchronisation, recording and parallax were measured and removed in real-time using the UTS data acquisition system.

The information recorded for each one tenth of a second (0.1 second) interval was:

- scan time (Local and UTC time)
- one total field magnetometer reading
- one vector magnetometer reading (X,Y,Z)
- one radar altimeter reading
- one WGS84 GPS position
- one AMG84 metric grid coordinate
- one GPS geodetic height reading
- other GPS information including dilution of position, signal information, satellites tracked and pseudo-range information

Survey flight data was down loaded onto magnetic tape.

3.6 Aircraft Compensation

At the start of the survey, the system was calibrated for reduction of heading error.

The heading and manoeuvre effect of the aircraft on the magnetic data was removed using an RMS Automatic Airborne Digital Compensator (AADC). UTS static proprietary compensation techniques were also employed to further refine the removal of the heading effect of the aircraft

A three axis fluxgate magnetometer was used to record the magnetic field in the X,Y and Z directions. These recorded values were used by the RMS AADC compensator to remove the heading effect of the helicopter.

3.7 UTS Navigation System

All data positioning and pilot navigation was controlled through advanced UTS navigation software.

Accurate pilot navigation was achieved through computer controlled aircraft flight instruments and guidance displays located in the cockpit of the aircraft.

GPS derived positions were used to provide aircraft navigation and position information.

3.8 Altitude Readings

Accurate height above the terrain was measured using a Bendix King radar altimeter installed in the aircraft. The height of each magnetic reading was taken from the radar altimeter and stored by the acquisition system.

• Model	Bendix King KRA-10 radar altimeter
• Sample Rate	0.1 Seconds (10Hz)

3.9 Diurnal Monitoring Magnetometer

A base station magnetometer was located in a low gradient area beyond the region of influence by any man made interference to monitor diurnal variations during the survey.

The specifications for the magnetometer used are as follows:

Model	Geometrics G-856
Resolution	0.1 nT
Sample Interval	10 seconds (0.1Hz)
Operating Range	20,000nT to 90,000nT
Temperature	-20°C to +50°C

4 SURVEY LOGISTICS

The base location used for operating the aircraft and in-field processing of the survey data was Queenstown, Tasmania.

4.1 Survey Flight Summary

The following table summarises the flight logs provided by the operator for the survey areas flown:

Flight Date	Area No	Flight No	Area Name	Line Km Flown	Lines Flown	Weather Conditions
29 Jan 95	-	-				Mobilisation & Setup
30 Jan 95	4	1	Miners Ridge	103	18	Survey Production & Setup
31 Jan 95	1	1	Basin Lake	226	51	Survey Production
	4	2	Miners Ridge	224	35	Survey Production
1 Feb 95	2	1	Garfield	206	51	Survey Production
	2	2	Garfield	170	40	Survey Production
2 Feb 95	5	1	Conglomerate	47	12	Survey Production
	1	2	Basin Lake	174	51	Survey Production
3 Feb 95	-	-				Bad weather / Standby
4 Feb 95	5	2	Conglomerate	64	28	Survey Production
	6	1	Mt Jukes	68	13	Survey Production
	6	2	Mt Jukes	12	3	Survey Production
	6	3	Mt Jukes	26	5	Survey Production
	T1	1	Tie Lines @ 1000m	166	7	Survey Production
5 Feb 95	-	-				Bad weather / Standby
6 Feb 95	6	4	Mt Jukes	-	-	No lines flown / bad weather
7 Feb 95	3	1	Renison	114	50	Survey Production
	3	T1	Rension	7	3	Survey Production
9 Feb 95	-	-				Bad weather / Standby
11 Feb 95	1	3	Basin Lake	112	72	Survey Production
20 Feb 95	T2	1	Tie lines @ 250m	204	21	Survey Production

4.2 Differential GPS Station Locations

The following table contains the locations used for the differential GPS reference station.

Area Name	Period	Trig Station Name	Latitude	Longitude
Renison	7 Feb 95	Dreadnaught Hill	S 41° 47' 53.9537"	E 145° 26' 10.8539"
All other areas	29 Jan - 20 Feb 95	Westcoaster Motor Inn	S 42° 04' 35.1522"	E 145° 33' 31.3950"

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4.3 Diurnal Magnetometer Locations

The following table contains the approximate locations where the diurnal base station magnetometer/s were located for each survey area.

Area Name	Period	Base Station ID	Latitude	Longitude
Areas 1 - 6	30 Jan - 20 Feb 95	00	S 42 ° 04.44'	E 145 ° 32.20'
Areas 1 - 6	30 Jan - 20 Feb 95	01	S 42 ° 04.44'	E 145 ° 32.20'

4.4 Cultural Features Noted from Flight Logs

The following table contains operator flight notes made during the survey where cultural features may cause significant interference to the survey data acquired.

Area Name	Flight Line	Easting	Northing	Description
All Areas	-	-	-	Numerous cultural features in the survey area

5 Processed Products Supplied

5.1 Data Processing and Levelling

The raw survey data was loaded from the field tapes and levelled in the following manner to produce preliminary maps:

- Base station magnetometer diurnal levelling
- Tie line levelling

The preliminary levelled data was then plotted to produce the following verification maps:

- Total magnetic intensity contour maps
- Flight path maps

5.2 Final Geophysical Products

A levelled located data tape, containing all traverse lines and tie lines was recorded on the following media:

- EXABYTE TAR format tape

The format for the located data tape is described in Appendix A.

The following geophysical maps and images were supplied:

- None supplied

For further information concerning the survey flown, please contact the following office:

Head Office Address:

UTS Geophysics Pty Ltd
Valentine Road
Perth Airport
REDCLIFFE WA 6104

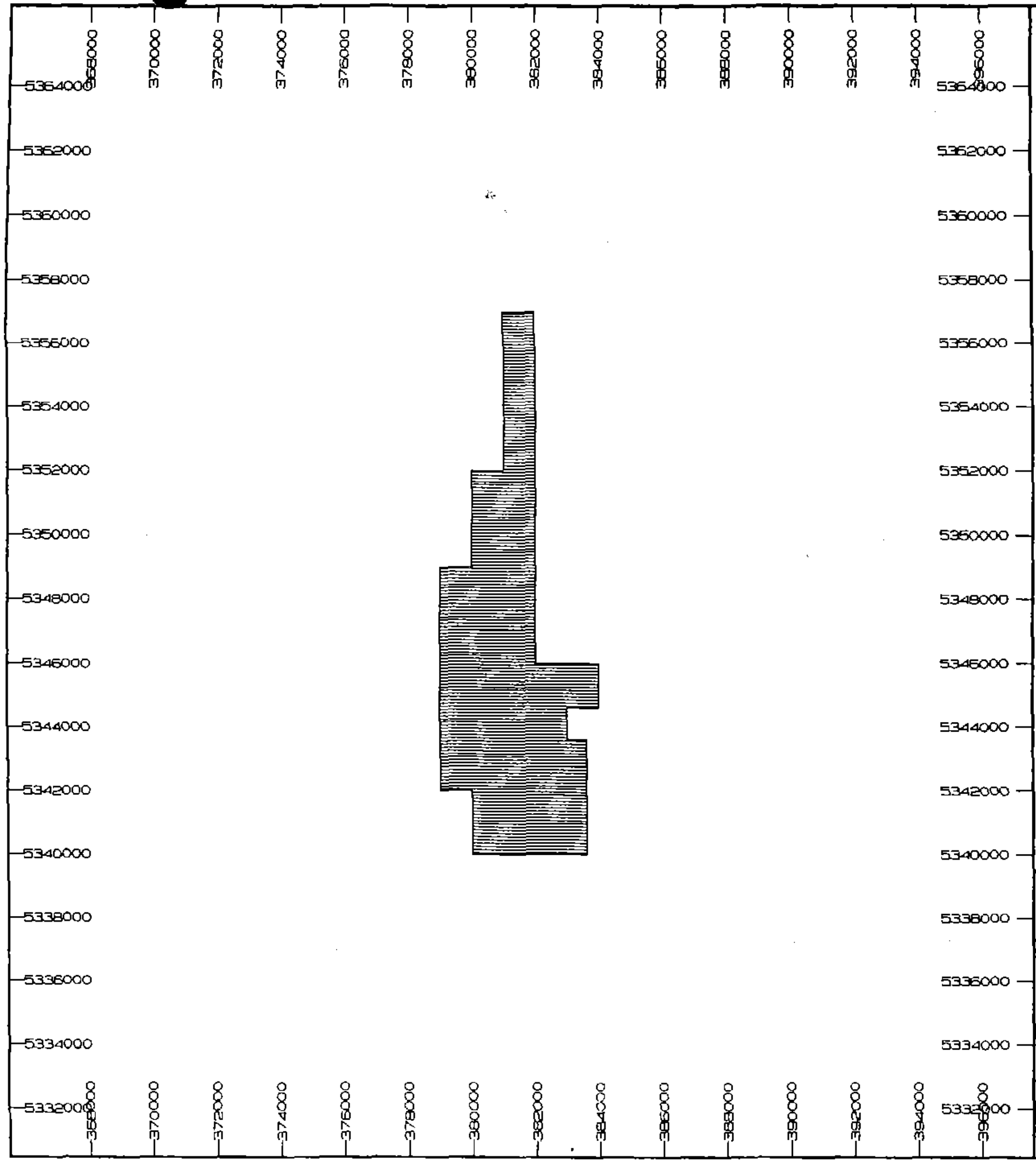
Tel: +61 9 479 4232
Fax: +61 9 479 1008

Postal Address:

P.O. Box 126
BELMONT WA 6104

APPENDIX A: LOCATED DATA TAPE FORMAT

APPENDIX B: SURVEY AREA MAPS



JOB DETAILS

Job Number:	--
Product:	Helimag Survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	100 m
Line Direction	090 - 270 deg

5 cm

MAP DETAILS

Grid North

Projection: AMG84
Sheet 1 of 1
Scale 1: 200000

0 2000 4000 6000 8000 10000 12000 14000 16000 18000

Drawn: / /
Checked: / /
Approved: / /

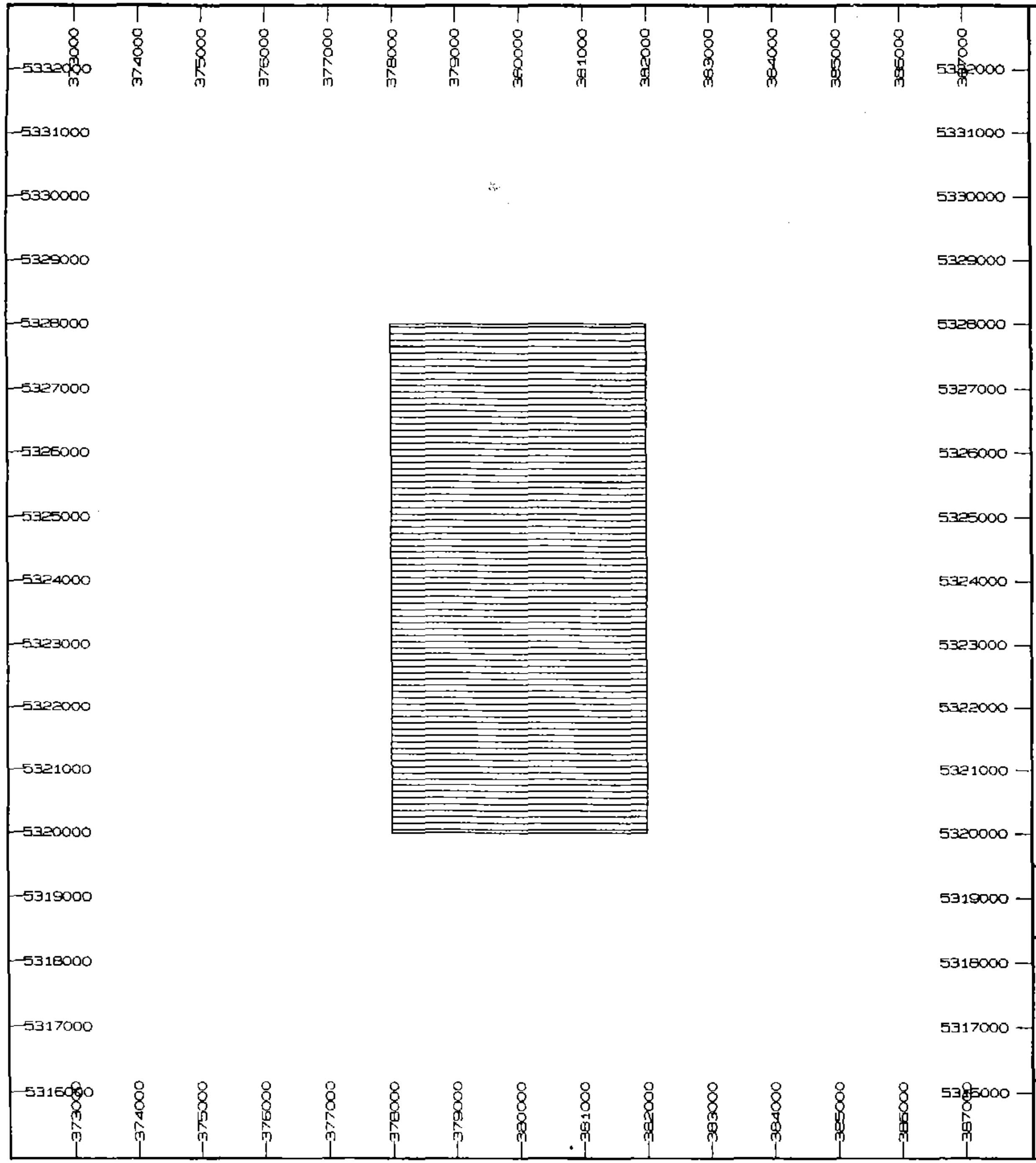
Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

BASIN LAKE

Flown by:	U.T.S.
Job:	Basin Lake
Flight Date:	

092327



JOB DETAILS

Job Number:	--
Product:	Helimag Survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	100 m
Line Direction	090 - 270 deg

5 cm

MAP DETAILS

Grid North

Projection: AMG84
Sheet 1 of 1
Scale 1: 100000

0 1000 2000 3000 4000 5000 6000 7000 8000 9000

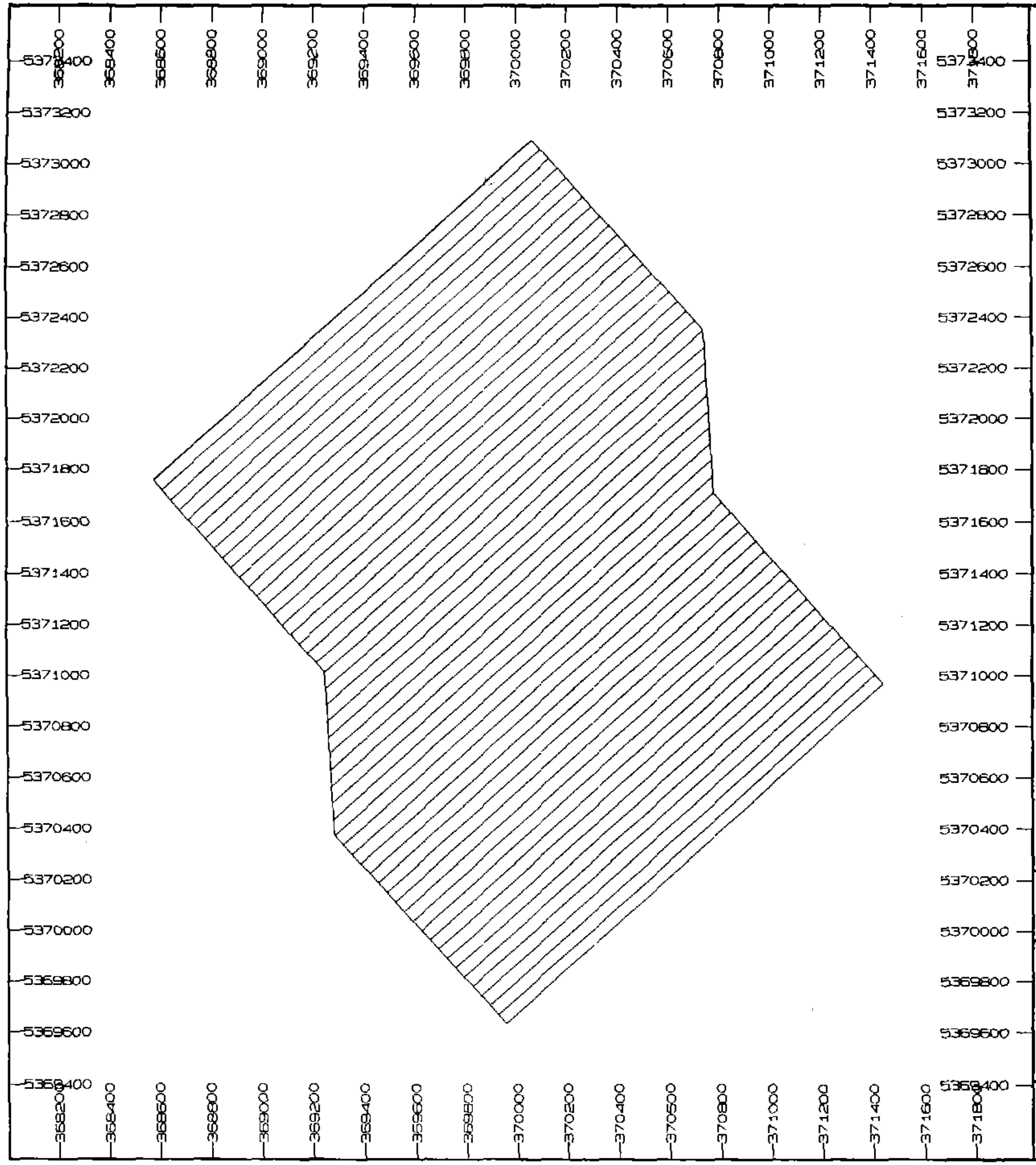
Drawn:	/ /
Checked:	/ /
Approved:	/ /

Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

GARFIELD

Flown by:	U.T.S.
Job:	Garfield
Flight Date:	

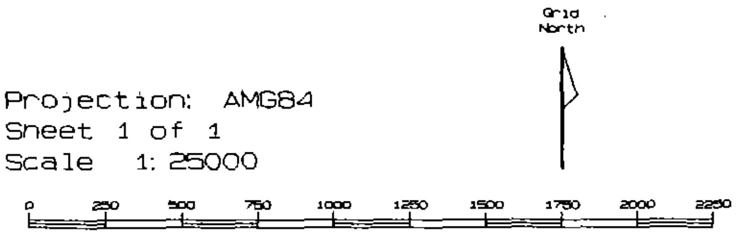


JOB DETAILS

Job Number:	-
Product:	Helimag Survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	50 m
Line Direction	048 - 228 deg

5 cm

MAP DETAILS



Projection: AMG84
Sheet 1 of 1
Scale 1: 25000

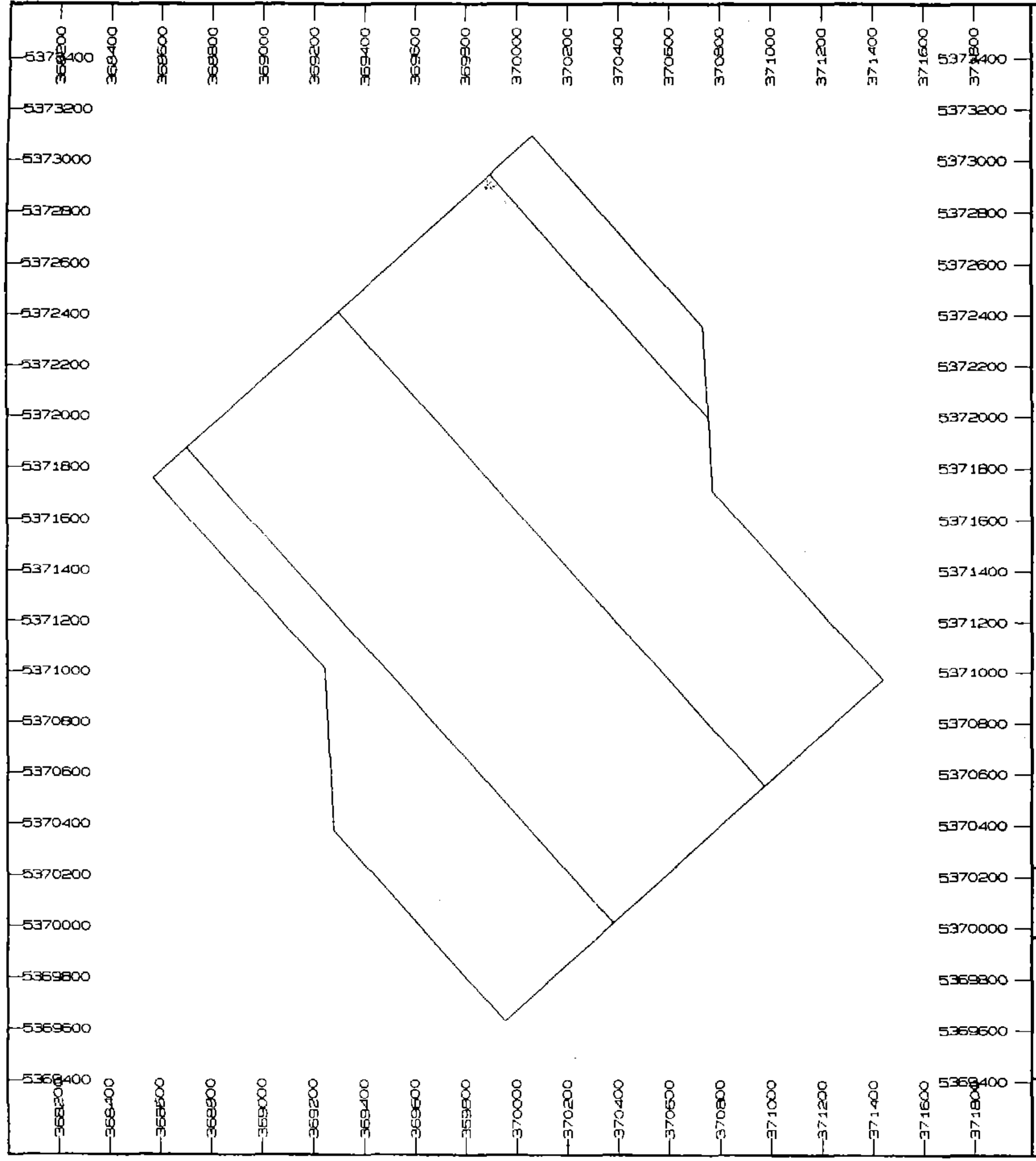
Drawn: / /
Checked: / /
Approved: / /

Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

RENISON

Flown by:	U.T.S.
Job:	Renison
Flight Date:	



JOB DETAILS

Job Number:	-
Product:	Helimag Survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	800 m
Line Direction	138 - 318 deg

5 cm

MAP DETAILS

Grid North

Projection: AMG84
Sheet 1 of 1
Scale 1: 25000

0 250 500 750 1000 1250 1500 1750 2000 2250

Drawn: / /
Checked: / /
Approved: / /

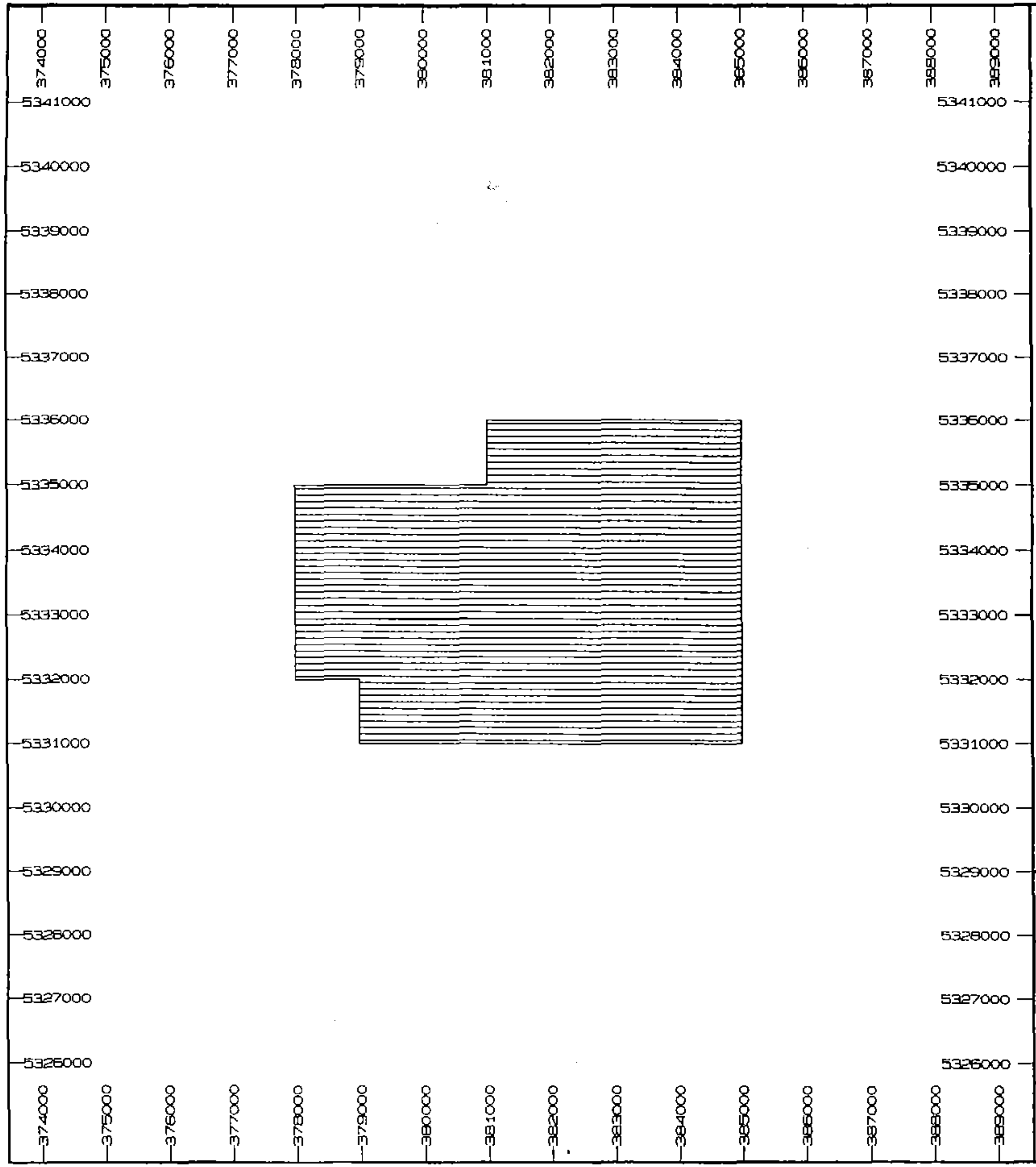
Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

RENISON - TIE LINES

Flown by:	U.T.S.
Job:	Renison (Tie Lines)
Flight Date:	

302322



JOB DETAILS

Job Number:	--
Product:	
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	100 m
Line Direction	090 - 270 deg

5 cm

MAP DETAILS

Grid North

Projection: AMG84
Sheet 1 of 1
Scale 1: 100000

0 1000 2000 3000 4000 5000 6000 7000 8000 9000

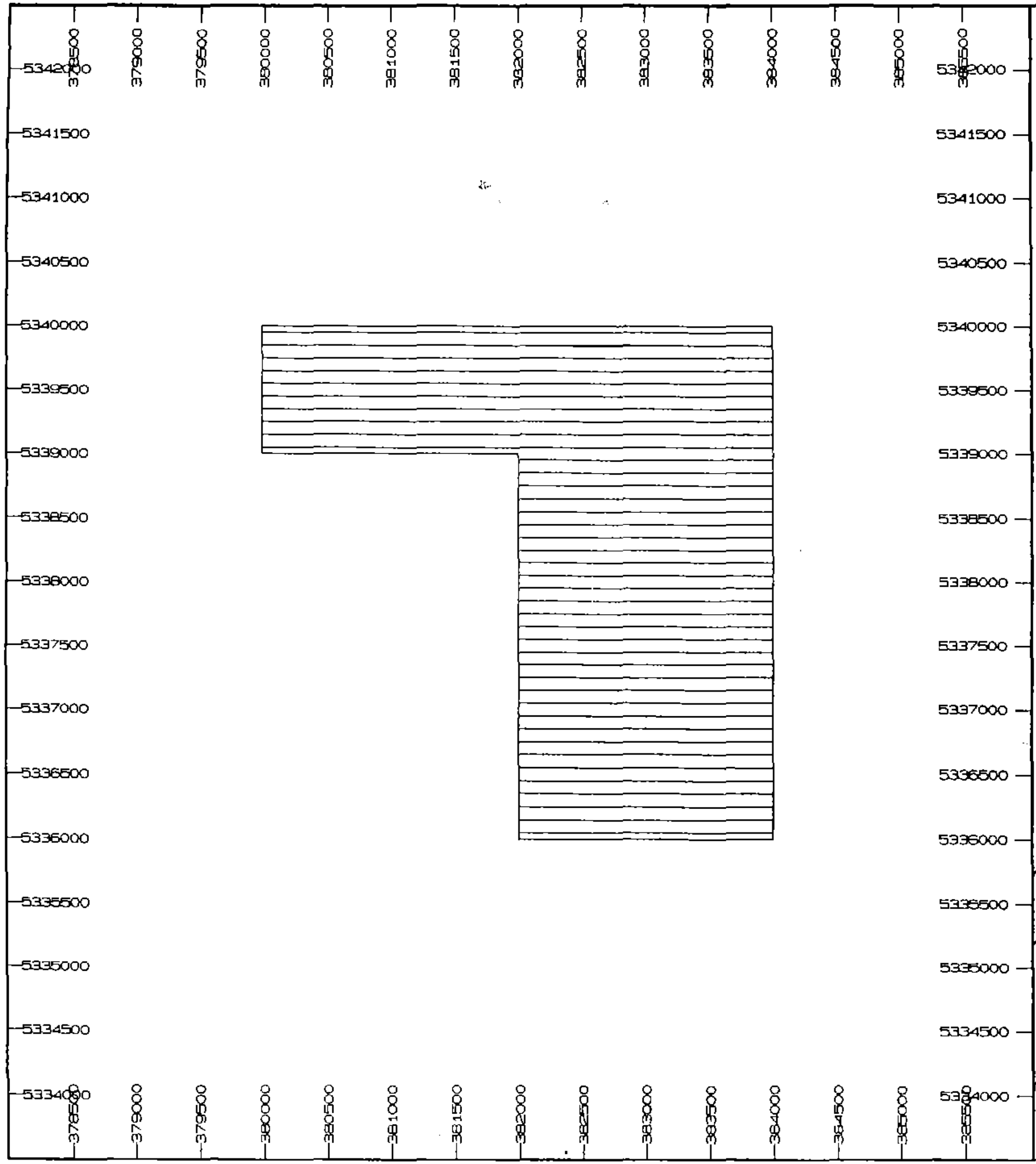
Drawn: / /
Checked: / /
Approved: / /

Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

MINERS RIDGE

Flown by:	U.T.S.
Job:	Miners Ridge
Flight Date:	



JOB DETAILS

Job Number:	--
Product:	Helimag Survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	100 m
Line Direction	090 - 270 deg

5 cm

MAP DETAILS

Grid North

Projection: AMG84
Sheet 1 of 1
Scale 1: 50000

0 500 1000 1500 2000 2500 3000 3500 4000 4500

Drawn: / /
Checked: / /
Approved: / /

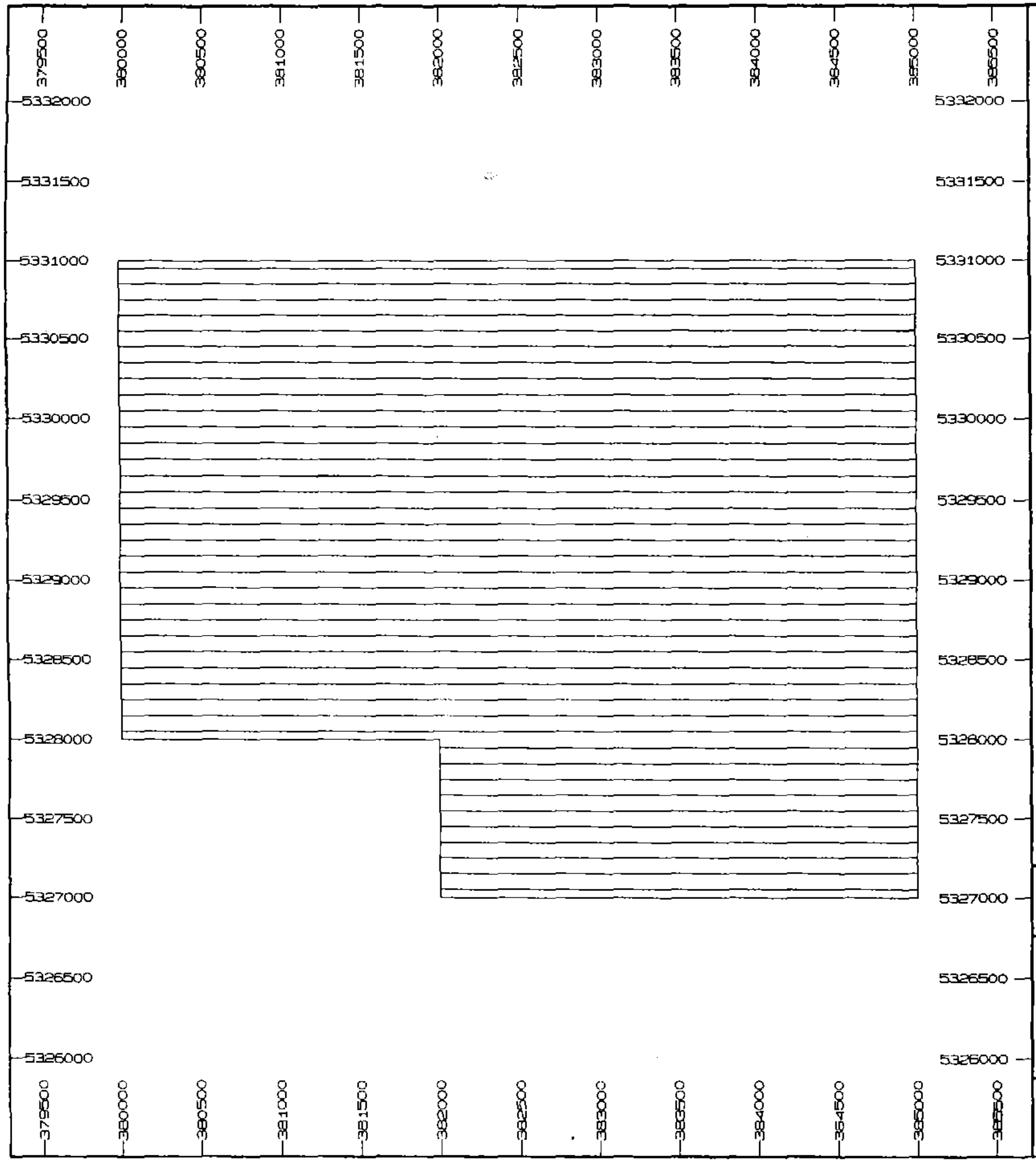
Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

CONGLOMERATE

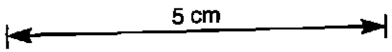
Flown by:	U.T.S.
Job:	Conglomerate
Flight Date:	

723235



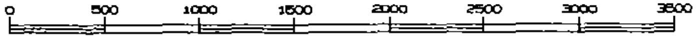
JOB DETAILS

Job Number:	--
Product:	Helimag Survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	100 m
Line Direction	090 - 270 deg



MAP DETAILS

Projection: AMG84
Sheet 1 of 1
Scale 1: 40000



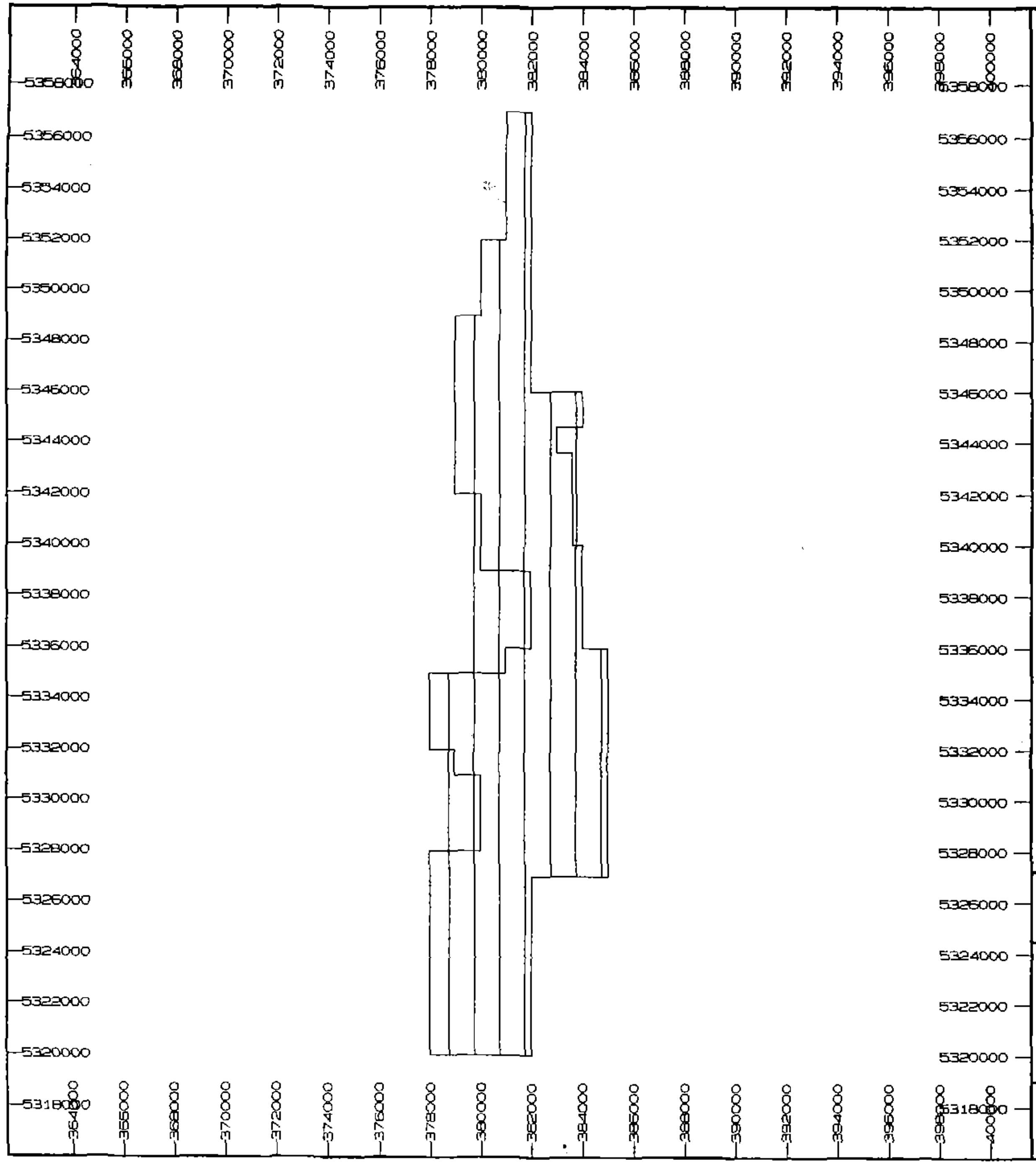
Drawn: / /
Checked: / /
Approved: / /

Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

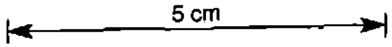
MT JUKES

Flown by:	U.T.S.
Job:	Mt Jukes
Flight Date:	



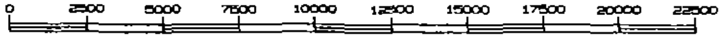
JOB DETAILS

Job Number:	-
Product:	Helimag survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	1000 m
Line Direction	000 - 180 deg



MAP DETAILS

Projection: AMG84
Sheet 1 of 1
Scale 1: 250000



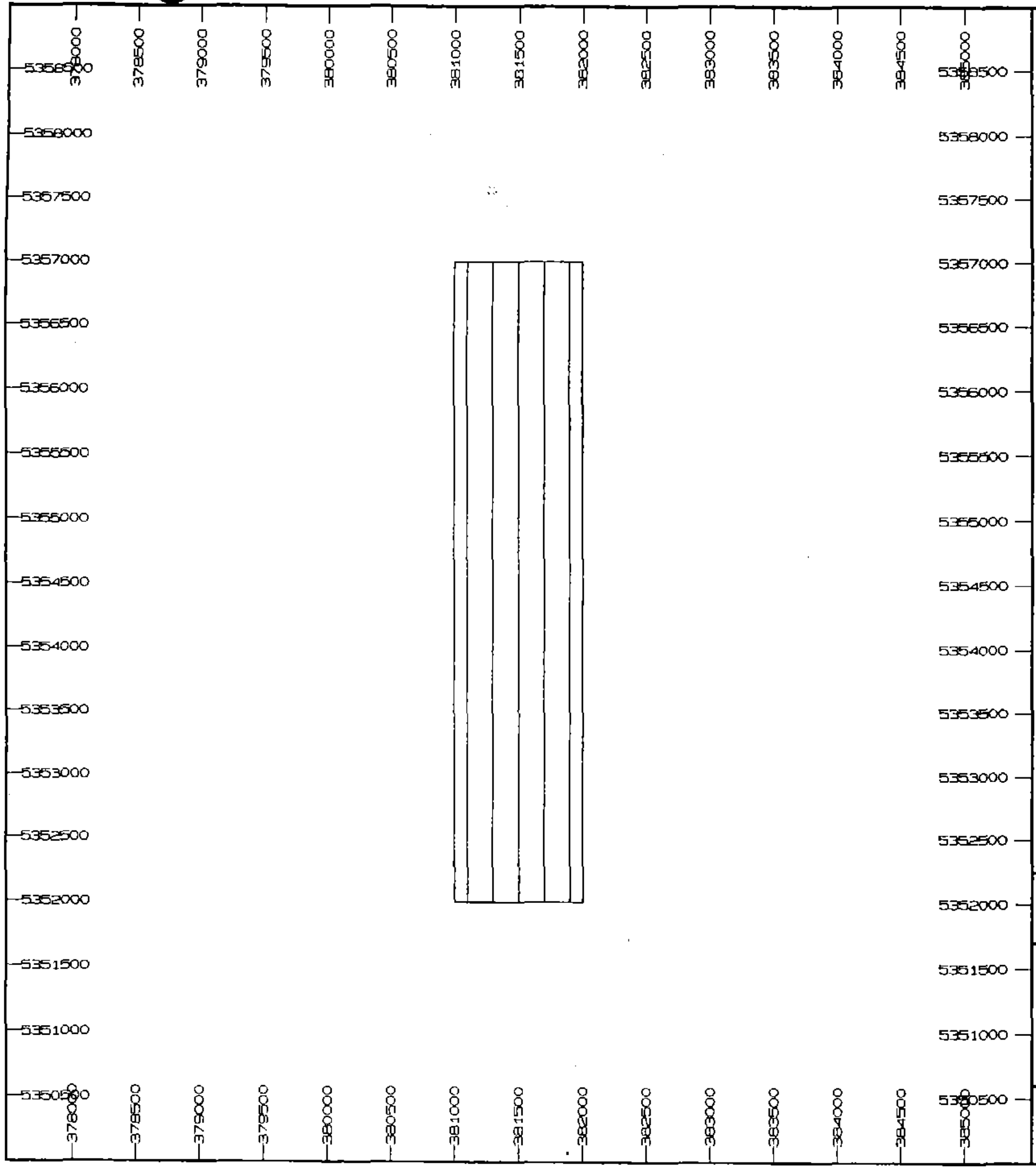
Drawn:	/ /
Checked:	/ /
Approved:	/ /

Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

TIE LINES (AREAS 1 - 6)

Flown by:	**U.T.S.**
Job:	Tie Lines (Areas 1 - 6)
Flight Date:	



JOB DETAILS

Job Number:	–
Product:	Helimag survey
Aircraft Type:	
Aircraft Rego:	
Pilot:	
Operator:	UTS
Line Spacing	200 m
Line Direction	180 – 000 deg

5 cm

MAP DETAILS

Grid North

Projection: AMG84
Sheet 1 of 1
Scale 1: 50000

0 500 1000 1500 2000 2500 3000 3500 4000 4500

Drawn: / /
Checked: / /
Approved: / /

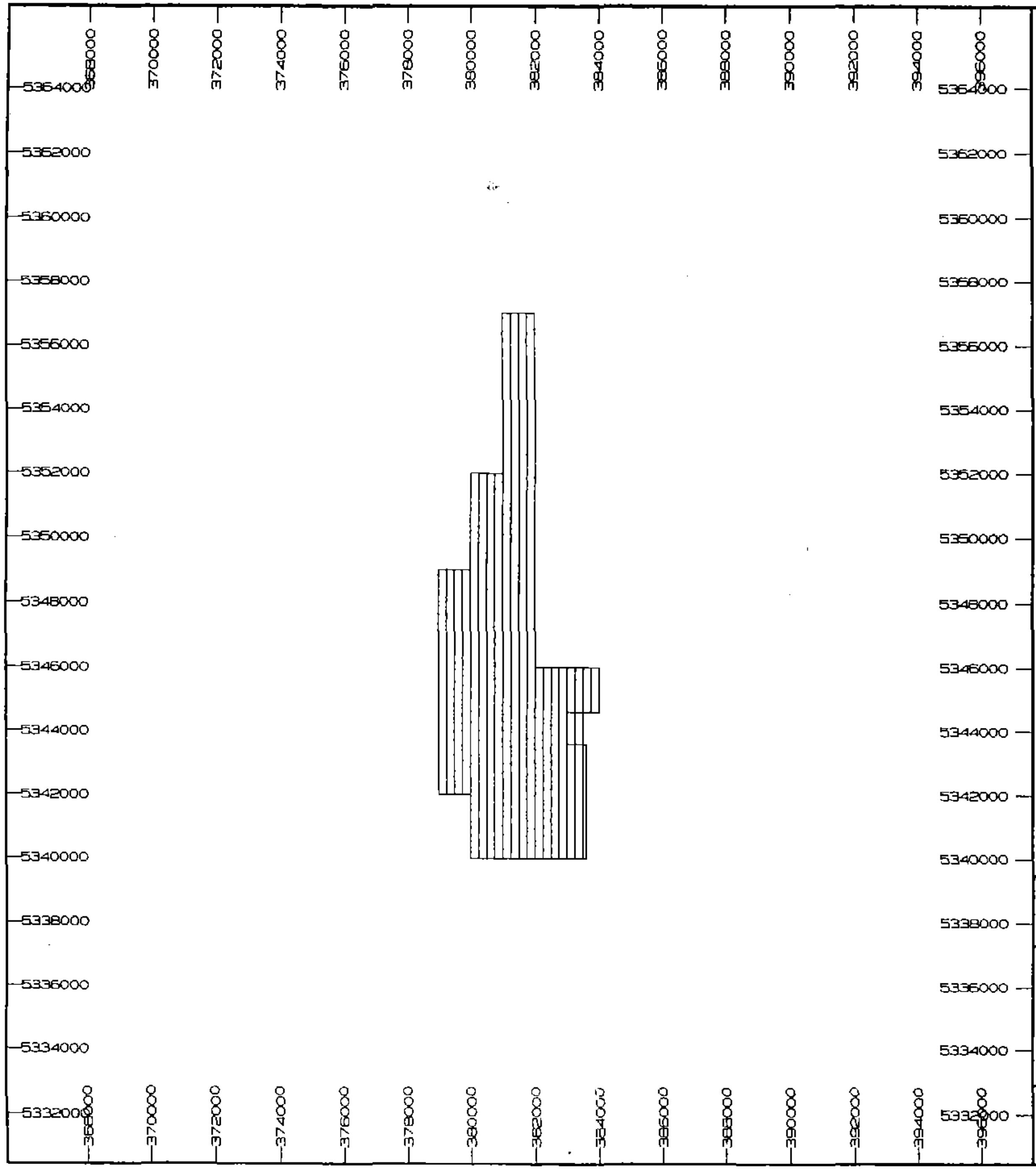
Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

TIE LINES (200 metres)

Flown by:	**U.T.S.**
Job:	Tie Lines (200 metres)
Flight Date:	

720208



JOB DETAILS

Job Number: –
Product: Helimag Survey
Aircraft Type:
Aircraft Rego:
Pilot:
Operator: UTS
Line Spacing 250 m
Line Direction 000 – 180 deg

5 cm

MAP DETAILS

Grid North

Projection: AMG84
Sheet 1 of 1
Scale 1: 200000

0 2000 4000 6000 8000 10000 12000 14000 16000 18000

Drawn: / /
Checked: / /
Approved: / /

Plotted by Universal Tracking Systems Flight Block Planner

RGC EXPLORATION PTY LIMITED

TIE LINES

Flown by: U.T.S.
Job: Tie Lines
Flight Date:

600327

APPENDIX 14

Geochemistry and Genesis of the Garfield Prospect

723301

RGC EXPLORATION

RGC EXPLORATION PTY LTD ACN 001 426 946
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Australia
Telephone (004) 716444
Facsimile (004) 716644

MEMORANDUM

GARTR.WPD

To :

From : Scott Halley

Date : 22 January, 1996

Subject : Garfield Prospect

GEOCHEMISTRY AND GENESIS OF THE GARFIELD PROSPECT

Introduction

It has long been considered that mineralization on the Mount Lyell field is related to CVC volcanism (eg., Walshe and Solomon, 1981). The reason for this is because most of the mineralization occurs within the CVC, as do other Cu-Au prospects along the West Coast Range south of Mount Lyell. More recent work in the Comstock area (Corbett et al., 1989, Corbett, 1989), RGC Exploration (Halley (1992), Halley (1993), Halley (1994) and Halley, Vicary and Boyd (1995)), and Mt Lyell M.L. Annual Reports (Kerr (1989), Kerr (1990), Wilde and Kerr (1989) and Wilde and Kerr (1990)) has shown that a complete stratigraphic section is preserved at Comstock, and the seafloor position at the time of mineralization was within the upper part of an andesite sequence, just below the base of the Tyndall Group. The distribution of exhalative mineralization related to a disseminated Cu-Au Prince Lyell-type orebody at Comstock, clearly shows that the mineralizing event is coeval with a period of andesitic volcanism post-dating the CVC.

The new discovery of Prince Lyell-type mineralization at Garfield is spatially related to an andesite sill complex which is petrologically and geochemically similar to andesites on the Mount Lyell field. Comparison of isotopic, mineralogical and geochemical characteristics of Cu-Au occurrences in the southern MRV show that Prince Lyell and Garfield are virtually identical, but they are quite distinct from the Cu-Au occurrences that are spatially related to the Darwin Granite. Furthermore, Nd and Sr isotope analyses from hydrothermal apatites at Garfield demonstrate a direct genetic link between the Suite 2 andesites (Crawford et al., 1992) and Prince Lyell-type mineralization. This association provides a simple recognition of potential Prince Lyell-type targets; magnetic anomalies spatially associated with Suite 2 andesites. However, Garfield and Prince Lyell are the only deposits of this type that contain magnetite, the other orebodies on the Mount Lyell field being non-magnetic.

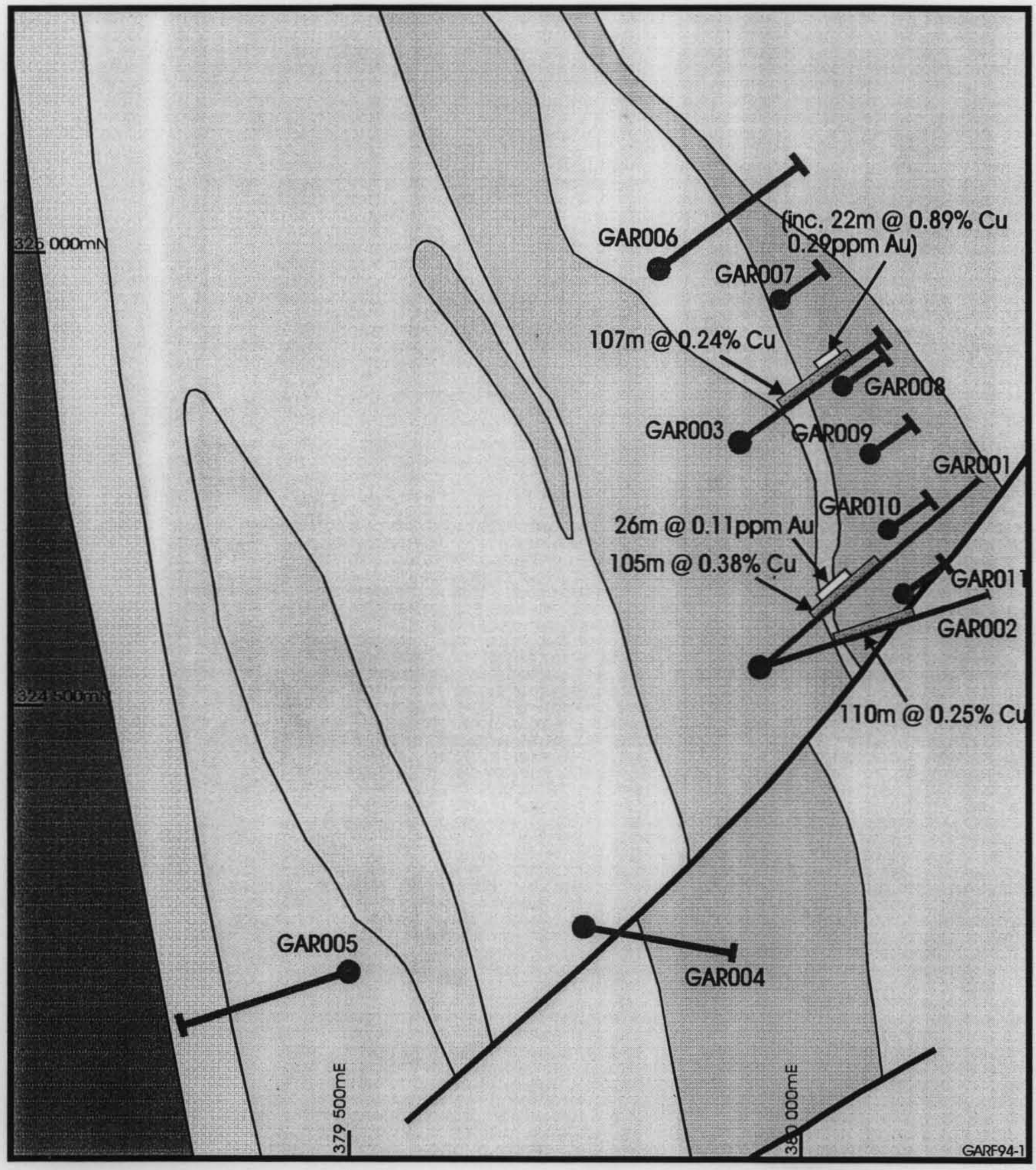
Garfield Geology

The Garfield prospect occurs in an andesite unit within the Yolande River Sequence (Fig. 2). It is a hornblende-phyric andesite texturally and compositionally similar to the Crown Hill and

Figure 2.

GARFIELD PROSPECT E.L. 102/87

- ■ OWEN CONGL.
- ▨ TYNDALL GP. EPICLASTICS
- ▨ SILTSTONE
- ▨ RHYOLITE
- ▨ DACITE
- ▨ ANDESITE
- ╲ FAULT
- ●─┤ PROPOSED DRILLHOLES



Anthony Road andesites. The andesite is conformable with the stratigraphy and is considered to be a sill. Its sharp contacts with the enclosing rocks support an interpretation of intrusive emplacement in contrast to the brecciated, quench-fragmented tops that would be expected in submarine lavas. The southern end of the andesite is offset to the west by a SW-NE trending fault.

The andesite sits within a package of rhyolitic volcanics. The rhyolites are all pervasively sericitised and strongly foliated, making it difficut to recognise the volcanic facies. It appears to be a lava dominated sequence. The most abundant rock type contains about 10% quartz phenocrysts up to 4mm uniformly distributed through a fine grained sericitic groundmass. In places, it contains irregular domains of stronger sericitic alteration that give the rock a vague clastic appearance. The uniform fine grained groundmass and the phenocryst distribution suggests that this is a lava. The apparent clastic texture is probably a result of hetrogeneous alteration of an autobreccia or hyaloclastite. However, there are parts of the rhyolite sequence that are clearly volcanic sandstones, grading into siltstones.

In the sequence above the andesite there is a massive lava with sparse feldspar phenocrysts. It is chemically and texturally similar to the CVC. It is intruded by a number of andesite dykes that are quite distinct from the main andesite unit. They are characterised by a high content of feldspar and chloritised ferro-mag phenocrysts. The top of the Yolande River Sequence is dominated by volcaniclastics rather than coherent facies, with mappable sandstone-siltstone units, crystal rich volcaniclastics, and both inrusive and extrusive quartz-feldspar-biotite phyric rhyolites. The contact between the YRS and the Tyndall Group locally appears to be conformable.

The mineralization at Garfield is largely confined to the main andesite unit. The style of mineralization is very similar to Prince Lyell, occurring as a stockwork of fine pyrite-chalcopyrite-calcite veins along with disseminated pyrite and chalcopyrite. Pervasive chlorite-sericite alteration is associated with the mineralization. Chlorite is generally dominant over sericite in the best mineralized zones. Parts of the mineralization are associated with an earlier magnetite-apatite event (eg., in GAR001). Most of the magnetite-apatite occurs in veins or as an alteration around fractures, but some is also disseminated. The magnetite is commonly partly retrogressed to hematite. The mineralized zone is cut by late veins of calcite and purple fluorite. Disseminated sulphides do not extend more than 20 or 30m into the rhyolites enclosing the andesite.

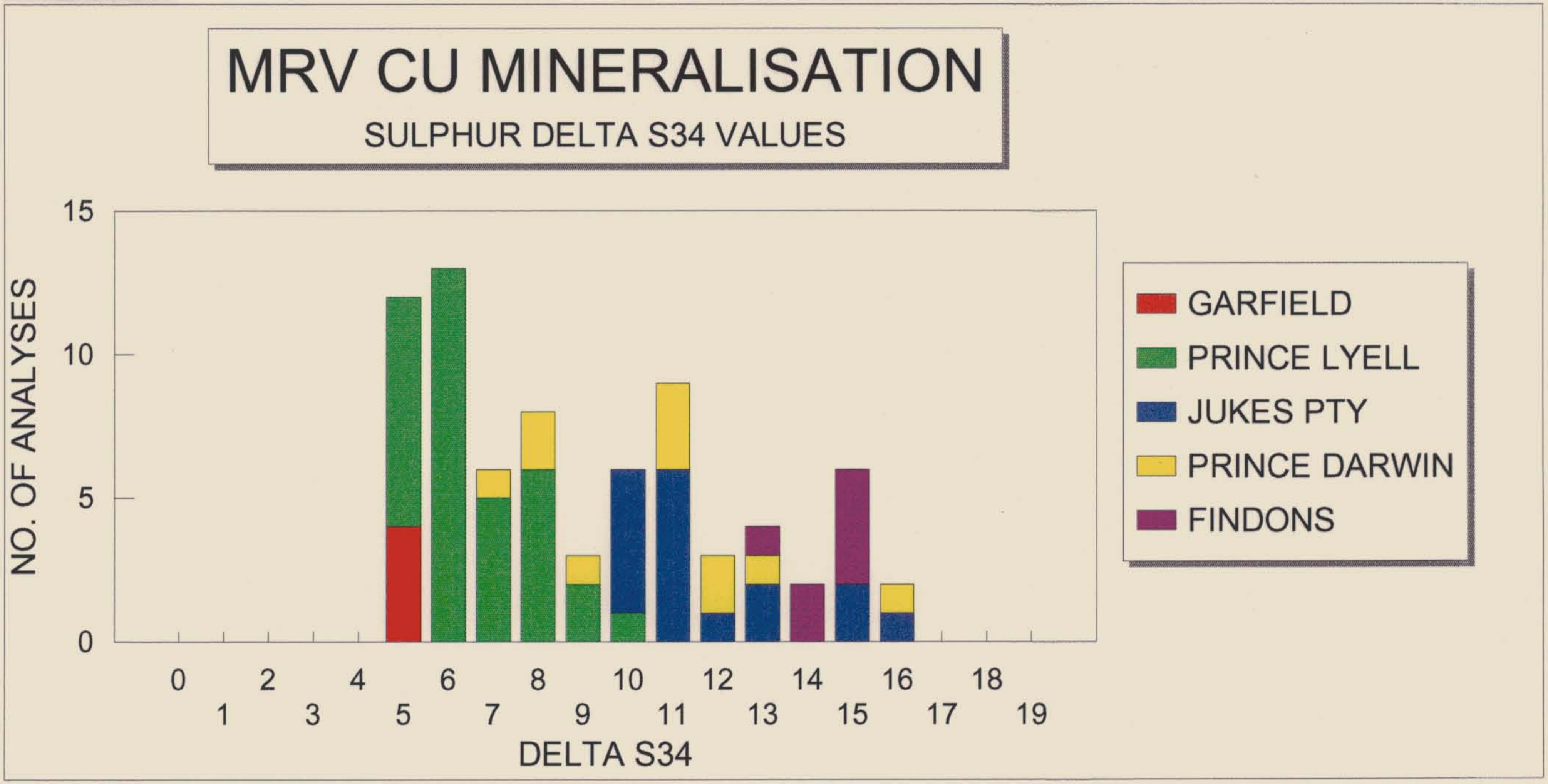
The Garfield mineralization has a very linear correlation between Cu and Au, with 3%Cu to 1ppm Au (Fig.4). This trend is blurred slightly by variations in the magnetite, apatite-rich zones and by analyses of late tension gash veins, but it is still a very linear relationship. This characteristic is shared by the Prince Lyell deposit. In contrast, the granite related Jukes Proprietary has a relatively higher gold content, averaging 1%Cu and 1ppm Au, but with a poor overall correlation.

Isotope Studies

Sulphur Isotopes

Four samples have been analysed for $\partial^{34}S$. The results are given in Table 1. It has been recognised that in VMS systems sulphur is sourced mostly from the reduction of seawater sulphate (eg. Large, 1992). The felsic-hosted mineralization at Rosebery has $\partial^{34}S$ values

Figure 3.


MRV CU MINERALISATION
SULPHUR DELTA S34 VALUES
NO. OF ANALYSES
0
5
10
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
DELTA S34
GARFIELD
PRINCE LYELL
JUKES PTY
PRINCE DARWIN
FINDONS

ranging from +8 to +18 (Green et al., 1981). In contrast, the andesite-hosted deposits, such as Que River and Hellyer have lower $\partial^{34}S$ (eg. Que River; +5 to +11, McGoldrick and Large , 1992).

Table 1 $\partial^{34}S$ values of pyrite

sample no.	drill hole	depth	$\partial^{34}S$
T45520	GAR001	187.9	+5.1
T45522	GAR001	192.0	+5.7
T45532	GAR002	244.5	-10.4
T37112	GAR001	205.3	+5.5
T37113	GAR001	255.0	+5.6

The lower values in these deposits are considered to result from the higher content of rock sulphur ($\partial^{34}S$ around 0 per mil) in andesites compared to rhyolites, which is leached from the volcanic pile and incorporated in the hydrothermal system. Prince Lyell has $\partial^{34}S$ values mainly within the range of +5 to +9 (Fig. 4), which is an 'andesite signature' rather than a felsic signature. The +5 values from Garfield indicate a large component of rock sulphur. The unusual feature of this is that the andesites at Garfield volumetrically comprise about 5% of the local stratigraphy. It seems unlikely, given the small volume of andesites in the sequence, that the low $\partial^{34}S$ range is a result of leaching of sulphur from the volcanic pile. An interpretation of a direct contribution of sulphur from a magmatic fluid source is favoured.

The sulphur isotope signatures of the Cu-Au occurrences around the Darwin Granite are quite different to those at Mount Lyell and Garfield. They range from +7 to +17 and are typical of felsic-hosted VMS systems, with a minimal contribution from a rock-sulphur or magmatic source.

Oxygen isotopes

Oxygen isotope ratios were measured in four magnetite samples from Garfield. The $\partial^{18}O$ values were tightly clustered around +4 per mil (Fig. 5), very closely matching the values from Prince Lyell (Raymond, 1992). Magnetite has a negative oxygen isotope fractionation with water, and a $\partial^{18}O$ value of +4 indicates that this magnetite precipitated from a fluid with a $\partial^{18}O$ of around +10. This is consistent with a magmatic fluid rather than a seawater signature of 0 per mil.

FIGURE 4

MRV Cu-Au MINERALISATION

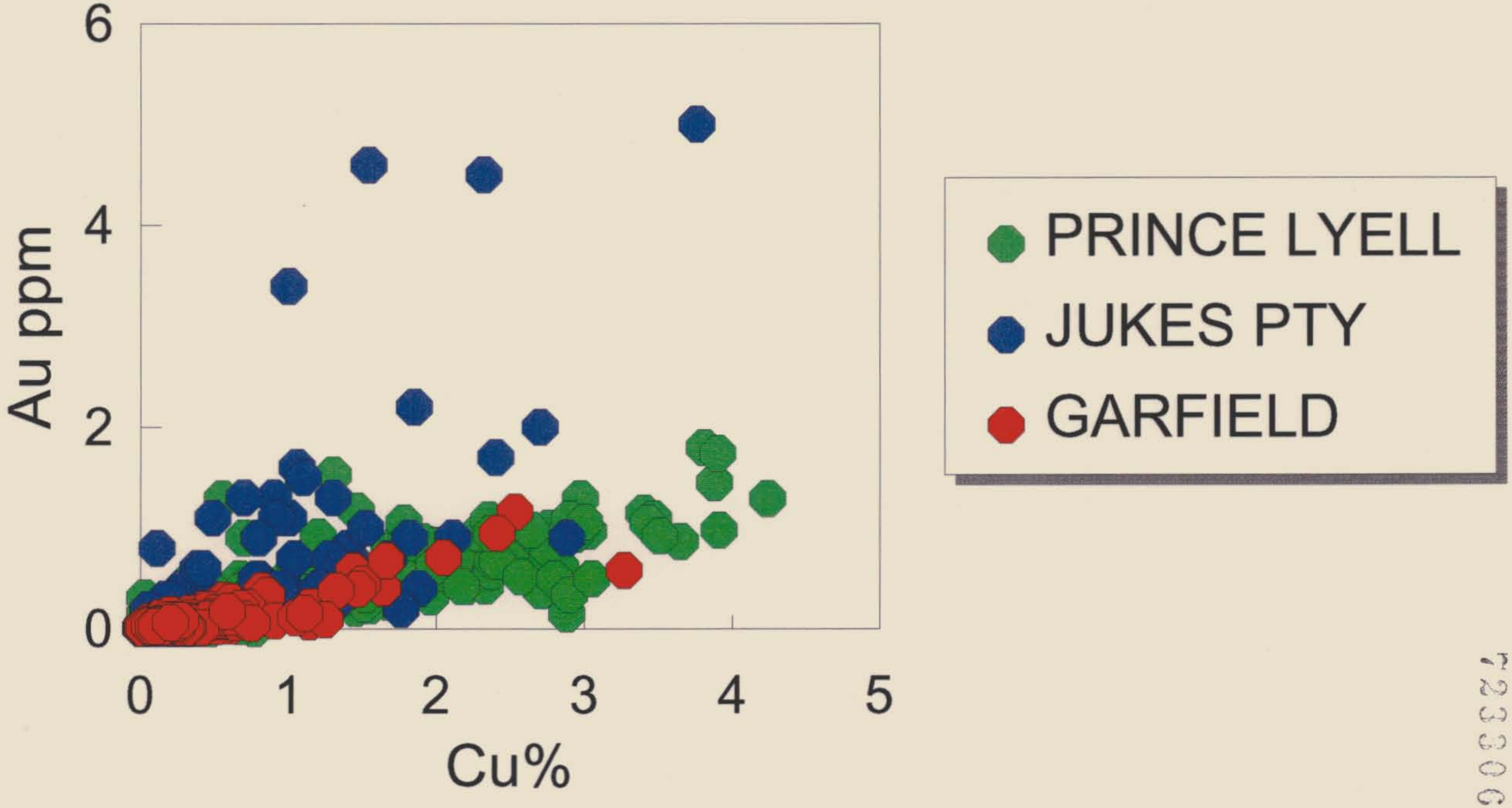


Figure 5.

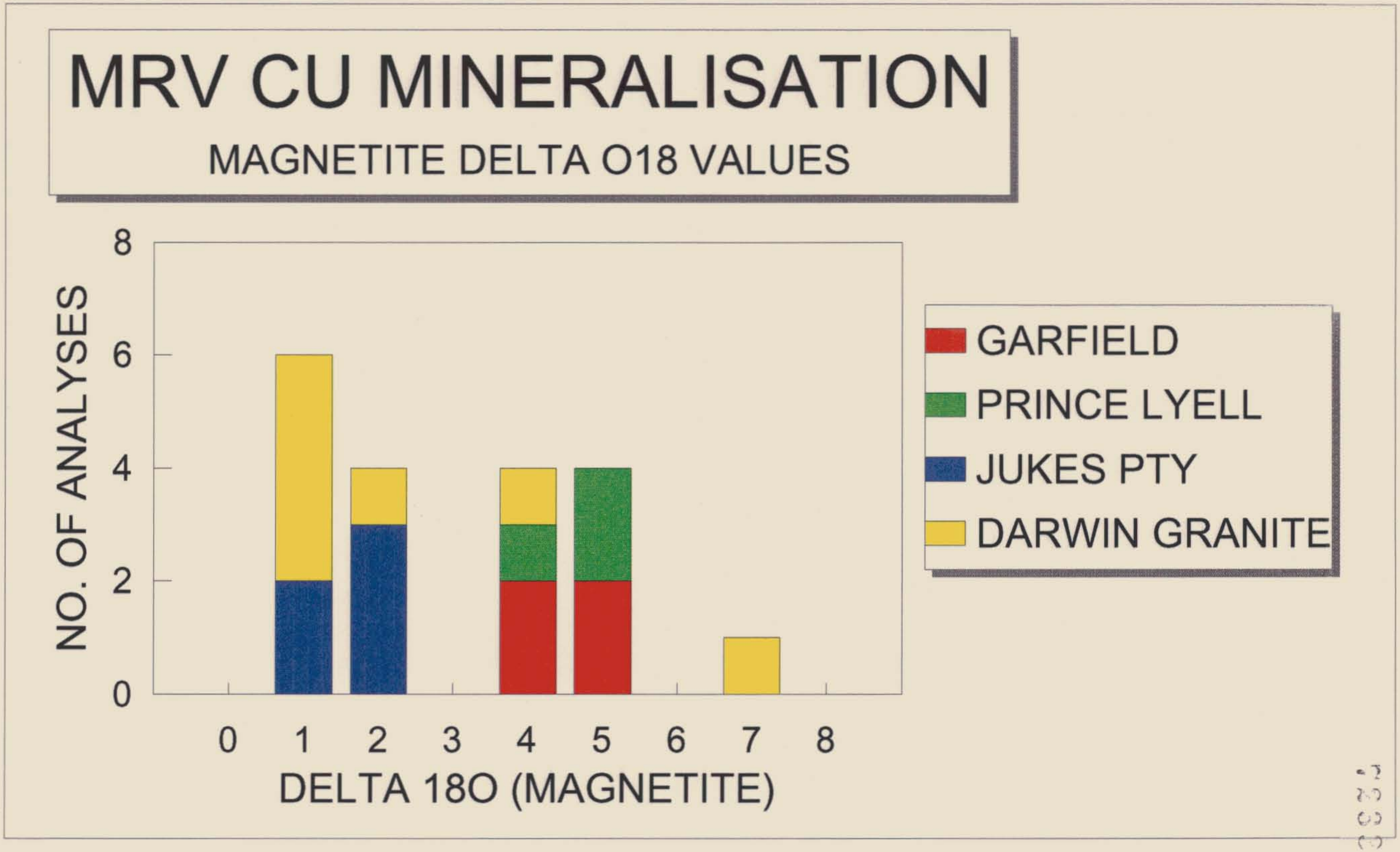

MRV CU MINERALISATION
MAGNETITE DELTA O18 VALUES
NO. OF ANALYSES
0
2
4
6
8
0
1
2
3
4
5
6
7
8
DELTA 18O (MAGNETITE)
GARFIELD
PRINCE LYELL
JUKES PTY
DARWIN GRANITE

Table 2. ∂^{18}O values of magnetite

sample no.	drill hole	depth	∂^{18}O
T45521	GAR001	192.4	+3.4
T45522	GAR001	192.0	+3.7
T45527	GAR001	249.6	+4.7
T45529	GAR001	259.8	+4.7

∂^{18}O values from magnetite at Jukes Proprietary are lower than those from Garfield and Prince Lyell, averaging around +1 per mil (Doyle, 1990). However the fluid in this system was inferred to be of magmatic origin (Doyle, 1990), because the calculated ∂^{18}O of the fluid in equlibrium with the magnetite is still much higher than sea-water. Magnetite veins from in and around the Darwin Granite mostly have ∂^{18}O values similar to Jukes Proprietary magnetites (Duhig, unpublished data) but include a scatter of higher values.

Carbon isotopes

Carbonate minerals are ubiquitous in the VMS systems in Tasmania. the isotopic characteristics of the carbonates have been studied by Khin Zaw and Large (1992), Yeats (1989) and McDonald (1991). Five carbonate samples from Garfield were analysed for ∂^{18}O and ∂^{13}C. Four of these samples were from pyrite, chalcopyrite, calcite veins that typify the main stage of mineralization. The other sample was from a late carbonate- fluorite vein.

Table 3. ∂^{18}O and ∂^{13}C values of Garfield carbonates

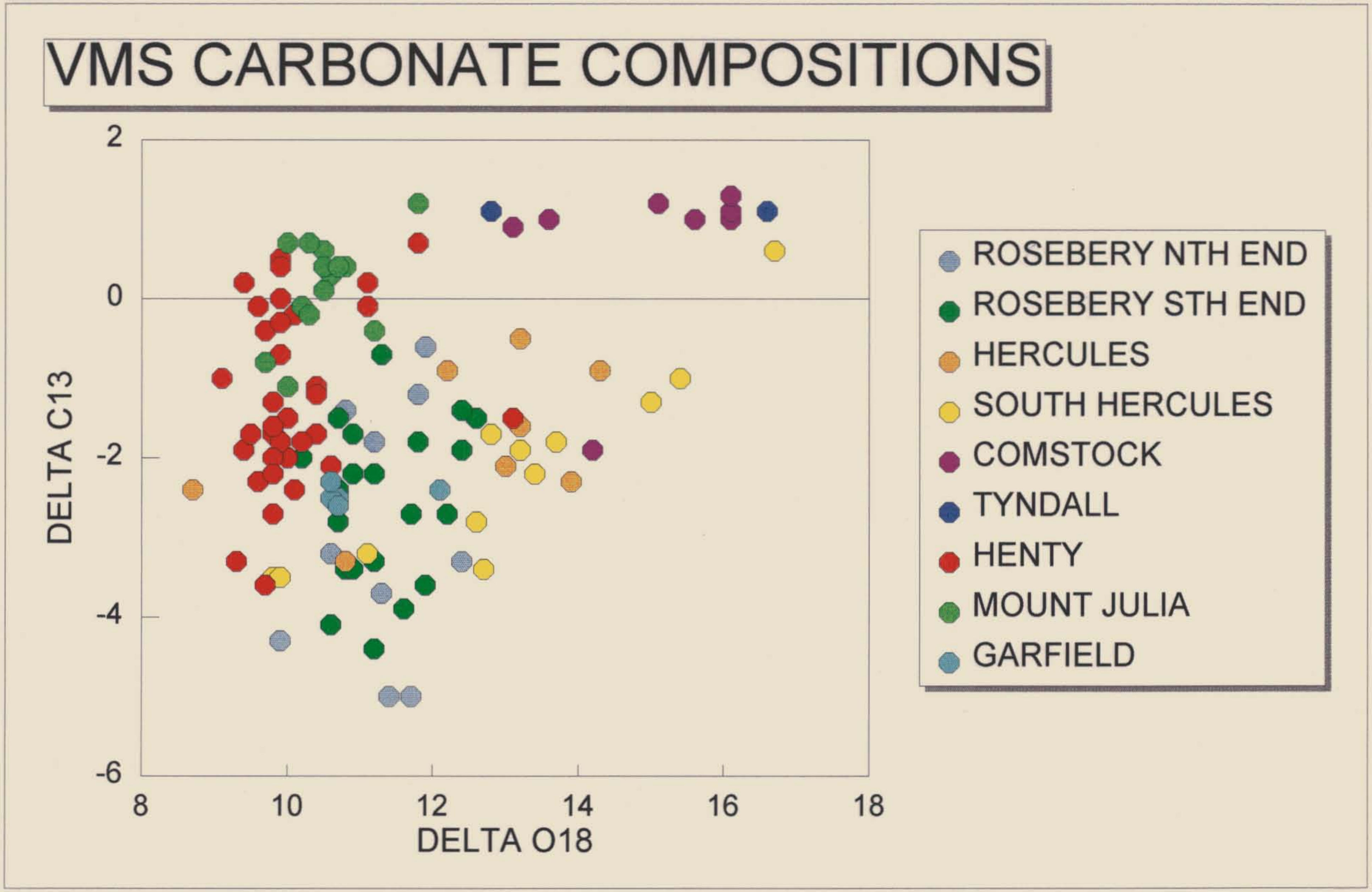
sample no.	drill hole	depth	∂^{18}O	∂^{13}C
T45520	GAR001	187.9	10.7	-2.5
T45523	GAR001	198.5	10.6	-2.5
T45528	GAR001	252.3	10.7	-2.6
T45532	GAR002	244.6	12.1	-2.4
T45525	GAR001	203.1	10.6	-2.3

The ∂^{18}O and ∂^{13}C values measured in the Garfield carbonates closely match the ranges recorded in carbonates from Rosebery, Hercules, Henty and Comstock (Fig. 6). This suggests that the sulphide mineralization, within which calcite is abundant, was precipitated from a seawater dominated hydrothermal system.

Strontium and Neodymium isotopes

Recent work by Whitford and Crawford (in prep.) has characterized the Neodymium and

Figure 6.


VMS CARBONATE COMPOSITIONS
2
0
-2
-4
-6
DELTA C13
8
10
12
14
16
18
DELTA O18
ROSEBERY NTH END
ROSEBERY STH END
HERCULES
SOUTH HERCULES
COMSTOCK
TYNDALL
HENTY
MOUNT JULIA
GARFIELD

Strontium isotopic characteristics of the Mount Read Volcanics. The five suites identified by Crawford et al. (1992) on the basis of their petrology and geochemistry can also be distinguished by their neodymium and strontium isotopic signatures (Fig. 7). Suites 4 and 5 have a depleted mantle signature, Suites 2 and 3 have a mantle signature and Suite 1 has a crustal signature. Both RGC and Ross Large (Large et al, 1994) have suggested that the magnetite, apatite association is related to a magmatic hydrothermal event, but Ross has argued that it is related to a granite source while we are of the opinion that there is a genetic link with the Suite 2 andesites. The Nd-Sr characterization of the Mount Read Volcanics provides an ideal means of testing the conflicting ideas since apatite is a repository for both REE's and Sr.

Two apatite samples from Garfield were submitted to SIROTOPE (CSIRO) for isotopic analysis. The $\epsilon_{Nd(500my)}$ values obtained were -1.2 and -1.3. This is a very close match with the signature of the Suite 2 andesites which range from +1 to -1. The Suite 2 rocks show a regional variation in their ϵ_{Nd} values from +1 in the north to -1 in the south. At the time of writing, the Sr ratios had not been measured.

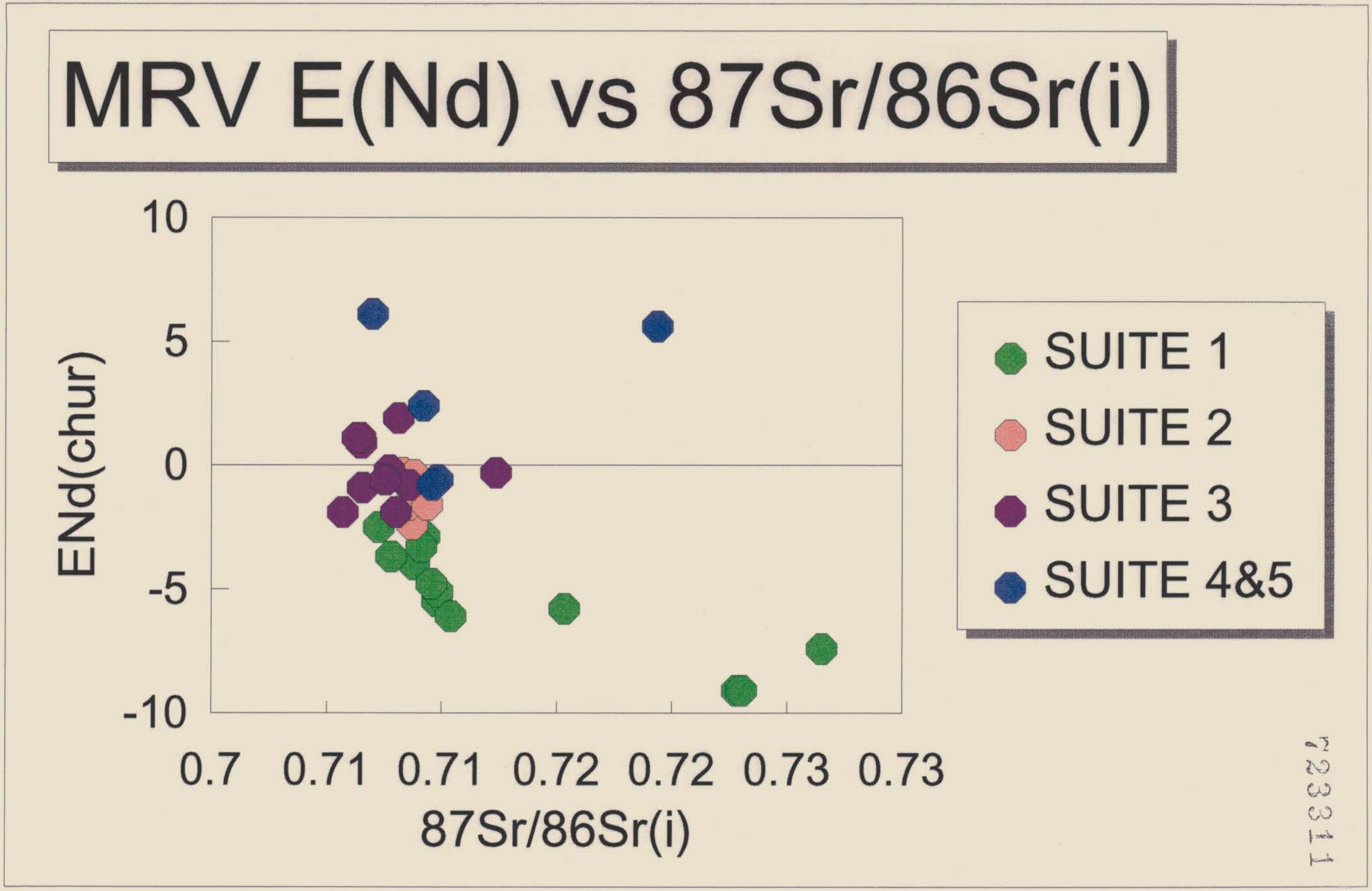
There are two possible interpretations of the ϵ_{Nd} results:- 1) they indicate precipitation of apatite from a magmatic hydrothermal fluid and thus retain the magmatic signature, or 2) that the REE's have been leached from the andesite by a seawater hydrothermal system and redeposited in the apatites. The relatively small volume of the andesites makes the latter interpretation unlikely. The andesites will be a relatively small component of the REE reservoir that could be leached by a seawater hydrothermal system and in such a system a contribution from the Suite 1 Yolande River Sequence rhyolites should be evident. Whitford et al. (1988) showed that REE's were relatively immobile in the footwall of Que River except in the areas of most intense alteration. The implication of a magmatic fluid from the ϵ_{Nd} results is supported by the $\partial^{18}O$ values of the magnetite and the $\partial^{34}S$ values of the sulphides.

Summary

Prince Lyell type mineralization is associated with distinctive alteration styles, distinctive sulphide veinlet stockworking, strongly correlated Cu versus Au values and characteristic sulphur, oxygen, carbon and radiogenic isotope signatures. In all of these characteristics it differs from the Cu-Au occurrences spatially related to the Darwin Granite. Although it has previously been speculated that the copper and gold at Prince Lyell was related to a magmatic source, the new isotope results from Garfield provide the strongest evidence to date in support of this hypothesis. However, Prince Lyell-type systems are still seawater dominated hydrothermal systems. This type of mineralization is considered to be a VMS - porphyry copper hybrid with mineralization occurring at a mixing interface between a magmatic fluid and a seawater convection system. From an exploration perspective, the key features to recognise are that the Suite 2 andesites are the source of the magmatic fluid. Hydrothermal magnetite occurs in some but not all systems. IP is an effective exploration tool, but EM is not. The mineralization has a broad sheet-like, semi conformable geometry and some deposits like Garfield and Western Tharsis have distinct tops. At Garfield, surface geochemistry was not a particularly reliable indicator. A weak lead, zinc halo was noted at Garfield.

References:- Refer Reference section in main report.

Figure 7.


MRV E(Nd) vs 87Sr/86Sr(i)
ENd(chur)
10
5
0
-5
-10
0.7
0.71
0.71
0.72
0.72
0.73
0.73
87Sr/86Sr(i)
SUITE 1
SUITE 2
SUITE 3
SUITE 4&5

RGC EXPLORATION

FILE REF.
- 8 FEB 1996
DOC. REF.

ANNUAL REPORT 1995/96

TASMANIAN BASE METALS

ELS 102/87, 55/89 AND 12/92

*"Queenstown", "Mt Darwin" &
"Queenstown South"*

**Vol 2 of 2
Plans**

MICROFILMED
FICHE No. 013841-50

HELD BY: BHP Minerals

MANAGER & OPERATOR: RGC Exploration

96-3834

VOLUME 2 OF 2

ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

AUTHOR(s):
Scott Halley
Michael Vicary
Sue Corlett
Bill Wyman

25 January, 1996

PROSPECTS: Garfield, Slate Spur, Jukes Proprietary, Mountain Maid

MAP SHEETS:	1:100,000: Franklin, Sophia	
GEOGRAPHIC COORDS	Min East: 3750000mE Min North:5320000mN	Max East: 387000mE Max North:5345000mN

COMMODITY(s): Cu, Pb, Zn, Au, Ag

KEY WORDS: Cu-Au Mineralization, Western Tasmania

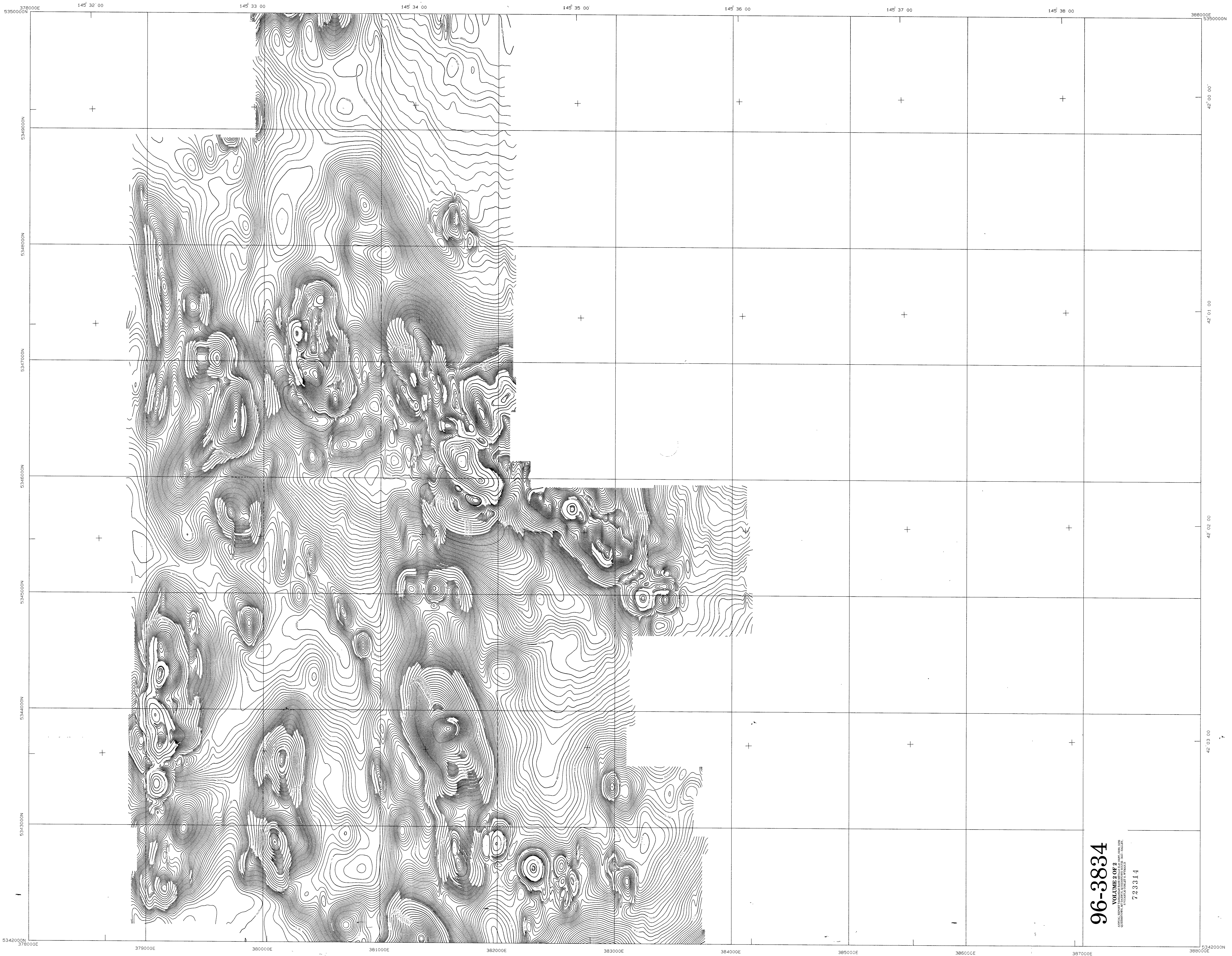
Distribution:

- o RGC Exploration Information Centre Reference:
- o RGC Exploration Zeehan
- ● Industry, Safety and Mines
- o BHP Minerals

OPEN FILE

LIST OF PLANS

		Drg.No.	Scale
PLAN 1	Mt Lyell Helimag Geophysical Survey. Total Magnetic Intensity Contours. Sheet 1 of 6.		1:100,000
PLAN 2	Mt Owen Helimag Geophysical Survey. Total Magnetic Intensity Contours. Sheet 2 of 6.		1:100,000
PLAN 3	Mt Jukes Helimag Geophysical Survey. Total Magnetic Intensity Contours. Sheet 3 of 6.		1:100,000
PLAN 4	Garfield Helimag Geophysical Survey. Total Magnetic Intensity Contours. Sheet 4 of 6.		1:100,000
PLAN 5	GAR012 Drill Hole X Section	2309/219	1:1000
PLAN 6	Slate Spur Fact Geology	5532/193	1:2500
PLAN 7	Slate Spur Interpretative Geology	5532/193	1:2500
PLAN 8	PEN001 Drill Hole X Section	2309/218	1:1000



96-3834

VOLUME 2 OF 2

ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

723314

AIRBORNE SPECIFICATIONS

Acquisition	Universal Tracking Systems
Aircraft	Aerospatiale Squirrel AS350
Magnetometer	CS2 Cesium Vapour
Sensitivity	Resolution 0 001 nT
Recording Interval	0 10 seconds (3 5 metres)
Compensation	RMS Automatic Aeromagnetic Digital Compensator operating in real time
Flight Line Direction	East-West
Flight Line Separation	100 metres
Tie Line Direction	North-South
Tie Line Separation	1000 metres
Mean Terrain Clearance	30 metres (MTC)
Navigation	Real Time Differential GPS
Survey Flown	February 1995 (UTS job No A046)

PROCESSING DETAILS

Diurnally corrected - nominal base level 62260 nT
System parallax removed
Data levelled using enhanced levelling technique
Grid cell size 25m x 25m

LEGEND

Contour interval 2 nanoTesla

▬	2000 nT Contours
━	200 nT Contours
─	10 nT Contours
─	2 nT Contours

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Scale 1 10000

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AUSTRALIAN GEODETIC DATUM 1984

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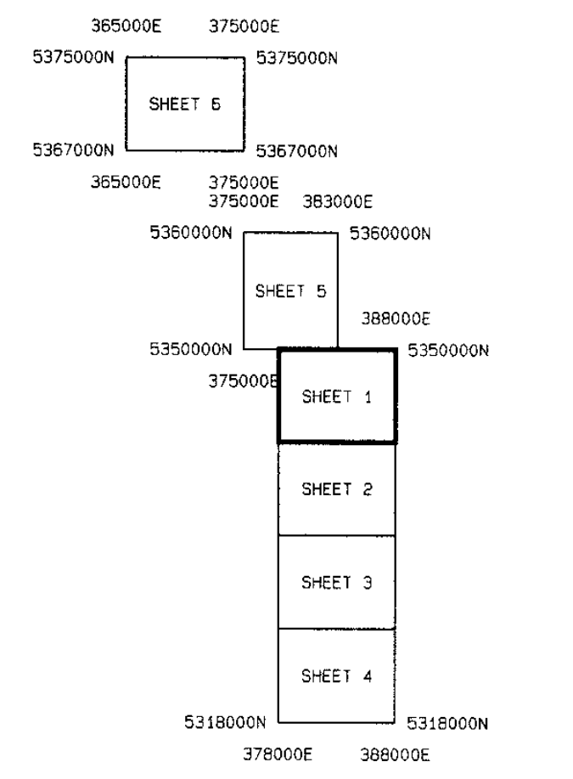


5 cm

PROCESSING BY:

TESLA-10

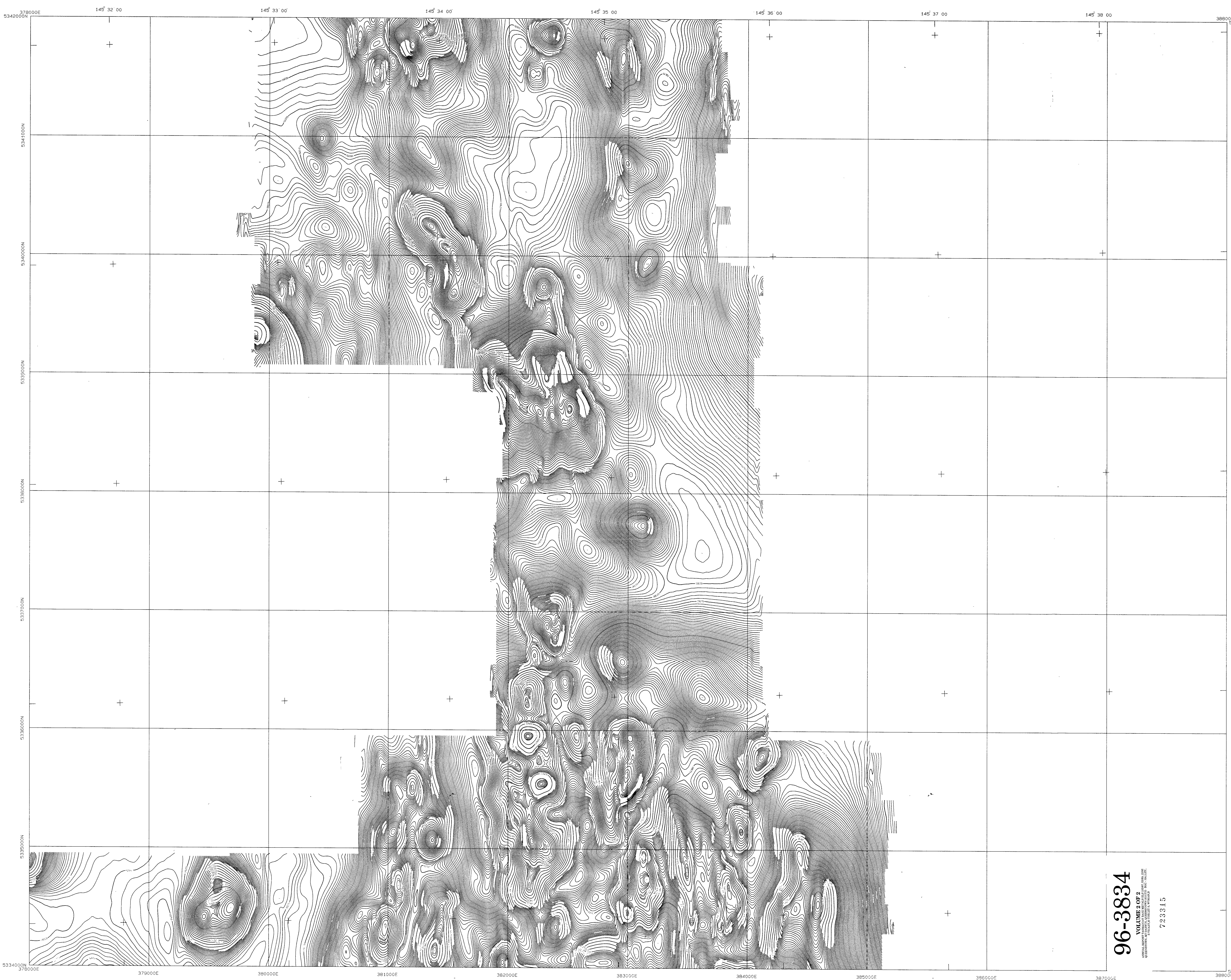
JOB TA2175

RGC EXPLORATION PTY LTD

MT. LYELL
HELIMAG GEOPHYSICAL SURVEY
TOTAL MAGNETIC INTENSITY
CONTOURS

SHEET 1 OF 6
PLAN 1

Drawn TESLA-10
Scale 1 10000



AIRBORNE SPECIFICATIONS

Acquisition	Universal Tracking Systems
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Magnetometer	CS2 Cesium Vapour
Sensitivity	Resolution 0 001 nT
Recording Interval	0 10 seconds (3 5 metres)
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Flight Line Separation	100 metres
Tie Line Direction	North-South
Tie Line Separation	1000 metres
Mean Terrain Clearance	30 metres (MTC)
Navigation	Real Time Differential GPS
Survey Flown	February 1995 (UTS job No A046)

PROCESSING DETAILS

Diurnally corrected - nominal base level 62260 nT
System parallax removed
Data levelled using enhanced levelling technique
Grid cell size 25m x 25m

LEGEND

Contour interval 2 nanoTesla

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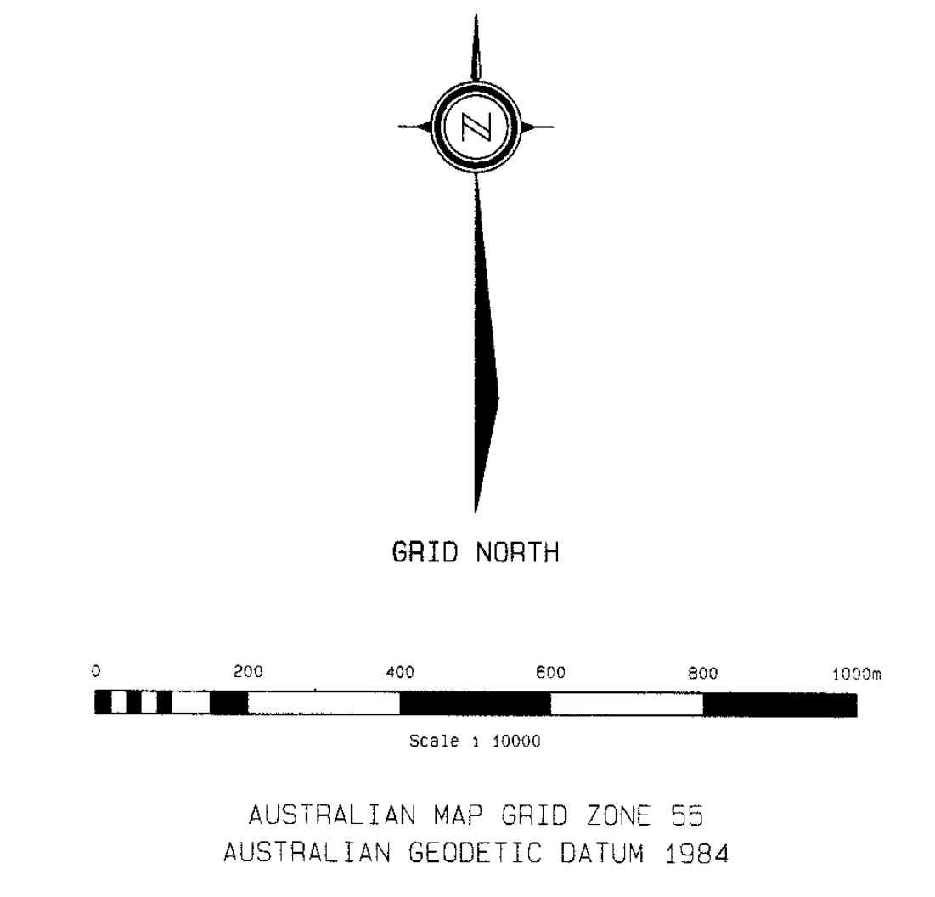
—	200 nT Contours
—	10 nT Contours
—	2 nT Contours



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AUSTRALIAN GEODETIC DATUM 1984

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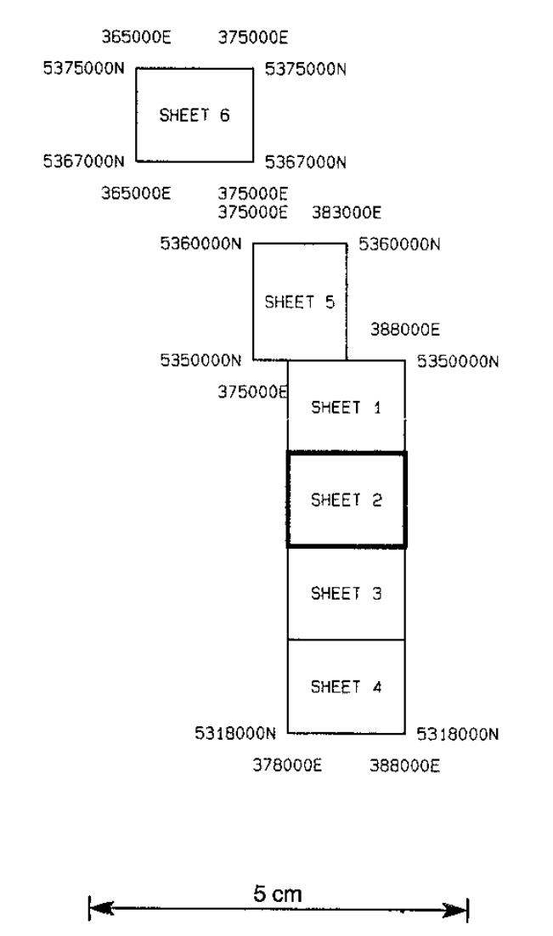

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PROCESSING BY:

TESLA-10

JOB TA2175

RGC EXPLORATION PTY LTD

MT. OWEN
HELIMAG GEOPHYSICAL SURVEY
TOTAL MAGNETIC INTENSITY
CONTOURS

SHEET 2 OF 6
PLAN 2

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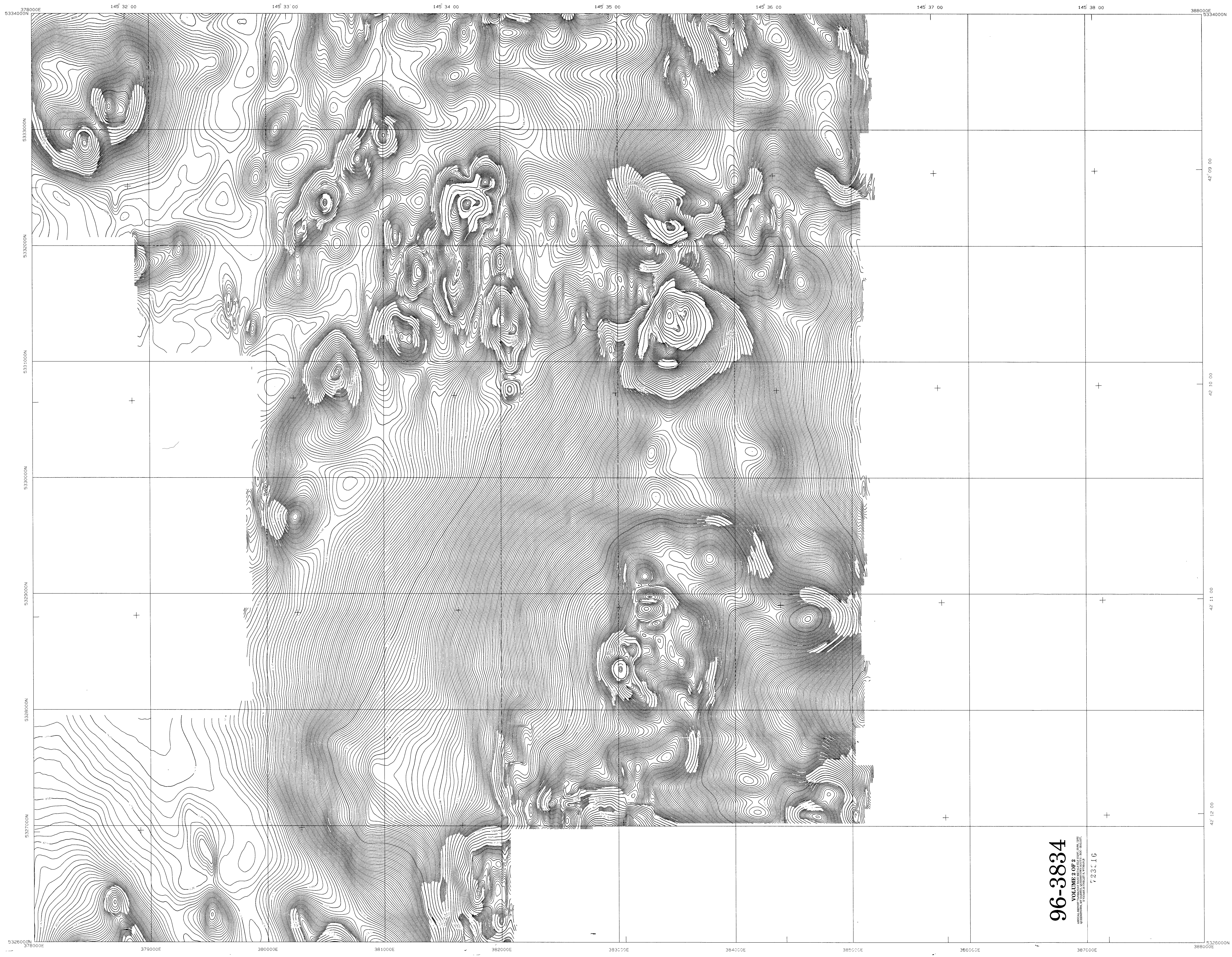

96-3834

VOLUME 2 OF 2

ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92 QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY, S VICARY,M CORLET S, WYMAN,B

723516

AIRBORNE SPECIFICATIONS

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Magnetometer	CS2 Cesium Vapour
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Compensation	RMS Automatic Aeromagnetic Digital Compensator operating in real time
Flight Line Direction	East-West
Flight Line Separation	100 metres
Tie Line Direction	North-South
Tie Line Separation	1000 metres
Mean Terrain Clearance	30 metres (MTC)
Navigation	Real Time Differential GPS
Survey Flown	February 1995 (UTS job No A046)

PROCESSING DETAILS

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System parallax removed
Data levelled using enhanced levelling technique
Grid cell size 25m x 25m

LEGEND

Contour interval 2 nanoTesla

━━━	2000 nT Contours
━━━	200 nT Contours
───	10 nT Contours
───	2 nT Contours

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Scale 1 10000

AUSTRALIAN MAP GRID ZONE 55
AUSTRALIAN GEODETIC DATUM 1984

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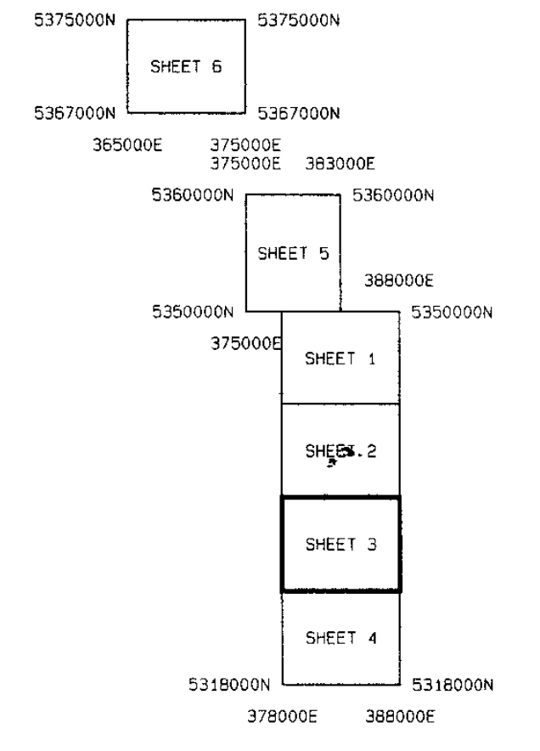

5 cm

PROCESSING BY:

TESLA-10

JOB TA2175

RGC EXPLORATION PTY LTD

MT. JUKES
HELIMAG GEOPHYSICAL SURVEY
TOTAL MAGNETIC INTENSITY
CONTOURS

SHEET 3 OF 6
PLAN 3

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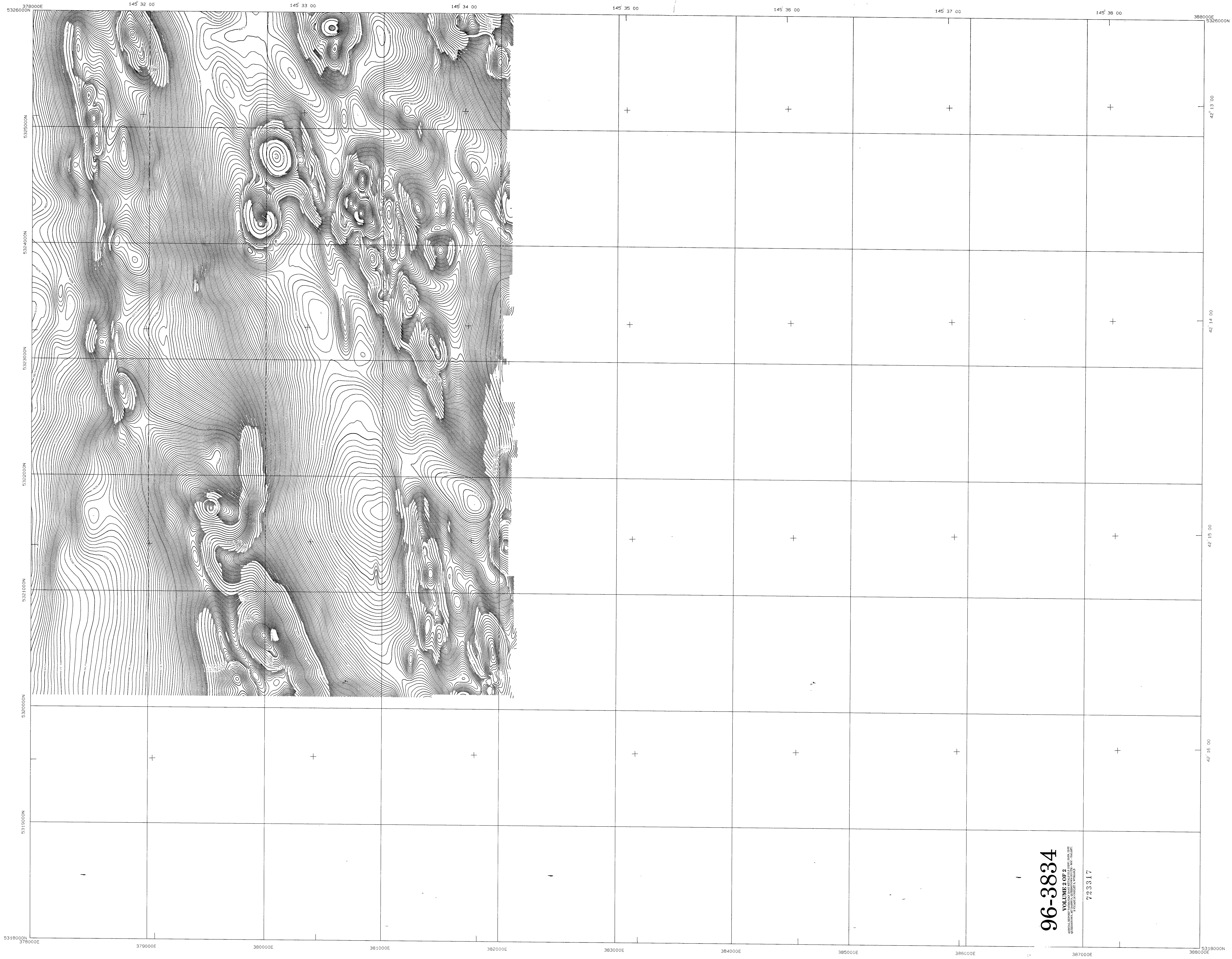
DATE FEB 1995	Drawing No



96-3834

VOLUME 2 OF 2

ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92 QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY, S VICARY,M CORLET S, WYMAN,B

723317

AIRBORNE SPECIFICATIONS

Acquisition	Universal Tracking Systems
Aircraft	Aerospatiale Squirrel AS350
Magnetometer	CS2 Cesium Vapour
Sensitivity	Resolution 0 001 nT
Recording Interval	0 10 Seconds (3 5 metres)
Compensation	RMS Automatic Aeromagnetic Digital Compensator operating in real time
Flight Line Direction	East-West
Flight Line Separation	100 metres
Tie Line Direction	North-South
Tie Line Separation	1000 metres
Mean Terrain Clearance	30 metres (MTC)
Navigation	Real Time Differential GPS
Survey Flown	February 1995 (UTS job No A046)

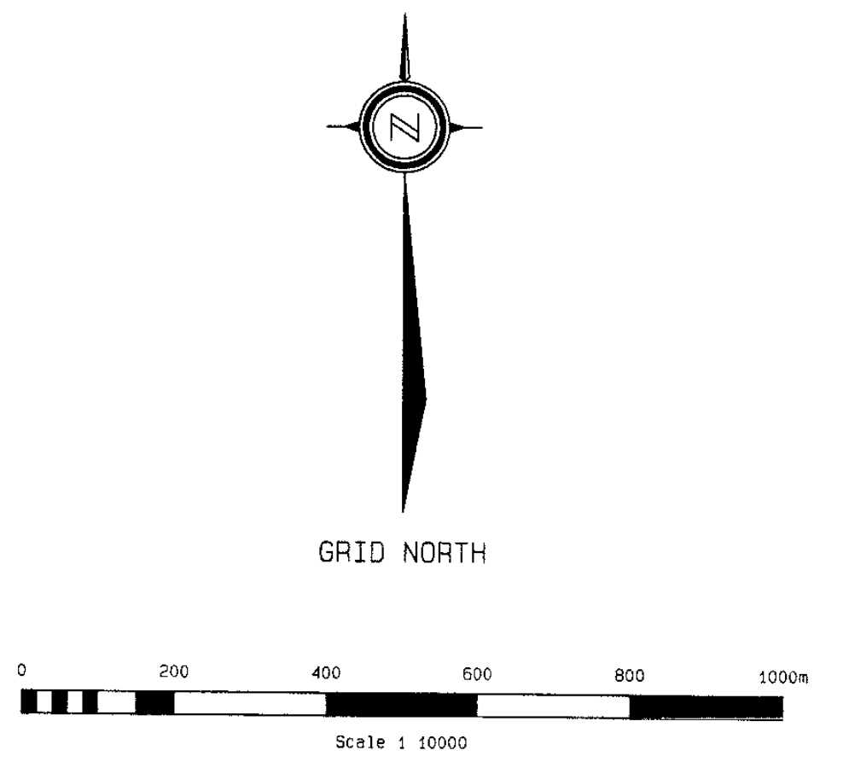
PROCESSING DETAILS

Diurnally corrected - nominal base level 62260 nT
System parallax removed
Data levelled using enhanced levelling technique
Grid cell size 25m x 25m

LEGEND

Contour interval 2 nanoTesla

━━━	2000 nT Contours
───	200 nT Contours
───	10 nT Contours
───	2 nT Contours

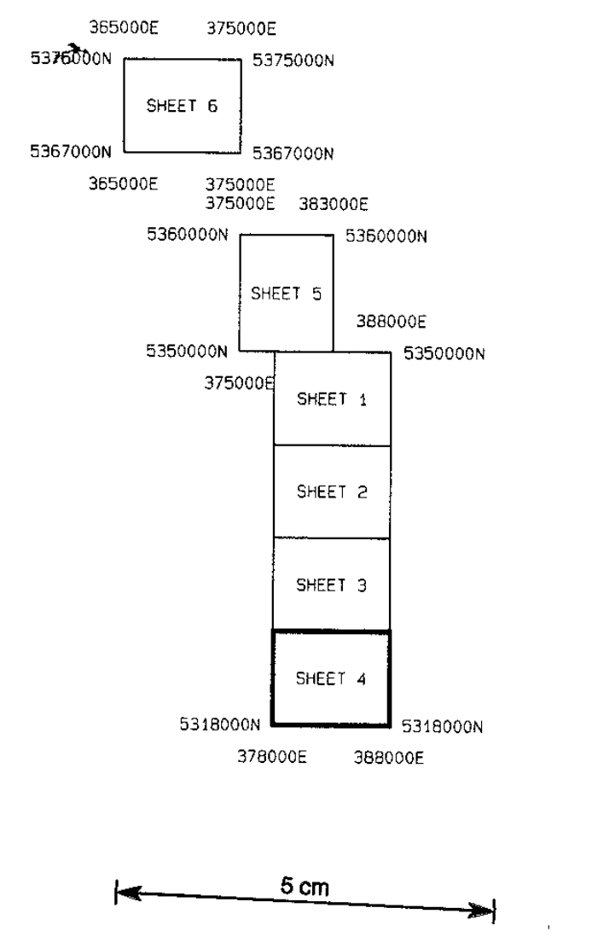


GRID NORTH

Scale 1 10000

AUSTRALIAN MAP GRID ZONE 55
AUSTRALIAN GEODETIC DATUM 1984

SHEET LAYOUT



PROCESSING BY:

TESLA-10

JOB TA2175

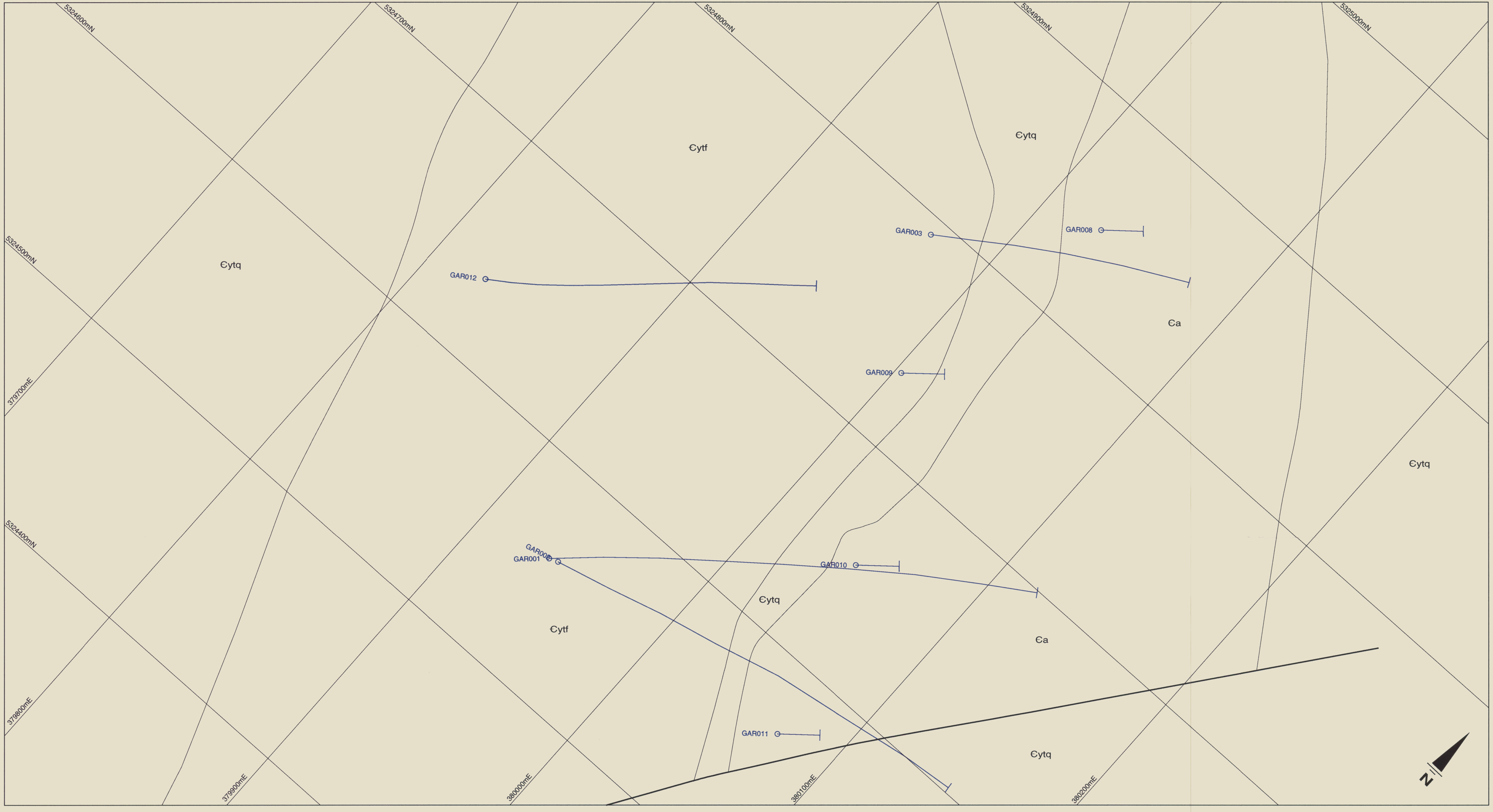
RGC EXPLORATION PTY LTD

GARFIELD
HELIMAG GEOPHYSICAL SURVE
TOTAL MAGNETIC INTENSITY
CONTOURS

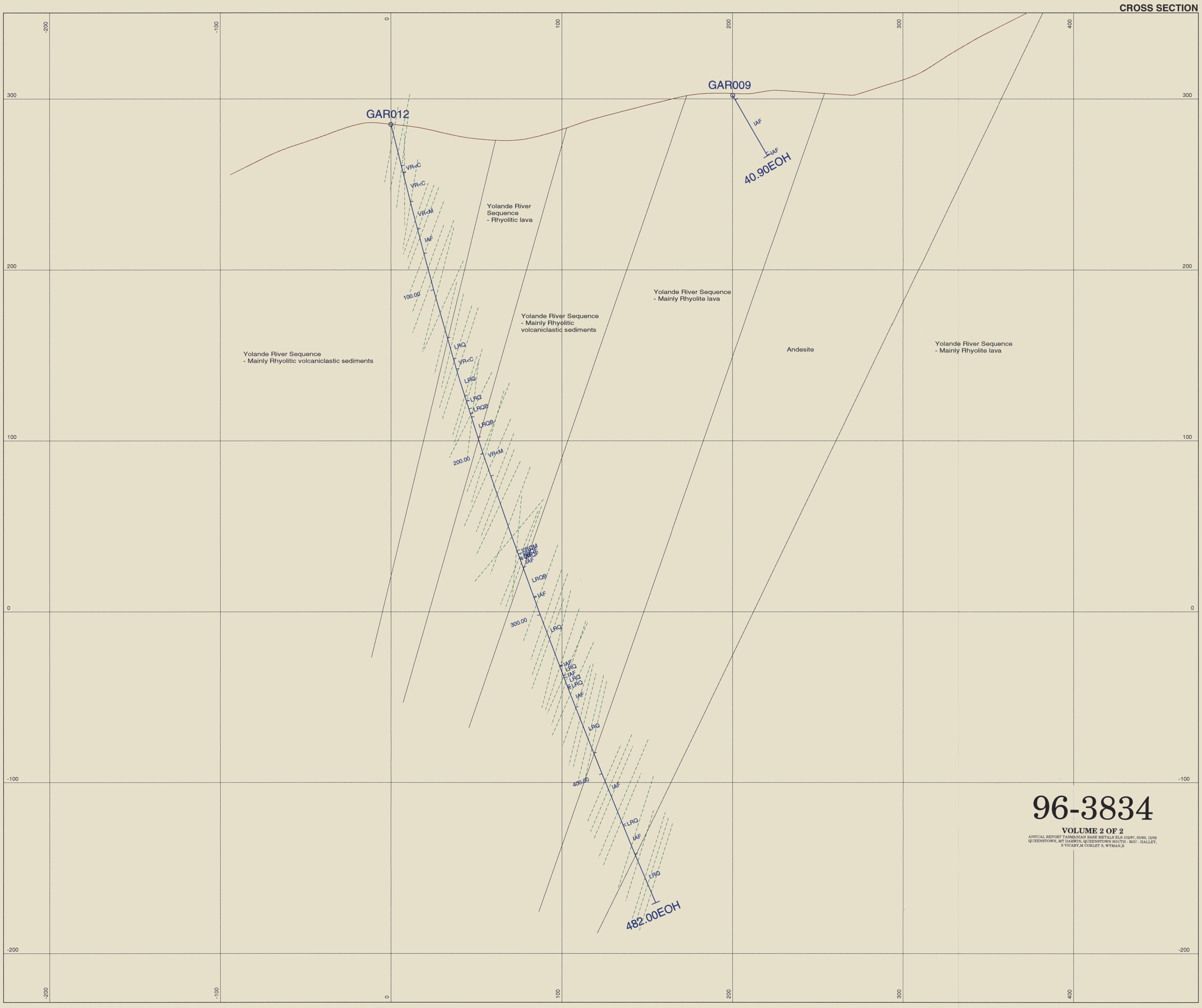
SHEET 4 OF 6
PLAN 4

Drawn TESLA-10	Scale 1 10000

PLANVIEW



CROSS SECTION



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QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

723318

|←── 5 cm ──→|

- ▬ .... *Fault*
- ─── ─ .... *Geological Boundary*
- ─── .... *Structural measurement, bedding*
- – – – .... *Structural measurement, cleavage*

LOCATION DIAGRAM

RGC EXPLORATION

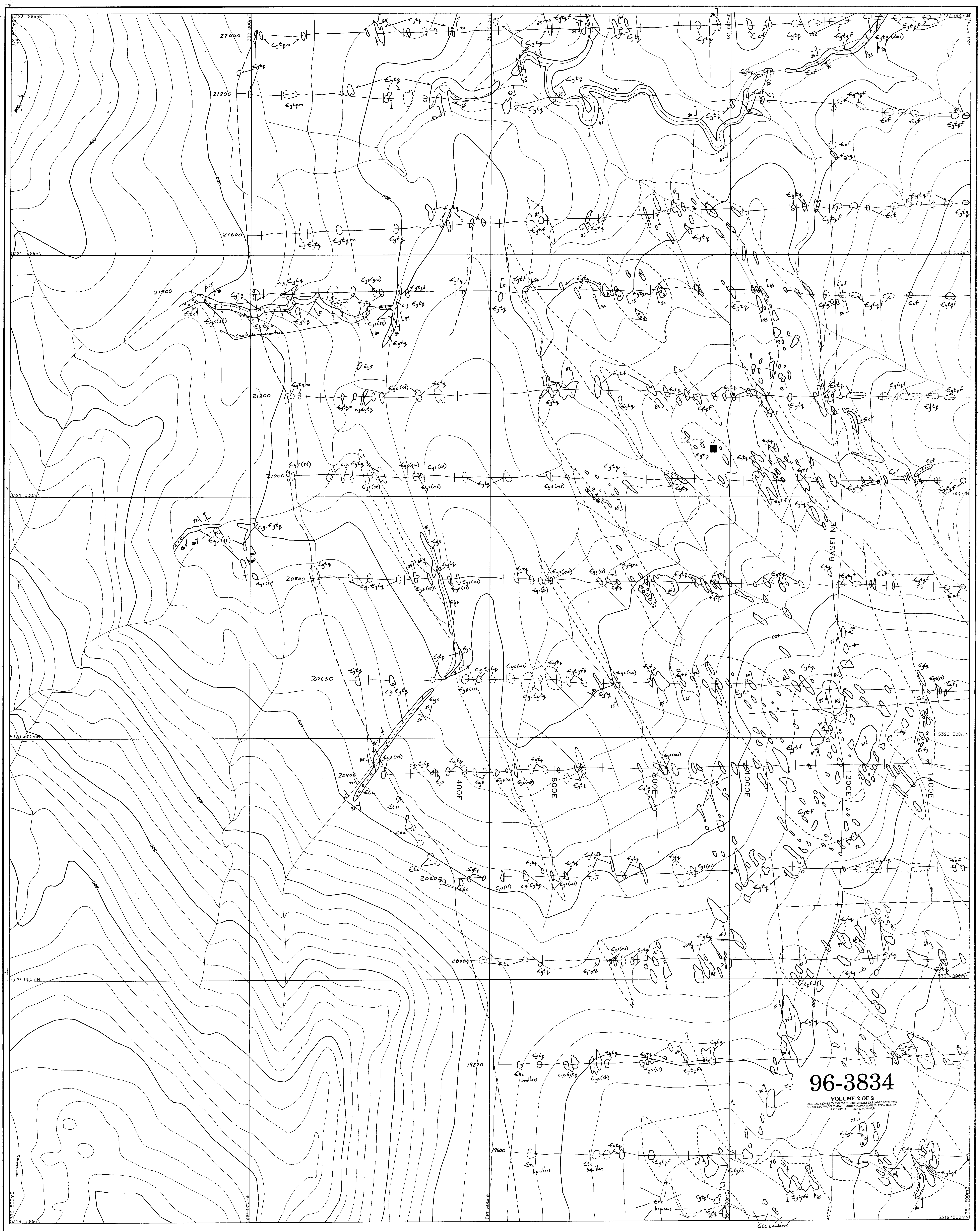
Member of the Renison Goldfields Consolidated Group

Tasmania Base-Metals

GARFIELD PROSPECT E.L. 102/87
GAR012 DRILLHOLE GEOLOGY CROSS SECTION

Geology :-
Topography :-
Aeromag :-
Soils samples :-
Drilling :-
Tenement :-
Amg Grid :-

Geologist : M.Vicary	Date : Jan 1996	Scale : 1 : 1000	
Drawn : M.Walter	Revision Date : XX	1:25,000 Ref. Map	
Drawing Path : D:\ms-draft\garfield\sect		Drawing Name : 2309b219.dgn	PLAN 5



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QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

SHEET LAYOUT

SHEET 1
SHEET 2
SHEET 3 C
A B SHEET 4 ■ D C
A SHEET 5

723319

5 cm

RGC EXPLORATION PTY. LIMITED

N

GEOLOGIST	S.HALLEY B.WYMAN
DRAWN	M.WALTER B.WYMAN
DATE	Feb 1995 Nov. 1995
CHECKED	
1:25000 REF.	
DRAWING ID 5532/193	
FILENAME GARF4C25	

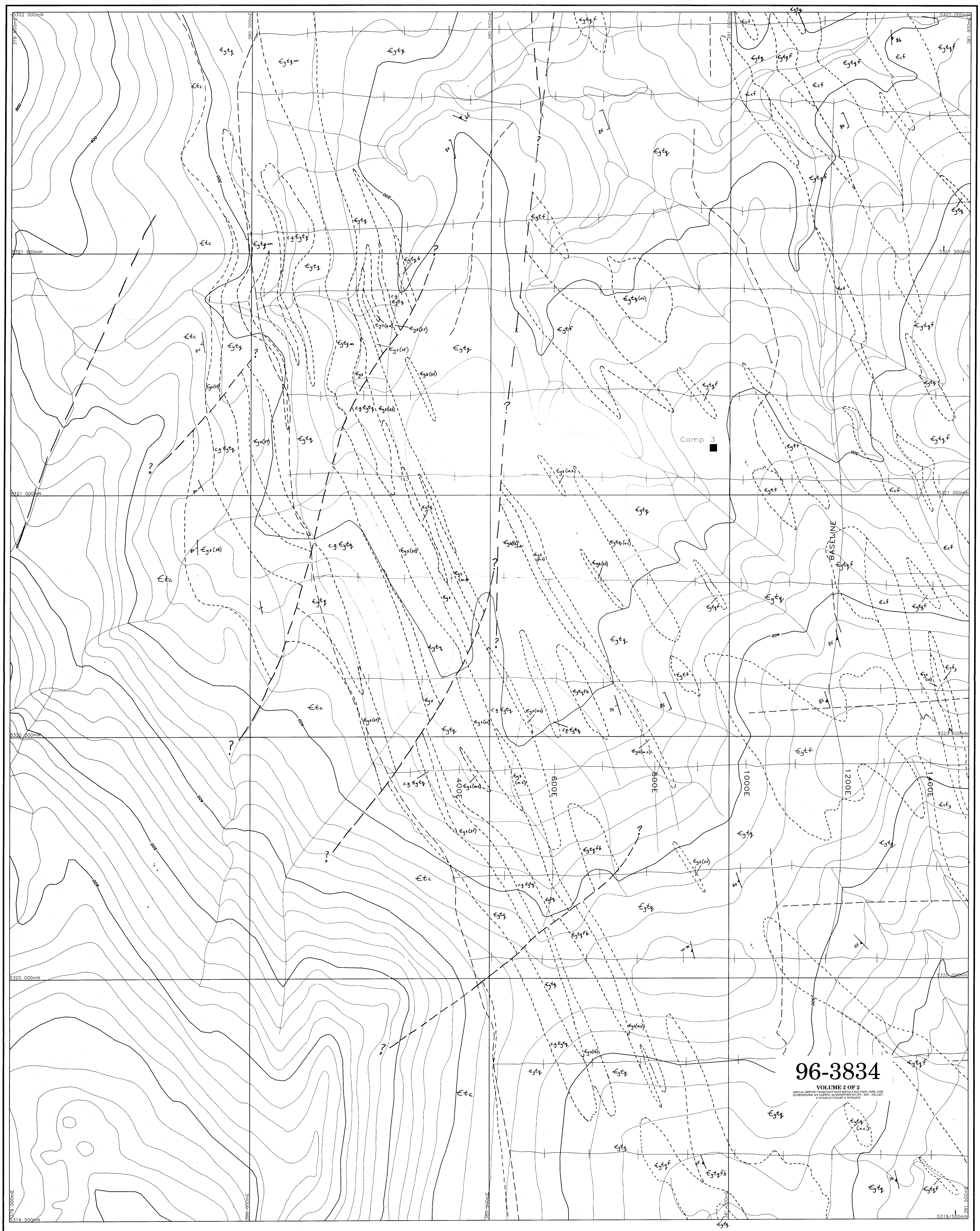
GARFIELD PROSPECT E.L. 102/87 & 55/89

SLATE SPUR
FACT GEOLOGY +
Some Interpretation -(90% confidence (BW))

2309/215

SCALE 1:2500

PLAN 6



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ANNUAL REPORT TASMANIAN BASE METALS ELS 102/87, 55/89, 12/92
QUEENSTOWN, MT DARWIN, QUEENSTOWN SOUTH - RGC - HALLEY,
S VICARY,M CORLET S, WYMAN,B

€tc	Tyndall Group - undifferentiated
€ys(ms)	Mudstone
€ys(st)	SILTSTONE - Finely Laminated, probably gradational into Shale
€ys(ss,gw)	SANDSTONE or GRAYWACKE - Large variation in grainsize, these probably grade into each other along strike
€ys(sh)	SHALE - Finely laminated, very fine grained black shale, often with disseminated pyrite
€ys	Sediments - undifferentiated
€ytq	Quartz Phyric fine to Medium grained lavas. Very well developed cleavage in the Southern mapped Area, Massive in the North.
c.g. €ytq	Coarse grained Qtz. Phyric lava. Always massive. Qtz phenocrysts average 3mm + in finely crystalline dark brown groundmass.
€ytq(vc)	Quartz Phyric groundmass with monomictic quartz phyric Liths. up to 70cm. Lithics are usually Angular but some are Subrounded ? hyaloclastic ?
€ytqf	Quartz-Feldspar phyric lava. Confined to the lower Yolande River Sequence.
€ytf	Feldspar phyric lavas and Intrusives often Pink Altered.
€ytqfb	Quartz-Feldspar-biotite ± muscovite porphyry. Occures as an intrusive possibly a cryptodome in the southern mapped area but is sill like in other localities. Biotite replaced with muscovite in the north
€cf	massive Feldspar phyric Lava - undifferentiated usually very fine grained groundmass.
€cf3	massive crystal rich Feldspar phyric Lava. Sericite on major cleavage surfaces Mn an Fe oxides abundant.

SHEET LAYOUT

SHEET 1
SHEET 2
SHEET 3
C
A B
SHEET 4
■
C D
A
SHEET 5

723320

5 cm

RGC EXPLORATION PTY. LIMITED

N

GEOLOGIST	~~S.HALLEY~~ B.WYMAN
DRAWN	M.WALTER B.WYMAN
DATE	Feb. 1995 Nov. 1995
CHECKED	
1:25000 REF.	

GARFIELD PROSPECT E.L. 102/87 & 55/89

SLATE SPUR

Interpretative ~~FACT~~ GEOLOGY

2309/216

DRAWING ID:
5532/193

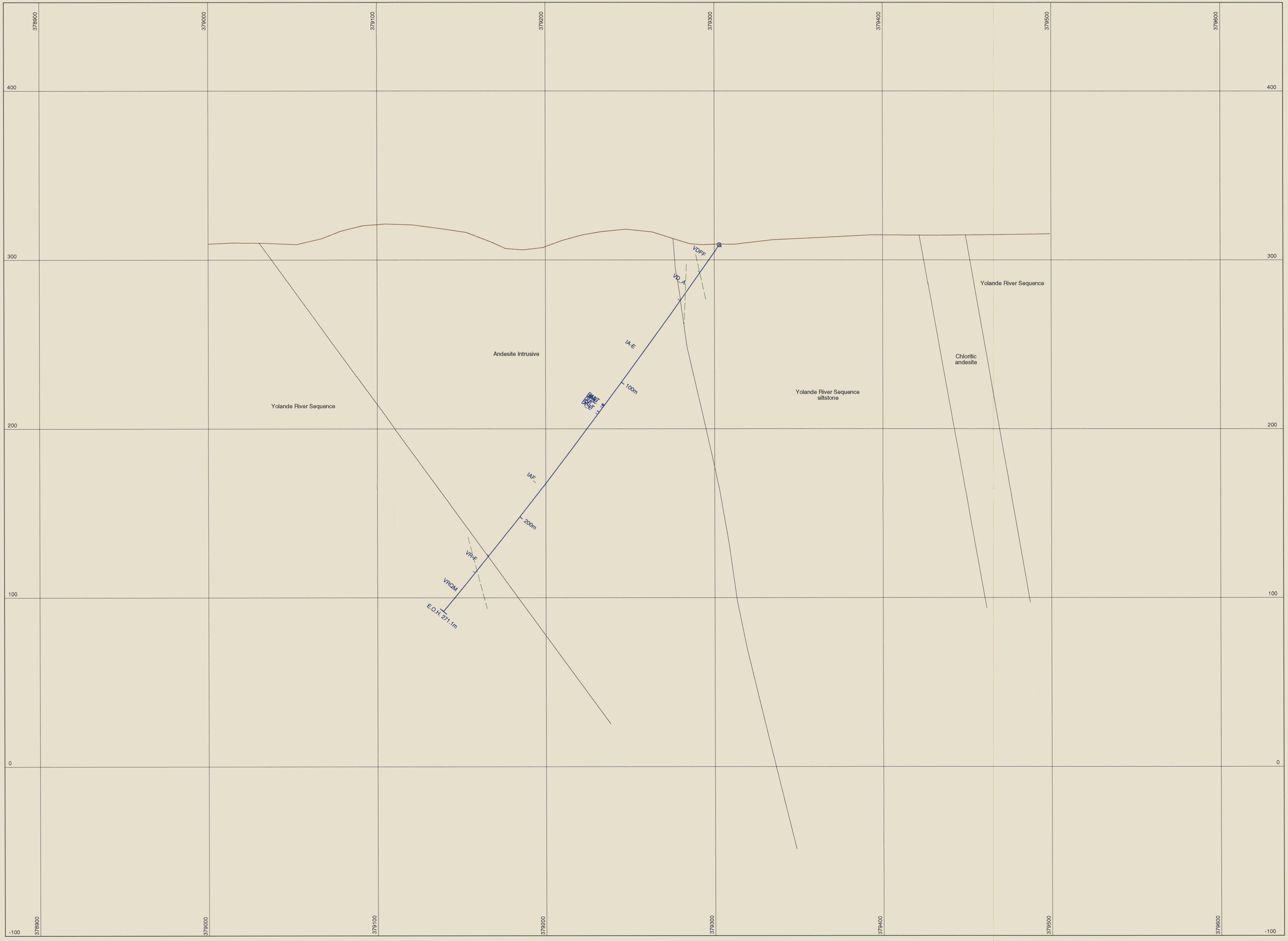
FILENAME:
GARF4C25

SCALE 1:2500

PLAN 7

PLANVIEW

CROSS SECTION



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S VICARY,M CORLET S, WYMAN,B

723321

5 cm

.... *Fault*
.... *Geological Boundary*
.... *Structural measurement, bedding*
.... *Structural measurement, cleavage*

LOCATION DIAGRAM

RGC EXPLORATION

Member of the Renison Goldfields Consolidated Group

TASMANIA BASE-METALS

PENGHANA PROSPECT E.L. 102/87
PEN001 DRILLHOLE GEOLOGY CROSS SECTION

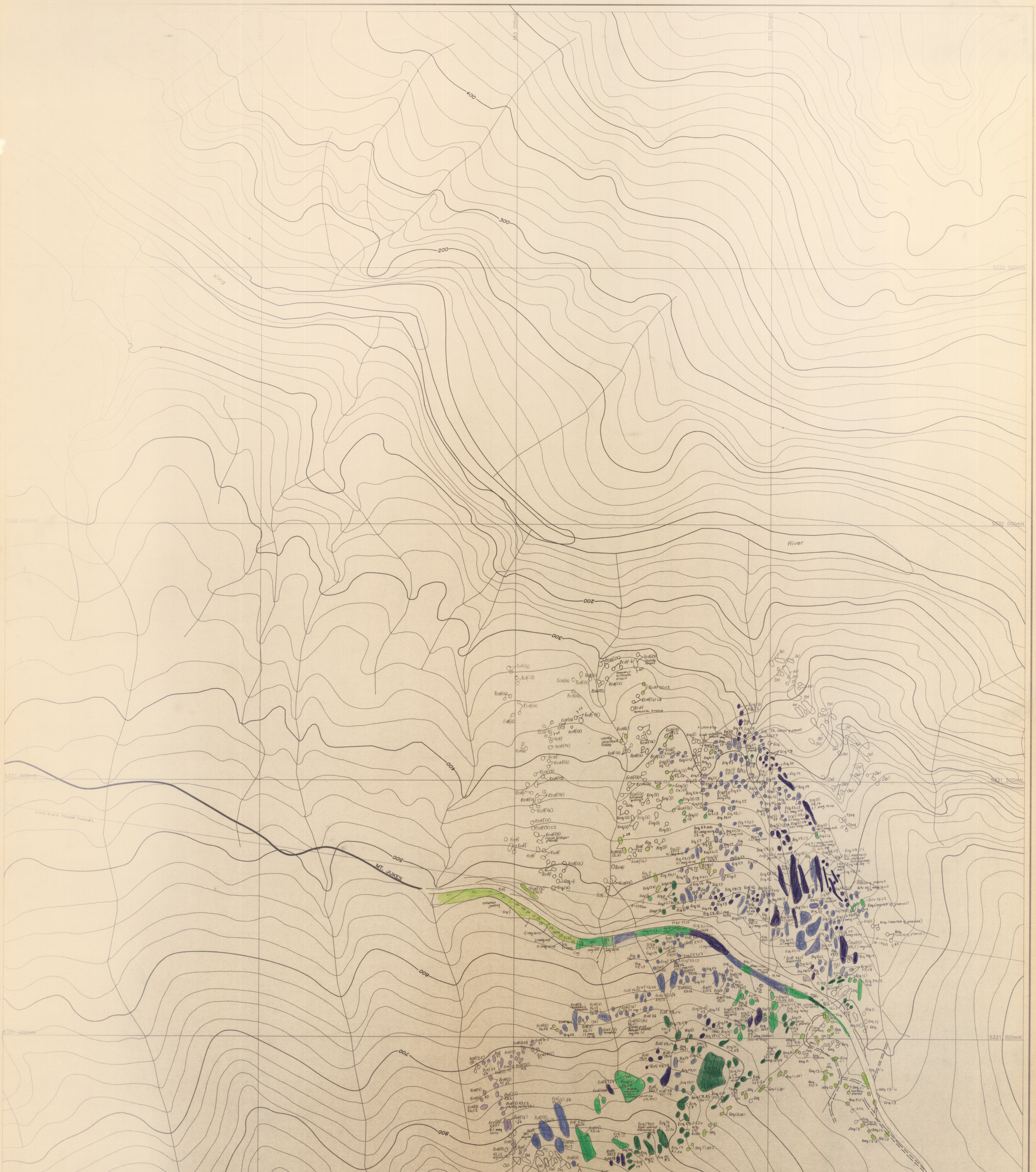
Geology :-
Topography :-
Aeromag :-
Soils samples :-
Drilling :-
Tenement :-
Amg Grid :-

Geologist : S.Halley
Date : Jan 1996
Scale : 1 : 1000
Drawn : M.Walter
Revision Date :
1:25,000 Ref. Map
Drawing Path : D:\ms-draft\garfield\sect
Drawing Name : 2309b218.dgn
PLAN 8

JUKES PTY
ALTERATION

1:2500

81



SHEET 2
SHEET 3
C
A B
SHEET 4
C D
A
SHEET 5

RGC EXPLORATION PTY. LIMITED

GEOLOGIST	S.CORLETT
DRAWN	M.WALTER
DATE	JULY 1995
CHECKED	
1:25000 REF.	

JUKES PROSPECT E.L. 102/87 & 55/89

ALTERATION

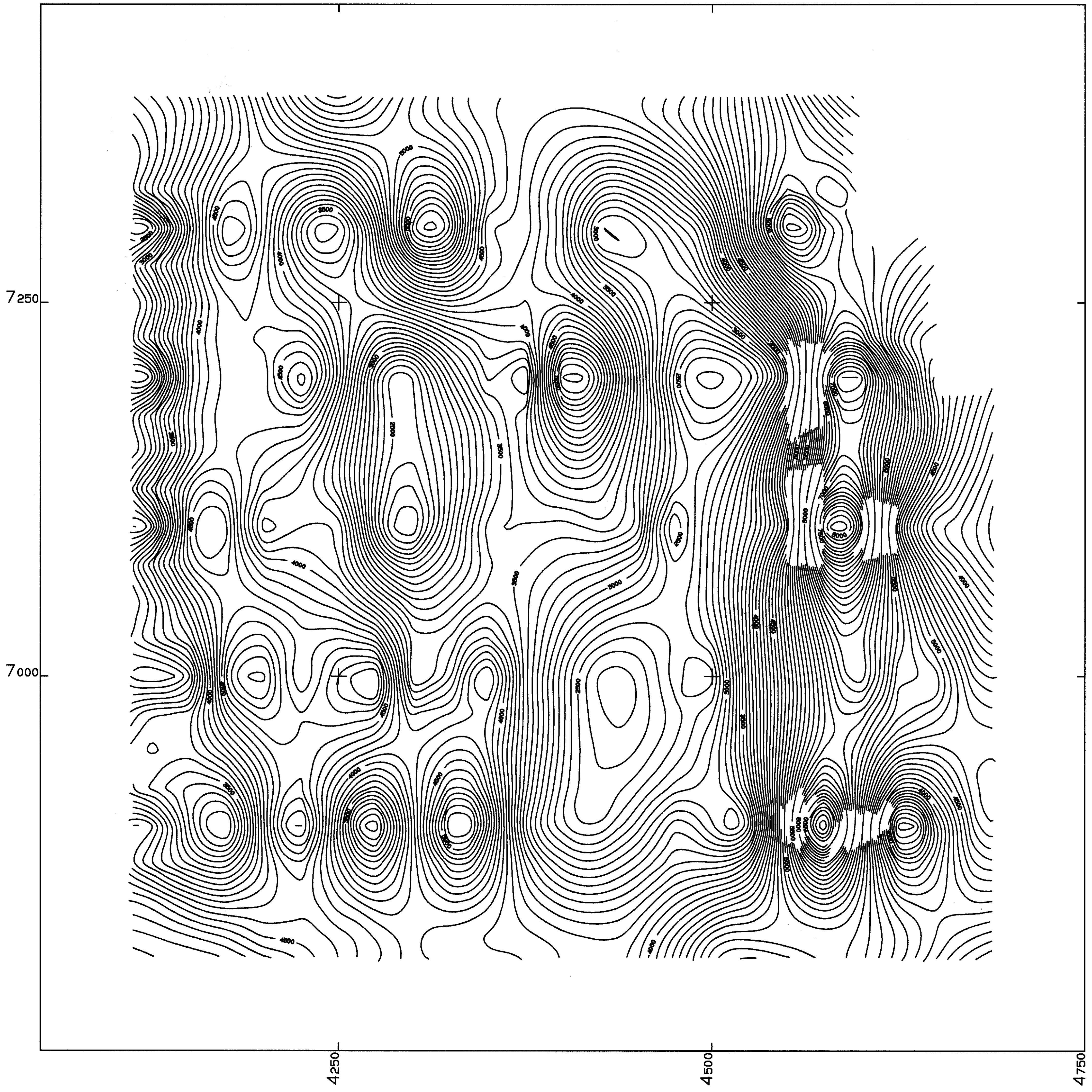
FACT GEOLOGY

DRAWING ID: 5532/205
FILENAME: JUKES

SCALE 1:2500

2309/212

84



5 cm

SCALE

1: 2500

0 20 40 60 80 100
m m

2309/212

RGC EXPLORATION PTY LIMITED

MOUNTAIN MAID - TASMANIA

Mountain Maid Gradient Array IP

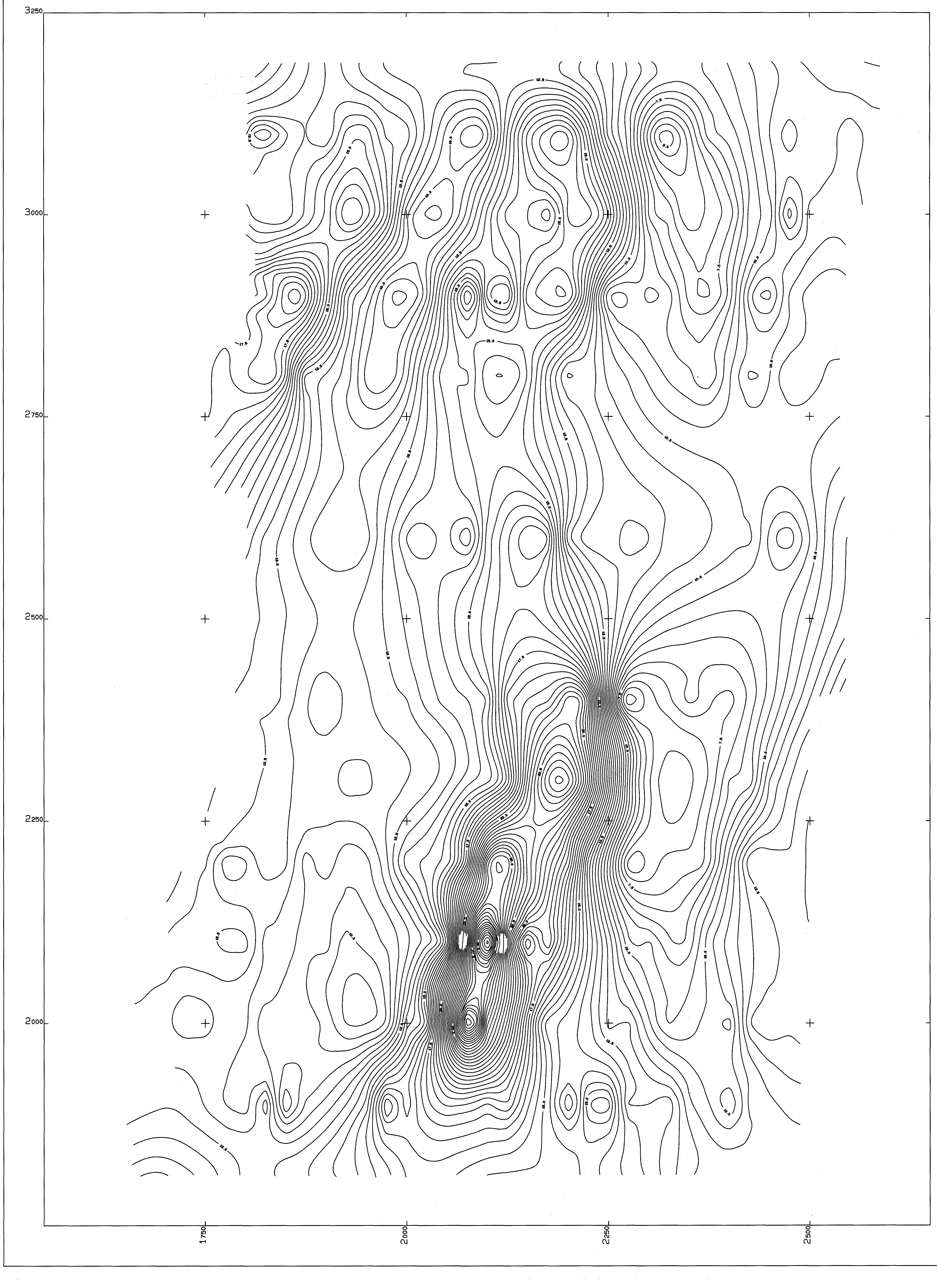
Contours of Apparent Resistivity

Contour Interval 100 ohm-m

Compiled by:	Date: 29 Nov 1995
Drawn by:	Drawing No.:

2309/213

100



SCALE

1: 2500

0 20 40 60 80 100
m m

2309/213

RGC EXPLORATION PTY LIMITED

GARFIELD - TASMANIA
Garfield Gradient Array IP
Composite of 1993 and 1995 Surveys
Contours of Chargeability
Contour Interval 0.5 ms

Compiled by:	Date: 29 Nov 1995
Drawn by:	Drawing No.: